



MACROECONOMIC FORECAST

JUNE 2023



BULGARIAN NATIONAL BANK

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The BNB quarterly Macroeconomic Forecast provides annual projections of major 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 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_download/pub_r_f_2015_04_en.pdf.

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Abbreviations

BNB	Bulgarian National Bank
CPI	Consumer Price Index
ECB	European Central Bank
EU	European Union
EWRC	Energy and Water Regulatory Commission
HICP	Harmonised Index of Consumer Prices
MRR	Minimum Required Reserves
NRPP	National Recovery and Resilience Plan
OECD	Organisation for Economic Co-operation and Development

SUMMARY

The BNB forecast of key macroeconomic indicators is prepared as of 3 July 2023 based on assumptions about global economic developments and price dynamics of main commodity groups in international markets as of 19 June 2023.

The growth outlook for the external demand for Bulgarian goods and services in 2023 deteriorated compared to the March 2023 forecast, due to a slight decline in economic activity of Bulgaria's main euro area trading partners at the end of 2022 and in early 2023. Assumptions suggest that growth in external demand for Bulgarian goods and services will moderate to 2.0 per cent in 2023 (compared to 7.1 per cent in 2022), before accelerating to 3.5 per cent in 2024 and 3.4 per cent in 2025. According to market participants' expectations, prices in euro in international markets for all major commodity groups will decrease in 2023 compared to the previous year, but some of the prices will remain higher than in 2021. Euro prices of important commodities for Bulgaria are assumed to stabilise in 2024 and to increase by just over 2.0 per cent in 2025, driven by non-energy commodities. Market participants expect an increase in short-term interest rates in the euro area until the third quarter of 2023, followed by a gradual drop over the rest of the forecast horizon.

In 2023, real GDP growth is expected to moderate considerably to 1.0 per cent (3.4 per cent in 2022), reflecting primarily a transition from a positive to a negative contribution of changes in inventories in the economy. Other factors that will limit the growth of economic activity in Bulgaria in 2023 include the projected decline in government consumption in real terms, the moderation in private consumption growth and the sustained negative contribution of net exports. At the same time, after two consecutive years of declines, fixed capital investments are expected to increase year on year in 2023, mainly due to the technical assumption used in the forecast for the absorption profile of the EU funds by both the public and the private sectors. Real GDP growth is expected to accelerate to 3.2 per cent in 2024, mostly driven by the less negative contribution of changes in inventories, and to 4.0 per cent in 2025 due to an expected significant acceleration of investment growth, determined mainly by the implementation of projects under the National Recovery and Resilience Plan (NRRP).

The annual HICP inflation rate is expected to moderate to 5.7 per cent at the end of 2023, driven by falling energy prices and lower growth rates of the rest of the goods and services reflecting a base effect as compared to the previous year. Average annual inflation is expected to reach 8.7 per cent and consumer price pressures will remain high in the near term as a result of the limited pass-through by firms of falling international prices of agricultural and energy commodities to final consumer prices in an environment of robust consumer demand. Unit labour costs are expected to continue to grow at a relatively high rate in the context of labour shortages and to have pro-inflationary effects on price growth, especially in the core components. As a result, core inflation is expected to have the largest positive contribution to headline inflation at the end of 2023. Inflation in administratively controlled prices and tobacco products is also projected to have a relatively high positive contribution to headline inflation at the end of 2023, mainly owing to increases in the prices of tobacco, water and sewerage services, electricity and heating included in the forecast. Over the medium term, we expect the HICP growth rate to moderate to 3.4 per cent at the end of 2024 and to 3.0 per cent at the end of 2025, in line with the easing of inflationary pressures stemming from commodity prices, as well as due to the projected slowdown in firms' labour cost growth.

Risks to the real GDP growth forecast are assessed as balanced for 2023, while risks of lower growth compared to that in the baseline scenario prevail for 2024 and 2025. Risks of lower economic activity stem largely from the external environment and relate mainly to the ongoing military conflict in Ukraine, as well as to the uncertainty about the duration, size and effects on global activity of the interest rate rises by leading central banks with a view to the high and persistent global inflation. In addition, there are significant risks of slower than projected implementation of investment projects under the National Recovery and Resilience Plan (NRRP) and absorption of EU funds other than those under NRRP. In the short term, Bulgaria's real GDP growth is likely to be higher, in case of a smaller than projected decline in the stock of inventories in the economy and a lower negative impact of country-specific factors included in the baseline scenario, which are expected to limit export growth in 2023.

Prevailing risks to the inflation forecast suggest a stronger increase in prices *vis-à-vis* the baseline scenario for the whole projection horizon. These risks relate to the dynamics of international prices of major energy and agricultural commodities, as well as to a possible more significant strengthening of the link between nominal wages and final consumer prices compared to those projected in the baseline scenario. In addition, a higher-than-projected inflation implies a limited pass-through by firms of the fall in international commodity prices to consumer prices in an environment of robust consumer demand. Other risks stem from the possibility of more pronounced than projected increases in regulated prices over the whole forecast horizon.

FORECAST OF KEY MACROECONOMIC INDICATORS FOR 2023–2025

External Environment

The BNB forecast of key macroeconomic indicators is prepared as of 3 July 2023 based on assumptions about global economic developments and price dynamics of main commodity groups in international markets as of 19 June 2023.

The assumptions about the dynamics of external demand for Bulgarian goods and services are based on the latest projections of the European Central Bank (ECB), which include information on developments in the global economy as of 23 May 2023 and on the developments in economic activity in the euro area as of 31 May 2023.¹ Assumptions suggest that growth in external demand for Bulgarian goods and services will moderate significantly to 2.0 per cent in 2023 from 7.7 per cent in 2022 and will reach 3.5 per cent in 2024 and 3.4 per cent in 2025.

The assumptions for the price change in energy commodities (crude oil, natural gas, electricity)² and non-energy commodities (metals³, food⁴ and

other commodities⁵)⁶ take into account prices of futures contracts concluded on international markets by 19 June 2023, with these prices showing high volatility since the outbreak of the war in Ukraine.

According to market participants' expectations⁷, in 2023 international prices in euro of all major commodity groups and especially of energy products will decrease on the previous year, but some prices will remain higher than in 2021. Euro prices of important commodities for Bulgaria are assumed to stabilise in 2024 and to increase by just over 2.0 per cent in 2025, driven by non-energy commodities.

The technical assumptions of crude oil imply falling prices in euro throughout the whole projection horizon, with the decline being most pronounced in 2023. The downward slope of the futures contracts curve, indicating declines in crude oil prices, is likely to largely reflect market participants' concerns about demand for oil⁸. Incoming data on weakening economic activity both in China and the euro area indicate lower oil demand,

¹ For further details, see [ECB Macroeconomic Projections](#) of June 2023.

² 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 second quarter of 2024 (inclusive) are also used, after which a technical assumption is made that prices will remain unchanged at the attained level until the end of 2025. Assessments of electricity price movements are based on market information from futures contracts concluded in the German market, covering the period up to the second quarter of 2024 (inclusive), followed by a technical assumption that prices will remain unchanged at the attained level until the end of 2025.

³ Including steel, copper, aluminium, lead, zinc, nickel and tin weighted in accordance with Bulgaria's foreign trade flows.

⁴ Including pigmeat, coffee, wheat, maize, rice, soybeans, sugar, cocoa, milk and livestock weighted in accordance with Bulgaria's foreign trade flows.

⁵ Including rubber, timber and cotton weighted in accordance with Bulgaria's foreign trade flows.

⁶ Futures contracts concluded for trading of relevant commodities in international markets are used, with data available until the end of the second quarter of 2024. Public information on sufficient volumes and number of futures transactions for these commodities in international markets is not available for the remainder of the forecast horizon. Therefore, price dynamics is assessed by taking into account the historical correlation with the global trade dynamics set forth in the forecast's external assumptions.

⁷ The forecast for euro prices of commodities 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 April and May 2023 and for the last ten days as of the date when the external environment assumptions were made (19 June 2023). Reflecting this technical assumption, in 2023, the euro will appreciate *vis-à-vis* the US dollar by 2.8 per cent.

⁸ 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.

which is likely to be only partly offset by the cuts in oil production announced by OPEC+.⁹ For euro gas prices in the European market, the assumptions suggest that the observed quarter-on-quarter decline will continue until the third quarter of 2023, followed by an increase at the end of the year and in early 2024, before stabilising at the levels reached over the remainder of the projection horizon. The assumptions for electricity prices in euro show a discontinuation of the downward trend after the end of the first half of 2023. On average for 2023, electricity prices are projected to be slightly lower than those observed in 2021, with a technical assumption showing that the price reached in the second quarter of 2024 will remain unchanged until the end of the projection horizon, leading to a higher average electricity price in 2024 compared to 2023. Under the above assumptions, euro prices of energy products are suggested to fall in all years of the forecast horizon, with the exception of 2024 (due to assumed rises in electricity and gas prices), with this fall expected to be the highest in 2023.

The assumptions for euro prices of non-energy products in international markets show a decline in 2023, which will be most pronounced in agricultural raw materials and food. In 2024, euro prices of non-energy commodities are assumed to stabilise, thereafter increasing in 2025 in line with the growth in global economic activity and trade.

Forecast assumptions include market expectations as of 19 June 2023 showing a continued increase in short-term interest rates in the euro area money market until the end of the third quarter of 2023, followed by a gradual decline over the rest of the forecast horizon.

Economic Activity in Bulgaria

Available economic indicators¹⁰ for the second quarter of 2023 suggest that economic activity in Bulgaria is expected to deteriorate. Taking into account these data and the technical assumptions described above, we project real GDP growth to slow to 1.0 per cent in 2023 (down

from 3.4 per cent in 2022). By final consumption expenditure component, the slowdown will be driven mainly by a decline in the inventories accumulated in the economy and, to a lesser extent, by a projected fall in government consumption and lower private consumption growth. The negative contribution of changes in inventories to real GDP developments is in line with the weakening of incentives by firms to maintain high stocks of raw materials and finished products as a result of assumptions for a continued year-on-year decline in euro prices of a large part of commodities in international markets in 2023 and the expected slowdown in economic activity in Bulgaria and Bulgaria's main trading partners compared with 2022. The projected decline in government consumption in real terms over 2023 reflects a projected slowdown in the growth of intermediate consumption expenditure, after its significant increase over the past few years, while the expiry of temporary fiscal measures appears comparatively less relevant to the projected dynamics of government consumption. At the same time, based on information from the Draft State Budget Law for 2023 and the texts thereto published in June 2023, growth of public sector wages is expected to accelerate. This acceleration is partly reflected also in the forecast of the annual growth of the government consumption deflator, and therefore, higher wages contribute to a limited extent to the change in government consumption in real terms in 2023. The lower growth in private consumption compared to 2022 is mainly due to data releases for the first quarter of the year, indicating a significant slowdown in the annual growth of household final consumption expenditure. At the same time, private consumption in 2023 is anticipated to be supported by increases in wages and pensions and other social transfers. The contribution of net exports to the change in real GDP is expected to remain negative in 2023, but to contract significantly compared to that recorded in 2022, reflecting a stronger slowdown of growth in imports of goods and services relative to exports. Goods exports growth in 2023 will be dampened by both an assumed slowdown in the growth of demand for goods and services from Bulgaria's main trading partners and by one-off country-specific factors. These factors are related to the prohibition on exports of oil and petroleum

⁹ For further information, see the [OPEC press release](#) of 3 April 2023.

¹⁰ This refers to the indicators tracking consumer confidence, business climate, production indices in industry, manufacturing and retail trade turnover indices.

products produced from Russian oil¹¹ to countries other than Ukraine, as well as to the planned repairs in some of the largest enterprises in manufacturing¹² and electricity generation¹³ sectors. These factors are projected to have an adverse effect on imports of goods as Bulgarian exports of oil products and base metals are characterised by a high share of imported added value.¹⁴ The projected decrease in the stockpiling in the economy, which is also characterised by a high import component, will further limit the growth of goods imports in real terms and thereby reduce the negative contribution of net exports to the GDP change in 2023. After two consecutive years of declines, fixed capital investments are expected to increase year on year in 2023, mainly due to the technical assumption used in the forecast for the absorption profile of the EU funds by both the public and the private sectors. Based on the completion of projects in the final year of the 2014–2020 programme period and on assumed initiation of part of NRRP investment projects in 2023, we expect relatively high growth in public investments over 2023. Private sector investments not related to co-financing and NRRP grants are projected to record low growth in 2023, while being further constrained by a heightened uncertainty, weakening prospects for growth in external demand and final consumption expenditure in Bulgaria, and by deteriorated financing conditions for firms.

Economic activity growth is projected to accelerate to 3.2 per cent in 2024 and 4.0 per cent in 2025. The contraction of the negative contribution of changes in inventories will mainly add to higher real GDP growth in 2024, as it is expected that most of the decline in inventories accumulat-

ed in 2021 and 2022 will materialise in 2023 and further in 2024, though to a significantly lesser degree. In 2024, the contribution of domestic demand to the growth of economic activity will remain high and broadly unchanged from the previous year, but we expect a change in its composition. Final consumption expenditure is projected to grow at an accelerating pace, supported by strong growth in labour income in real terms. At the same time, we expect a significant slowdown in the annual growth rate of fixed capital investments, which will be driven mainly by a projected decrease in the absorption of EU funds other than NRRP funds, given the initial phase of implementation of projects of the 2021–2027 programme period, as well as a projected slowdown in the growth of NRRP investments over 2024 based on the projected implementation profile of the investment projects under this plan. The negative contribution of net exports is expected to decline further in 2024 owing to a projected acceleration in goods exports growth in line with assumed external demand dynamics and completion of repairs limiting exports of the Bulgarian economy in 2023.

Economic growth acceleration in 2025 will mainly reflect fixed capital investment dynamics, which is expected to be supported by the implementation of NRRP-funded projects.¹⁵ In addition, we expect the growth rate of real government consumption expenditure to accelerate, with its projected dynamics reflecting information on expected higher healthcare expenditure and public sector employee compensation costs under the June 2023 updated medium-term budget forecast for 2023–2025. While we expect a slight slowdown in private consumption growth, this GDP component will continue to grow at a high rate, having the largest positive contribution to the increase in economic activity in 2025. Labour market developments play a leading role for projected dynamics of private consumption, as the expected increase in labour shortages for firms will continue to exert an upward pressure on labour income at a rate which is higher than that of labour productivity and inflation. In 2025, the negative contribution of net exports is expect-

¹¹ The prohibition is effective from 5 February 2023 and is published in the [Official Journal of the European Union \(L 322, 16 December 2022\)](#). The current forecast maintains the approach used in [Macroeconomic Forecast \(December 2022\)](#) on assessing the effects of the prohibition on exports of oil products.

¹² In the second quarter of 2023, processed copper volumes are expected to decline in one of the largest metallurgical plants in Bulgaria [due to repairs](#). For further information about the effects on goods exports, see [Macroeconomic Forecast \(December 2022\)](#).

¹³ In 2023, [Kozloduy](#) nuclear power plant is expected to operate at a reduced capacity of 70 days (compared to 50 days in 2022) due to planned repairs. For further information about the effects on goods exports, see [Macroeconomic Forecast \(December 2022\)](#).

¹⁴ The foreign value added used in exports of oil products and metals from Bulgaria is assessed at 81.1 and 58.5 per cent against 36.8 per cent on average for exports of goods and services. The estimate uses OECD Supply and Use tables (TiVA database 2021) for 2018.

¹⁵ The expected acquisition of new fighter planes for the Bulgarian Air Force is expected to be another factor supporting investment activity growth in 2025. In the forecast, this acquisition has a neutral contribution to real GDP growth, as the acquisition costs are equally accounted for in government investments and in goods imports.

ed to pick up in line with the strong growth in fixed capital investments and final consumption expenditure, which is characterised by high import components.

Balance of Payments

The current account balance is expected to be close to neutral over the entire forecast horizon. The trade deficit over the 2023–2025 period is projected to decrease significantly as a percentage of GDP compared to 2022 and to stand at 3.7 per cent of GDP in 2025. It will benefit from favourable trade conditions over the whole projection period and the lower negative contribution of net exports in real terms in 2023 and 2024. Concurrently, over the projection horizon, the surplus in services trade as a percentage of GDP is expected to increase moderately compared to 2022, supported by the continued increase in tourist visits in Bulgaria, robust growth in exports of computer and information services and the projected stronger rise in services export prices *vis-à-vis* import prices over the 2023–2024 period. Given the expectations of a further rise in interest rates during the current and following year and accelerated economic growth after 2023, the net primary income deficit as a percentage of GDP is anticipated to increase between 2023 and 2025 from its 2022 level due to higher outflows of dividend payments to non-residents. The surplus on net secondary income is projected to gradually decrease as a percentage of GDP in the 2023–2025 period, mainly due to lower incoming transfers to the general government sector. Over the whole forecast horizon, the capital account surplus as a percentage of GDP is expected to increase significantly from its 2022 level owing to the assumption of higher incoming EU capital transfers (including under the NRRP).

Labour Market

In 2023, employment growth is expected to remain strong, standing at 0.9 per cent, mainly underpinned by the services sector. The wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities, which were among the services sub-sectors most severely hit by the COVID-19 pandemic, contributed most substantially to the increased

employment in 2022. These developments are expected to be sustained also in 2023, and the number of employed in this sub-sector to exceed the level reported in 2019. Despite the projected economic activity growth over the rest of the forecast horizon, employment growth is expected to be limited to 0.2 per cent in 2024 and to 0.1 per cent in 2025 due to adverse demographic trends in Bulgaria resulting in a continuous decline in labour force. At the same time, the unemployment rate¹⁶ is expected to decrease from 3.7 per cent in 2023 to 2.7 per cent in 2025 as a result of both projected economic growth and a decline in the working-age population and further increasing labour shortages. Real labour productivity is not anticipated to increase in 2023 due to a slowdown in economic growth amid continuing relatively strong growth in the number of employed in the economy. In 2024, real labour productivity is expected to increase by 3.0 per cent and in 2025 by 3.9 per cent in line with higher economic activity in Bulgaria, while labour supply will remain limited. The projected slowdown in inflation and real labour productivity will be reflected in lower growth in nominal compensation *per* employee at 12.0 per cent in 2023 against 18.4 per cent in 2022. Lower inflation over the 2024–2025 period will further curb the increase in compensation *per* employee in nominal terms to 9.0 per cent in 2024 and 9.3 per cent in 2025, but real wage growth will continue to outpace labour productivity growth due to a further increase in labour force shortages in Bulgaria. Growth in nominal compensation *per* employee will thus support growth in household real disposable income over the whole projection period, but it will also put an upward pressure on firms' unit labour costs. Nominal unit labour costs are expected to grow by 12.0 per cent in 2023, before slowing to 5.8 per cent in 2024 and 5.3 per cent in 2025.

Monetary Sector

In the context of continued high inflows of attracted funds, ample liquidity and strong competition

¹⁶ The estimation of the unemployment rate uses reported data from the Labour Force Survey for the first quarter of 2023. These data are based on Bulgaria's population estimate at end-2022, which reflects the results of the population census conducted in 2021. For more information on Labour Force Survey data for the first quarter of 2023, see [NSI press release](#). The changes to the latest available population forecast of the NSI, which was produced prior to the census, have been used to forecast the unemployment rate.

in the banking sector, the pass-through of the effects of ECB monetary policy tightening on deposit and lending interest rates in Bulgaria remained relatively weak, particularly in the household sector. Concurrently, the rises in the minimum required reserves rate on funds attracted from non-residents to 10 per cent from 1 June 2023 and up to 12 per cent on funds attracted from residents and non-residents from 1 July 2023 undertaken by the BNB are expected to contribute to a faster transmission of the ECB's monetary policy changes to the Bulgarian economy, with stronger upward dynamics of interest rates being expected in the second half of 2023 and the first half of 2024. After reaching their highest levels in 2024, deposit and lending rates are expected to remain close to the already achieved higher rates until the end of the forecast horizon.

The annual growth rate of private sector deposits is expected to moderate but to remain relatively high over the projection horizon, driven mainly by the projected increase in deposit rates and further wage growth. Annual growth of credit to the non-government sector is anticipated to slow down to 6.4 per cent at the end of 2023 and further to 4.2 per cent at the end of 2024 due to banks' lower lending capacity following the increase in the minimum required reserve rate, as well as the projected higher lending rates, slowing inflation and relatively weak investment activity. In addition, expected lower demand for bank resources for working capital and inventories will continue to contribute to the projected slowdown in credit to non-financial corporations. The annual rate of credit growth is expected to accelerate somewhat in 2025 supported by higher economic growth projected in Bulgaria.

Inflation

The projection for inflation over the 2023–2025 period depends to a large extent on the technical assumptions on the dynamics of international prices of major energy and agricultural commodities, the projected degree and speed for their transmission to final consumer prices of core components and food¹⁷, and on the effects of the initiated fiscal measures to support households and corporations and the duration of these measures. The forecast

¹⁷ See here the highlight 'Assessment of the Size and Factors Behind the Inflation Forecast Error in the Post-COVID-19 Pandemic Period'.

used information available as of 3 July 2023 on the following government measures: an increase in the excise duty rates on tobacco products under the Law on Excise Duties and Tax Warehouses between 2023 and 2025¹⁸; a return of the standard VAT rate of 20 per cent for supply of district heating and natural gas as of 1 July 2023¹⁹; an extension of the reduced tax rates on supply of bread and flour (zero per cent) and on restaurant and catering services (9 per cent) until 31 December 2023²⁰; an extension of the compensation to business electricity consumers until 31 December 2023²¹.

Annual inflation is projected to stand at 5.7 per cent at the end of 2023. In the short run, lower inflation is expected to be driven mainly by a base effect related to high price growth rates in 2022 and the negative contribution of energy products due to lower international oil prices. The forecast includes the continued limited pass-through of lower international commodity prices to food prices and domestic core components on the background of a robust consumer demand and a strong increase in firms' labour costs. At the close of 2023, the services group is expected to have the largest positive contribution to headline inflation, followed by the non-energy industrial goods and food products groups. The group of administratively controlled prices and tobacco products is also expected to have a relatively high positive contribution to inflation at the end of 2023 due to projected price increases in electricity²²,

¹⁸ The excise duty calendar was adopted by the [Law on Amendment to the Tax and Social Insurance Procedure Code](#) published in the *Darjaven Vestnik*, issue 100 of 16 December 2022 (available in Bulgarian only).

¹⁹ The time limit until 1 July 2023 for the reduced VAT rate of 9 per cent was adopted in the Law on the Value Added Tax, published in the *Darjaven Vestnik*, issue 52 of 5 July 2022.

²⁰ The period for the reduced VAT rate was extended until the end of 2023 by the [Law on Amendment of the Law on the Value Added Tax](#), published in the *Darjaven Vestnik*, issue 102 of 23 December (available in Bulgarian only).

²¹ The compensation amounts to 100 per cent of the difference between the price of electricity on the Bulgarian Independent Energy Exchange and the revised threshold of BGN 200 (BGN 250 in the second half of 2022) and was extended until 31 December 2023. For more information, see the following two National Assembly decisions: <https://dv.parliament.bg/DVWeb/showMaterialDV.jsp;jsessionid=C9CBE963EA64B1DEB25B614E75BCD7BB?idMat=180034> and <https://dv.parliament.bg/DVWeb/showMaterialDV.jsp?idMat=181202>.

²² The electricity price for the new regulatory period was adopted by a [decision of the EWRC](#) (in Bulgarian only) of 30 June 2023. The price is raised by 4.37 per cent on average for the country and will come into effect on 1 July 2023.

heating²³, water supply and sewerage services of some companies and in excise duties on tobacco products in accordance with the approved excise duty calendar. In 2023, headline consumer price inflation is expected to stand at 8.7 per cent on average (13.0 per cent in 2022), while core inflation and inflation of goods and services with regulated prices and tobacco products are anticipated to accelerate compared with 2022. Projected unit labour cost growth, labour shortages and strong consumer demand will remain the main factors behind the pro-inflationary pressure on prices of core components.

The growth rate of consumer prices is projected to slow down to 3.4 per cent at the end of 2024 and to 3.0 per cent at the end of 2025. The downward inflation dynamics follows mainly the assumptions used in the forecast, which imply a lower inflationary pressure by international commodity prices, with the projected slowdown in unit labour cost growth further contributing to this effect. Core components and the food group are expected to continue to contribute most substantially to medium-term inflation in line with the projected growth in unit labour costs and private consumption. It is assumed that in 2024–2025, administratively controlled prices (excluding tobacco) will rise in line with the projected dynamics of firms' labour costs. An exception of this approach is made for the price of central gas supply which is projected to follow the dynamics of international natural gas prices. In addition, the forecast envisages a price increase in water supply and sewerage services in line with business plans for the development of water-supply and sewerage companies in Bulgaria approved by the Energy and Water Regulation Commission.²⁴

²³ The heating price for the new regulatory period was adopted by a [decision of the EWRC](#) (in Bulgarian only) of 30 June 2023. The price is raised between 0.05 and 0.48 per cent and will come into effect on 1 July 2023. The forecast assumes that the bulk of the price increase will be reflected in November 2023 at the beginning of the heating season.

²⁴ For further information, see the [EWRC press release](#) (in Bulgarian only) of 30 December 2022.

F FORECAST REVISIONS

Compared with the [March 2023 Macroeconomic Forecast](#), projected economic growth in Bulgaria for the 2023–2025 period remains almost unchanged, but revisions have been made across GDP sub-components with an offsetting effect.

In terms of contributions to GDP growth in 2023, private consumption registered the most significant downward revision. This revision was largely affected by additional information showing a substantial deceleration in the annual growth rate of consumer expenditure in real terms in the first quarter of 2023. At the same time, the projected weaker private consumption is almost entirely offset by our current expectations of a smaller negative contribution of net exports compared to the previous forecast. The revision of the net exports contribution is mostly driven by imports, whose growth has been revised downward in 2023, largely reflecting the reported changes in this item in the first quarter of 2023. Exports of goods and services have also been revised towards lower growth in 2023, mainly driven by new assumptions of weaker growth of external demand for Bulgarian goods and services. In addition, a revision towards a smaller government consumption fall in real terms for 2023 is made on the basis of information on expected health-care expenditure in the Updated Medium-Term Budgetary Forecast for 2023–2025 of June 2023 and a technical assumption about the dynamics of government intermediate consumption expenditure.

In 2024, private consumption growth is revised upwards mainly as a result of the upward revision in households' real disposable income in the current forecast compared to that as of March 2023. This revision is entirely offset by higher growth of imports of goods and services driven by the upward revision in private consumption and exports of goods and services compared to the previous forecast.

In 2025, domestic demand components have been revised to weaker growth, as a result of revisions in private and government consumption, as well as the lower projected growth of

public investment. Weaker private consumption growth is in line with the revision in household credit dynamics. The assumption of lower growth in intermediate consumption expenditure compared to the previous forecast contributed to the revision in real government consumption. The revision in government investment reflects the projected higher increase in the prices of goods and services for investment purposes compared to the March forecast, with nominal government investment remaining unchanged in 2025 compared to the March forecast. In 2025, exports are expected to grow at a lower rate than in the previous forecast due to a revision of the assumptions for external demand for Bulgarian goods and services. At the same time, the growth of imports of goods and services has been revised downward in line with the revisions in the components of final demand and their import content, whereby the contribution of net exports is negative, but smaller in the current forecast.

The inflation forecast has been revised slightly towards higher growth of consumer prices at the end of 2023 (by 0.1 percentage point). This is entirely due to a revision towards a stronger increase in administratively controlled prices, which is partly offset by a revision towards a higher decrease in the prices of energy products. Energy product prices (excluding those with administratively controlled prices) are expected to post a more significant year-on-year decline at the end of 2023 and at the end of 2024 compared to the March 2023 forecast, reflecting reported data and revised assumptions about international oil prices in euro. The substantial upward revision in administratively controlled prices is due to new information as of 3 July 2023, which concerns mainly the prices set by regulators for electricity, heating and water supply and sewerage services. For 2024 and 2025, the projected headline inflation remains unchanged from that in the March 2023 forecast, with no significant changes in the sub-components either.

GDP and Inflation Forecast Revisions (June 2023 *vis-à-vis* March 2023)

Annual rate of change, per cent	June 2023 Forecast				March 2023 Forecast				Revision (percentage points)			
	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025
GDP at constant prices	3.4	1.0	3.2	4.0	3.4	1.0	3.2	4.1	0.0	0.0	0.0	-0.1
Private consumption	4.8	3.5	4.4	4.0	4.8	4.9	4.2	4.1	0.0	-1.4	0.2	-0.1
Government consumption	6.5	-1.0	1.3	2.3	6.5	-2.2	1.4	3.0	0.0	1.2	-0.1	-0.7
Gross fixed capital formation	-4.3	8.6	1.9	12.5	-4.3	10.2	1.9	14.6	0.0	-1.6	0.0	-2.1
Exports of goods and services	8.3	0.6	4.7	3.8	8.3	1.4	4.5	3.9	0.0	-0.8	0.2	-0.1
Imports of goods and services	10.5	1.0	4.4	5.0	10.5	2.8	4.1	5.5	0.0	-1.8	0.3	-0.5
HICP at end of period	14.3	5.7	3.4	3.0	14.3	5.6	3.4	3.0	0.0	0.1	0.0	0.0
Core Inflation	11.9	8.2	6.0	4.1	11.9	8.3	5.9	4.2	0.0	-0.1	0.1	-0.1
Energy products	15.9	-4.5	-0.9	-1.4	15.9	-3.1	-0.4	-1.7	0.0	-1.4	-0.5	0.3
Food	25.0	6.0	1.8	3.6	25.0	5.9	1.8	3.8	0.0	0.1	0.0	-0.2
Goods and services with administratively controlled prices and tobacco products	6.9	4.2	1.8	1.6	6.9	2.9	1.6	1.5	0.0	1.3	0.2	0.1

Source: 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 term, as a result of the ongoing war between Russia and Ukraine and geopolitical international tensions. Taking into account the assumptions underlying the baseline scenario, risks to the real GDP growth forecast are assessed as balanced for 2023, while for 2024 and 2025, risks of lower real GDP growth in Bulgaria prevail.

Risks of lower economic activity stem mainly from the external environment and are primarily related to heightened global geopolitical uncertainties and their impact on the functioning of global supply chains and commodity prices. Another source of external environment risks is the uncertainty about the duration, size and effects of the interest rate rises by leading central banks on global economic activity in view of the high and persistent global inflation. A significant internal risk to the economic activity forecast arises from the possible slower implementation of investment projects under the NRRP and a slower absorption of European funds other than those under the NRRP against the time profile set out in the baseline scenario. In the short term, real GDP growth in Bulgaria is likely to be higher, in case of a smaller than projected decline in the stock of inventories in the economy and a lower negative impact of country-specific factors included in the baseline scenario, which are expected to limit exports growth in 2023.

The uncertainty of the forecast 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

fall²⁵ (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 heightened uncertainty stemming from the war in Ukraine and geopolitical tensions, the uncertainty interval in the current forecast is broader than usual, even in the short term, which is evident by the profile of the fan chart since the second quarter of 2023. According to the probability distribution for 2023, with a 60 per cent probability the annual rate of change of real GDP is expected to be in the range of -1.6 per cent to 3.2 per cent.

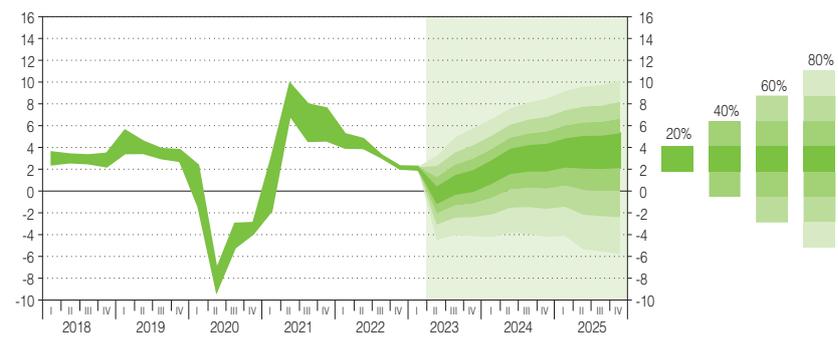
Risks of a stronger increase in consumer prices *vis-à-vis* the baseline scenario prevail in materialising the inflation forecast for the whole projection horizon. These risks relate to the dynamics of external assumptions of energy and agricultural commodity prices on international markets underlying the forecast. The possible slower and limited pass-through of the assumptions of lower international commodity prices in 2023 to final consumer prices amid strong consumer demand and significant increase in firms' labour costs are a prerequisite for higher inflation. In addi-

²⁵ 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 v 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](#).

tion, more frequent and stronger indexation of wages and social benefits would lead to higher growth in private consumption and unit labour costs, which could be reflected in a weaker pass-through of lower commodity prices to final consumer prices. Higher than projected inflation in the administratively controlled prices can be observed in the case of higher than projected increases in regulated prices of water and sewerage services, electricity and heating for household consumers. The fan chart of inflation suggests that with a probability of 60 per cent, annual inflation in consumer prices is expected to range between 2.2 and 10.0 per cent at the end of 2023.

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

(per cent)

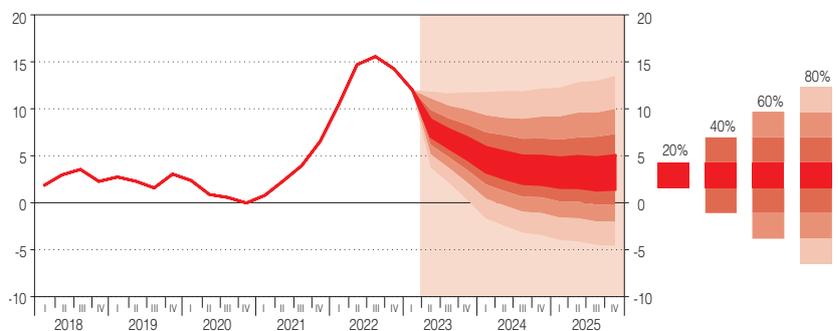


Note: The chart provides historical series and annual real GDP growth forecast according to non-seasonally adjusted data. The fan chart shows expert views of the forecasters on the uncertainty surrounding the projected value based on a probability distribution. The reporting period includes revised GDP 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: BNB.

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

(per cent)



Notes: 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: BNB.

Forecast of Key Macroeconomic Indicators for 2023–2025

(%)

	2022	2023	2024	2025
Annual rate of change				
GDP at constant prices	3.4	1.0	3.2	4.0
Private consumption	4.8	3.5	4.4	4.0
Government consumption	6.5	-1.0	1.3	2.3
Gross fixed capital formation	-4.3	8.6	1.9	12.5
Exports of goods and services	8.3	0.6	4.7	3.8
Imports of goods and services	10.5	1.0	4.4	5.0
HICP at end of period	14.3	5.7	3.4	3.0
Core Inflation	11.9	8.2	6.0	4.1
Energy products	15.9	-4.5	-0.9	-1.4
Food	25.0	6.0	1.8	3.6
Goods and services with administratively controlled prices and tobacco products	6.9	4.2	1.8	1.6
Employment	1.3	0.9	0.2	0.1
Unit labour costs	16.0	12.0	5.8	5.3
Labour productivity	2.1	0.0	3.0	3.9
Unemployment rate (share of labour force, per cent)	4.3	3.7	3.2	2.7
Claims on the non-government sector	12.5	6.4	4.2	4.8
Claims on corporations ¹	10.2	4.7	3.0	3.5
Claims on households	14.6	8.3	6.0	6.7
Deposits of the non-government sector	14.3	10.1	8.7	7.6
Share of GDP				
Balance of payments current account	-0.7	-0.4	0.3	-0.4
Trade balance	-5.8	-3.9	-3.5	-3.7
Services, net	6.3	6.6	6.7	6.6
Primary income, net	-2.9	-4.2	-4.2	-4.3
Secondary income, net	1.7	1.1	1.2	1.0
Annual rate of change				
External assumptions				
External demand	7.1	2.0	3.5	3.4
Average annual brent oil price (in USD)	41.7	-22.5	-6.5	-3.5
Average annual price of non-energy products (in USD) ²	4.8	-2.7	2.1	3.4
Brent oil price at the end of period (in USD)	11.0	-15.6	-4.4	-3.1
Price of non-energy products at the end of period (in USD)	-3.4	4.6	3.5	3.3

¹ Data refer to non-financial corporations.

² Prices of non-energy products are weighted according to the structure of Bulgarian imports of goods.

Source: BNB.

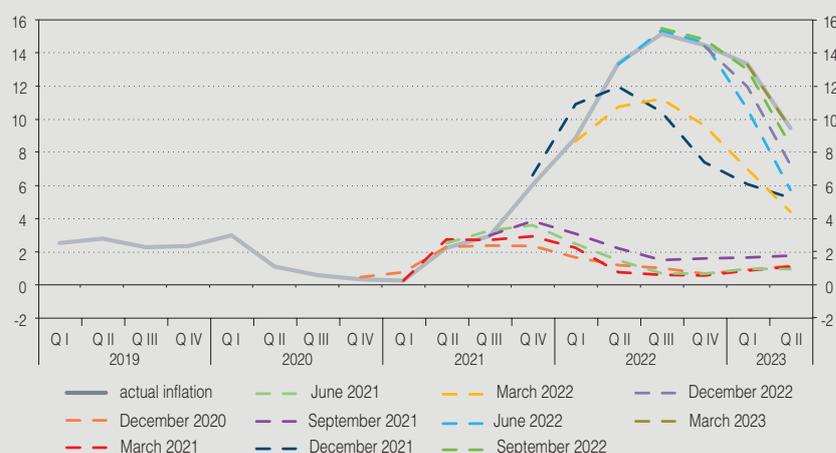
ASSESSMENT OF THE SIZE AND FACTORS BEHIND THE INFLATION FORECAST ERROR IN THE POST-COVID-19 PANDEMIC PERIOD

Central banks' primary objective is to maintain price stability. Therefore, inflation forecasts are essential for monetary policy transmission. The analysis of errors in the inflation forecast allows for the identification of the drivers behind the deviations of actual inflation from expected inflation, including limitations in the data used for the projection of economic developments, a misunderstanding of the state of the economy at the time of the preparation of the forecast and/or the occurrence of unforeseen events with a major economic impact. In addition, the analysis of systematic errors in inflation forecasts might be indicative of structural changes in the economy that call for adjustment of the forecasting macroeconomic models in use. The current highlight aims at presenting the BNB's inflation forecast errors in the post-December 2020 period and identifying the root causes thereof.

Chart 1 compares actual inflation and inflation projected by the BNB between December 2020 and March 2023, for which 10 macroeconomic forecasts have been produced. Over the review period, global inflation tended to accelerate rapidly, which was the reason behind larger forecast errors in most central bank forecasts, as well as a systematic underestimation of inflation, even in the short term. A similar problem is observed in ECB's inflation projections, which have been used as a reference for this highlight (see Chart 2). As regards the BNB macroeconomic forecasts, in the first two quarters of the projection horizon the forecast errors are relatively small and there are no indications of a systematic one-side deviation of actual inflation from projected inflation. However,

Chart 1. Comparison of Actual Inflation and Annual Inflation for Bulgaria Projected by the BNB

(per cent)

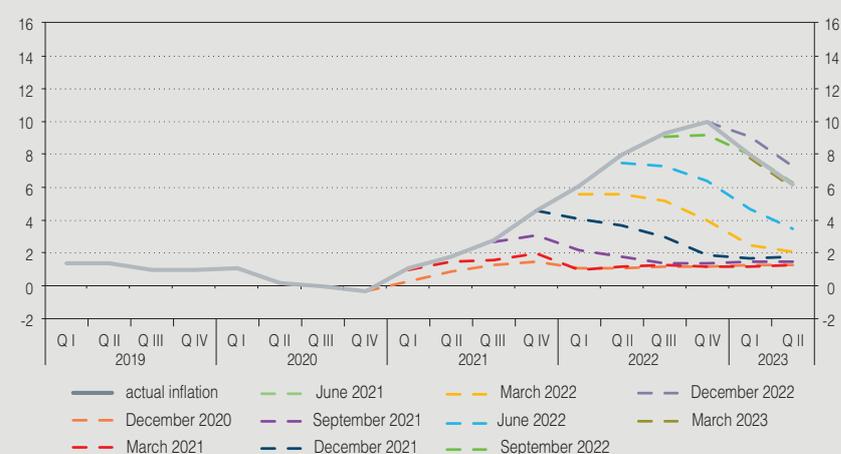


Note: Actual inflation for the second quarter of 2023 refers to the April–May 2023 period.

Source: BNB.

Chart 2. Comparison of Actual Inflation and Annual Inflation for the Euro Area Projected by the BNB

(per cent)



Sources: ECB, BNB.

some underestimation of inflation has been observed in the period following the third quarter of the projection horizon¹. The analysis of the BNB forecast error aims to determine the extent to which this underestimation of inflation reflects the rapidly changing economic environment both globally and in Bulgaria following the COVID-19 pandemic, which is a prerequisite for reducing the information content of technical assumptions of the forecast about international price developments, as well as the extent to which the error results from possible limitations in the macroeconomic model and/or the estimates of the forecasters.

As regards the size and the reasons behind the inflation forecast errors, macroeconomic projections produced after December 2020 can be broken down into four groups (see Chart 3)². The first group comprises four projections prepared in the period of economic recovery from COVID-19 (from December 2020 to September 2021). The second group includes two projections (from December 2021 and March 2022), prepared immediately before and after the outbreak of the war in Ukraine and characterised by exceptionally high uncertainty and volatility in commodity prices on international markets. The third group of projections covers the period from the second half of 2022, when market participants had already adapted their views on the economic effects of the war in Ukraine, as reflected in their assumptions about international price developments. The fourth group covers the March 2023 forecast, for which there is not yet sufficient reporting data to calculate the forecast error over a longer horizon and compare it with the other forecasts.

Chart 3 shows that as the projection horizon progresses, the most significant error is observed in the first group's forecasts. Some underestimation of inflation has begun since the fourth quarter of 2021, mainly due to the strong rises in natural gas and electricity prices in Europe over this period. When producing the forecasts of the first group, price rises in these commodities and the inter-relationship between their prices³ were not reflected in market participants' expectations (technical assumptions of the forecast), nor were these commodities included in the structure of the BNB's macroeconomic model.⁴ The integra-

Chart 3. Inflation Forecast Error by Quarter (Average of Individual Forecasts)

(percentage points)



Note: The forecast error is calculated as a deviation of projected inflation from actual inflation. Positive/negative values correspond to overestimation/underestimation of inflation.

Source: BNB.

¹ However, the forecast error (measured by root-mean-square forecast error formula) is lower than that of the ECB, especially in the period after the end of 2021 when the ECB had consistently projected a slowdown in euro area inflation from the first forecast quarter.

² In comparing individual forecasts and calculating forecast errors, the analysis employs data up to the second quarter of 2023. As at the time of producing the highlight, HICP data for the second quarter of 2023 are only available for April and May, it is assumed that annual inflation for this quarter corresponds to the average annual inflation rate for these two months.

³ In some EU Member States, a portion of natural gas is used for electricity generation, which led to a simultaneous price increase in both energy sources at the end of 2021 and the first half of 2022.

⁴ In the period before 2021, electricity and gas prices in Bulgaria were characterised by a low volatility, as electricity consumption in Bulgaria was fully provided by domestic electricity generation, and Bulgaria's electricity system was not integrated with that of other EU Member States and gas supplies were based on concluded long-term contracts. This meant that the prices of these commodities had no significant effect on the changes in firms' production costs in the period prior to 2021. Hence, of all energy prices at that time, only the price of Brent crude oil was used in the BNB's macroeconomic model.

tion of Bulgaria's electricity system with that of Romania and Greece in 2021⁵ represents a structural change for the economy, which is the reason for the market price of electricity for domestic business consumers to begin to be determined mainly by external factors.

In preparing the macroeconomic projections of December 2021 and March 2022 (the second group of forecasts), changes were made to the macroeconomic model to reflect the effects of changes in international electricity and gas prices on the production costs of firms in Bulgaria and their pass-through to individual HICP components, such as food, services and central gas supply. As illustrated in Chart 3, these projections suggest a smaller forecast error, though it remains relatively large as the projection horizon advances. This can be attributed to the onset of the war in Ukraine and the fact that technical assumptions in the second group's projections do not fully reflect economic effects of the war on commodity prices (energy and non-energy), the existing bottlenecks in regional supply chains and the heightened economic uncertainty, which may have influenced firms' pricing policies. Moreover, the rise in inflation expectations in combination with the tight labour market conditions in Bulgaria leads to a marked increase in the two-way link between prices and wages in the economy *vis-à-vis* the forecasts in the second group (based on the historical relationship between the two variables) in the first half of 2022, which is a precondition for an underestimation of core inflation over the medium term.

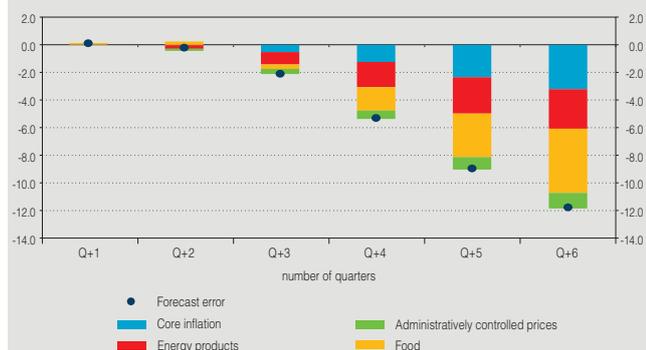
Chart 4 shows a decomposition of the error in the inflation forecast by component of the Harmonised Index of Consumer Prices (HICP), with the four panels presenting the previously defined four time groups of projections prepared by the BNB. In the December 2021 and March 2022 projections, most of the forecast error relates to energy products inflation (excluding administratively controlled prices) and food, for the forecast of which technical assumptions for international prices are of major importance (see Chart 4b). Administratively controlled prices are another group with underestimated medium-term inflation. This is largely due to the approach applied until the end of 2021 to include in the macroeconomic forecast only regulated price increases announced by the relevant regulators and to leave these prices unchanged for the remaining part of the forecast horizon. The reason for applying this approach is that prices of goods and services with administratively controlled prices are not based on market supply and demand, and consequently the regulators do not always adjust them to their production costs. Taking into account the underestimated headline inflation, particularly in periods of strongly upward dynamics in international prices of major energy sources, the approach used in forecasting administratively controlled prices was partly changed at the end of 2021. With this change, in the medium term, the projected prices of regulated goods and services reflect wage growth in the economy, causing a permanent change to firms' production costs which should be taken into account by regulators when setting the prices of administratively controlled goods and services.

The June 2022 macroeconomic forecast and, in particular those of September and December 2022, show a significant reduction of the inflation forecast error. The only HICP component, for which inflation is still somewhat underestimated as the projection horizon advances, is the food group. This stems from downward developments in food and energy commodity prices in international markets in late 2022 and early 2023, which were included in the technical assumptions of the projections and according to the estimated historical macroeconomic relationships imply a relatively rapid pass-through to end-use consumer prices of food in Bulgaria (within six quarters). Concurrently, data reported for the end of 2022 and the first five months of 2023 showed a continued steady increase in end-use consumer prices of food despite their depreciation in the pre-

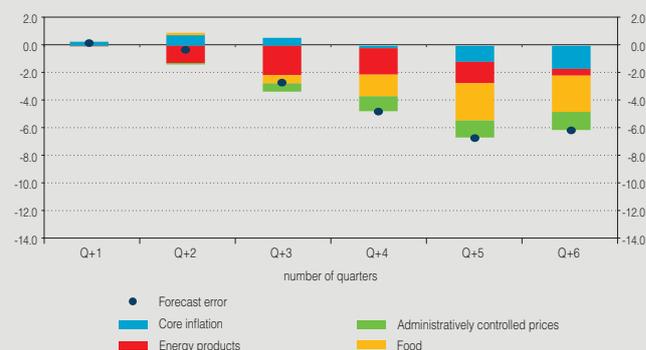
⁵ In 2021 the Independent Bulgarian Energy Exchange (IBEX) was fully integrated in the Day Ahead electricity market in South-East Europe, which was implemented in two steps. In May 2021, the integration of the Bulgarian–Greek bidding zone border was completed, while in October 2021, the coupling with Romania was accomplished. For details, see the IBEX [press release](#), in Bulgarian only.

Chart 4 Inflation Forecast Error by HICP Group (Average of Individual Forecasts)

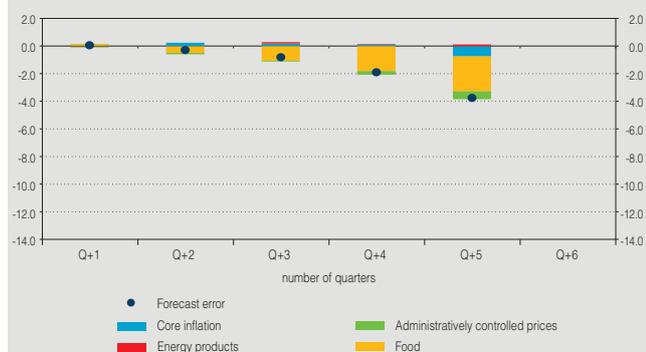
4 a) December 2020 to September 2021 forecasts
(per cent, percentage points)



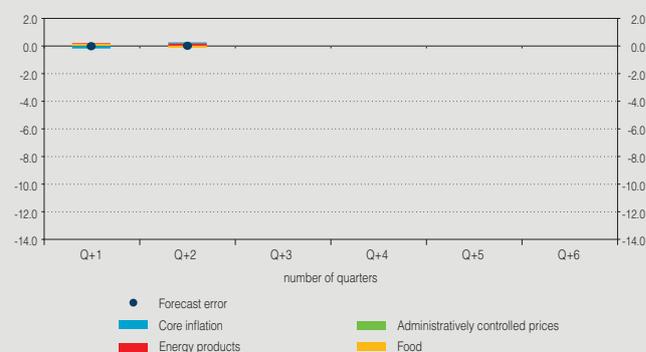
4 b) December 2021 and March 2022 forecasts
(per cent, percentage points)



4 c) June 2022 to December 2022 forecasts
(per cent, percentage points)



4 d) March 2023 forecast
(per cent, percentage points)



Note: The forecast error is calculated as a deviation of projected inflation from actual inflation. Positive/negative values correspond to overestimation/underestimation of inflation.

Sources: ECB, BNB.

vious stages of the supply chain (mainly at agricultural level⁶). The accumulated high stock of raw materials in the economy is likely to contribute to these developments, which results in a slower pass-through of the current decline in international prices on firms' production costs. Another factor behind divergent developments observed between prices at the beginning and at the end of the supply chain may be an asymmetric response by firms to falling commodity prices, which can be determined by the adjustment of pricing policies to Bulgaria's specific macroeconomic conditions (*e.g.* firms are reluctant to lower end-use product prices or even increase them in response to strong consumer demand, despite the lower commodity prices used to produce them). Such dependence on the price behaviour of firms on specific macroeconomic conditions was identified in research for Bulgaria at micro level carried out by the BNB⁷ and was reflected to some extent in the macroeconomic projections prepared in the second half of 2022 (see Chart 5). This is one of the reasons for the smaller forecast error in the food group.

In conclusion, the BNB inflation forecasts in the post-December 2020 period have been characterised by a small non-systemic error in the short term. After the third quarter of the projection horizon the forecast shows a trend toward underestimation of inflation, mainly owing to the occurrence of unforeseen events with a strong economic effect over the review period and the need to revise the technical assumptions on external environment developments in the forecast. Changes to

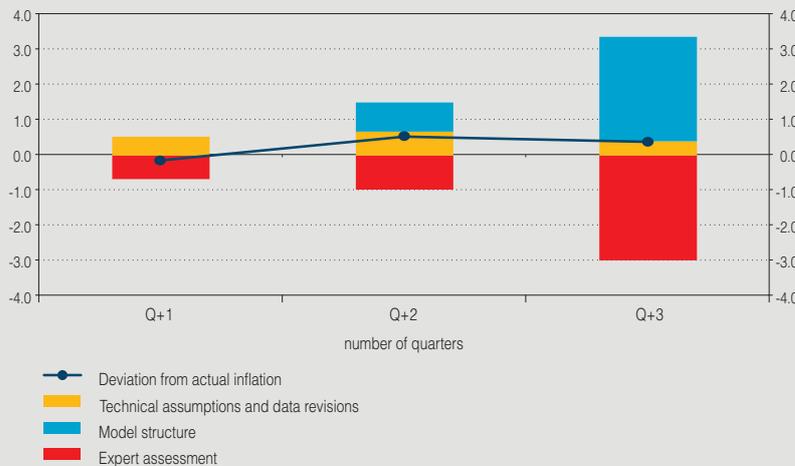
⁶ The European Commission data on agricultural producer prices by country are used. For details, see: <https://agridata.ec.europa.eu/extensions/DataPortal/prices.html>.

⁷ For details, see: Kasabov, D., Paskaleva, P. (2018) "Cost- and Price-setting Drivers in Bulgaria in the Period 2009–2013, WDN Survey Evidence", Bulgarian National Bank DP/112/2018.

the BNB macroeconomic model, starting to model the electricity and gas price dynamics on international markets as an additional component of firms' costs of production, contribute to the improvement of the headline inflation forecast. The BNB approach to forecasting administratively controlled prices is another factor behind the increasing forecast error as the forecast horizon advances, with the change in the approach to forecasting inflation in this group helping to somewhat decrease the forecast errors. The weak and slow pass-through of downward developments in international prices to end-use consumer prices is another potential factor for building up a forecast error as the projection horizon advances. This is one of the reasons why the fan chart of inflation in the current macroeconomic forecast continues to exhibit a broader-than-usual range of uncertainty prior to the COVID-19 pandemic and risks to the forecast to be assessed as broadly shifted to higher inflation.

Chart 5. Decomposition of the Factors Behind the Size of the Inflation Error in the September and December 2022 Forecasts (Average of Individual Forecasts)

(percentage points)



Notes: Positive values mean that the relevant factor has contributed to the widening of the difference between actual and projected inflation. The chart shows a decomposition of the forecast error for the September and December 2022 projections only, as the technical assumptions explaining the forecast error in these projections played a significantly smaller role than in previous projections.

Source: 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.