



NARODOWY
BANK POLSKI

Economic Analysis and Research Department

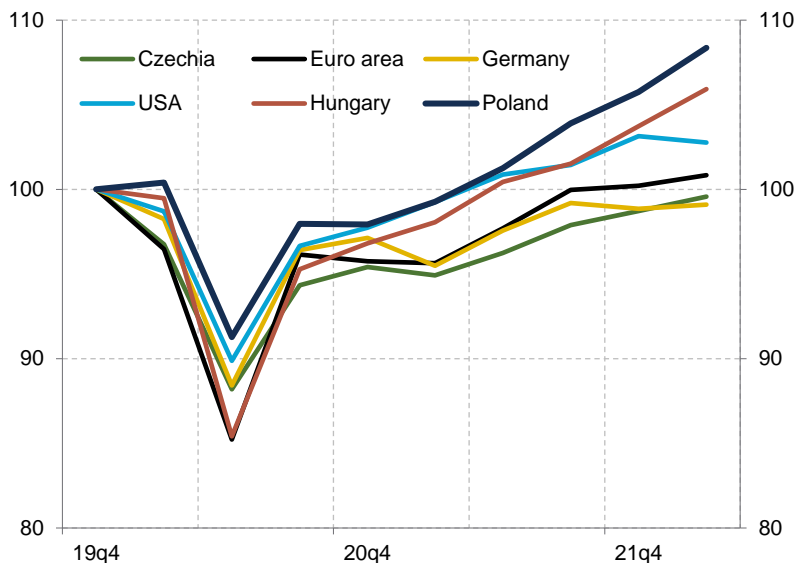
Inflation and economic growth projection of Narodowy Bank Polski based on the NECMOD model

Warsaw / 12th July 2022 r.



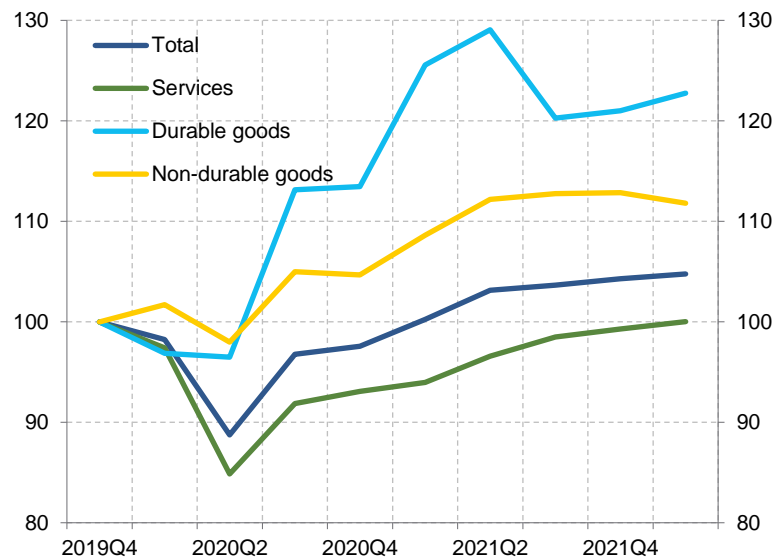
After the pandemic crisis, the global economy saw a rapid recovery of activity. At the same time, the structure of demand has changed.

Real GDP level in selected economies
(index, 2019 Q4 = 100)



Source: Eurostat, U.S. Bureau of Economic Analysis.

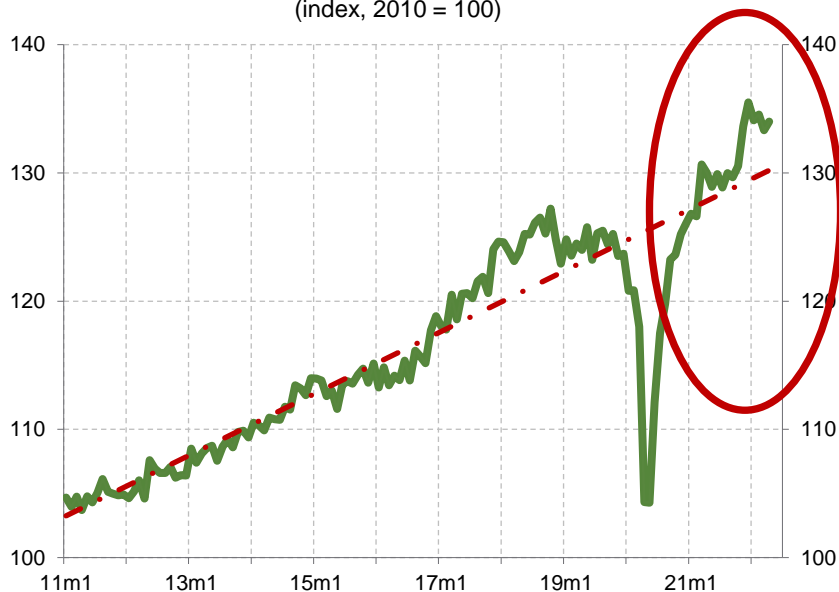
Change in the U.S. consumption by type of goods
(2019 Q4 = 100)



Source: U.S. Bureau of Economic Analysis.

There has been a marked recovery in world trade, which has encountered problems on the supply side.

World trade volume
(index, 2010 = 100)



Source: CPB Netherlands Bureau for Economic Policy Analysis.

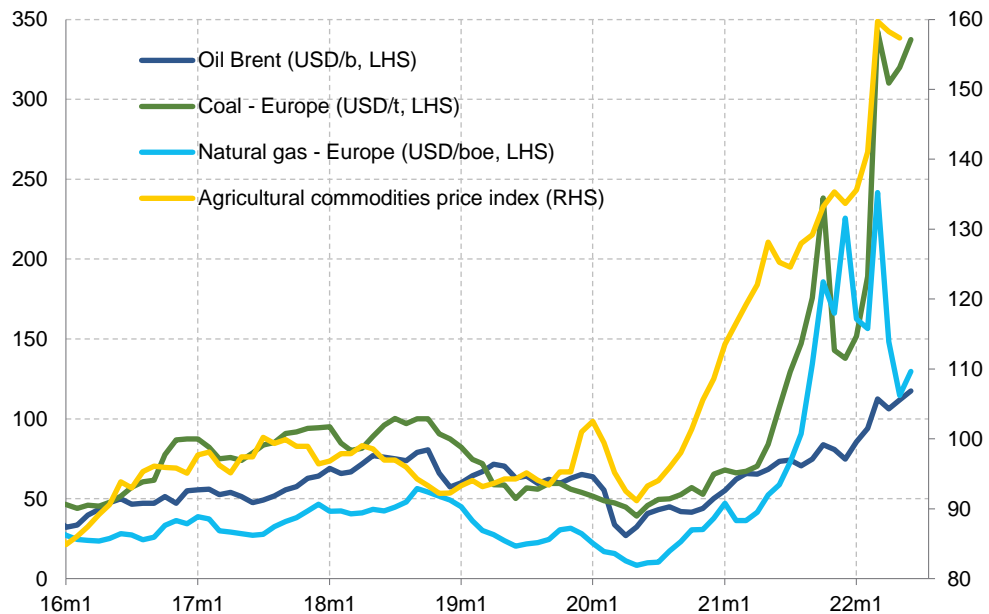
Freight prices in international trade
(pts, tous.)



Source: Refinitiv.

Prices of some raw materials have increased several times. The commodity shock intensified after the Russian aggression against Ukraine.

Prices of oil, natural gas, coal and agricultural commodities

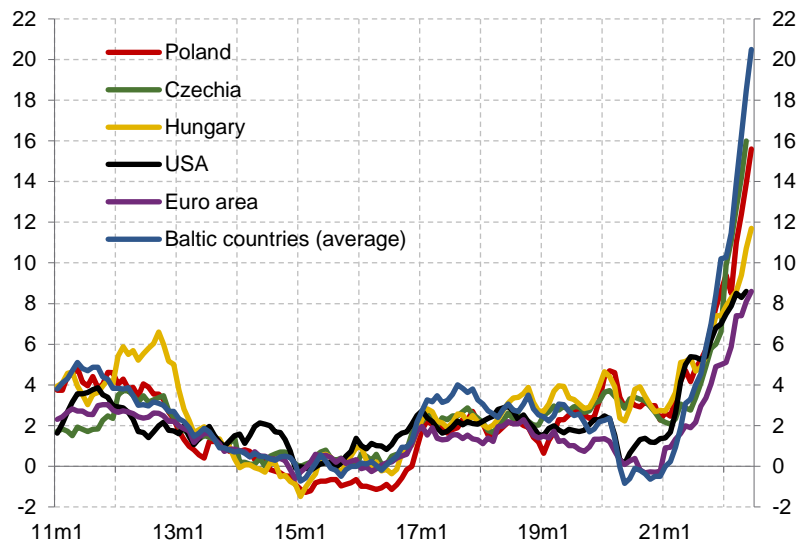


Sources: Bloomberg data, FAO, NBP calculations.

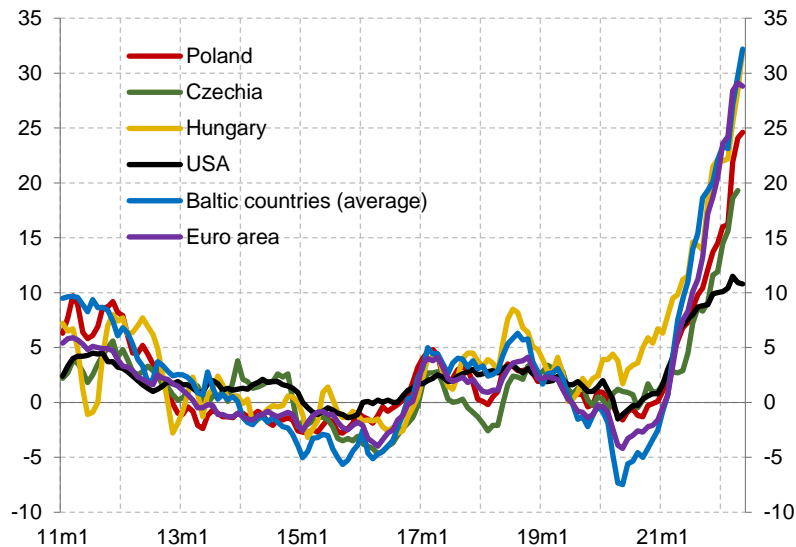
Note: USD/boe - price expressed in U.S. dollars per barrel of oil conversion, i.e. the energy equivalent of a barrel of oil. Monthly averages.

As a consequence of negative supply shocks and a recovery in demand, inflation in many economies has risen to the highest levels in decades.

Consumer inflation (CPI/HICP) in selected economies (y/y, %)

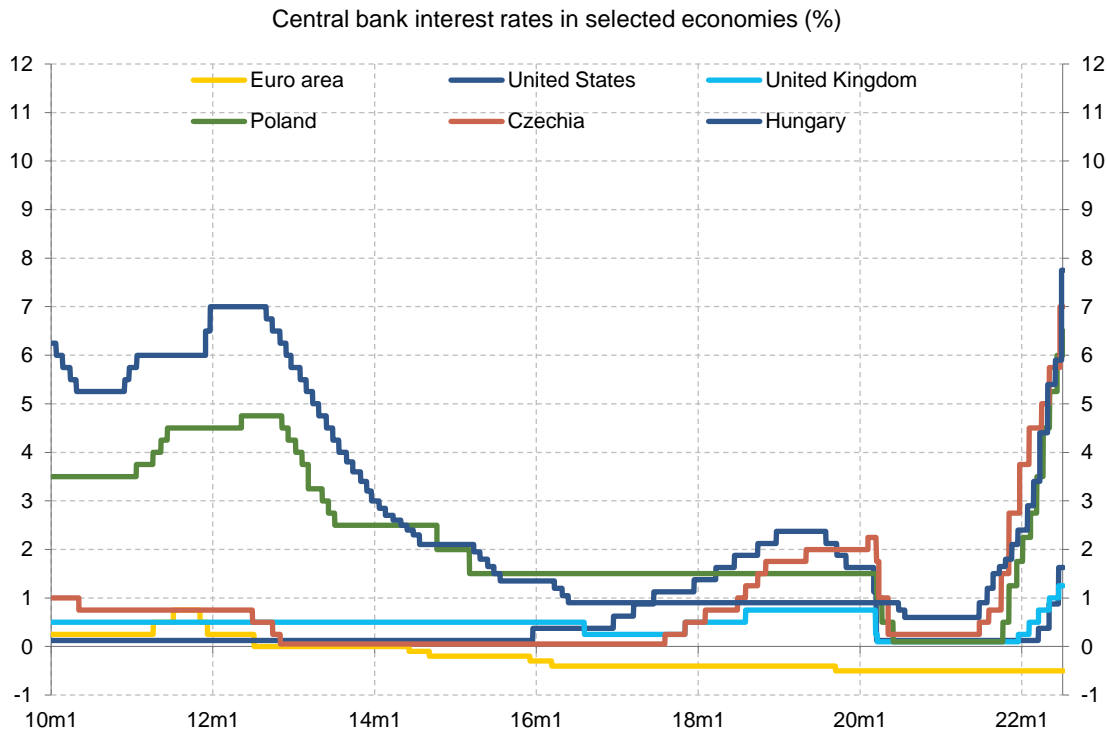


Producer inflation (PPI) in selected economies (y/y, %)



Source: GUS data, Eurostat, OECD, national statistical offices. Note: Baltic countries – average inflation for Estonia, Lithuania and Latvia. For euro area and Baltic countries HICP inflation is displayed. For Poland, Czechia, Hungary, USA – CPI inflation.

In response to rising inflation, monetary policy around the world is being tightened.



Source: Bloomberg. For the US – middle of the range for the fed funds rate; for euro area - deposit facility rate; for the UK – Bank Rate, for Poland – NBP reference rate; for Czechia – 2W repo rate, for Hungary – base rate.

Amid strong negative supply shocks, global GDP growth prospects have deteriorated.

The head of the International Monetary Fund (...) said the outlook for the global economy had darkened significantly since April and she could not rule out a possible global recession next year given the elevated risks.

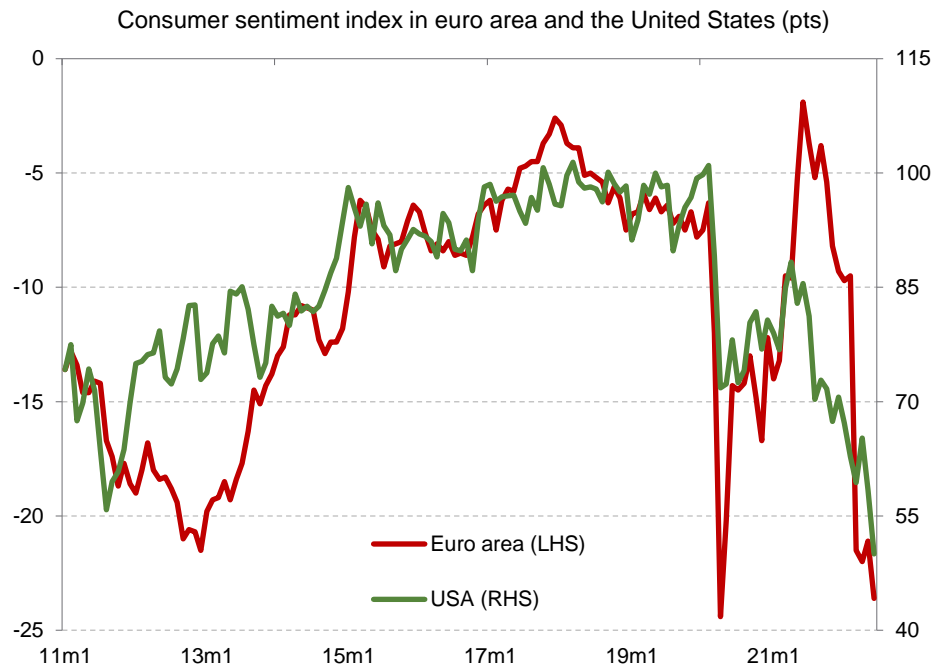
regarding the statement of **Kristalina Georgieva**, Managing Director of the IMF, Reuters, July 6, 2022

„The war in Ukraine, lockdowns in China, supply-chain disruptions, and the risk of stagflation are hammering growth. For many countries, recession will be hard to avoid”

David Malpass, President of the World Bank, June 7, 2022

„While the medium-term outlook for growth looked balanced in terms of risks, the next few quarters would be weak and the risk of a technical recession needed to be borne in mind.”

ECB Minutes, June 8-9, 2022



Source: European Commission, University of Michigan.

For euro area: Consumer sentiment surveyed by the EC (CCI), for the US – the University of Michigan Consumer Sentiment Index.

The future economic situation and the path of CPI inflation in Poland depend mostly on the scale of disruption in the global economy, reinforced by the war in Ukraine.

	GDP	Inflation
Increase in commodity prices	↓	↑
Supply chain disruptions	↓	↑
Sanctions	↓	↑
Slowdown in the external environment of the Polish economy	↓	↓
Increase in geopolitical and macroeconomic uncertainty	↓	↓
The influx of refugees	↑	↑ ↓
Weaker exchange rate	↑	↑
Higher spending on national defense	↑	↑



Outline:

Projection 2022 – 2024

- Economic conditions abroad
- Economic perspectives for Poland
- Inflation

Uncertainty

Projection 2022 - 2024

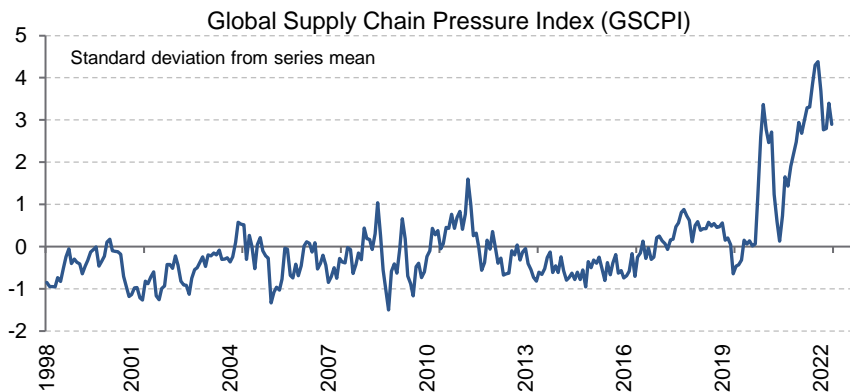
Economic conditions abroad

Significant slowdown of global economic activity - intensification of supply shortages resulting from the Russia's military aggression against Ukraine and the "zero COVID" policy in China

GDP growth of the main economies - NBP forecast (%)

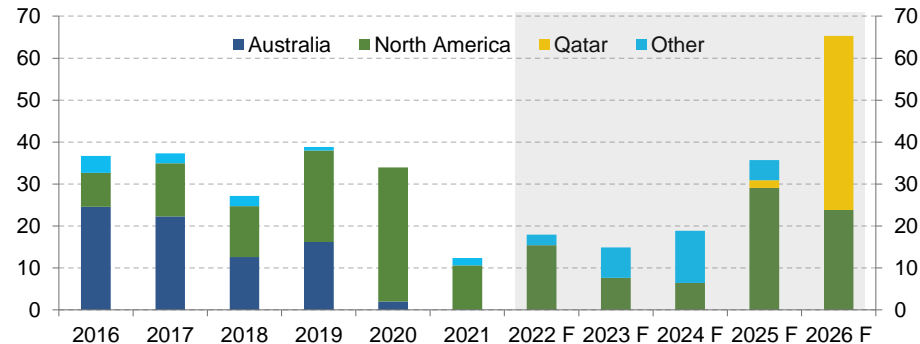
GDP y/y, %	2021	2022	2023	2024
Euro area	5.3 (5.3)	2.9 (3.2)	1.1 (2.4)	1.8 (1.4)
Germany	2.9 (2.9)	1.5 (2.6)	0.8 (2.8)	2.0 (1.2)
United Kingdom	7.4 (7.5)	3.4 (3.9)	0.6 (2.0)	1.5 (1.8)
USA	5.7 (5.7)	2.4 (3.6)	1.7 (2.3)	1.8 (1.8)
China	8.1 (8.1)	4.0 (5.0)	5.2 (5.0)	4.7 (4.7)

Values from the March projection are given in brackets. Indicators with values higher than in the March projection are marked green, and indicators with lower values are marked red.

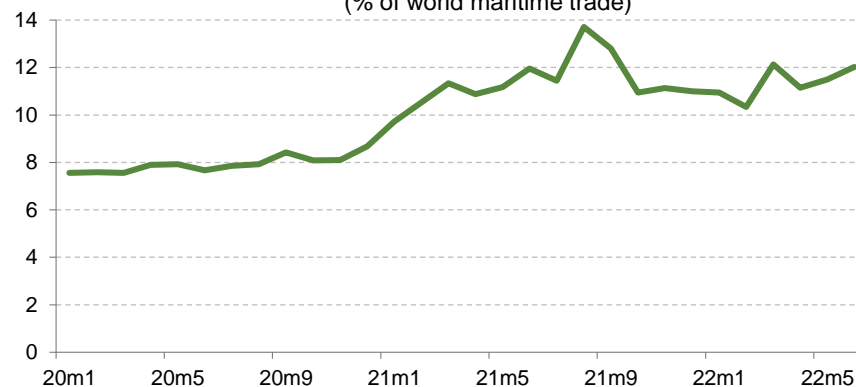


Source: OECD, IFW Kiel, S&P Global, NY Fed, Markit Economics, Refinitiv.

Projected increase in global LNG supply (billion m3)

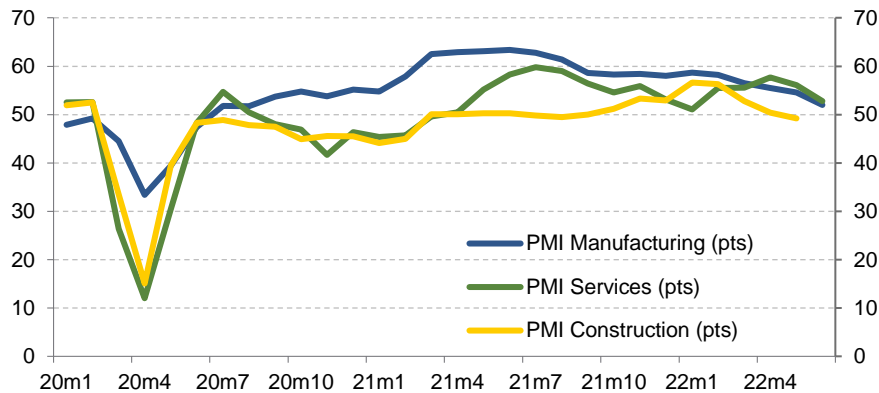


Tonnage of goods on ships awaiting service in ports (% of world maritime trade)

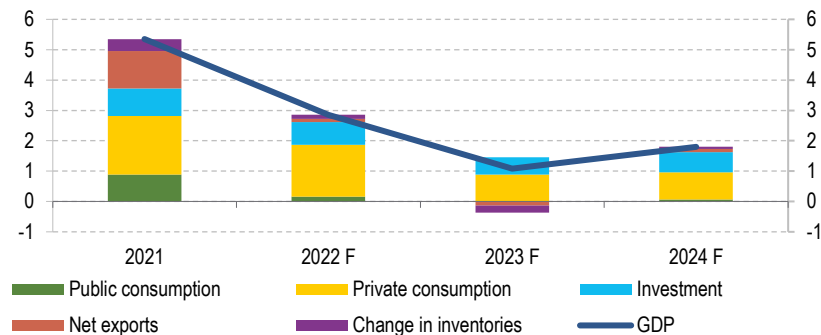


Euro area: economic slowdown caused by rising energy prices and supply problems in the industry

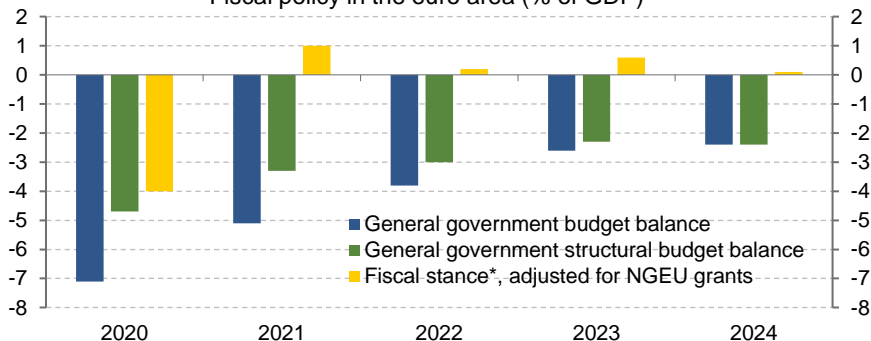
Selected PMIs in the euro area



Structure of the real GDP dynamics (% and percentage points)

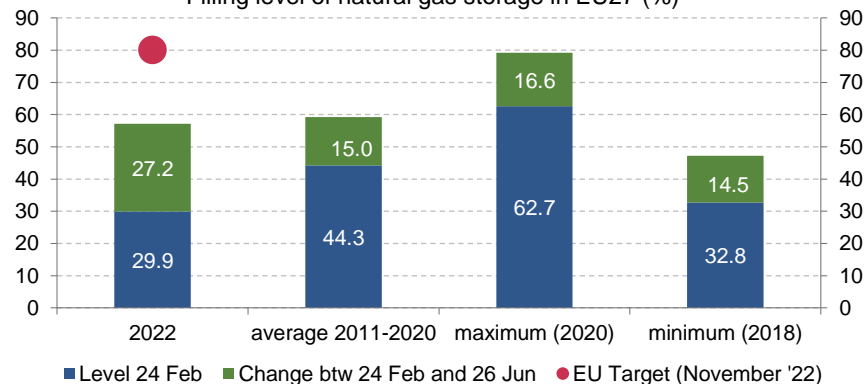


Fiscal policy in the euro area (% of GDP)



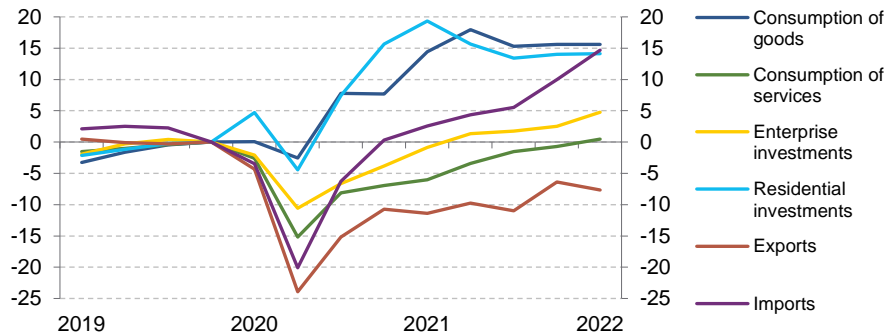
* "+": tightening; "-": loosening.

Filling level of natural gas storage in EU27 (%)

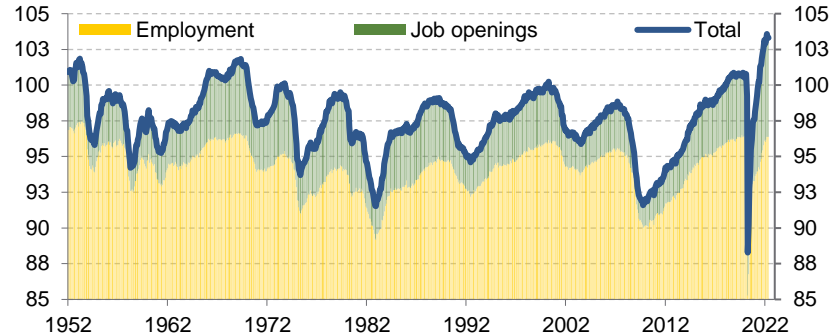


United States: despite a strong labour market GDP growth declines due to supply shocks, high inflation as well as fiscal and monetary tightening

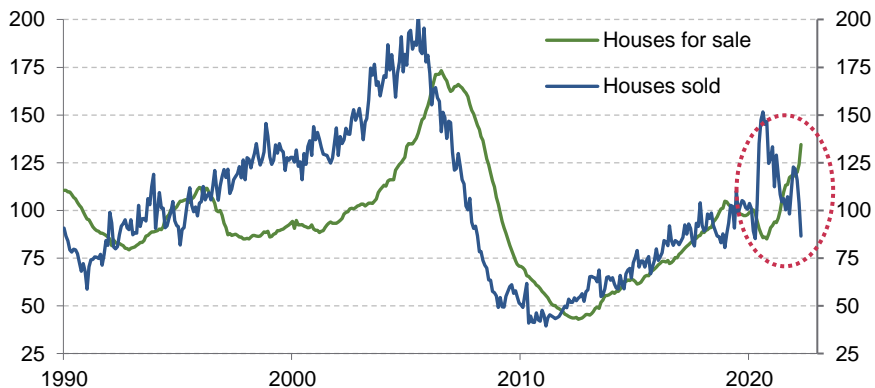
Deviation of real GDP components from 2019 Q4 (%)



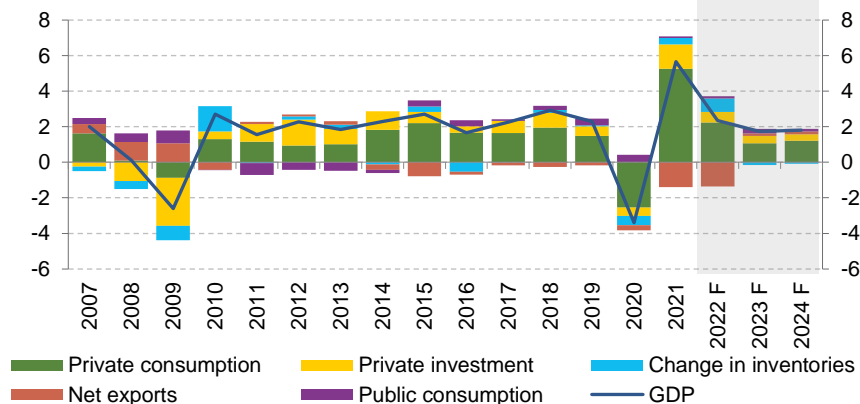
Employment and job openings as a percentage of the workforce (%)



Sales of new single- and multifamily houses on the primary market (2019 = 100)



Structure of the real GDP dynamics (% and percentage points)





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Projection 2022-2024

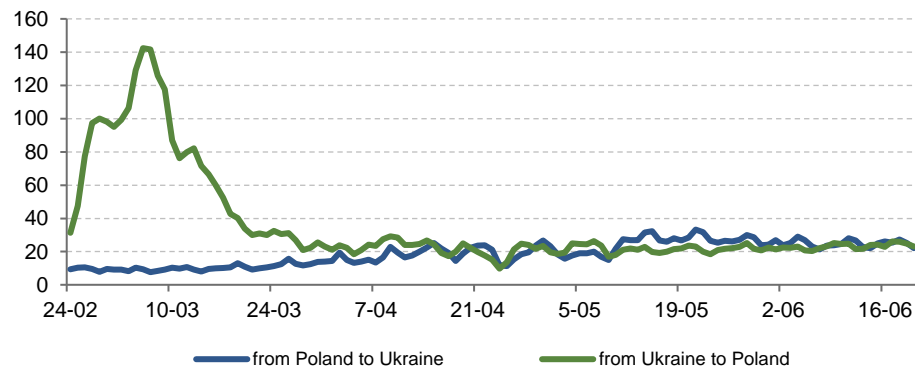
Economic perspectives for Poland

GDP growth in 2022 Q2 affected by Russia's military aggression against Ukraine

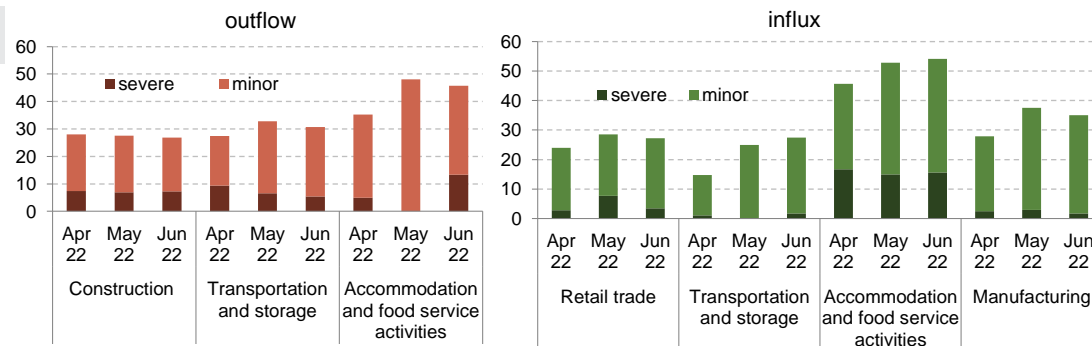
	22q1		22q2	
GDP (y/y, %)	8.5	(6.8)	5.5	(5.0)
Domestic demand (y/y, %)	13.2	(9.5)	6.6	(6.2)
Household consumption (y/y, %)	6.6	(6.6)	6.0	(6.7)
Public consumption (y/y, %)	0.6	(4.2)	-3.8	(0.6)
Gross fixed capital form. (y/y, %)	4.3	(8.5)	4.8	(5.3)
Change in inventories contrib. (pp.)	7.7	(3.0)	2.8	(1.1)
Net exports contribution (pp.)	-3.8	(-2.0)	-0.6	(-0.9)
Exports (y/y, %)	2.0	(5.1)	-0.1	(4.9)
Imports (y/y, %)	8.8	(9.4)	1.0	(7.0)

Values from the March projection are given in brackets (seasonally adjusted). Indicators with values higher than in the March projection are marked **green**, and indicators with lower values are marked **red**.

Number of daily crossings of Ukrainian-Polish border (thous.)

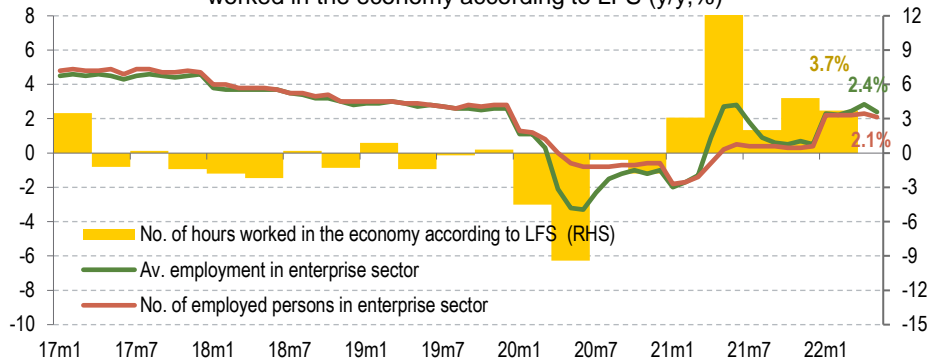


Enterprises reporting changes in employment of Ukrainians, by industry (%)

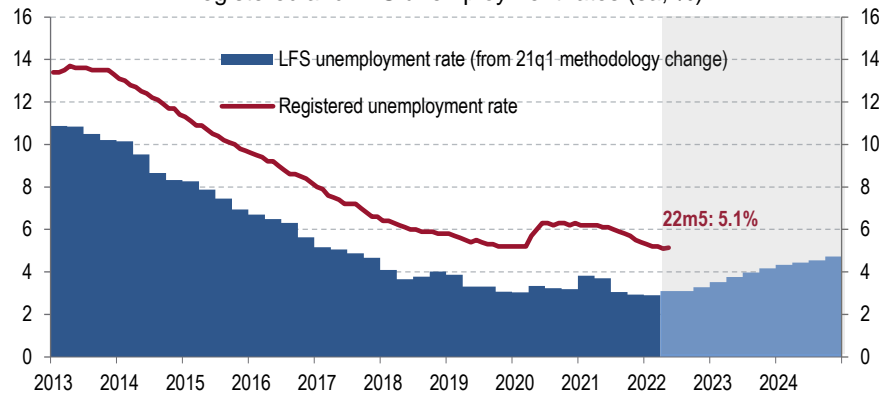


Favourable conditions on the labour market and sustained high nominal wage growth over the projection horizon

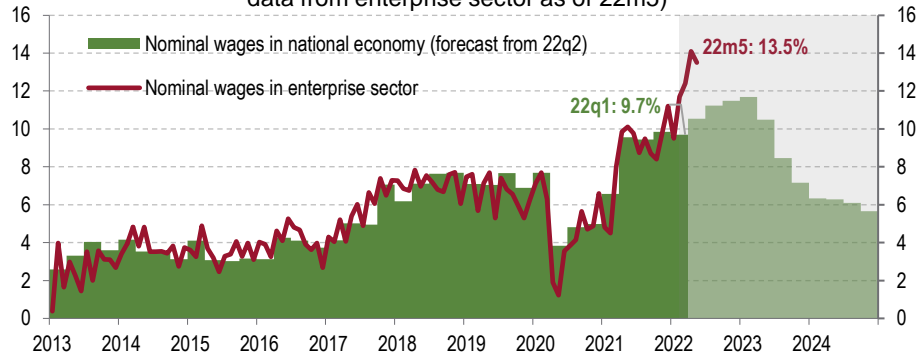
No. of employed persons, average employment in enterprise sector and hours worked in the economy according to LFS (y/y, %)



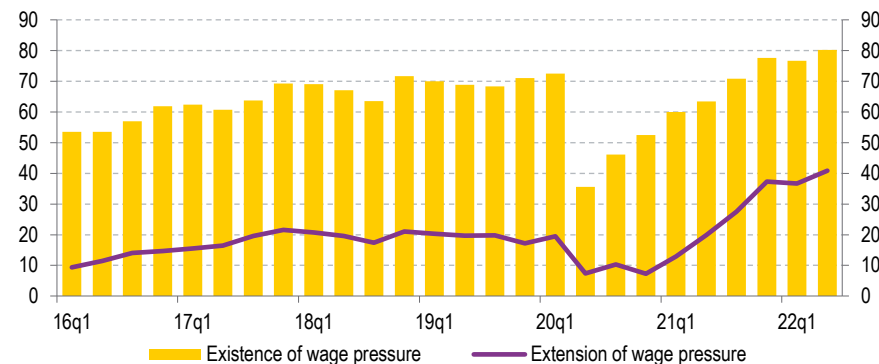
Registered and LFS unemployment rates (sa, %)



Nominal wage dynamics (y/y, %, national economy as of 22Q1, data from enterprise sector as of 22m5)

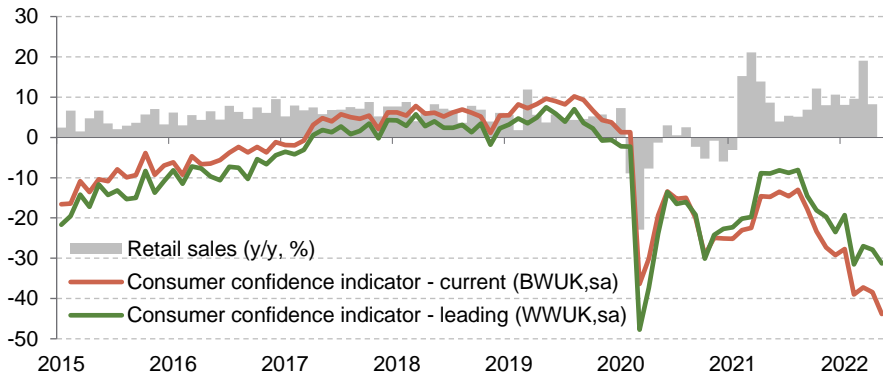


Share of enterprises declaring wage pressure (%)

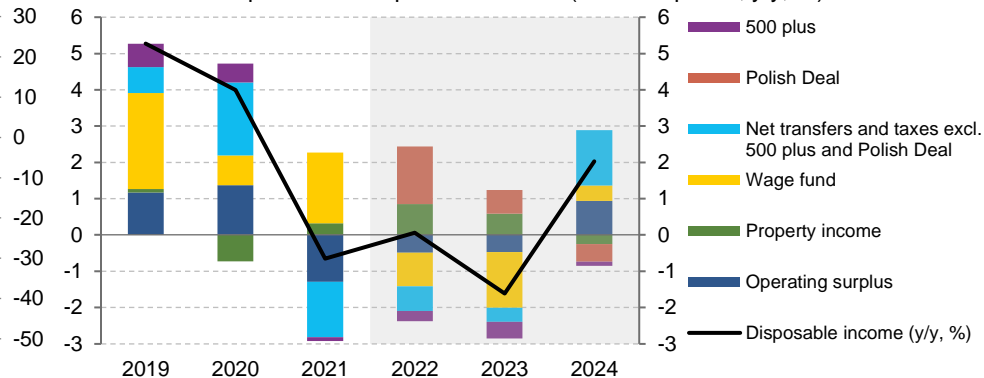


Expected decline in household consumption growth compared to its high levels observed in 2021

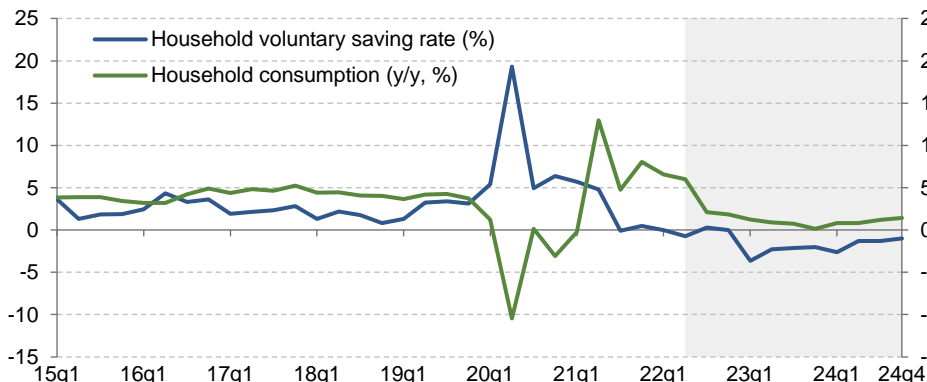
Retail sales and consumer confidence indicators



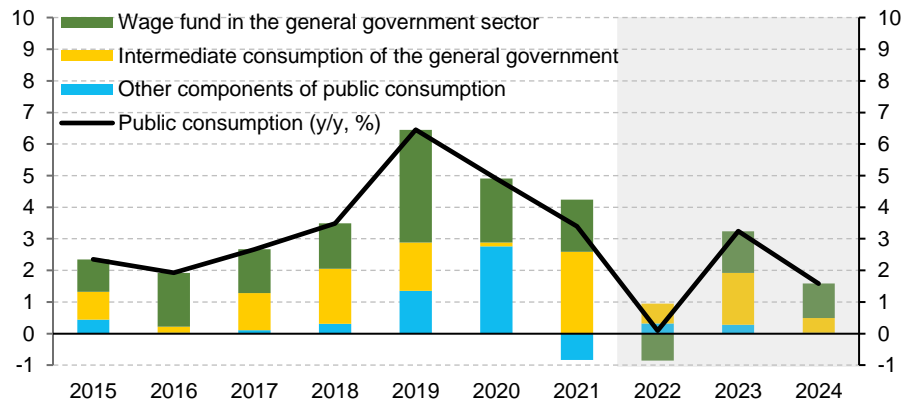
Decomposition of disposable income (constant prices, y/y, %)



Household voluntary saving rate and household consumption forecast



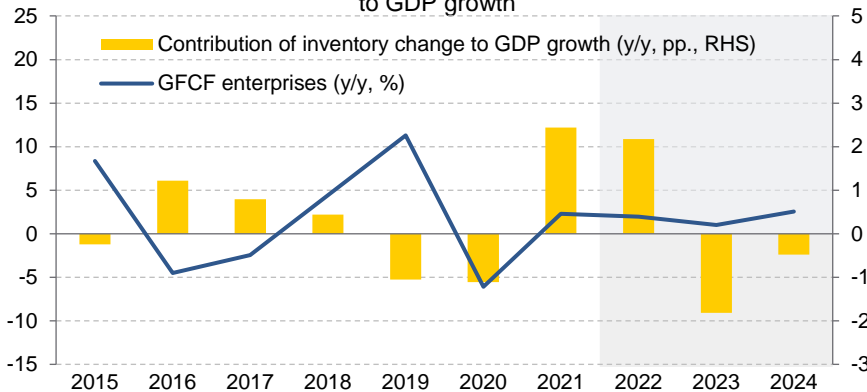
Decomposition of public consumption forecast (y/y, % and percentage points)



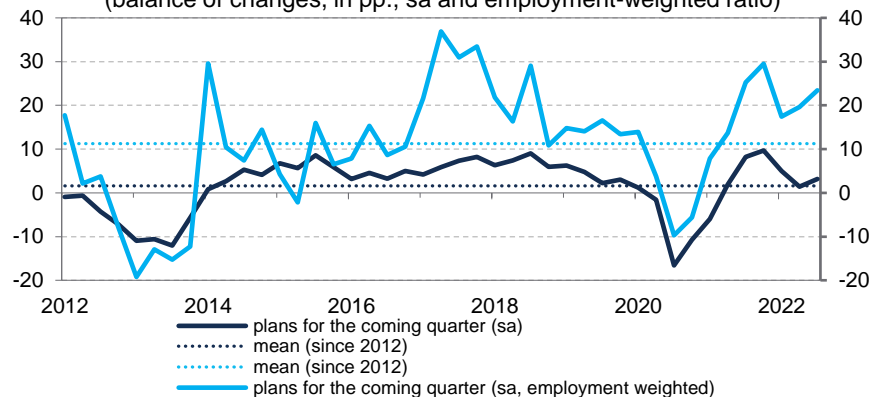
Significant reduction of the scale of mismatch between inventories and the needs of enterprises in 2022 Q2

Subdued growth in corporate investment over the projection horizon

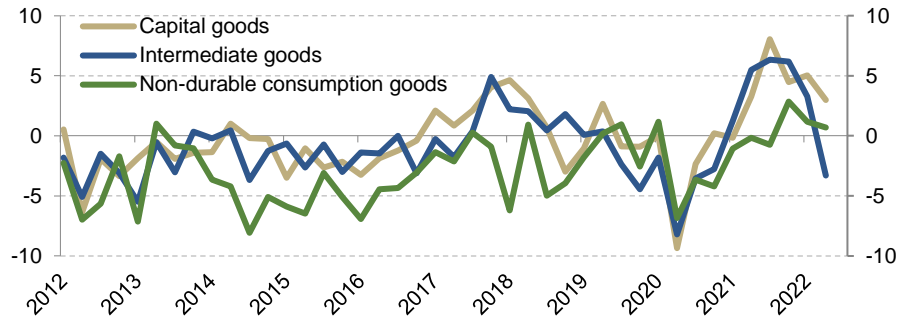
Projected investment growth and the contribution of change in inventories to GDP growth



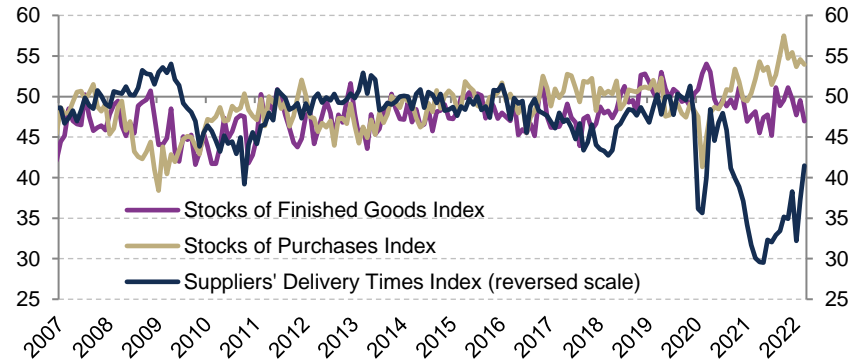
Planned change in the scale of investments in the coming quarter (balance of changes, in pp., sa and employment-weighted ratio)



Index of finished goods inventory shortage (balance of answers 'too small' - 'too big'), by the product destination (sa, pp.)

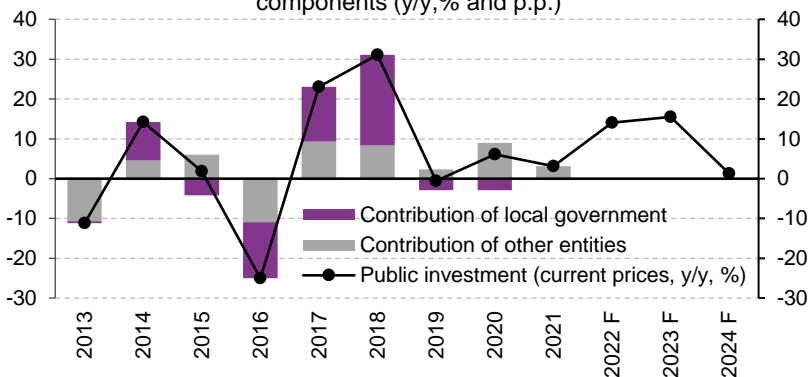


PMI Poland components (sa, pp.)

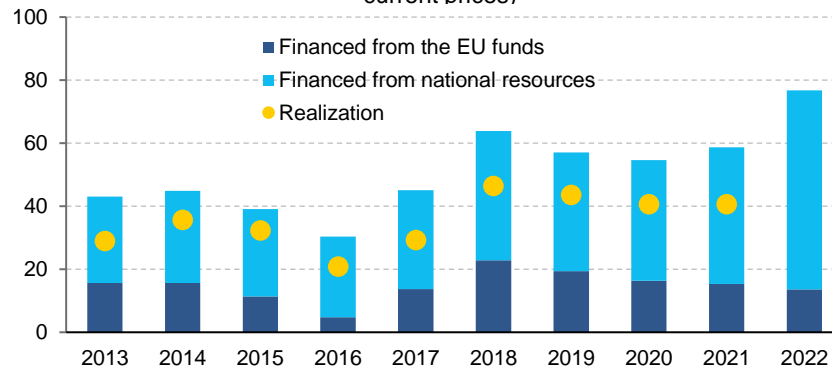


Public investment growth will slow down in 2024 due to lower expenditure financed by the traditional EU cohesion policy funds, but the Recovery and Resilience Facility funds will limit the scale of this decline.

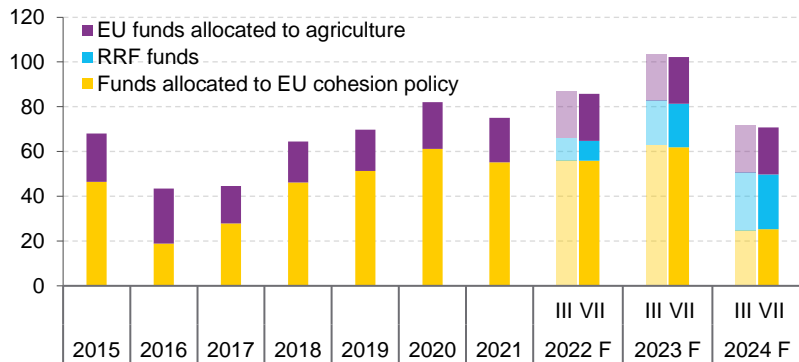
Nominal growth rate of public investment and contribution of its main components (y/y,% and p.p.)



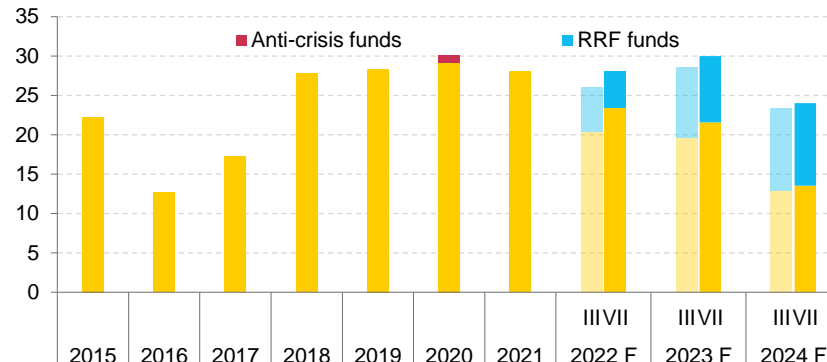
Planned local governments investment spending (as of 2022 Q1, PLN billion, current prices)



Total use of EU funds (PLN billion, current prices)



EU funds used for public investments (PLN billion, current prices)



Expansive fiscal policy in 2022 is largely a consequence of financing anti-inflationary measures and support for refugees from Ukraine.

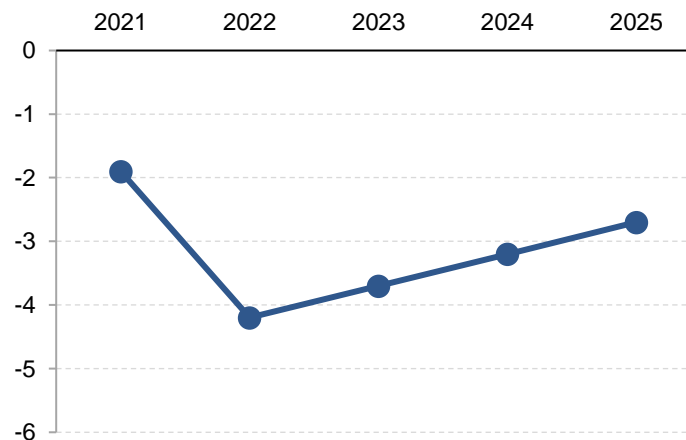
Cost of selected legislative changes for the general government sector in 2022 (% of GDP)

Polish Deal	1.0
Anti-Inflationary Shield*	1.5
Support for Ukraine citizens	0.4
Total cost for general government sector	2.9

*) Anti-Inflationary Shield including subsidies for coal and fertilizers for agricultors

Source: NBP calculations based on government estimates.

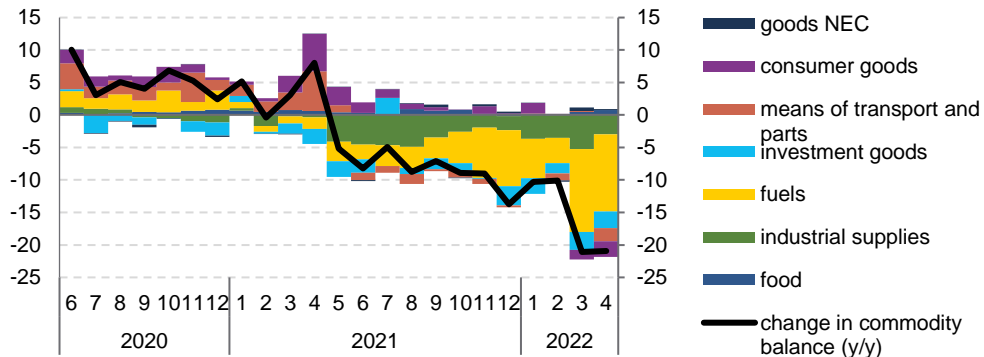
General government structural balance (ESA2010), government assumptions (% of GDP)



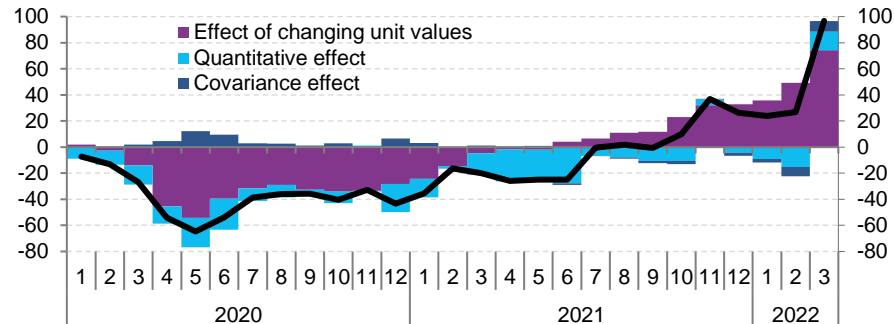
Source: Convergence Programme, April 2022.

Decline in trade balance in 2022 due to import prices increase, followed by an improvement in 2023-24 along with a positive countercyclical contribution of net exports to GDP growth

Change in the balance of trade in goods by BEC product categories (y/y, PLN bn)

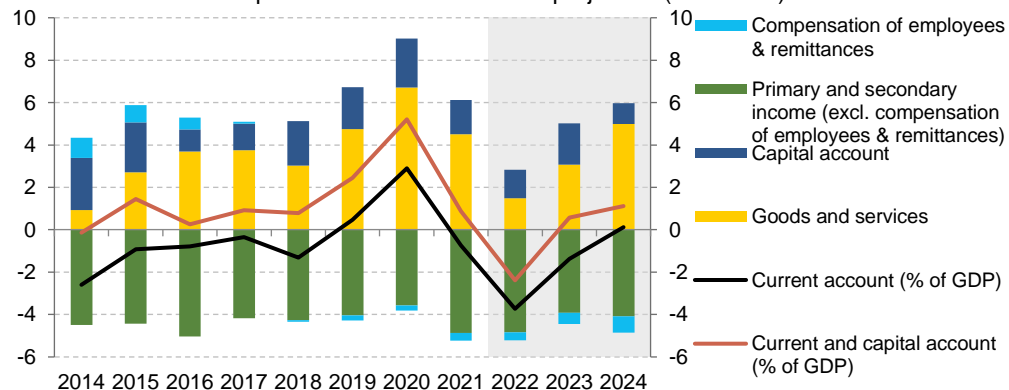


Decomposition of the value of fuel* imports compared to Q4 2019 (in %)

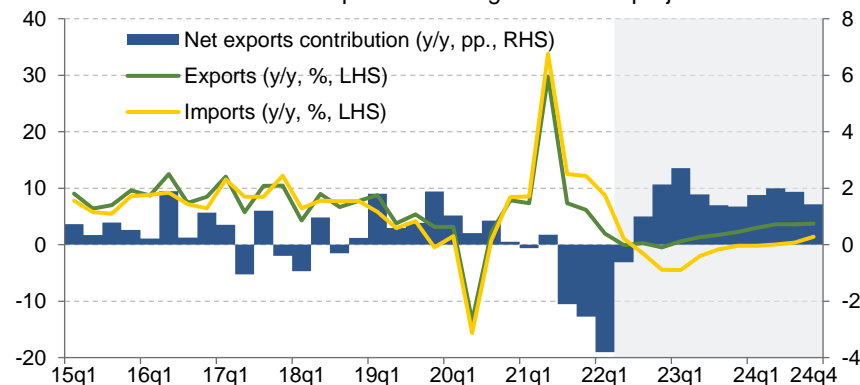


*Product groups 32-35 and 99 according to the SITC classification.

Current and capital account balance in the projection (% of GDP)

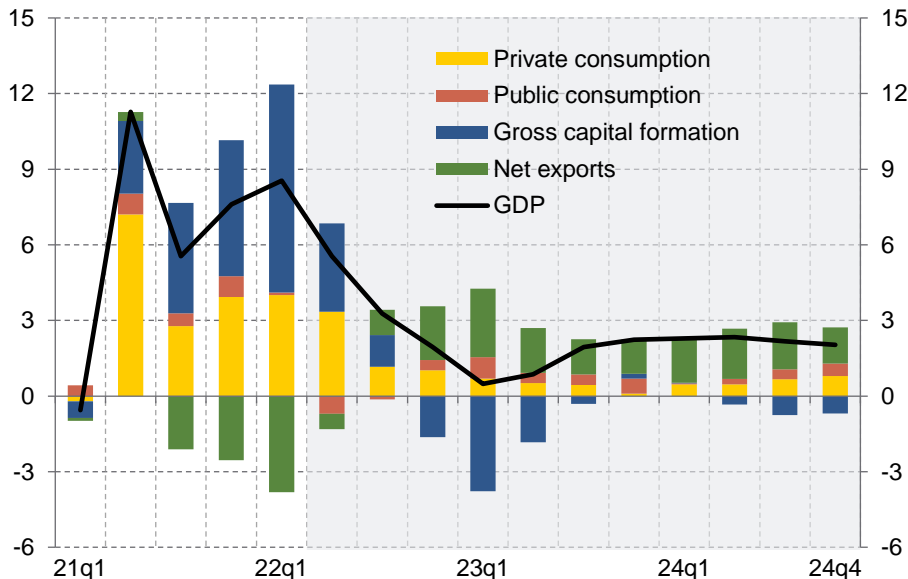


Contribution of net exports to GDP growth in the projection



After a period of a strong economic recovery, the GDP growth rate in Poland will decline in 2022-2024.

GDP growth rate and its decomposition (y/y, %, pp.)



y/y, %	2021	2022	2023	2024
GDP	5.9	4.7	1.4	2.2

↓ In the coming quarters, economic activity in Poland under the impact of a **negative supply shock** resulting from the imposition of the consequences of **Russia's aggression against Ukraine** on the previous **increases of energy commodity prices** on the global markets, **CO₂ emission allowances price hikes** and **supply chains disruptions**.

↓ In the longer projection horizon economic growth will be limited by:

↓ **delayed impact of rising interest rates,**

↓ **expected economic slowdown abroad,**

↓ **significant decrease in the influx of EU funds** related to the end of spending under the EU 2014-2020 perspective.

↑ The scale of the economic slowdown will be mitigated by:

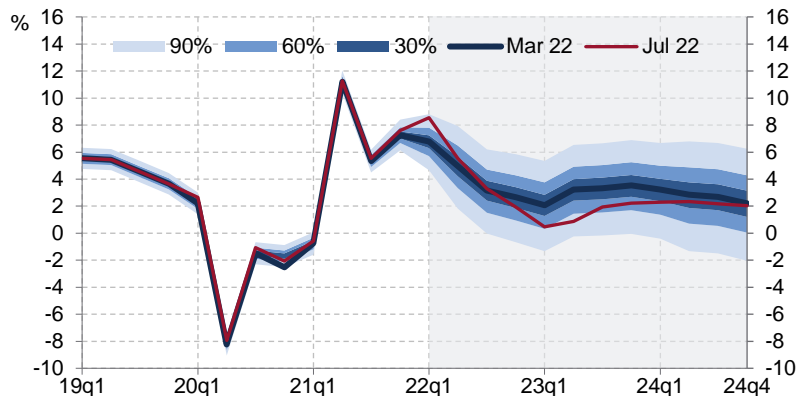
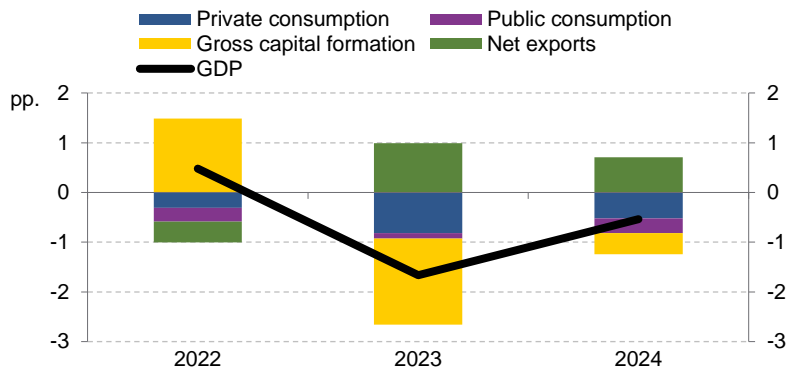
↑ **fiscal policy changes** introduced as a part of **Anti-Inflationary Shield** and **Polish Deal,**

↑ **increasing expenditure on national defense,**

↑ **intensified influx of migrants from Ukraine to Poland** combined with the **rise of public expenditure** aimed at their support.

July GDP projection compared to the March projection

Decomposition of changes in GDP growth rate (y/y, pp)



- ↓ Higher inflation limiting the purchasing power of households and raising the operating costs of enterprises.
- ↓ Monetary policy tightening reflected in the NBP reference interest rate hikes after the closure of the March projection.
- ↓ Stronger than expected economic slowdown abroad in the coming quarters, especially in Germany.
- ↓ Longer than previously expected period of high inflation in the global economy, as well as further exacerbation of supply disruptions and uncertainty (production disturbances in Ukraine and in China as a consequence of counteracting local COVID-19 outbreaks).
- ↑↓ Record-high increase in inventories in 2022. However, such a high contribution to GDP growth is untenable in the coming quarters.
- ↑ Corrections to the Polish Deal program, introduction of a new support program for borrowers, increase in expenditures on national defense, rise in public spending for immigration support, extension of the Anti-Inflationary Shield by the government.

GDP y/y, %	2022	2023	2024
March 2022	4.4	3.0	2.7
July 2022	4.7	1.4	2.2



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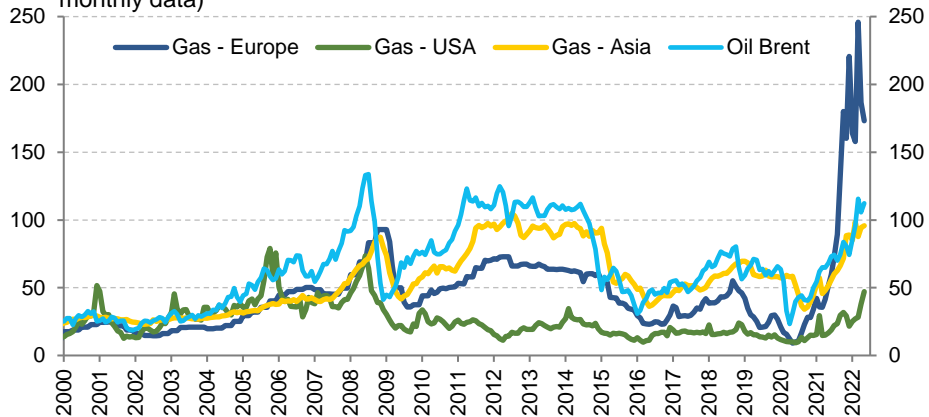
Uncertainty

Projection 2022-2024

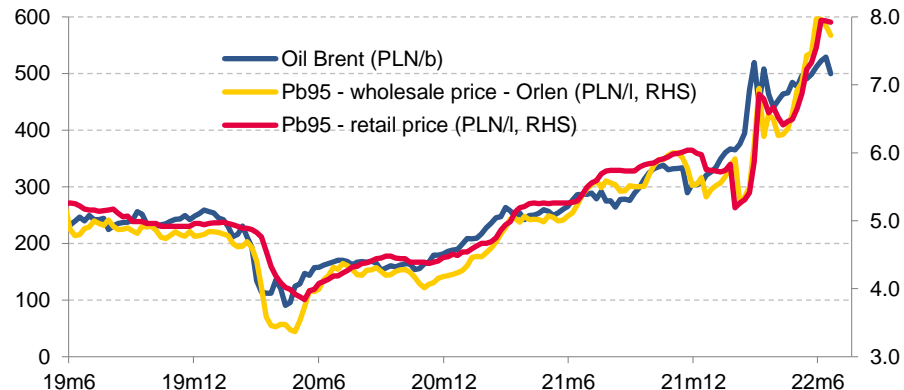
Inflation

Energy prices significantly higher than before the pandemic

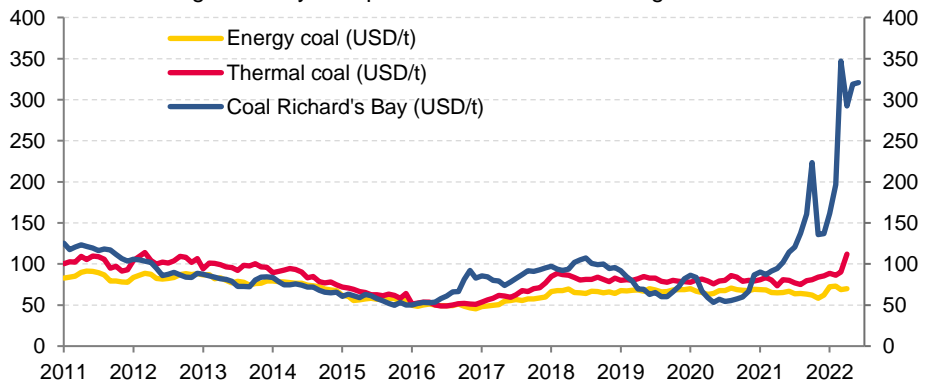
Prices of oil and natural gas in Europe, Asia and North America (USD/boe, monthly data)



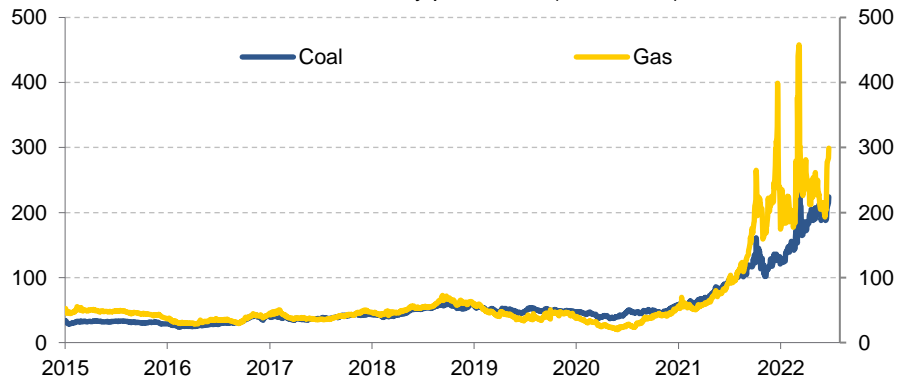
Global oil prices and prices of gasoline on the domestic market



Average monthly coal price in Poland and on the global market

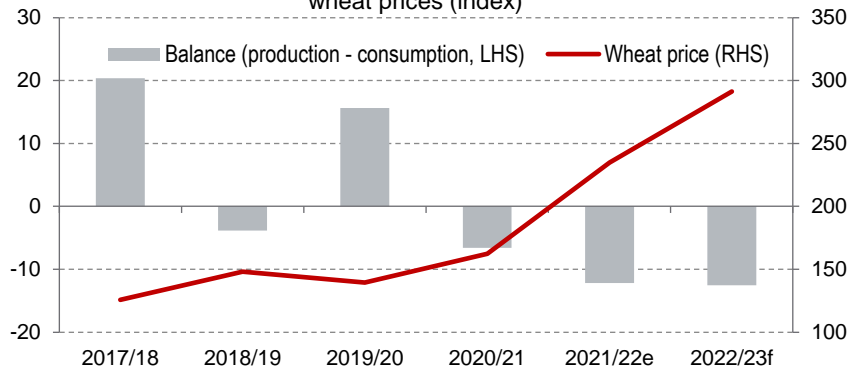


Cost of electricity production (EUR/MWh)

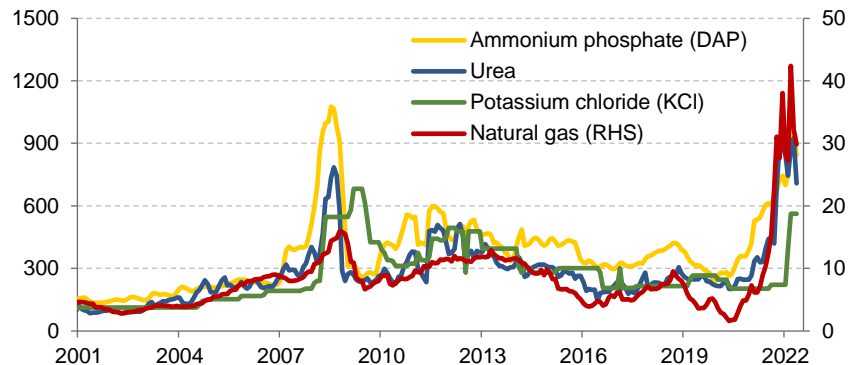


Strong increase in agricultural commodity prices after the start of the Russia's military aggression against Ukraine and the accompanying rise in production costs

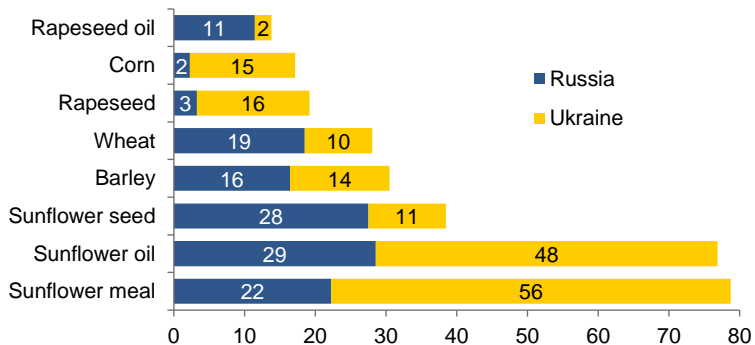
World wheat supply-demand balance (mln tonnes) and average European wheat prices (index)



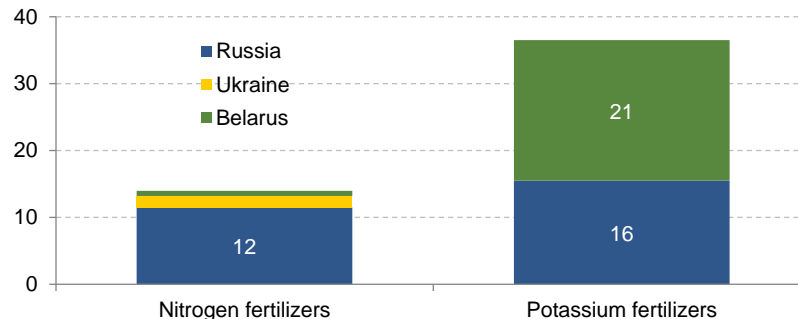
Prices of gas and chemical fertilizers (USD/MMBtu, USD/mt, monthly data)



Share of exports from Russia and Ukraine in the world trade of selected agricultural commodities (seasons 2019/20-2020/21)

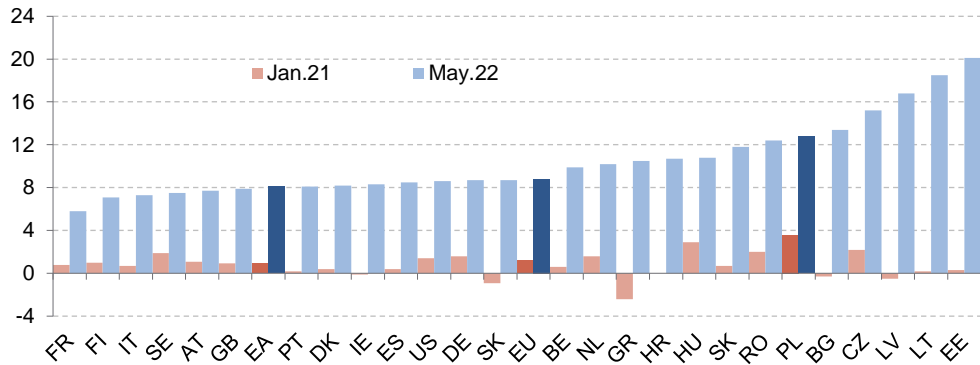


Share of exports from Russia, Belarus and Ukraine in the world trade of chemical fertilizers (2020, %)

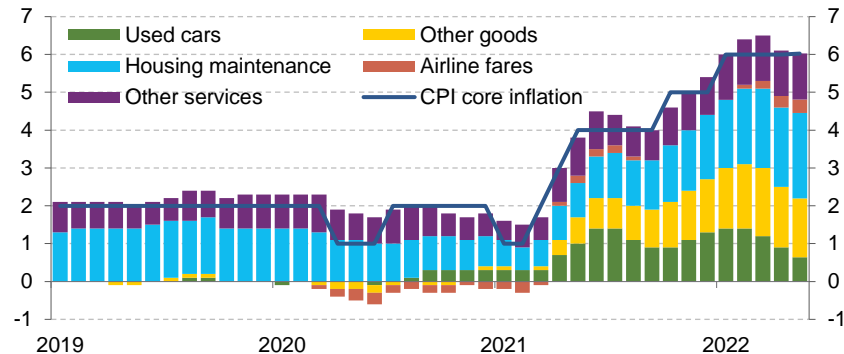


Most major economies experience an increase in core inflation (incl. services) due to supply shortages and soaring energy prices - inflation above target for longer than previously expected

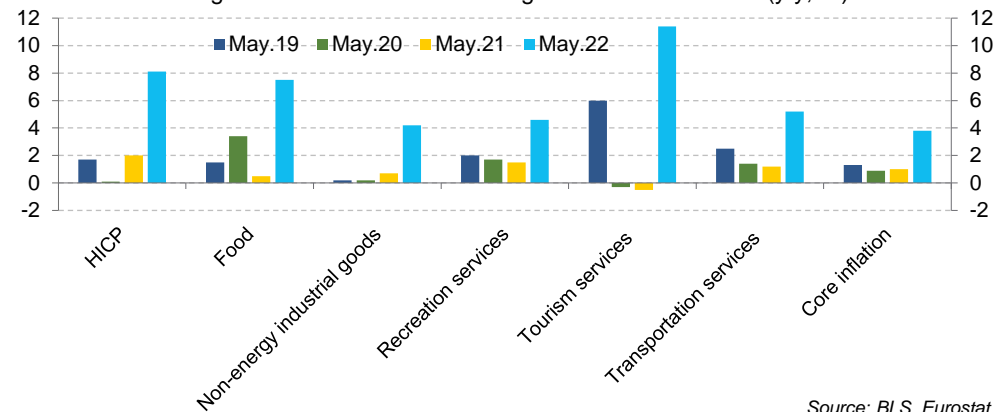
HICP inflation in selected EU economies and CPI in USA (y/y, %)



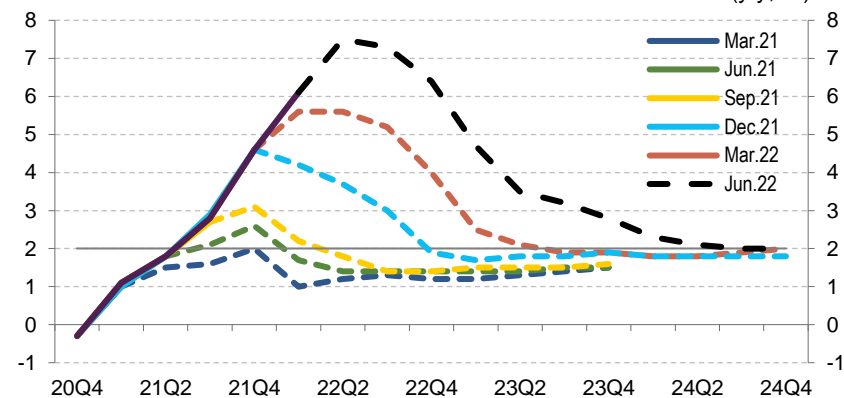
CPI core inflation in the United States (y/y, %) and its components (pp.)



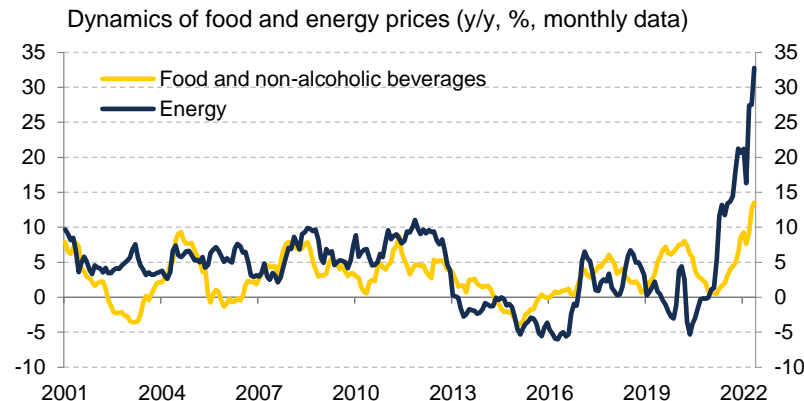
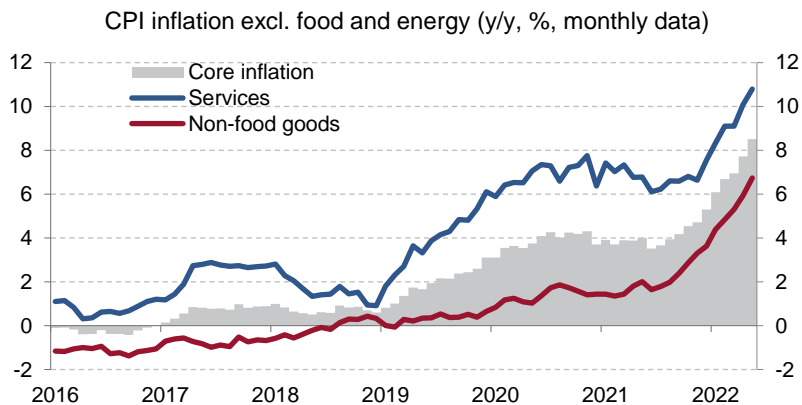
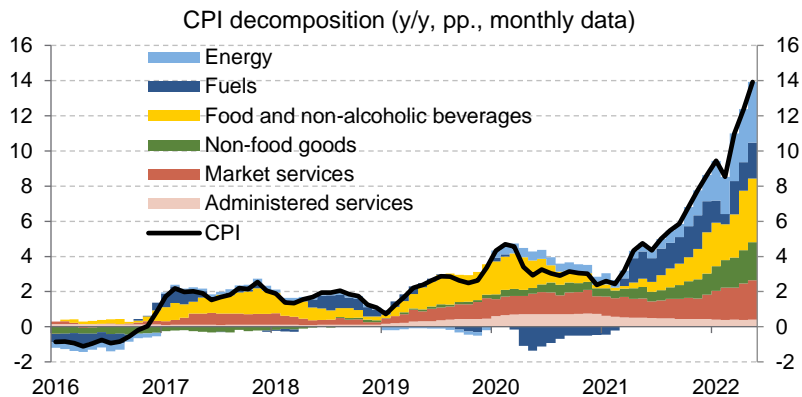
Price growth of selected HICP categories in the euro area (y/y, %)



HICP inflation in the euro area in consecutive ECB forecasts (y/y, %)



Sharp rise in inflation in the first half of 2022: increasing prices of energy and food; core components to a lesser extent



Inflation in 2022 Q1 compared to the March projection (y/y, %)

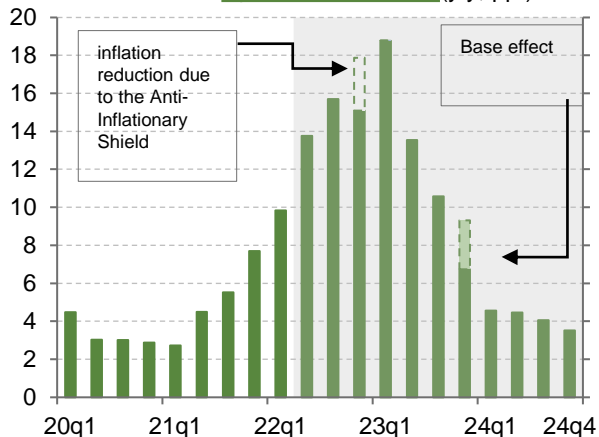
y/y, %	21q4	22q1	(9.2)
CPI inflation	7.7	9.7	(9.2)
Core inflation	4.9	6.6	(6.5)
Food prices inflation	6.7	8.7	(8.3)
Energy prices inflation	20.1	21.7	(20.4)

Values from the March projection are given in brackets (seasonally adjusted data). Indicators with values higher than in the March projection are marked green.

Extension of the Anti-Inflationary Shield (AS) would lower inflation over the period of its validity but would be associated with a base effect in the following quarters.

Direct impact of the Anti-Inflationary Shield on forecasted CPI inflation in the Shield's extension scenario:

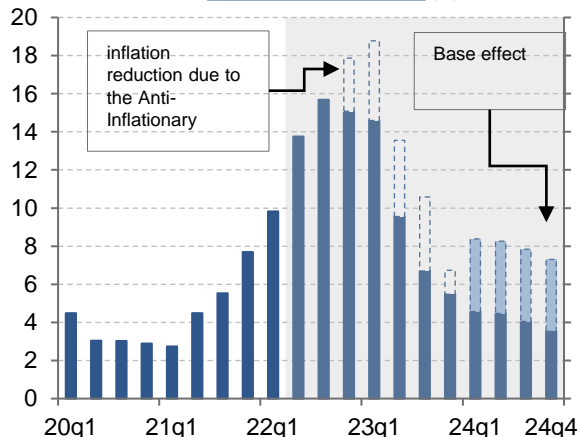
By the end of 2022 (y/y, pp.)



CPI Inflation (y/y, %)

	2022	2023	2024
July projection	14.2	12.3	4.1
AS by the end of 2022	13.6	13.0	4.1
AS by the end of 2023*	13.6	9.0	7.9
AS by the end of 2024*	13.6	9.0	4.1

By the end of 2023 (y/y, pp.)

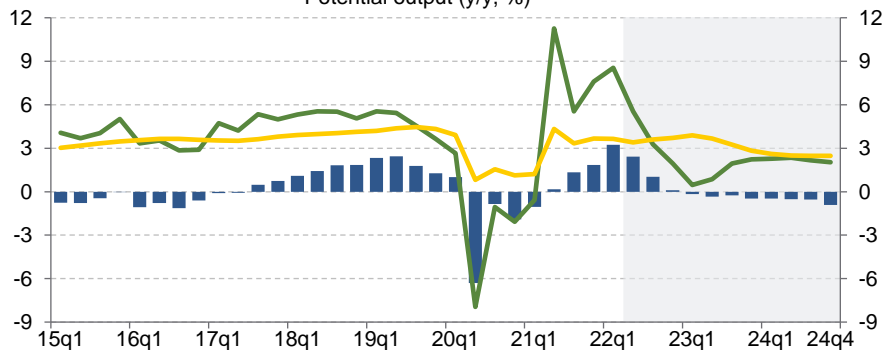


Total increase in costs for GG (PLN bn)

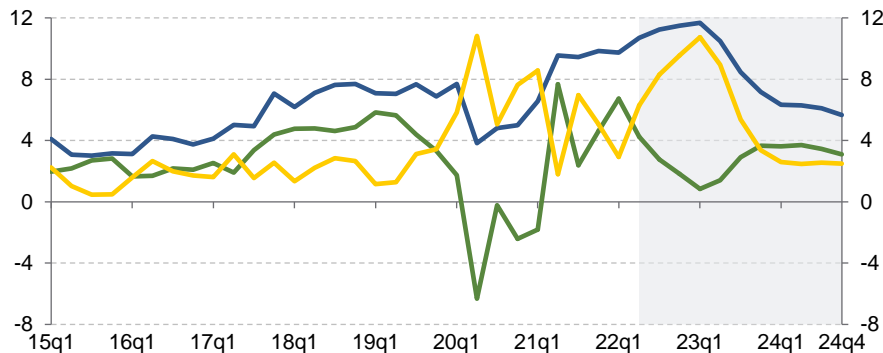
	2022	2023	2024
July projection	33.9	-	-
AS by the end of 2022	39.0	-	-
AS by the end of 2023*	39.0	33.4	-
AS by the end of 2024*	39.0	33.4	35.0

Inflation decline in 2024 as a result of a fall in commodity price growth on the global markets, slowdown in the domestic economic activity and gradual easing of tensions in supply chains

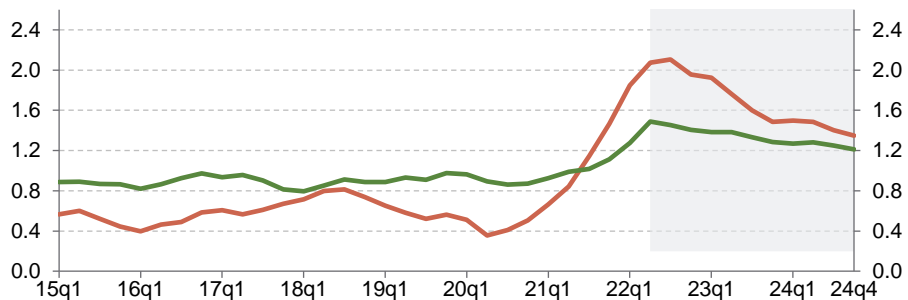
■ Output gap (% of potential output)
 ■ GDP (y/y, %)
 ■ Potential output (y/y, %)



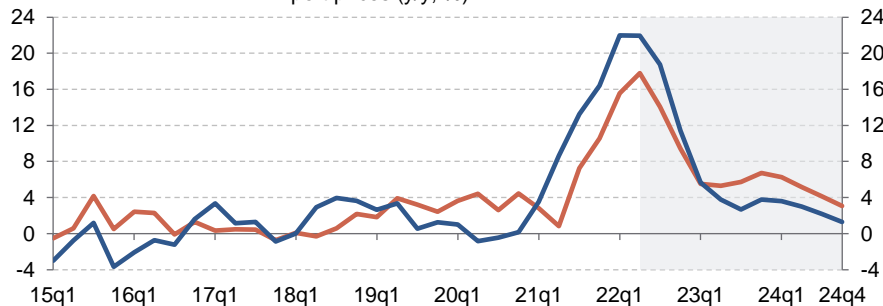
■ Nominal wages (y/y, %)
 ■ Labour productivity (y/y, %)
 ■ ULC (y/y, %)



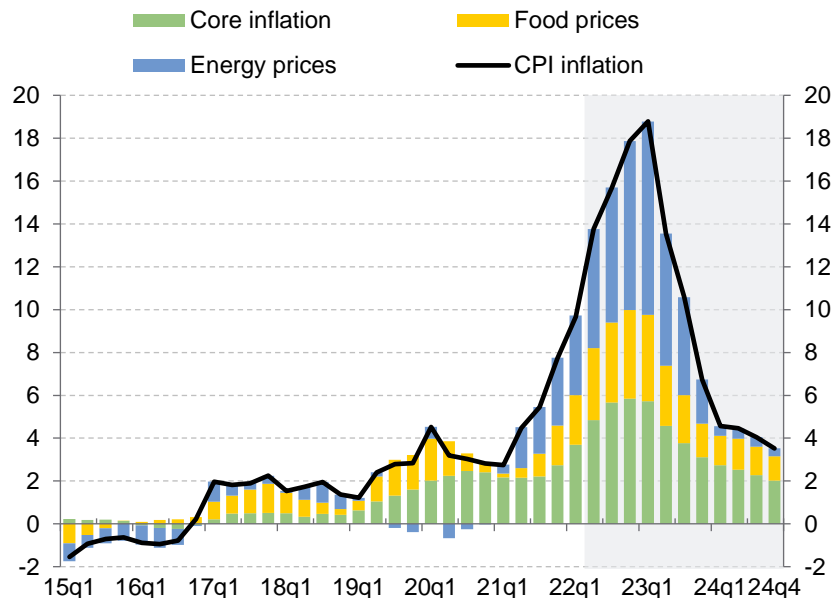
■ Index of energy commodity prices (USD, 2011=1)
 ■ Index of agricultural commodity prices (EUR, 2011=1)



■ Import prices excl. oil and gas prices (y/y, %)
 ■ Import prices (y/y, %)



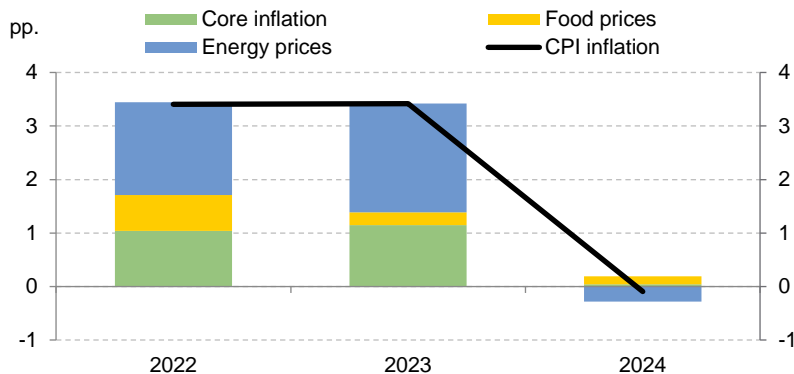
Under the assumption of unchanged NBP interest rates, CPI inflation at the end of projection horizon will run at a level close to 3.5%.



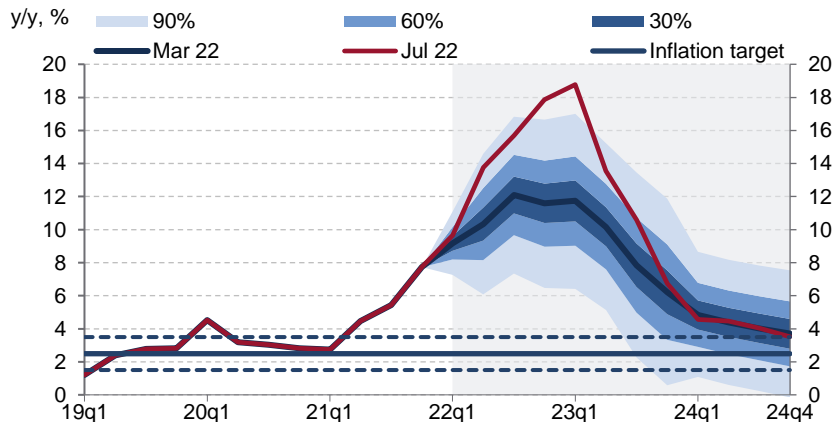
- ↑ Increasing domestic fuel prices and higher gas and electricity bills for households due to the spike in energy commodity prices on global markets and elevated CO₂ emissions allowance prices.
- ↑ Rise in food production costs and limited supply of some agricultural raw materials and commodities.
- ↑ Persisting supply constraints and disturbances in international transport as a result of Russia's aggression against Ukraine and further COVID-19 outbreaks in China.
- ↑ Strong growth of import prices.
- ↓↑ Transitory effect of the Anti-Inflationary Shield on energy and food prices in 2022 - therefore a base effect in 2023.
- ↓ Weaker demand pressure in the economy.
- ↓ Gradual easing of tensions in supply chains, decreasing dynamics of labour costs and energy prices, as well as expected slowdown of inflation in the external environment over longer projection horizon.

y/y, %	2021	2022	2023	2024
CPI inflation	5.1	14.2	12.3	4.1

July inflation projection compared to the March projection



- ↑ Stronger than previously expected impact of the consequences of the Russia's aggression against Ukraine on energy prices.
- ↑ Further increase in agricultural production costs, including prices of feed grains and chemical fertilizers as well as energy and labour costs.
- ↑ Rise in prices of imported goods and services.
- ↓↑ Extension of governmental Anti-Inflationary Shield lowering inflation in the coming months but creating a larger base effect in 2023.



CPI y/y, %	2022	2023	2024
March 2022	10.8	9.0	4.2
July 2022	14.2	12.3	4.1



Outline:

Projection 2022 – 2024

- Economic conditions abroad
- Economic perspectives for Poland
- Inflation

Uncertainty

Uncertainty

- Risks
- Fan charts

Risks

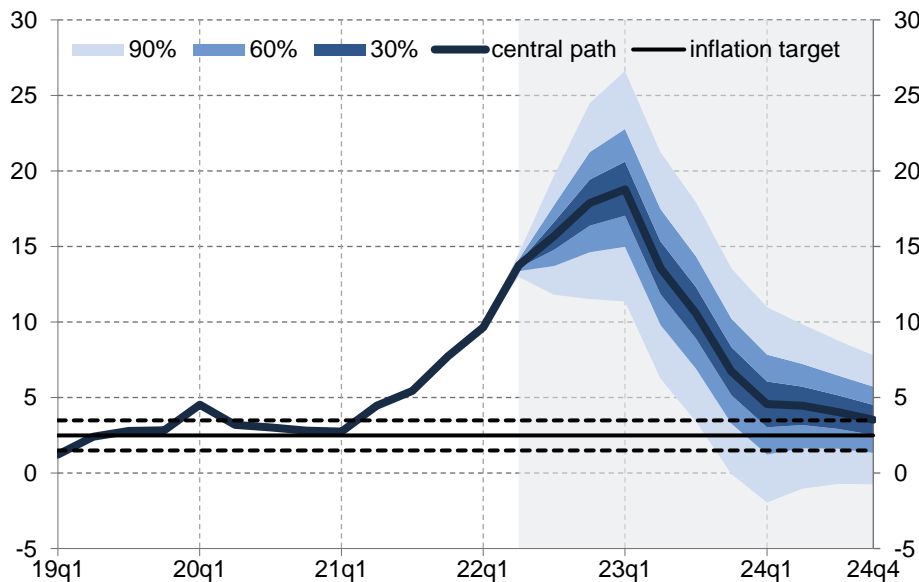
- Further course of Russia's military aggression against Ukraine
- Changes in the volume of gas imported from Russia to European economies
- Scale of production and possibility of exporting agricultural raw materials from the territory of Ukraine
- Prospects for the import of industrial raw materials from Russia and Ukraine
- Epidemic policy related to the COVID-19 pandemic
- Timing of the disbursement of funds under the *Next Generation EU* program
- Extension of the Anti-Inflationary Shield

↓ Higher probability of **GDP growth running lower** than the baseline projection

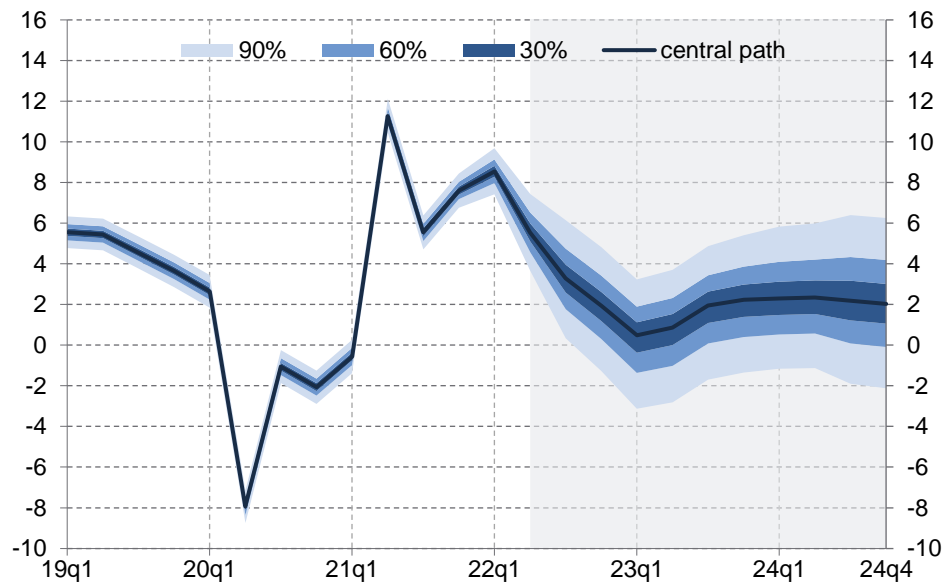
↔ **Uncertainty distribution around inflation path close to symmetrical**

The most important source of risk for these variables are **disturbances in the functioning of the global economy triggered by Russia's military aggression against Ukraine.**

CPI inflation y/y, %



GDP y/y, %



CPI y/y, %	below 1.5%	below 2.5%	below 3.5%	below centr. path	within 1.5-3.5% range
2022	0%	0%	0%	49%	0%
2023	0%	0%	1%	49%	1%
2024	18%	28%	41%	50%	24%

CPI y/y, %	central path	50% probability interval	
2022	14.2	13.2	15.4
2023	12.3	9.8	15.1
2024	4.1	2.2	6.0

GDP y/y, %	central path	50% probability interval	
2022	4.7	3.9	5.5
2023	1.4	0.2	2.3
2024	2.2	1.0	3.5



**NARODOWY
BANK POLSKI**