Economic Review
1/2023

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BULGARIAN NATIONAL BANK

ECONOMIC REVIEW

1/2023

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BULGARIAN NATIONAL BANK

The BNB quarterly Economic Review presents information and analysis of balance of payments dynamics, monetary and credit aggregates, their link with the development of the real economy, and their bearing on price stability. External environment developments are also analysed since they directly affect the Bulgarian economy.

The Economic Review, issue 1/2023 was presented to the BNB Governing Council at its 18 May 2023 meeting. It employs statistical data published up to 28 April 2023. Expectations of economic trends in Bulgaria in the short term (until the third quarter of 2023), as described in this issue, are based on the BNB macroeconomic forecast prepared as of 4 April 2023. The estimates and projections published in this issue should not be regarded as advice or recommendation. Exclusively the information user is liable for any consequences thereof.

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Abbreviations

APP	Asset Purchase Programme
APRC	Annual percentage rate of charge
b.p.	basis points
CEE	Central and Eastern European countries
CFP	Consolidated Fiscal Programme
CNY	Chinese Yuan
CPI	Consumer Price Index
EC	European Commission
ECB	European Central Bank
EIB	European Investment Bank
EONIA	Euro OverNight Index Average
EU	European Union
EURIBOR	Euro Interbank Offered Rate
EWRC	Energy and Water Regulatory Commission
FDI	Foreign Direct Investment
FOB	Free on Board
FOMC	Federal Open Market Committee
GDP	Gross Domestic Product
HICP	Harmonized Index of Consumer Prices
HPI	House Price Index
IBEX	Independent Bulgarian Energy Exchange
IEA	International Energy Agency
IMF	International Monetary Fund
ISM	Institute for Supply Management
LEONIA	LEv OverNight Index Average
LFS	Labour Force Survey
LIBOR	London Interbank Offered Rate
LNG	Liquefied natural gas
M3	broad money
MF	Ministry of Finance
MFIs	Monetary Financial Institutions
mt	metric tons
MMBtu	Metric Million British Thermal Unit
NPISHs	Non-profit institutions serving households
NRRP	National Recovery and Resilience Plan
NSI	National Statistical Institute
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
PBoC	People's Bank of China
PCE	Personal Consumption Expenditures
PMI	Purchasing Managers' Index
p.p.	percentage points
PPI	Producer Price Index
SITC	Standard International Trade Classification
SNA	System of National Accounts
TPI	Transmission Protection Instrument
VAT	Value Added Tax
€STR	Euro Short-Term Rate

Summary

In the first quarter of 2023, dynamics of global economic indicators points to a slight acceleration of global economic activity growth, mainly reflecting the improvement in the economic situation in the services sector. Global inflation slowed down in the first quarter of 2023, driven by the annual decline in commodity prices, as well as by the ongoing monetary policy tightening of the major central banks. In mid-February–April 2023, the Federal Reserve raised its key interest rates by a total of 25 basis points, and the European Central Bank (ECB) by a total of 50 basis points, with the federal funds rate reaching 4.75–5.00 per cent and the ECB interest rates on the main refinancing operations, the marginal lending facility and the deposit facility reaching 3.50 per cent, 3.75 per cent and 3.00 per cent, respectively. The Federal Reserve continued to reduce its balance sheet size, limiting the reinvestment of proceeds from maturing treasury securities in its portfolio, and in March 2023 the ECB also started to reduce the size of its balance sheet by limiting reinvestment under the asset purchase programme (APP). These developments in the external environment imply favourable price terms of trade for Bulgaria in the first quarter of 2023 and a deterioration of financing conditions in the first and second quarters of 2023. Bulgarian exports of goods are more likely not to follow the upward trend in global economic activity over the first quarter of 2023 due to country-specific factors.

In the January–February 2023 period, Bulgaria was a net creditor to the rest of the world, with the current, capital and financial accounts of the balance of payments recording a positive balance. As a result, Bulgaria's gross international reserves declined by EUR 2.0 billion in January–February 2023, compared with a drop of EUR 3.7 billion in the same period of 2022, but overall they rose for the last 12 months as of February 2023 and remained high. The BOP current and capital account surplus in the last 12 months as of February 2023 increased to 2.3 per cent of GDP, from 0.3 per cent of GDP in December 2022, mainly due to a shift from a deficit to a surplus in the current account which showed lower deficits under primary income, net and goods trade items.

In the first quarter of 2023, annual growth of non-government sector's deposits in the banking system remained high, driven by the strong growth rate of nominal volumes in the retail trade sector and the ongoing wage growth in the economy. At the end of the reporting quarter, a slight slowdown in the growth of deposits was reported, which was determined by the non-financial corporations' sector and reflected a base effect of their strong increase over the same period of 2022. The annual growth of credit to non-financial corporations continued to follow a smooth downward trend under the influence of lower firms' demand for financial resources for working capital and accumulation of inventories, as well as tightening of credit standards by banks. In the household sector, both consumer loans and those for house purchase retained their trend of high growth rates in the first three months of the year in the context of weak and slow transmission of increases of monetary policy rates in the euro area to interest rates on new household loans in Bulgaria. Taking into account the slow and weak degree of transmission of ECB's monetary policy changes to monetary conditions in Bulgaria, the BNB Governing Council decided the MRR rate on funds attracted by banks from non-residents to be raised from 5 to 10 per cent as of 1 June 2023 and the MRR rate on banks' attracted funds from residents and non-residents - from 10 to 12 per cent as of 1 July 2023.

In the fourth quarter of 2022, the quarter-on-quarter growth of real GDP remained at 0.6 per cent, while annual GDP growth rate was 2.6 per cent. Overall for 2022, economic activity increased by 3.4 per cent in real terms as a result of these developments. By final consumption expenditure component, private and government consumption had the main positive contribution to annual real GDP growth in the fourth quarter of 2022, while changes in inventories contributed negatively thereto. Economic activity growth on an annual basis was recorded in industry and services sectors. In the fourth quarter of 2022 employment rose by 1.0 per cent year on year, mainly driven by the increase in the number of employed persons in the services sector. Compensation *per* employee continued to rise at high rates on an annual basis, supported by both higher inflation expectations in Bulgaria and growing labour shortages.

The growth rate of the composite indicator of economic activity in Bulgaria constructed by the BNB slowed down both on quarter-on-quarter and year-on-year basis in the first quarter of 2023 which is a prerequisite for similar dynamics in Bulgaria's real GDP as well. In the second and third quarters of 2023, economic activity growth is expected to continue to follow its downward trend on an annual basis. This will be supported by both the projected decline in inventories in the economy and the expected weaker exports of goods given the weakening of global economic activity and factors specific to Bulgaria.

Annual inflation, measured by the HICP, continued to gradually slow down, reaching 12.1 per cent in March 2023. These developments reflected mainly the base effect of the high growth rates of consumer prices in 2022 and, to a lesser extent, direct effects of significant declines in international oil and gas prices. In the first three months of 2023, the HICP continued to grow at relatively high monthly rates compared with historically recorded rates. Concurrently, factors related to the internal macroeconomic environment, which continued to exert inflationary pressure, involved strong consumer demand and higher unit labour costs amid a strengthening link between prices and wages. The groups of food and core components contributed most strongly to headline annual inflation. In the second and third quarters of 2023, annual inflation is projected to gradually moderate as a result of our assumptions of commodity price dynamics in international markets. Continued strong growth rates in private consumption and unit labour costs are expected to exert pro-inflationary pressure on consumer prices.

1. External environment

1.1. Current Business Situation

Global Environment

In the fourth quarter of 2022, global GDP growth slowed to 0.3 per cent on a quarterly basis (from 0.9 per cent in the third quarter), but the dynamics of economic indicators (global PMIs in services and manufacturing sectors) indicated a slight acceleration of growth in the first quarter of 2023, mainly due to the improvement in the economic situation in services and, to a lesser extent, in manufacturing. This is in line with the upward trend in new orders and employment indicators observed in both sectors since the beginning of the year. In addition, in February and March 2023, economic indicators show that, for the first time since July 2019, firms reported an improvement in the functioning of global supply chains. Despite these positive changes in economic indicators, the volumes of global industrial production and world trade declined year on year in the first two months of 2023, as the downturn in global trade was broad-based across regions, while the fall in industrial production was largely driven by developed market economies.

Global inflation moderated in the first quarter of 2023, standing at 7.5 per cent on an annual basis in March. The fall in global inflation reflected mainly the annual decline in commodity prices, as well as the ongoing monetary policy tightening by major central banks.

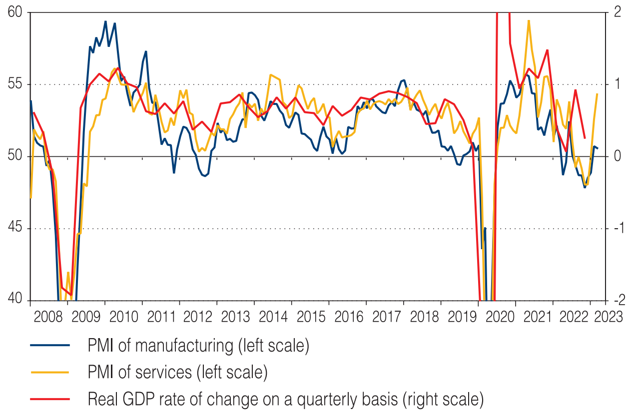
International Commodity Prices

The Brent oil price continued to decline in the first quarter of 2023, reaching USD 81.4[1] per barrel (EUR 75.9 per barrel), registering a year-on-year fall in both US dollar (-17.7 per cent) and euro (-14.1 per cent). Over the same period, natural gas prices posted an annual decline for the first time in nine quarters in both European

[1] Hereinafter referred to as the US dollar.

Manufacturing and Services PMIs and Change in World Real GDP

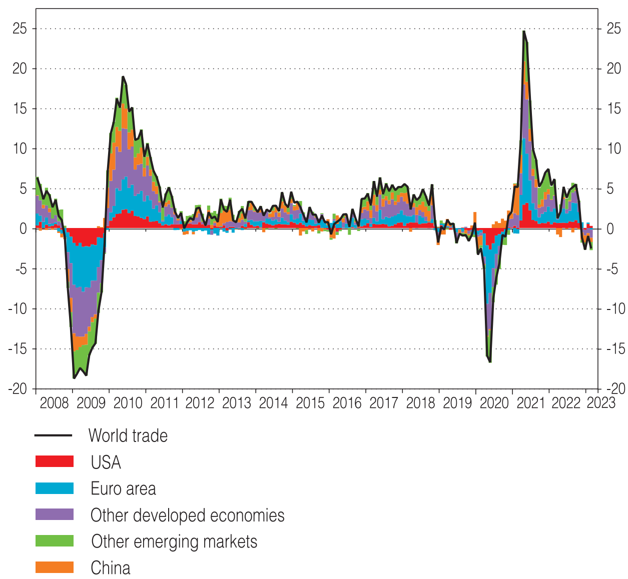
(per cent)



Sources: JP Morgan, World Bank.

World Trade in Goods

(per cent, percentage points, annual rate of volume change and contribution by region)



Source: CPB Netherlands Bureau for Economic Policy Analysis.

market (-48.4 per cent in US dollars, -46.2 per cent in euro) and the US market (-42.6 per cent in US dollars), with further increases registered in the Japanese market (21.0 per cent in US dollars). Over the quarter, market participants' concerns about global economic growth slowdown as a result of monetary policy tightening by leading central banks was a key factor behind the oil price decline. These concerns increased further in mid-March, triggered by global financial market tensions after the bankruptcy of several US regional banks and liquidity problems, undermining the viability of a global systemically important Swiss bank. An additional factor behind the decline in oil prices was the more moderate than expected recovery in China's economy following the removal of the anti-epidemic measures in the country. Another driver of lower oil prices was the ban on insurance and shipping of Russian oil at a price above the price cap introduced by the G7[2]. At the same time, the larger fall in oil prices was limited by the decision of OPEC+ to further cut oil output by around 1.16 million barrels[3].

The main contributors to the decline in natural gas price in Europe in the first quarter were lower demand due to unusually high winter temperatures, the normalisation of supplies and the ensuing maintenance of high natural gas stocks in most of EU Member States gas storage facilities.

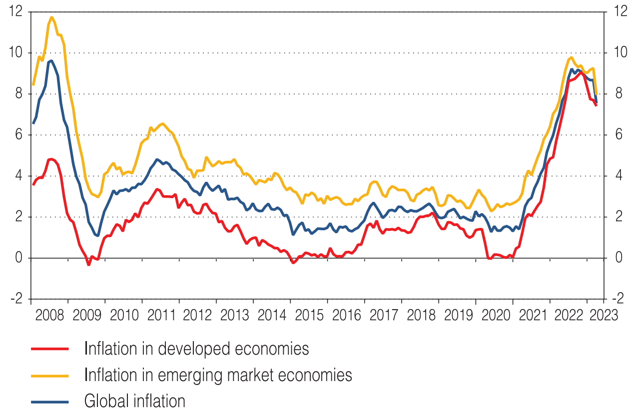
In the first quarter of 2023, the average metal and mineral price index decreased by 15.9 per cent on an annual basis. This decline reflected the impact of the base effect after the outbreak of the war in Ukraine in late February 2022, as well as the growing concerns among market participants about the increased negative prospects for both global economic activity and manufacturing sector. At the same time, rising demand for metals in China owing to the economic activity growth and additional economic

[2] The price cap prohibits EU and G7 companies from providing insurance or financing trade in seaborne crude oil from Russia after 5 December 2022, unless the oil is purchased at a price below 60 dollars per barrel. This price could be revised in the future.

[3] On 2 April 2023, OPEC+ participants announced a reduction in daily production by 1.16 million barrels as of May 2023, with the measure initially in place until December 2023. These restrictions are in addition to the supply reduction of 2 million barrels per day adopted in October 2022 and the unilateral supply restriction of 0.5 million barrels per day announced by Russia in February in response to the sanctions against the country.

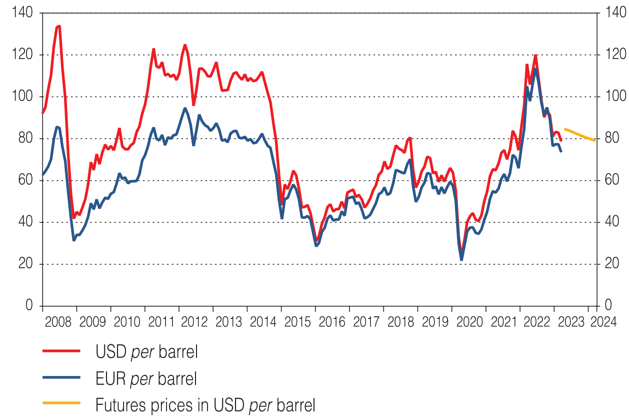
Inflation Measured through CPI

(per cent, on an annual basis; seasonally adjusted data)



Source: World Bank.

Prices and Futures of Brent Crude Oil

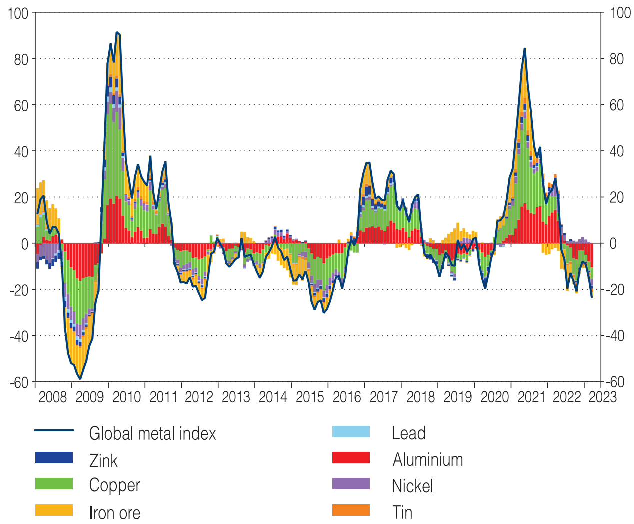


Note: Futures prices are average prices of April 2023 contracts, USD *per* barrel.

Sources: World Bank, ECB, JP Morgan and BNB calculations.

Metal Price Indices

(per cent; percentage points)



Note: Annual rate of change (per cent) and contribution by sub-component (percentage points) of relevant price indices measured in US dollars.

Sources: World Bank and BNB calculations.

incentives announced in the country had a limiting impact on price decline. Aluminium and copper made the largest negative contribution to the annual change in the metal index, as the price decline in copper, which is essential to Bulgarian exports, reflected the growing concerns among market participants about an imminent recession in the United States and slower than expected growth in economic activity in China.

Over the period from January to March 2023, the food price index declined by 5.6 per cent on an annual basis, the first year-on-year fall in the three-month index value since the third quarter of 2019. The subgroup of vegetable oils reported a substantial fall year on year, with the prices of soybean, palm and coconut oil contributing most to the annual decline in food index. The price of wheat, which is essential to Bulgaria's food exports, recorded an annual decrease during the quarter due to the base effect in 2022, the extension of the agreement between Russia, Ukraine, Türkiye and the United Nations for food exports and an increased global supply.

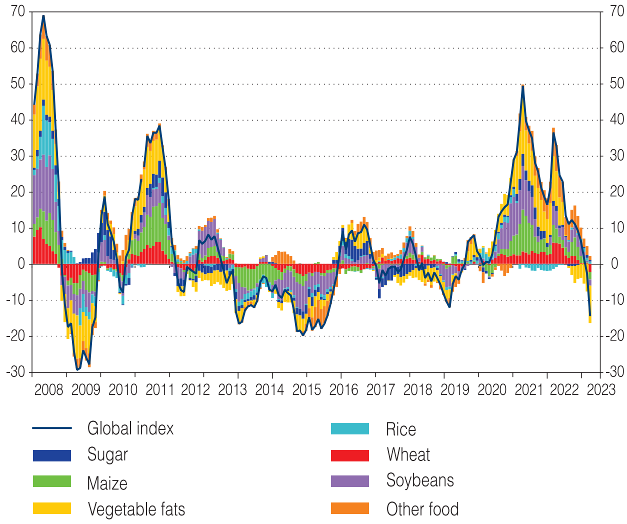
The United States

In the first quarter of 2023, US real GDP increased by 0.3 per cent on a quarterly basis (compared to 0.6 per cent in the fourth quarter of 2022). The slowdown in growth was driven mostly by the drop in inventories, which was partly offset by an increase in private consumption and growth in public sector's consumption and investment. Data on leading economic indicators available as of end-April 2023 indicate that US real GDP growth will be sustained in the second quarter of 2023.

Over the first quarter of 2023, US labour market conditions did not change significantly, remaining favourable. The number of employees in the non-agricultural sector increased by a total of around 1 million over the period (compared to an increase of 853 thousand in the fourth quarter of 2022), while the annual wage growth of 5.1 per cent in the private sector remained for the second consecutive quarter. The unemployment rate remained at a historically low level, with the average value of the indicator declining to 3.5 per cent in the first quarter, down from 3.6 per cent in the fourth quarter of 2022.

Food Price Indices

(per cent; percentage points)

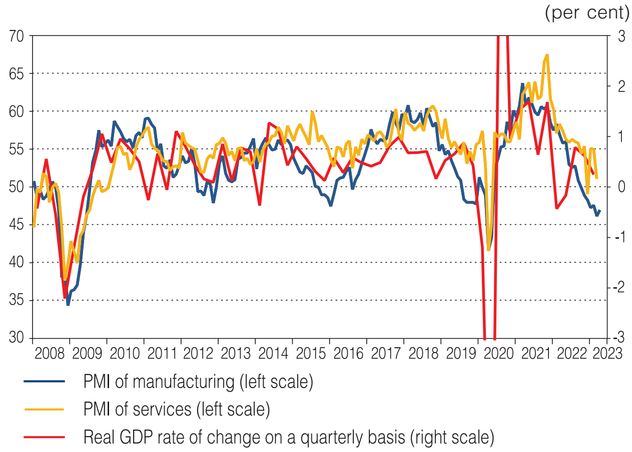


Note: Annual rate of change (per cent) and contribution by sub-component (percentage points) of relevant price indices measured in US dollars.

Sources: World Bank and BNB calculations.

Manufacturing and Services PMIs and Change in US Real GDP

(per cent)



Sources: Institute for Supply Management (ISM), Bureau of Economic Analysis.

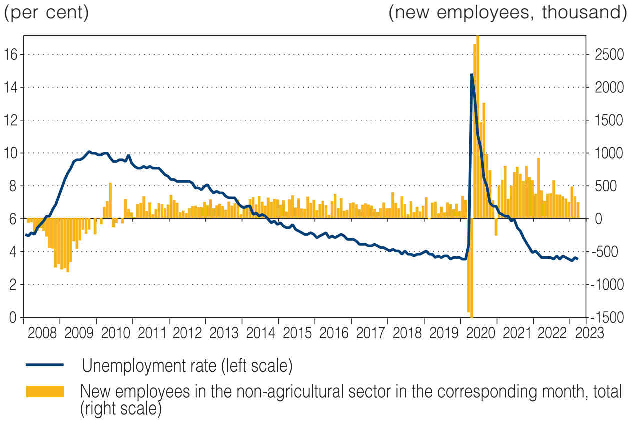
In the first quarter of 2023, annual consumer price inflation continued to slow, remaining, however, above the 2 per cent target, set by the Federal Reserve. The annual rate of change in the price index of personal consumer expenditure (PCE) fell to 4.2 per cent in March, from 5.1 per cent in February, with the average rate of the indicator for the first quarter standing at 4.9 per cent (compared with 5.7 per cent on average in the fourth quarter of 2022). The decline in inflation was mainly due to the fall in transport fuel prices, while lower food inflation made additional contribution. The annual growth rate of the core PCE price index (excluding food and energy products) decelerated to 4.6 per cent in March (compared to 4.8 per cent on average in the fourth quarter of 2022), with the slowdown reflecting mainly lower prices of used cars.

During the period mid-February to early April 2023, the Federal Open Market Committee (FOMC) continued the monetary policy tightening process and the implementation of the plan to reduce the Federal Reserve's balance sheet. At the March meeting, the FOMC raised the federal funds rate corridor by 25 basis points to a range of 4.75 – 5.00 per cent. At the same meeting, the FOMC signalled that the current targeted interest rate-rising cycle is nearing the end. During the period the Federal Reserve continued to reduce the size of its balance sheet, limiting the reinvestment of proceeds from maturing treasury securities in its portfolio.

In March 2023, the median of FOMC members' individual forecasts about the federal funds rate showed expectations of increasing by 25 basis points until the end of 2023, corresponding to a range of 5.00–5.25 per cent of the federal funds rate corridor.

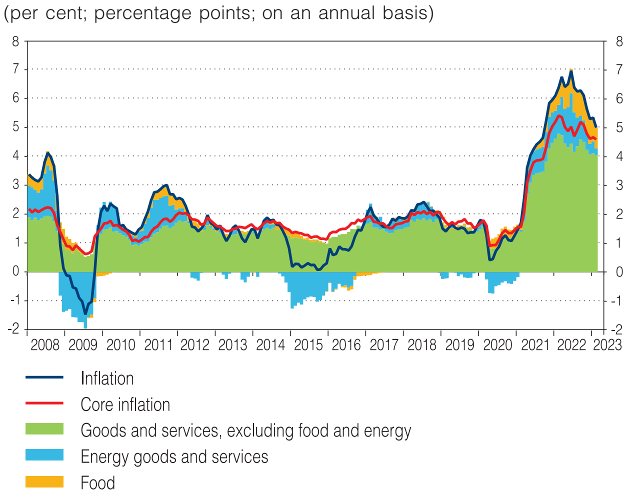
On 12 March 2023, in view of the tensions in the US banking sector, a new Bank Term Funding Program (BTFP) was created, in addition to the traditional method of providing liquidity to the banking sector – the discount window. Furthermore, on 19 March 2023 the Bank of Canada, the Bank of England, the Bank of Japan, the Swiss National Bank, the ECB and the Federal Reserve announced coordinated action to enhance the provision of US dollar liquidity through the standing swap line arrangements.

US Unemployment Rate and a Monthly Change in the Number of New Employees in the US Non-agricultural Sector



Source: Bureau of Labor Statistics.

US Inflation Rate

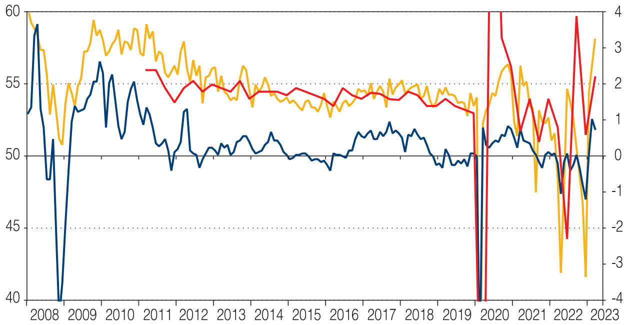


Notes: Inflation is measured by personal consumption expenditure index. Core inflation is measured by personal consumption expenditure index, excluding food and energy expenditure.

Source: Bureau of Economic Analysis.

China's Manufacturing and Services PMIs and Change in China's Real GDP

(per cent)



Sources: National Bureau of Statistics of China and China Federation of Logistics and Purchasing.

China

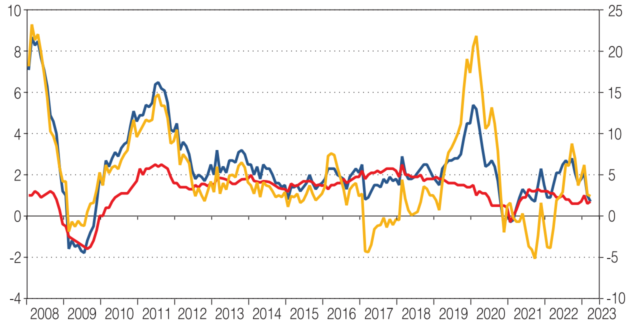
China's quarterly real GDP growth picked up to 2.2 per cent in the first quarter of 2023, from 0.6 per cent in the fourth quarter of 2022. The removal of restrictions due to the tightened anti-epidemic measures in the country was a major driver of the growth acceleration. The services and manufacturing sectors experienced a significant recovery in economic activity, both recording a strong increase in new orders.

In the first quarter of 2023, annual inflation in China slowed to 0.7 per cent in March (compared to 1.8 per cent in December 2022). The moderation of inflation was mainly driven by the base effect in 2022 in fuel prices. Food inflation also slowed reaching 2.4 per cent in March, from 4.8 per cent in December 2022. Core inflation remained at its level of December 2022 and stood at 0.7 per cent year on year in March. Services inflation accelerated from 0.6 per cent in December 2022 to 0.8 per cent in March 2023 due to increases in hotel and air ticket prices.

Between January and April 2023, the People's Bank of China cut the rate of minimum required reserves of large and medium-sized banks by 25 basis points to 10.75 per cent and 8.75 per cent, respectively, thus providing about 500 billion yuan (USD 72.6 billion) of additional liquidity to banks. The central bank indicated that a reduction in the rate was aimed at maintaining reasonable and sufficient liquidity in the banking system.

China's Inflation Rate

(per cent, on an annual basis) (per cent, on an annual basis)

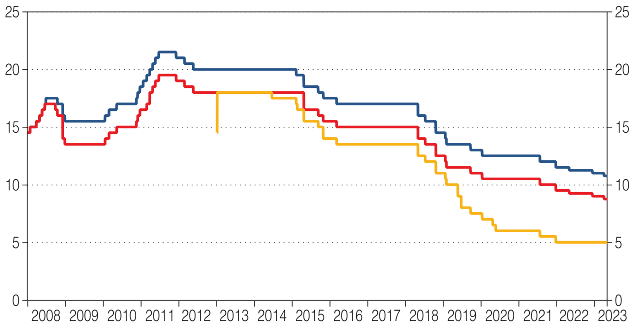


Notes: Inflation is measured by consumer price index. Core inflation is measured by consumer price index, excluding food and energy expenditure.

Source: National Bureau of Statistics of China.

Reserve Requirement Ratio in China

(per cent)



Source: People's Bank of China.

Euro Area

According to Eurostat preliminary data, euro area quarterly real GDP growth was 0.1 per cent in the first quarter of 2023, compared to -0.1 per cent in the fourth quarter of 2022. Germany, Bulgaria's largest trading partner, recorded zero real GDP change compared to the previous quarter, while growth accelerated to 0.5 per cent in Italy, Bulgaria's other main trading partner.

Data available as of end-April 2023 on economic indicators, including services and manufacturing PMI, indicate a slight acceleration in euro area quarterly GDP growth in the second quarter of 2023.

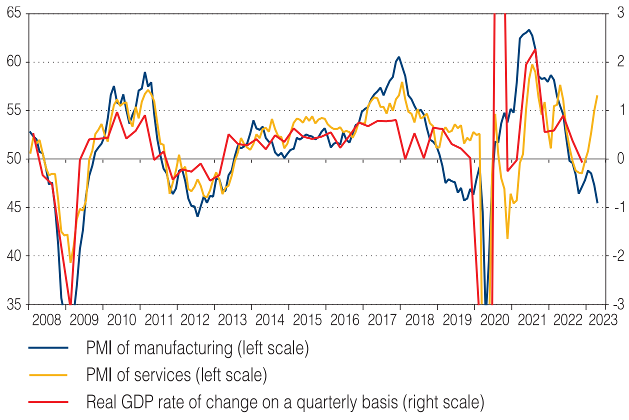
Data on labour market conditions in the euro area continued to record favourable developments. The unemployment rate fell slightly to 6.6 per cent in the first two months of 2023, from 6.7 per cent in the previous quarter, while the employment growth remained relatively high in the fourth quarter, despite continued moderation.

Between February and March 2023, euro area annual HICP inflation declined further reflecting mainly the significant fall in the contribution of energy products. In March 2023, inflation reached 6.9 per cent year on year, compared to 8.6 per cent in January. The slowdown in euro area inflation was largely driven by the annual decline in gas, electricity and transportation fuel prices. A slight upward trend in annual inflation was sustained in the other major commodity groups with the contribution of food to headline inflation being stronger. Core euro area inflation, excluding food and energy products, accelerated to 5.7 per cent in March, compared to 5.3 per cent in January 2023.

In view of the high inflation, deviating substantially from the ECB's 2 per cent target, the ECB Governing Council raised the benchmark rates during the period from mid-February to April 2023 by a total of 50 basis points, with the interest rates on the main refinancing operations, the marginal lending facility and the deposit facility standing at 3.5 per cent, 3.75 per cent and 3.0 per cent, respectively. At its March meeting, the ECB Governing Council stated that they were closely monitoring financial market developments following the turmoil in the US and Swiss

Manufacturing and Services PMIs and Change in Euro Euro Area Real GDP

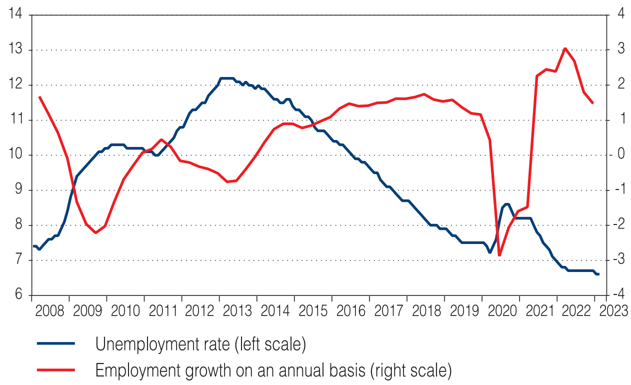
(per cent)



Source: Eurostat.

Euro Area Unemployment Rate and Employment Growth

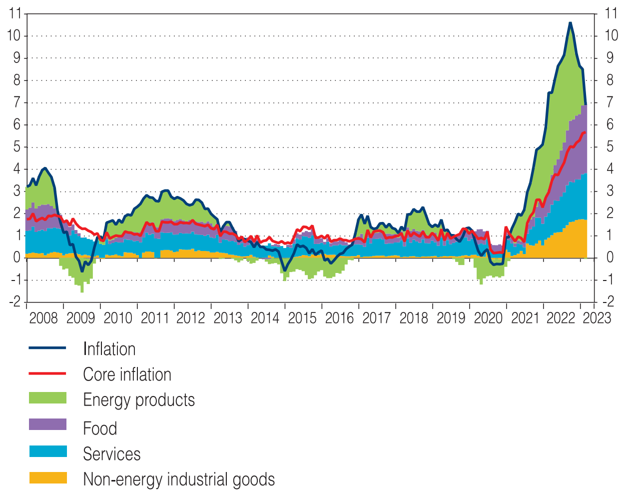
(per cent) (per cent; on an annual basis)



Source: Eurostat.

Euro Area Inflation Rate

(per cent; percentage points; on an annual basis)



Notes: Inflation is measured by the HICP. Core inflation is measured by HICP, excluding energy products, food, alcohol and tobacco products.

Source: Eurostat.

banking sectors and, if necessary, stood ready to take measures to prevent a deterioration in the economic outlook and financial stability in the euro area. In March the Eurosystem began to reduce the size of its balance sheet by an average of EUR 15 billion *per* month by limiting reinvestment under the APP.

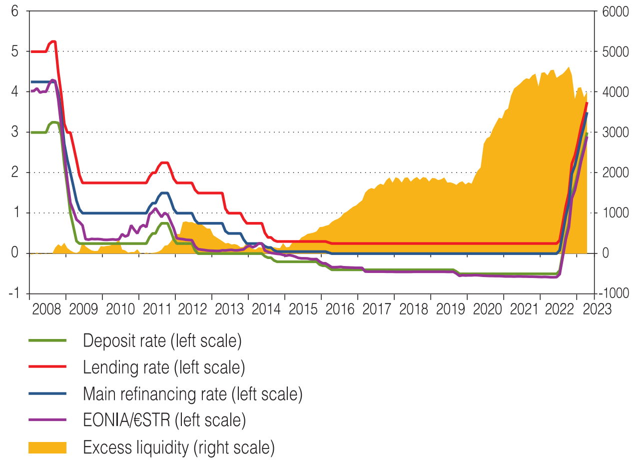
From January to April 2023, the ECB's interest rate rise and market participants' expectations of rate further increase continued to exert upward pressure on interest rates in the unsecured euro area money market and German government bond yields in maturity sectors of up to 12 months. The average value of the €STR, the overnight euro area's money market rate, increased in April 2023 to an average of 2.90 per cent, from 2.25 per cent in the first quarter of 2023. The German government bond yields in the longer-term maturity sectors declined over the period from January to April, with the yield falling by 7 basis points to 2.69 per cent in the two-year maturity sector and by 26 basis points to 2.31 per cent in the ten-year maturity sector. The decline in German government bond yields in the maturity sectors of over 12 months was driven by the turmoil in the US and Swiss banking sectors, that began in March 2023 and boosted the demand for German government securities as a low-risk asset. At the same time, the turmoil in the banking sector strengthened market participants' expectations of an approaching end of the upward interest rate cycle of leading central banks, as they lead to a further tightening of financial conditions.

1.2. Impact on the Bulgarian Economy

Signals from economic indicators of accelerated quarterly growth of global economic activity in the first quarter of 2023 are also likely to result in stronger external demand for Bulgarian goods and services over this period. This is a prerequisite for increasing economic activity in Bulgaria, given the high degree of openness of the Bulgarian economy and the large share of exports in GDP. However, Bulgarian exports of goods are more likely not to keep pace with external demand dynamics in early 2023 and to slow down on a quarterly basis due to country-specific factors related to the entry into force of the ban on exports to countries other than

ECB Interest Rates, EONIA, €STR and Excess Liquidity in the Euro Area Banking System

(per cent) (EUR billion)

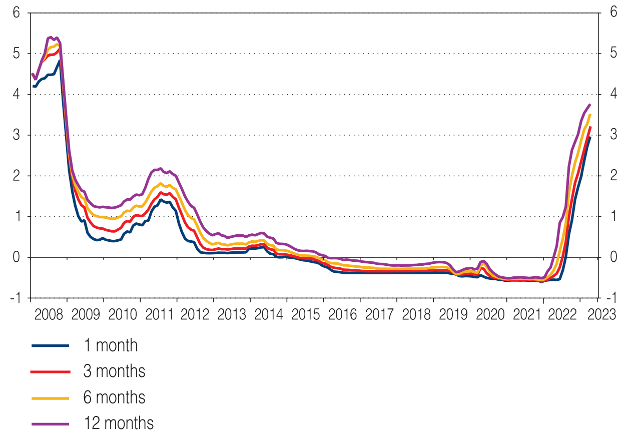


Note: The EONIA/€STR time series is composed of: EONIA between 2008 and 14 March 2017; pre-€STR between 15 March 2017 and 30 September 2019; €STR in the period after 30 September 2019.

Source: ECB.

EURIBOR

(per cent)



Source: ECB.

Ukraine of oil and petroleum products produced from Russian oil as well as planned repairs in large manufacturing enterprises in the second quarter of 2023[4].

The developments in commodity prices in international markets in the first quarter of 2023, mainly resulting in falling prices on an annual basis, especially of energy products, combined with the structure of the Bulgarian economy and foreign trade, point to the existence of favourable terms of trade conditions for Bulgaria in the first quarter of 2023[5].

The increase in key interest rates by the Federal Reserve System and the ECB until the beginning of the second quarter of 2023, the signals that the monetary policy tightening cycle will continue as well as the persistent instability in the US banking sector may result in deterioration of financing conditions for the Bulgarian government and private sector. According to the currency board principles, the upward trend in euro area money market rates in the euro area may be expected to continue to be passed through relatively quickly to interest rates on the interbank money market in Bulgaria. By the end of the first quarter of 2023, this pass-through was significantly lower in lending and deposit rates in Bulgaria, especially in the household sector, as continued high inflows of attracted funds, ample liquidity and competition in the banking sector remained the main factors behind the limited transmission. However, further increases in interest rates on loans and deposits in the country can be expected in the second and third quarters of 2023, driven by the decision of the BNB Governing Council of 26 April 2023 under which, as of 1 June 2023, the percentage of the minimum required reserves on the funds attracted by banks from non-residents is raised from 5 to 10 per cent, and as of 1 July 2023 the percentage of the minimum required reserves on funds attracted by banks from residents and non-residents is raised from 10 to 12 per cent.

[4] For further details, see the BNB Macroeconomic Forecast, March 2023.

[5] Favourable terms of trade refer to a higher annual growth in the deflator of exports of goods than that of imports of goods.

2. External financial flows

2.1. Balance of Payments and Foreign Trade

In the January – February 2023 period, Bulgaria was a net creditor to the rest of the world, with the current, capital and financial accounts of the balance of payments recording a positive balance.[6] As a result, Bulgaria's gross international reserves declined by EUR 2.0 billion in the January–February 2023 period (down by EUR 3.7 billion in the January–February 2022 period), mainly due to an increase in banks' foreign assets in the form of currency and deposits. However, international reserves rose in the last 12 months up to Febru-ary 2023, with their ratio to nominal imports of goods and services remaining at the high level of 7.5 months (no change compared to Decem-ber 2022). The excess of international reserves[7] to Bulgaria's short-term external debt remained also high, reaching 4.4 times in February 2023 (no change compared to December 2022).

Current Account and Capital Account

The balance of payments current and capital account surplus in the last 12 months as of February 2023 increased compared with December 2022 (0.3 per cent of GDP) to 2.3 per cent of GDP, mainly reflecting the shift from a deficit to a surplus on the current account. This was due to lower deficits in net primary income and goods trade balance. The capital account surplus also rose in the last 12 months as of February 2023 compared with December 2022 (0.9 per cent of GDP) to stand at 1.6 per cent of GDP.

Trade Balance and Foreign Trade in Goods

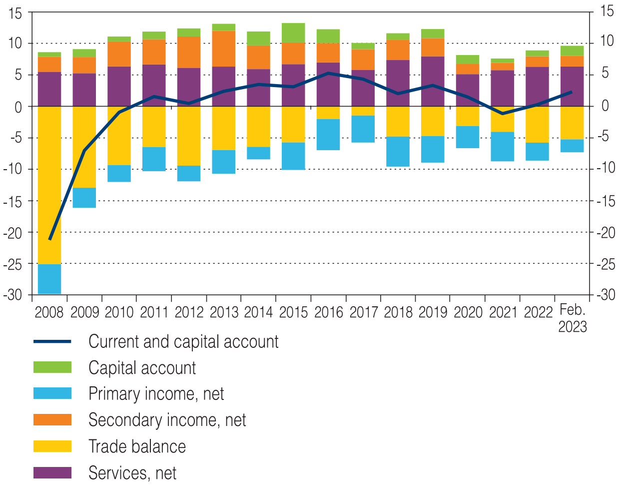
The trade balance deficit for the last 12 months as of February 2023 (-5.3 per cent of GDP) decreased compared with December 2022 (-5.8 per cent of GDP), reflecting a stronger annual growth in nominal exports of goods (15.4 per

[6] The analysis is based on the analytical reporting of the balance of payments.

[7] The analysis is based on gross international reserves on the BNB Issue Department balance sheet. The market value of international reserves includes changes stemming from transactions, valuation adjustments and price revaluation.

Current and Capital Account Flow Dynamics and Contribution by Components

(per cent of GDP)

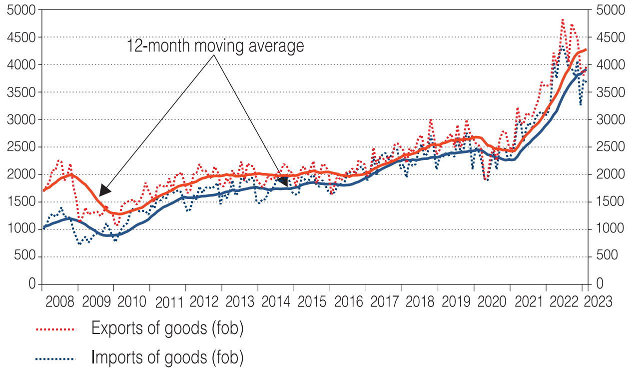


Notes: February 2023 data on the current and capital account flows are accumulated for the last 12 months.
Nominal GDP data for the last four quarters up to the fourth quarter of 2022 are used in calculating direct investment liabilities to GDP ratio for February 2023.

Sources: BNB, NSI, BNB calculations.

Nominal Exports and Imports of Goods Dynamics (Balance of Payments Statistics Data)

(EUR million)

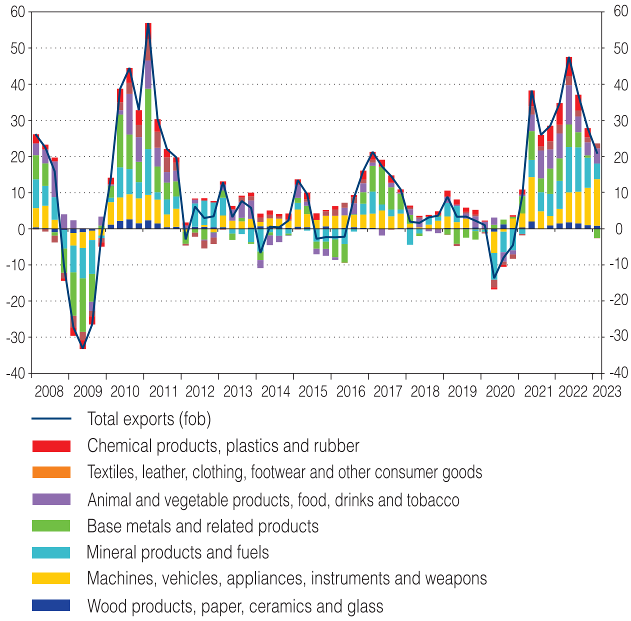


Note: Monthly data are used. The last observation is for February 2023.

Source: BNB.

Exports by Commodity Group under the Combined Nomenclature, Contribution to the Overall Rate of Change by Sub-components

(per cent, percentage points)



Notes: Quarterly data are used. Data on foreign trade flows for the first quarter of 2023 are for January and have been compared with the respective data for January 2022.

Source: BNB.

cent) compared to that in imports (7.5 per cent) for the January–February 2023 period. Detailed data on the structure by goods and the relative contribution of the price and real component to nominal changes in foreign trade flows over the period January-February 2023 are not yet available, however, on the basis of the January 2023 foreign trade data, it can be concluded that the year-on-year growth in exports of goods in nominal terms is mainly driven by the group of machinery[8] and, to a lesser extent, petroleum products. At the same time, the nominal growth of imports of goods in January 2023 was also mainly due to the imports of machinery, while imports of petroleum products and metals[9] decreased compared to January 2022. The lower imports of both product groups can be explained by the year-on-year decrease in the prices of these commodities in US dollars in international markets in January 2023, but also by weaker domestic demand, given the entry into force on 5 February 2023 of the ban on exports to countries other than Ukraine of oil and oil products produced from Russian oil[10], as well as by repairs planned in one of the largest manufacturing enterprises in the second quarter of 2023[11].

[8] In this chapter, it should read the machines, vehicles, appliances, instruments and weapons group under the nomenclatures for foreign trade statistics (Combined Nomenclature – CN).

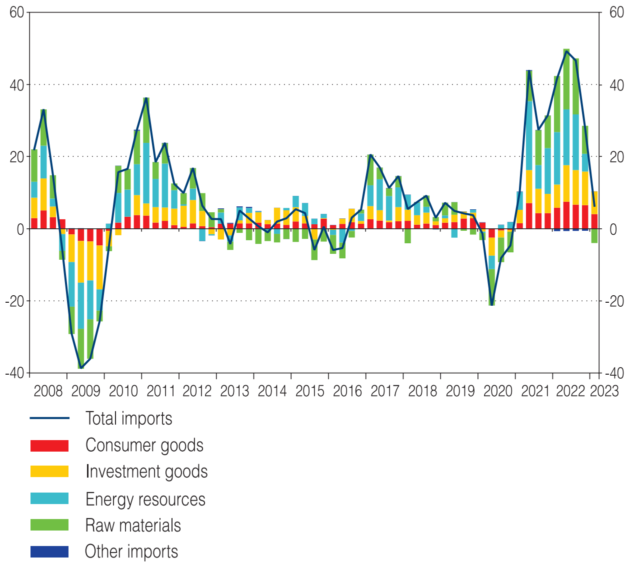
[9] In this chapter, it should read the mineral products and fuels group under the Combined Nomenclature.

[10] For further details, see Official Journal of the European Union, L 322, 16 December 2022.

[11] 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, which will result in a decrease in production on an annual basis.

Imports of Commodity Groups by Use, Contribution to the Overall Rate of Change by Sub-Components

(per cent, percentage points)



Notes: Quarterly data are used. Data on foreign trade flows for the first quarter of 2023 are for January and have been compared with the respective data for January 2022.

Source: BNB.

Balance on Trade in Services

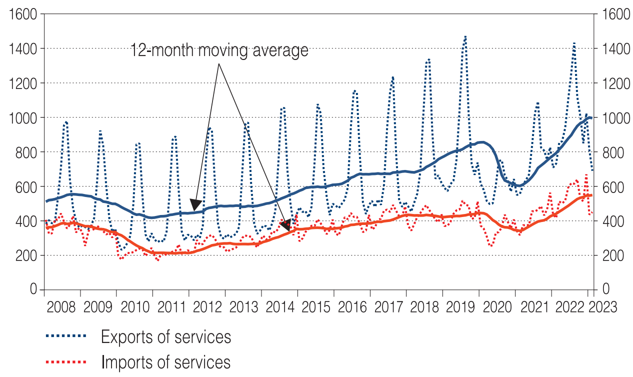
The surplus on trade in services over the last 12 months as of February 2023 remained broadly unchanged compared with December 2022, standing at 6.3 per cent of GDP. In the January–February 2023 period a similar year-on-year growth in nominal exports and imports of services was recorded. Exports growth reflected mainly higher revenue from travel-related services, which rose by 49.1 per cent compared to January–February 2022. According to NSI data, the number of visits of foreign nationals to Bulgaria increased by 36.4 per cent in January–March 2023, with visits from Greece and Romania contributing most significantly to this. Year-on-year growth of nominal imports of services in the January–February 2023 period was driven by higher expenditure on transport and travel by Bulgarian residents. NSI data for January–March 2023 indicate that Bulgarian residents' visits abroad rose by 6.9 per cent on an annual basis.

Net Primary Income Account and Net Secondary Income Account

Net primary income deficit for the last 12 months as of February 2023 (-2.1 per cent of GDP) decreased

Nominal Exports and Imports of Services Dynamics (Balance of Payments Statistics Data)

(EUR million)

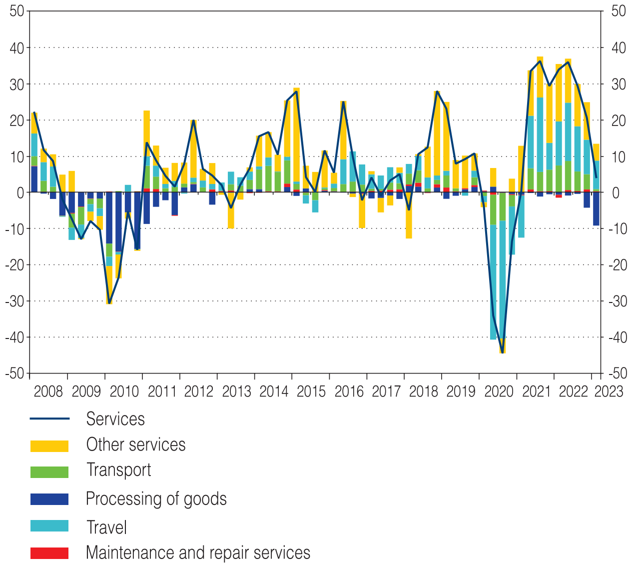


Note: Monthly data are used. The last observation is for February 2023.

Source: BNB.

Annual Change of Exports of Services and Contributions by Sub-components

(per cent, percentage points)

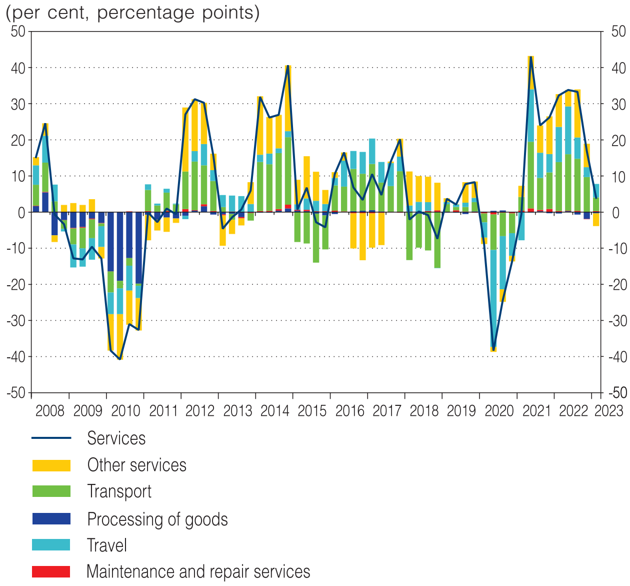


Notes: Quarterly data are used. Data on foreign trade flows for the first quarter of 2023 are for January – February 2023 and have been compared with the corresponding period of the previous year.

Source: BNB.

Annual Change of Imports of Services and Contributions by Sub-components

(per cent, percentage points)



Notes: Quarterly data are used. Data on foreign trade flows for the first quarter of 2023 are for January – February 2023 and have been compared with the corresponding period of the previous year.

Source: BNB.

from December 2022 (-2.9 per cent of GDP)[12], mainly due to the lower amount of outflows under equity income sub-item related to reinvested earnings on direct investment in the first two months of 2023. The lower amount of profits reinvested by non-residents in Bulgaria in January–February 2023 compared to the same period of 2022 was probably due to the banking sector, which in the first two months of 2022 remained subject to the restrictions imposed by the BNB on profit distribution and banks' foreign exposures[13]. These restrictions in January and February 2022 contributed to bringing the amount of reinvested profits in Bulgaria to its historical high.

Net secondary income surplus for the last 12 months as of February 2023 did not change substantially from December 2022 and stood at 1.7 per cent of GDP. A year-on-year decline in incoming current transfers to the general government sector was observed in January–February 2023.

Financial Account and International Investment Position

[12] Preliminary data subject to revision; revisions usually show an increase in outflows to non-residents.

[13] On 24 February 2022 the BNB adopted a resolution to suspend the restriction on banks' profit distribution for 2019 and 2020. From 1 April 2022, the Bank discontinued also the measure limiting banks' foreign exposures, which was introduced by the BNB in March 2020 and extended in January 2021.

The financial account recorded a positive balance of EUR 2367.1 million in the January–February 2023 period (EUR 3086.8 million during the period January–February 2022), but in the last 12 months as of February 2023 a small deficit was reported on the account. The positive financial account balance in the first two months of 2023 was formed as a result of a higher accumulation of Bulgarian residents' foreign assets compared to liabilities to non-residents. The increase in foreign assets was almost entirely driven by the rise in banks' assets (in the form of currency and deposits) and, to a much lesser extent, in portfolio investment of 'other sectors'. Liabilities to non-residents in the January–February 2023 period increased due to the government as a result of the issuance of Eurobonds in international capital markets in January 2023 to the amount of EUR 1.5 billion.

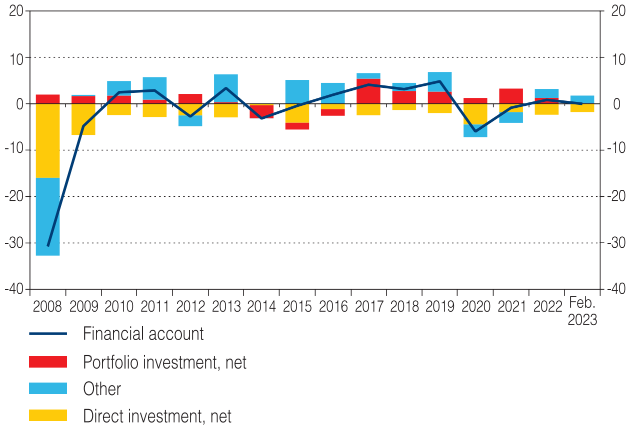
Foreign direct investment in Bulgaria increased by 5.1 per cent at the end of 2022 compared to the end of 2021, but its ratio to GDP decreased to 63.6 per cent (from 72 per cent at the end of 2021) due to strong nominal growth in economic activity in Bulgaria. By sector of economic activity, there was no change, with real estate activities, manufacturing and financial and insurance activities remaining the sectors with the highest share of foreign investment attracted in Bulgaria. The inflow of attracted direct investment (liabilities) in Bulgaria fell by 71.4 per cent on the corresponding period of the prior year in the January–February 2023 to stand at EUR 379.1 million[14], mainly in the form of debt instruments for non-financial corporations and reinvested earnings in the banking sector.

As a result of balance of payments developments and changes due to valuation adjustments and price revaluations, the negative value of the international investment position declined to -12.5 per cent of GDP by end-2022 from -18.5 per cent of GDP at the end of 2021. This dynamics reflected mainly the stronger rise in Bulgarian residents' foreign assets (mostly in the form of BNB reserve assets and banking sector foreign currency and deposits) compared to the increase in liabilities to non-residents. Nominal economic activity growth also contributed substantially to the decline in international

[14] Preliminary data subject to revision.

Financial Account Flow Dynamics and Contribution by Components

(per cent of GDP)



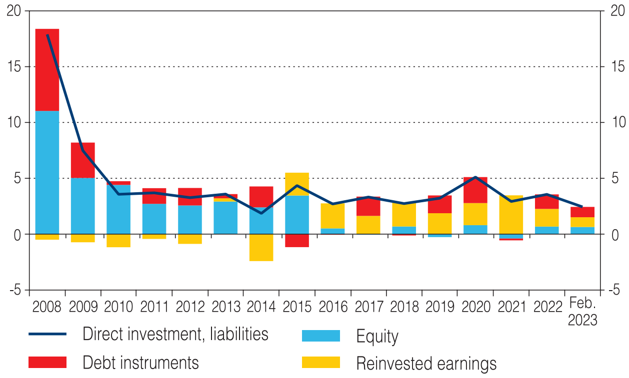
Notes: The Other item includes Other Investments, Net, and Financial Derivatives (Other than Reserves) and Employee Stock Options, Net.

February 2023 data on financial account flows are accumulated for the last 12 months. Nominal GDP data for the last four quarters up to the fourth quarter of 2022 are used in calculating direct investment liabilities to GDP ratio for February 2023.

Sources: BNB, NSI, BNB calculations.

Direct Investment – Liabilities by Type of Investment

(per cent of GDP)

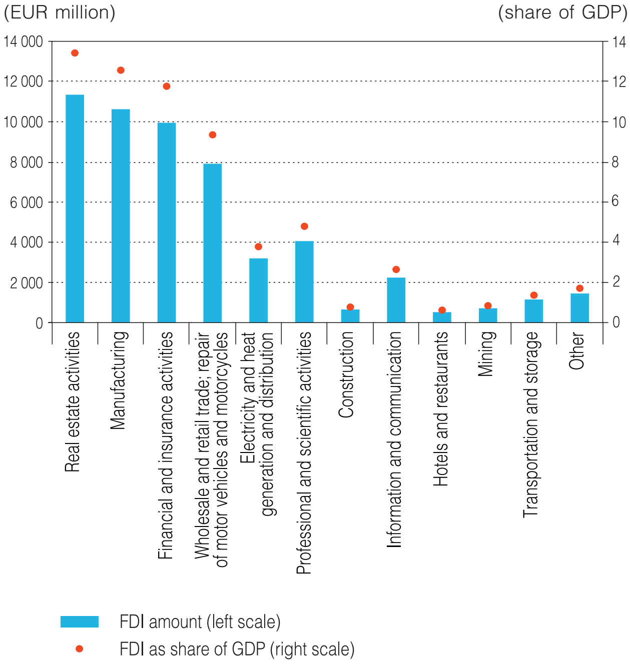


Notes: February 2023 data on direct investment liabilities flows are accumulated for the last 12 months.

Nominal GDP data for the last four quarters up to the fourth quarter of 2022 are used in calculating direct investment liabilities to GDP ratio for February 2023.

Sources: BNB, NSI, BNB calculations.

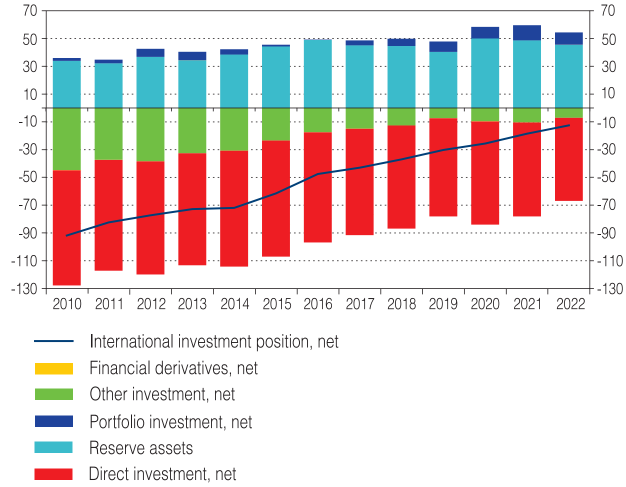
FDI in Bulgaria by Economic Sectors
as of December 2022



Sources: BNB, NSI, BNB calculations.

Bulgaria's International Investment Position

(per cent of GDP)



Sources: BNB, NSI, BNB calculations.

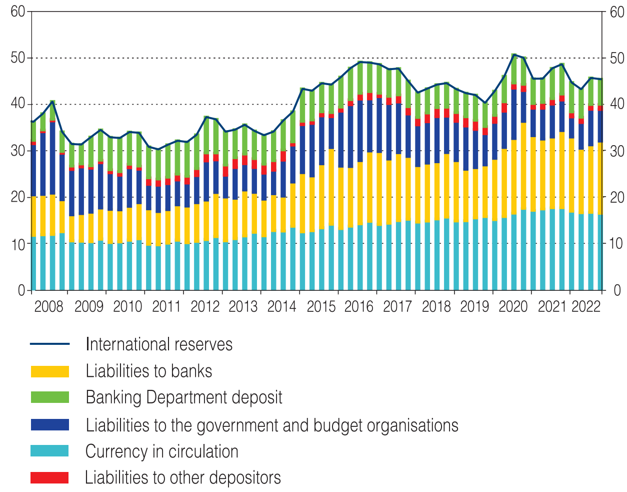
investment position to GDP ratio over the review period.

2.2. BNB Gross International Reserves

By the end of March 2023, the market value of Bulgaria's international reserves (including valuation adjustments and price revaluations) was EUR 38.1 billion (BGN 74.5 billion), falling by EUR 0.3 billion (BGN 0.6 billion) from December 2022. The amount of gross international reserves reflects the dynamics of financial flows generated in the process of external and internal economic factors interaction and corresponds to the BNB Issue Department balance sheet liabilities, according to the currency board principles. The decrease in the Issue Department liabilities as of March 2023 *vis-à-vis* the end of 2022 was largely driven by the decline in banknotes and coins in circulation by BGN 1.0 billion. Concurrently, Banking Department deposit rose by BGN 0.4 billion, reflecting higher returns from international reserve management. In December 2022, BNB's international reserves picked up by EUR 3.8 billion on an annual basis, accounting for 45.4 per cent of GDP (48.7 per cent of GDP at the end of December 2021). Higher Issue Department liabilities at the end of 2022 compared to December 2021 largely reflected the

Liabilities Structure of the BNB Issue Department Balance Sheet

(per cent of GDP)



Sources: BNB, NSI, BNB calculations.

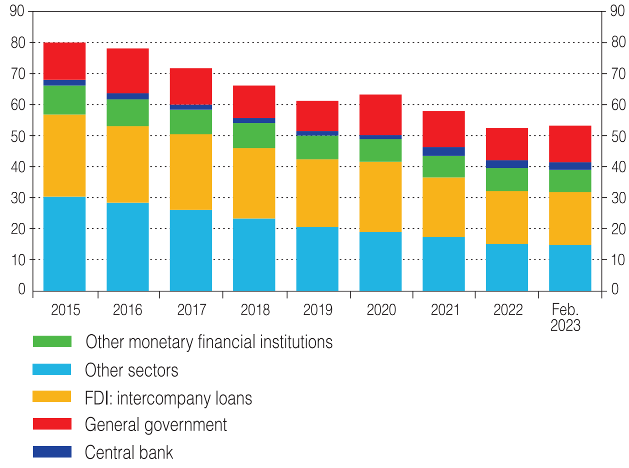
increase in banknotes and coins in circulation, in liabilities to banks and liabilities to the government and other budget organisations.

2.3. External Debt

As of February 2023, Bulgaria's gross external debt amounted to EUR 45 billion (53.3 per cent of GDP), rising by EUR 613.5 million compared to December 2022 (52.5 per cent of GDP). The increase in debt was entirely due to the general government sector as a result of the issuance of EUR 1.5 billion Eurobonds in international markets in January 2023. At the same time, the debt of the other major economic sectors declined in February 2023 compared with December 2022. As of February 2023, the share of long-term debt in total gross external debt rose to 81.6 per cent from 80.3 per cent in December 2022.

Gross External Debt

(per cent of GDP)



Note: Nominal GDP data for the last four quarters up to the fourth quarter of 2022 are used in calculating gross external debt to GDP ratio for February 2023.

Sources: BNB, NSI, BNB calculations.

3. Money and Credit

3.1. Monetary and Credit Aggregates

Deposits of the Non-government Sector

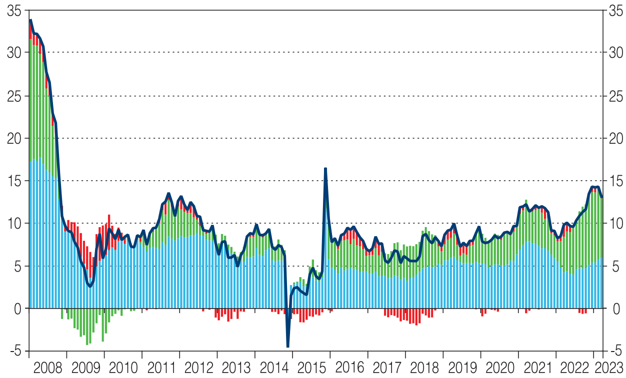
In the first quarter of 2023, the annual growth of non-government sector's deposits[15] in the banking system remained high, standing at 13.1 per cent as of March. A slight slowdown was recorded compared with end-2022 due to lower growth of non-financial corporations' deposits. The upward trend in household deposits, which started in the beginning of the third quarter of 2022, continued during the January–March 2023 period.

In the first two months of the year, the annual growth of non-financial corporations' deposits remained high at 27.0 per cent as of February (26.6 per cent in December 2022). The strong annual growth of nominal volumes in the retail trade sector[16] and the downward trend in inventories in the economy are some of the potential factors that can explain the continuing significant increase in corporate deposits. Concurrently, the annual growth of non-financial corporations' deposits slowed down to 21.6 per cent in March 2023 affected by a base effect of the strong increase in the same period of 2022, when significant energy price rises and a strong increase in firms' turnover in energy product sub-sectors were reported.[17]

In the household sector, the annual deposit growth accelerated further in the first quarter of the year to reach 9.4 per cent at the end of

Annual Growth of Non-government Sector's Deposits and Contribution by Sector

(per cent, percentage points)

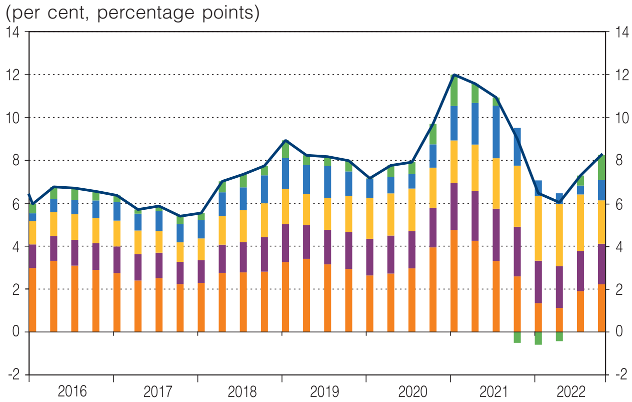


Note: The annual growth rate of non-government sector deposits in November 2015 reflects the exhausted base effect of KTB removal as a reporting unit from the monetary statistics in November 2014.

Source: BNB.

Annual Growth of Household Deposits and Contribution by Deposit Amount

(per cent, percentage points)



Source: BNB.

[15] Non-government sector's deposits include deposits of households, non-financial corporations and financial corporations. Deposits of households and non-financial corporations comprised the largest share of all non-government sector's deposits (96.5 per cent on average for the last 12 months as of March 2023), and therefore, the analysis is focused on these two sectors.

[16] In January and February 2023 annual growth in retail trade turnover, excluding trade in motor vehicles and motorcycles (at current prices), reached 21.4 per cent and 18.6 per cent, respectively.

[17] The sub-sectors related to the production of energy products include extraction of coal, extraction of oil and natural gas, production of coke and refined petroleum products, and production and distribution of electricity, heat and gas.

March 2023 (8.3 per cent in December 2022). The ongoing wage growth and the removal of the fee for cash above a certain amount by large commercial banks in the third quarter of 2022 are the factors potentially affecting the observed trend.[18]

Annual growth of the broad monetary aggregate M3 remained high in the first quarter of 2023, reaching 12.1 per cent by end-March. Overnight deposits continued to make a major, but gradually declining contribution to M3 growth, while the contribution of deposits with an agreed maturity of up to two years from negative in 2022 gradually turned low positive at the end of the first quarter of this year. The decline in the contribution of overnight deposits and reversal of the trend in deposits with agreed maturity were mainly driven by the non-financial corporations' sector. The ongoing rise in interest rates on new time deposits, which is more pronounced in non-financial corporations, made them a more preferred form of savings and may have contributed to the increases in corporate deposits with agreed maturity on an annual basis. In the first quarter of 2023, preferences of both corporations and households continued to be largely oriented towards lev savings.

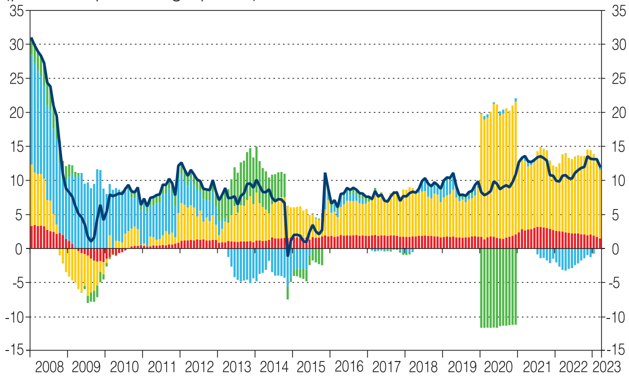
Reserve Money

At the end of the first quarter of 2023, reserve money grew by 9.5 per cent on an annual basis (11.1 per cent in December 2022), with banks' reserves having a larger contribution to this growth than that of currency in circulation.

In the first three months of 2023, banks' deposits with the BNB remained stable, with their volume at the end of March 2023, almost matching that at the end of the previous year. As a result of the rising deposit base, minimum required reserves continued growing, with increases also recorded in banks' excess reserves[19], while banks' funds in the TARGET2-BNB system

Annual Rate of Change in M3 and Contribution by Components

(per cent, percentage points)

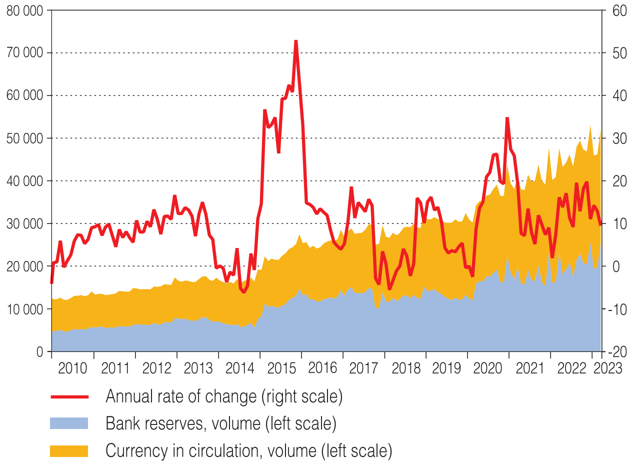


Note: In view of the analysis of the banking products and in line with the methodological requirements, transferable savings deposits have been reclassified from the Deposits redeemable at notice of up to three months indicator to the Overnight deposits of the household sector indicator with the January 2020 data.

Source: BNB.

Reserve Money

(BGN million) (per cent)



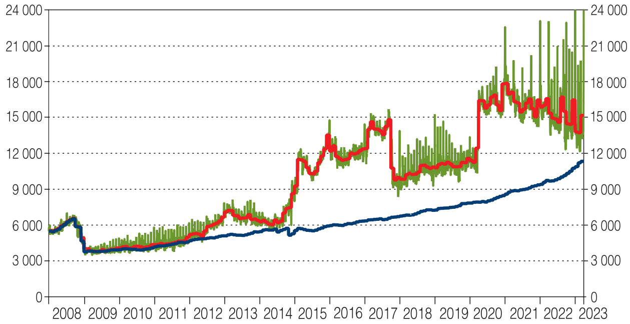
Source: BNB.

[18] The removal of this fee probably helped the contribution of deposits of more than BGN 1 million to the annual growth of household deposits to increase significantly in the second half of 2022, with a possible continuation of this trend in the beginning of 2023.

[19] The amendments to Ordinance No 21 of the BNB on the Minimum Required Reserves Maintained with the Bulgarian National Bank, effective from 4 June 2021 changed the definition of banks' excess reserves. According to the new definition, excess reserves shall be the excess of the holdings in reserve assets over the required amount of minimum required reserves.

Bank Deposits with the BNB

(BGN million)



Bank deposits with the BNB, total (daily value)
Bank deposits with the BNB, total (average value for the maintenance period)
Minimum required reserves under Ordinance No 21 of the BNB (average value for the maintenance period)

Source: BNB.

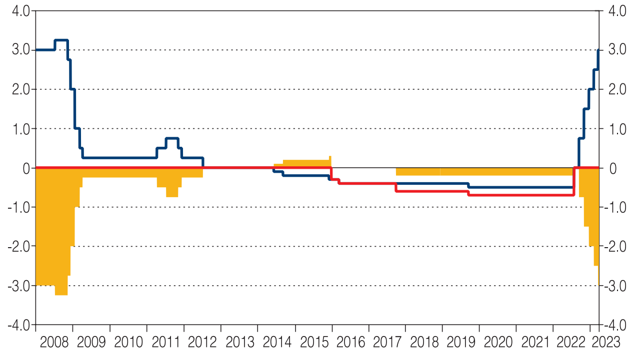
declined from the end of December 2022. As of March 2023 the effective implicit rate of minimum reserve requirements[20] remained close to that at the end of the previous year, coming to 9.32 per cent. Commercial banks' deposits with the BNB comprised 8.41 percentage points in minimum reserve requirements and the remaining 0.91 percentage points were in the form of recognised cash balances. In March 2023 excess funds over the required minimum of reserve assets under Ordinance No 21 was 22.1 per cent of minimum required reserves on an average daily basis, from 32.0 per cent in December 2022. The negative spread between banks' excess reserves with the BNB (0 per cent) and the ECB deposit facility rate (2.50 per cent as of 8 February 2023 and 3.00 per cent as of 22 March 2023) contributed further to the decline in average daily amount of banks' excess reserves, representing a potential factor for the reduction of part of the excess reserves by commercial banks owned by euro area member state banks.

The downward trend in the annual growth of currency in circulation from the high levels reached in mid-2021 was sustained in the first quarter of 2023. At the end of March, currency in circulation grew by 7.6 per cent (11.0 per cent in December 2022), with the more substantial

[20] Under Article 3 of BNB Ordinance No 21 on the Minimum Required Reserves Maintained with the Bulgarian National Bank by Banks, the rate of minimum required reserves for the funds attracted from residents is 10 per cent of the reserve base, from non-residents 5 per cent and from the state and local government budgets 0 per cent.

ECB Deposit Facility Rate and Interest Rate on Banks' Excess Reserves with the BNB

(per cent)

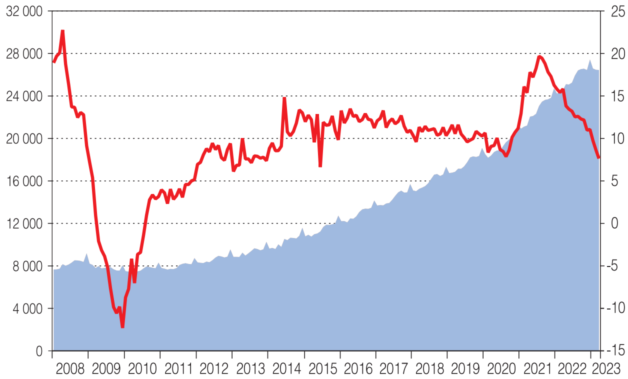


Interest rate on banks' excess reserves with the BNB
Interest rate on the ECB deposit facility
Spread between the interest rate on banks' excess reserves with the BNB and interest rate on the ECB deposit facility

Sources: BNB, ECB.

Currency in Circulation

(BGN million) (per cent)

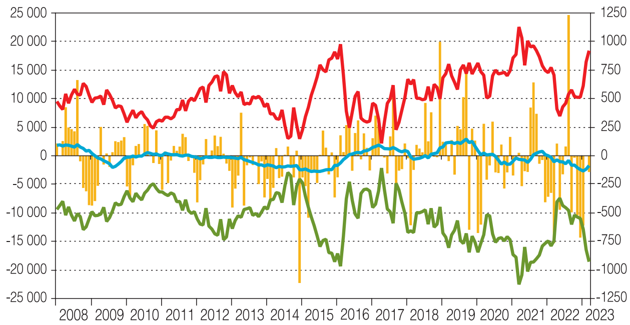


Annual rate of change (right scale)
Volume (left scale)

Source: BNB.

Foreign Currency Purchases and Sales between the BNB and Banks (on a Monthly Basis)

(EUR million) (EUR million)



Foreign currency purchased (left scale)
Foreign currency sold (left scale)
Net (right scale)
Net for the last 12 months (left scale)

Notes: Net means currency purchased minus currency sold by the BNB. Data refer to all bank transactions in foreign currency including liquidity management operations related to the transfer of own funds from lev accounts with the BNB to own accounts with the BNB in euro and *vice versa*.

Source: BNB.

slowdown since the beginning of the year being partly attributable to one-off factors.

Reserve currency (euro) trading with the BNB is the main lev liquidity management instrument of banks under currency board. In the first quarter of 2023, BNB sales (net) to banks amounted to EUR 0.8 billion.

Credit to the Non-government Sector

In the first three months of 2023, annual growth of credit to non-financial corporations continued its steady downward trend to reach 7.9 per cent in March (10.4 per cent at the end of 2022). The slowdown in the growth was influenced by both the downward dynamics of the overdraft, which fell to 12.3 per cent in March (17.5 per cent in December 2022), and weaker credit growth, excluding overdraft. The downward trend in inventories in the economy recorded since the end of 2022 resulted in weakening firms' demand for financial resources for working capital and built-up of inventories, which contributed to the lower annual overdraft growth. BNB Lending Survey[21] data indicate that in the fourth quarter of 2022 interest rates had a downward impact on the demand for corporate loans, while on the supply side banks reported a tightening of credit conditions for firms in terms of both interest rates and spread, and premium for riskier loans. Volumes of newly extended loans[22] to firms recorded a continuing upward trend over the first quarter of 2023.[23]

Annual growth of credit to households remained high over the first quarter of 2023, standing at 14.6 per cent at the end of March (unchanged compared to December 2022). Persistently high annual growth was retained in loans for house purchase and, to a lesser extent, consumer loans (17.8 per cent and 12.1 per cent respectively as of March 2023). Weak and slow transmission of increases in euro area policy rates to interest rates on new household loans in Bulgaria played a key role in sustaining high rates of credit growth to households, with rates on consumer loans remaining unchanged at historically low levels and on loans for house

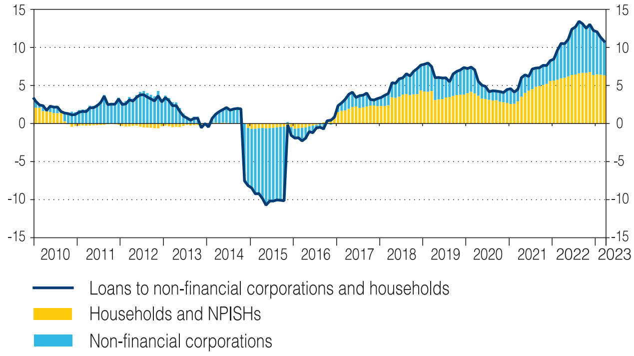
[21] Bank Lending Survey in Bulgaria is carried out by the BNB on a quarterly basis.

[22] The terms 'new' and 'newly extended' hereinafter referred to as the statistical category 'new business'.

[23] Based on 12-month moving average.

Annual Growth of Credit to Non-financial Corporations and Households and Contribution by Sector

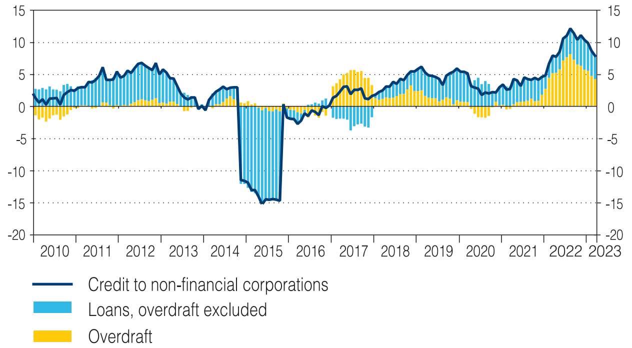
(per cent, percentage points)



Source: BNB.

Annual Growth of Credit to Non-financial Corporations and Contribution by Loan Type

(per cent, percentage points)

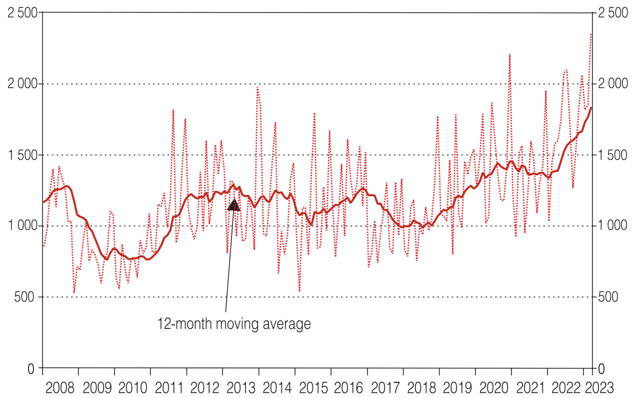


Note: The annual growth rate of loans to non-financial corporations in November 2015 reflects the exhausted base effect of KTB removal as a reporting unit from the monetary statistics in November 2014.

Source: BNB.

New Loans to Non-financial Corporations (Monthly Volumes)

(BGN million)



Source: BNB.

purchases declining in the first quarter of 2023. In real terms, taking into account annual inflation in consumer prices, interest rates on loans for house purchase and, to a lesser extent, on consumer loans remained strongly negative, thereby continuing to support household demand for loans. Newly extended household loans recorded a slight increase in volumes in the first quarter of 2023 and a stronger rise in consumer loans[24].

Bank Lending Survey

The weighted results of the Bank Lending Survey conducted by the BNB[25] show tightening of the standards[26] for granting both long-term corporate loans and consumer and housing loans over the fourth quarter of 2022. Banks reported the strongest tightening of credit conditions for firms in terms of interest rates and spread, and premium for riskier loans. In addition to interest rates, there was a tightening of loans to households with regard to fees and commissions charged. The main factors affecting the tightening of the bank credit policy (credit standards and conditions[27]) in the October–December 2022 period were the increased risk assessment and banks' lower risk appetite, which were more important for corporate loans and relatively less important for household loans.

In the fourth quarter of 2022, banks reported a continuing increase in demand for corporate loans. At the same time, the demand for consumer loans remained broadly unchanged compared with the July–September period, while a slight decline was observed in loans for house purchase following the strong demand in the first half of 2022. As regards firms' lending, an increase was observed mainly in short-term financing and, to a larger extent, the small and medium-sized enterprise sector. In the household sector, the need for financial resources for

[24] Based on monthly data.

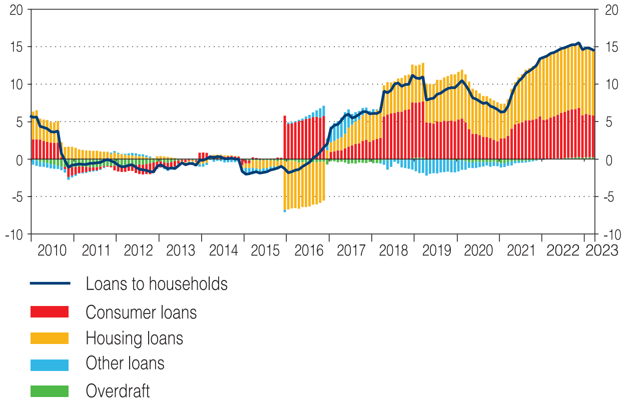
[25] Summarised results of the survey are presented through weighting bank responses by their market share in the relevant credit segment.

[26] Credit standards are understood as internal bank guidelines or criteria for loan approvals established prior to negotiating the terms of extended loans. Credit standards determine the type of the loan and collateral considered admissible by banks, taking into account specific priorities by sector, *etc.* Credit standards specify also all relevant conditions to be met by a borrower.

[27] Credit conditions typically involve the reference interest rate surcharge, the loan amount, conditions for its utilisation and other conditions, fees and commissions, collateral or guarantees to be provided by a borrower.

Annual Growth of Household Credit and Contribution by Loan Type

(per cent, percentage points)

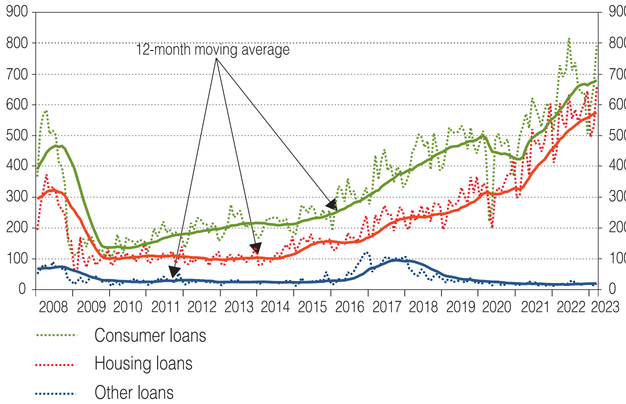


Note: Based on additional information received from reporting units, a revision of household loans was carried out according to their purpose of use in the period December 2015–August 2019.

Source: BNB.

New Loans to Households (Monthly Volumes)

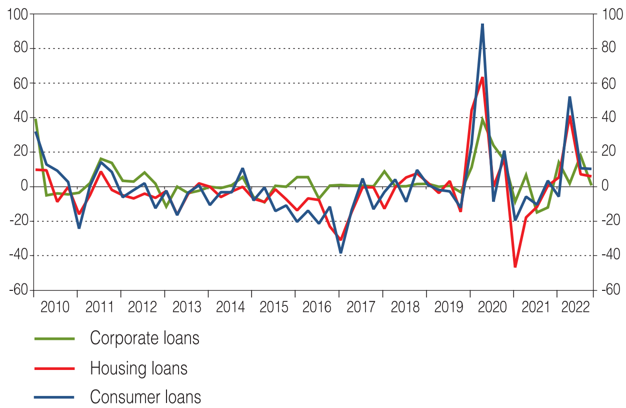
(BGN million)



Source: BNB.

Changes in Credit Standards

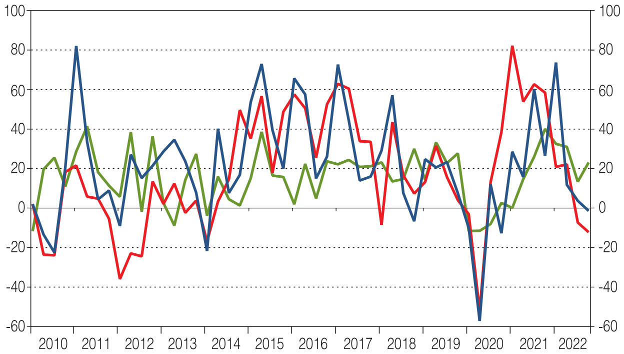
(balance of opinions)



Source: BNB.

Changes in Credit Demand

(balance of opinions)



Notes: As regards credit standards, charts present banks' balance of opinions defined as a difference in percentage points between the percentage of banks responding 'tightened' ('considerably' and 'somewhat'), and the percentage of banks responding 'eased' ('considerably' and 'somewhat'). As regards credit demand, the balance of opinions is defined in percentage points as a difference between the percentage of banks responding 'increased' ('considerably' and 'somewhat') and the percentage of banks responding 'reduced' ('considerably' and 'somewhat'). All opinions are weighted by the bank's market share in the relevant credit segment. Data presented in the chart show the change compared to the previous quarter.

Source: BNB.

purchasing current and durable goods, as well as household demand for funds to purchase additional home were the major factors contributing positively to credit demand, while the overall macroeconomic environment was a factor behind the lower demand for consumer loans.

3.2. Interest Rates

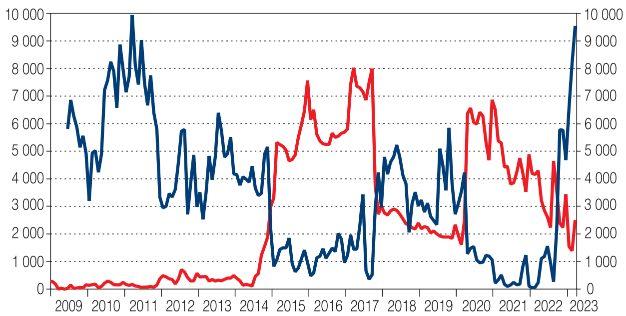
Interbank Money Market Interest Rates

The previous year's trend toward strong growth in trading volumes in the interbank money market continued in the first quarter of 2023. Overnight unsecured lending transactions in levs concluded in January–March 2023 were BGN 19,222 million (BGN 13,540 million in October–December 2022).

The continued increase in euro area policy rates during the first quarter of 2023 contributed to the further widening of the negative spread between banks' excess reserves rate and the ECB deposit facility rate. This, in turn, continued to provide an incentive for banks, which are owned by euro area banks, to reduce part of their excess reserves in the first quarter of the year[28] and to raise greater liquidity from the interbank money market.

Banks' Excess Reserves and Traded Volumes in the Interbank Money Market

(BGN million)



Source: BNB.

[28] On a quarterly basis in comparison with the last quarter of 2022.

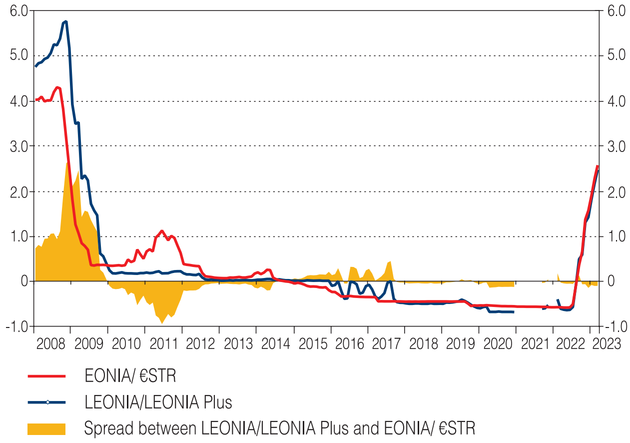
In the context of the currency board in Bulgaria, the increase in key euro area interest rates continued to be transmitted rapidly into interest rates in the interbank money market. As of March 2023, the monthly value of the LEONIA Plus index rose to 2.47 per cent (1.42 per cent in December 2022). The spread between LEONIA Plus and *€STR* remained slightly negative, amounting to -10 basis points (-15 basis points in December 2022).

Interest Rates on Deposits

In the first quarter of 2023 the average weighted interest rate on new time deposits of non-financial corporations and households increased slightly from the end of the previous year, reaching in March 1.22 per cent (1.01 per cent as of December 2022). Major factors for the limited pass-through of euro area interest rate increases to deposit rates in Bulgaria continued to be the high inflow of attracted funds and ample liquidity in the Bulgarian banking system. In the non-financial corporations sector, the average weighted interest rate on new time deposits grew by 44 basis points to 1.49 per cent as of March. Interest rates on corporate deposits denominated in BGN and euro increased more significantly, while the interest rate on US dollar deposits remained at a level similar to that of end-2022. In the household sector, the average weighted interest rate on new deposits decreased and stood at 0.55 per cent at the

Interbank Money Market Rates (Average Monthly Value) on Overnight Deposits

(per cent, percentage points)



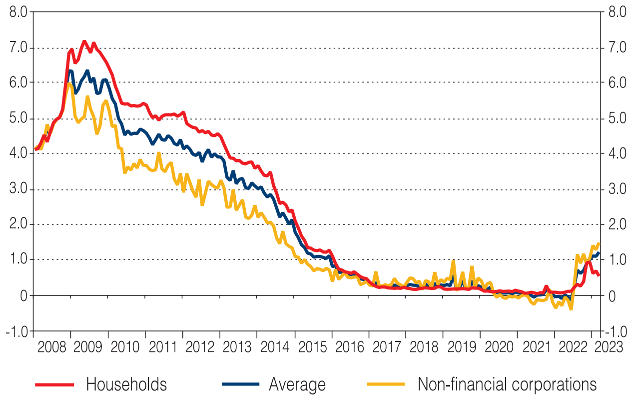
Notes: The EONIA/*€STR* series is composed of: EONIA between 2008 and 14 March 2017; pre-€STR between 15 March 2017 and 30 September 2019; €STR in the period after 30 September 2019.

LEONIA Plus replaced LEONIA on 1 July 2017. LEONIA Plus monthly values are calculated as an arithmetic average for days when overnight unsecured lending transactions are concluded in the interbank market in levs.

Sources: BNB, ECB.

Interest Rates on New Time Deposits by Sectors

(per cent)

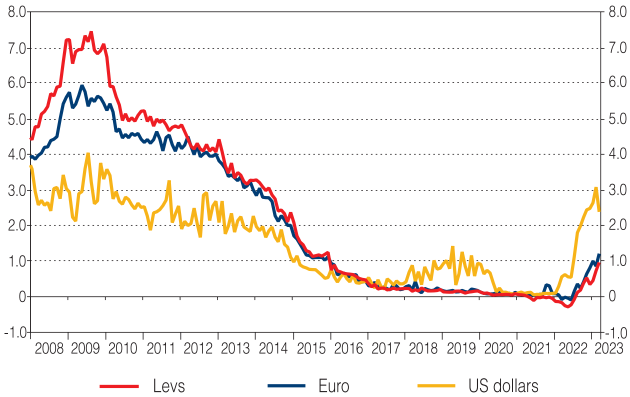


Notes: The average interest rate is calculated for all sectors, maturities and currencies weighted by the relevant volumes of new deposits. Average deposit rates for non-financial corporations and households are based on interest rates for all maturities and currencies weighted by relevant volumes of new deposits.

Source: BNB.

Interest Rates on New Time Deposits by Currency

(per cent)



Note: The average interest rates by currency are based on rates for all sectors and maturities weighted by relevant volumes of new deposits.

Source: BNB.

end of the first quarter (0.94 per cent as of December 2022). A decrease was recorded in interest rates on household deposits in euro and US dollars. Interest rates on household deposits in levs rose slightly, though remaining at a very low level (0.40 per cent compared to 0.33 per cent in December 2022).

Interest Rates on Loans

Interest rates on new loans to non-financial corporations continued to increase gradually in the first quarter of 2023. At the same time, in the household sector, lending rates on loans for house purchase remained broadly unchanged at a very low level, and those on new consumer loans registered a decline from the end of 2022. The ample liquidity and strong competition in the banking sector were the main factors behind the very limited transmission of euro area rate increases to the lending rates in Bulgaria and especially those on household loans.

In the non-financial corporations sector, interest rates on new lev and euro loans in January–March increased by 54 basis points to 3.66 per cent and by 91 basis points to 4.83 per cent, respectively. At the same time, dollar loans dynamics was downward, with their interest rate declining by 372 basis points to 4.29 per cent.[29]

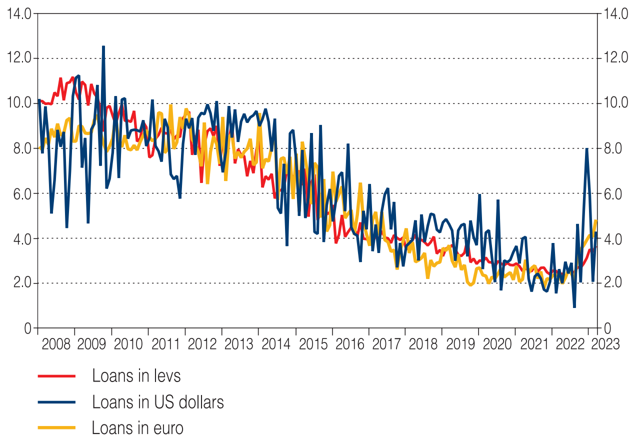
The household sector recorded a decrease in the annual percentage rate of charge (APRC) on new consumer loans in the first quarter of 2023 to 8.7 per cent (10.2 per cent at the end of the previous year), reflecting entirely the decrease in interest rates. APRC on housing loans remained unchanged from December 2022 at 2.9 per cent.

Taking into account the slow and weak transmission of key euro area rates to deposit and lending rates in Bulgaria, on 26 April 2023 the BNB Governing Council decided to raise, as from 1 June 2023, the minimum reserve requirement rate on funds attracted by banks from non-residents from 5 to 10 per cent, and from 1 July 2023, the minimum reserve requirements rate on banks' attracted funds from residents and non-residents from 10 to 12 per cent. The measure aims to tighten monetary conditions in Bulgaria by absorbing part of the existing excess liquid-

[29] Indicated values of interest rates on new loans to non-financial corporations in this section and on new loans to households in the next section are on a monthly basis.

Interest Rates on New Loans to Non-financial Corporations by Currency

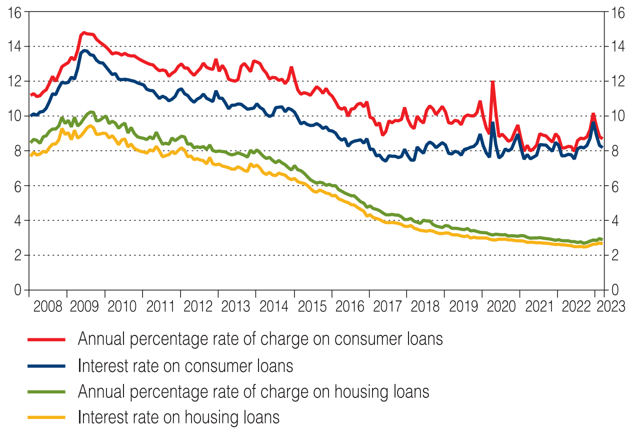
(per cent)



Source: BNB.

Interest Rates and APRC on New Household Loans

(per cent)

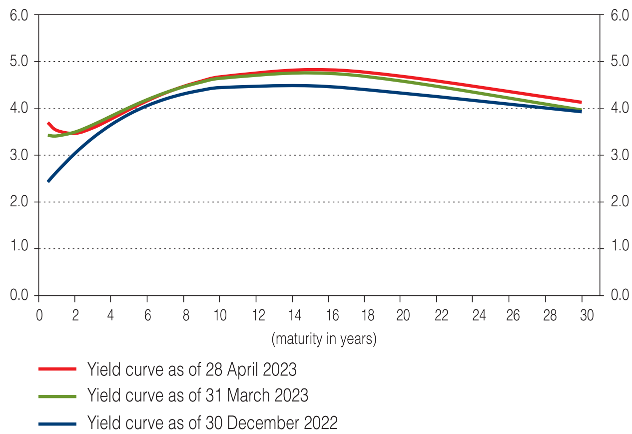


Note: The difference between the APRC and the relevant interest rates reflects the approximate per cent of all non-interest service charges on loans (including fees and commissions).

Source: BNB.

Bulgarian Government Bond Yield Curve

(per cent)



Notes: The reference yield curve of Bulgarian government bonds is constructed on the basis of an extended version of the Nelson–Siegel–Svensson model (1994). The chart employs daily yield data on Bulgarian government securities issued and traded in international capital markets, published in the MF Central Government Debt and Guarantees Monthly Bulletin.

Sources: MF, BNB calculations.

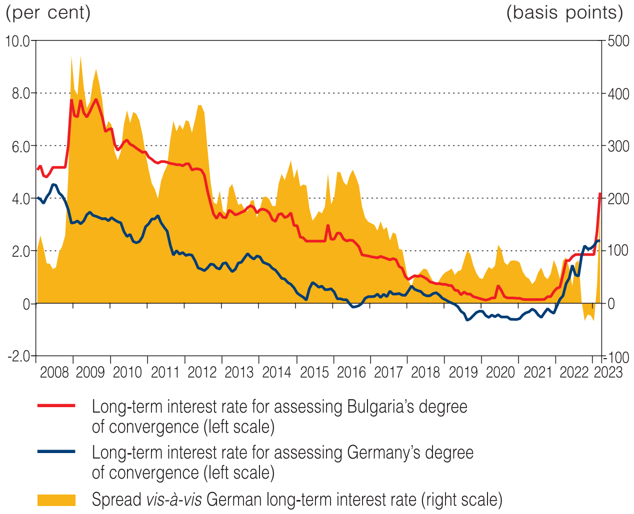
ity in the banking system, which will contribute to reducing the available resources for banks to lend, creating incentives for a faster and more significant pass-through of increased policy rates in the euro area to the cost of loans.[30]

Government Securities Yields

As of end-March 2023, yields on Bulgarian Eurobonds issued and traded in international capital markets increased from December 2022. Bulgarian government bond yield curve showed that the most pronounced increase was in maturity sectors of up to one year. German government bond yields also recorded increases in the maturity sectors of up to one year, driven by the rise in key ECB interest rates and market participants' expectations of their further increase. Across other maturity sectors, German government bond yields declined under the influence of demand for low-risk assets due to banking instability in the US and Switzerland in March. By the end of March 2023 the yield spread between Bulgarian and German government bonds widened in all maturity sectors compared to the end of December 2022, most pronounced in the bonds maturing in 2027 (by 61 basis points). A potential factor behind the spread widening was the political uncertainty in Bulgaria. As of 28 April 2023 Bulgaria's government bond yield curve was close to that at the end of March 2023.

In March 2023, the long-term interest rate for Bulgaria's degree of convergence rose to 4.21 per cent (1.85 per cent in December 2022), while the spread *vis-à-vis* Germany's long-term interest rate stood at 183 basis points.

Long-term Interest Rate for Assessing Bulgaria's Degree of Convergence and Spread *vis-à-vis* German Long-term Interest Rate



Sources: BNB, ECB.

[30] A more detailed analysis is provided in the research topic in this issue: 'Transmission of the ECB Monetary Policy to Interest Rates in Bulgaria. Assessment of Potential Effects of the Increase in Minimum Required Reserve Rate on Key Macroeconomic Indicators'.

4. Economic activity

4.1. Current Economic Environment

Gross Domestic Product

According to NSI seasonally adjusted data, real GDP in the fourth quarter of 2022 increased by 0.6 per cent on a quarterly basis (0.6 per cent in the third quarter), while on an annual basis, growth was 2.6 per cent, according to non-seasonally adjusted data. Reflecting this dynamics, overall for 2022, economic activity increased by 3.4 per cent in real terms, supported by (1) growth in employment and real wages in a context of increasing labour shortages; (2) strongly negative real-term interest rates on loans and deposits; (3) fiscal policy stimulus measures on government consumption, increased net transfers to households and compensation to firms for high electricity prices; (4) growth in external demand; and (5) firms' policy in the first nine months toward maintaining higher stocks of materials and finished products.

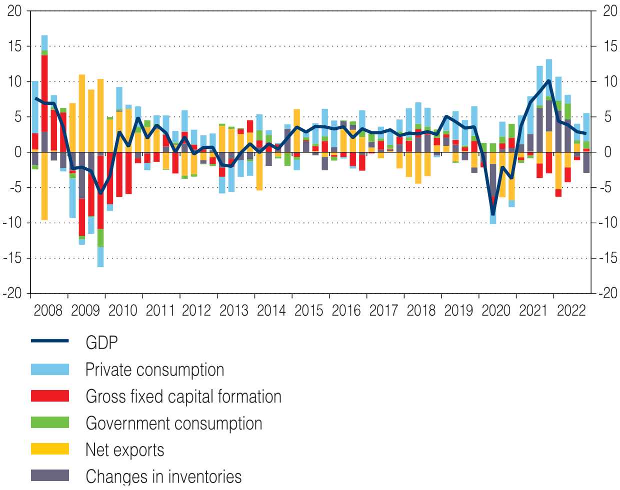
By final consumption expenditure component, domestic demand had the main positive contribution to annual real GDP growth in the fourth quarter of 2022, while changes in inventories contributed negatively thereto. The decline in inventories can be explained by the improved functioning of global supply chains and expectations of a decline in commodity prices in international markets.

In the fourth quarter of 2022, real household consumption grew by 6.8 per cent on an annual basis (from 4.2 per cent in the previous quarter) amid strong growth in nominal labour income which outpaced the growth rate in consumer prices. Other factors supporting private consumption growth were the improved indicator of consumer confidence, higher net fiscal transfers to households and growth in employment and lending.

In the fourth quarter of 2022, government consumption at constant prices accelerated to

Contribution to Real GDP Growth by Final Use Component (Quarterly Data)

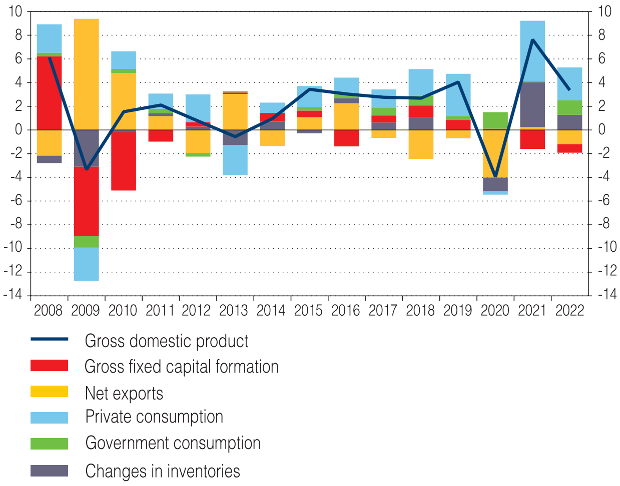
(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Sources: NSI, BNB calculations.

Contribution to Real GDP Growth by Final Use Component (Annual Data)

(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Sources: NSI, BNB calculations.

4.5 per cent year on year (from 3.8 per cent in the previous quarter). This was determined by the increased amount of healthcare payments, as well as higher expenses on intermediate consumption and wages in the public sector.

Over the fourth quarter of 2022, investment in fixed capital rose by 2.4 per cent on an annual basis, compared to a decrease of -3.3 per cent in the previous quarter. According to BNB estimates,[31] growth of total investment was entirely driven by the public sector, while the private sector reported a decrease. Factors likely to have had a limiting effect on household investment activity were the persistence of a relatively high degree of economic uncertainty, continuous shortages of some raw materials (mainly in manufacturing and construction), significant price rises in investment goods, and weakening household sentiments for house purchases.

Net exports had a low positive contribution to the annual growth of real GDP in the fourth quarter of 2022, driven by the higher increase in real exports of goods and services compared to imports. Both goods and services contributed positively to the 9.4 per cent growth in exports. On an annual basis, the 8.5 per cent change in imports in real terms reflected dynamics of final demand elements and the amount of their import component.[32]

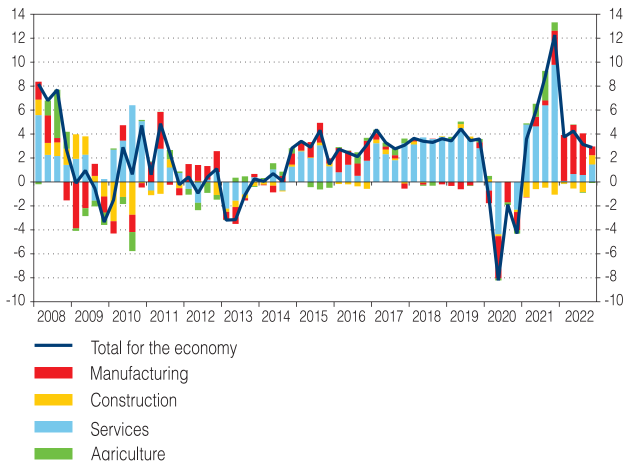
In the fourth quarter of 2022, gross value added in Bulgaria increased in real terms by 0.7 per cent from the previous quarter, according to seasonally adjusted data, with its year-on-year growth reaching 2.9 per cent, according to non-seasonally adjusted data. In the industry sector, gross value added rose by 7.2 per cent on an annual basis, which was driven by a simultaneous increase of activity in manufacturing and construction sub-sectors. The increase in real value added in manufacturing was in line with the growth of both goods exports and domestic demand. Annual value added in the services sector grew by 2.0 per cent in the fourth quarter of 2022, with all sub-sectors

[31] The NSI does not provide official data on the breakdown of total investment into private and public. The series on private investment is constructed by the BNB as a difference between total investment and the estimated amount of public investment on an accrual basis in real terms. Public investment estimates are based on information from quarterly non-financial accounts of the general government sector, published by the NSI.

[32] For details, see the Balance of Payments and External Trade Section in Chapter 2: External Financial Flows.

Gross Value Added Rate of Change in Real Terms and Contribution by Sector

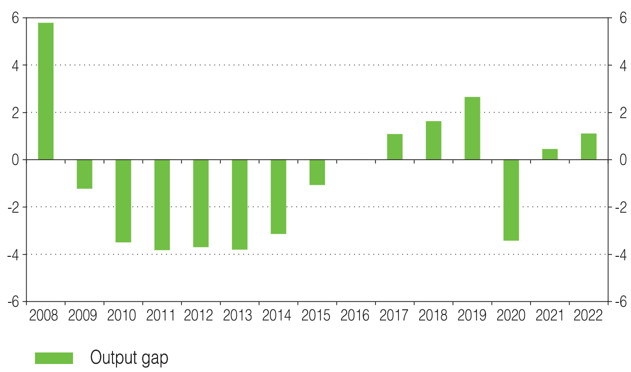
(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Sources: NSI, BNB calculations.

Deviations of Economic Activity from Potential Output

(per cent, output gap)



Notes: These results are obtained through the application of a multivariate model with unobserved components presented in the research topic on *Methods for Estimating the Cyclical Position of the Economy*, *Economic Review, issue 1/2019*. The output gap is the deviation of the current level of economic activity from potential output measured as a percentage of potential output.

Sources: NSI, BNB calculations.

contributing to this effect, except for trade, transport, accommodation and food service activities, while the sub-sector of the general government, education, human health and social work activities had the most significant positive contribution. In the fourth quarter, value added in agriculture fell by -0.4 per cent on an annual basis.

Cyclical Position of the Bulgarian Economy

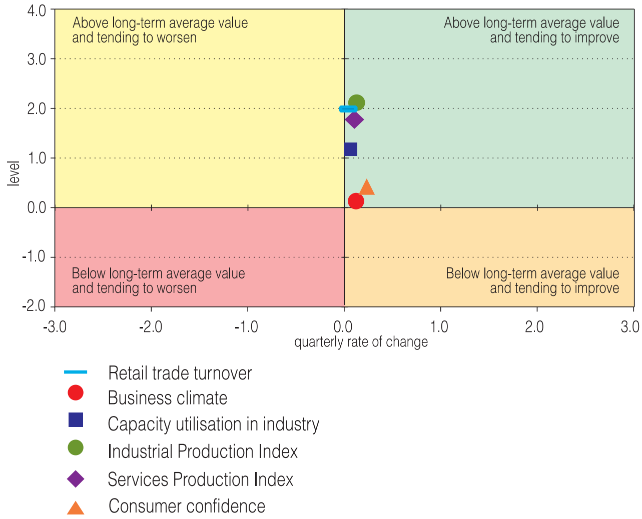
According to BNB estimates, the cyclical position of the economy in the fourth quarter of 2022 was still marked by a positive output gap, given the significant increase in economic activity in 2021 (by 7.6 per cent) and 2022 (by 3.4 per cent). This suggests that some of the output factors in the economy were employed above their potential level, which was in line with the upward pressure on the prices in product and factor markets, mainly concerning the labour market.

NSI's short-term business statistics indicators provided positive signals of the economic development in the first quarter of 2023.[33] Indicators tracking firms' current production activity on the basis of reporting data (industrial production index,[34] services production index and turnover index in retail trade) stood significantly above their long-term average value, while tending to improve further. Indicators reflecting economic agents' sentiments (business climate and consumer confidence) improved significantly on a quarterly basis, thus standing also above their long-term average. These developments were driven by improved assessments of economic agents about the current economic situation in Bulgaria, as well as by emerging more optimistic expectations for economic developments in the coming months. Reduced differences in firms' assessments of their current economic situation and short-term economic outlook resulted in a decrease of the uncertainty indicator calculated by the BNB in the first quarter of 2023.

[33] Data on the services production index are available as of January 2023, while the indices of industrial production and retail trade turnover are available as of February 2023. Data on business climate, consumer confidence and capacity utilisation are available as of March 2023.

[34] In January–February 2023, a slight decline was reported in the quarterly industrial production index. However, after the application of the HP filter (with a parameter λ = 100) in order to eliminate short-term data fluctuations, the transformed series shows a continued improvement in industrial production.

Cyclical Position of the Economy in the First Quarter of 2023, According to Selected Economic Indicators

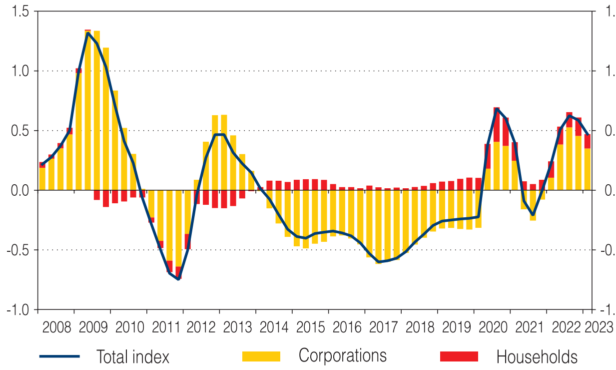


Notes: The chart compares the level (the vertical axis) and the quarterly change (the horizontal axis) of selected economic indicators. Data are averaged for available months in the first quarter of 2023. Each series is transformed using the HP filter (with a parameter λ = 100) in order to eliminate short-term fluctuations and then it is standardised. Standardisation of statistical series in order to improve their comparability is a reason for constructed indicators to change within the range of -1 to 1, and they are characterised by a historical average value of 0 and a standard deviation of 1. The four chart grids allow to distinguish the positions of the relevant economic indicators in individual phases of the business cycle. For example, if a given indicator is in the upper right grid, it means that it is characterised by a positive deviation from its long-term average value and continues to increase on a quarterly basis.

Sources: NSI, BNB calculations.

Indicator of Differences in Economic Agents' Assessments about the Expectations of Economic Development in the Short Term

(deviation from long-term average value)



Notes: Higher values of this indicator should be interpreted as an increase in differences of economic agents' assessments. Positive/negative values of the total index show that differences in assessments are above/below their long-term level. This indicator is constructed under a methodology presented in: *Ivanov, E. Constructing an Uncertainty Indicator for Bulgaria, BNB Discussion Papers 109/2018,* and corresponds to the indicator U1 constructed in the paper.

Sources: EC, BNB calculations.

Expected Economic Activity

In the first quarter of 2023, the growth rate of the composite economic activity indicator[35] constructed by the BNB slowed down on both quarterly and annual basis, which is a prerequisite for similar dynamics to be observed in Bulgaria's real GDP. The quarterly growth of the composite indicator reflected mainly increased retail trade volumes at constant prices, growth of the services production index, credit activity acceleration, improving sentiment of firms across all major sectors, and positioning of the global *PMI* above the neutral limit of 50 points.

In the second and third quarters of 2023, economic activity growth is expected to further follow its downward trend on an annual basis.[36] This will be driven by both the projected negative contribution of net exports given the weakening global economic situation and factors specific to Bulgaria, such as the ban on exports to countries other than Ukraine of petroleum products made from Russian oil, and planned repairs in important export-oriented enterprises in Bulgaria. Other factors which will limit the annual growth in economic activity are the projected decline in government consumption in real terms, and the continued downward trend of end-2022 in accumulated inventories in the economy.

4.2. Labour Market

Labour Supply

In the fourth quarter of 2022, labour supply, as measured by labour force[37] (comprising employed and unemployed persons), rose by 3 per cent year on year. Bulgaria's economic growth continued to support the activation of inactive people, declining by 5.1 per cent on an annual basis, given a 0.6 per cent drop in the population

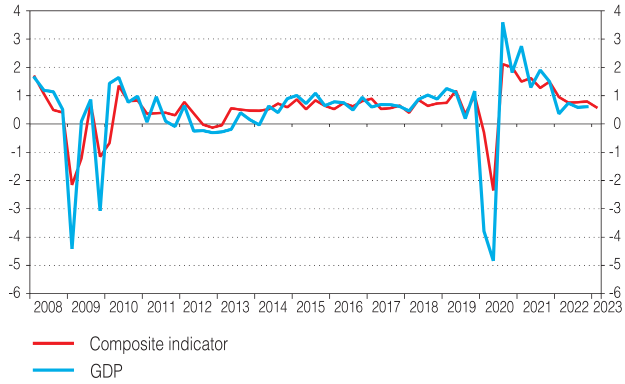
[35] The services production index is available as of January 2023, while production indices for industry, construction and retail turnover are available as of February 2023. Data available for the entire first quarter of 2023 are: business climate and consumer confidence indicators, industrial producer prices, new loans to corporations and households, unemployment rate and global PMI.

[36] For further details, see the BNB *Macroeconomic Forecast, March 2023*.

[37] NSI Labour Force Survey data are used.

Composite Economic Activity Indicator

(per cent, on a quarterly basis)

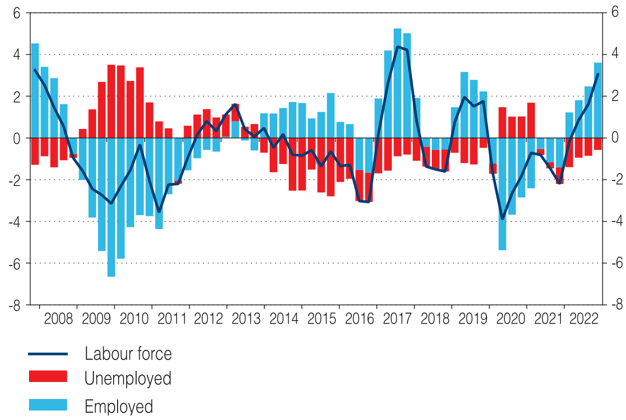


Notes: This indicator is constructed on the basis of a dynamic factor model whose purpose is to derive the total component in dynamics of various indicators with a monthly frequency. Dynamics of the composite indicator may be used as a guidance for the change in real GDP of Bulgaria.
Selected indicators of the model include: production indices in industry, construction and services; retail trade turnover indices; unemployment rate; indicators of the business climate and consumer confidence; producer price index in industry; new loans to corporations and households; global PMI.

Sources: NSI, Employment Agency, BNB calculations.

Contribution to the Change in Labour Force by Component

(per cent; percentage points; on an annual basis)

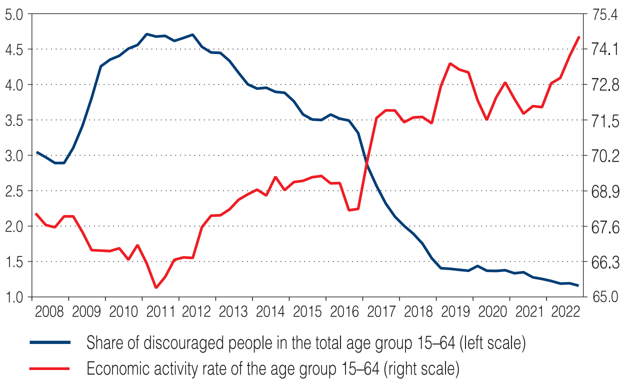


Note: Data refer to the age group of persons aged 15 and older.

Sources: NSI, BNB calculations.

Economic Activity and Share of Discouraged Persons

(per cent, seasonally adjusted data) (per cent, seasonally adjusted data)



Sources: NSI Labour Force Survey, BNB calculations.

aged 15 and over. The labour force participation rate[38] increased on both an annual and quarterly basis, with lower quarter-on-quarter activity observed only for persons with primary and lower education. On average for 2022, the labour force participation rate was 73.6 per cent (against 72 per cent in 2021).

In the fourth quarter of 2022, the seasonally adjusted unemployment rate remained unchanged from the previous quarter, according to both Labour Force Survey (4.2 per cent) and Employment Agency's administrative statistics (5.3 per cent). The persistence of the unemployment rate was due to a rise in unemployed of up to one year, while long-term unemployed persons continued to decline. At the same time, more frequent data published by the Employment Agency show a decline in the unemployment rate to 5.0 per cent in the first quarter of 2023, with the number of newly registered unemployed persons falling on a quarterly basis in both services and industry.

Labour Demand

Labour demand in the economy remained high in the fourth quarter of 2022, in line with real GDP growth. The number of employed[39] increased by 1.0 per cent year on year, with the services sector contributing mainly to the reported growth. Employment in manufacturing and construction also picked up, while employment in agriculture continued to fall.

Despite the rise in employment, in the fourth quarter of 2022 job vacancies[40] grew by 2.1 per cent year on year, consistent with the increasing number of firms identifying staff shortages as one of the main factors limiting their activity.[41] The growth of job vacancies in the economy was mainly driven by the services sector, in particular the sub-sector of accommodation and food service activities. This sub-sector was hit the hardest by the measures taken in Bulgaria to counter the spread of the COVID-19 pandemic and has not yet managed to restore its 2019 employment levels, while the number of nights and visits of

[38] The labour force participation rate is the proportion between economically active persons (labour force) and population of the same age. Quarterly data, seasonally adjusted by the BNB.

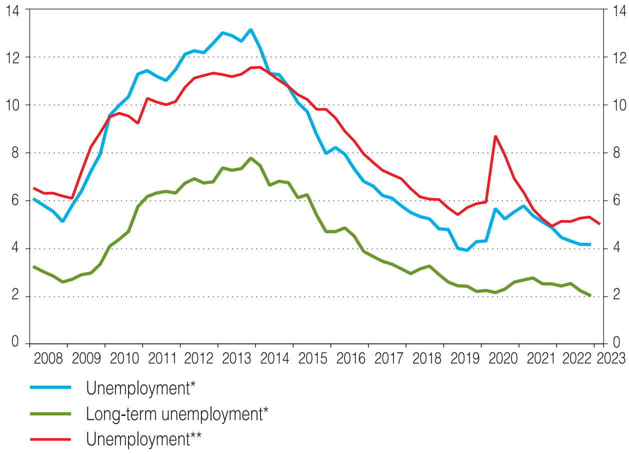
[39] NSI System of National Accounts data are used.

[40] Data from NSI's short-term statistics were used.

[41] According to NSI business situation survey data.

Unemployment Rate

(per cent, share of labour force; seasonally adjusted data)

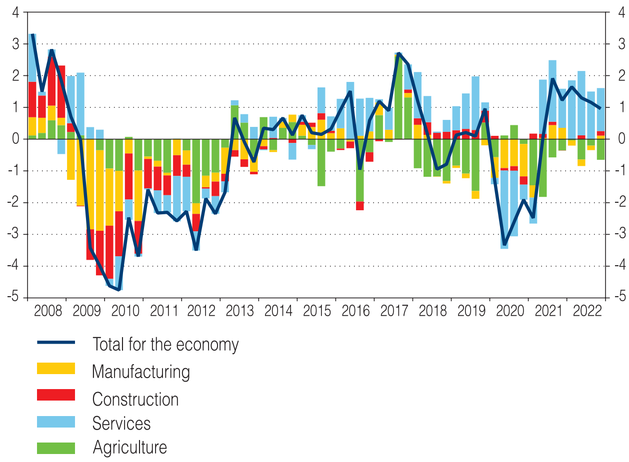


* Based on NSI data.
** Based on Employment Agency data.

Sources: NSI Labour Force Survey, Employment Agency, BNB calculations.

Contribution to the Change in the Number of Employed by Economic Sector

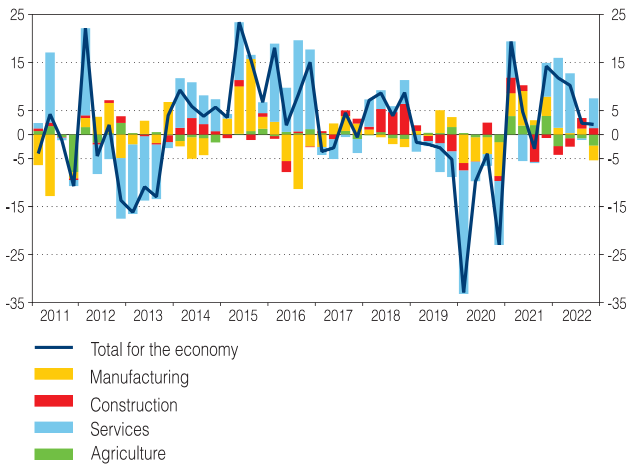
(per cent; percentage points; on an annual basis)



Sources: NSI – System of National Accounts (SNA), BNB calculations.

Contribution to the Change in the Number of Job Vacancies by Economic Sector

(per cent; percentage points; on an annual basis)



Sources: NSI, BNB calculations.

foreign nationals to Bulgaria in the fourth quarter of 2022 surpassed the levels observed in the fourth quarter of 2019. At the same time, accommodation and food service activities sub-sector has offered the lowest wages in the economy[42], possibly one of the factors creating additional difficulties for employers to find staff in a context of limited labour supply in Bulgaria. In the fourth quarter of 2022, job vacancies in manufacturing declined for the first time since the end of 2020, implying lower demand for personnel in this sector, although the number of employed is below the level of the fourth quarter of 2019.

Productivity and Compensation per Employee

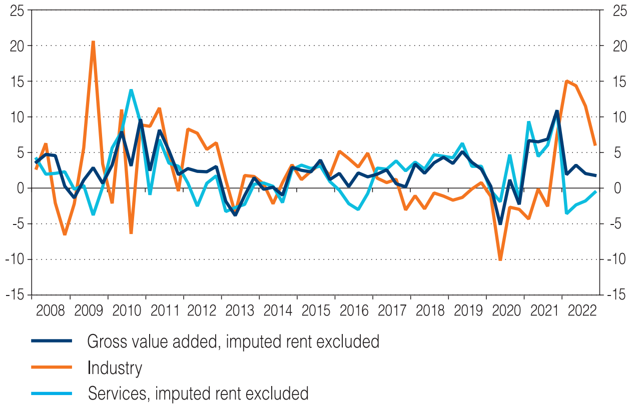
In the fourth quarter of 2022, labour productivity in real terms[43] increased by 1.8 per cent year on year as a result of reported growth in industry (both manufacturing and construction) and agriculture. At the same time, labour productivity declines in the services sector were sustained, though contracting further *vis-à-vis* previous quarters.

Despite the slowing annual growth of labour productivity and inflation in the fourth quarter of 2022 compared to the previous quarter, nominal growth of compensation *per* employee accelerated to 20.8 per cent year on year (18.1 per cent in the third quarter of 2022). The increase was supported by both end-of-the-year bonuses and increased labour shortages in the economy. In real terms,[44] compensation *per* employee rose by 5.5 per cent year on year, mostly driven by the industrial growth.

NSI data on average gross monthly wage also show an acceleration in the nominal annual growth to 16.6 per cent in the fourth quarter of 2022 (14.7 per cent in the third quarter),[45] with stronger wage increases *vis-à-vis* the previous quarter observed in both private and public sectors.

Labour Productivity Dynamics (Value Added *per* Employee)

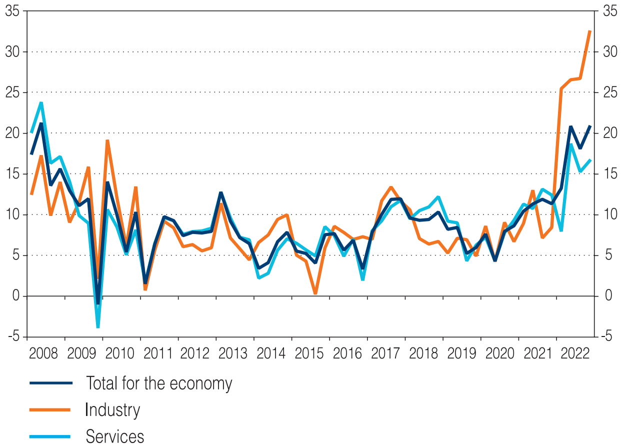
(per cent; on an annual basis)



Sources: NSI, BNB calculations.

Compensation *per* Employee at Current Prices

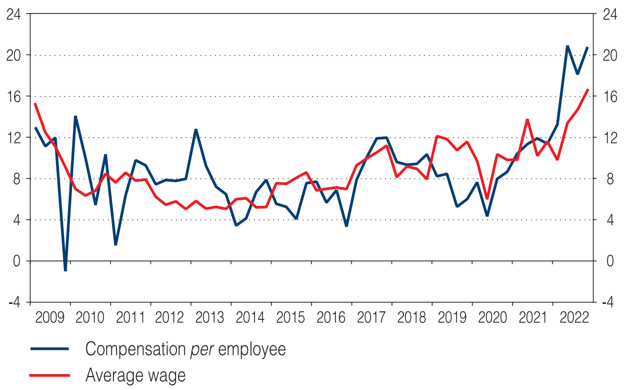
(per cent; on an annual basis)



Source: NSI – System of National Accounts (SNA).

Compensation *per* Employee and Average Wage at Current Prices

(per cent; on an annual basis)



Source: NSI – System of National Accounts (SNA), short-term statistics of employment and labour costs.

[42] According to NSI data on average wage.

[43] Labour productivity is calculated after adjusting gross value added (total for the economy) for imputed rent.

[44] Nominal compensation *per* employee was deflated by the HICP to calculate the indicator in real terms.

[45] Different dynamics of the two labour income indicators reflects both the use of various sources to assess employees and differences in definitions and scope of compensation *per* employee. Furthermore, additional estimates of labour costs in the 'shadow economy' and benefits in kind were made in the System of National Accounts.

4.3. Behaviour of Firms

Available data for the fourth quarter of 2022 point to continued year-on-year increases in corporations' nominal unit labour costs, which is driven mainly by higher labour costs and raw materials prices[46]. The increased operating costs were financed from both own and attracted funds. Corporations' price policy was oriented towards passing on the higher production costs to final prices, coupled with some increase in the profit margin on an annual basis.

Labour Costs of Corporations

In the fourth quarter of 2022, corporations' unit labour costs continued to grow on an annual basis (by 18.6 per cent), driven by the stronger annual growth in nominal compensation *per* employee than that in labour productivity. Final demand, labour shortages, as well as the indexation of some nominal wages due to high inflation were a prerequisite for the strong wage growth[47]. By economic sector, the highest annual growth in unit labour costs was reported in industry (24.7 per cent), followed by agriculture (21.1 per cent), and services (17.0 per cent).

Investment Costs of Corporations

Although private sector investment in real terms posted a decrease on an annual basis in the fourth quarter of 2022, the breakdown of investment by asset type signals that the fall is driven by households, whereas firms have increased their expenditure in real terms. Over the review quarter there was an increase in firms' investment expenditure related to other buildings and structures, intellectual property products and cultivated biological resources, while a slight year-on-year fall was recorded for machinery, equipment and weapon systems expenditure. The prices of all types of investment assets recorded in increase on an annual basis in October–December 2022.

Financing Sources of Corporations

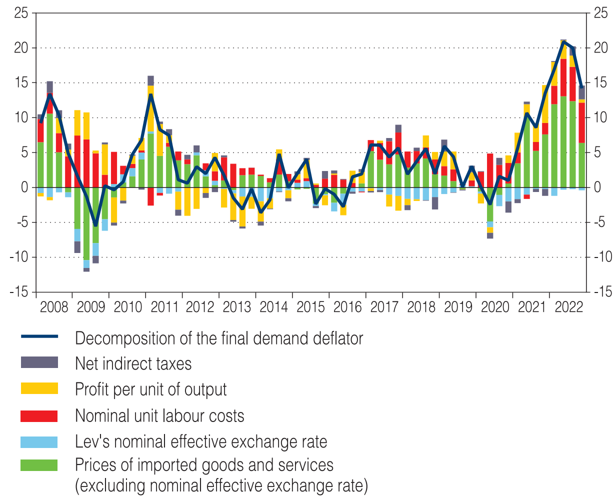
Based on non-seasonally adjusted data, nominal gross operating surplus which can be used by firms for

[46] This section reviews corporations' labour costs, while expenditure on raw materials (the so-called intermediate consumption) are not analysed due to the lack of public data at quarterly frequency.

[47] According to the 2014 BNB survey on price and wage setting mechanisms in non-financial corporations in Bulgaria, about 30 per cent of companies said that they had applied the rule on wage indexation to inflation dynamics.

Decomposition of the Final Demand Deflator

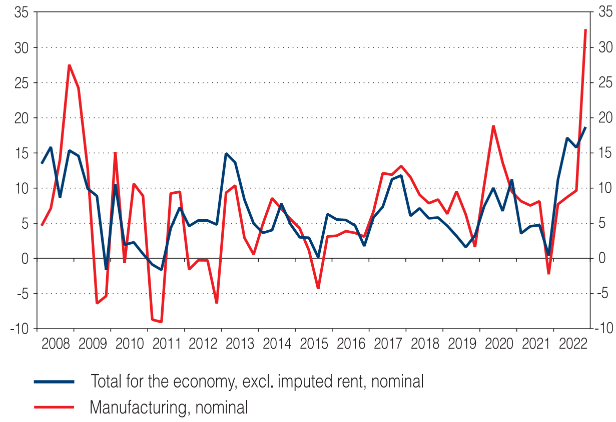
(per cent, on an annual basis; non-seasonally adjusted data)



Sources: NSI, BNB calculations.

Unit Labour Costs

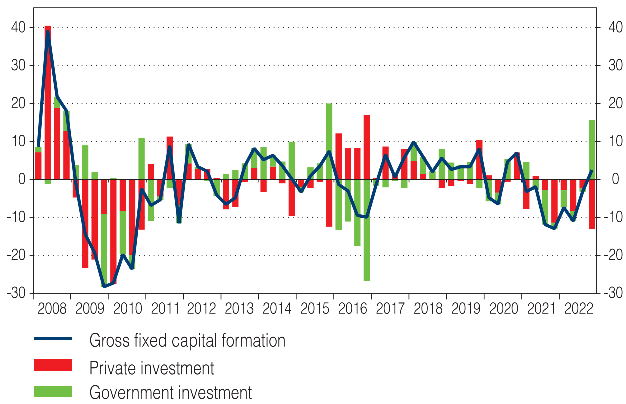
(per cent, on an annual basis; non-seasonally adjusted data)



Sources: NSI, BNB calculations.

Contribution of Private and Public Sectors to the Annual Rate of Change in Investment in Real Terms

(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Notes: The NSI does not provide official data on the breakdown of total investment into private and public.
The series on private investment is constructed by the BNB as a difference between total investment and the estimated amount of public investment on an accrual basis in real terms.
Data on public investment are based on information from quarterly non-financial accounts of the general government sector, published by the NSI.

Sources: NSI, BNB calculations.

funding their activities increased by 10.8 per cent on an annual basis in the fourth quarter due to industry (28.2 per cent) and services (7.0 per cent). The larger amount of the operating surplus in industry is due to the construction sub-sector as well as manufacturing in line with the high annual growth in the sales of industrial enterprises in nominal terms. Firms' financing through funds other than gross operating surplus increased on an annual basis in the total economy, which across sectors was mainly due to services (excluding public services and financial intermediation) and manufacturing. The funding attracted was mainly in the form of borrowings and, to a lesser extent, financial leases.

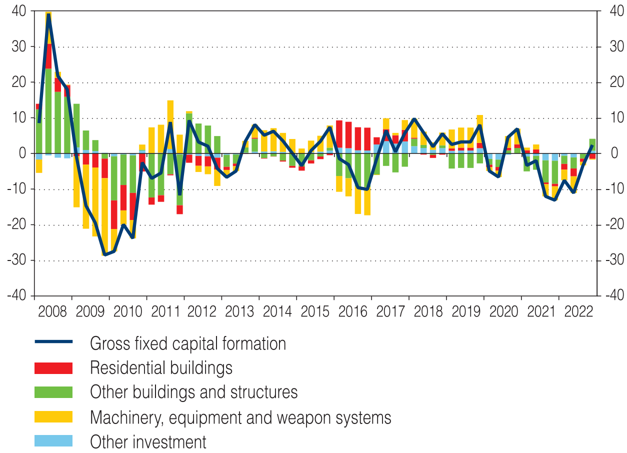
Price Policy of Corporations

In the fourth quarter of 2022, firms' selling prices, as measured by the Producer Price Index in Industry (PPI), posted a 28.5 per cent year-on-year increase, mainly driven by the substantial rise in energy product prices. By index component, a more significant increase was recorded in domestic producer prices. The annual growth rate of PPI slowed down in the first quarter of 2023, reaching 2.0 per cent in March 2023, mainly driven by the downward trend in oil, natural gas and electricity prices in international markets. Concurrently, a factor that continued to put upward pressure on firms' labour costs and to drive up their selling prices was the persistent high level of labour shortages based on NSI business survey data.

Producer price indices in services in the fourth quarter of 2022 also reported strong annual growth in all sub-sectors. The most pronounced growth on an annual basis was reported in sea and coastal water transport (42.7 per cent), cargo handling (21.5 per cent), and freight transport by road (20.3 per cent). Selling prices in the retail trade sub-sector, which is the closest to the customers in the supply chain, went up by 17.7 per cent in the fourth quarter of 2022 (compared to 20.4 per cent in the previous quarter). Annual growth in the NSI retail trade price index (excluding trade in motor vehicles and motorcycles) reached 14.4 per cent in the January–February 2023 period.

Contribution by Asset Type to the Annual Rate of Change in Investment in Fixed Capital

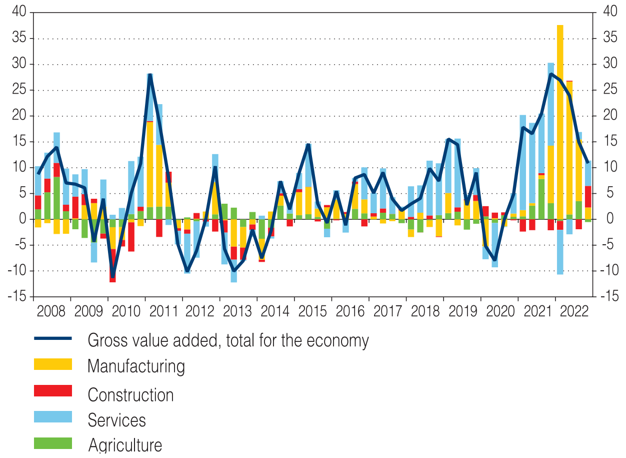
(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Sources: Eurostat, BNB calculations.

Annual Rate of Change of Nominal Gross Operating Surplus and Contribution by Sector

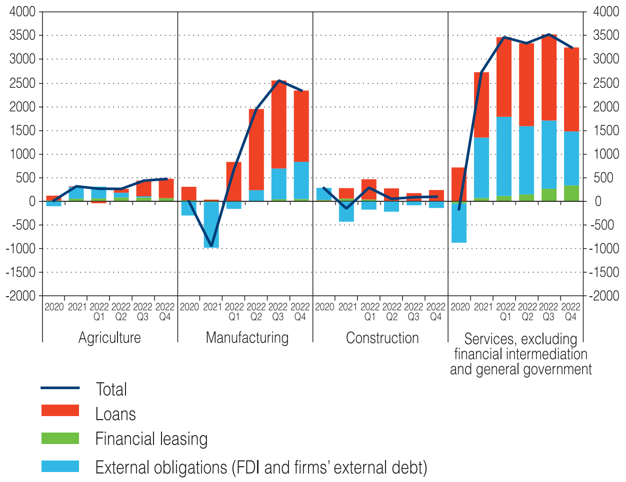
(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Sources: NSI, BNB calculations.

Financing Sources*

(BGN million,year-on-year change)



* Sources of financing other than the gross operating surplus.

Source: BNB.

Economic Indicators

NSI short-term business statistics indicators suggest a continuous quarter-on-quarter increase in firms' economic activity in the first quarter of 2023.[48]

BNB seasonally adjusted data show that in the first quarter of 2023 the overall business climate indicator improved on the previous quarter, with all major sectors contributing to this. In the January–March 2023 period, the uncertain economic environment remained the main factor impeding business activity. In line with the more optimistic managers' assessments of the expected economic situation in Bulgaria, improved sentiment about staff employment was reported in the total economy.

NSI short-term business statistics data on production and turnover in manufacturing, retail trade, services and construction production for January–February 2023 give grounds to expect divergent developments about the value added across economic sectors in the first quarter of the year – a quarter-on-quarter decline in manufacturing and construction against the background of growth in services (excluding trade) and retail trade.

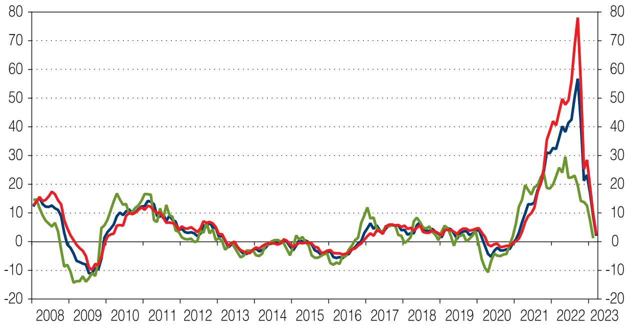
According to seasonally adjusted data, the industrial production index dropped by -2.1 per cent on an average quarter-on-quarter basis over the January–February 2023 period. According to non-seasonally adjusted data, the indicator reported a -2.6 per cent decline on an annual basis. The downward trend on an annual basis was driven by the mining and quarrying and the electricity, heat and gas production and distribution sectors, while the manufacturing sector reported low growth. According to nominal turnover data, economic activity slowdown in manufacturing was due to the decrease in sales in real terms on both international and domestic markets. In the January–February 2023 period, retail trade turnover at constant prices increased compared to both the fourth quarter of 2022 and the same period of the previous year. These developments were consistent with the increased households' purchasing power, reflecting the increase in minimum wages as of January 2023, the larger amount of fiscal transfers to households[49] on an annual basis in the first quarter of 2023, as well as with the lower propen-

[48] For more details on the composite economic indicator, see the *Current Economic Environment Section* in this Chapter.

[49] See the *Fiscal Policy Effects on the Economy Section* in this Chapter.

Rate of Change of Producer Price Index in Industry

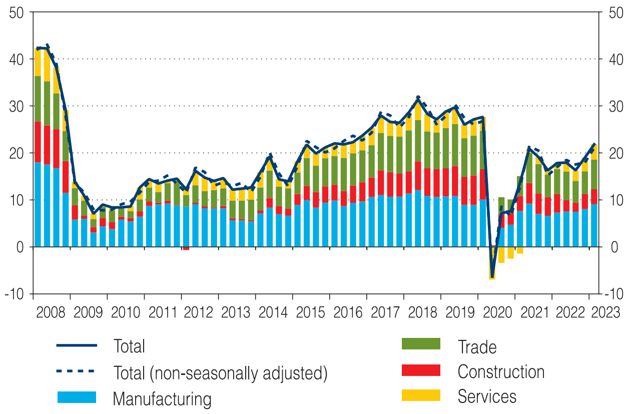
(per cent; on an annual basis)



Source: NSI

Business Climate

(balance of opinions, per cent; seasonally adjusted data)

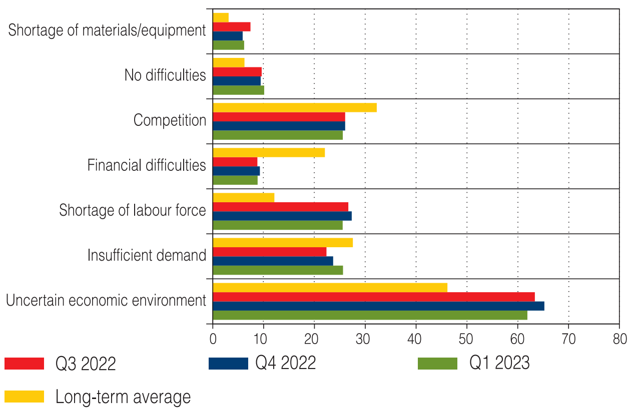


Notes: The answers to the NSI survey questions are presented in a three-tier category scale: 'increase', 'unchanged', 'decrease'.
Balances of opinions are calculated as a difference between relative shares of extreme options of replies: 'increase' minus 'decrease'.
The business climate indicator is a geometric average of the balances of opinions about the current and expected business situation in corporations in the next six months.

Sources: NSI, BNB calculations.

Factors Hampering Economic Activity of Corporations

(relative share of all corporations)



Note: Average data for the relevant period, weighted by the relative share of corporations by sector (manufacturing, construction, trade and services).

Sources: NSI, BNB calculations.

sity to save in a context of strongly negative real interest rates on deposits. The services production index (excluding trade) rose on both quarter-on-quarter and annual basis in January 2023. Across sub-sectors, the largest annual growth in activity was recorded by hotel and restaurant services (19.5 per cent). As regards construction production, in the January–February 2023 period a decline was reported on the fourth quarter of 2022. As a result, the rate of decline of the construction production index accelerated to -1.6 per cent (down from -0.1 per cent on an annual basis in the fourth quarter of 2022), due to civil engineering construction. The NSI business climate survey suggests that in the first three months of 2023 the uncertain economic environment, commodity prices and labour shortages remained the main constraints for the construction firms.

4.4. Household Behaviour

Household Revenue

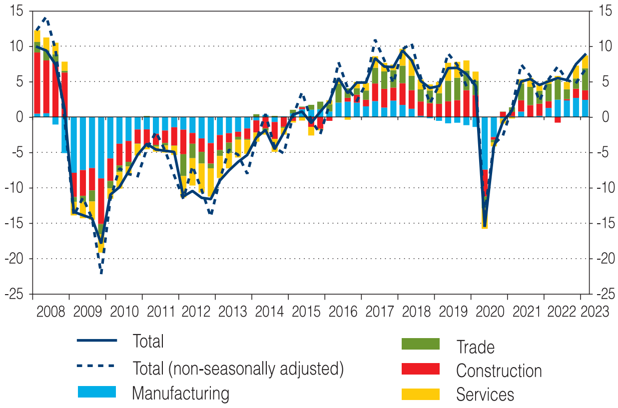
According to NSI Household Budget Survey data, household revenue[50] continued to grow in nominal terms in the fourth quarter of 2022. Both income received and savings withdrawn reported an increase on an annual basis, while income from borrowings and loans decreased compared to the fourth quarter of 2021. Concurrently, the annual growth rate of withdrawn savings slowed down significantly compared to the third quarter of 2022.

Total household income, which contributed most to the rise in household revenue, increased in nominal terms by 19.1 per cent on an annual basis in the last quarter of 2022, with pension income, followed by wage income, contributing most to this growth. Concurrently, the annual growth of total household income slowed down in the fourth quarter compared to the third quarter of 2022, due to a weaker positive contribution of pensions, possibly reflecting a base effect from the same period in 2021 following the increase in pension allowances to BGN 120 from 1 October 2021, as compared to BGN 50 paid until 30 September 2021.

[50] Household income includes all household cash income from sources, such as wages, pensions, self-employment, social security benefits, allowances, and valued in-kind income (the monetary value of goods and services received in kind by households, such as social transfers in kind) grouped under the Total Income category, as well as withdrawals of savings and loans. For more details, see NSI's Methodology on the Household Budget Survey.

Corporations' Expectations about Staff Recruitment in the Following Three Months

(balance of opinions, per cent; seasonally adjusted data)

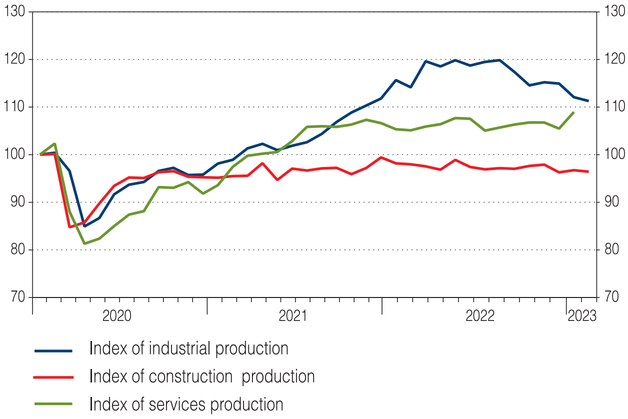


Notes: The answers to the NSI survey questions are presented in a three-tier category scale: 'increase', 'unchanged', 'decrease'.
Balances of opinions are calculated as a difference between relative shares of extreme options of replies: 'increase' minus 'decrease'.

Sources: NSI, BNB calculations.

Dynamics of the Production Index in Manufacturing, Construction and Services

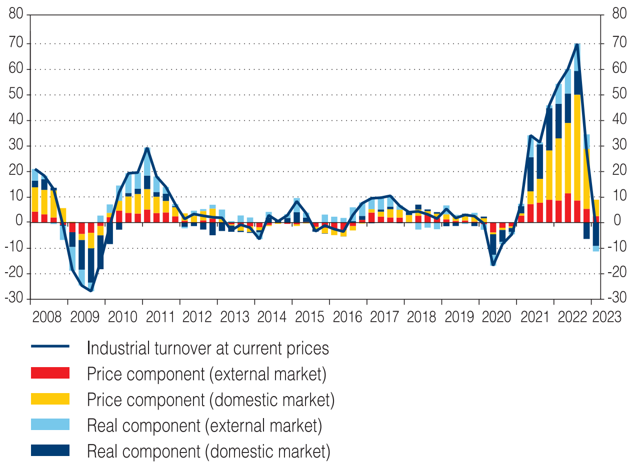
(January 2020 = 100; seasonally adjusted data)



Sources: NSI, Eurostat, BNB calculations.

Industrial Turnover Dynamics

(per cent; percentage points; on an annual basis; non-seasonally adjusted data)



Note: Data for the first quarter of 2023 refer to January–February.

Sources: NSI, BNB calculations.

In real terms,[51] the annual growth of total household income stood at 4.1 per cent in the fourth quarter of 2022, also posting a decline from the third quarter (5.1 per cent) following the nominal household income dynamics, despite the decrease in inflation observed over the quarter. Income growth in real terms was supported by both tight labour market conditions and fiscal measures implemented to support household income.

Consistent with the weaker increase in total income in real terms at the end of 2022 compared with the rise in the third quarter, household real disposable income growth also slowed down, to 4.8 per cent on an annual basis (6.7 per cent in the third quarter of 2022).

Household Expenditure

In the fourth quarter of 2022, total household expenditure[52] rose by 19.9 per cent in nominal terms on an annual basis, mainly as a result of higher consumer expenditure.

All consumer expenditure components contributed positively to the year-on-year growth, with food and non-alcoholic beverages contributing most to this, which can be explained by the large weight of the group in total consumer expenditure and by the persistent high inflation in the food group over the review quarter. The annual growth rate of consumer expenditure in nominal terms slowed down in the fourth quarter of 2022 compared to the previous quarter, largely due to the lower increase in housing, water, electricity and fuel expenditure, in line with the subdued inflation growth in these products.

According to NSI's Household Budget Survey data, consumer expenditure went up in real terms[53] by 5.5 per cent on an annual basis, compared with 9.3 per cent growth in the previous quarter. Given that the year-on-year increase in household expenditure on food and non-alcoholic beverages in nominal terms was comparable to the increase in consumer prices of these goods, expenses on leisure, cultural recreation and education were the largest contributors to the increase in real terms

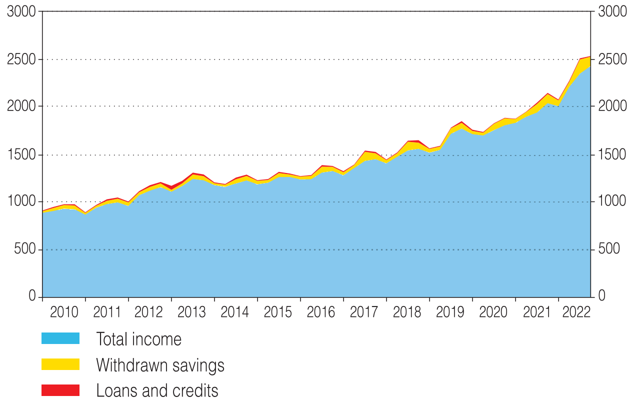
[51] To obtain total income in real terms, nominal values are deflated by the HICP.

[52] Total expenditure includes consumer spending, taxes, social contributions, regular transfers to other households and other expenditure. For more details, see NSI's Methodology on the Household Budget Survey.

[53] Household consumer expenditure is deflated by the overall HICP. Sub-components of consumer expenditure are deflated by the corresponding HICP groups.

Household Revenue

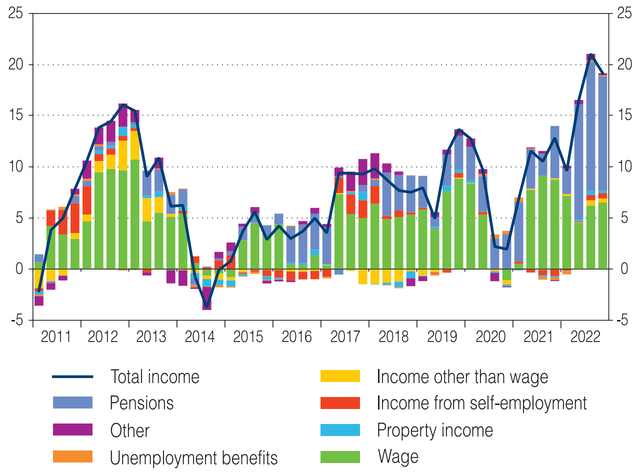
(BGN, average *per* person, on a monthly basis)



Source: NSI – Household Budget Survey.

Contribution to the Change in Total Monthly Household Income

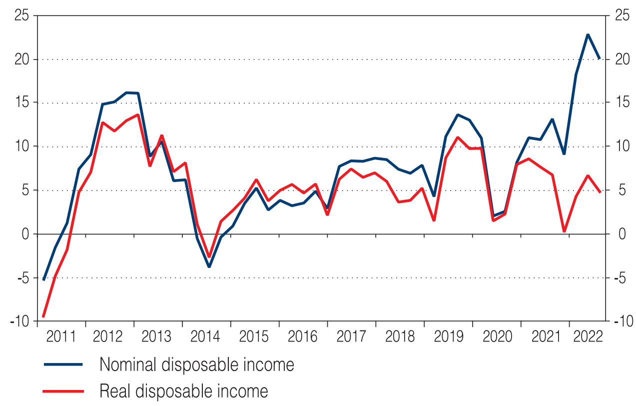
(per cent, percentage points; average *per* person, on an annual basis)



Sources: NSI – Household Budget Survey, BNB calculations.

Household Disposable Income

(per cent, average *per* person, on an annual basis)



Note: Real disposable income of households represents total income reduced by taxes, social security contributions and regular transfers to other households, HICP deflated.

Sources: NSI – Household Budget Survey, BNB calculations.

in the fourth quarter of 2022. At the same time, NSI national accounts data[54] show an acceleration in the annual growth of private consumption in the fourth quarter of 2022 to 6.8 per cent, from 4.2 per cent in the third quarter.

Household Savings

The NSI Household Budget Survey shows that the propensity of households to save[55] part of their received income[56] increased slightly in the fourth quarter of 2022 compared with the previous quarter. Net household assets in the banking system also went up slightly in the fourth quarter compared with the third quarter, mainly due to the increase in deposits. Concurrently, accumulated household net assets in the banking system at the end of 2022 remained at a level comparatively lower than the average level for the last ten years, which can be explained by the strong growth in household borrowings over the last year. Withdrawals from the banking system supported consumption, whose annual growth in real terms in the fourth quarter of 2022 outpaced that of real disposable income.

4.5. Fiscal Policy Effects on the Economy

Fiscal policy was highly supportive to the economic activity in 2022, reflecting both higher government consumption and increased net transfers to households and subsidies paid out over the year to compensate firms for high electricity prices and larger fixed capital investment by the general government sector.

In the fourth quarter of 2022, real government consumption growth accelerated to 4.5 per cent on a annual basis, from 3.8 per cent in the previous quarter. Non-financial account data of the general government sector show that healthcare payments had the largest positive contribution to nominal government consumption growth over the review quarter (21.3 per cent on an annual basis). Expenditure on intermediate consumption

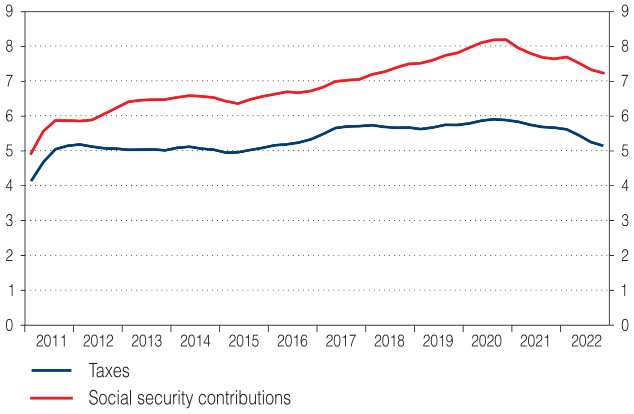
[54] Comparing national accounts data and the NSI's Household Budget Survey, the differences in the two statistics in terms of the way of collecting data, their coverage and the definitions used should be taken into account. As a result, the dynamics of consumer expenditure in the two statistics may not match.

[55] Household savings are measured by the difference between the total income and the total expenditure in the relevant quarter. The propensity to save is calculated as a ratio between savings and gross income in the relevant quarter.

[56] Income is gross income in the relevant quarter reduced by taxes and social security contributions.

Shares of Taxes and Social Security Contributions in Total Household Expenditure

(per cent, average *per* person – BGN)

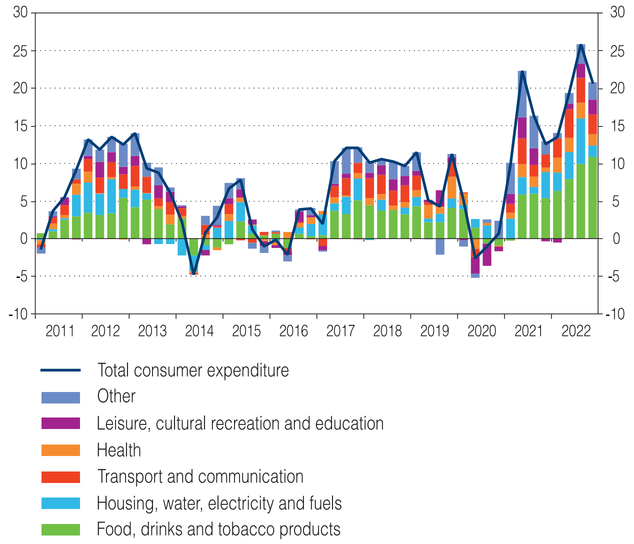


Note: A moving average for the last four quarters is used in order to adjust data and indicate developments.

Source: NSI – Household Budget Survey.

Contribution to the Change in Households' Consumer Expenditure

(per cent, percentage points; average *per* person, on an annual basis)



Sources: NSI – Household Budget Survey, BNB calculations.

and compensation *per* employee also continued to register high year-on-year growth in nominal terms. Fixed capital investment of the general government sector recorded a strong increase in the fourth quarter of 2022, and its growth in real terms came to 61.2 per cent[57] on an annual basis (-7.4 per cent in the previous quarter), while that in nominal terms reached 84.4 per cent. Information on the implementation of the consolidated fiscal programme (CFP) indicates that the increase in government investment over the review quarter was likely due to projects financed with national funds.

In the fourth quarter of 2022, fiscal policy continued to support economic activity both in terms of household disposable income and continued subsidy payments to firms for high electricity prices.[58] Social expenditure growth accelerated to 37.6 per cent on an annual basis in the last quarter of the year, influenced by the increase in pension payments. Compensations paid to non-household end-users of electricity outside the regulated market played the most important role for the growth of expenditure on production subsidies, while suspended payments to employers under the job retention programme (the so-called '60/40' programme) since mid-2022 has had a limiting effect on the growth of total subsidy expenditure.

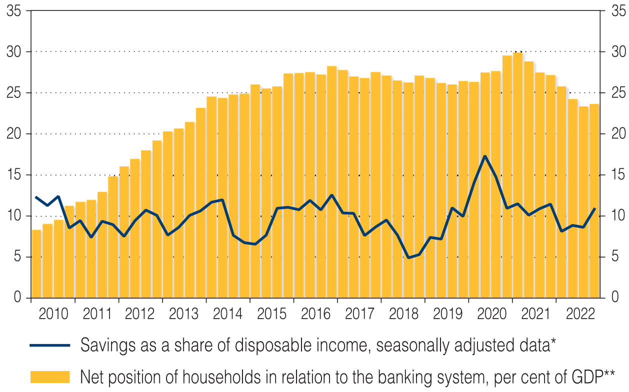
Total CFP expenditure grew by 27.1 per cent on an annual basis by the end of March 2023. Social expenditure contributed most to the growth in total budgetary expenditure, mainly due to the increase in pensions as from mid-2022 and the recalculation of part of the pensions in October, supported also by a base effect of the low pension expenditure basis in the first half of 2022. High annual growth rates

[57] To calculate the growth of fixed capital investment of the general government sector in real terms, the gross fixed capital formation deflator has been used. The latter covers total investment in the economy (both public and private sectors).

[58] The fiscal measures laid down in the Law on Amendment to the 2022 State Budget Law, adopted by the National Assembly on 30 June 2022 (such as the increased amount of tax relief for children, the exemption from excise duty on electricity, liquefied petroleum gas and natural gas, the introduction of a reduced 9 per cent VAT rate for heating and natural gas supplies, of a zero VAT rate for bread supply, as well as the provision of compensations to natural persons who are end-users of certain transport fuels) had an additional indirect effect on economic activity in Bulgaria.

Household Propensity to Save

(per cent)



Notes: Savings as a share of disposable income represent the difference between total income and total expenditure of households as a share of total income reduced by taxes, social security contributions and regular transfers to other households.
The net position of households *vis-à-vis* the banking system is the difference between deposits and loans of households.

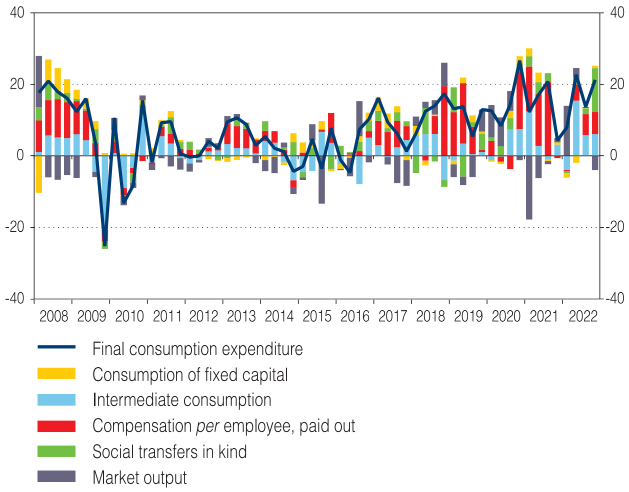
* NSI data. BNB seasonally adjusted data.

** BNB and NSI data. Nominal GDP data for the last four quarters up to and including the fourth quarter of 2022 are used to calculate the ratio to GDP.

Sources: NSI – Household Budget Survey, BNB.

Contribution of Major Groups of Expenditure to Government Consumption Growth in Nominal Terms (Quarterly Data)

(per cent; percentage points; on an annual basis)



Sources: NSI, BNB calculations.

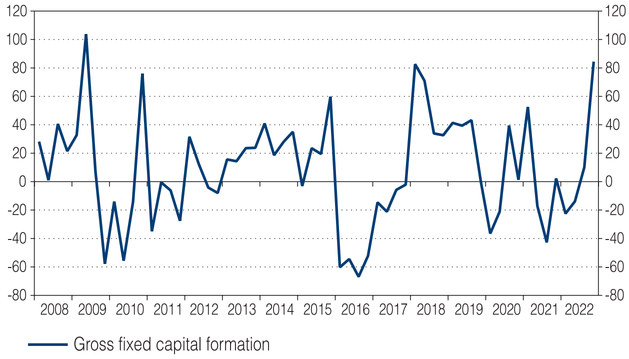
were also reported in other groups of current[59] and capital expenditure, with nationally funded projects contributing to the increase in capital expenditure.[60] CFP expenditure dynamics in the first three months of 2023 signals that government consumption and government investment continued to support economic activity in Bulgaria in the first quarter of the year.

By the end of March 2023, total CFP budget revenue increased by 18.6 per cent on an annual basis. Tax revenue made a major positive contribution to the growth of total revenue as a result of the revised methodology for reporting earmarked contributions to the Electricity System Security Fund,[61] higher revenue from social and health insurance contributions and strong growth in excise duty income in March.[62] At the same time, the high positive contribution of VAT revenue to the total budget revenue growth, registered in 2022, contracted as a result of a significant slowdown in the annual growth of VAT revenue from imports.

By end-March 2023, the CFP budget balance was negative at BGN -662 million (-0.4 per cent of GDP[63]).

Rate of Change in Gross Fixed Capital Formation of the General Government Sector in Nominal Terms (Quarterly Data)

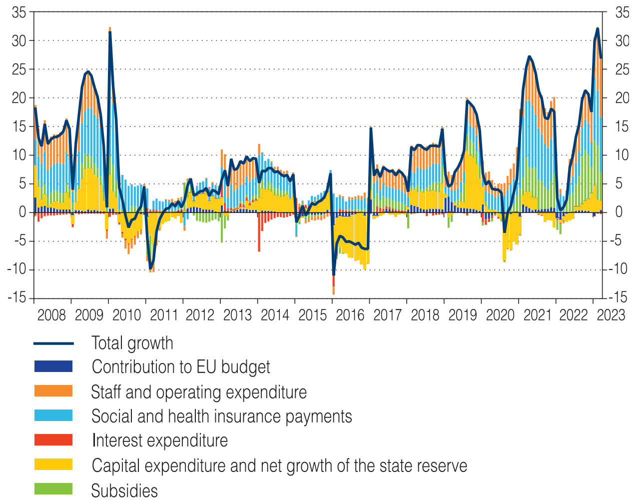
(per cent; on an annual basis)



Source: NSI.

Contribution of Major Groups of Expenditure to Total Budget Expenditure Growth, Cumulatively

(per cent; percentage points; on an annual basis)



Notes: In January 2016 reports under the CFP, staff costs include expenditure on wages, social security and other remunerations, while in those for previous periods, the latter were included in operating expenditure. To prevent inconsistencies of data prior to and after January 2016 resulting from the methodological change, staff costs and operating expenditure data are presented aggregately in the chart.

Sources: MF, BNB calculations.

[59] This refers mainly to the cost of living, personnel and subsidies, which are made in accordance with the Law implementing the provisions of the State Budget Law of the Republic of Bulgaria for 2022, the Budget of the State Social Security Act for 2022 and the National Health Insurance Fund Budget Act for 2022. According to information from the Ministry of Finance Bulletin on CFP implementation, the increase in expenditure was due to enacted regulatory acts, including ongoing programmes for compensation payouts to electricity consumers, settlement of liabilities under the Ministry of Regional Development and Public Works budget, and increased remunerations already in force in various administrative structures.

[60] The reported CFP expenditure growth in the first quarter of 2023 reflected also the effect of the low base in the same period of 2022, where in the absence of an adopted state budget for 2022, the legal constraint on the budget expenditure side contributed to a minimal increase in total budget expenditure. For further information, see Economic Review, issue 1 of 2022.

[61] From 1 January 2023, earmarked contributions to the Electricity System Security Fund are reported as other taxes, whereas in 2022 these revenues were reported under non-tax revenue item.

[62] According to information from the Ministry of Finance's Monthly Bulletin on the CFP implementation as of March 2023, the high growth rate of excise duty revenue was driven by higher excise rates on tobacco and tobacco products since 1 March 2023 and pre-stocking of cigarettes and other tobacco products under the previous more favourable excise regime.

[63] Nominal GDP data for the last four quarters as of the fourth quarter of 2022 are used in calculating this ratio.

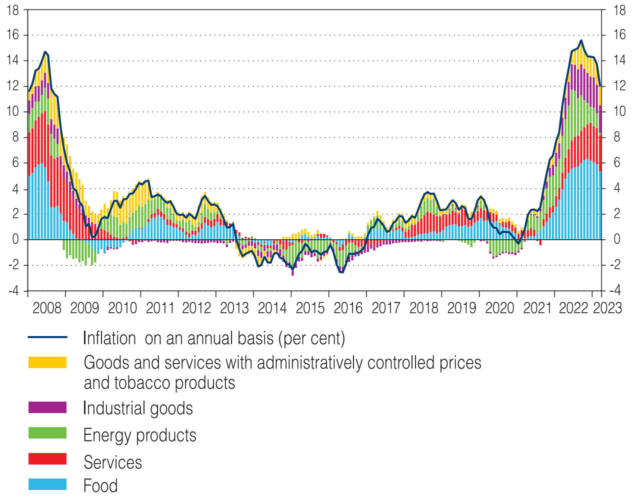
5. Price developments

5.1. Consumer Prices

Annual inflation, measured by the HICP, decelerated to 12.1 per cent in March 2023 (from 14.3 per cent in December 2022). This dynamics reflected mainly the emerging base effect of the high growth rates of consumer prices in 2022 and, to a lesser extent, direct effects of significant declines in oil and gas prices in international markets. In the January–March 2023 period, the HICP continued to grow at high monthly rates compared with historical growth rates. Factors stemming from the internal macroeconomic environment, which continued to have a pro-inflationary effect in the first quarter of 2023, were the strong consumer demand and the significant increase in unit labour costs in the context of a strengthening link between prices and wages. These developments have contributed to the incomplete pass-through by firms of falling international prices of some commodities to final consumer prices. Food, followed by services and non-energy industrial goods continued to have the largest contribution to headline inflation in March 2023, and inflation in these groups slowed down on an annual basis, though on a quarterly basis the price level increased compared with the end of 2022. Divergent fiscal policy effects on inflation across individual HICP groups was sustained in the first three months of 2023. Discretionary fiscal measures which were launched to mitigate the pro-inflationary impact of the international environment included subsidies for individual products and reductions in indirect taxes (excise duty and VAT rates), focused mainly on energy and food. Concurrently, higher annual net fiscal transfers to households and higher wages in the budget sector supported private consumption growth and were a prerequisite for sustained high inflation in more demand-sensitive HICP components, such as services. Monetary conditions in Bulgaria remained the factor with a potential pro-inflationary effect, as strongly negative real deposit and lending rates supported further private consumption.

Inflation and Contribution of Major Commodity and Services Groups to It

(per cent; percentage points; on an annual basis)

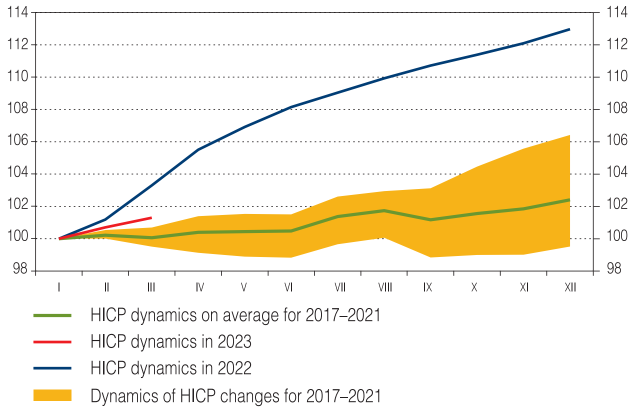


Notes: This structure corresponds to the Eurostat classification; tobacco products and goods and services with administratively controlled prices are presented separately.
The index of goods and services with administratively controlled prices is calculated by weighing the relevant elementary aggregates of the consumer basket.

Sources: NSI, BNB calculations.

HICP Dynamics by Month for Selected Years

(index, January=100)



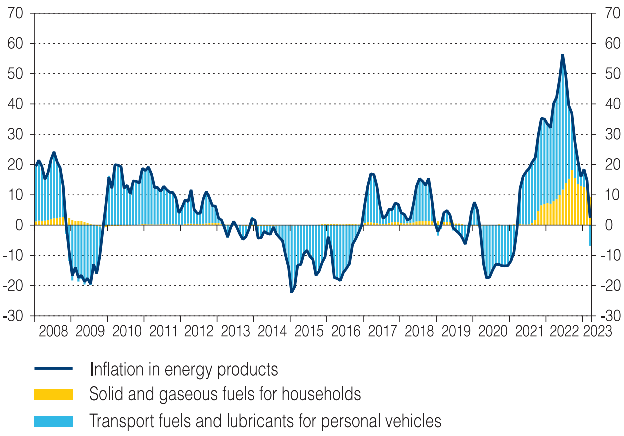
Sources: NSI, BNB calculations.

Energy Products Prices

The annual growth in energy prices slowed down to 2.4 per cent in March 2023 (from 15.9 per cent in December 2022). This dynamics was mainly driven by transport fuel prices, which declined by 8.8 per cent year on year, owing to direct effects of price declines in international petroleum markets. A pro-inflationary factor in this sub-group was the phasing out of the consumer compensation for the price of motor fuels (BGN 0.25/litre) with effect from the beginning of 2023. Prices of gaseous fuels (LPG gas) for households also reported a year-on-year decrease of 5.1 per cent in March 2023 (compared to a 6.5 per cent increase in December 2022). At the same time, the sub-group of solid fuels, whose prices rose year on year by 42.5 per cent in March 2023, continued to have a significant positive contribution to the energy inflation.

Contributions of Major Sub-groups to Energy Inflation (Excluding Those with Controlled Prices)

(per cent, percentage points)



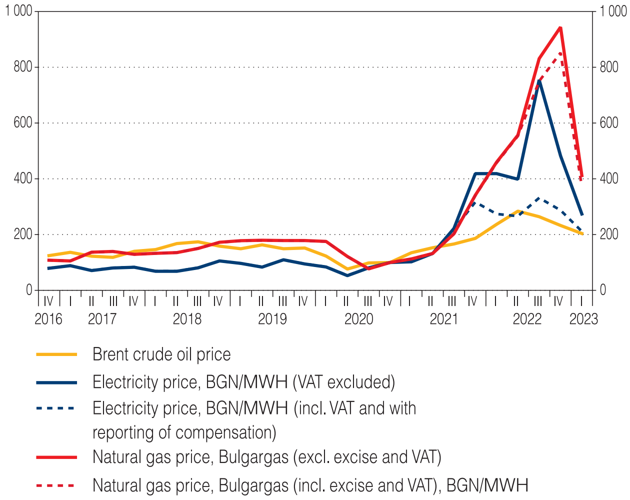
Sources: NSI, BNB calculations.

Food Prices

In March 2023, food inflation remained at a high level despite the decrease in year-on-year prices of a number of agricultural and energy commodities in international markets, standing at 21.1 per cent (compared with 25 per cent in December 2022), with this group having again the largest positive contribution to the headline inflation. Deceleration in annual inflation of this group was entirely due to the base effect of high rates of price increases in 2022, with the food price level

Primary Energy Commodity Prices

(index, Q4 2020 = 100)

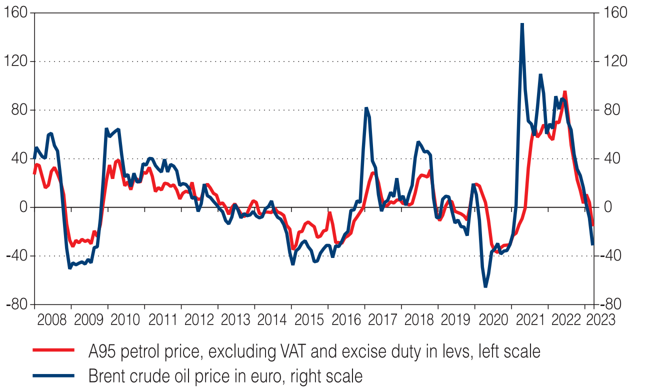


Notes: The electricity price refers to the day ahead segment of the Independent Bulgarian Energy Exchange EAD (IBEX).
The price of natural gas sold by Bulgargas EAD does not include prices for access and transmission through the gas transmission networks.

Sources: ECB, IBEX, EWRC.

Rate of Change in Brent Crude Oil and A95 Petrol Prices

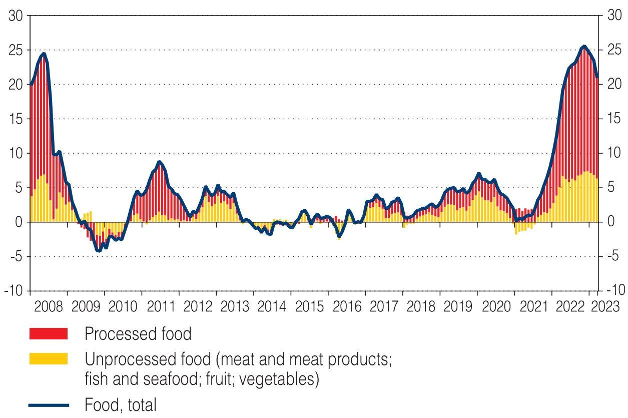
(per cent, on an annual basis) (per cent, on an annual basis)



Sources: ECB, NSI, BNB calculations.

Rate of Change of Food Price Index and Contribution of Processed and Unprocessed Food

(per cent, on an annual basis)



Sources: NSI, BNB calculations.

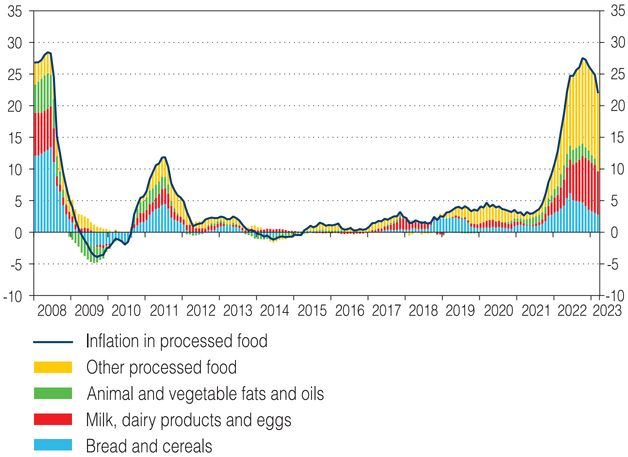
rising further on a monthly basis in the first quarter of 2023 at comparatively high rates *vis-à-vis* historical values.

Annual unprocessed food inflation decelerated to 19 per cent in March 2023, from 22.3 per cent in December 2022. The sub-groups of meat and meat products and fruit and vegetables continued to have a substantial positive contribution to the rise in unprocessed food prices, which can be explained by higher pig and chicken meat prices in the EU Member States, persistently high feed prices[64] in Bulgaria, and increased prices of imported fruit and vegetables.[65]

In March 2023 processed food prices grew by 22.1 per cent on an annual basis (compared to 26.3 per cent in December 2022). The sub-group of milk, dairy products and eggs had the largest positive contribution, followed by sugar and sugar confectionery and bread and cereals sub-groups. Persistently high inflation levels in these sub-groups can only partly be attributed to delayed effects of the 2022 growth in domestic production costs,[66] given the year-on-year decline in international prices of some of these products and/or in the prices of raw materials used for their production in the first three months of 2023.

Contribution of Major Sub-groups to Processed Food Inflation

(per cent, percentage points)



Sources: NSI, BNB calculations.

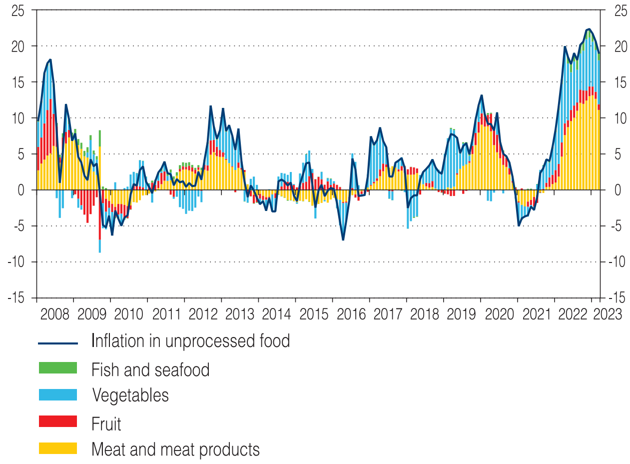
[64] The analysis employs Ministry of Agriculture data up to March 2023.

[65] The analysis employs Commodity Exchange and Wholesale Markets State Commission data.

[66] The analysis employs NSI data on price indices of goods and services for current consumption in agriculture in the fourth quarter of 2022 and on industrial producer prices in March 2023.

Contribution of Major Sub-groups to Unprocessed Food Inflation

(per cent, percentage points)



Sources: NSI, BNB calculations.

Core Inflation

Persistently high levels of inflation in core components, which include services and non-energy industrial goods prices, were retained in the first three months of 2023. Core inflation was 11.2 per cent in March 2023 (11.9 per cent in December 2022), driven by the increased prices in both non-energy industrial goods and services.

Annual inflation in the non-energy industrial goods group was 9.4 per cent in March 2023 (compared with 10.1 per cent at the end of 2022), with these developments driven mainly by the sub-group of non-durable goods, especially clothing and footwear, spare parts and automobile accessories, household goods and pet goods and services. In the group of durable goods, furniture and furnishings and major household appliances continued to have the largest positive contribution to the price increase. Non-energy industrial goods inflation dynamics was driven by persistently strong year-on-year price rises of imported industrial goods and raw materials used in the production process, as well as by the strong consumer demand of households.[67]

In March 2023, services inflation was 13.1 per cent, compared with 13.9 per cent in December 2022. The sub-group of catering, followed by telecommunications, package holidays and accommodation, transport, financial services, motor vehicle repair and maintenance services and house rentals had the largest positive contributions to this group's inflation. Persistence of inflation in these groups at high levels in the first quarter of 2023 reflected probably continued increases in labour costs and robust consumer demand, which have reduced the propensity of firms to pass on falling energy prices (transport fuels, electricity and gas) to final consumer prices.

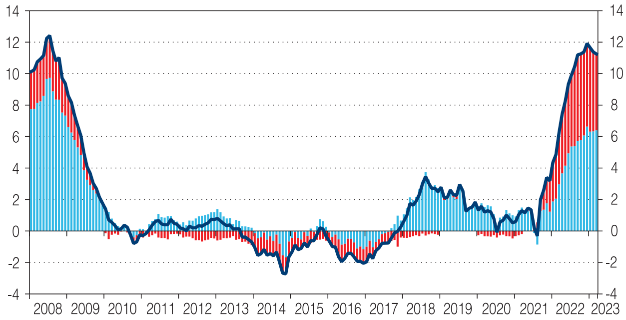
Goods and Services with Administratively Controlled Prices and Tobacco Products

Inflation in goods and services with administratively controlled prices and tobacco products accelerated to 7.1 per cent in March 2023, from 6.9 per cent by end-2022. These developments were mainly driven by price rises in medicinal

[67] According to NSI data as of February 2023, real volumes of retail trade in non-energy industrial goods (excluding trade in motor fuels and lubricants) increased by 4.9 per cent year on year (5.2 per cent for December 2022).

Core Inflation and Contribution of Services and Non-energy Industrial Goods to It

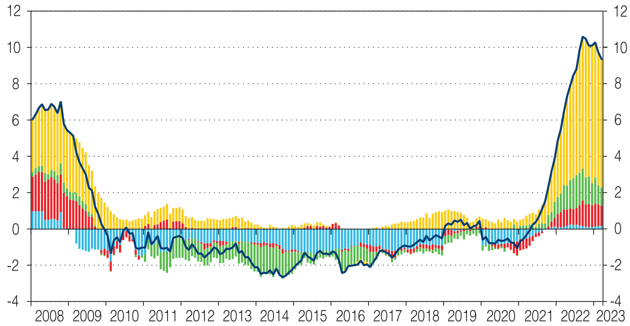
(per cent; percentage points; on an annual basis)



Sources: NSI, BNB calculations.

Contribution of Major Sub-groups to Inflation in Industrial Goods (Excluding Energy Products)

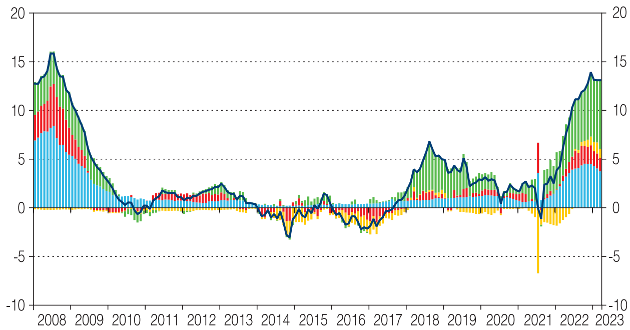
(per cent, percentage points)



Sources: NSI, BNB calculations.

Contribution of Major Sub-groups to Inflation in Services

(per cent, percentage points)



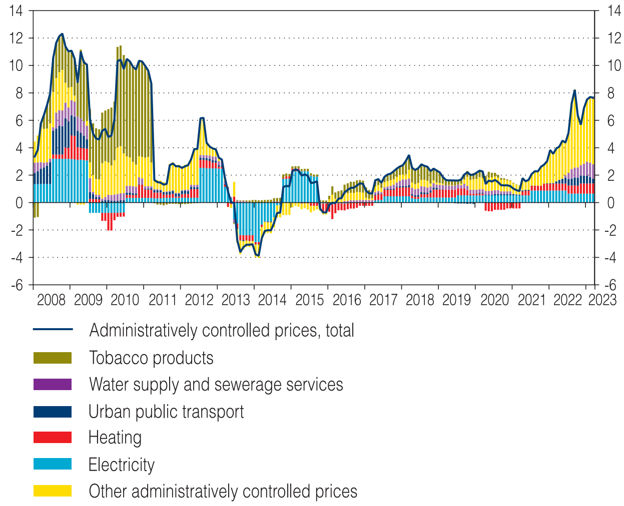
Sources: NSI, BNB calculations.

products,[68] water supply and tobacco products over the first three months of 2023. Other sub-groups with controlled prices, which had a significant contribution to inflation in March 2023 as a result of 2022 price increases, were heating,[69] education, electricity and postal services. Since early 2023, there has been a significant decrease in the positive contribution of central gas supply[70] to annual inflation in the group of administratively controlled prices, corresponding to the dynamics in natural gas prices in international markets.

In March 2023, the diffusion index, showing the share of groups of goods and services with rising prices on an annual basis, was 86 per cent (against 89.5 per cent in December 2022). As regards the amount by which prices rose, the relative share of goods and services with inflation of above 5 per cent on an annual basis was 72.1 per cent in March 2023, from 79.1 per cent at the end of 2022.

Contribution of Major Sub-groups to Inflation in Administratively Controlled Prices (Including Tobacco Products)

(per cent, percentage points)

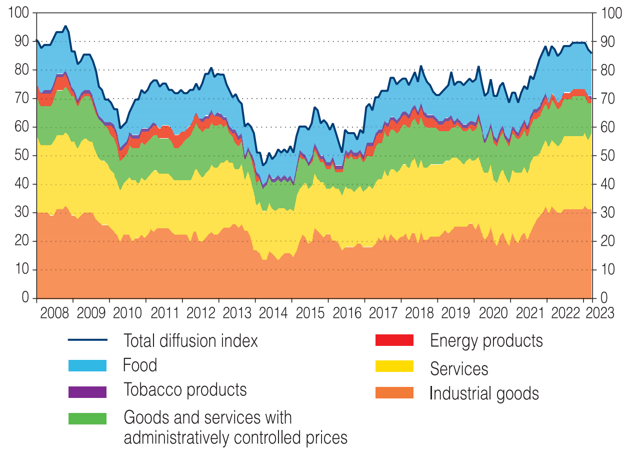


Sources: NSI, BNB calculations.

Diffusion Index

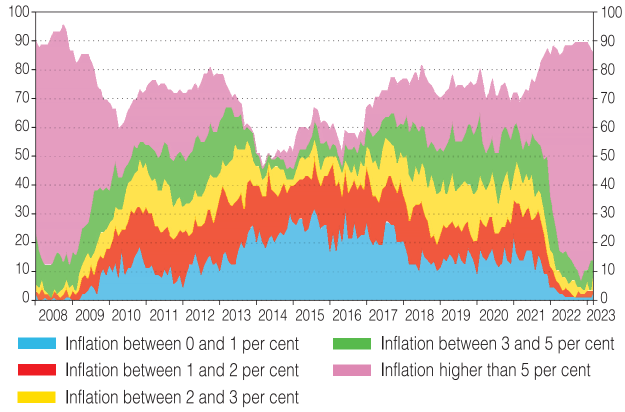
a) relative shares of increasing HICP sub-indices on an annual basis by major groups of goods and services

(per cent)



b) relative shares of increasing HICP sub-indices on an annual basis by the size of the increase

(per cent)



Notes: Data on the HICP 4-digit level sub-indices (sub-classes according to the NSI methodology) have been used. The diffusion index shows the share of sub-indices reporting an increase in value on an annual basis. When calculating the relative shares, the weight of the relevant sub-indices in the consumer basket is not taken into account.

Sources: NSI, BNB calculations.

[68] Medicines included in the so-called positive drug list posted the strongest price rise. These are medicines whose prices are set administratively by the National Council on Prices and Reimbursement of Medicinal Products on the basis of the lowest producer price in the European Union and a percentage surcharge.

[69] For further information, see the EWRC's decisions of July 2022 on prices of heating and electricity for households.

[70] The natural gas price declined by 10.6 per cent year on year as of March 2023. For more information, see EWRC's press release of 1 March 2023 (available in Bulgarian only).

Inflation Expectations

In the first three months of 2023, managers' sentiment towards rising selling prices weakened somewhat, with these changes being more pronounced in services and industry. At the same time, in the retail trade sector, which is closest to consumers in the supply chain, sentiments to an increase in prices remained high as of March 2023, and the NSI indicator of selling prices remained at a level similar to the end-2022 level and significantly above historical values. Managers expecting price rises in retail trade goods project these rises to continue over the next three months at the same rates as those observed thus far.

Based on these developments and our assumptions about changes in international commodity prices and labour market dynamics, annual inflation is anticipated to follow a gradual downward trend in the second and third quarters of 2023. The strong private consumption, which reduces the propensity of firms to fully pass on declines in international commodity prices, and continued strong growth in unit labour costs are expected to be the main factors that would continue to exert pro-inflationary pressures on consumer prices.

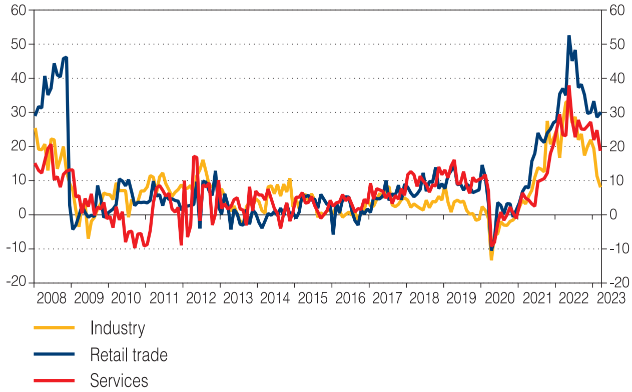
5.2. House Prices

The annual growth rate of the house price index (HPI) slowed to 13.4 per cent in the fourth quarter of 2022 (down from 15.6 per cent in the previous quarter), mainly due to the emerging base effect of high price increases at the end of 2021. Among regional cities, the slowdown in annual house price growth was most pronounced in Sofia. Factors limiting the house price increase for the total economy at the end of 2022 were the weakening household sentiment for house purchases[71] and a decline in the volume of concluded sale and purchase transactions (by -12.6 per cent on a quarterly basis and by -23.5 per cent on an annual basis). At the same time, factors further supporting housing demand and thereby contributing to maintained high price levels were the labour income growth, strong credit activity, negative real interest rates on housing loans, as well as accumulated savings in the economy and limited alternatives for their investment. In addition, a supply-side pro-inflationary factor was the continued quarterly rise

[71] Data from the regular NSI household budget survey, seasonally adjusted by the BNB.

Expectations of Selling Prices in Industry, Retail Trade and Services in the Following Three Months

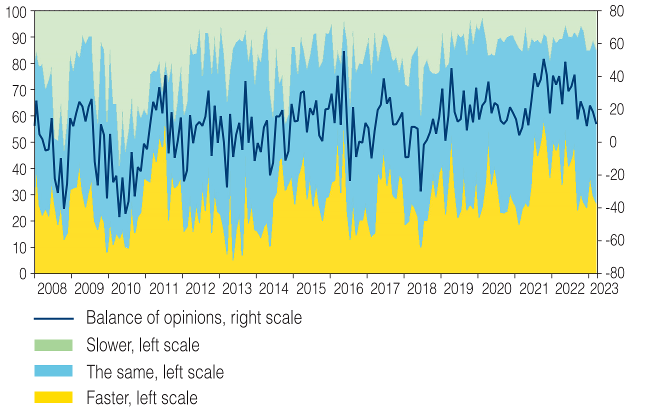
(balance of opinions)



Source: NSI.

Expectations for the Rate of Growth in Selling Prices in Retail Trade Over the Following Three Months

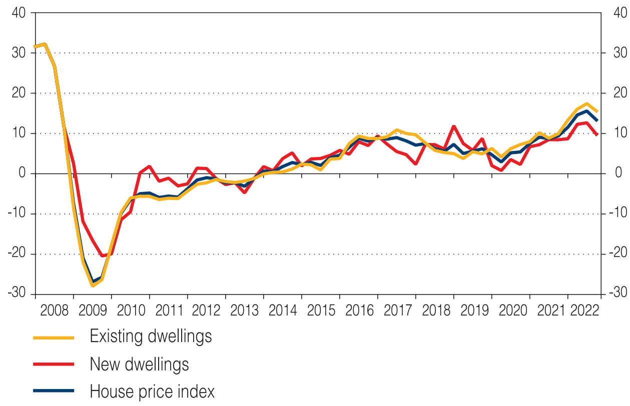
(share of managers, per cent) (balance of opinions)



Source: NSI.

Rate of Change of House Price Index

(per cent; on an annual basis)



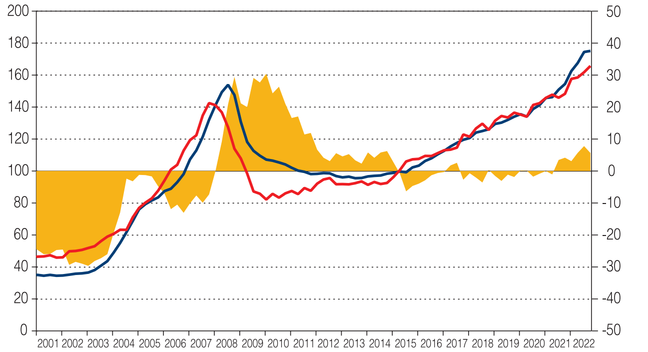
Note: From the beginning of 2022, the HPI is calculated on the basis of data from an administrative source only (the Land Registry), which is the reason why the data are not fully comparable with those of previous years.

Source: NSI.

in the construction cost index[72] by 3.3 per cent in the fourth quarter of 2022 (and by 62.3 per cent year on year), which corresponded to the persistent shortage of some building materials in Bulgaria and their price increases.[73] Over the fourth quarter of 2022, the price-to-rent ratio, which is a frequently used indicator of undervaluation/overvaluation of houses, continued to exceed significantly (by 33.7 per cent) its long-term (historical) average value.[74] This signals that household decisions to purchase a home were driven by reasons other than ensuring an immediate financial benefit by letting newly acquired properties. Such reasons could be the expectations of a continuing increase in house prices (and realised capital gains after a sale in the future) or perceptions of residential properties as an asset for preserving value in an environment of low interest rates and high inflation. At the same time, estimates based on the BNB's macroeconometric model[75] suggest a significantly lower positive deviation of current residential property prices in Bulgaria from their long-term equilibrium level (about 5.7 per cent). This reflects the fact that rising household income in combination with persistently low interest rates on housing loans have pushed up housing affordability, which is reflected in the model as an increase in their equilibrium price.

Actual and Equilibrium House Prices

(index 2015 = 100) (per cent)

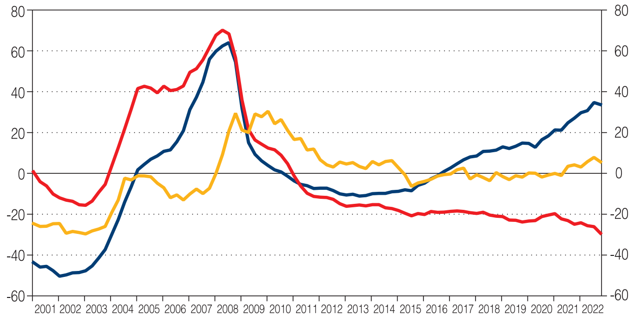


Long-term (estimated through a model) house prices, left scale
Actual house prices, left scale
Undervaluation (-) / overvaluation (+), right scale

Sources: NSI, BNB calculations.

Indicators of Undervaluation/Overvaluation of Housing

(per cent)



Price to rent ratio (deviation from historical average value)
Price to income ratio (deviation from historical average value)
Deviation of house prices (estimated through a model) from the long-run equilibrium level

Sources: NSI, BNB calculations.

[72] Eurostat data are used.

[73] According to NSI business situation survey data for Bulgaria.

[74] Calculated for the period from the first quarter of 2000 to the fourth quarter of 2022.

[75] Additional information on this model is available in the research topic *Dynamics of House Prices in Bulgaria between 2000 and 2016*, Economic Review, 1/2017.

Key Indicators of the Housing Market Developments in Bulgaria

(per cent; year-on-year change)

Indicators	2019	2020	2021	2022	2022			
					I	II	III	IV
Price developments								
House Price Index, total	6.0	4.6	8.7	13.8	11.5	14.6	15.6	13.4
New dwellings	8.5	2.2	7.7	10.8	8.7	12.3	12.6	9.8
Existing dwellings	4.8	6.0	9.2	15.6	13.3	16.0	17.4	15.6
Inflation (HICP)	2.5	1.2	2.8	13.0	8.9	13.4	15.2	14.5
House rentals, paid by tenants (HICP)	3.3	2.5	1.7	6.3	4.3	6.2	7.1	7.8
Lending								
New housing loans	12.4	18.1	24.0	33.5	47.0	36.5	30.8	23.4
Annual percentage rate of charge on new housing loans (per cent, at the end of the period)	3.5	3.2	3.0	2.8	2.9	2.9	2.8	2.8
Housing loans balances	0.0	-15.5	14.4	17.5	17.1	17.0	16.9	16.8
Construction and Investment								
Permits issued for the construction of new residential buildings (square meters)	-7.9	-9.0	25.1	20.6	13.9	43.3	55.5	-19.9
Value added in construction (at average annual prices for 2015)	3.7	-1.0	-17.1	-4.5	-4.2	-12.1	-17.7	36.7
Constriction Production Index, building construction	8.4	-8.4	0.8	1.9	5.2	2.5	0.2	-0.1
Fixed investment; residential buildings	6.6	0.7	0.6	-9.2	-9.5	-13.0	-5.4	-8.8
Construction cost index for new buildings	5.6	2.3	11.0	53.6	24.2	56.7	67.8	62.3

Notes: Values indicating the amount of the APRC on housing loans to households are averages (weighted by the relevant volumes of new loans) for a 12-month period.

In calculating the annual growth rate of new home purchase loans, cumulative data for the last 12 months were used.

Sources: NSI, BNB, Eurostat.

Transmission of the ECB Monetary Policy to Interest Rates in Bulgaria. Assessment of Potential Effects of the Increase in Minimum Required Reserve Rate on Key Macroeconomic Indicators

Current macroeconomic developments in Bulgaria are characterised by high rates of consumer price growth and persistently high core inflation, strong growth of private sector wages and private consumption, and continued robust growth of loans to households. The continuation of these trends poses potential risks to the resilience of the banking system and to the fulfilment of the Bulgarian National Bank (BNB) primary objective of maintaining price stability. Therefore, on 26 April 2023 the BNB Governing Council decided to raise the percentage of minimum required reserves (MRR) on funds attracted by banks from non-residents from 5 per cent to 10 per cent as of 1 June 2023, and the percentage of minimum required reserves on funds attracted by banks from residents and non-residents from 10 per cent to 12 per cent as of 1 July 2023. The purpose of this research topic is to present the factors behind the BNB Governing Council's decision to raise the percentage of the MRR and to provide an assessment of the potential effects of the increase in minimum required reserve rate on key macroeconomic indicators in Bulgaria.

Current Macroeconomic Developments in Bulgaria

In the past two years global consumer prices recorded accelerated growth rates. Factors behind the high inflation were related to the prolonged period of very accommodative monetary policy by leading central banks, the series of monetary and fiscal measures implemented by a number of countries to address the implications of the COVID-19 pandemic, the supply chain disruptions, as well as the rising energy and food prices owing to the military conflict in Ukraine. As a result of the high degree of openness of the Bulgarian economy and the existing currency board in Bulgaria, the inflation in the country is largely influenced by global processes, international prices of raw materials and commodities, as well as by the European Central Bank (ECB) monetary policy. At the same time, however, there are internal factors, which further amplified external inflationary pressures.

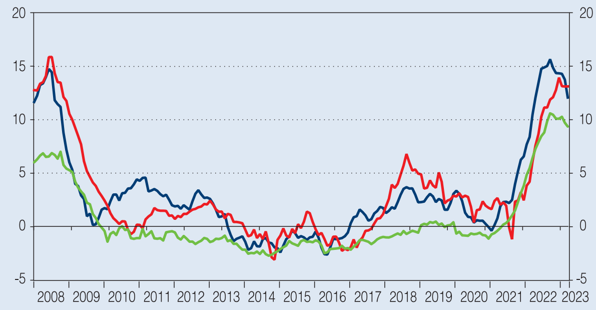
In 2022, the significant rise in energy and agricultural commodity prices in international markets, which exerted upward pressure on firms' production costs due to the high energy intensity of the Bulgarian economy and the high relative share of foreign goods used in the domestic production was a major pro-inflationary factor in Bulgaria stemming from the external environment. Concurrently, price rises became broad-based across consumer basket components, with an accelerated rate of price increases in services and non-energy industrial goods items, in addition to energy and food (Chart 1). The main factors related to the internal macroeconomic environment that contributed to the formation of high inflation throughout 2022 were the strong increase in unit labour costs and the growth of household final consumption expenditure. Reflecting higher inflation expectations and growing labour shortages, nominal compensation *per* employee recorded a significant increase of 18.4 per cent year on year in 2022, driven by the private sector, while unit labour cost growth for the total economy amounted to 16.0 per cent (Chart 2). The average annual HICP inflation remained lower in 2022, standing at 13 per cent. High wage and consumer price growth, coupled with untargeted fiscal measures to support households amid political instability and fiscal policy easing, created prerequisites for a sustained increase in inflation and strengthening the link between inflation and wage growth in the country. The strong lending growth, including for the financing of consumer expenditure was another pro-inflationary factor.

Consumer price inflation has started to moderate slightly since the fourth quarter of 2022, standing at 14.3 per cent in December from 15.6 per cent in September, and reaching 12.1 per cent in March 2023. Inflation developments mainly reflected the downward trend in international prices of major energy sources, which led to a significant decline in the contribution of energy products to headline inflation. At the same time, annual HICP core inflation, and in particular inflation in services remained at persistently high levels at the end of 2022 and in the first three months of 2023 (Chart 1).

Credit growth to the non-government sector remained high in 2022 amid strongly negative real interest rates, significant volume of attracted funds and ample liquidity of the banking system.

Chart 1. Annual Inflation and Core Inflation (Services and Non-Energy Industrial Goods)

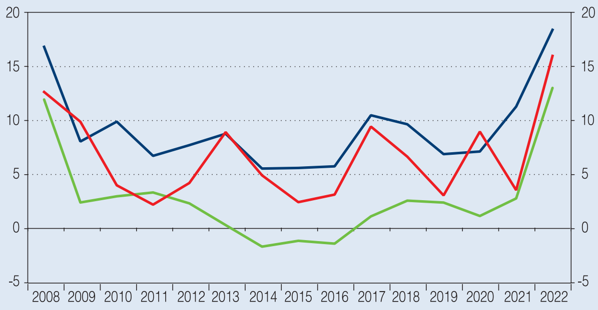
(per cent)



Sources: NSI, BNB calculations.

Chart 2. Average Annual Inflation, Compensation *per* Employee and Unit Labour Cost (Annual Data)

(per cent)



Source: NSI.

Demand for corporate loans was mainly aimed at providing financial resources for working capital and build-up of inventories due to significant price rises in commodities and raw materials, bottlenecks in supply chains and an increased uncertainty in the economic environment. The reported fall in inventories after the high levels reached in the first half of the year contributed to some decline in corporate credit growth in the last months of the year (Chart 3). Higher wage growth than inflation and negative real interest rates underpinned demand for consumer and housing loans, with the growth in housing loans remaining at high levels throughout 2022, while consumer loan growth slowed slightly at the end of the year (Chart 4). High growth in housing loans (17.9 per cent as of December 2022 against 16.5 per cent at the end of 2021) reflected, in addition to interest rates, households' maintained preferences for real estate purchases as an alternative form of savings or investment and the strong increase in nominal labour income.

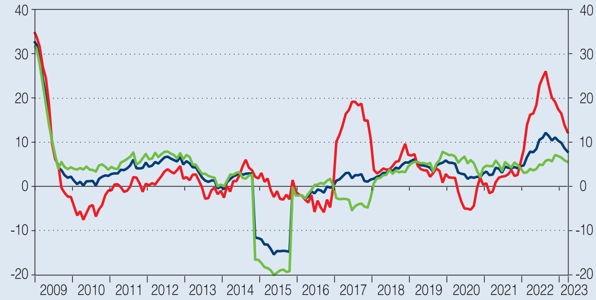
The growth in loans to non-financial corporations (NFCs) continued to decelerate gradually at the beginning of 2023, but remained relatively high, standing at 7.9 per cent year on year at the end of March (10.4 per cent in December 2022). Household credit growth did not slow down, amounting to 12.1 per cent year on year for consumer loans (12.3 per cent in December 2022) and 17.8 per cent year on year for housing loans.

Amid continued strong lending activity and rapid growth in loan volumes, especially in the housing loan segment, the BNB Governing Council undertook a series of increases in the countercyclical capital buffer rate: from 0.5 per cent to 1.0 per cent as of 1 October 2022[1], to 1.5 per cent, with effect from 1 January 2023[2] and to 2.0 per cent with effect from 1 October 2023[3]. Although the

[1] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/PR_20210916_CCB_EN
[2] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/PR_20211216_CCB_EN
[3] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/PR_20220929_CCB_EN

Chart 3. Annual Growth of Credit to Non-financial Corporations

(per cent)

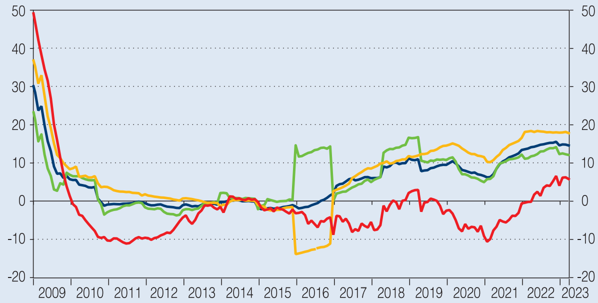


Note: The annual growth rate of loans to non-financial corporations in November 2015 reflects the wearing off of the base effect of KTB removal as a reporting unit from the monetary statistics in November 2014.

Source: BNB.

Chart 4. Annual Growth of Credit to Households

(per cent)



Notes: Based on additional information received from reporting units, a revision of household loans was carried out according to their purpose of use in December 2015–August 2019.

The chart does not show other loans to households, which accounted for 1.2 per cent of total loans to households in March 2023.

Source: BNB.

main objective of the decisions taken by the BNB to increase the countercyclical capital buffer rate is to strengthen the resilience of the banking system, a potential indirect effect of higher buffer rates could be expected to be limiting the lending activity and lowering credit growth. The sustained high rates of credit growth, particularly in the household sector, show that the increase in the countercyclical capital buffer rate does not have a significant impact on the weakening of lending activity. This can be explained by the high levels of capital indicators of the banking system, which significantly exceed regulatory minimum requirements, as well as excess liquidity in the banking system and banks' high credit risk appetite.

Transmission of the ECB monetary policy to interest rates in Bulgaria

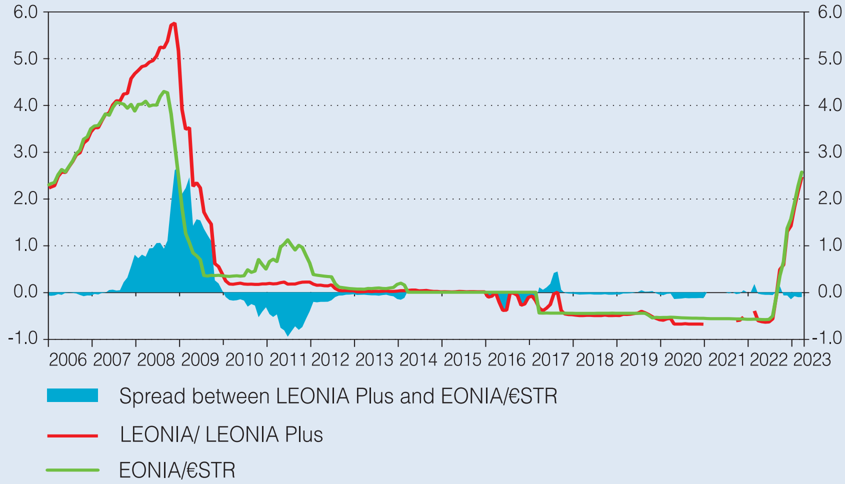
Under Bulgaria's currency board, the BNB does not conduct open market operations and does not set a policy interest rate[4]. Accordingly, in a currency board the BNB has no direct influence on interest rates in Bulgaria, while monetary conditions in the euro area are transmitted to monetary conditions in Bulgaria depending on the level of liquidity in the banking system, the assessment of borrowers' and the Bulgaria's risk premium, and banks' risk appetite. The ECB monetary policy, through changes in euro area interest rates, affects interbank money market interest rates and deposit and lending rates in Bulgaria, which in turn affects consumer demand, household savings and economic activity, and thus domestic inflation.

The ECB's increase in key interest rates in the euro area since the second half of 2022 was passed very rapidly to interbank money market interest rates in Bulgaria. The negative spread between the interest rate on banks' excess reserves with the BNB (0 per cent) and the ECB deposit facility rate since mid-September 2022 created an incentive for banks that are subsidiaries of euro area banks to reduce part of their excess reserves, which was a prerequisite for more active trade in the interbank money market. Since the third quarter of 2022, there has been a significant increase in interbank money market trading volumes, which intensified further in the first quarter of 2023. In March 2023 LEONIA Plus index was 2.47 per cent, up by 311 basis points compared with June 2022, while its spread with €STR amounted to -0.10 percentage points (Chart 5).

[4] The BNB calculates and announces a base interest rate (BIR), which is not a monetary policy instrument but is determined based on market principles. The amount of BIR in force on the first day of each calendar month is equal to the arithmetic average of the LEONIA Plus *index (LEONIA: LEv OverNight Interest Average Plus)* for the working days of the previous calendar month. Where this arithmetic average is less than zero, the BIR is set at zero.

Chart 5. Interbank Money Market Rates on Overnight Deposits

(per cent, percentage points)



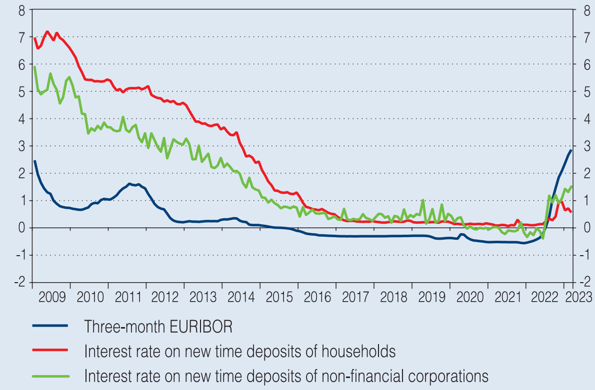
Notes: The EONIA/€STR time series is composed of: EONIA between 2008 and 14 March 2017; pre-€STR between 15 March 2017 and 30 September 2019; €STR in the period after 30 September 2019.
LEONIA Plus replaced LEONIA as of 1 July 2017. LEONIA Plus monthly values are calculated as an arithmetic average for days when overnight unsecured lending transactions are concluded in the interbank market in levs.

Sources: ECB, BNB.

In the context of continued substantial inflows of attracted funds, significant liquidity and strong competition in the banking sector, the extent and speed of the pass-through of key ECB interest rates increases to deposit and lending rates in Bulgaria remained very subdued around the beginning of 2023, particularly as regards the household sector. As the three-month EURIBOR rate rose by 311 basis points in March 2023 compared to June 2022, the interest rate on new time deposits of households increased by only 43 basis points, while the interest rate on new time deposits of non-financial corporations by 190 basis points (Chart 6). Over the same period the interest rate on new loans for house purchase went up by 16 basis points, the interest rate on new consumer loans rose by 66 basis points, while the interest rate on new loans to non-financial corporations indicated an increase of 168 basis points (Chart 7).

Chart 6. Interest Rates on New Time Deposits and Three-Month EURIBOR

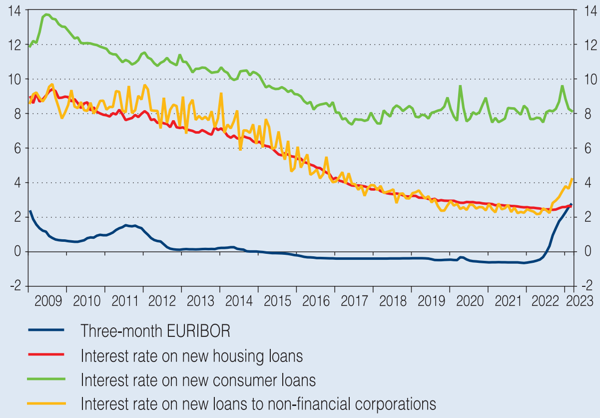
(per cent)



Source: BNB.

Chart 7. Interest Rates on New Loans and Three-Month EURIBOR

(per cent)

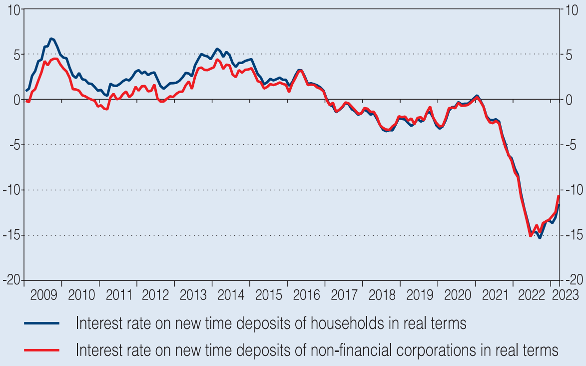


Source: BNB.

Taking into account annual consumer price inflation, deposit and lending rates in real terms remained strongly negative (Charts 8 and 9) and continued to support household demand and private consumption growth. At the same time, strong consumer demand remains one of the main drivers behind persistently high domestic inflation.

Chart 8. Interest Rates on New Time Deposits in Real Terms

(per cent)

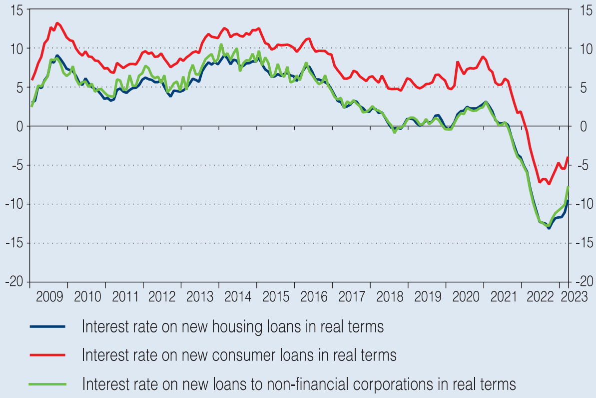


Note: Real interest rates are calculated by deflating the relevant nominal interest rate for a given month by the annual HICP inflation for the same month.

Source: BNB, BNB calculations.

Chart 9. Interest Rates on New Loans in Real Terms

(per cent)



Note: Real interest rates are calculated by deflating the relevant nominal interest rate for a given month by the annual HICP inflation for the same month.

Source: BNB, BNB calculations.

A comparison of the interest rates on deposits and loans in Bulgaria with those of other EU countries shows that the interest rates in Bulgaria were at some of the lowest levels in the EU at the end of the first quarter of 2023 (Charts 10 to 14). In the case of interest rates on deposits to both the household sector and non-financial corporations in particular, the weighted average rate on deposits with agreed maturity in euro and national currency in Bulgaria is the lowest among non-euro area countries and the second lowest in the EU after that of Cyprus. As regards lending rates, Malta and France were the only countries in the EU with a lower weighted average interest rate on housing loans. Regarding interest rates on loans to non-financial corporations, Bulgaria ranks third lowest among non-euro area countries and eighth lowest in the EU. Interest rates in Bulgaria only on consumer loans are close to the average of the EU Member States.

The key factors driving the weak and slow transmission of the ECB's monetary policy tightening to deposit and lending rates in Bulgaria are ample liquidity in the banking system and strong competition in the banking sector for market share in the consumer and housing loan segment. The continued strong growth of non-government sector's deposits in recent years contributed to the significant liquidity in the banking system. In 2022, the annual growth of non-government sector's deposits accelerated, driven by deposits of non-financial corporations. As of March 2023, deposits of the non-government sector increased by BGN 13.8 billion on an annual basis, reaching BGN 118.9 billion (71.9 per cent of GDP). Concurrently, claims on the non-government sector were BGN 84.5 billion (51.1 per cent of GDP), those on the government sector amounted to BGN 12.8 billion and banks' reserves with the BNB were BGN 27.6 billion, of which BGN 1.9 billion in the form of cash balances and BGN 25.7 billion of deposits (minimum required reserves, excess reserves and account balances in TARGET2). Data on banks' foreign assets, which accounted for BGN 28.1 billion at the end of March 2023 and comprised mainly liquid assets[5] (around 57 per cent of total foreign assets or BGN 15.9 billion), point to the high amount of liquid funds in the banking system

[5] Liquid funds as part of banks' foreign assets are calculated on the basis of data on the amount of funds in the following categories: cash in foreign currency, deposits and repurchase agreements (repos).

Chart 10. Interest Rates on New Deposits to Households with Agreed Maturity in EU Countries

(per cent)

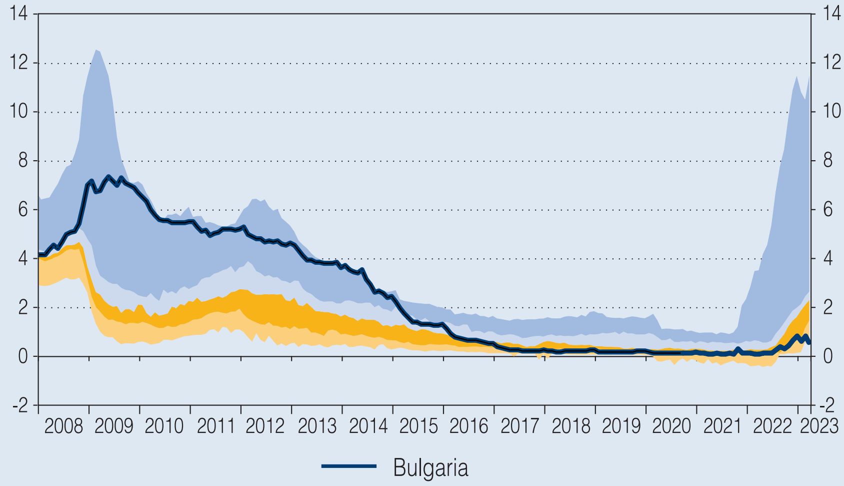


Chart 11. Interest Rates on New Deposits to Non-financial Corporations with Agreed Maturity in EU Countries

(per cent)

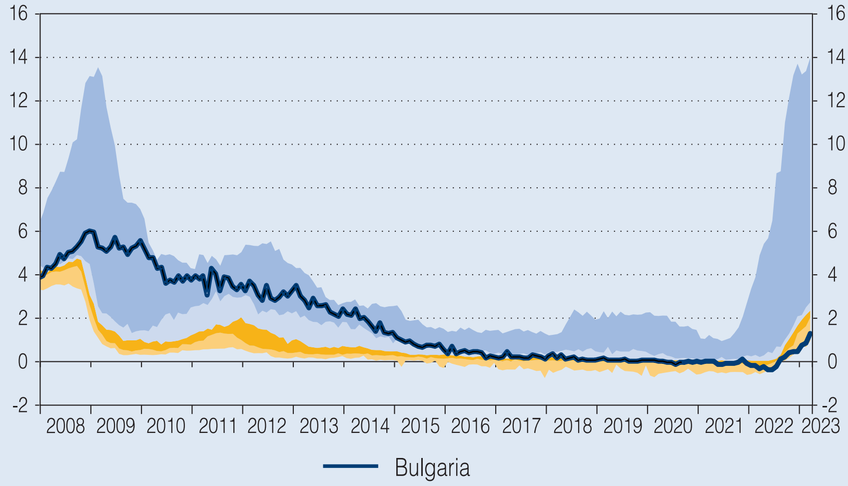


Chart 12. Interest Rates on New Housing Loans in EU Countries

(per cent)

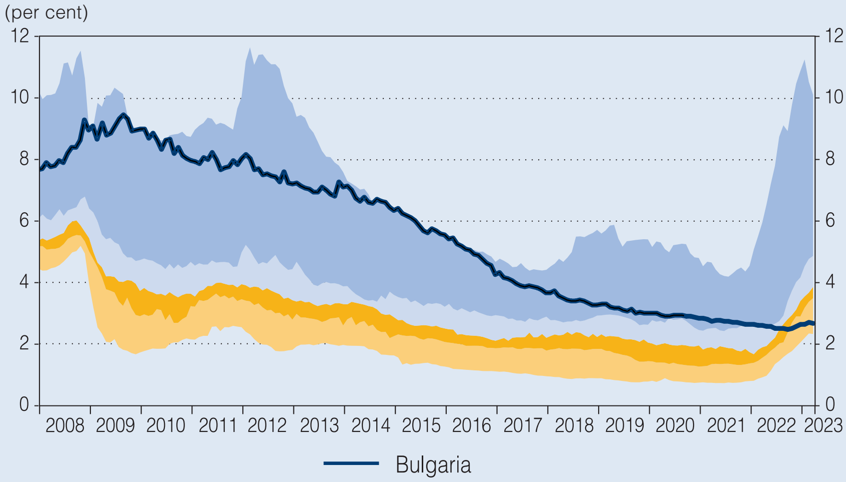


Chart 13. Interest Rates on New Consumer Loans in EU Countries

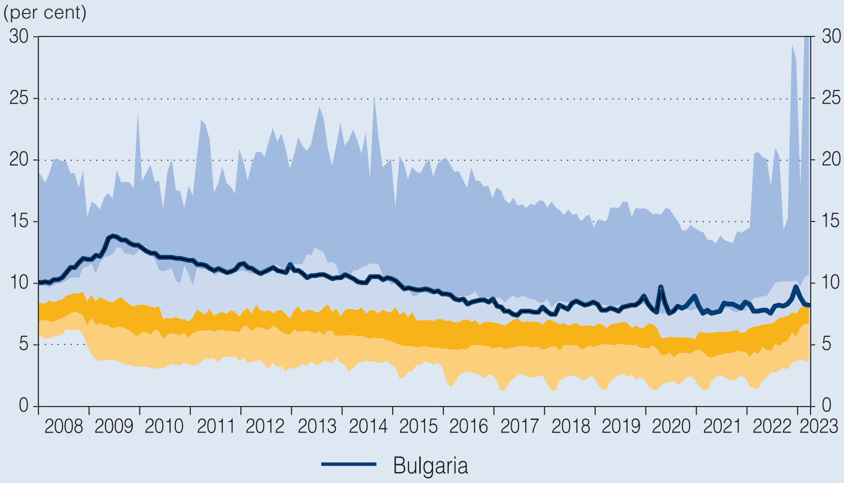
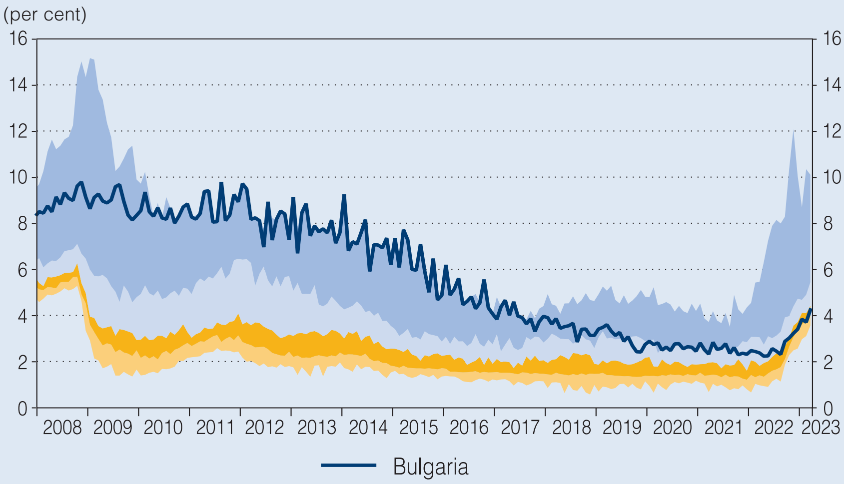


Chart 14. Interest Rates on New Loans to Non-financial Corporations in EU Countries



Notes: The charts show a quartile distribution of the selected indicators for EU Member States. Each segment contains 25 per cent of the Member States: the one at the lowest end presents the first 25 per cent with the lowest values of the relevant indicator, the second segment presents the next 25 per cent of the countries with higher values of the indicator, and the top 25 segment covers the countries with the highest values of the indicator. The values for Bulgaria are presented with a line.

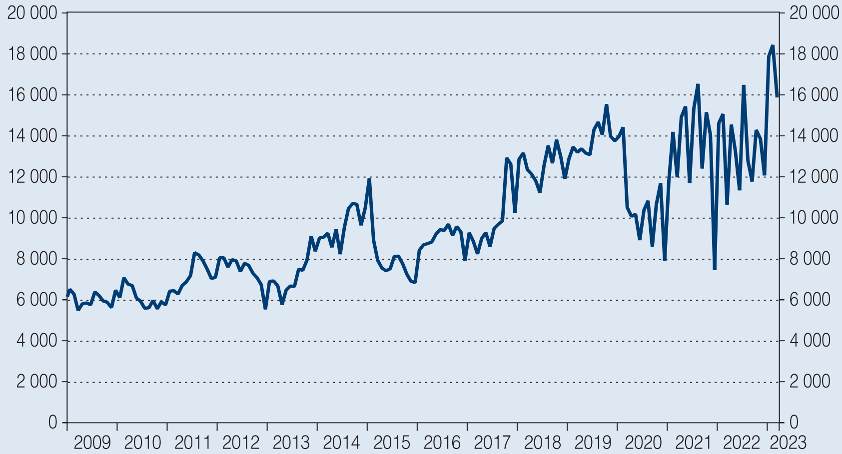
Source: ECB.

invested outside the country (Chart 15).[6] Total liquidity in the banking system can be seen as a sum of banks' liquid foreign assets, the part of banks' reserves in excess of the minimum reserve requirements (BGN 2.6 billion on an average daily basis in March 2023[7]) and banks' cash balances. Current data show excess liquidity in the banking system, which is one of the main factors hampering the transmission of the ECB monetary policy to the monetary conditions in Bulgaria.

[6] The amount of net foreign assets of banks as of March 2023 was BGN 15.1 billion.

[7] This refers to the average daily amount of bank excess reserves owing to their usual strong growth at the end of each quarterly period.

Chart 15. Liquid Foreign Assets of Banks
(BGN million)



Source: BNB.

Instruments Used by the BNB to Influence Monetary Conditions in Bulgaria. Use of the Instrument of Minimum Required Reserves in Bulgaria

In the framework of the currency board currency board, the main instrument used by the BNB to influence monetary conditions in Bulgaria is the regulation of MRR maintained by banks with the central bank. This instrument enables the BNB to provide liquidity to or withdraw liquidity from the banking system, thereby affecting developments in the interbank money market, banks' incentives to extend credit and overall lending activity in Bulgaria. In addition, since minimum reserves are not remunerated, their rate implicitly affects banks' total funding costs and thus influences their policy in setting lending interest rates. The second instrument the BNB can use to influence monetary conditions is the interest rate on excess reserves of banks maintained with the central bank. All other things being equal, a positive spread between the excess reserve rate and the prevailing market rate on alternative liquid assets creates an incentive for banks to maintain excess liquidity at the BNB. By contrast, the negative interest spread between these rates generates incentives for seeking alternative opportunities for banks to invest their excess liquidity. Other tools by which the BNB can indirectly affect monetary conditions in Bulgaria include the implementation of supervisory, macroprudential and administrative measures. Nevertheless, supervisory policy instruments aim at building buffers and improving the quality of banking assets to ensure the financial stability, rather than affecting directly monetary conditions in Bulgaria.

The BNB uses MRR primarily as a tool to maintain precautionary liquidity buffers in the banking system due to its limited role as lender of last resort under the currency board. At the same time, the BNB has historically used the MRR instrument for conducting monetary policy as well.

Following the introduction of the currency board in Bulgaria, in 1998–2006 the MRR rate was set at 8 per cent of the deposit base.

In 2004 and 2005, the BNB adopted a package of measures to stabilise the rapid growth rates of credit to the private sector to moderate levels that could be sustained in the medium term without threatening financial stability in Bulgaria. More specifically, in May 2004 the BNB Governing Council decided to broaden the deposit base for calculating minimum reserves and reduce the amount of cash holdings recognised as minimum reserves from 100 to 50 per cent,[8] and in November 2004 bank cash holdings were completely excluded from the amount of minimum reserves to be main-

[8] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20040520_EN

tained by banks with the BNB.[9] In April 2005, the BNB imposed administrative credit restrictions (credit ceilings) effective until January 2007. These restrictions obliged banks to hold additional minimum reserves with the BNB if the quarterly credit growth would exceed certain values specified by the central bank.[10] Since the introduction of credit ceilings, there has been significant improvements in banks' balance sheets and credit risk mitigation in the banking system, as well as a slowdown in the growth of credit to the private sector.[11] After the expiry date of credit ceilings at the beginning of 2007, credit growth started to accelerate again. Continuing its counter-cyclical policy, in July 2007 the BNB Governing Council decided to raise the minimum reserve requirement rate from 8 to 12 per cent.[12]

Since the end of 2008, lending to the private sector has slowed down significantly, reflecting the increased negative effects of the global financial and economic crisis. During the downturn in economic activity, the BNB continued its counter-cyclical policy, initiating in late 2008 and early 2009 a number of measures to offer banks greater flexibility in managing their liquidity resources by using the capital buffers accumulated during the period of economic growth. Part of these measures concerned easing of the minimum reserve requirements, including the recognition of 50 per cent of bank cash in vaults as reserve assets[13] and a reduction of the MRR rate from 12 to 10 per cent.[14] These measures were followed by a further reduction of minimum reserve requirements, and the MRR rate was cut to 5 per cent for funds attracted from non-residents and to 0 per cent for those from state and local government budgets. The differentiation of the rate for non-residents was intended to preserve the existing foreign funding for banks in the context of a declining global liquidity, while the zero rate for attracted funds from state and local government budgets was justified by government securities used as collateral. The overall effect of BNB measures was reflected in a release of liquidity in the economy of about BGN 3 billion, which in combination with the ECB's cuts in policy rates and measures to provide liquidity in response to the crisis led also to a significant decrease in interbank money market rates in Bulgaria (see Chart 5). From 2009 to the beginning of 2023, the BNB did not undertake any changes to the MRR rate.

Historically, the BNB has used the instrument of bank excess reserve rate for conducting monetary policy only during the period of negative interest rates globally and in the euro area, in particular. More specifically, after the introduction of a negative deposit facility rate by the ECB in June 2014 with a view to decreasing interest rates and providing incentives for lending in the euro area in an environment of very low inflation, banks in Bulgaria started to accumulate significant amounts of excess reserves on their accounts with the BNB, which were remunerated at 0 per cent. As a result, the transmission of the ECB monetary policy to interbank money market rates in Bulgaria weakened. In order to affect the level of excess reserves and to strengthen the transmission mechanism of the ECB policy to the Bulgarian economy, in late 2015 the BNB Governing Council adopted a new Ordinance No 21 on the Minimum Required Reserves Maintained with the Bulgarian National Bank by Banks. The main new provisions were the introduction of the definition of bank excess reserves with the BNB and the application of the ECB deposit facility rate on excess reserves, when this rate is negative.[15] The BNB continued to apply a zero interest rate on excess reserves when the ECB deposit facility rate is positive or nil. The BNB also retained its zero MRR rate policy. The amendments to Ordinance No 21 contributed to the strengthening of the transmission of the ECB monetary policy to interbank money market rates in Bulgaria, but the amount of

[9] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20041118_BG

[10] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20050422_1_BG
https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20051110_BG

[11] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20061026_EN

[12] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20070719_EN

[13] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20081021_EN

[14] https://www.bnb.bg/AboutUs/PressOffice/POPressReleases/POPRDate/RELEASE_20081127_1_EN

[15] From 9 December 2015 the ECB deposit facility rate was cut to -0.30 per cent.

banks' excess reserves remained substantial. October 2017 saw the entry into force of the amended methodology for calculating interest rates on accounts with the BNB: bank excess reserves were remunerated at 0 per cent or the ECB deposit facility rate, reduced by 20 basis points, whichever is lower.[16] The more negative interest rate on bank excess reserves had an impact on their significant reduction and the fall of overnight deposit rates in the Bulgarian interbank money market into negative territory, with their rate coming closer to the negative interest rate on excess reserves. On the other hand, the negative rate on excess reserves contributed to the increase in banks' funding costs. As a result of the increase in the ECB policy rates at the end of July 2022, the deposit facility rate was raised to 0 per cent (previously -0.50 per cent), bringing the bank excess reserve rate to 0 per cent.

Taking into account the slow and weak pass-through of changes in the ECB monetary policy and the limited effects of increases in the countercyclical capital buffer by the BNB on lending activity, on 26 April 2023, the BNB Governing Council decided to raise the MRR rate on funds attracted by banks from non-residents from 5 per cent to 10 per cent as of 1 June 2023, and to further raise the rate on funds attracted from both residents and non-residents from 10 per cent to 12 per cent as of 1 July 2023.

Simulations with the BNB's main econometric model to assess the potential effects of raising the MRR rate on key macroeconomic indicators

The strengthening of the relationship between inflation and wage growth over the past few years and the very limited transmission of the ECB monetary policy tightening amid ample liquidity in the banking system and limited effects of the increased countercyclical capital buffer rate on household credit suggest that further policy measures are needed to lower inflation. In pursuit of its price stability mandate and within its monetary policy instruments, the BNB can influence the dampening of inflation by raising the banks' minimum required reserve rate. Through this measure part of the existing excess liquidity in the banking system will be absorbed, which will lower the banking system's lending capacity by reducing banks' free resources and thereby, curbing banks' incentives to lend. At the same time, as the minimum required reserves are not remunerated, the increased rate can be expected to implicitly affect banks' overall funding costs and help push lending rates up. Higher lending rates will dampen households' demand for consumer credit and loans for house purchase, while weakening consumer demand would, in turn, contribute to the easing of inflationary pressures in the economy. On the other hand, since excess liquidity in the banking system is not evenly distributed across banks, withdrawing part of it will create incentives to increase deposit rates, which will also result in deferring consumption and will put additional upward pressure on lending rates.

To quantify the potential macroeconomic effects of an increase in the MRR rate, a simulation exercise was carried out using the main BNB macroeconometric forecasting model – BNB's main tool for forecasting and simulation analysis of the impact of economic shocks. The system of equations in the model is based on the assumption of long- and short-term behavioural relationships in the economy in the form of the so-called error correction mechanism.[17]

For simulation purposes, a channel of influence on macroeconomic variables is included in the BNB econometric model through the effective implicit MRR rate and through a variable reflecting the lending capacity of the banking system in the economy. More specifically, the influence chan-

[16] From 16 March 2016 the ECB deposit facility rate was lowered to -0.40 per cent and from 18 September 2019 to -0.50 per cent respectively.

[17] For more information on the main forecasting model, see the box entitled *Bulgarian National Bank Forecast of Key Macroeconomic Indicators for 2015–2017* in the Economic Review quarterly, issue 4 of 2015. Empirical analysis of the channels through which the ECB monetary policy is transmitted to economic activity and inflation in Bulgaria is provided in Nenova, M. et al. (2019): „Transmission of ECB's Monetary Policy in Bulgaria: Insights from a Large Macro-Econometric Model", BNB Discussion Papers DP/115/2019.

nel of macroeconomic variables has two dimensions: (1) a price dimension, reflecting the impact of a change in the MRR rate on interest rates on deposits and loans to non-financial corporations and households, where the estimated econometric relationship between the MRR rate and the interest rates is positive; and (2) a quantitative dimension, reflecting the impact of a change in the amount of minimum required reserves on the banking system's lending capacity and, hence, on the volume of lending to corporations and households. The lending capacity of the banking system in the economy is included in the model through a variable that represents the sum of residents' deposits and banks' foreign liabilities less the amount of minimum reserve requirements, and the estimated econometric relationship between this variable and lending to corporations and households is positive. Accordingly, in case of an increase in the effective implicit MRR rate, the econometric relationship indicates a reduction in the amount of available resources in the banking system, which is reflected in a reduction in credit supply.

The simulation starts in the second quarter of 2023 and is carried out in three consecutive steps. The first step simulates an alignment of the rate of minimum required reserves on funds attracted from non-residents (currently 5 per cent) with that of funds attracted from residents (10 per cent), while keeping the rate of MRR on funds attracted from the state and local budgets unchanged at 0 per cent. This leads to an increase in the effective MRR rate to 9.7 per cent in the second quarter of the year with a current effective rate of 9.3 per cent. The second step simulates an increase in the overall rate to 12 per cent as of the third quarter of 2023, corresponding to an effective rate of 11.7 per cent. The last step includes a further increase in the effective rate to 14.6 per cent in the fourth quarter of 2023, which simulates an increase in the overall rate to 15 per cent. Following the simulated three consecutive increases, the MRR rate is maintained at 15 per cent by the end of the simulation horizon (2025).

The simulation assesses the impact of the increase in the MRR rate on a set of macroeconomic variables (interest rates, credit to the private sector, economic activity, and inflation) against the baseline scenario for the development of the Bulgarian economy outlined in the January 2023 BNB macroeconomic forecast.[18] The estimated effects represent deviations from the baseline scenario in percentages or in BGN million.

The simulation results show that, on the basis of estimated historical relationships between macroeconomic variables, the effects of the increase in the MRR rate on deposit and lending rates are positive, but marginal. A key factor behind the muted response of lending rates is the slight increase in deposit interest rates, which, in turn, can be explained by the strong credit contraction in the simulation and the lack of necessity for banks to attract additional deposit resources.

The contraction in the amount of credit relative to the baseline scenario is mainly driven by the decrease in the available resources that banks can lend (the lending capacity of the banking system), resulting from the withdrawal of liquidity following the increase in the minimum required reserves to be maintained with the BNB. Estimates show that in the simulation the amount of the minimum required reserves increases by BGN 485 million in the second quarter of 2023 compared to the level in the baseline scenario. In the third quarter of 2023, it increased by BGN 3 billion, and in the fourth quarter by BGN 6.8 billion, respectively[19] (Chart 16).

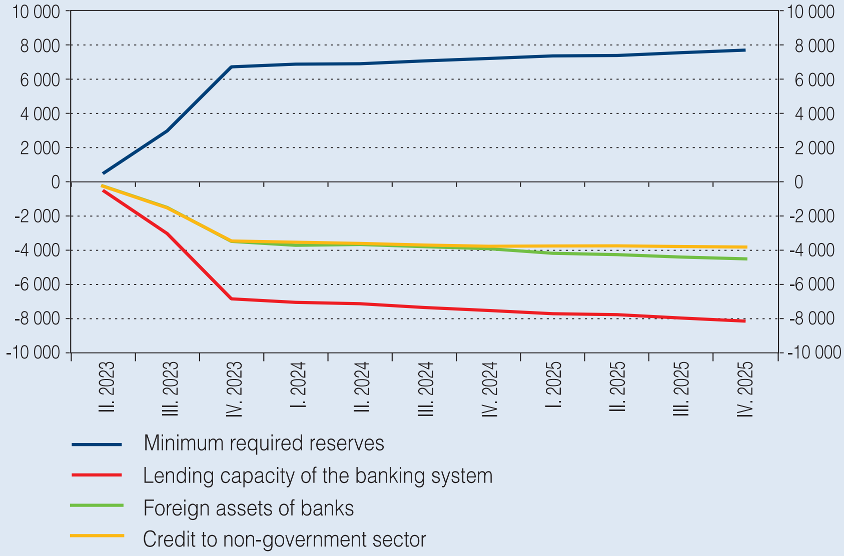
As the amount of deposits from residents and funds attracted from non-residents does not change significantly compared with the baseline scenario, the banking system's credit capacity is reduced by an amount similar to that of the increase in minimum required reserves. The lower lending capac-

[18] https://www.bnb.bg/bnbweb/groups/public/documents/bnb_publication/pub_mac_for%D0%B5cast_2023_01_en.pdf

[19] The stronger effect of the second and third steps in the increase of minimum required reserves was due to the fact that funds attracted from residents accounted for 89.3 per cent of total attracted funds in the banking system. In March 2023 the share of attracted funds from non-residents stood at 8.2 per cent, while that of funds attracted from state and local budgets was 2.5 per cent.

Chart 16. Deviation from the Baseline Scenario

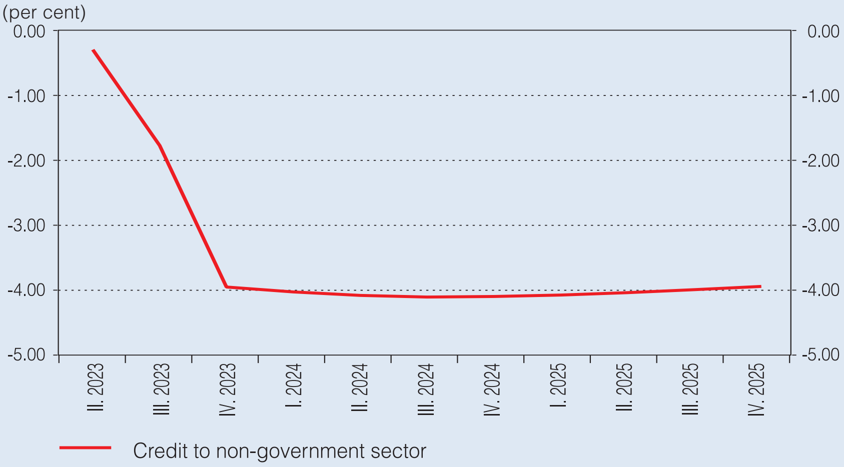
(BGN million)



Source: BNB calculations.

Chart 17. Percentage Deviation of Credit to the Non-government Sector from the Baseline Level

(per cent)



Source: BNB calculations.

ity of the banking system helps reduce the amount of credit to the non-government sector by 4.0 per cent at the end of 2023 as compared to the baseline scenario level (year-on-year growth of credit to the private sector is 1.4 per cent at the end of 2023 against an increase of 5.6 per cent in the baseline scenario[20]) (Chart 17). The decline in credit compared to the baseline scenario may be explained mainly by lower banks' liquidity, which is reflected in lower credit supply. On the demand side, the main factor behind the decline in credit is weakening economic activity driven by the fall in household real consumption. The impact of interest rates on loan demand, as measured by the spread between the lending rate and the deposit rate, is negligible due to the historically weak estimated relationship with loan dynamics and the estimated insignificant increase of this spread in the simulation. The slight change in deposits and total bank liabilities compared to the baseline scenario, combined with an increase in minimum required reserves by an amount higher than the

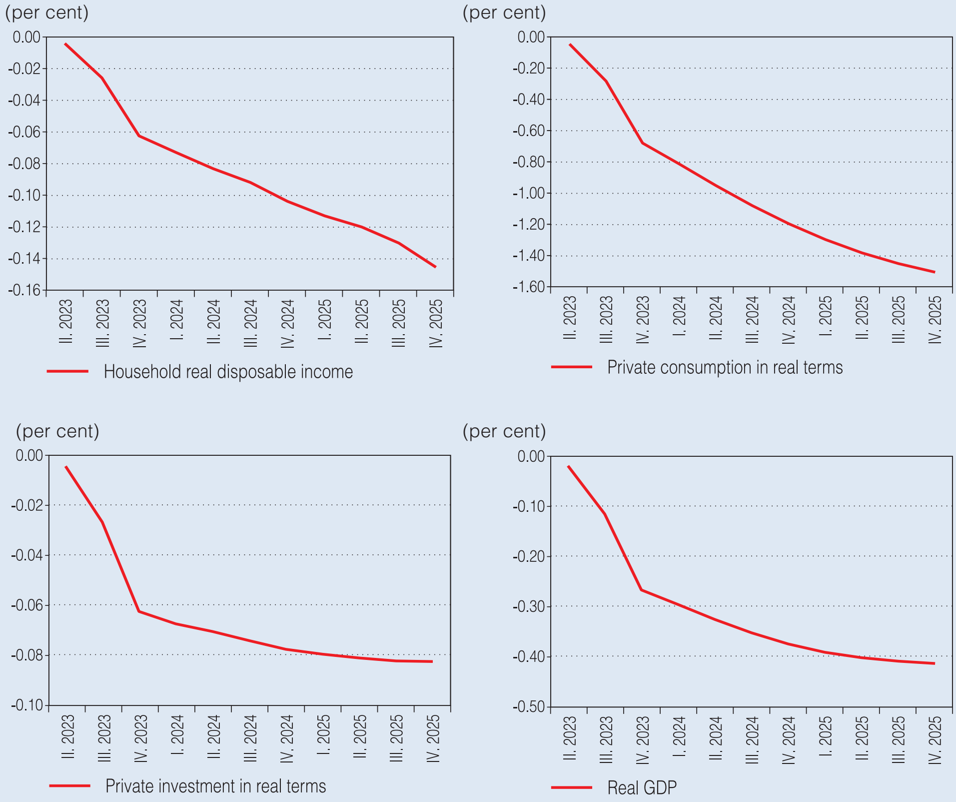
[20] The amount of credit to households and that to non-financial corporations decreases by 4.6 per cent and 4.1 per cent, respectively, at the end of 2023 compared to the level in the baseline scenario.

decrease in credit, are reflected in a fall in banks' foreign assets. Given the strong decline in banks' excess reserves since the second quarter of 2022 and their strong historical volatility, the simulation assumes that excess reserves are not used to meet the increased minimum reserve requirements[21]) (Chart 16).

The decrease in credit, weakening economic activity and lower household real disposable income lead to a 0.7 per cent decline in real private consumption in the fourth quarter of 2023 compared with the baseline scenario level (average for 2023 private consumption growth in the simulation amounts to 3.1 per cent against 3.3 per cent in the baseline scenario). The contraction of private consumption is the main factor behind a negative deviation of real GDP from the level in the baseline scenario (by -0.3 per cent at the end of 2023 and by -0.4 per cent at the end of 2024). Unlike household consumption, where credit is modelled as one of the sources of financing of consumer spending in addition to disposable income, the equation of fixed investment in the private sector does not include credit to firms but gross operating surplus in the economy. As a result, private investment is less responsive in the simulation than private consumption, with their drop following mainly the drop in economic activity and the associated fall in firms' operating surplus (Chart 18). It should be noted that the estimated historical econometric relationship between real deposit rates and private consumption dynamics and between real lending rates and private investment dynamics is weak.

The effect of lower private consumption on inflation in the simulation is partly compensated by a rise in unit labour costs compared to the baseline scenario. These factors, combined with the relatively high inflation persistence of the main components of the consumer price index (services and non-energy industrial goods), are responsible for limited effects on core and headline inflation at the end

Chart 18. Percentage Deviation of a Set of Macroeconomic Variables from the Baseline Level

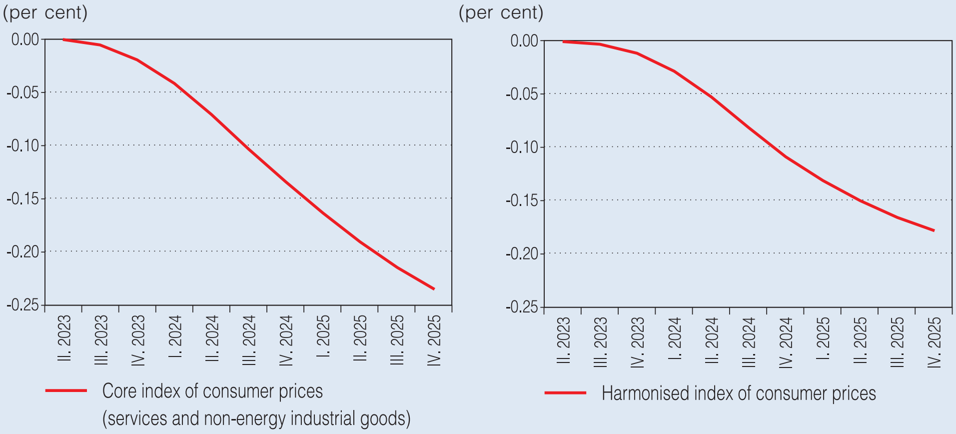


Source: BNB calculations.

[21] In March 2023 banks' funds maintained with the BNB in excess of the minimum required reserve assets under Ordinance No 21 amounted to BGN 1.8 billion on an average daily basis for the maintenance period, or 15.8 per cent of MRR.

of 2023. The simulation suggests that the decline is more substantial at the end of 2024, reinforcing further in 2025 (Chart 19).

Chart 19. Percentage Deviation of the HICP and Core Consumer Price Index Compared to the Level in the Baseline Scenario



Source: BNB calculations.

The simulation does not take into account some factors that may be relevant for the actual macroeconomic effects that would materialise if the MRR rate is increased by the specified amount and time profile: (1) the simulation is based on estimated historical relationships between macroeconomic variables over a long historical period (over 20 years) and these relationships may be different from the behaviour of economic agents in the current macroeconomic environment; and (2) the results of the simulation cover the banking system as a whole and do not take into consideration specific features of individual banks (the amount of attracted funds from residents/non-residents by individual bank and liquidity resources by which each bank could meet the increased minimum reserve requirements).

Conclusion

The strengthened relationship between inflation and wage growth, and the weak pass-through of changes in the ECB monetary policy amid ample liquidity in the banking system and limited effects of the increased countercyclical capital buffer rate on lending activity in Bulgaria, suggest that additional measures are required to curb credit growth and subdue inflation.

The simulation with the BNB's main econometric model shows that an increase in the effective MRR rate to 9.7 per cent in the second quarter and further to 11.7 per cent and 14.6 per cent in the third and fourth quarters of 2023 will lead to: (1) a withdrawal of liquidity from the banking system, with banks' MRR increasing by BGN 485 million in the second quarter of 2023, by BGN 3 billion in the third quarter and by BGN 6.8 billion in the fourth quarter compared with the level in the baseline scenario of the BNB January 2023 macroeconomic forecast (which does not include any change in the MRR rate); (2) a decrease in available resources that banks can lend, which is a major factor behind the decline in the amount of credit to households and this leads to lower private consumption and weaker economic activity as a whole. The simulation shows a slight increase in deposit and lending rates based on estimated historical macroeconomic relationships; (3) a decrease in core and overall consumer price index compared with the baseline scenario level, with effects being relatively limited in 2023 and increasing in 2024 and 2025.

The uncertainty about actual macroeconomic effects that would materialise and the fact that the simulation is based on estimated historical relationships and does not reflect the specific starting conditions in individual banks imply a gradual approach toward raising the MRR rate.

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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.