



NARODOWY
BANK POLSKI

Economic Analysis and Research Department

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

Warsaw / 11th March 2022





Outline:

Russia's military aggression
against Ukraine

Projection 2022 – 2024

- Economic conditions
abroad
- Economic perspectives for
Poland
- Inflation

Uncertainty

1

Russia's military aggression against Ukraine -
consequences for the economy

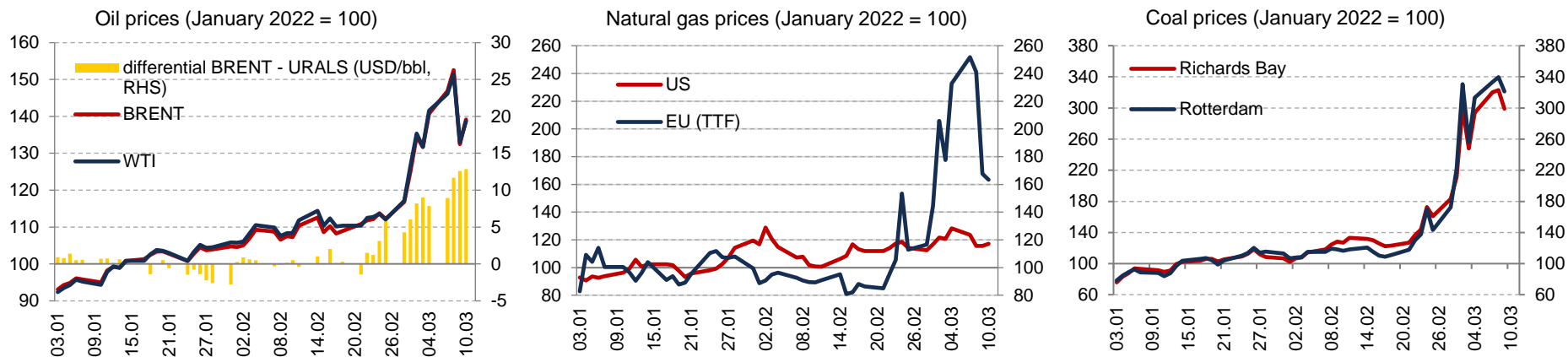
2

Projection 2022 - 2024

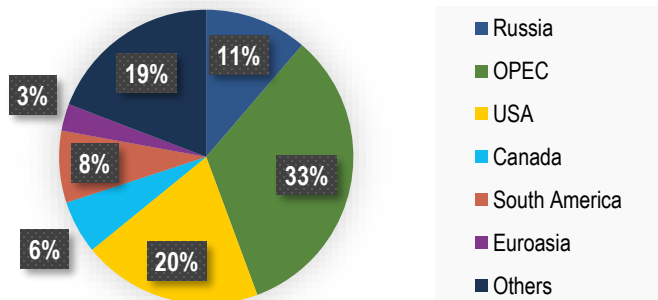
3

Uncertainty

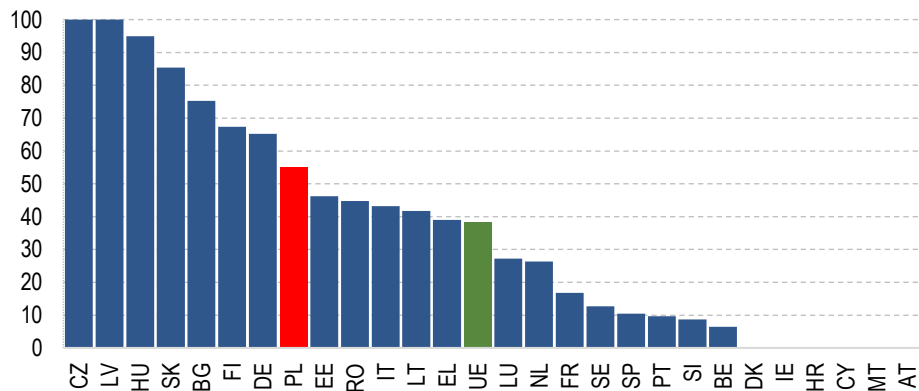
Russia's military aggression against Ukraine - a sharp increase in global energy commodity prices...



Share in oil world production



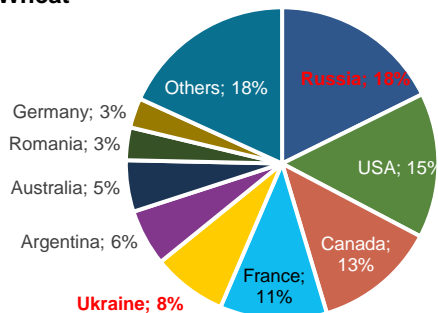
Share of natural gas imports from Russia in the total natural gas imports in 2020



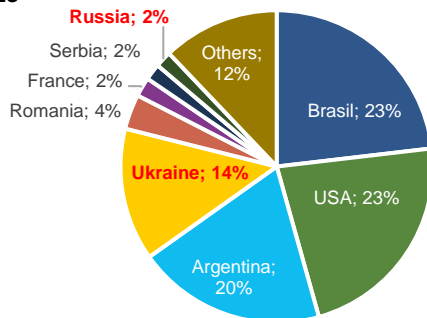
... growing food prices...

Shares of the largest exporters of selected agricultural raw materials in global exports (2019, based on data in tonnes)

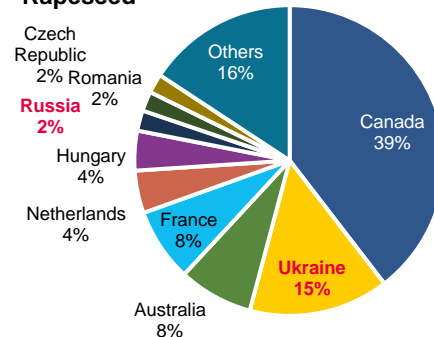
Wheat



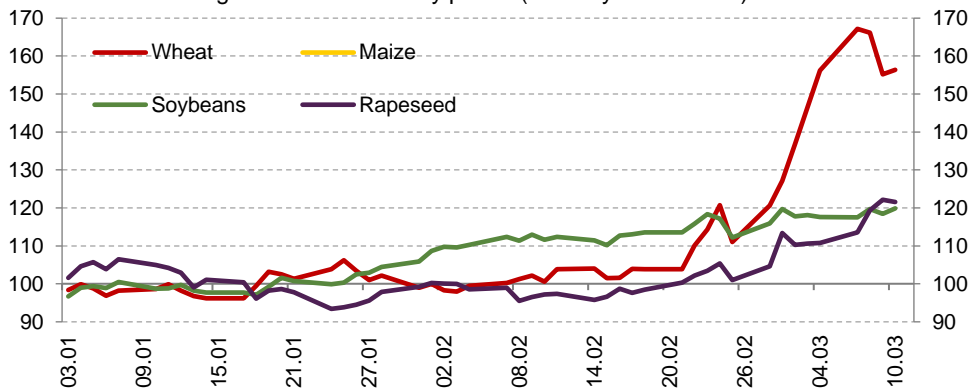
Maize



Rapeseed

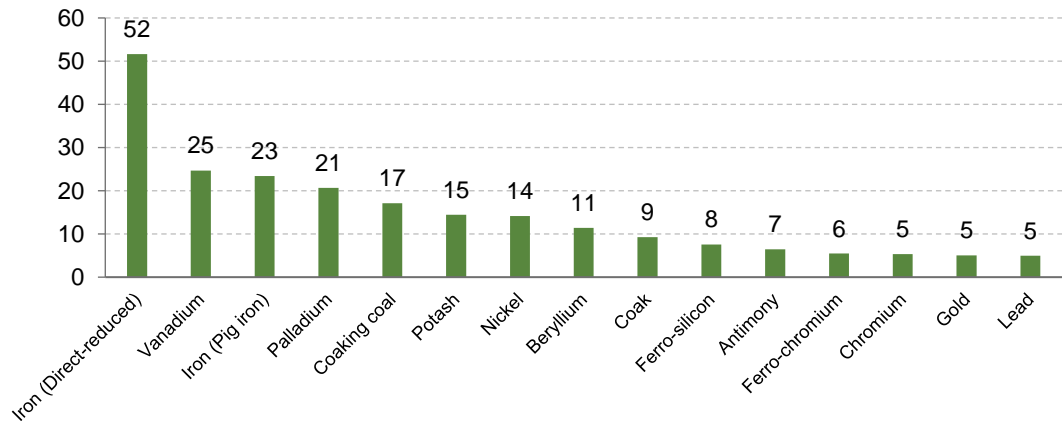


Agricultural commodity prices (January 2022 = 100)

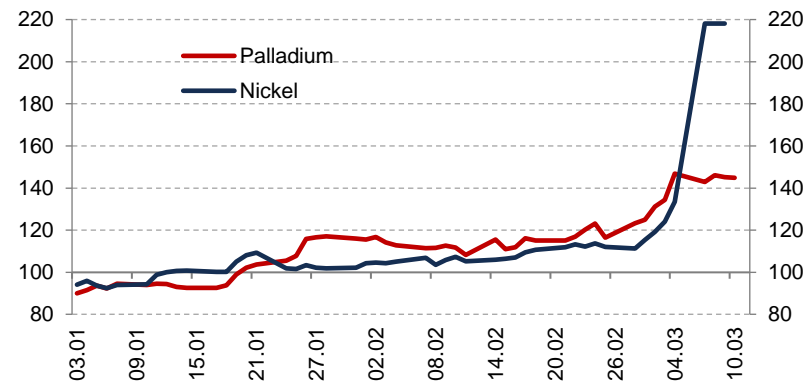


... increased uncertainty and stronger disruptions in global supply networks...

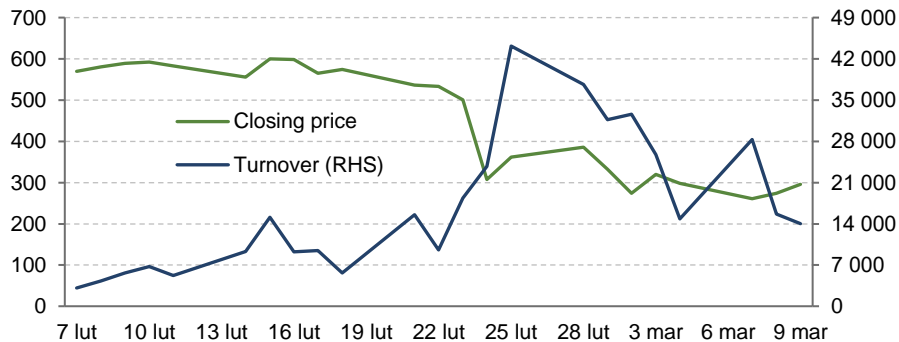
Russia's share in world exports of selected non-energy mineral commodities (2020,%)



Industrial commodity prices (January 2022 = 100)



WIG – Ukraine index - closing price and turnover (in PLN thousand)



...lower forecasts of economic growth abroad

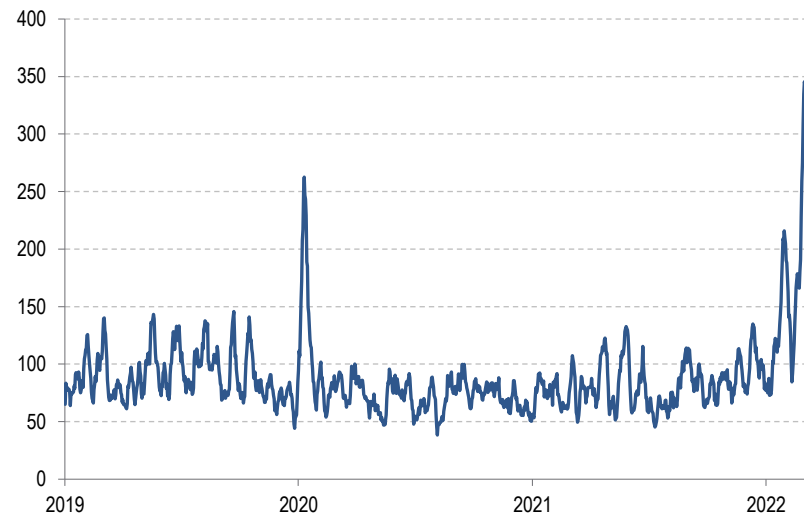
NBP GDP forecast for the selected economies

GDP r/r, %	2021	2022	2023	2024
Euro area	5.2 (4.9)	3.2 (4.0)	2.4 (2.4)	1.4
Germany	2.9 (2.6)	2.6 (4.3)	2.8 (2.8)	1.2
United Kingdom	7.5 (7.0)	3.9 (4.8)	2.0 (1.9)	1.5
USA	5.7 (5.7)	3.6 (4.2)	2.3 (1.9)	1.8
China	8.1 (8.1)	5.0 (5.5)	5.0 (5.4)	4.7

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

Source: NBP calculations.

Geopolitical Risk Index (7 days-moving average.)

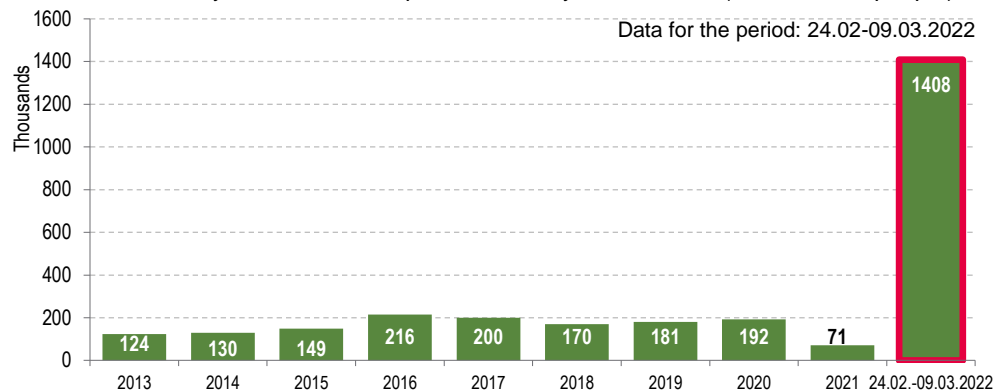


Source: Caldara, D., M. Iacoviello, "Measuring Geopolitical Risk," working paper, FED, November 2021 (the article will be published in American Economic Review).

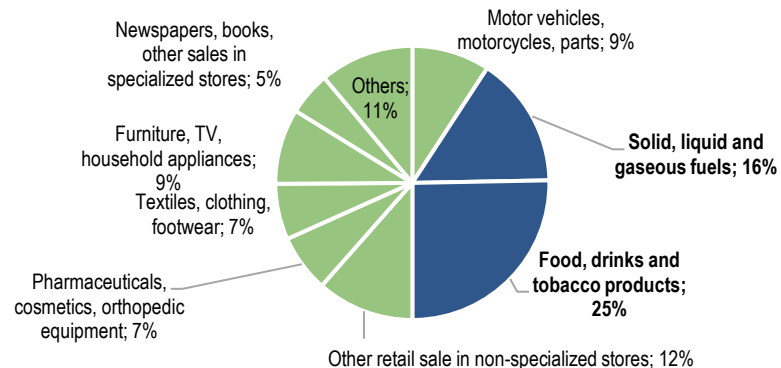
The influx of migrants mitigating the decline in GDP growth

- in the short term, a strong influx of refugees from Ukraine to Poland - increase in demand, which, depending on the form of expenditure, can be classified as consumption (private and public), net exports and investments
- fluctuations in labour supply (especially in the coming weeks)
- consumption growth - increase in the nearest future, and in the long-term - slowdown

Average weekly number of border crossings by foreigners from Ukraine to Poland in February and data for the period February 24 - March 9 (thousands of people)



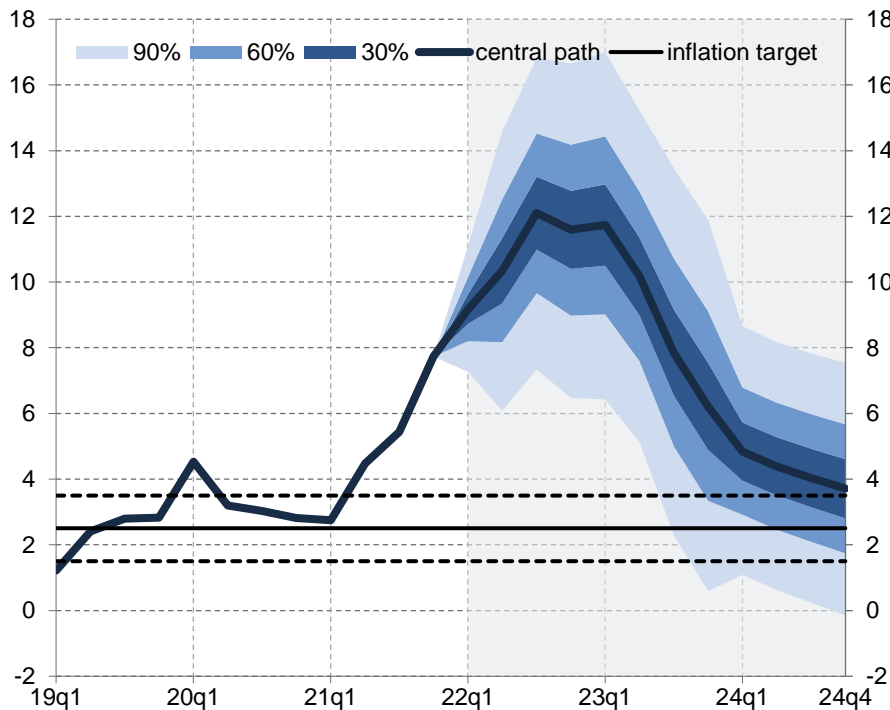
Structure of retail sales in 2019 (%)



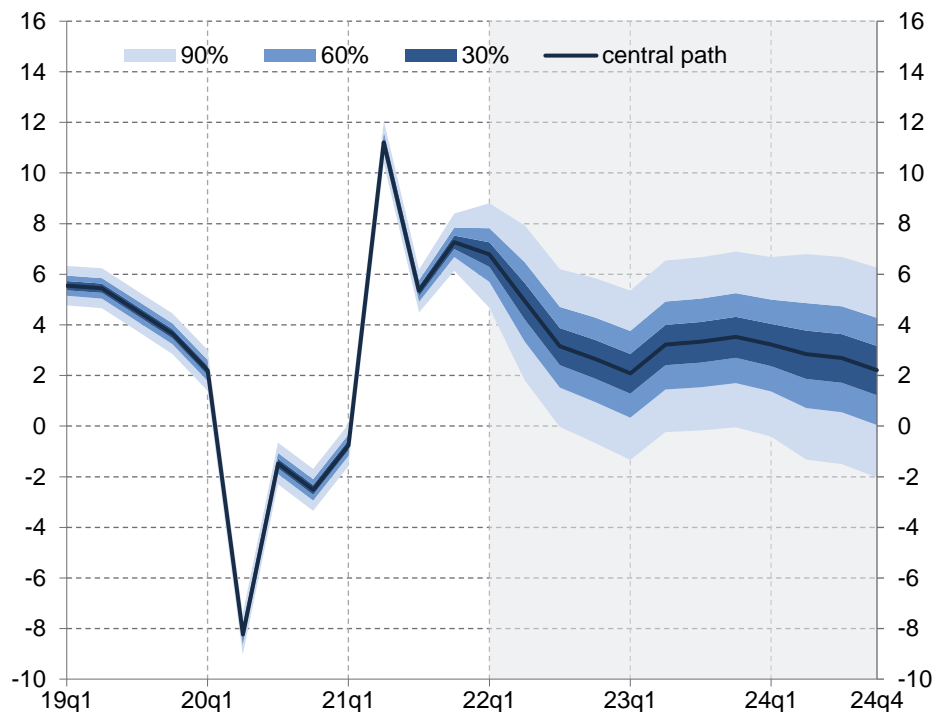
Russia's aggression against Ukraine - consequences for the Polish economy - summary

	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	↑	↑

Inflation CPI y/y, %



GDP y/y, %





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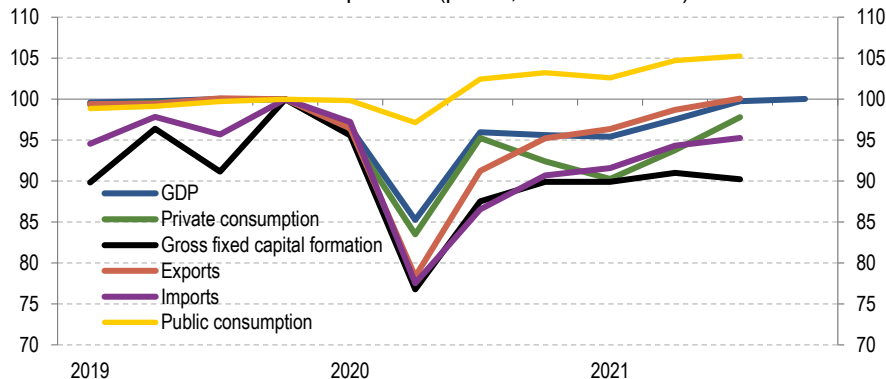
Uncertainty

Projection 2022-2024

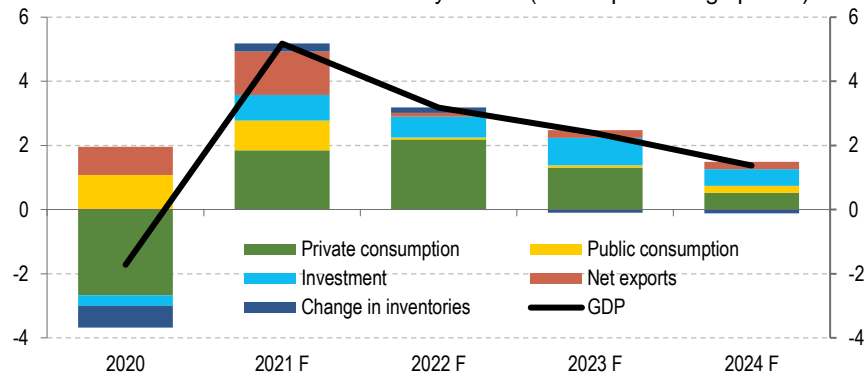
Economic conditions abroad

Euro area: GDP growth will be limited by sanctions and trade disturbances related to Russia's aggression against Ukraine, and at the same time supported by the recovery of consumption and the Next Generation EU program.

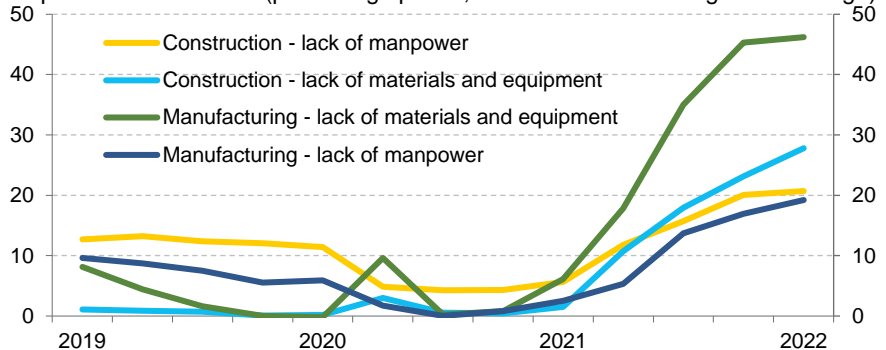
GDP and its components (points, 2019 Q4 = 100)



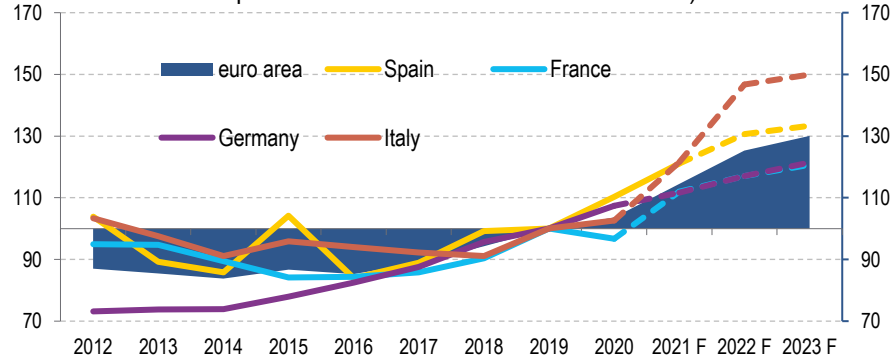
The structure of the real GDP dynamics (% and percentage points)



Percentage of enterprises reporting shortages of production factors as the cause of production reduction (percentage points, deviation from the long-term average)

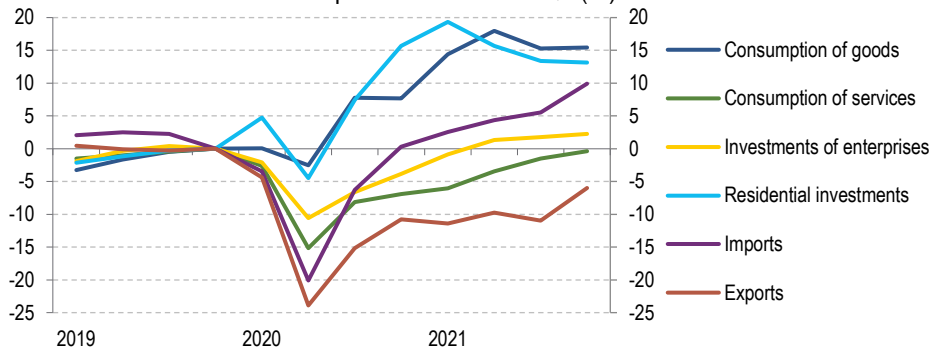


Public investments in selected euro area countries (points, 2019 = 100, European Commission forecasts for 2021-2023)

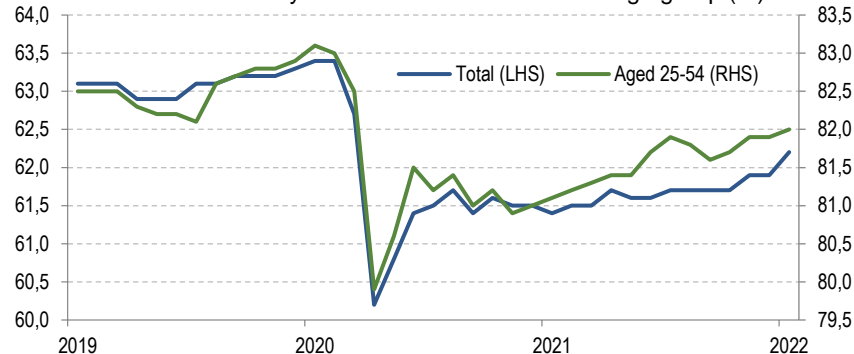


United States: GDP growth will slow down, but will remain relatively high due to further consumption growth, inventory rebuilding by companies and increased government spending.

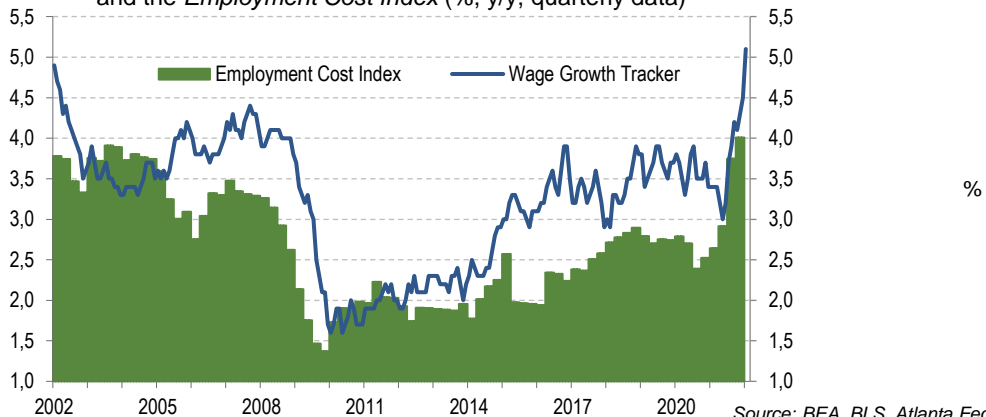
Deviation of real GDP components from 2019 Q4 (%)



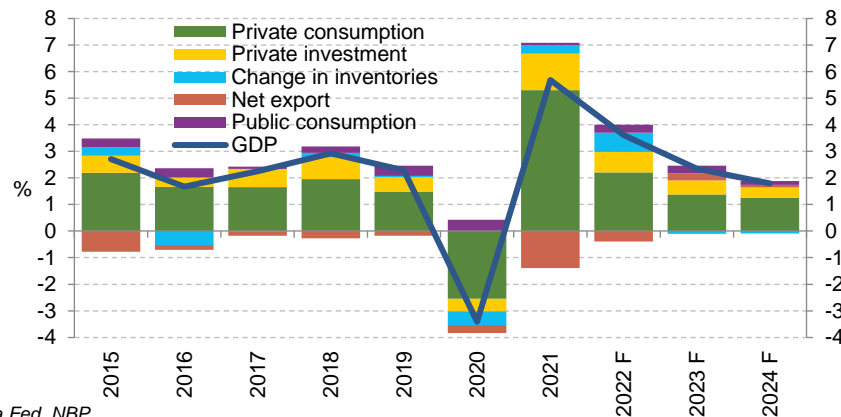
Economic activity rate in total and in the 25-54 age group (%)



Atlanta Fed Wage Growth Tracker (% y/y, 3-months average) and the Employment Cost Index (% y/y, quarterly data)



The structure of the real GDP dynamics (% and percentage points)



Source: BEA, BLS, Atlanta Fed, NBP.



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Projection 2022-2024

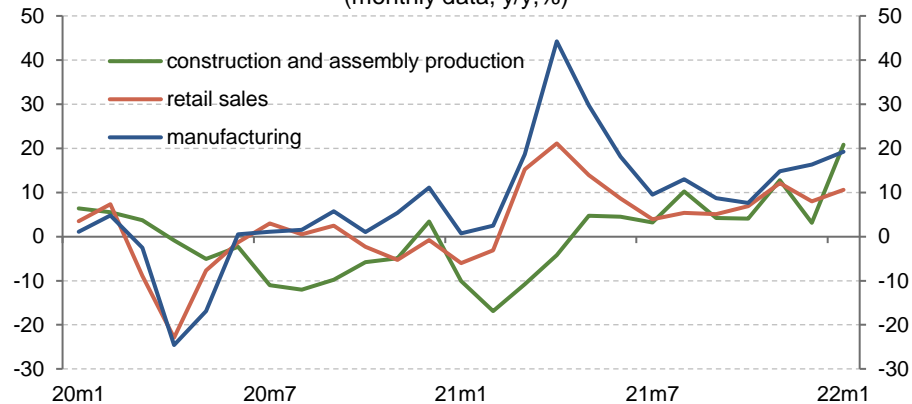
Economic perspectives for Poland

GDP growth in Q4 2021 still strongly influenced by making up for the pandemic losses.

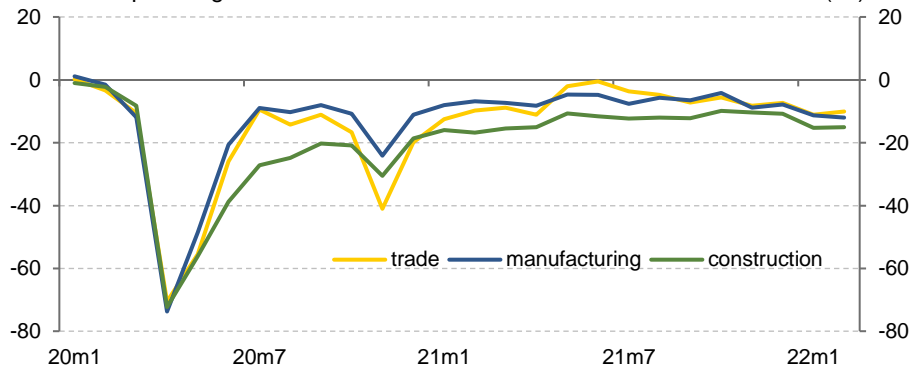
	21q3		21q4	
GDP (y/y) (%)	5.3	(5.1)	7.3	(6.5)
Domestic demand (y/y) (%)	8.6	(7.9)	11.2	(8.3)
Household consumption (y/y) (%)	4.7	(4.1)	7.9	(8.4)
Public consumption (y/y) (%)	0.8	(3.6)	-0.5	(3.0)
Gross fixed capital form. (y/y) (%)	9.3	(7.6)	11.7	(11.5)
Exports (y/y) (%)	8.6	(8.2)	6.0	(6.6)
Imports (y/y) (%)	15.2	(13.8)	13.2	(9.8)
Net exports contribution (pp.)	-2.7	(-2.3)	-3.2	(-1.3)

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

Changes of selected macroeconomic indicators
(monthly data, y/y,%)

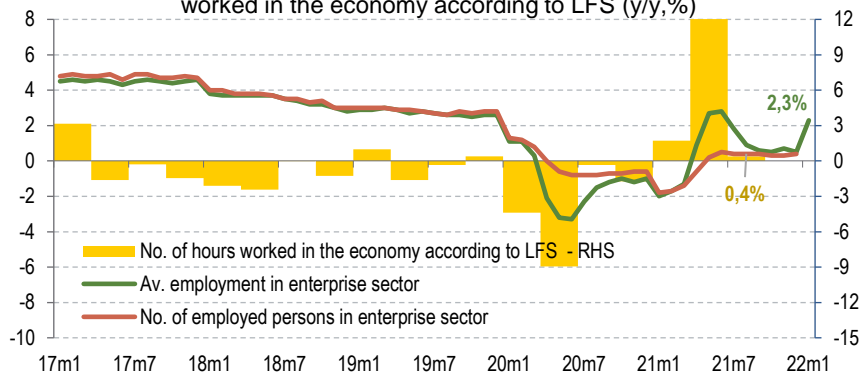


Expected general economic situation - GUS business climate index (sa)

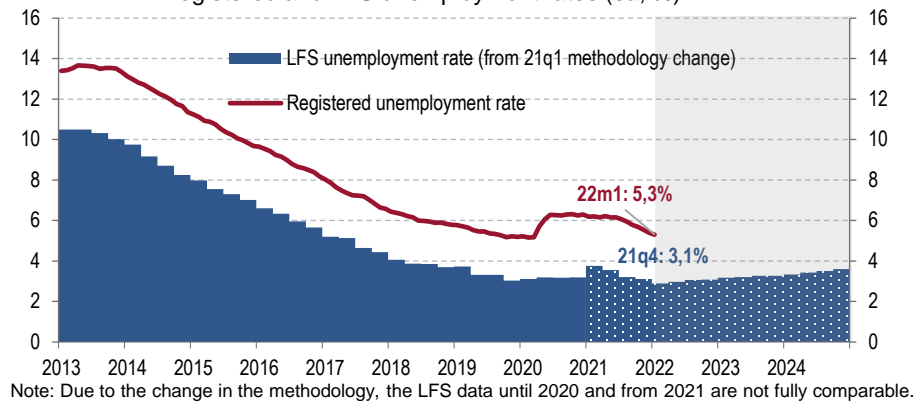


In Q4 2021 continued improvement in the labour market. Despite decline, wage growth still high over the projection horizon.

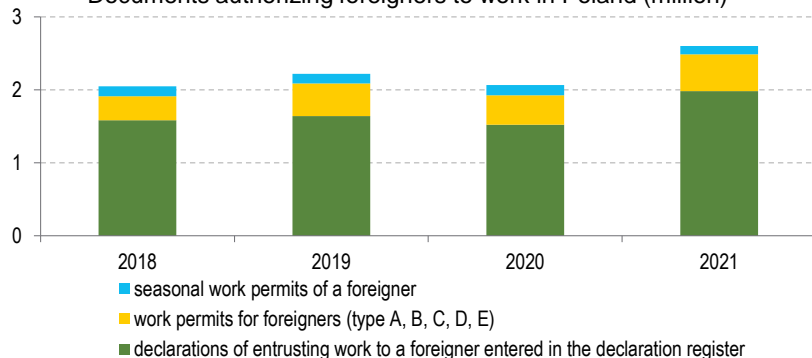
No. of employed persons, average employment in enterprise sector and hours worked in the economy according to LFS (y/y, %)



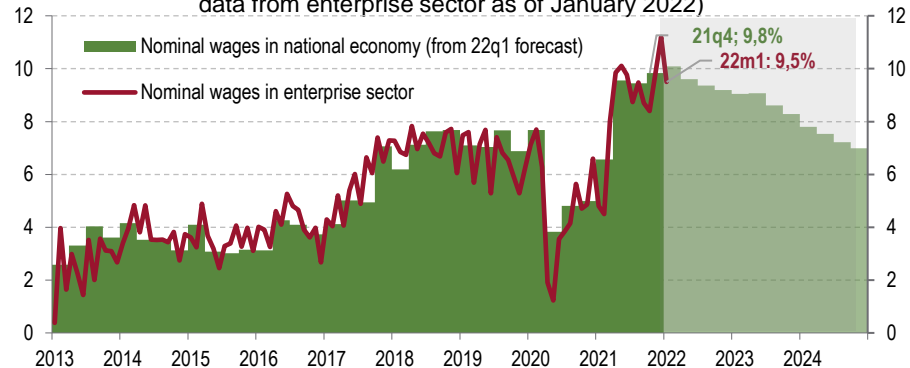
Registered and LFS unemployment rates (sa, %)



Documents authorizing foreigners to work in Poland (million)

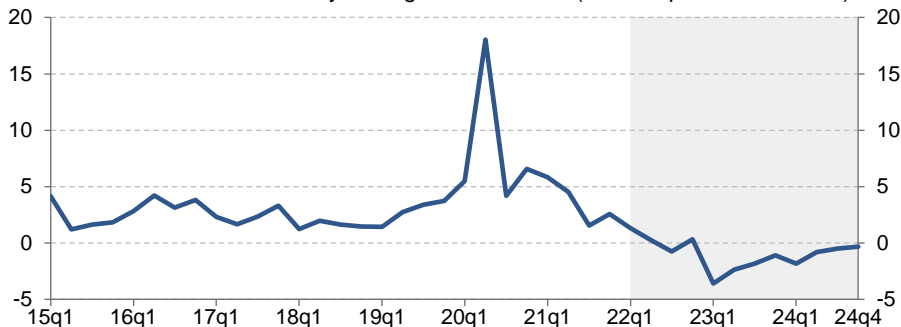


Nominal wage dynamics (% , y/y, national economy as of 21Q4; data from enterprise sector as of January 2022)

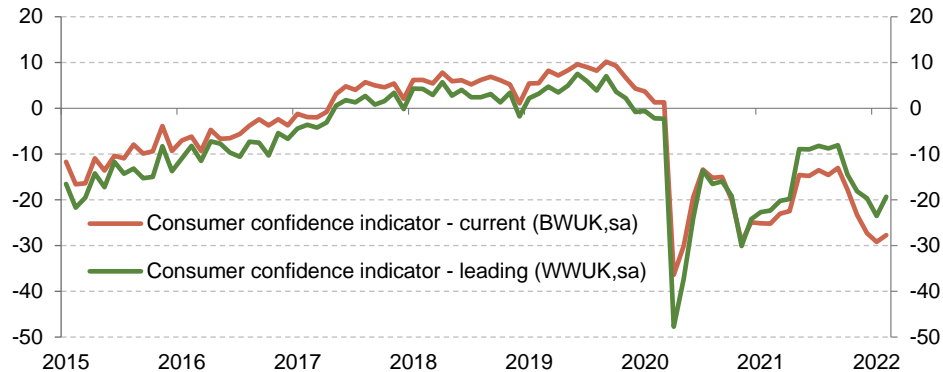


The expected decline in household consumption growth in relation to high 2021 figures.

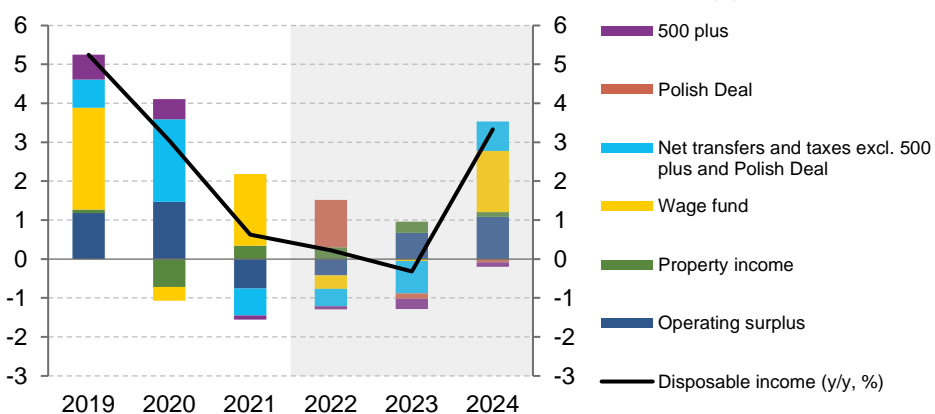
Households voluntary savings rate forecast (% of disposable income)



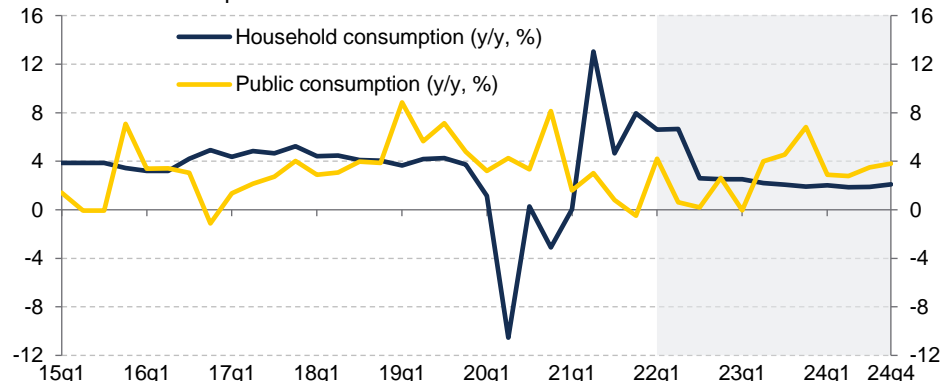
Consumer confidence indicators



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

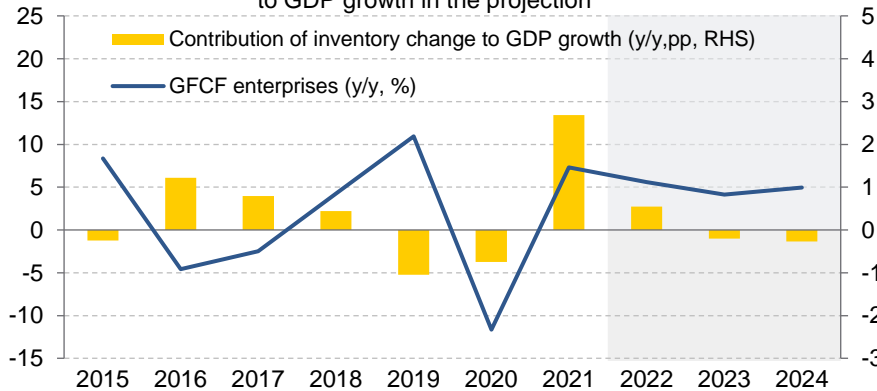


Consumption forecast

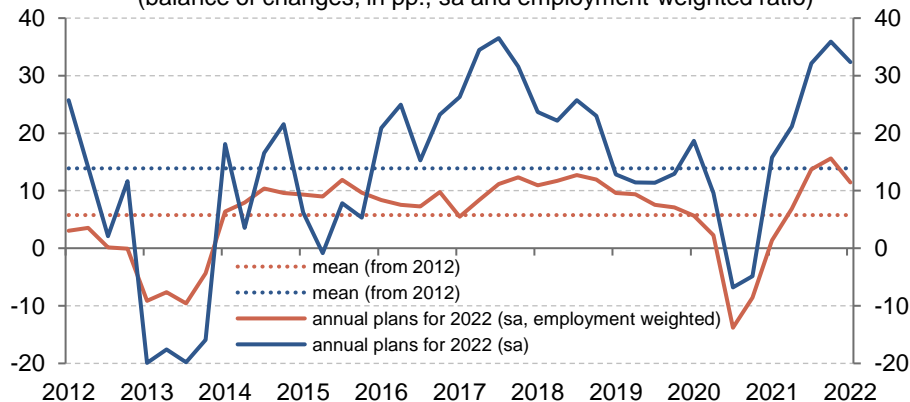


In 2021, the problems in maintaining the required inventory levels by enterprises intensified. Corporate investment continues to rise over the projection horizon, albeit at a slower pace than last year.

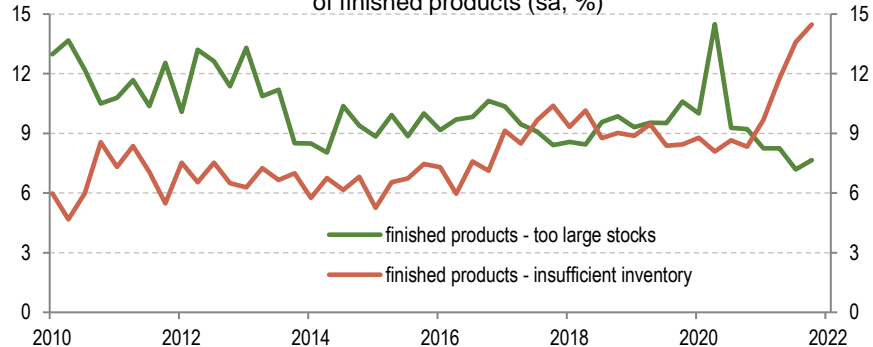
Investment growth and the contribution of change in inventories to GDP growth in the projection



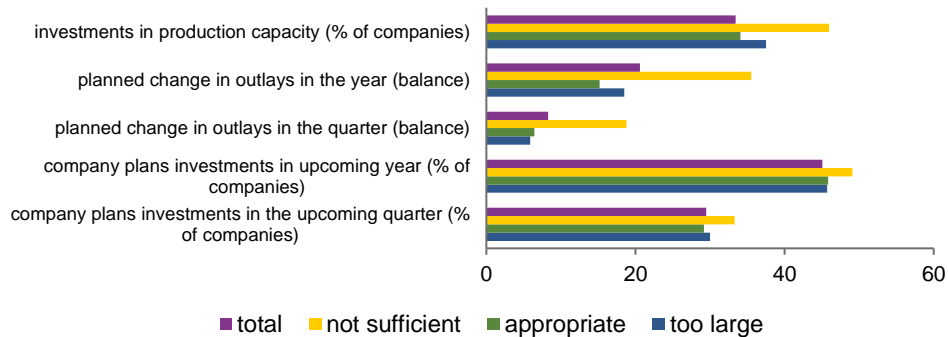
Planned change in the scale of investments by the end of the year (balance of changes, in pp., sa and employment-weighted ratio)



Percentage of enterprises declaring a mismatch in their inventories of finished products (sa, %)

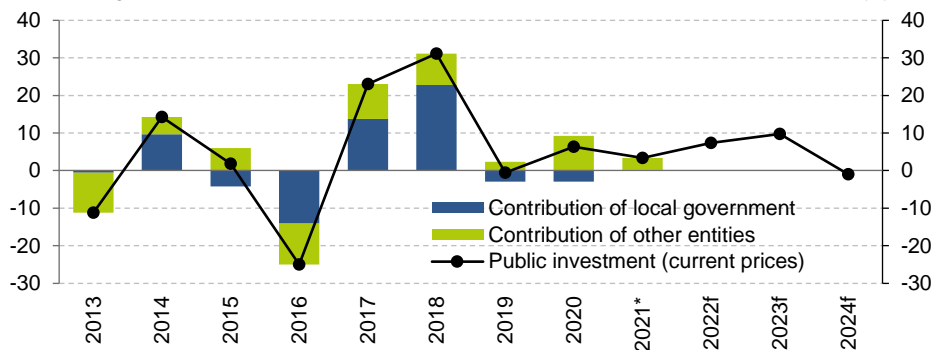


Stock status in manufacturing companies vs. investment activity assessment

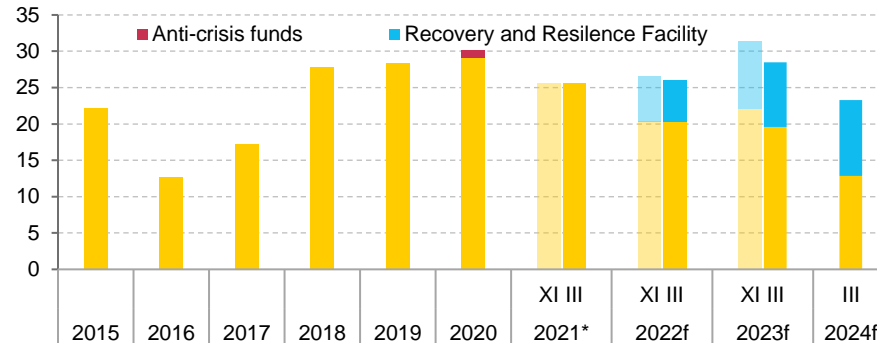


After the assumed increase in public investment in 2022-2023, in 2024 negative impact of lower EU funds absorption is expected.

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

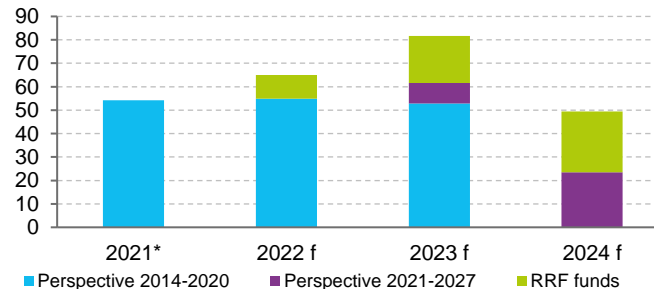
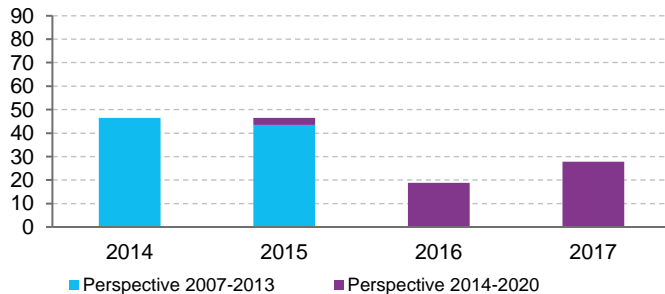


EU funds used for public investments (current prices, PLN billion)



In 2024 a significant decrease in the EU absorption is expected, analogous to 2016. Funds from the Recovery and Resilience Facility may limit the scale of the decline.

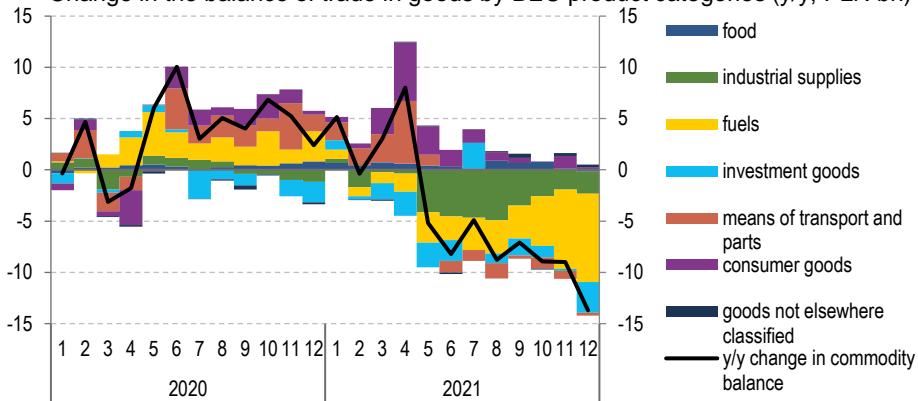
The absorption of the cohesion policy funds (excluding funds for agriculture) and funds from the RRF at the turn of financial perspectives (in PLN billion, current prices)



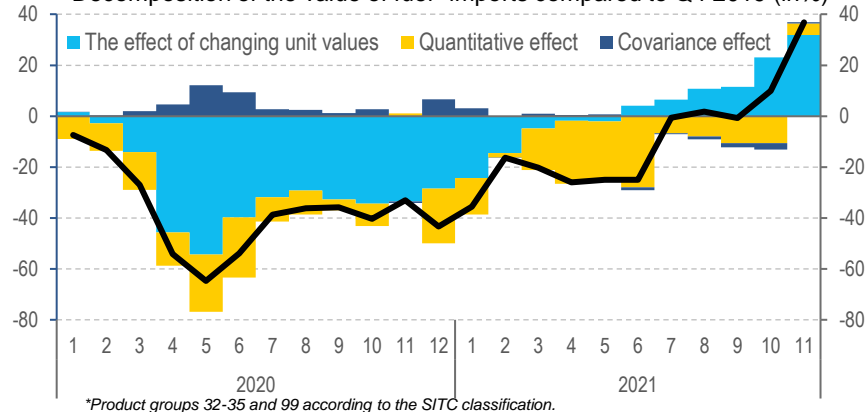
* NBP estimation
f – NBP forecast

Deepening trade deficit due to the decline in net exports and the deterioration of terms of trade

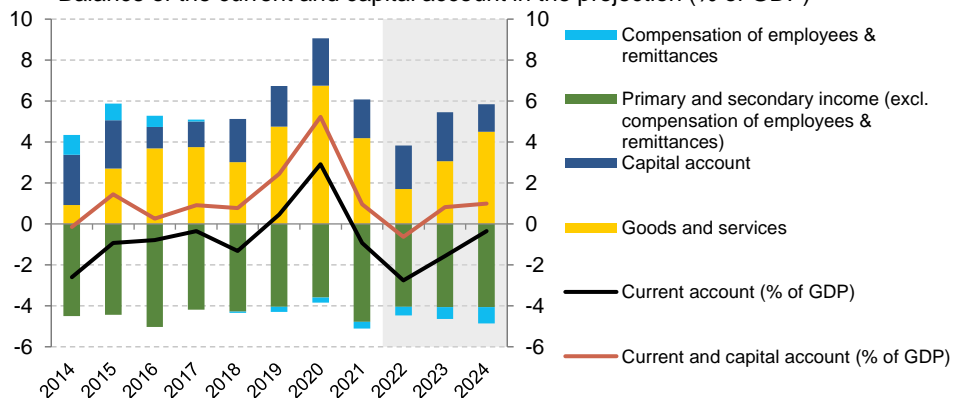
Change in the balance of trade in goods by BEC product categories (y/y, PLN bn)



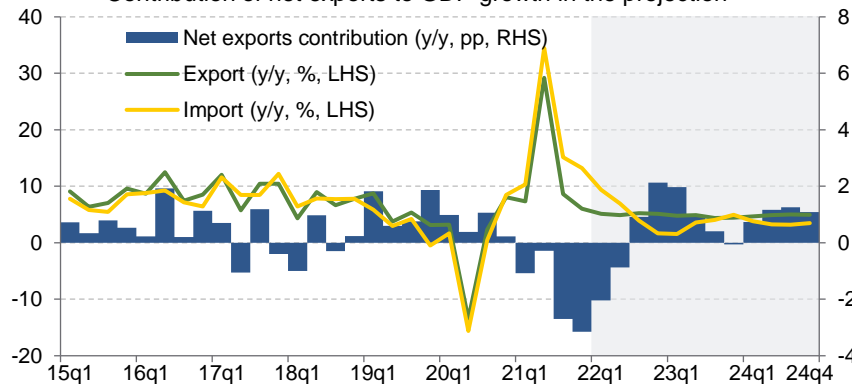
Decomposition of the value of fuel* imports compared to Q4 2019 (in%)



Balance of the current and capital account in the projection (% of GDP)

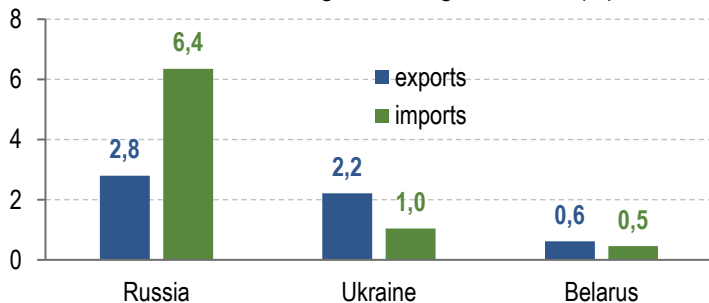


Contribution of net exports to GDP growth in the projection

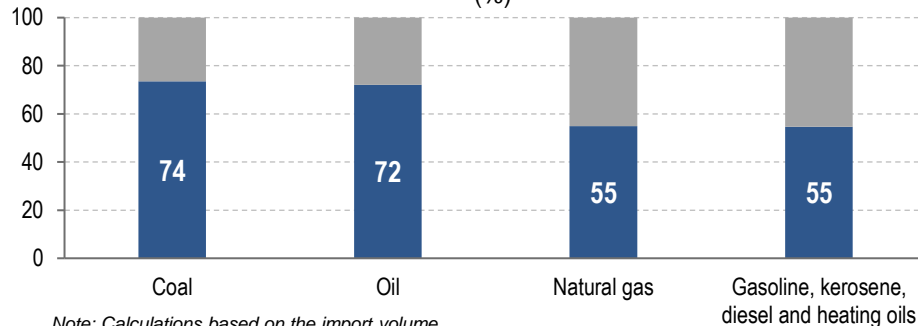


Trade with Russia, Ukraine and Belarus

Share in Polish foreign trade in goods, 2021 (%)

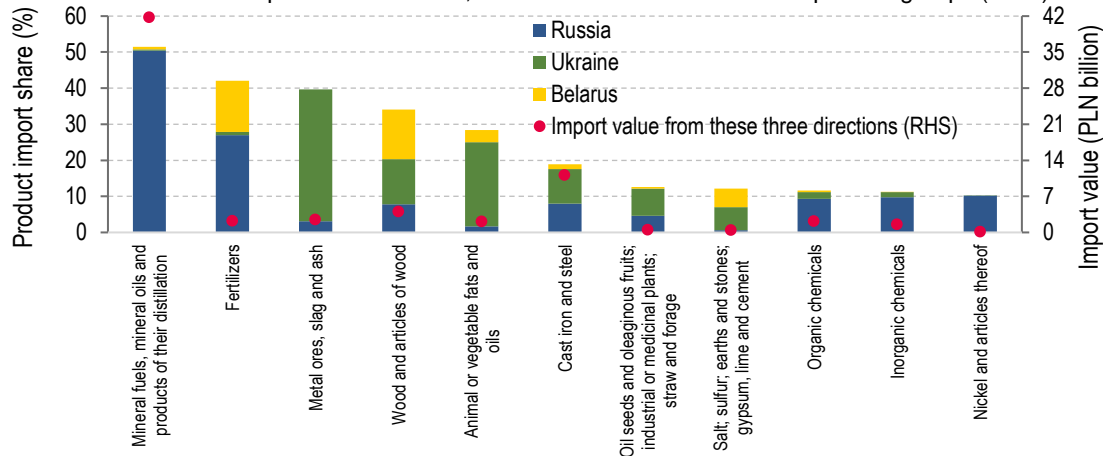


Share of Russia in Polish imports of fuels and energy commodities (%)



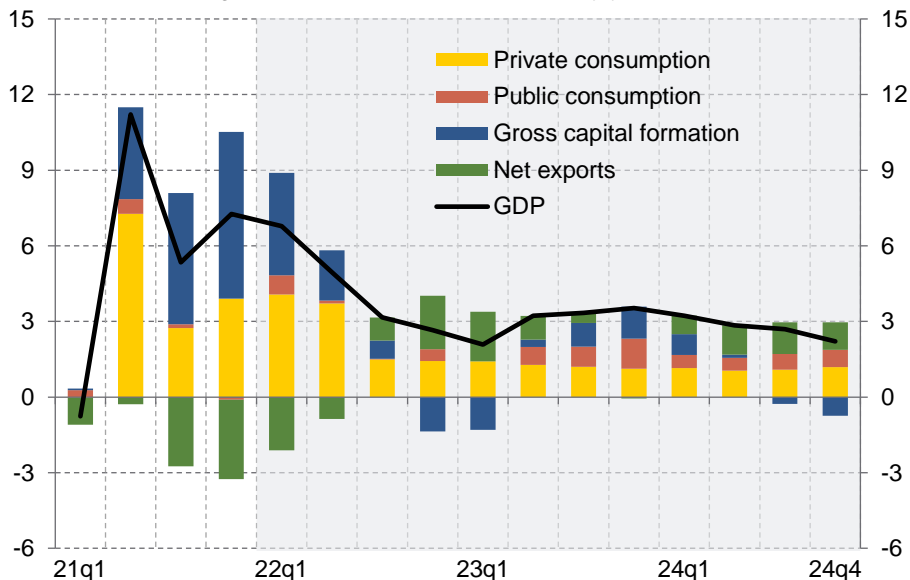
Note: Calculations based on the import volume

Share of imports from Ukraine, Russia and Belarus in selected product groups (2021)



After a period of a strong recovery in the domestic economic activity in 2021, the GDP growth rate in Poland will decline.

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

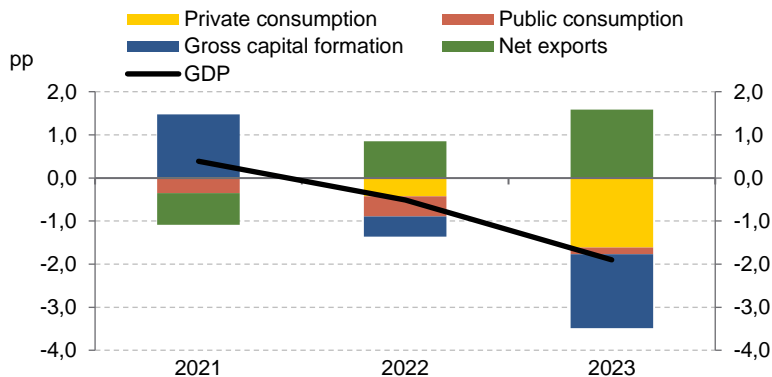


y/y, %	2021	2022	2023	2024
GDP	5.7	4.4	3.0	2.7

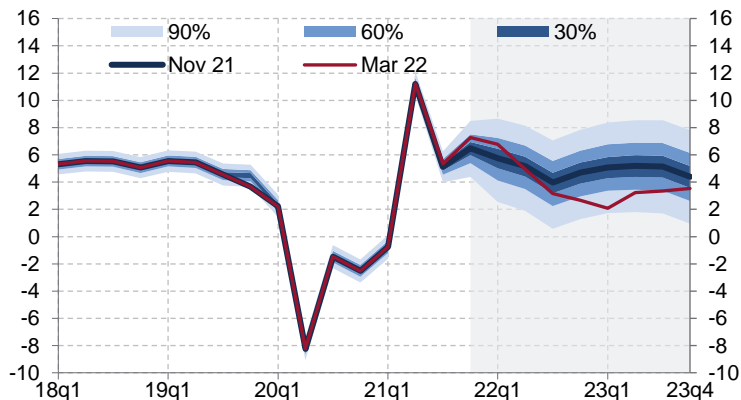
- ⇩ In the coming quarters, the domestic economic situation will be influenced by a **strong negative supply shock** being the combination of the effects of **Russia's aggression against Ukraine** and the **earlier increases in energy commodity prices** in the global markets and **CO₂ emission allowances**, as well as **disturbances in the supply chains**.
- ⇩ In the longer horizon of the forecast, the **expected economic slowdown abroad** will have a negative impact on the domestic economic growth.
- ⇩ **In 2024**, GDP growth will be reduced by a **significant decrease in the absorption of EU funds** as spending of the funds under the EU financial framework for 2014-2020 will come to an end.
- ⇧ The scale of the slowdown in domestic GDP growth will, however, be mitigated by changes in the fiscal policy resulting from the adoption of the **Anti-Inflation Shield** and the **Polish Deal**, as well as the **increased inflow of immigrants to Poland from Ukraine** (consumption and net exports).

March projection of GDP compared to the November projection.

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



- ⇩ Higher inflation limiting the purchasing power of households, increasing operating costs of enterprises.
- ⇩ Monetary policy tightening reflected in four hikes in the NBP reference rate after the November projection.
- ⇩⇩ The adoption of the Anti-Inflation Shield taken into account - higher consumption growth this year, but the base effect in 2023.
- ⇩ Lower EU funds absorption in 2022-2023 caused by the further delay in the approval of the National Recovery and Resilience Plan by the European Commission.
- ⇩ Higher expected contribution of net exports to growth due to its counter-cyclical nature.
- ⇩⇩ The multidirectional impact of Russia's aggression against Ukraine and the sanctions imposed on Russia.



GDP y/y, %	2021	2022	2023
November 2021	5.3	4.9	4.9
March 2022	5.7	4.4	3.0



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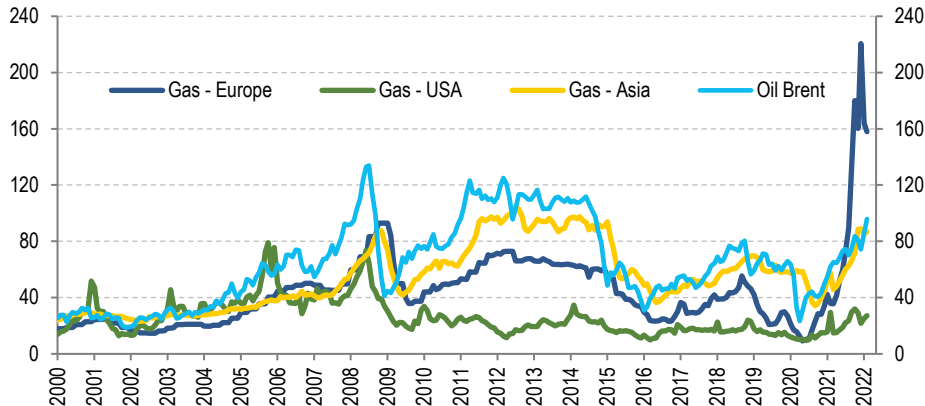
Uncertainty

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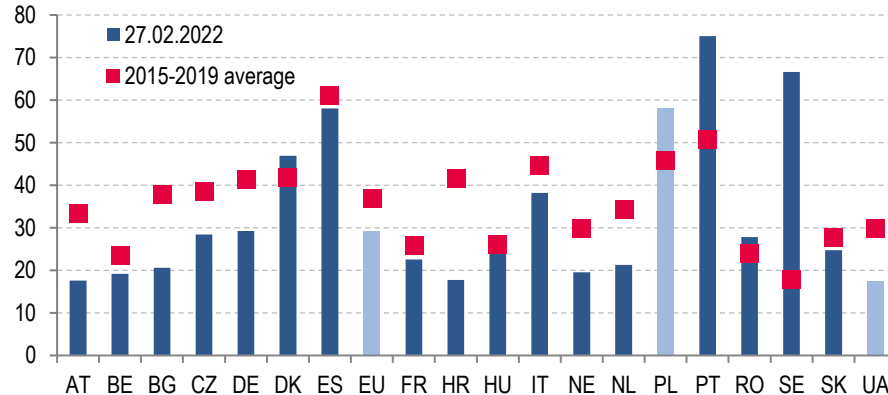
Inflation

Inflation influenced by soaring prices of energy commodities and CO₂ emission allowances.

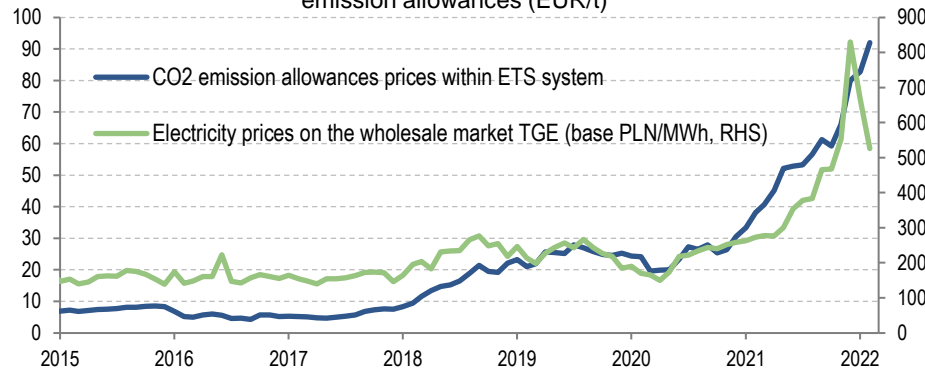
Prices of oil and natural gas in Europe, Asia and North America (USD/boe)



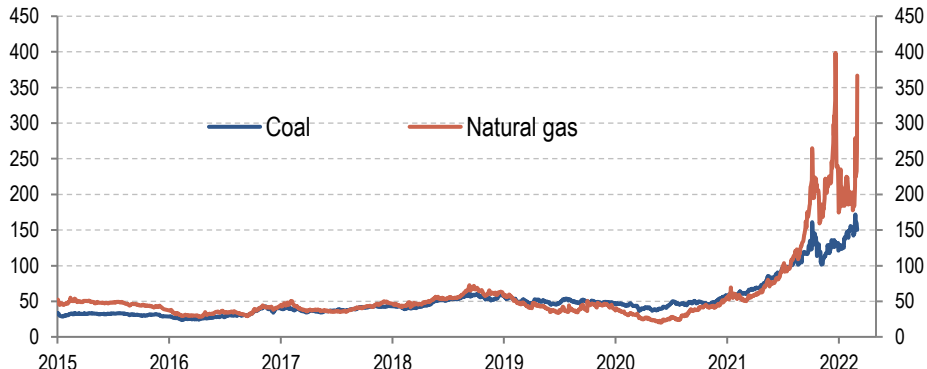
Natural gas storage capacity utilisation in Europe (% , as of 27.02.2022)



Average monthly prices of electricity in Poland (base, PLN/MWh) and CO₂ emission allowances (EUR/t)

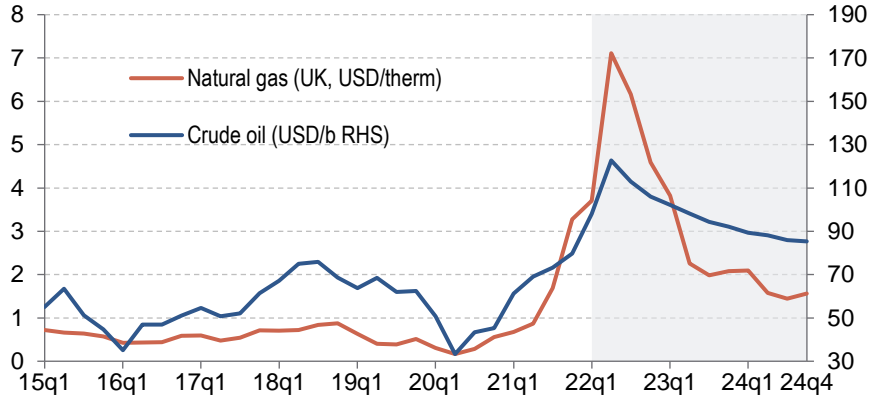


Cost of electricity production (EUR/MWh)

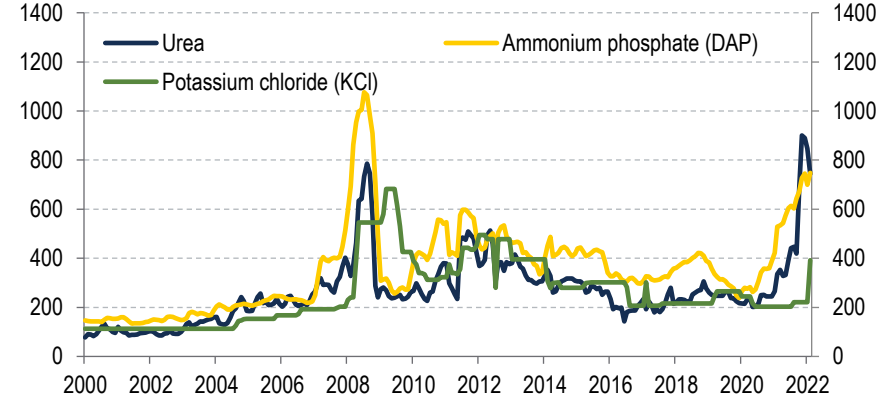


Significant increase in prices of agricultural commodities and chemical fertilizers amid record high gas prices.

Prices of crude oil and natural gas in the projection



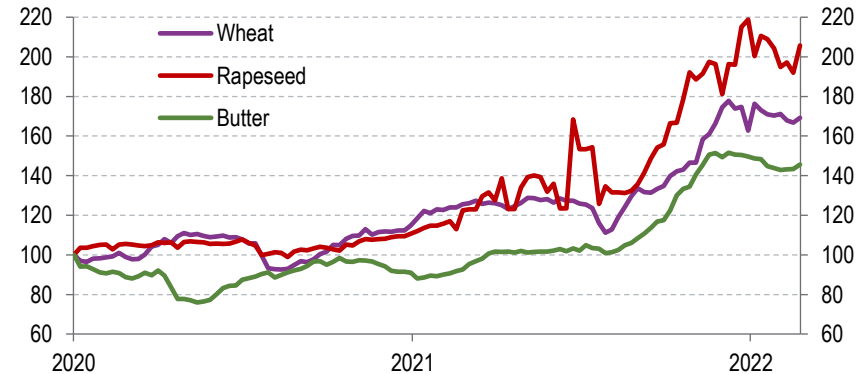
Prices of chemical fertilizers (USD/metric ton, monthly data)



Index of global agricultural commodities' prices (USD, monthly data)

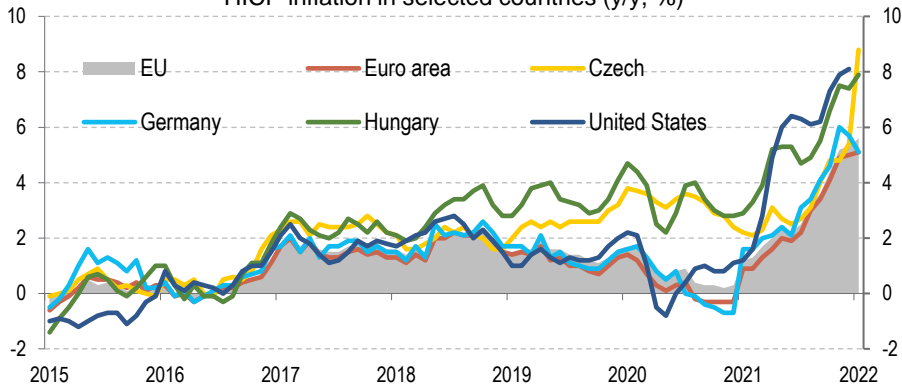


Wholesale prices of selected agricultural commodities in Poland (2019=100, weekly data)

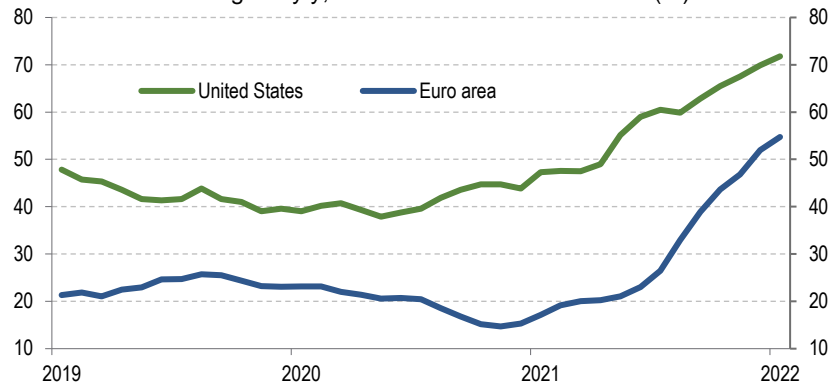


Many countries are experiencing the highest inflation since decades. Inflation readings significantly exceed the expectations.

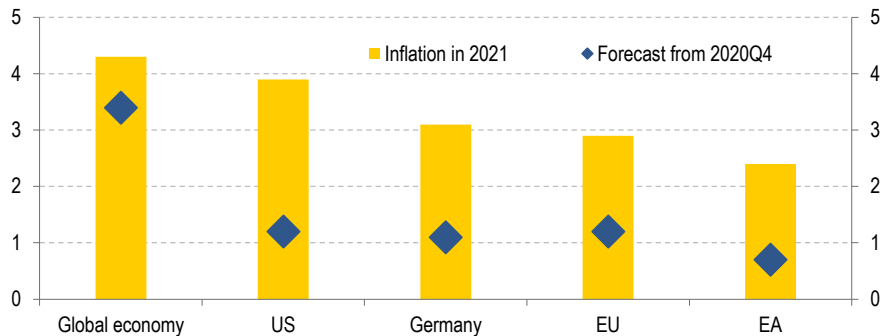
HICP inflation in selected countries (y/y, %)



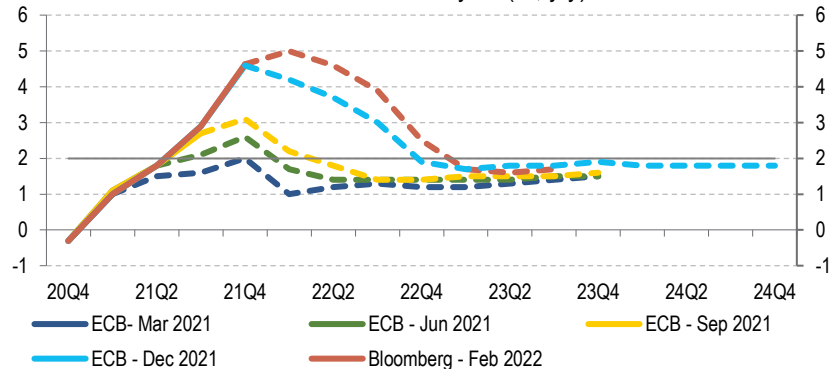
Share of base categories in CPI and HICP, with price growth exceeding 2% y/y, in the USA and the euro area (%)



Inflation in 2021 and the OECD / IMF forecasts from the end of 2020



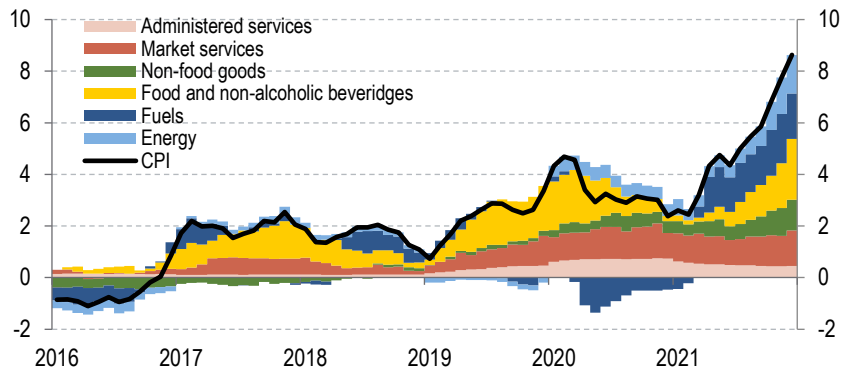
HICP inflation in the euro area in subsequent forecasts of ECB and market analysts (% y/y)



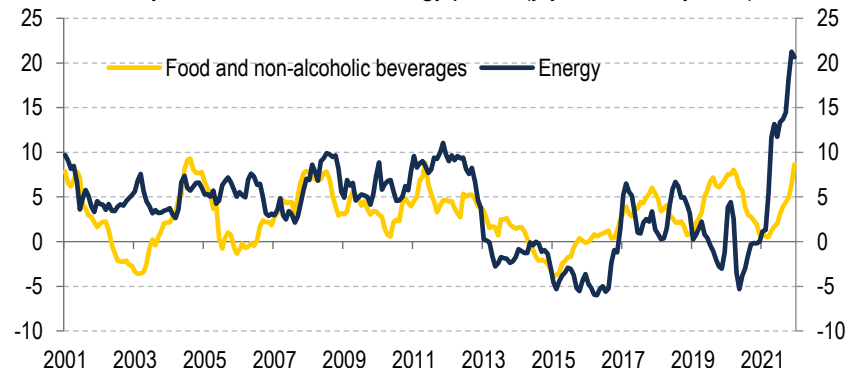
Source: OECD, IMF, BLS, Eurostat, ECB, Bloomberg.

The increase in the growth rate of energy and food prices are the most important factors behind the acceleration in CPI inflation in Poland in 2021.

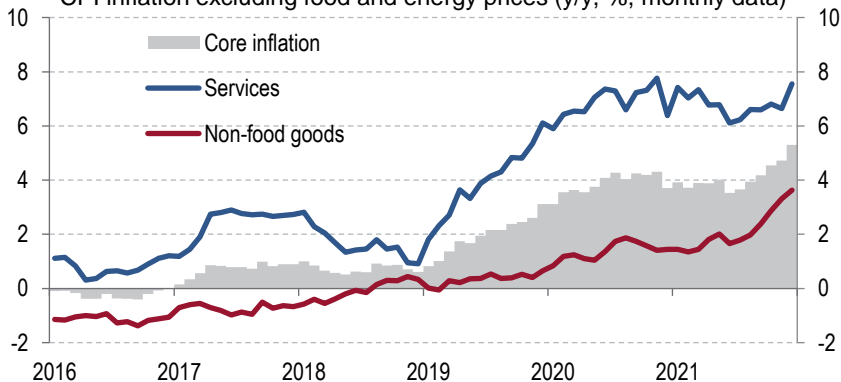
CPI decomposition (y/y, pp, monthly data)



Dynamics of food and energy prices (y/y, %, monthly data)



CPI inflation excluding food and energy prices (y/y, %, monthly data)



Inflation in 2021 in the projection (y/y, %)

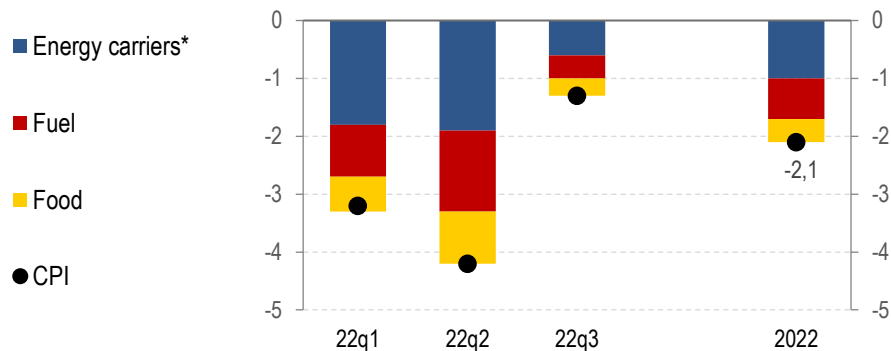
y/y, %	21q4		2021	
CPI inflation	7.7	(6.7)	5.1	(4.9)
Core inflation	4.9	(4.3)	4.1	(4.0)
Food prices inflation	6.7	(5.3)	3.2	(2.8)
Energy prices inflation	20.1	(17.8)	12.1	(11.8)

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

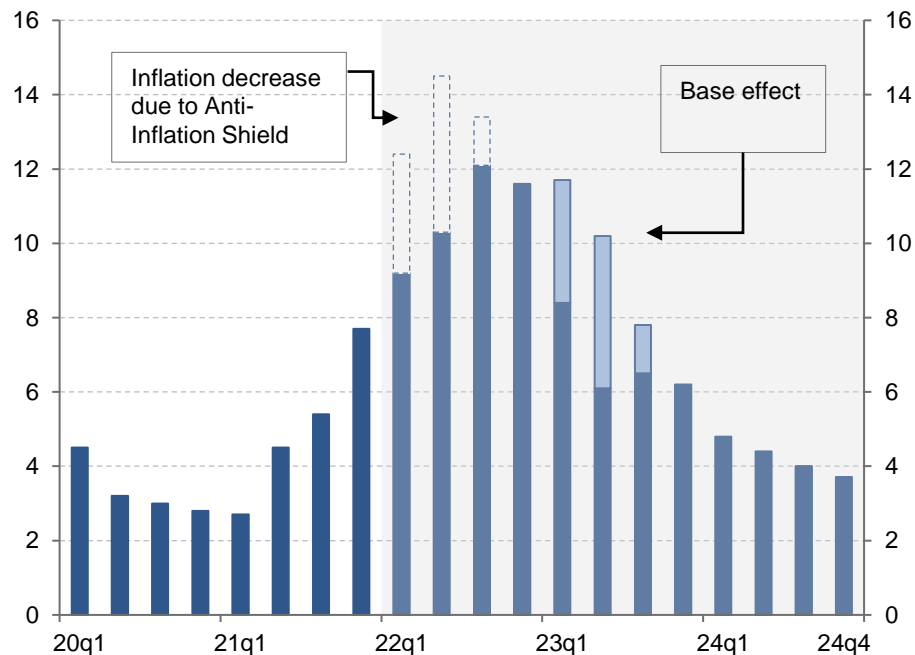
Anti-Inflation Shield in place until July 2022 will lower the average CPI inflation in 2022 by 2.1 pp. In 2023 the CPI dynamics will be increased by the base effect.

Anti-Inflation Shield's impact on CPI inflation in 2022 (p.p. y/y)

	22q1	22q2	22q3	22q4	2022
CPI	-3.2	-4.2	-1.3	0.0	-2.1
Energy	-2.6	-3.3	-1.0	0.0	-1.7
<i>Energy carriers*</i>	-1.8	-1.9	-0.6	0.0	-1.0
<i>Fuel</i>	-0.9	-1.4	-0.4	0.0	-0.7
Food	-0.6	-0.9	-0.3	0.0	-0.4



Anti-Inflation Shield's impact on CPI inflation projection – decrease in 2022 and the base effect in 2023 (p.p. y/y)



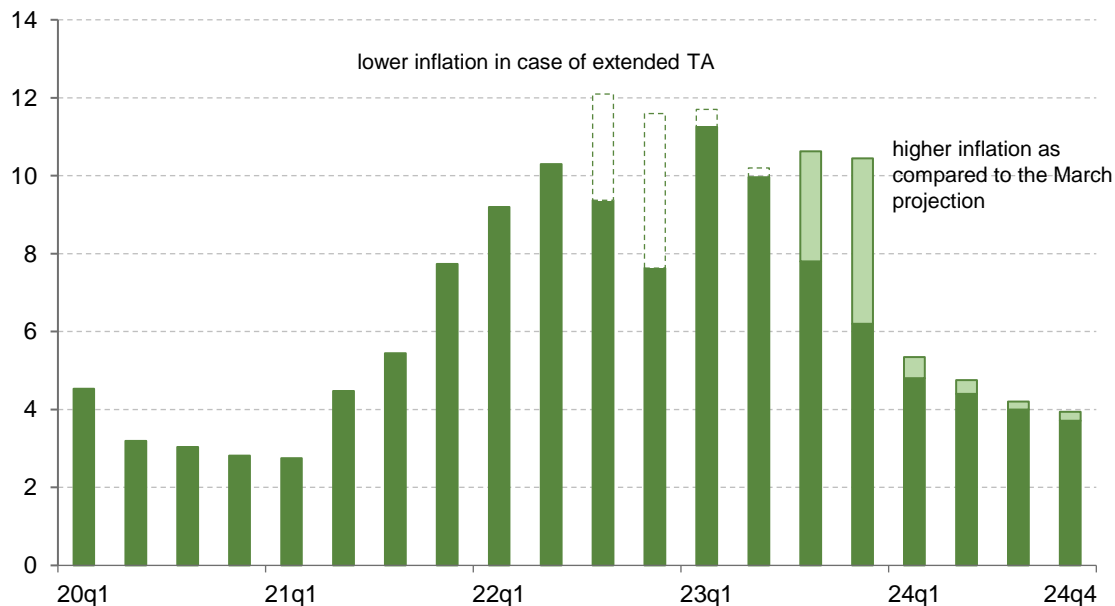
* Energy carriers include electricity, gas, solid fuels and heat energy.

Note: Calculations were performed on data with higher precision than given in the table, therefore there might be some differences due to data rounding.

Source: NBP calculations.

Extension of the Anti-Inflation Shield (TA) until the end of 2022 would lower the average annual inflation in 2022 by an additional 1.7 pp. In such case, the corresponding base effect in 2023 would be stronger.

CPI inflation projection (y/y, %) if TA is extended **till the end of 2022**



CPI inflation (y/y, %)

	2022	2023	2024
March projection	10.8	9.0	4.2
TA till the end of 2022	9.1	10.6	4.6

GDP (y/y, %)

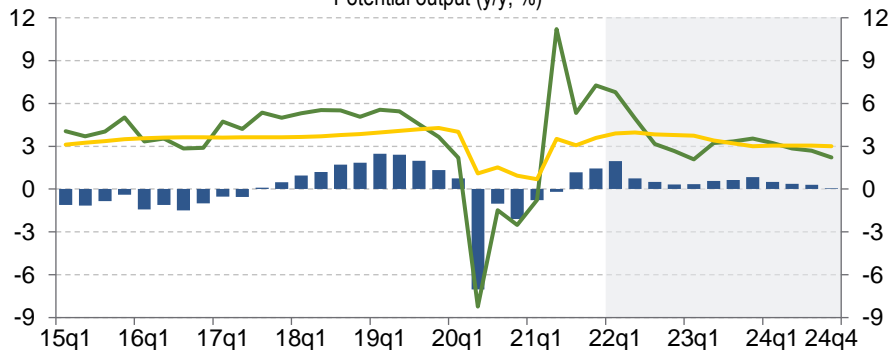
	2022	2023	2024
March projection	4.4	3.0	2.7
TA till the end of 2022	4.7	2.9	2.8

Total increase in costs for GG (bn PLN)

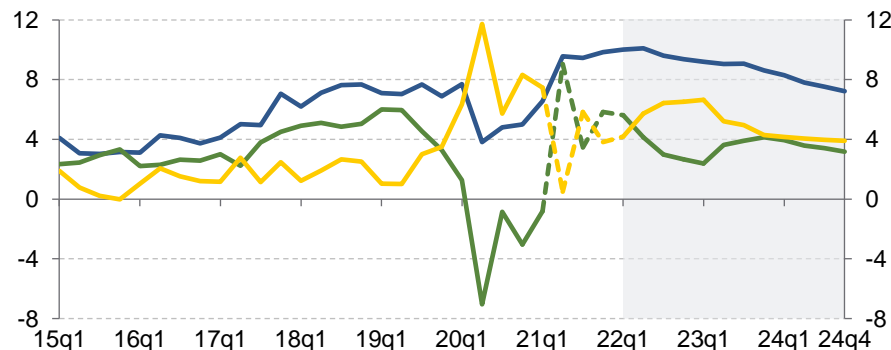
	2022	2023	2024
March projection	30.3	-	-
TA till the end of 2022	43.7	-	-

In 2024, inflation will decline as a result of a slowdown in domestic economic activity, lower growth of energy and food prices in global markets and weaker inflation abroad.

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

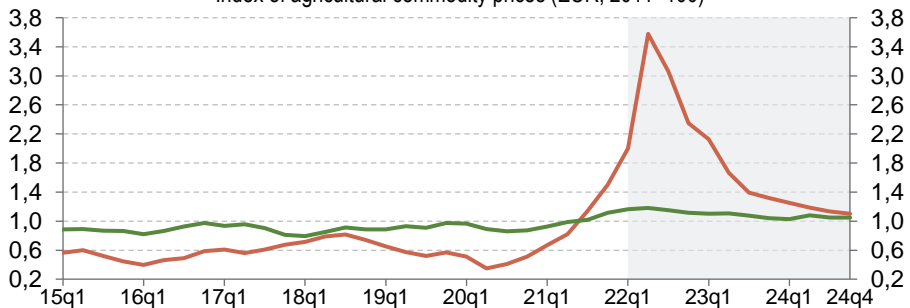


■ Nominal wages (y/y, %)
■ Labour productivity (y/y, %)
■ ULC (y/y, %)

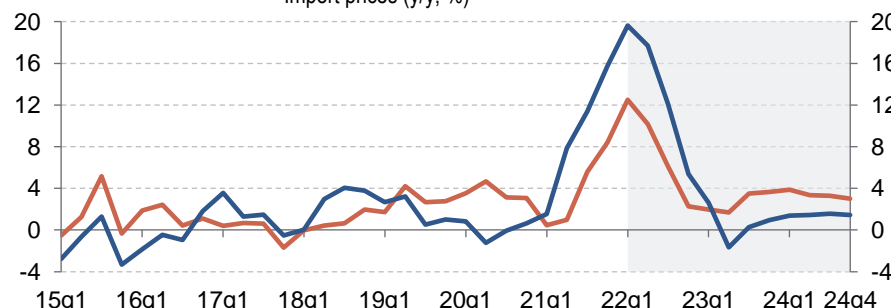


Note: Due to changes in methodology, LFS data till 2020 is not fully comparable to 2021 data.

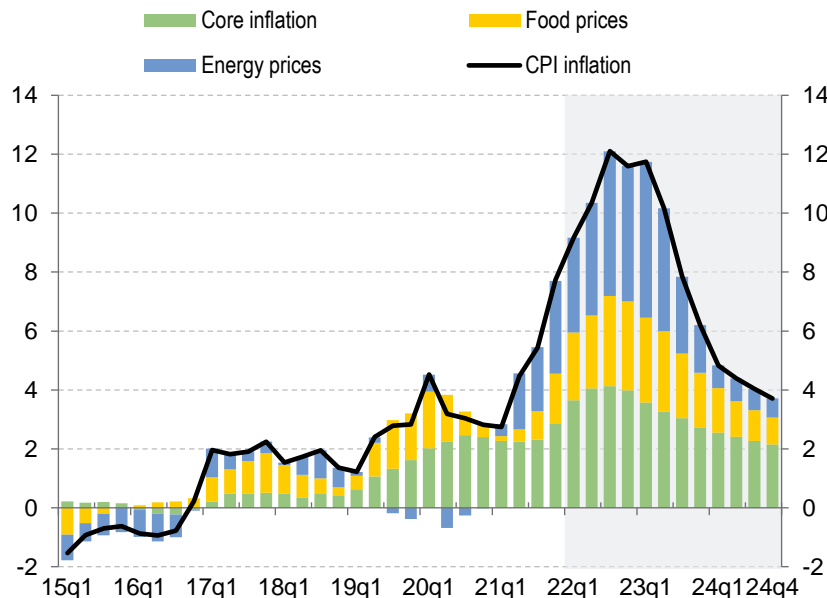
■ Index of energy commodity prices (USD, 2011=100)
■ Index of agricultural commodity prices (EUR, 2011=100)



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



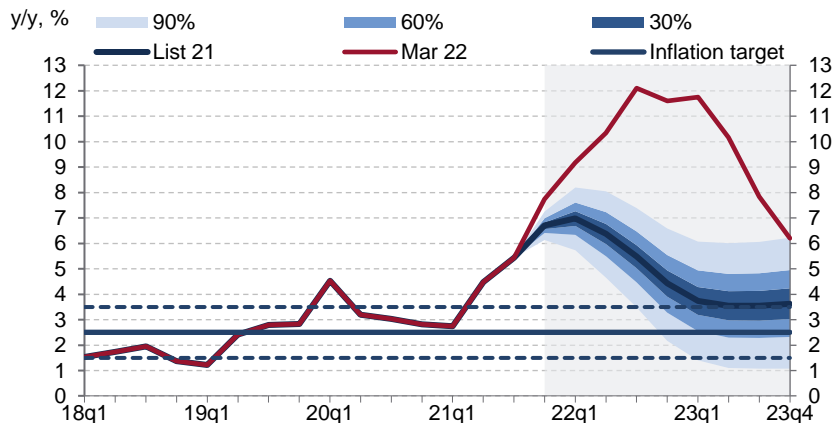
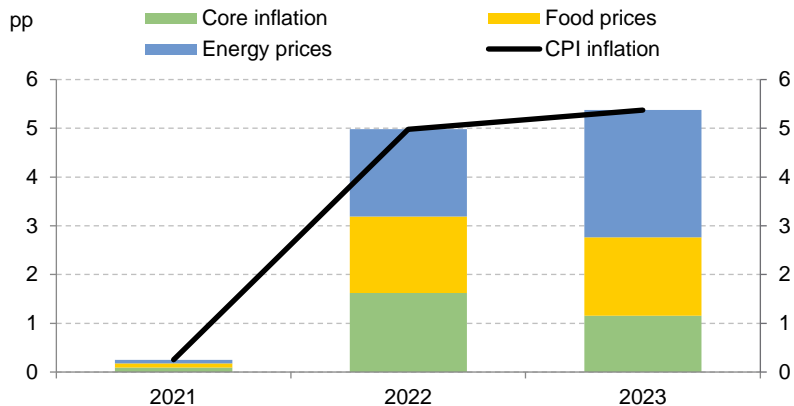
Under the assumption of unchanged interest rates, CPI inflation at the end of the projection horizon will run slightly below 4%.



y/y, %	2021	2022	2023	2024
CPI inflation	5.1	10.8	9.0	4.2

- ↑ Soaring increase in global energy commodities' prices and CO₂ emission allowances prices, with some delay, bears a significant impact on the growth of regulated energy prices for households in 2022-2023
- ↓ Gradual decrease in energy commodities' prices dynamics in 2023-2024 (direct impact on fuel prices, delayed impact on tariffs for households)
- ↑ Higher costs of food production and limited supply of some agricultural commodities and products
- ↓ ↑ Temporary effect of Anti-Inflation Shield on energy and food prices in 2022 – followed by base effect in 2023
- ↑ Supply constrains in some sectors due to the disruptions in global supply chains and higher production costs
- ↑ ↓ Realisation of pent-up demand in services' sectors in which restrictions had been imposed previously. Impact expiring in 2023
- ↑ High growth of import prices
- ↓ Weakening inflation abroad
- ↓ Gradually declining dynamics of labour costs

March CPI projection compared to the November projection



- ↑ Higher than expected increase in gas, electricity and heat bills for households in 2022 (stronger impact of the increase in energy commodity prices and a higher increase in CO₂ emission allowances after the closing of the previous projection round)
- ↑ Higher expected energy commodity prices over the projection horizon translating into domestic fuel prices and (with a delay related to the tariffication process) into regulated energy prices for households
- ↑ Stronger increase in the prices of agricultural products in the world markets
- ↓ ↑ Anti-Inflation Shield that lowers inflation in the coming months and leads to the base effect in 2023
- ↑ Higher operating costs for enterprises, including both energy and labour costs
- ↑ Sanctions imposed on Russia, resulting in a severe reduction in the supply of some agricultural and industrial goods
- ↓ Slower growth of domestic demand in 2022-2023
- ↑ Increasing inflation persistence and higher inflation expectations

CPI y/y, %	2021	2022	2023
November 2021	4.9	5.8	3.6
March 2022	5.1	10.8	9.0



Outline:

Russia's military aggression
against Ukraine

Projection 2022 – 2024

- Economic conditions
abroad
- Economic perspectives for
Poland
- Inflation

Uncertainty

Uncertainty

- Risks
- Fan charts

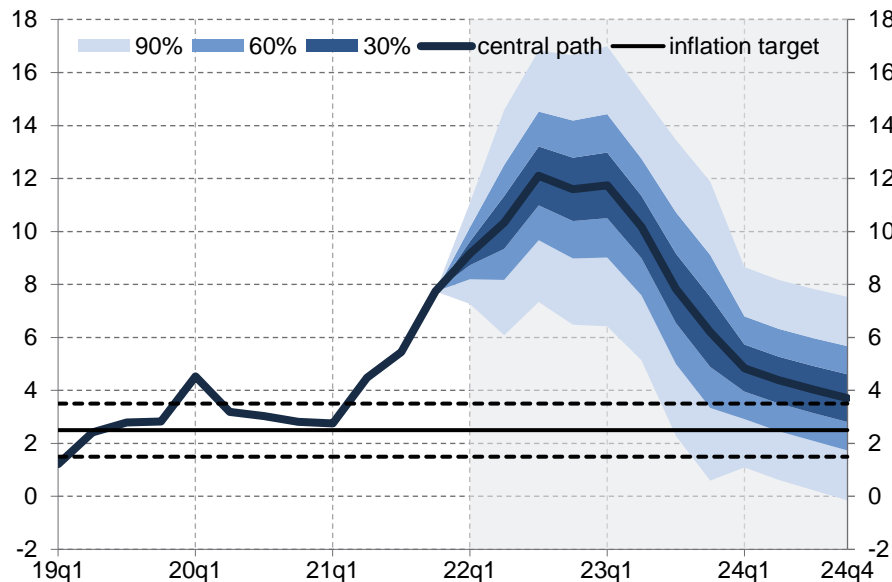
Risks:

- **Russia's military aggression against Ukraine - the further course and its consequences on the scope of sanctions imposed on Russia and on international trade**
- **Exacerbation of disturbances in the global economy caused by the pandemic**
- **Prices of energy, agricultural and industrial raw materials in the global markets**
- **EU climate policy** (prices of CO₂ emission allowances, *Fit for 55* package)
- **Next Generation EU funds absorption rate**
- **Extension of the Anti-Inflation Shield**

↓ Higher probability of **economic activity running below the central projection path**. The most important sources of risk for economic activity are **disturbances in the functioning of the global economy triggered by Russia's military aggression against Ukraine and the pandemic**.

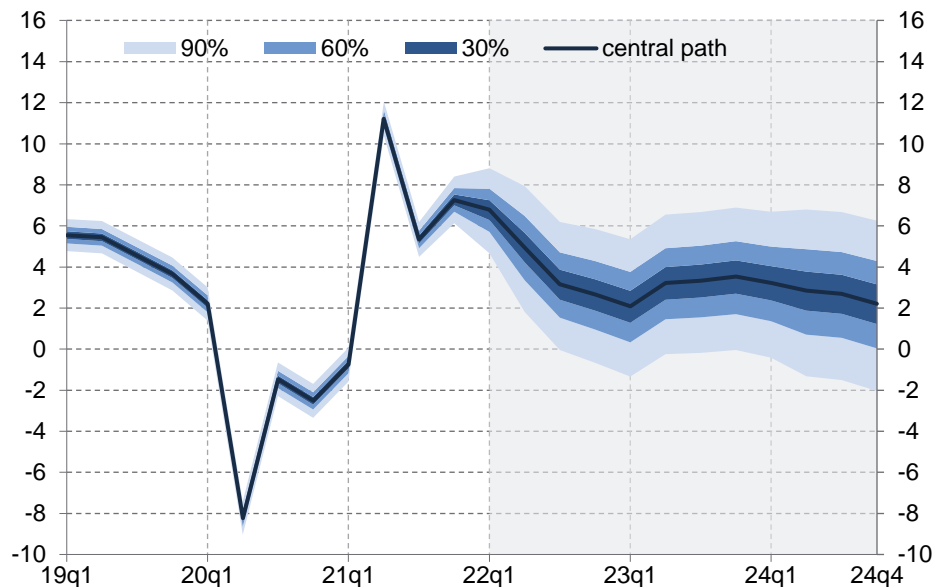
↔ **Distribution of risks for inflation close to symmetrical** - uncertainty related to the **future path of energy, agricultural and industrial commodity prices** in the global markets.

Inflation CPI 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%	50%	0%
2023	1%	1%	3%	50%	2%
2024	10%	20%	36%	50%	27%

GDP y/y, %



CPI y/y, %	central path	50% probability interval
2022	10.8	9.3 - 12.2
2023	9.0	7.0 - 11.0
2024	4.2	2.8 - 5.7

GDP y/y, %	central path	50% probability interval
2022	4.4	3.4 - 5.3
2023	3.0	1.9 - 4.1
2024	2.7	1.4 - 4.0



**NARODOWY
BANK POLSKI**