



NARODOWY  
BANK POLSKI

Economic Analysis and Research Department

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

Warsaw / 10th March 2023





Outline:

Projection 2023 – 2025

- Economic conditions abroad
- Economic perspectives for Poland
- Inflation

Uncertainty

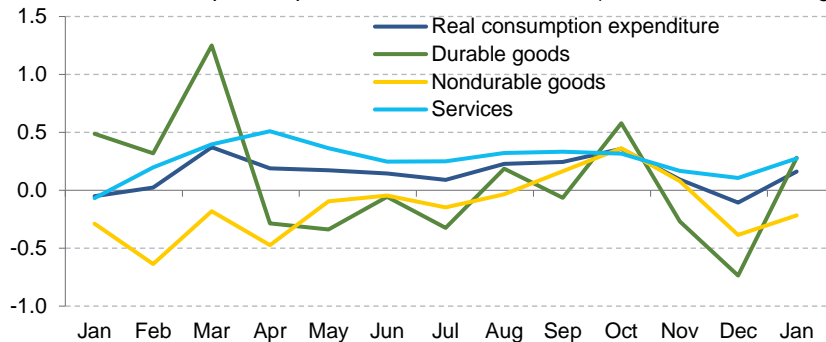
## Projection 2023-2025

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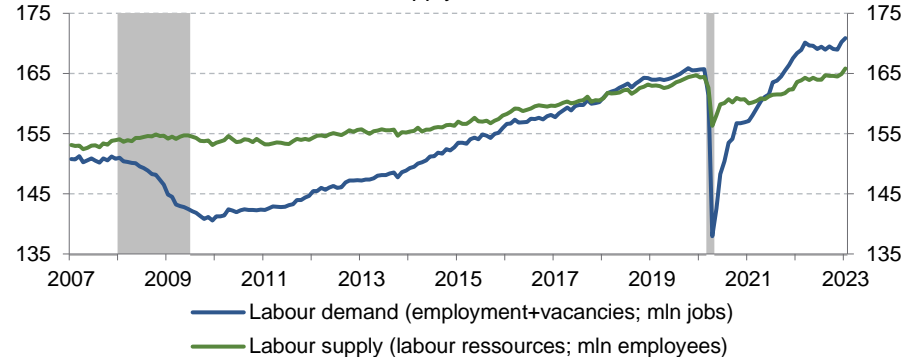
### Economic conditions abroad

## United States: projected path of real GDP has been revised upwards due to better-than-expected data in late 2022 and early 2023.

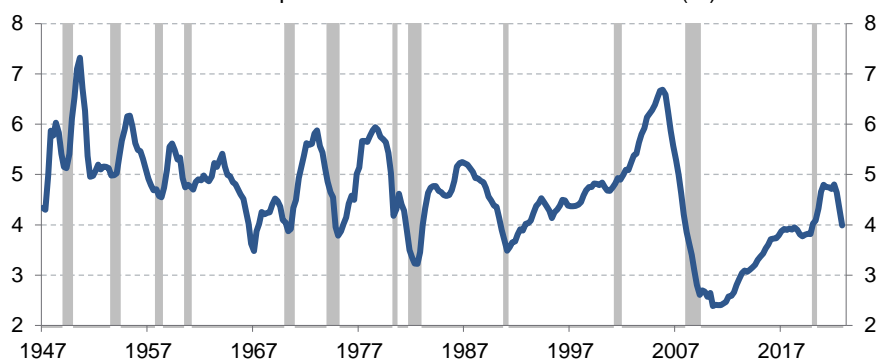
Real consumption expenditure in 2022 and 2023 (m/m, 3-month average)



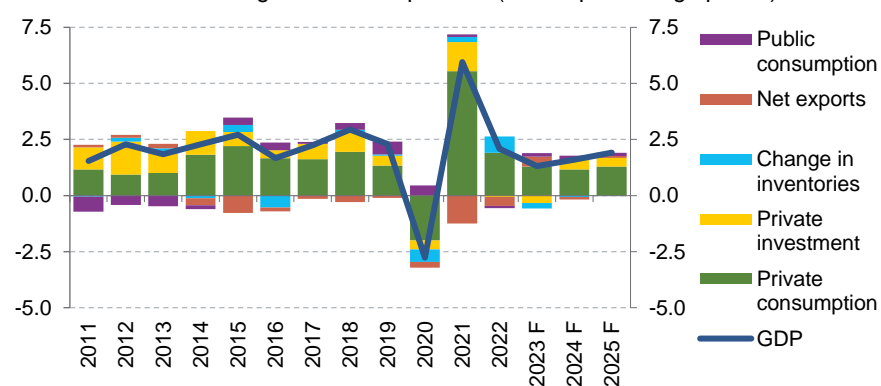
Demand and supply in the labour market



Share of private residential investment in GDP (%)



Real GDP growth decomposition (% and percentage points)

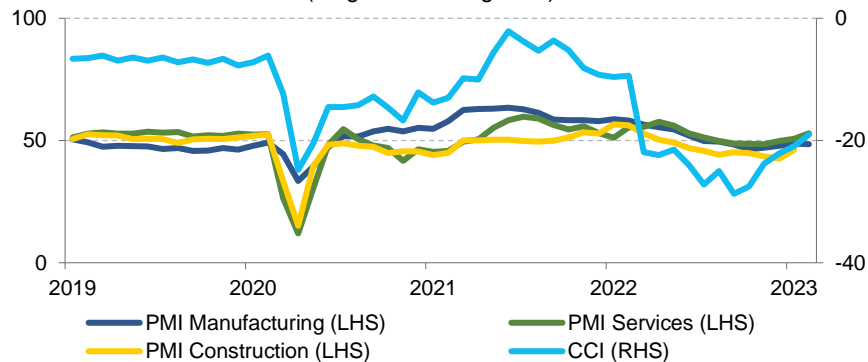


Note: shaded area indicates recession according to NBER.

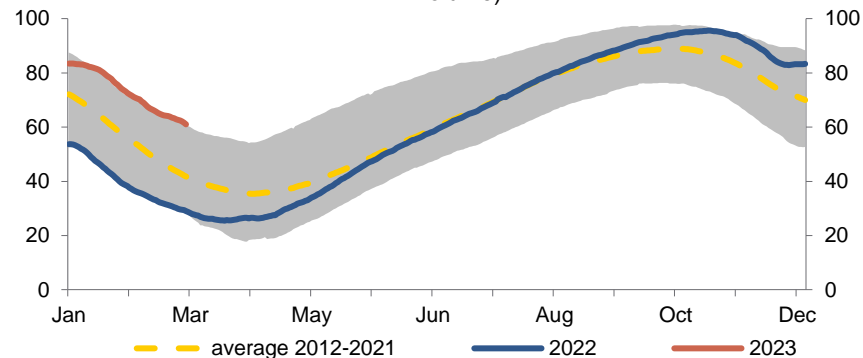
Source: BEA, BLS, NBER, NBP.

## Euro area: weaker-than-expected impact of the energy crisis on activity in 2022 H2 contributed to an improved assessment of the economic outlook for 2023

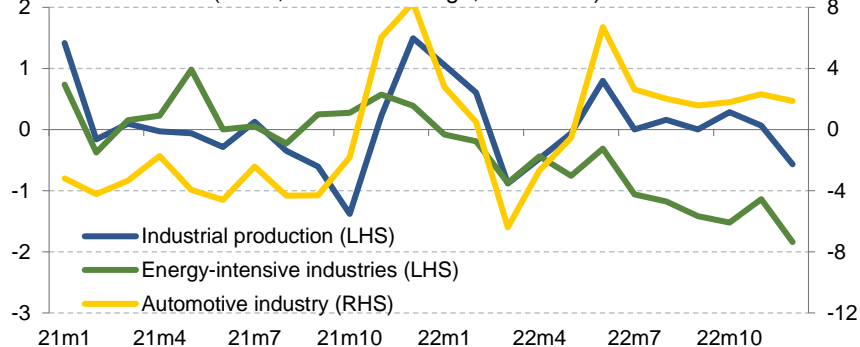
Consumer confidence index (CCI) and business confidence indicators (PMI)  
(long term average = 0)



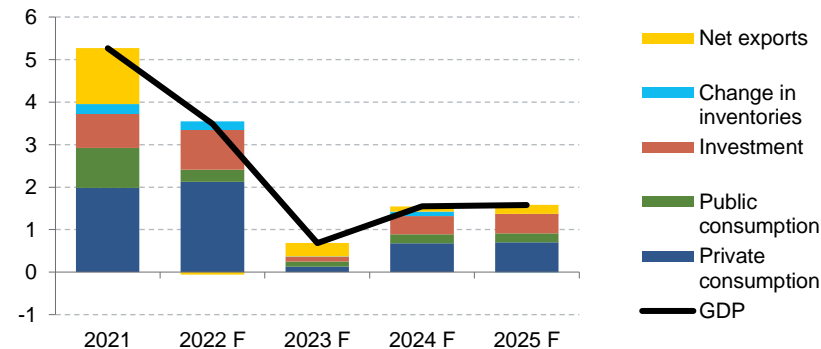
Filling level of gas storage facilities in the EU (% of total volume)



Production in selected industries  
(index, 3-month average, 2018=100)



Real GDP growth decomposition (% and percentage points)



Source: AGSI, GIE, Eurostat, EC, NBP.

## Global economic situation: a milder-than-expected economic slowdown in the major developed economies in 2023.

GDP growth in the main economies – NBP forecast (%)

	2022	2023	2024	2025
Euro Area	3.5 (3.2)	0.7 (0.1)	1.5 (1.7)	1.6 (1.7)
Germany	1.9 (1.6)	0.2 (-0.3)	1.6 (2.1)	1.6 (1.9)
UK	4.0 (4.3)	-0.2 (-0.4)	1.0 (1.2)	1.4 (1.5)
USA	2.1 (1.8)	1.3 (0.5)	1.6 (1.9)	1.9 (1.9)
China	3.0 (2.9)	5.2 (4.5)	5.0 (4.6)	4.8 (4.2)

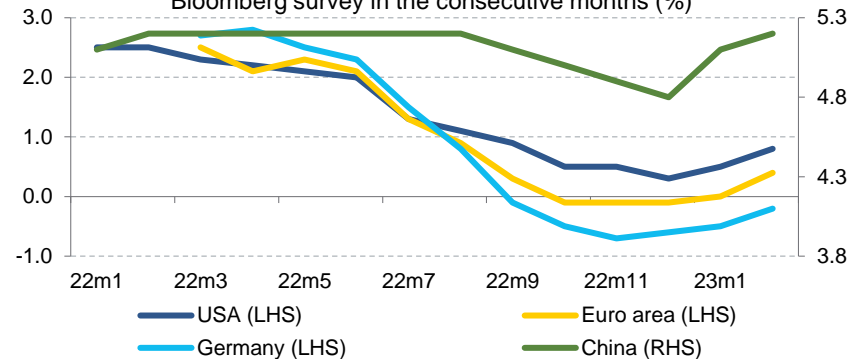
Values from the November projection are given in brackets. Indicators with values higher than in the November projection are marked **green**, and indicators with lower values are marked **red**.

Freight on stationary ships as a fraction of goods shipped at sea (%)



Source: Bloomberg, EconDB, NBP, NY Fed, S&P Global, IfW Kiel.

Median GDP growth forecast for selected economies in 2023 - the Bloomberg survey in the consecutive months (%)

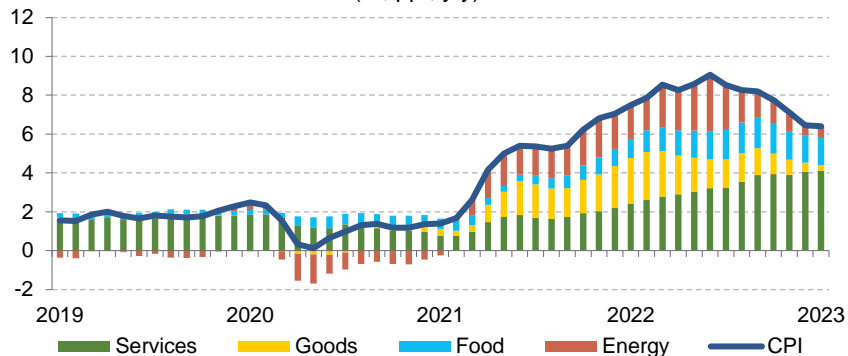


### Impact of abandoning the "zero COVID" policy on global economic indicators in January 2023

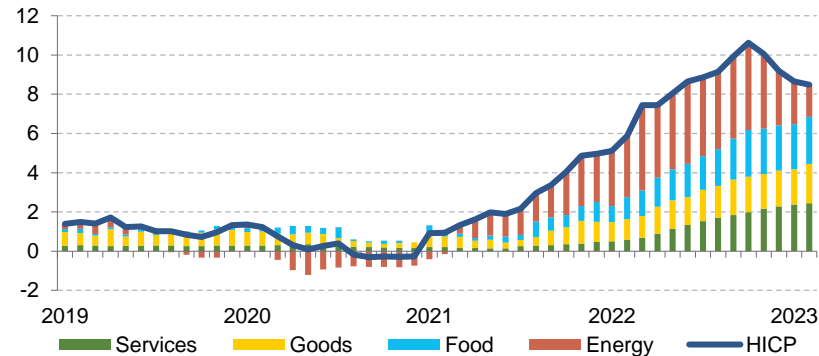
- + decline in the NY Fed's index of tensions in global supply chains
- + increase in the PMI for the global production of consumer goods
- + increase in exports from the major Chinese ports
- (transitory) staff shortages at Chinese export factories
- + Improved expectations for the global manufacturing sector according to PMI

## Global inflation: a process of gradual disinflation has begun.

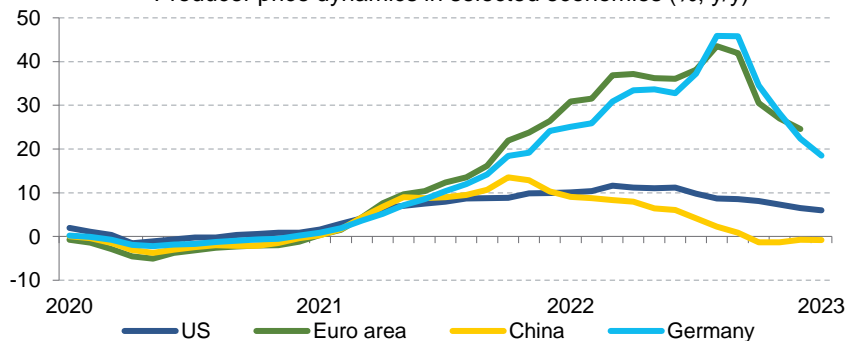
Decomposition of the CPI inflation in the USA  
(%, pp., y/y)



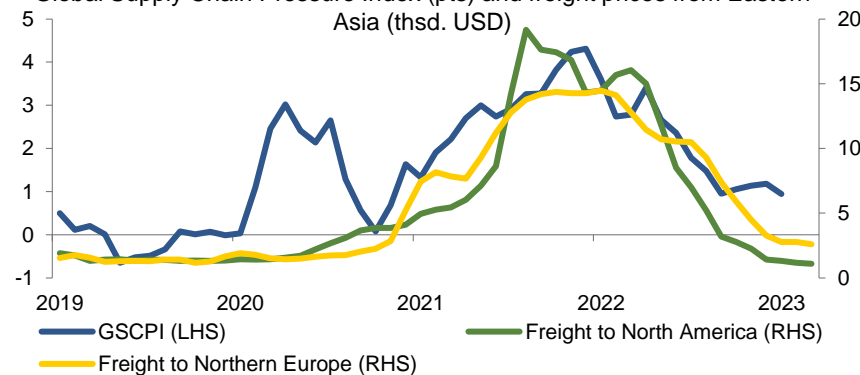
Decomposition of the HICP inflation in the euro area  
(%, pp., y/y)



Producer price dynamics in selected economies (%, y/y)



Global Supply Chain Pressure Index (pts) and freight prices from Eastern Asia (thsd. USD)





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## Projection 2023-2025

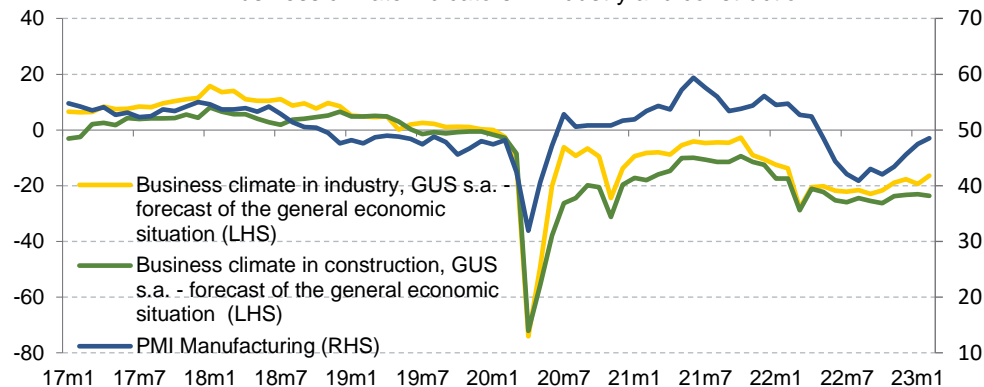
### Economic perspectives for Poland

## Continued slowdown in y/y GDP growth in Q4 2022

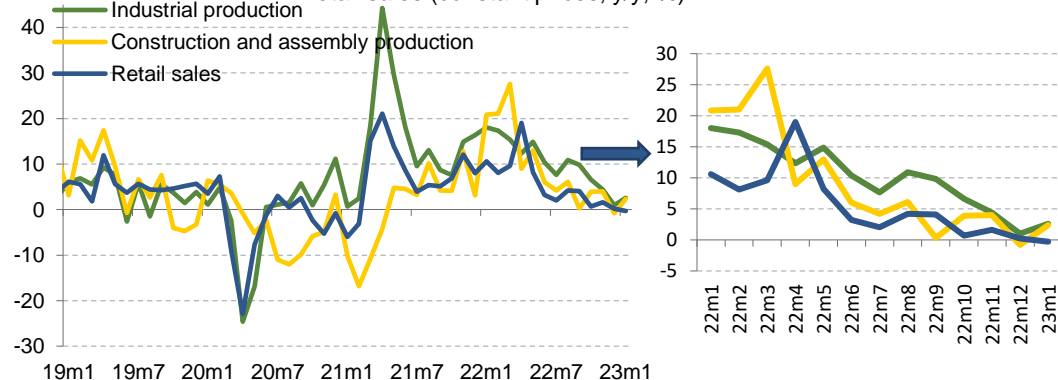
	22q3		22q4	
GDP (y/y, %)	3.6	(3.0)	2.0	(1.5)
Domestic demand (y/y, %)	3.1	(1.8)	1.1	(-0.6)
Household consumption (y/y, %)	0.9	(2.1)	-1.5	(2.2)
Public consumption (y/y, %)	0.1	(1.0)	-1.6	(0.1)
Gross fixed capital form. (y/y, %)	2.0	(4.4)	4.9	(0.1)
Change in inventories contrib. (y/y, pp.)	2.2	(-0.4)	1.1	(-1.8)
Net exports contribution (y/y, pp.)	0.6	(1.3)	0.9	(2.1)
Exports (y/y, %)	6.9	(4.0)	2.0	(2.1)
Imports (y/y, %)	6.0	(1.9)	0.2	(-1.5)

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**.

Business climate indicators in industry and construction



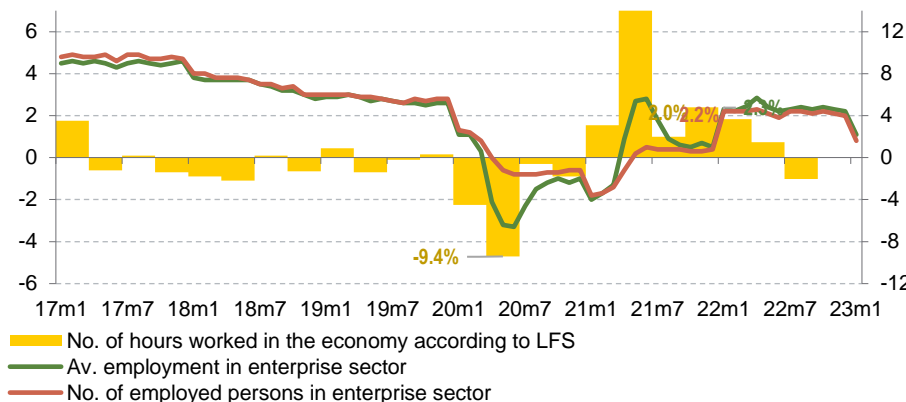
Growth rates of industrial production, construction and assembly production and retail sales (constant prices, y/y, %)



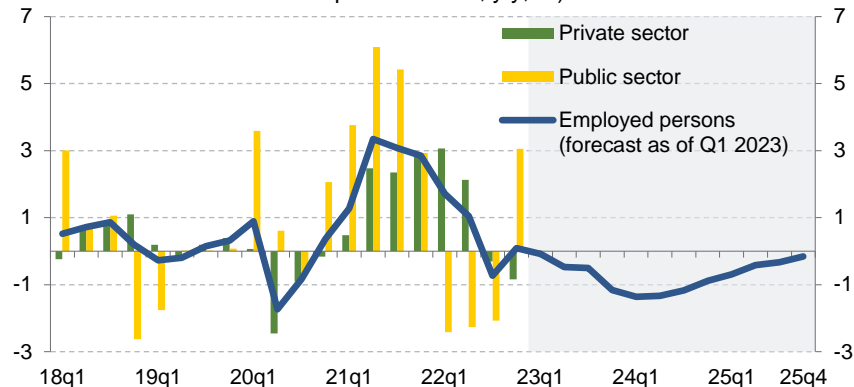


## Labour market situation remains good, with a relative stabilisation of employment levels.

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



Employed persons according to LFS (by Q4 2022 broken down into public and private sector, y/y, %)



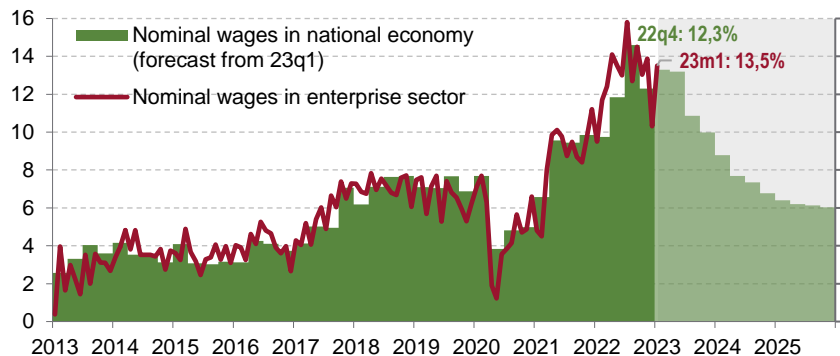
Index of expected changes in employment over the next 3 months (GUS business tendency survey) and in the next quarter (NBP Quick Monitoring Survey)



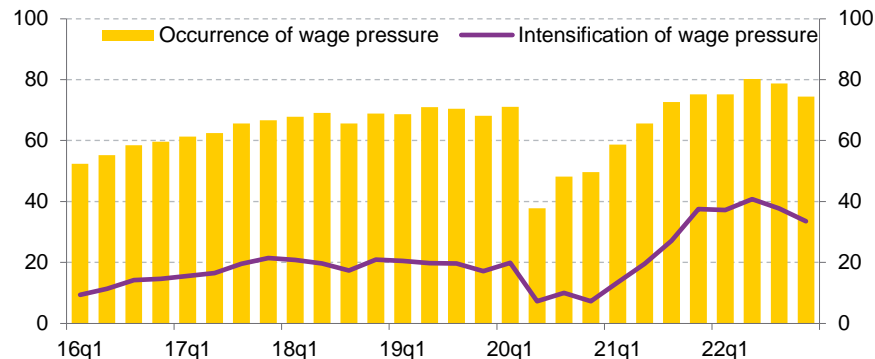
\* Seasonally adjusted data. The index represents the difference between respective shares (in %) of answers indicating an increase and decrease in expected employment. GUS data aggregated by NBP.

## Nominal wage growth will remain elevated over the projection horizon.

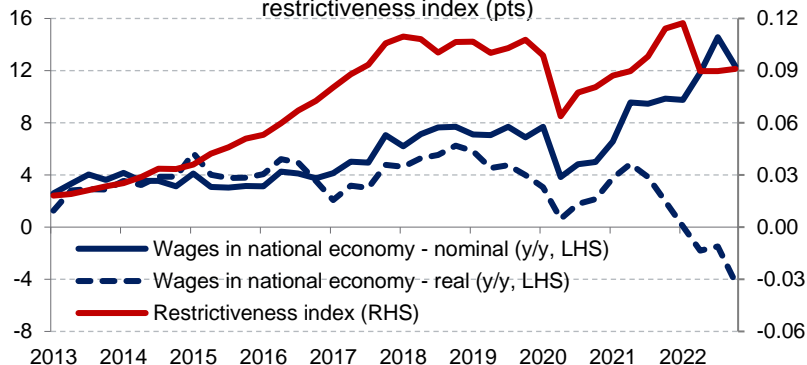
Nominal wage growth rate (% , y/y, last observation from the national economy: Q4 2022, from enterprise sector: M1 2023)



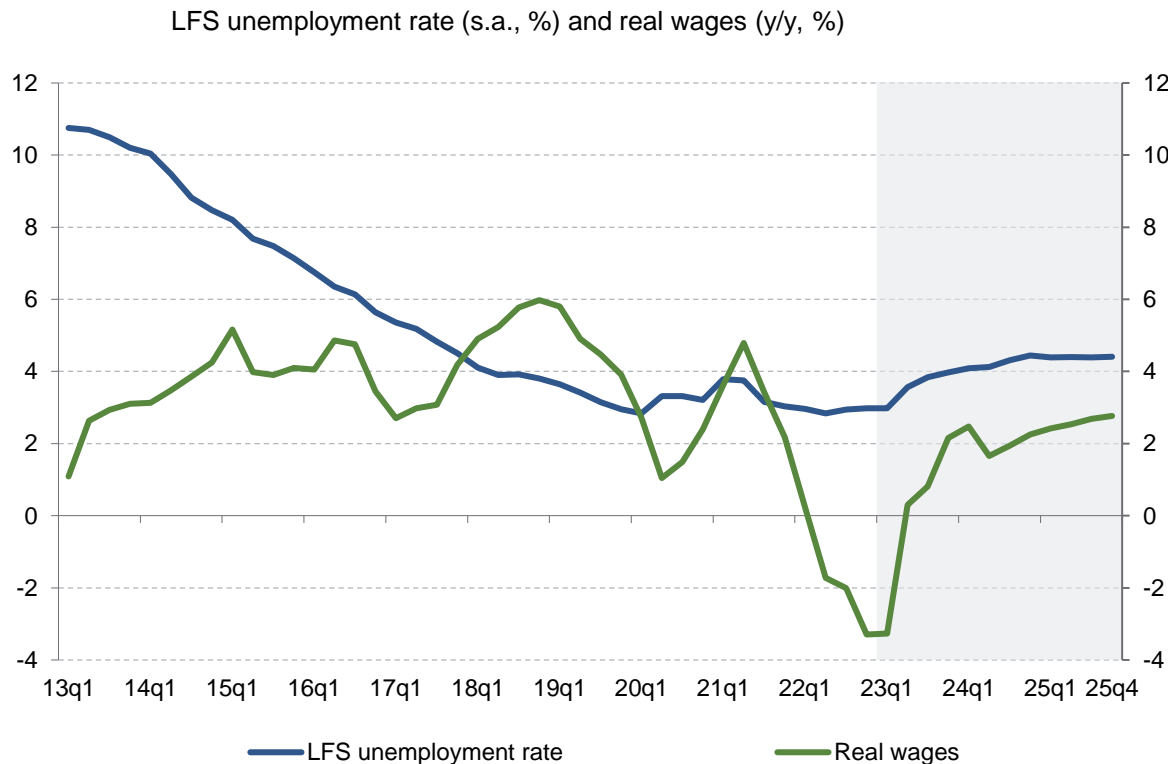
Occurrence of wage pressures (% of enterprises)



Wages in national economy (% , y/y) against the labour market restrictiveness index (pts)

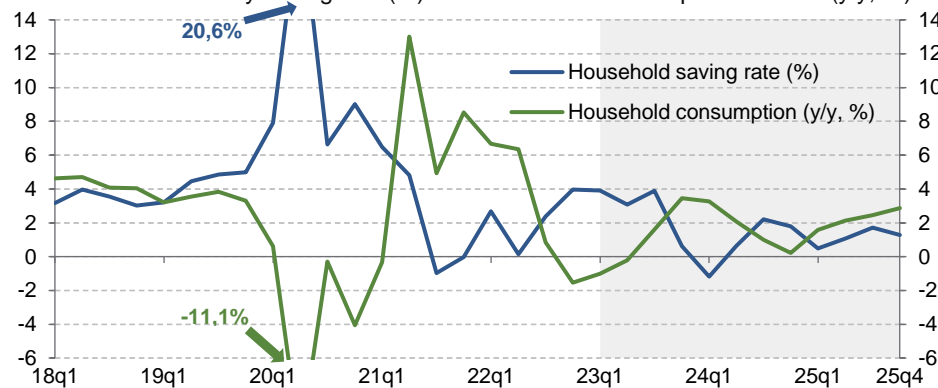


**Gradual adjustment of labour costs to slower economic growth primarily through the wage channel.  
Moderate increase in unemployment over the projection horizon.**

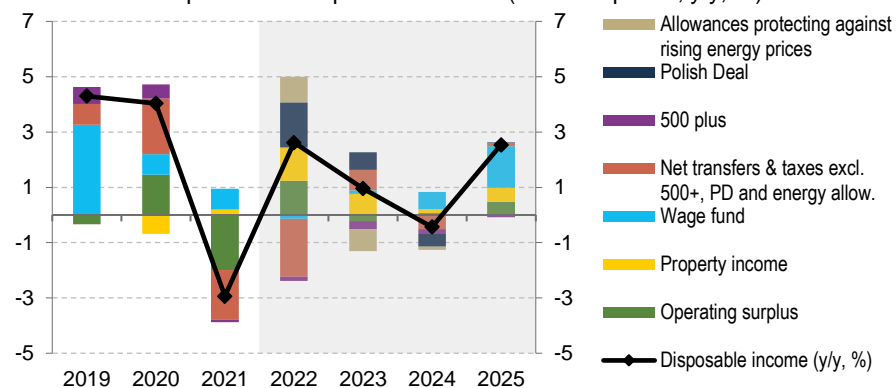


## Household consumption growth depressed over the projection horizon.

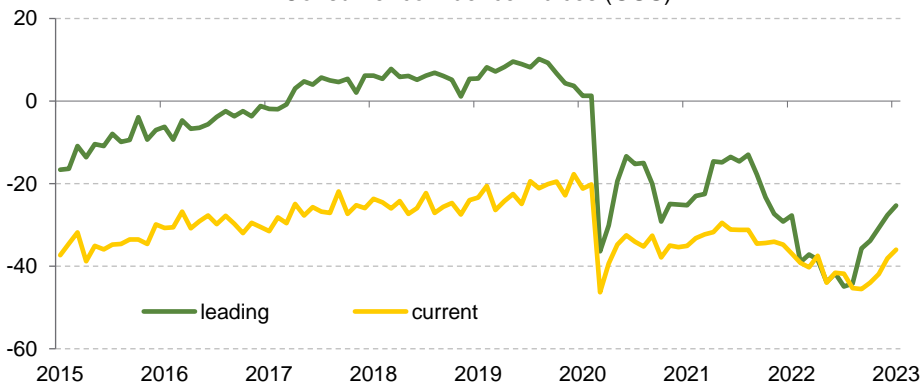
Household voluntary saving rate (%) and household consumption forecast (y/y, %)



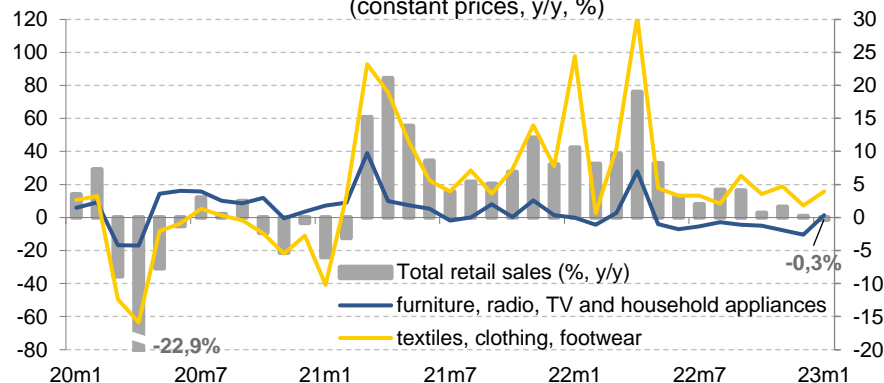
Decomposition of disposable income (constant prices, y/y, %)



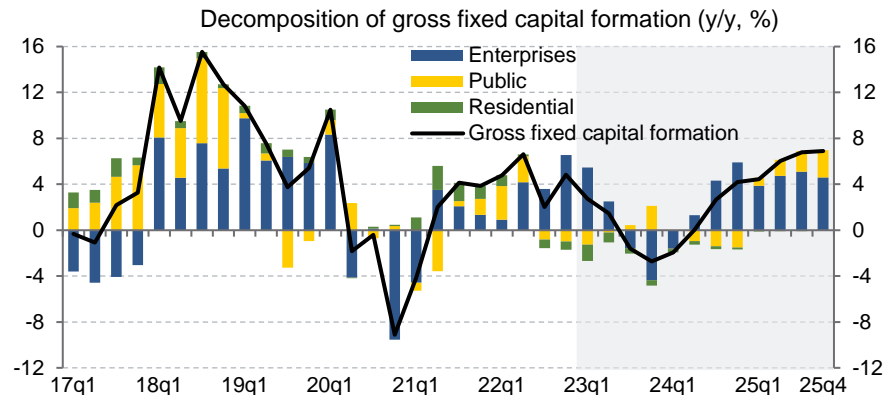
Consumer confidence indices (GUS)



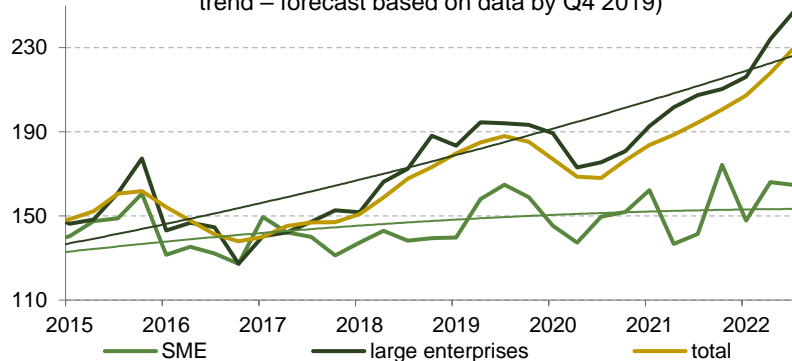
Retail sales of selected categories of goods against total retail sales (constant prices, y/y, %)



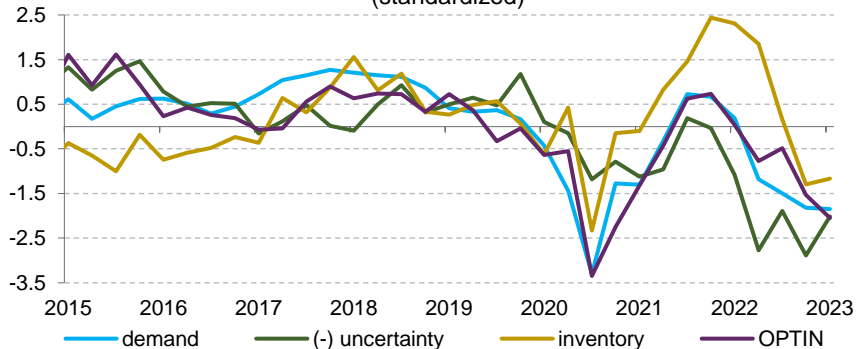
## Higher-than-expected growth in gross fixed capital formation in Q4 2022 mainly due to strong growth in investments by (large) companies. However, the short-term outlook continues to deteriorate.



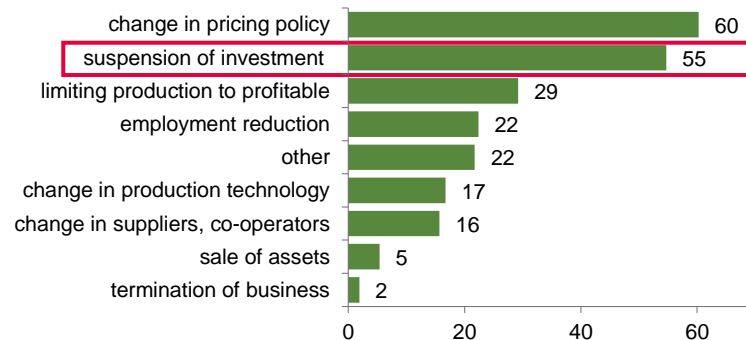
Investment dynamics by employment size (2010 = 100%, s.a., current prices, trend – forecast based on data by Q4 2019)



OPTIN vs demand forecast index, inventory and uncertainty assessment (standardized)

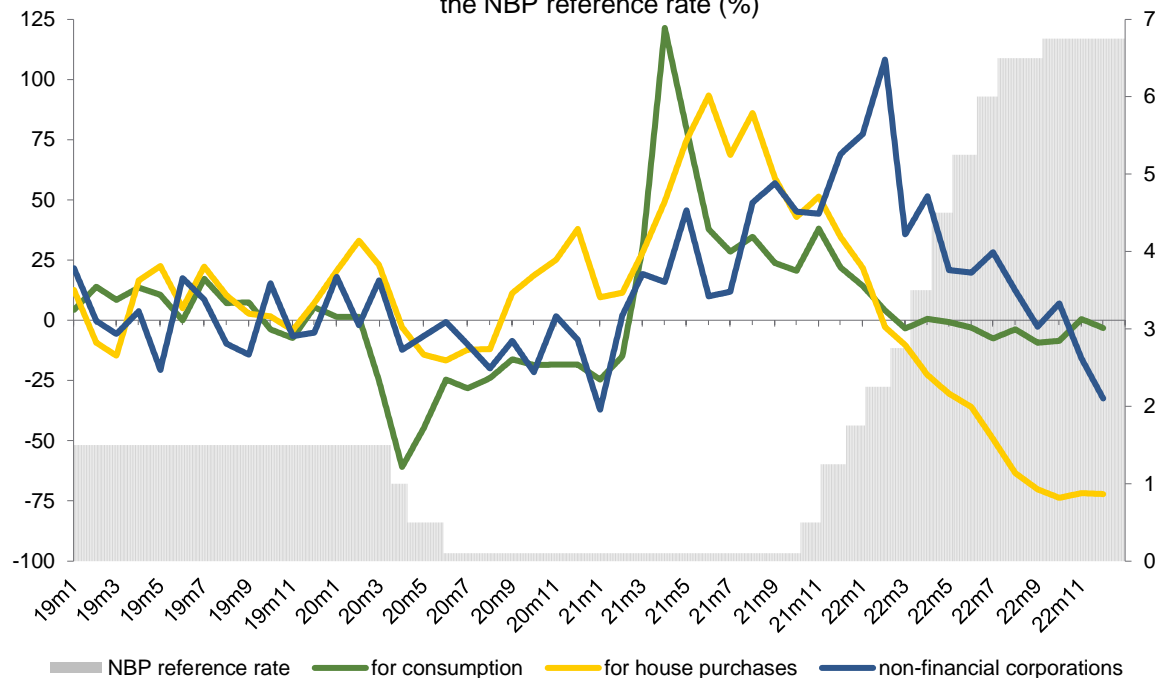


Company response to persistently high prices, uncertainty and potential economic slowdown in 2023 (% of companies)



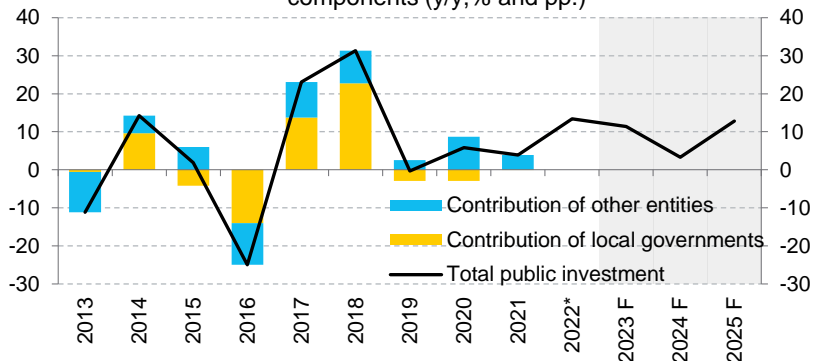
## Interest rate hikes have led to the decrease in the value of new loans for households and non-financial corporations.

Value of new PLN loans for households and non-financial corporations (current prices, %, y/y) against the NBP reference rate (%)

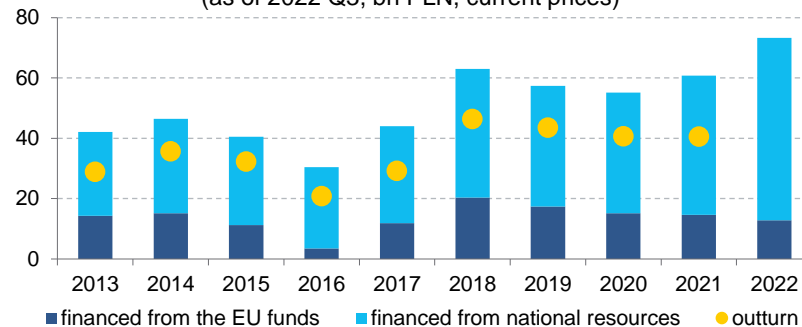


## Noticeable slowdown of public investment growth in 2024 results from the turn of EU perspectives. RRF funds, which are not included in the traditional cohesion policy, will attenuate the scale of this decline.

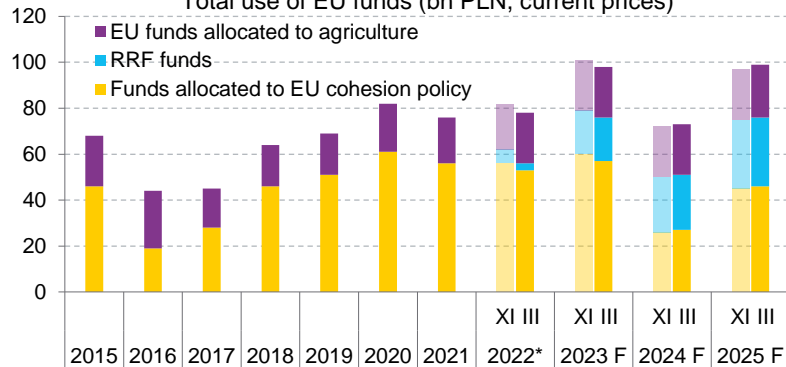
Nominal growth rate of public investment and contribution of its main components (y/y,% and pp.)



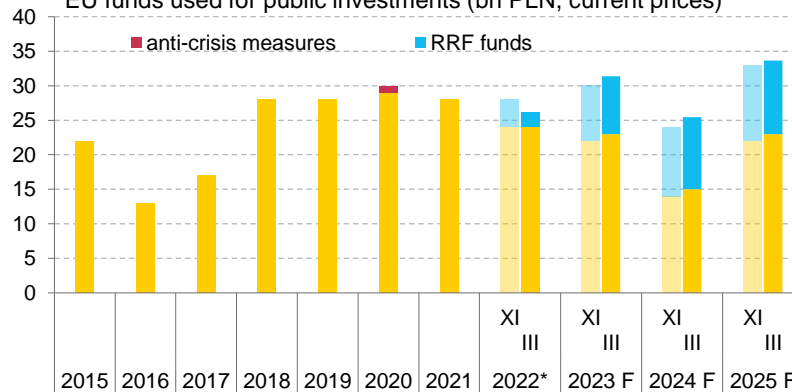
Planned local governments investment spending (as of 2022 Q3, bn PLN, current prices)



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

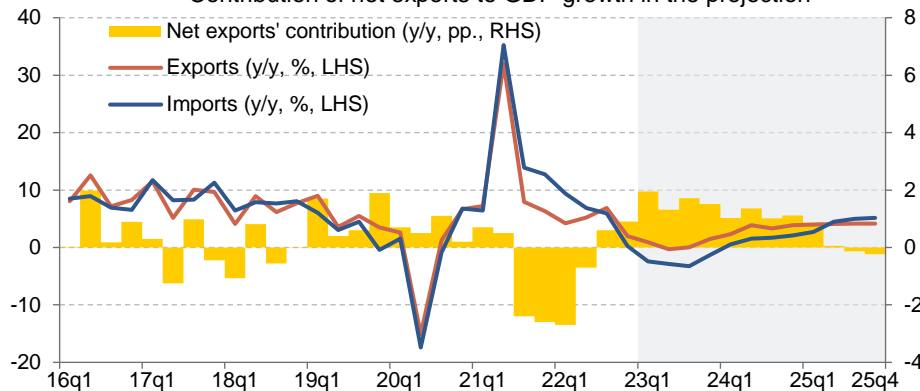


EU funds used for public investments (bn PLN, current prices)

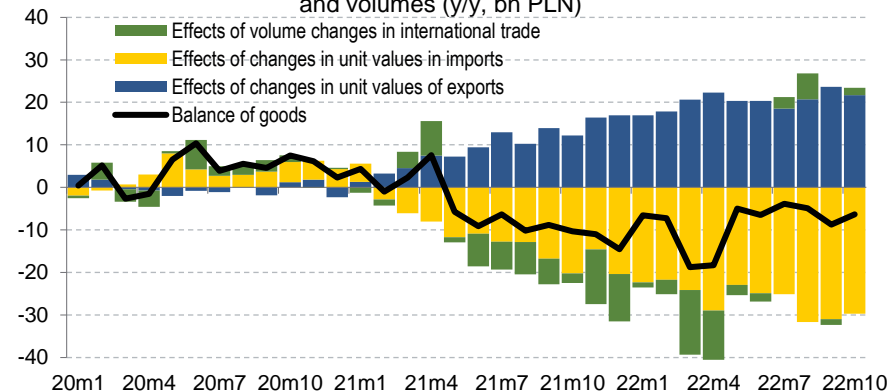


## Slower pace of exports growth in 2023 results from weakening demand from the euro area. However, by H1 2025 net exports contribution to GDP growth will be positive due to stronger cyclical response of imports.

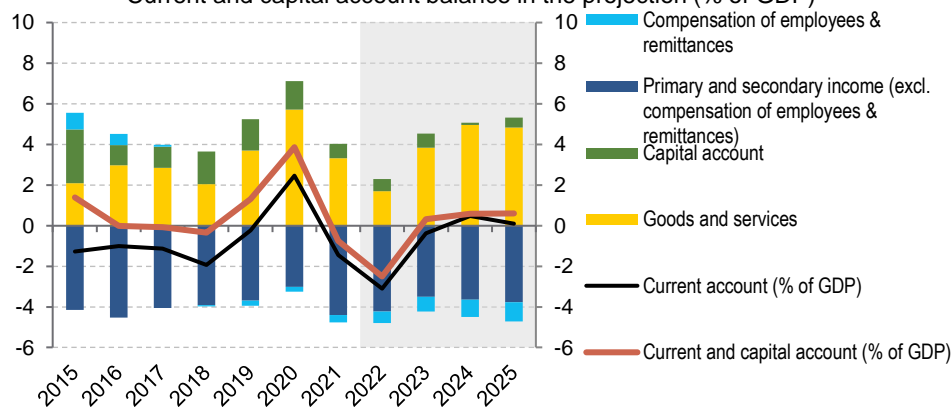
Contribution of net exports to GDP growth in the projection



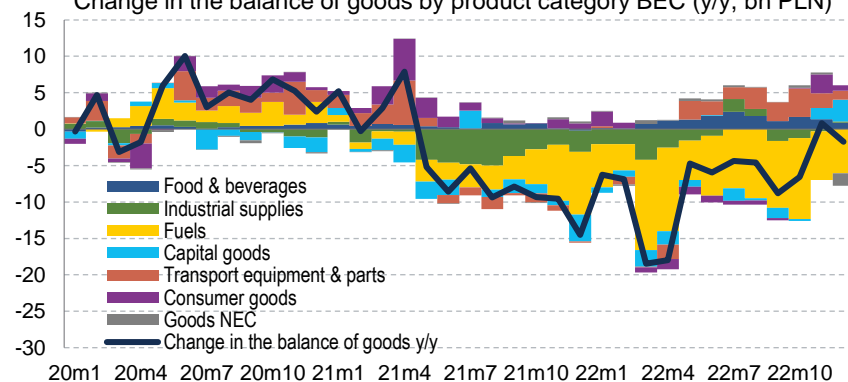
Changes in the balance of goods - the effects of changes in unit values and volumes (y/y, bn PLN)



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



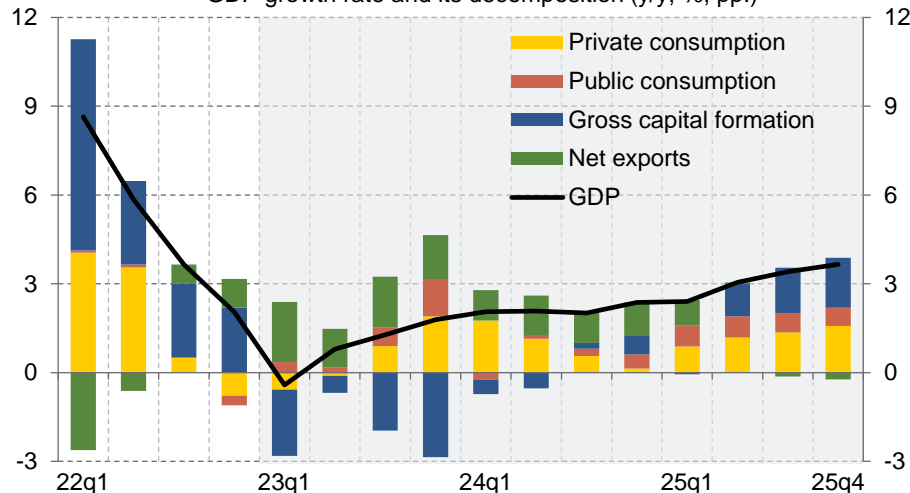
Change in the balance of goods by product category BEC (y/y, bn PLN)



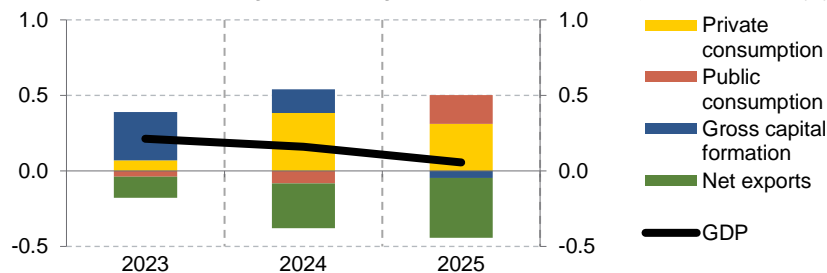


## Decline in GDP growth y/y in Q1 2023. Limited scale of recovery in activity in the projection horizon.

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



Decomposition of changes in GDP growth rate between projection rounds (y/y, pp.)



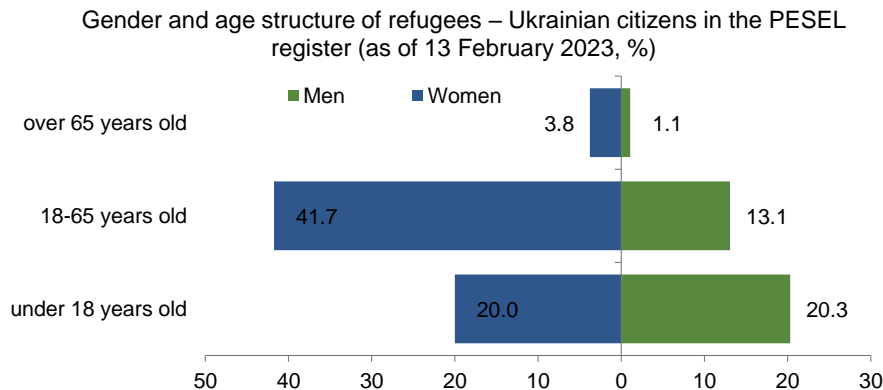
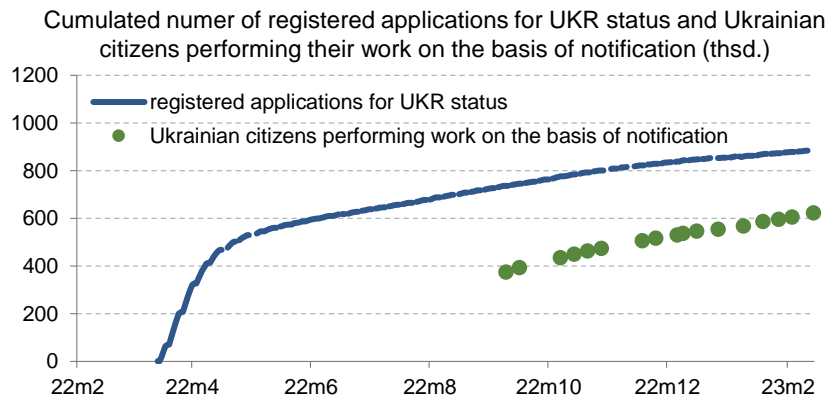
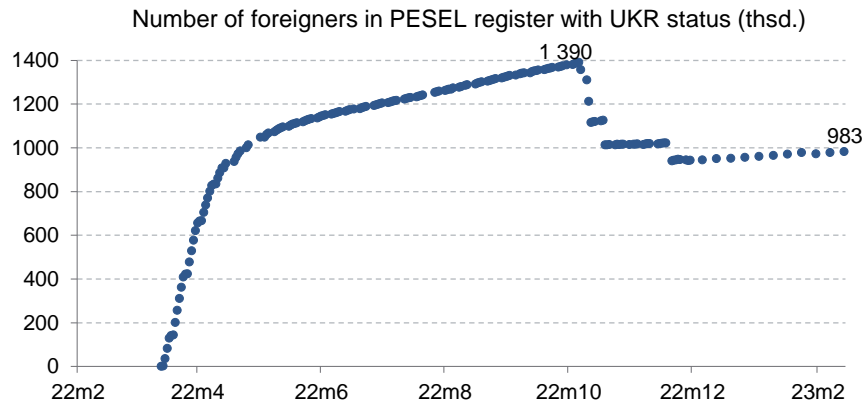
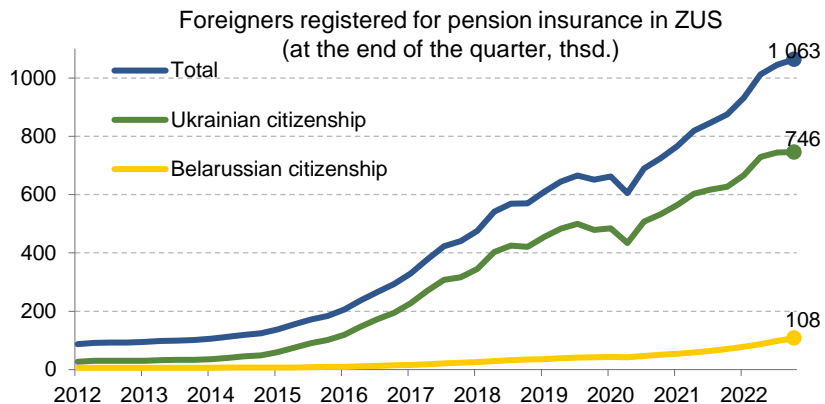
Factors determining domestic activity over the projection horizon:

- ↓ strong **negative supply shocks**, including commodity shock reinforced by the consequences of Russia's aggression against Ukraine
- ↓ significant **economic slowdown abroad**
- ↓ prior **hikes of the NBP interest rates**
- ↑ **Anti-Inflation Shield** in the part concerning reduced VAT rate on food, zero tax on retail sales of fuels, reduction of the VAT rate on selected agricultural items
- ↑ **statutory regulation of tariffs for selected energy carriers**
- ↑ **support for companies** (compensation for energy sellers and distributors related to the price regulation, subsidies for energy-intensive companies)
- ↑ **fading away of the negative effects of supply shocks and economic recovery abroad in 2024-2025**
- ↓ **in 2024 significant decrease in the influx of EU funds** related to the end of spending under the EU 2014-2020 perspective

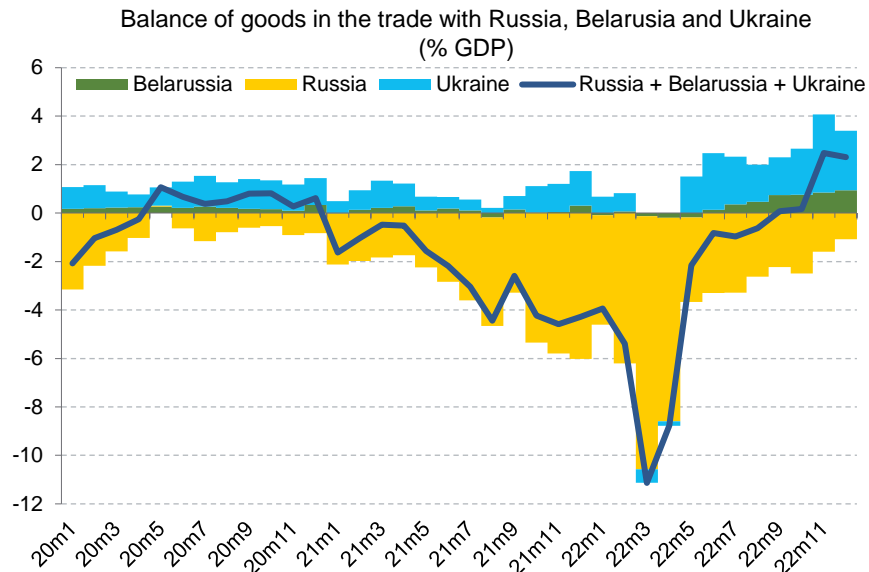
GDP, y/y, %	2021	2022	2023	2024	2025
March 2023	6.8	4.9	0.9	2.1	3.1
November 2022	5.9	4.6	0.7	2.0	3.1

Source: GUS data, NBP calculations.

## Relatively stable number of refugees residing in Poland, despite the prolonged Russia's aggression against Ukraine, characterised by high participation rate.



## Increased importance of Ukraine in Polish exports





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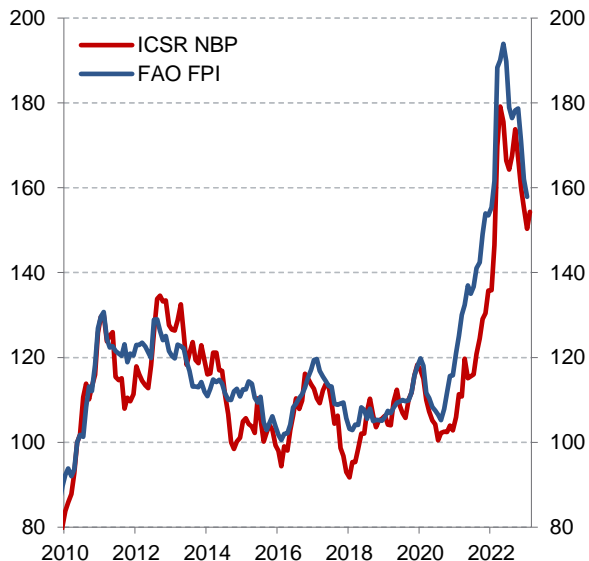
## Projection 2023-2025

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### Inflation

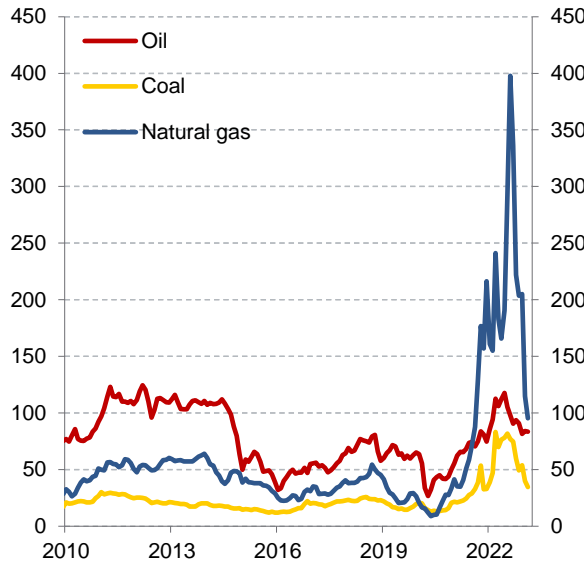
## Commodity prices have significantly declined compared to their record values in 2022.

ICSR NBP and FAO FPI  
(indices May 2010=100, EUR, monthly data)



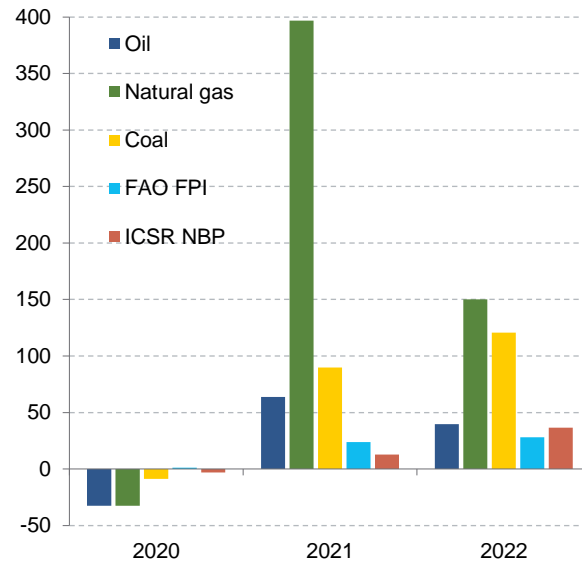
Note: Data for ICSR NBP index until 16 Feb. 2023.  
No data for Feb. 2023 for FAO FPI index.

Prices of oil, natural gas and coal  
(USD/boe, monthly data)



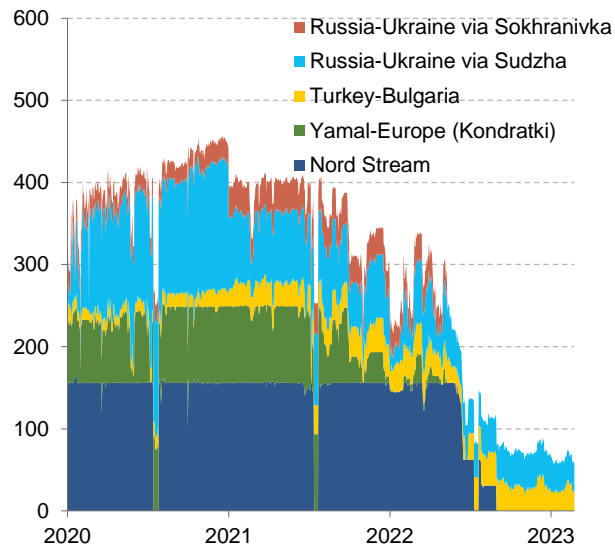
\*Boe: barrel of oil equivalent

Average annual commodity price dynamics  
(%)

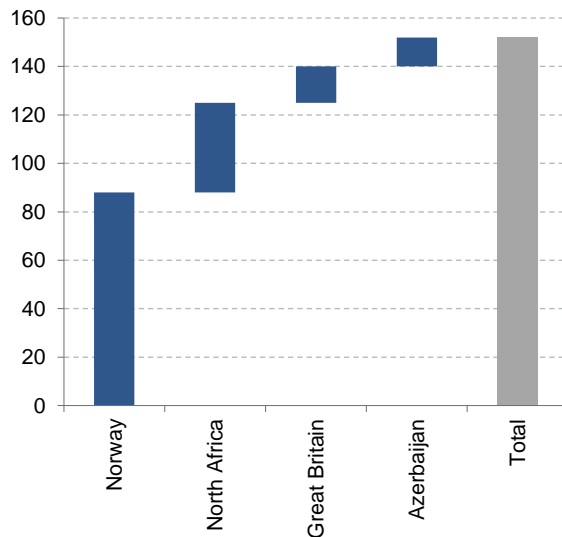


## Very sharp decline in natural gas prices results from a marked improvement in the availability prospects on the European market.

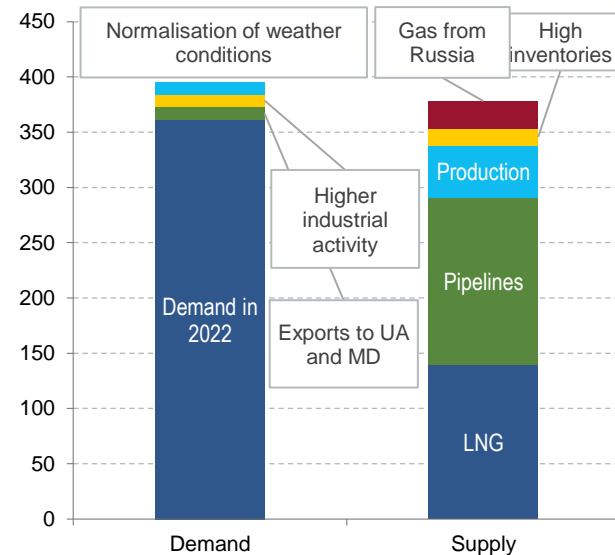
Historical gas supply to EU via pipelines from Russia  
(mIn m<sup>3</sup>, daily data)



Estimated natural gas supply via pipelines from non-Russian directions in 2023 (bn m<sup>3</sup>, annual data)

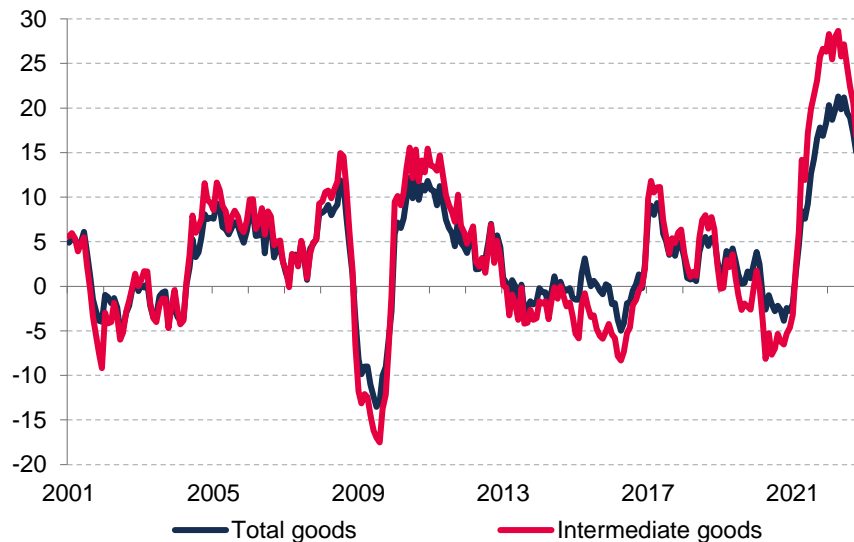


Supply and demand of natural gas in EU in 2023  
(bn m<sup>3</sup>, annual data)

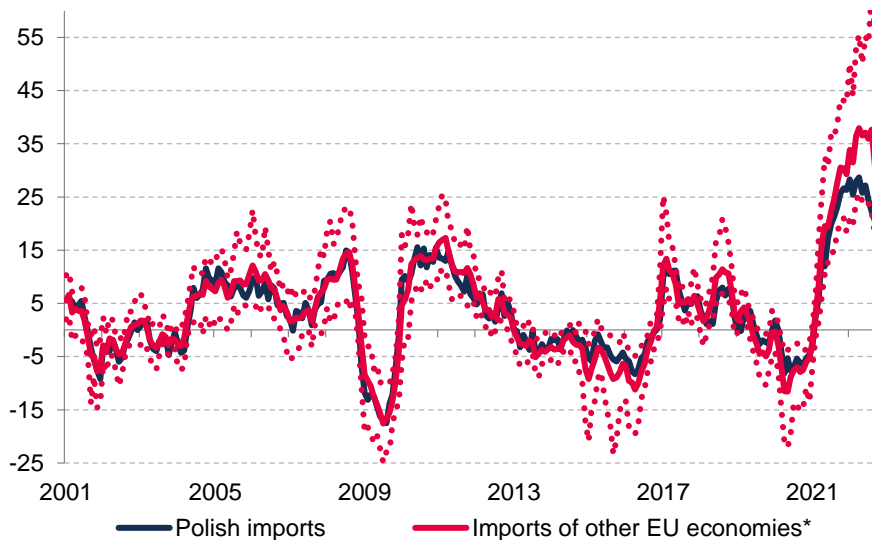


## Price shocks transmitted through imports channel are slowly fading.

Unit values dynamics in Polish imports  
(y/y, EUR)



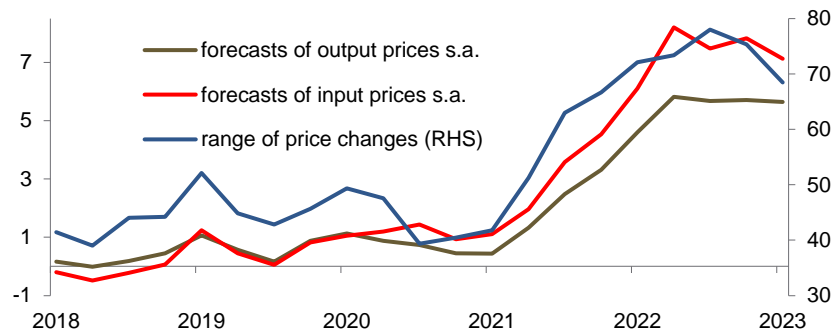
Unit values dynamics in the Polish and EU imports of intermediate goods  
(y/y, EUR)



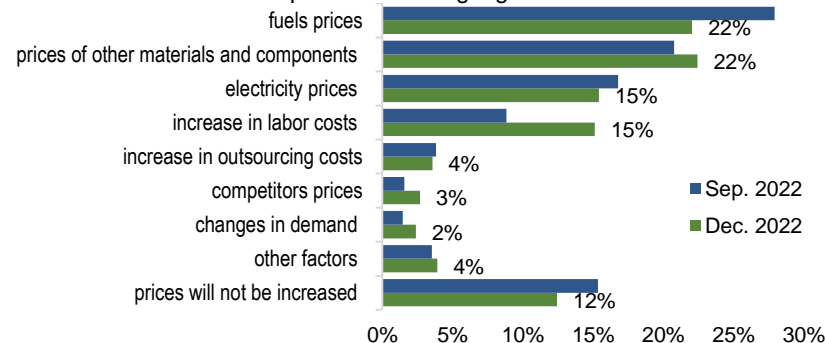
*\*Note: the solid line denotes the average value for the EU27 economies without Poland and the dashed lines denote the minimum/maximum values after removing outliers.*

## Enterprises expect a slowdown in producer and consumer inflation following a slower growth of prices of supply and energy-related goods.

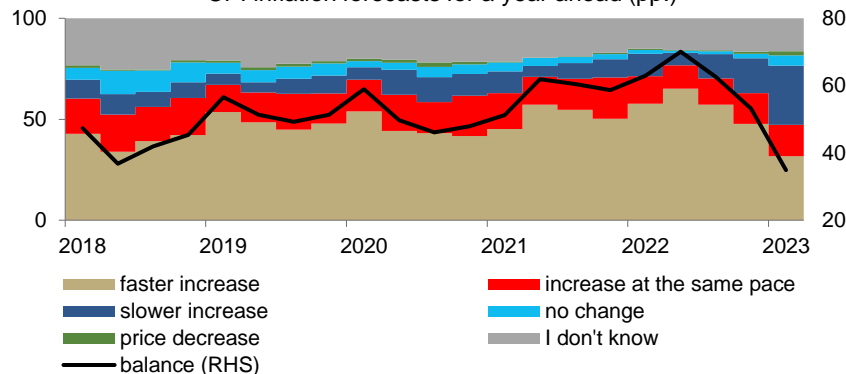
Expectations of changes in own production prices as well as prices of materials and commodities in the next quarter (pp.)



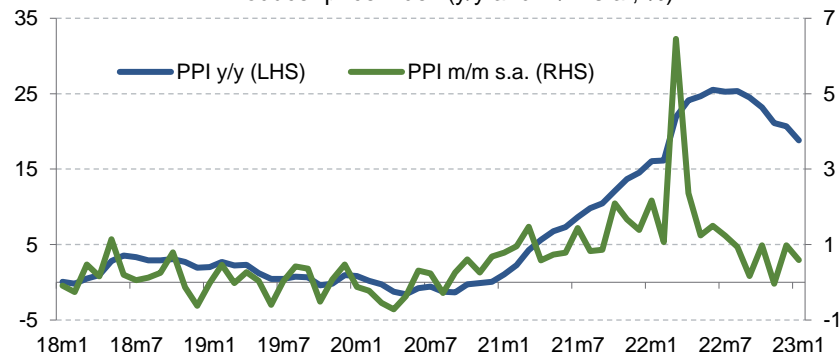
Factors decisive for output price formation – percentage of companies indicating a given factor



CPI inflation forecasts for a year ahead (pp.)



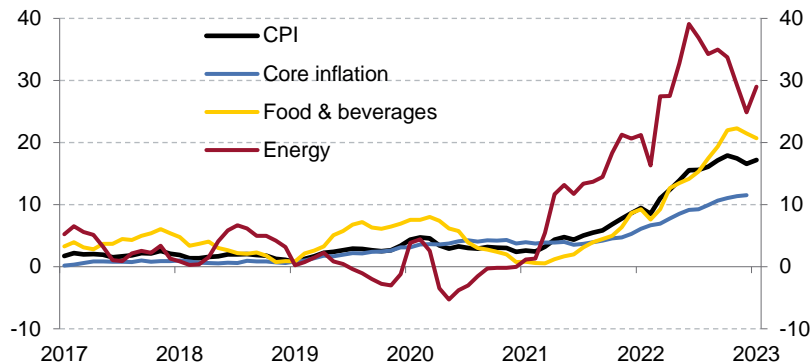
Producer price index (y/y and m/m s.a., %)



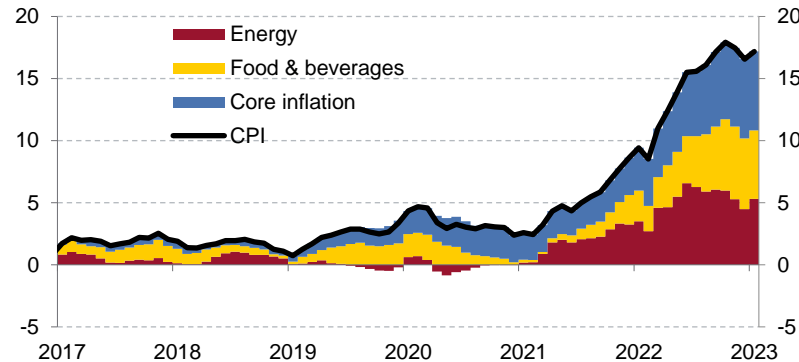


## Transitory increase of CPI inflation in January 2023 after its decline in late 2022.

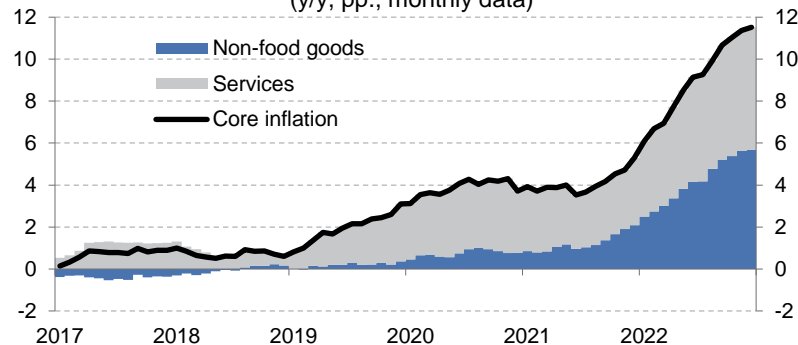
Consumer price dynamics (y/y, %, monthly data)



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



Decomposition of core inflation (CPI inflation excl. food and energy)  
(y/y, pp., monthly data)



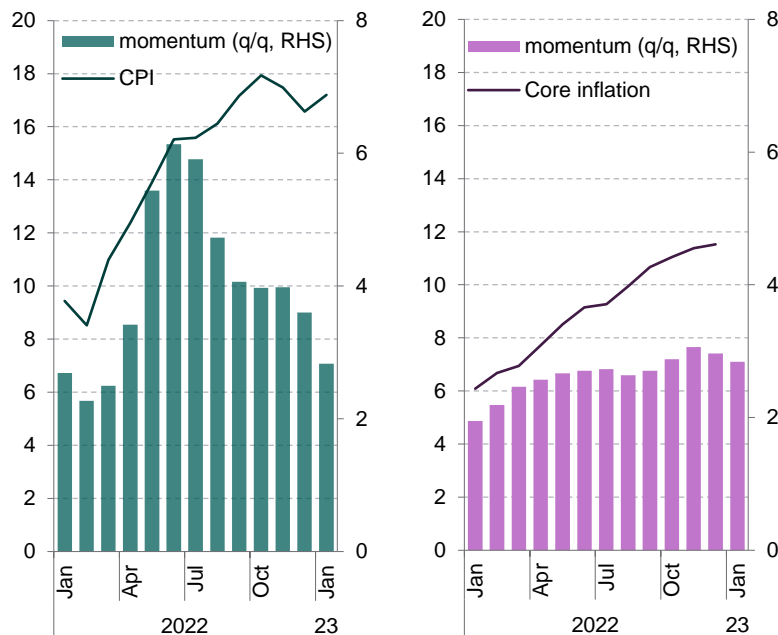
Inflation in 2022 Q4 compared to the November projection (y/y, %)

y/y, %	22q3	22q4	2022
CPI inflation	16.3	<b>17.3</b>	(17.9) <b>14.4</b> (14.5)
Core inflation	10.0	<b>11.3</b>	(11.4) <b>9.1</b> (9.1)
Food prices inflation	17.4	<b>21.9</b>	(22.1) <b>15.4</b> (15.3)
Energy prices inflation	35.4	<b>29.2</b>	(32.1) <b>29.9</b> (30.5)

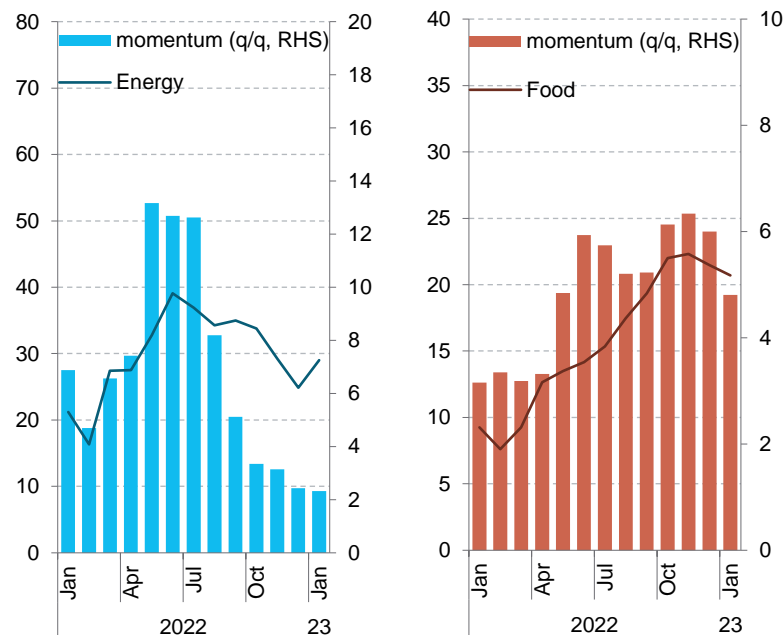
Values from the November projection are given in brackets (seasonally adjusted).  
Indicators with values higher than in the November projection are marked **green**,  
and indicators with lower values are marked **red**.

## Start of the disinflation process after a period of strong shocks.

Monthly CPI and core inflation (CPI excl. food & energy prices)  
(y/y, %) and their momentum indicators (q/q, %)



Monthly dynamics of energy and food prices (y/y, %)  
and their momentum indicators (q/q, %)

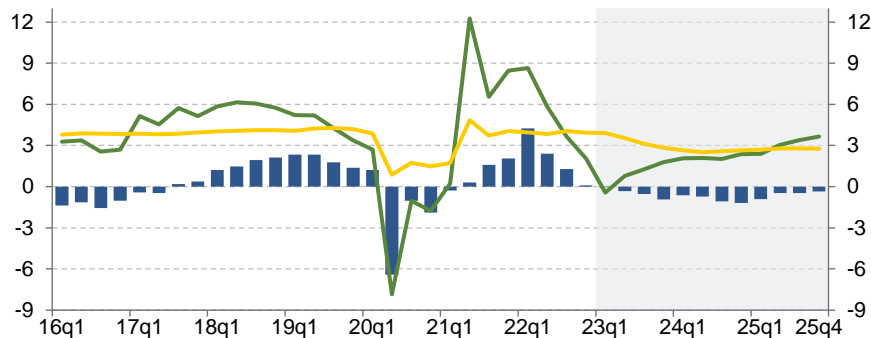


Note: For each price index the momentum indicator was calculated on the basis of average 3-month dynamics of seasonally adjusted price index. CPI Energy for January 2023 – NBP estimate. Data for core inflation (CPI excl. food and energy prices) until December 2022.

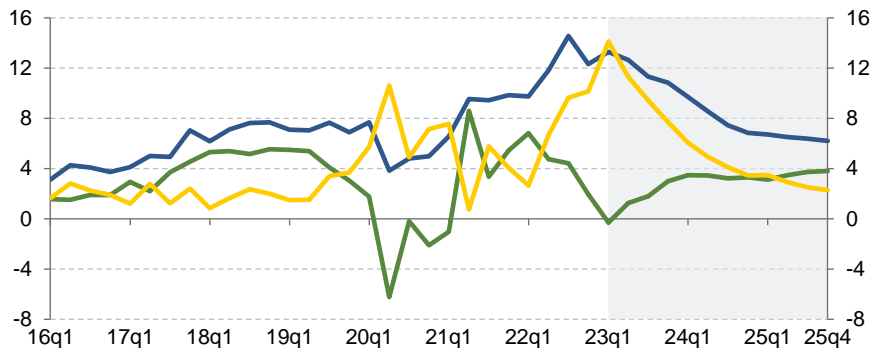
Source: GUS data, NBP calculations.

## Gradual decline of inflation in 2023-2025 due to fading away of the factors increasing its level in 2022.

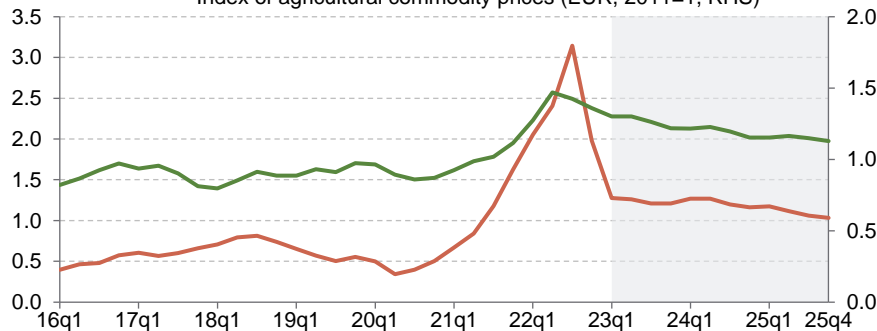
Output gap (% potential output) GDP (y/y, %) Potential output (y/y, %)



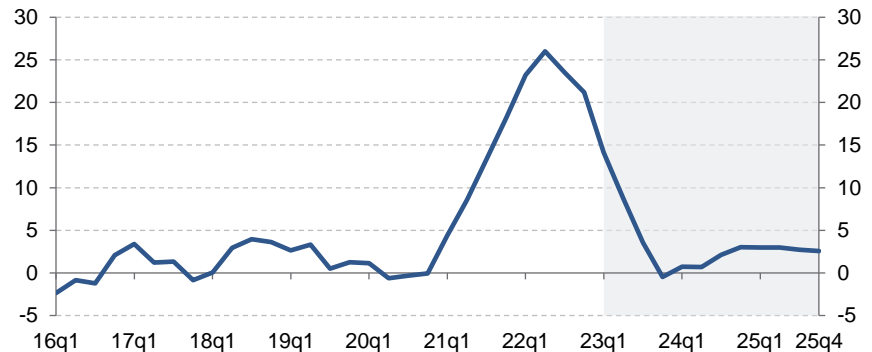
Nominal wages (y/y, %) Labour productivity (y/y, %) ULC (y/y, %)



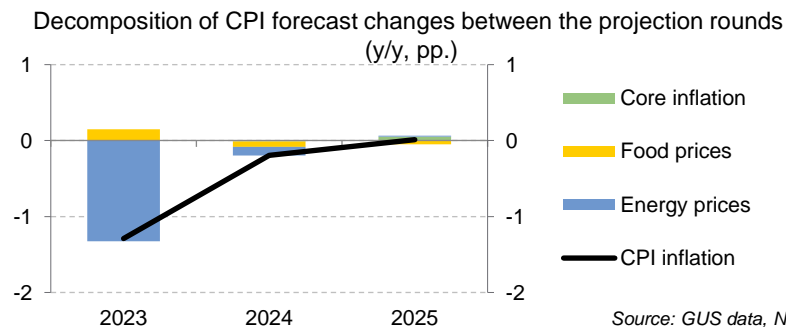
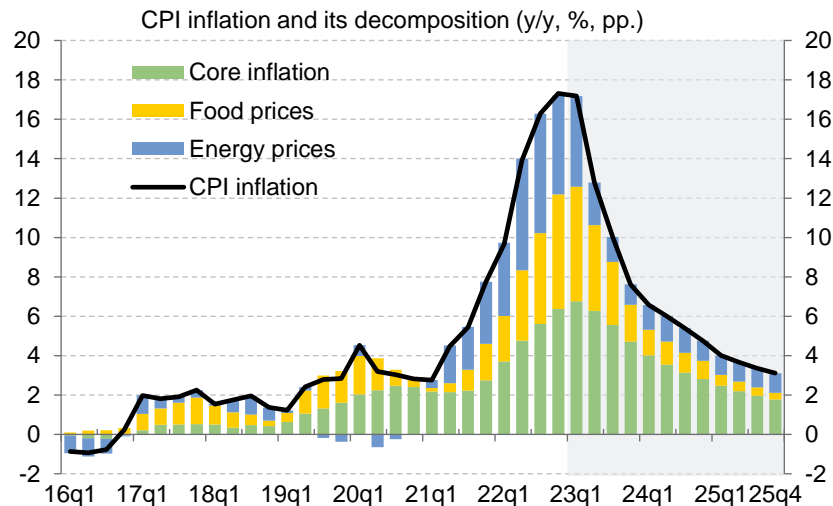
index of energy commodity prices (USD, 2011=1, LHS)  
Index of agricultural commodity prices (EUR, 2011=1, RHS)



Import prices (y/y, %)



## Gradual return of inflation to the band of deviations from the NBP inflation target over 2023-2025.



Source: GUS data, NBP calculations.

The inflation path over the projection horizon will be affected by:

- ↓ fading away of recent years' inflation drivers:
  - ↓ **slowdown in the domestic demand growth**
  - ↓ further **decline in energy and agricultural commodity prices** in global markets
  - ↓ **receding tensions in supply networks**
  - ↓ **slowdown of inflation abroad**
  - ↓ **declining labor cost dynamics**
- ↓ Government shielding measures, including: **gas price freeze, price cap for electricity, legal maximum tariff increase for heat in 2023**, maintaining reduced VAT rates on food
- ↑ **increased inflation persistence** (elevated inflation expectations translating into stronger wage pressures, increased acceptance of higher price growth)
- ↑ **impact of commodity prices on the increase of energy prices for households spread over time** (tariffing process, delayed adjustment to previous increases in commodity and CO2 emission allowance prices)
- ↑ **expiry of a significant part of the arrangements** that were in place in 2022 **under the Anti-Inflation Shield**, assumed scaling back of government shielding measures in 2024-2025

CPI, y/y, %	2021	2022	2023	2024	2025
March 2023	5.1	14.4	11.9	5.7	3.5
November 2022	5.1	14.5	13.1	5.9	3.5



Outline:

Projection 2023 – 2025

- Economic conditions abroad
- Economic perspectives for Poland
- Inflation

Uncertainty

## Uncertainty

- Risks
- Fan charts

## Risks

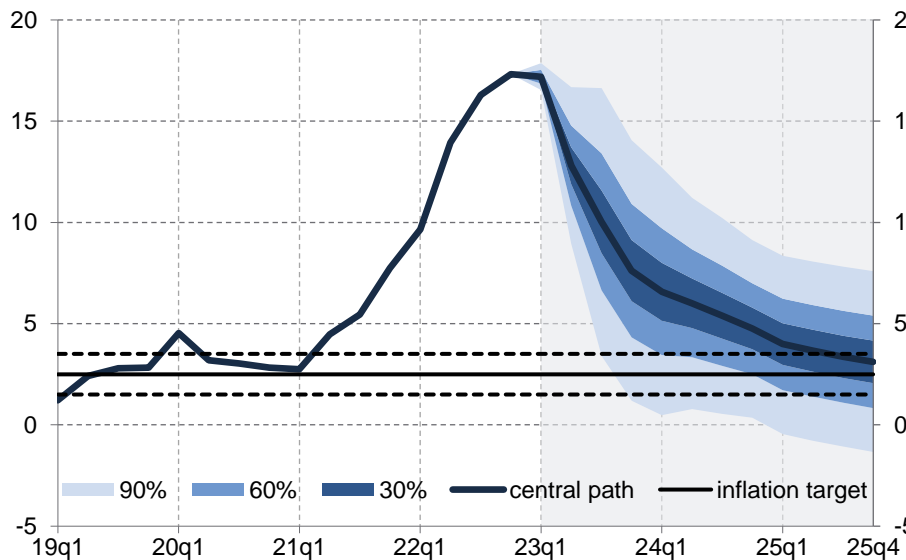
- **Further course of Russia's military aggression against Ukraine**
- **Global supply and demand for energy commodities**
- **Effects of monetary tightening by ECB and FED**
- **Government shielding measures**

In the March projection horizon there is:

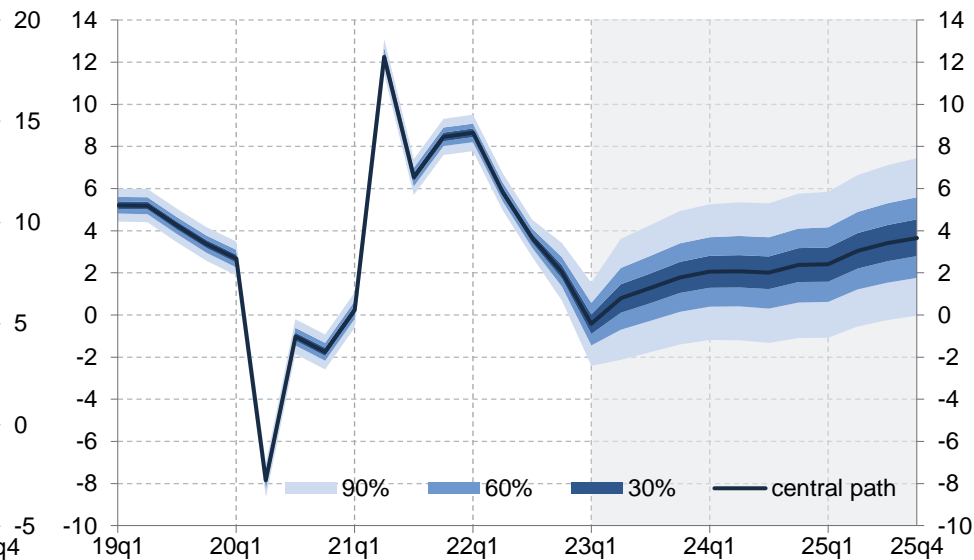
- ↔ **Close to symmetric distribution of risks to CPI inflation**
- ↓ **Slightly higher probability of GDP growth falling below the projection's central path**

The most important source of risk for these variables are the **macroeconomic effects of 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
2023	0%	0%	0%	50%	0%
2024	6%	12%	21%	50%	15%
2025	18%	32%	50%	50%	32%

CPI y/y, %	central path	50% probability interval	
2023	11.9	10.2	13.5
2024	5.7	3.9	7.5
2025	3.5	2.0	5.0

GDP y/y, %	central path	50% probability interval	
2023	0.9	-0.1	1.8
2024	2.1	1.1	3.1
2025	3.1	2.0	4.3



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