



Magyar Nemzeti Bank

# FACTORS UNDERLYING DOMESTIC FOOD INFLATION


---

MNB Pareto In-depth Analyses

# KEY MESSAGES



The food price hike occurred in two phases: **in the first phase**, the rise in global crop prices until spring 2022 did not cause any drastic price spike in Hungary.




**In the second phase**, the rise in energy prices exposed structural weaknesses in the domestic economy: **low productivity and high energy intensity** pushed domestic food inflation far away from that of the region from mid-2022.



**In addition to** competitiveness gaps and rising cost factors, **cyclical factors (increasing corporate profits and demand)** also contributed to the hike in prices.

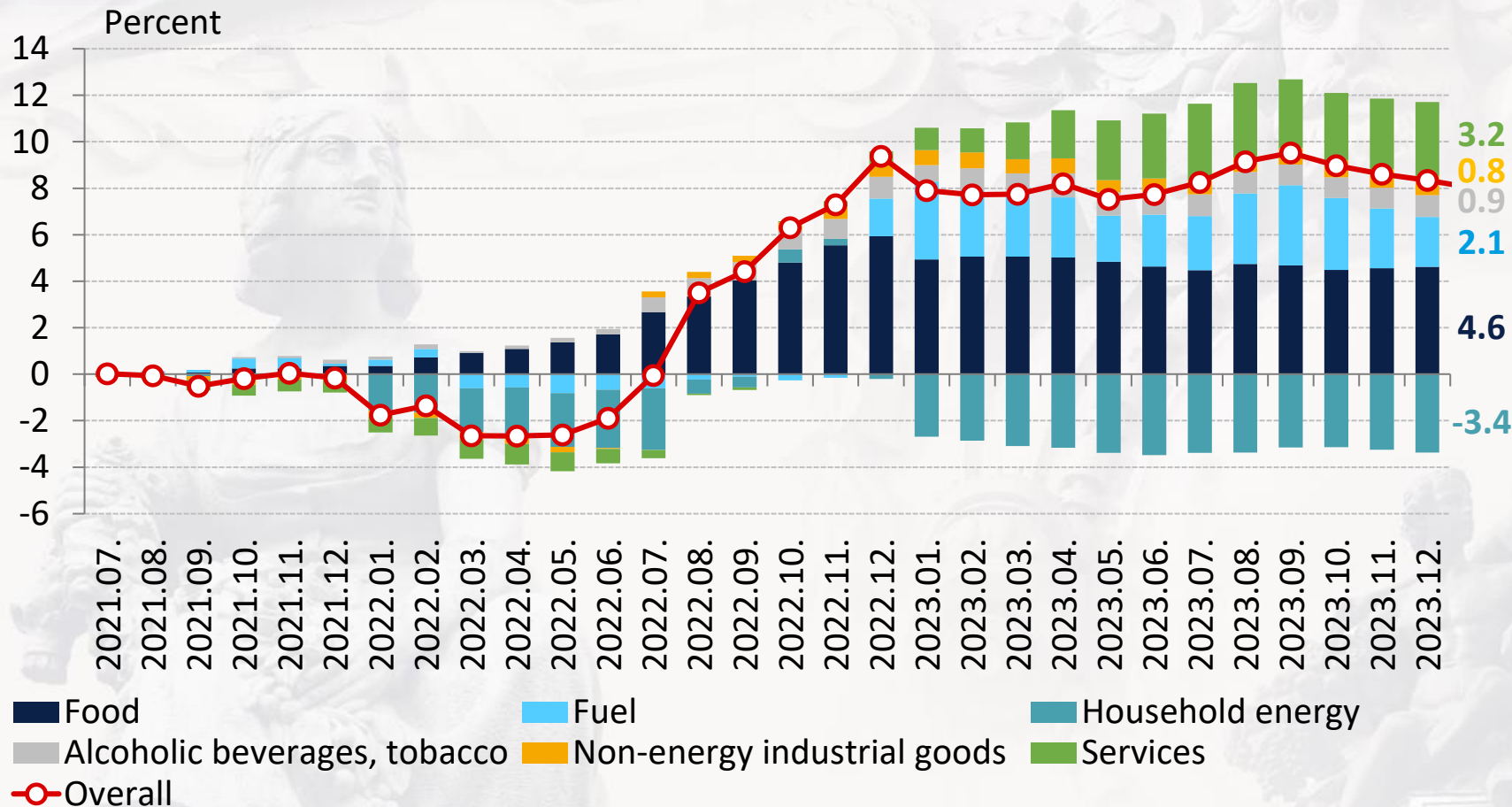


**Food disinflation in 2023** was supported by declining global prices, a stable exchange rate, weakening demand, high bases and government action to boost competition.



**Domestic food prices had reached the EU average** by the end of the inflationary period. The **inflationary bias of the domestic food industry persisted**, as the structural drivers (productivity, energy intensity) did not change over the past year.

# FOOD AND FUEL ACCOUNTED FOR 80 PERCENT OF HUNGARY'S PRICE RISE SURPLUS; IT IS THEREFORE CRUCIAL TO ANALYSE THESE IN DEPTH



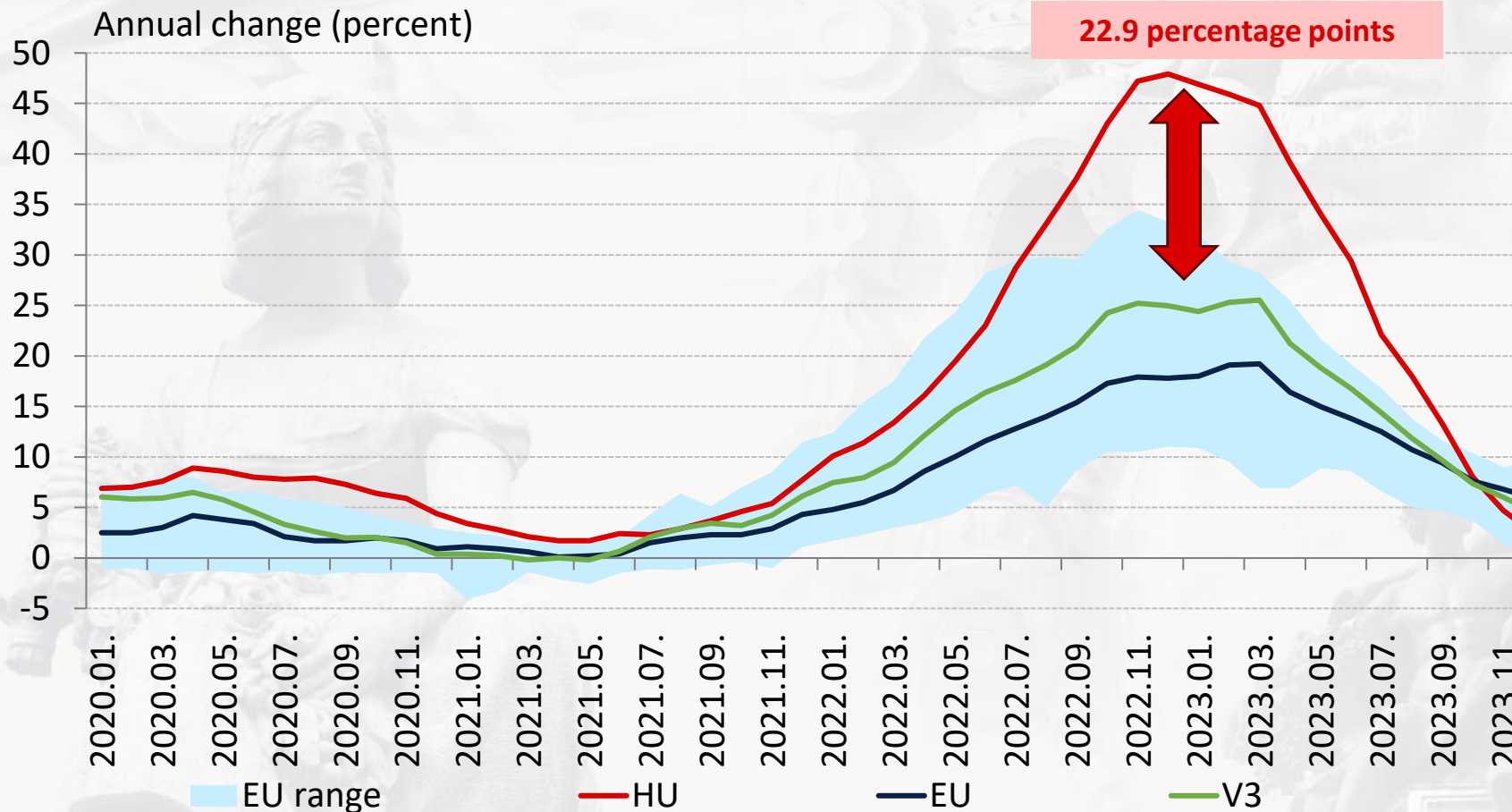
The largest part of Hungary's inflation surplus relative to the Visegrad countries was driven by food price increases over the last two years.

Fuels also contributed to the inflation surplus to a greater extent after the fuel price freeze had been lifted.

It should be noted that the price freezes introduced covered exactly these two categories of goods.

## DECOMPOSITION OF HUNGARY'S PRICE INCREASE SURPLUS COMPARED WITH THE VISEGRAD COUNTRIES SINCE JUNE 2021

# HUNGARIAN FOOD INFLATION WAS THE HIGHEST IN THE EUROPEAN UNION BETWEEN AUGUST 2022 AND SEPTEMBER 2023



22.9 percentage points

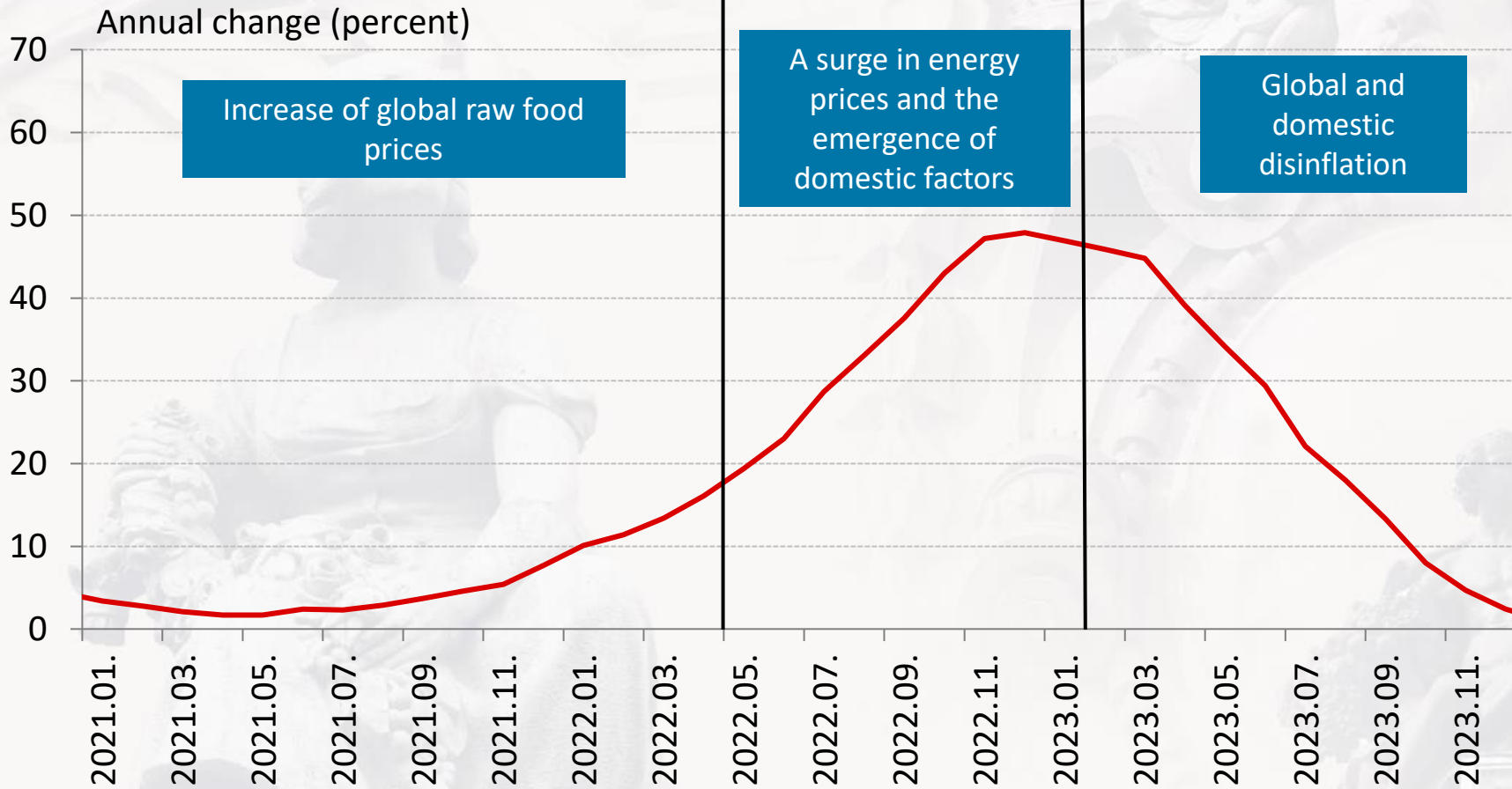
Starting from the summer of 2022, Hungary had the highest food inflation in the European Union for more than a year.

In this period, Hungary had a massive inflation surplus compared with the V3 countries, which amounted to 22.9 percentage points in December 2022.

FOOD INFLATION TRENDS IN HUNGARY, THE REGION AND THE EUROPEAN UNION

Note | Based on HICP data.  
Source | Eurostat

# FOOD INFLATION EVOLVED IN 3 PHASES OVER THE LAST 3 YEARS



Between early 2021 and spring 2022, **the rise in inflation followed international crop prices and regional patterns.**

In the **second phase**, energy prices shot up considerably, and **domestic factors** (high energy intensity, weak productivity and competitiveness of the food industry) that **caused inflation to climb further** emerged.

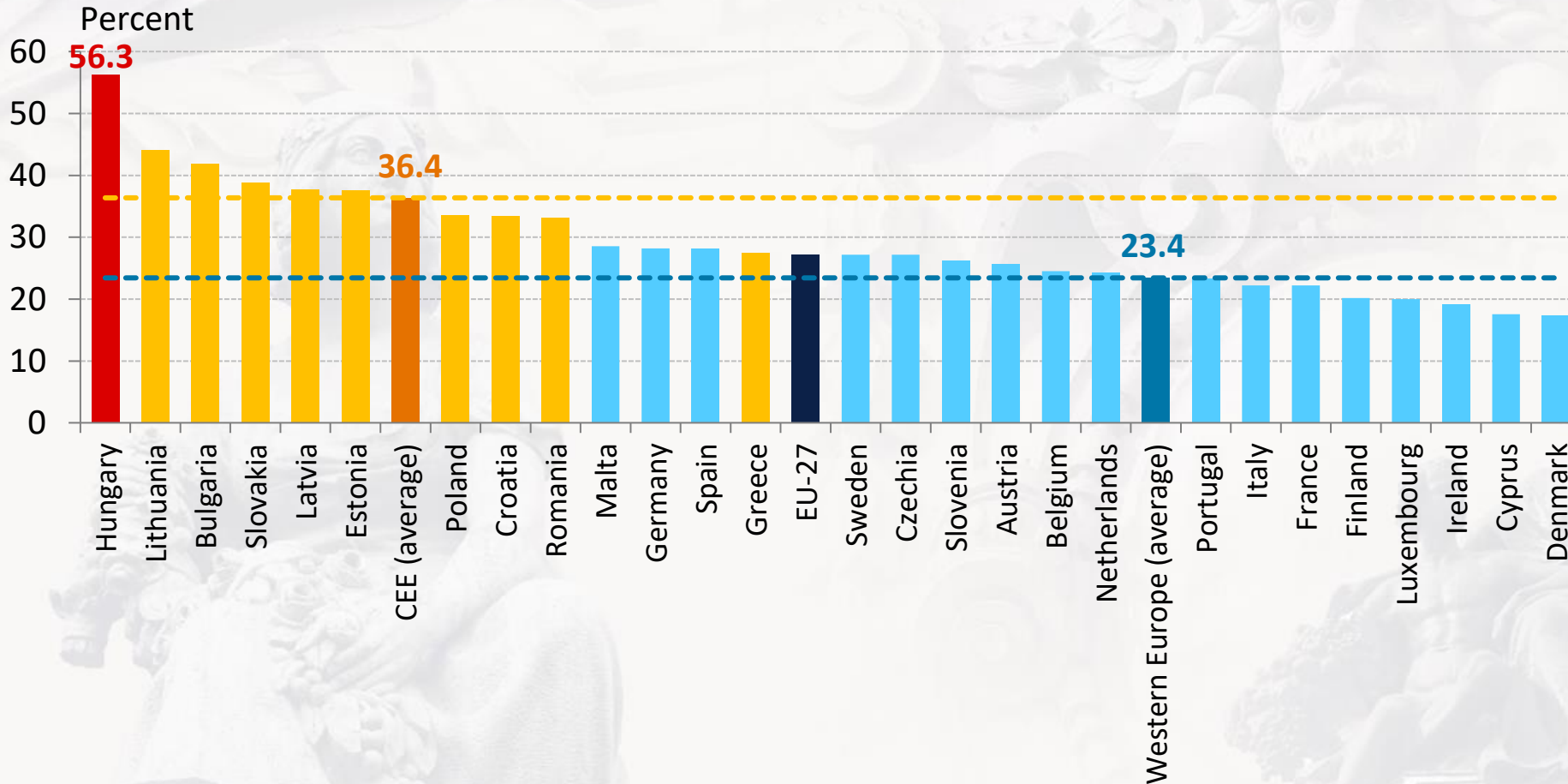
The third phase is a **period of global and domestic disinflation**, supported in Hungary by base effects, moderating consumption, easing profit-driven inflation and the disinflationary impact of the exchange rate alike.

## STAGES IN THE EVOLUTION OF FOOD INFLATION IN HUNGARY

Note | Based on HICP data.

Source | Eurostat

# HUNGARY HAS THE HIGHEST CUMULATIVE PRICE INCREASE SINCE MID-2021

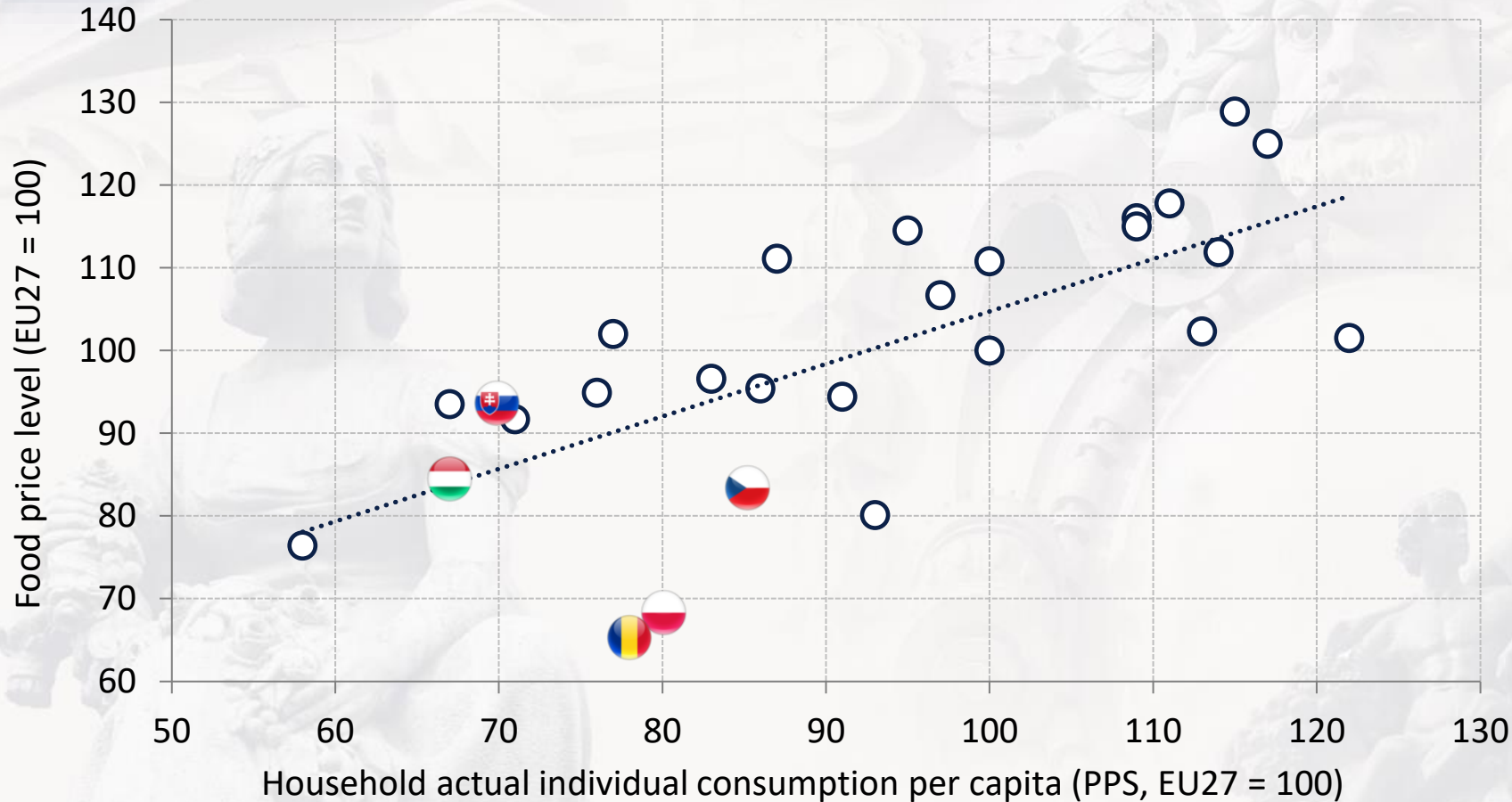


Food prices in Hungary rose by 56.3 percent between December 2023 and June 2021, the **highest gain among EU countries**. After Hungary, the highest price increases in this period were recorded by the Baltic states and the countries in the region.

AGGREGATE CHANGE IN FOOD PRICES IN EU COUNTRIES SINCE JUNE 2021 (DECEMBER 2023)

Note | Based on HICP data.  
Source | Eurostat

# DOMESTIC FOOD PRICES STOOD AT A LEVEL CONSISTENT WITH THE COUNTRY'S STATE OF DEVELOPMENT BEFORE THE COVID-19 CRISIS



2019 data indicate that Hungarian food prices changed in line with the country's level of development as measured by consumption.

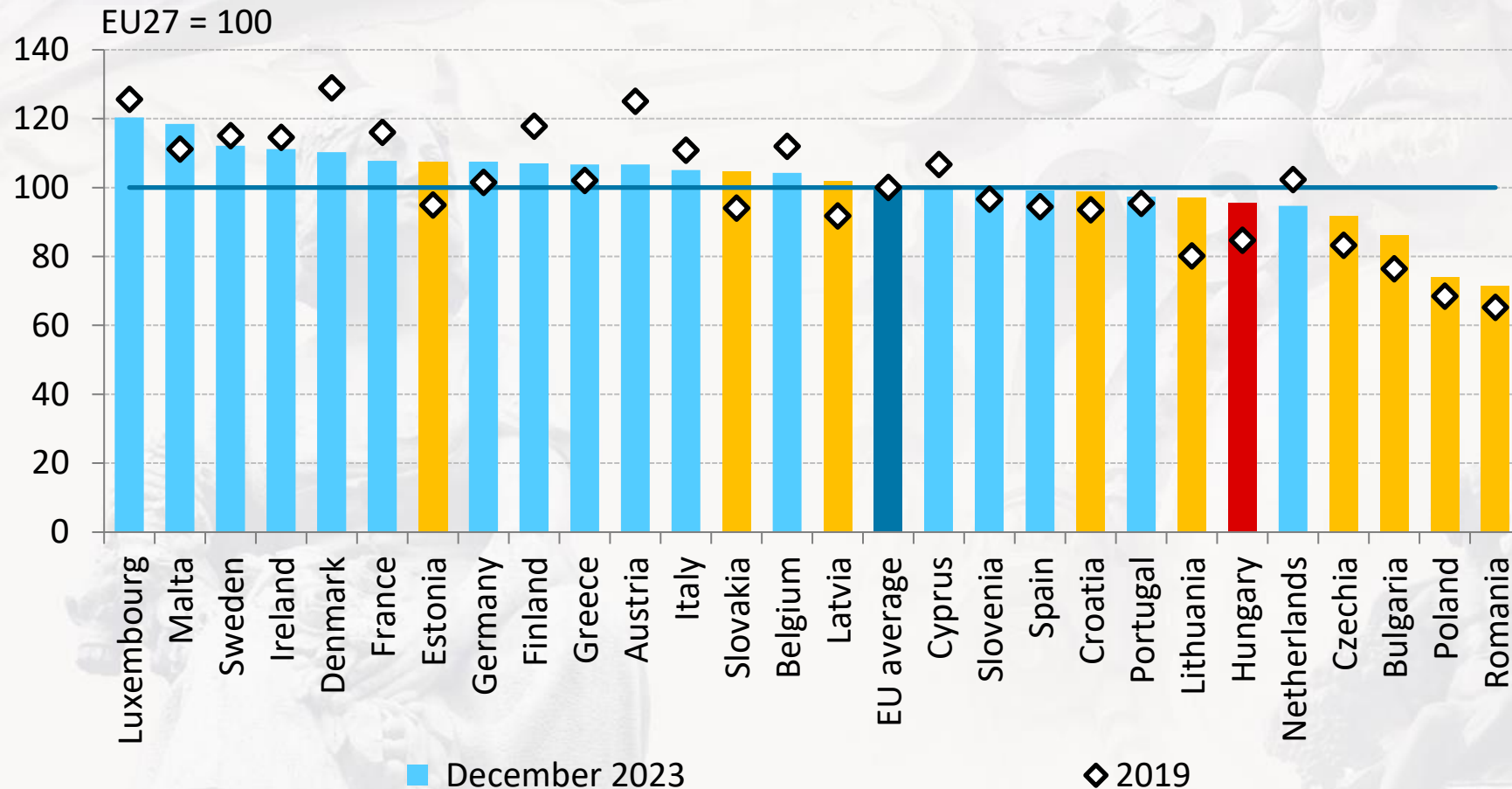
By contrast, among the countries in the region, prices in Romania, Czechia and Poland were below, while in Slovakia they were above the level justified by their development status.

FOOD PRICES AND PER CAPITA HOUSEHOLD CONSUMPTION IN THE EUROPEAN UNION MEMBER STATES (2019)

Note | Luxembourg is not included in the chart.

Source | Eurostat

# INFLATION OVER THE PAST TWO YEARS BROUGHT FOOD PRICES UP TO THE EUROPEAN AVERAGE



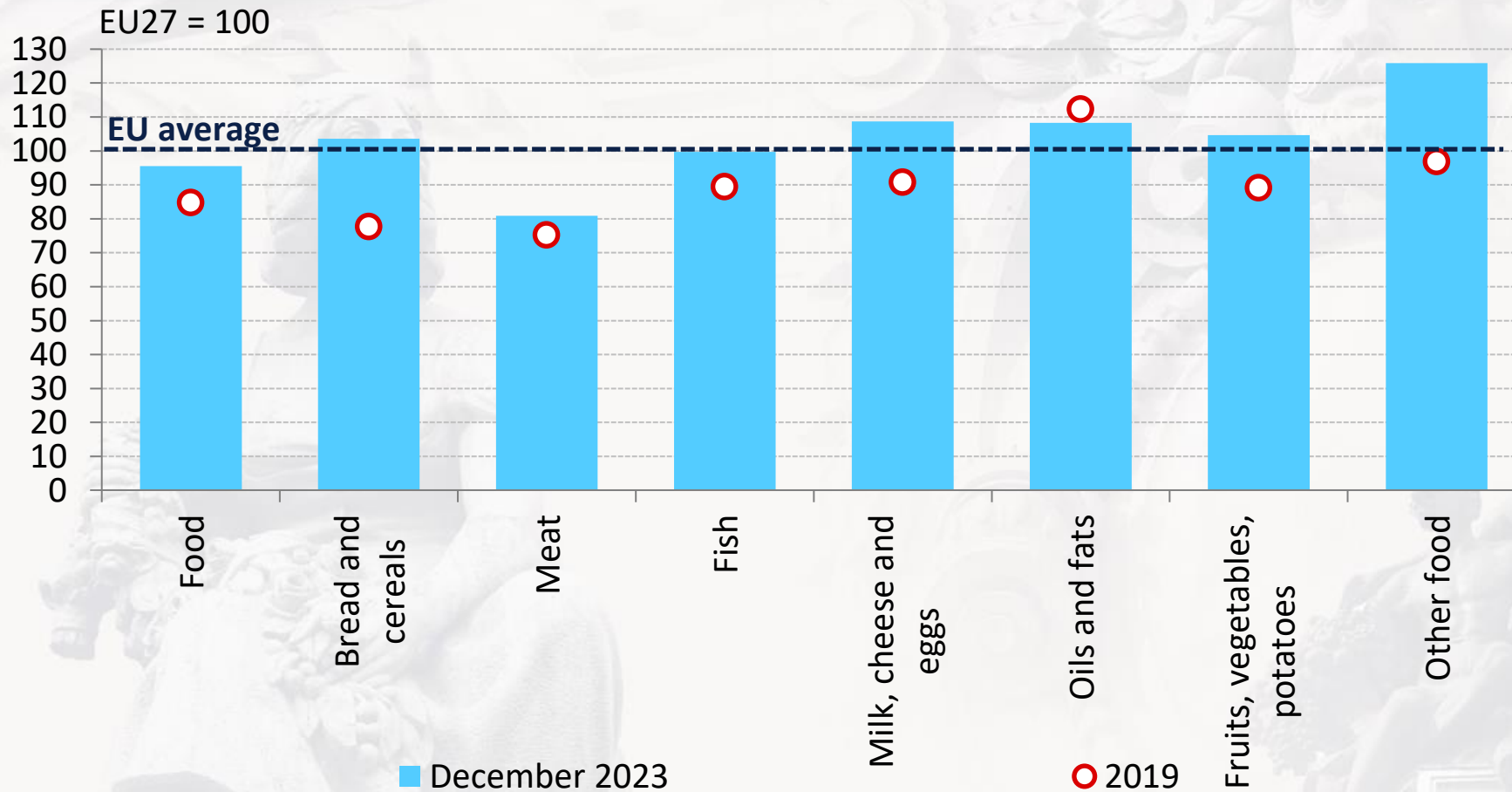
According to Eurostat data and our calculations, as a result of inflation edging up in the last two years, the price Hungarians now pay for food corresponds to the European average.

## FOOD PRICE TRENDS IN THE COUNTRIES OF THE EUROPEAN UNION

Note | For the prices in December 2023, PPP data for 2022 are indexed by food HICP inflation between 2022 and December 2023.



# PRICES OF THE MAJORITY OF FOOD STAPLES ROSE TO THE EU AVERAGE



Hungarians already pay EU average prices for the majority of food staples. This is above the 2019 price level for almost all products.

DOMESTIC FOOD PRICES RELATIVE TO THE EU AVERAGE

Source | Eurostat

# BOTH INTERNATIONAL AND DOMESTIC STRUCTURAL AND CYCLICAL FACTORS CONTRIBUTED TO THE RISE IN FOOD INFLATION



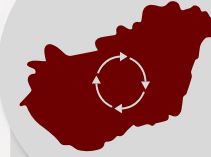
## INTERNATIONAL FACTORS

- Global rise in **crop prices**
- Rising agricultural input prices, especially those of **fertilisers**
- Rising **energy prices**



## DOMESTIC STRUCTURAL FACTORS

- Low **efficiency**
- High **energy intensity**
- Poor **productivity**
- **Competitiveness** gaps



## DOMESTIC CYCLICAL FACTORS

- **Profit inflation**
- Measures that prolong and amplify the inflation cycle (**price freezes**)
- **Exchange rate**
- Significant **income outflows** and demand in 2022 H1

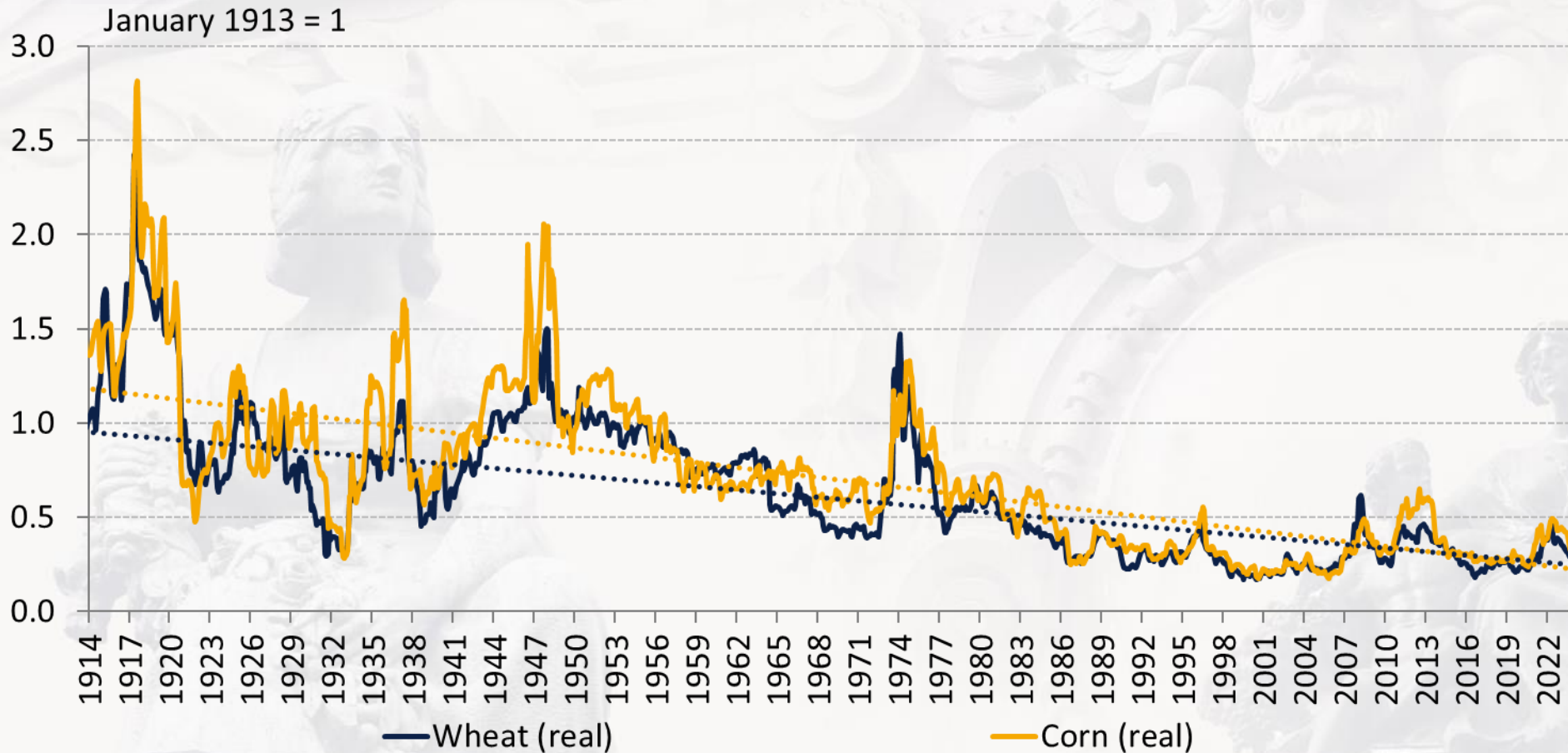
# INTERNATIONAL FACTORS

---



*100 years for Hungary's  
prosperity*

# THE REAL PRICE OF FOOD WAS ON A DOWNWARD TREND IN THE PAST 100 YEARS



Based on data from the last 100 years, wheat and maize prices went down in real terms (net of average inflation).

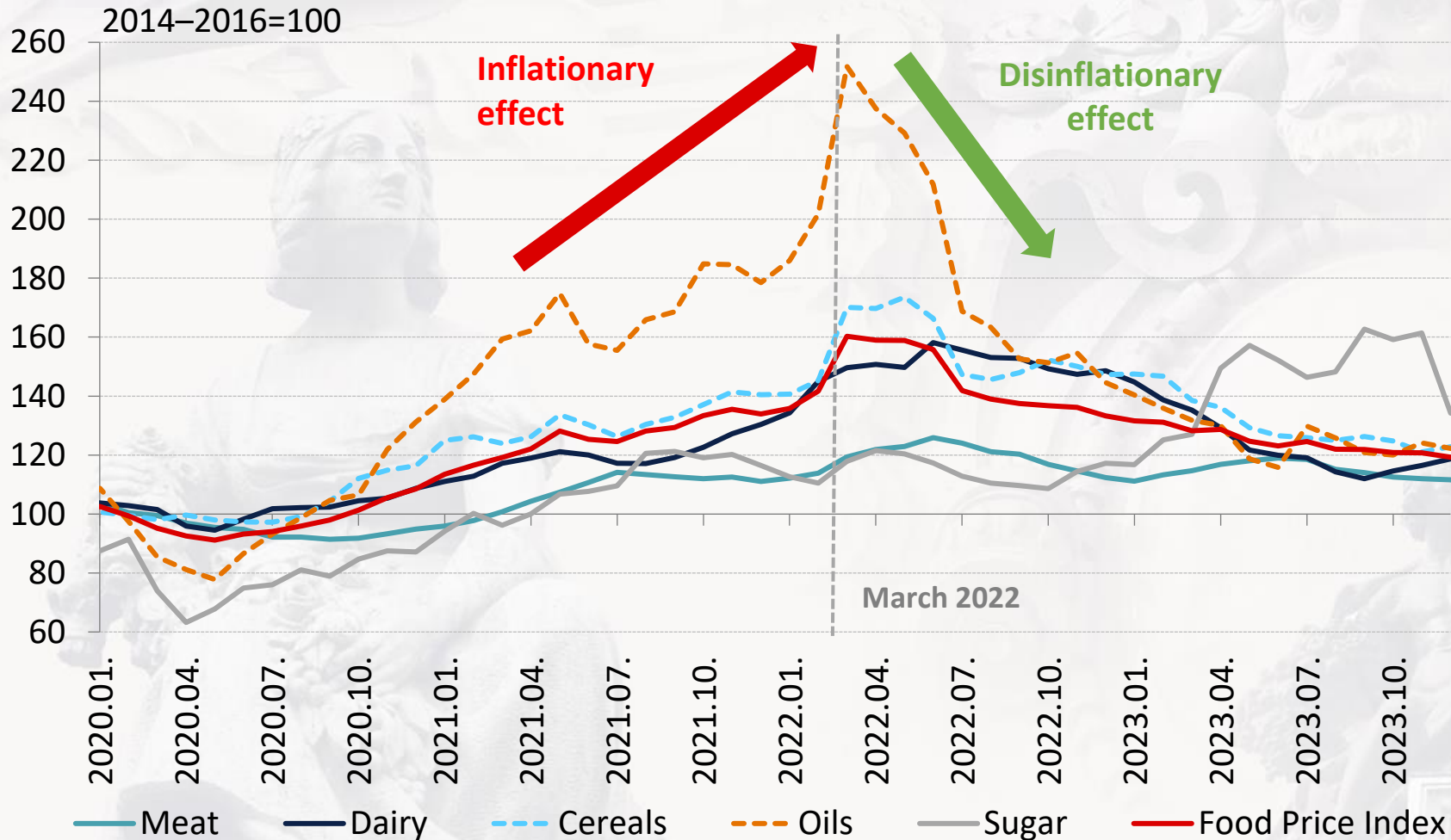
One of the reasons for the fall in real prices is rising crop yields.

## REAL PRICE TRENDS FOR WHEAT AND MAIZE

Note | Nominal price change deflated by US inflation.

Source | Macrobond, Bureau of Labor Statistics

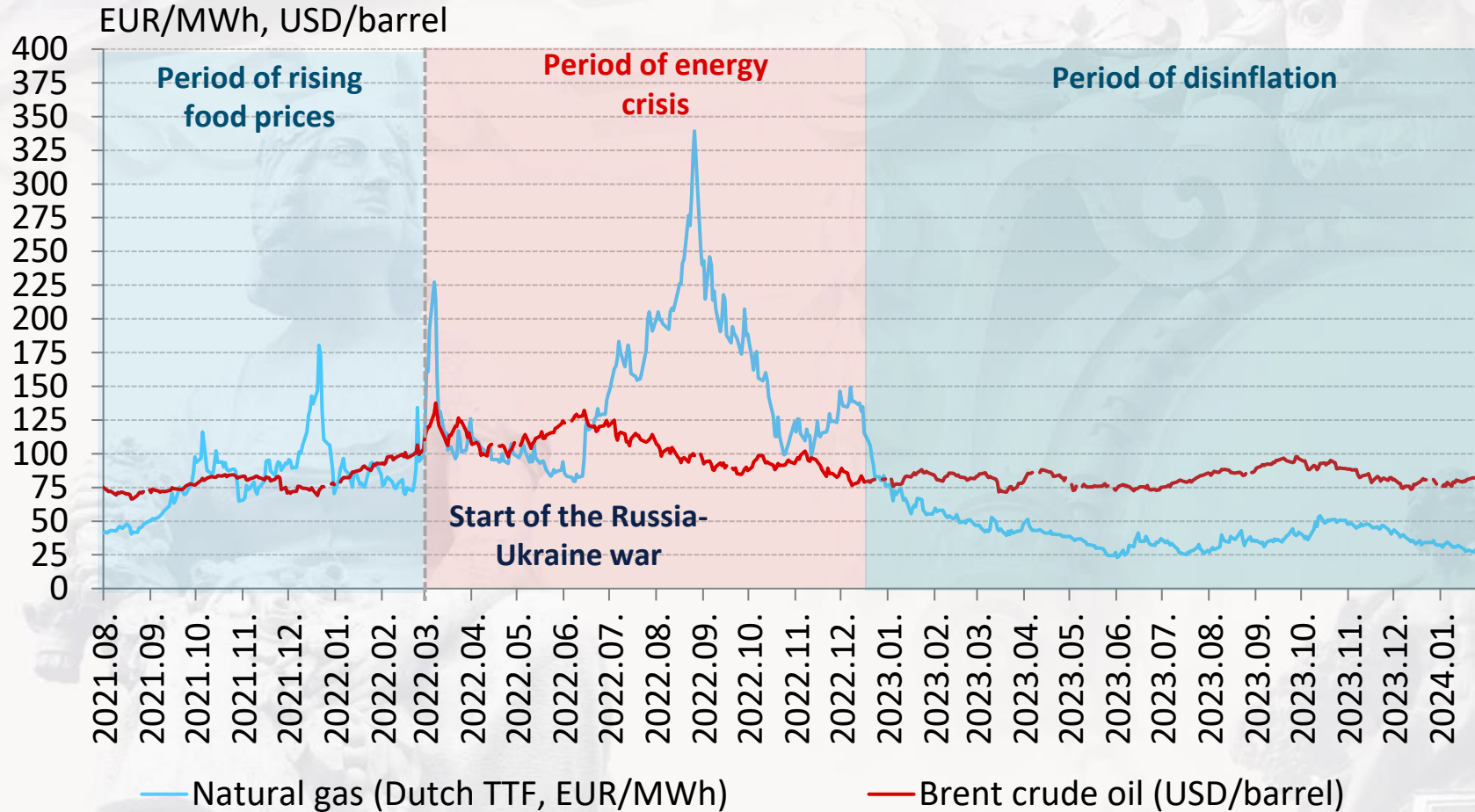
# GLOBAL FOOD PRICES ROSE UNTIL SPRING 2022 IN THE CURRENT FOOD PRICE CYCLE



The price of food raw materials increased significantly until spring 2022, which was also reflected in domestic food prices.

The global shift in food prices had a delayed impact in Hungary, but from 2023 H1, domestic raw food prices started to exhibit disinflationary effects.

# FOLLOWING THE SHOCK AFFECTING RAW FOOD PRICES, RISING ENERGY PRICES PUSHED UP FOOD INFLATION FURTHER

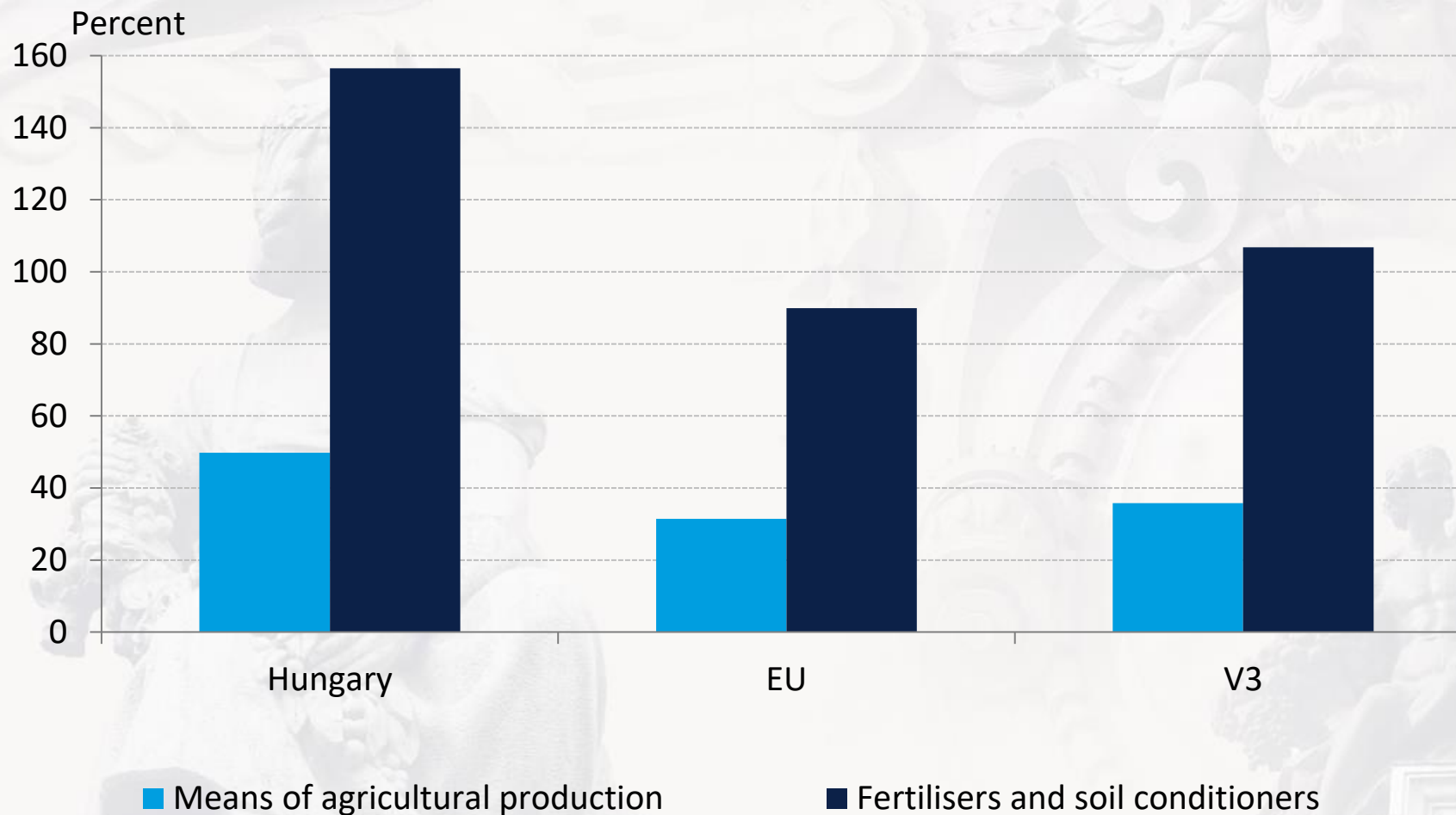


Following the global surge in food commodity prices, higher energy prices triggered by the Russia-Ukraine war also fed through to food processing, and were ultimately reflected in consumer prices.

## CHANGES IN GAS AND OIL PRICES

Source | Bloomberg

# ENERGY PRICES SPILLED OVER, AMONG OTHERS, THROUGH THE RISE OF FERTILISER PRICES, PARTICULARLY IN HUNGARY



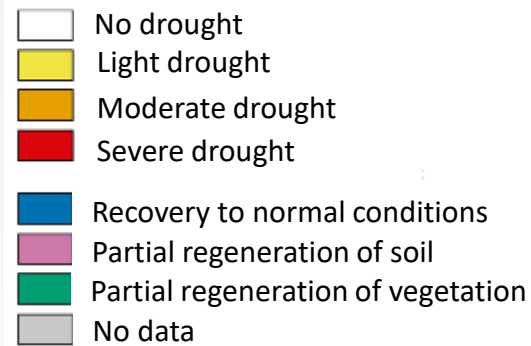
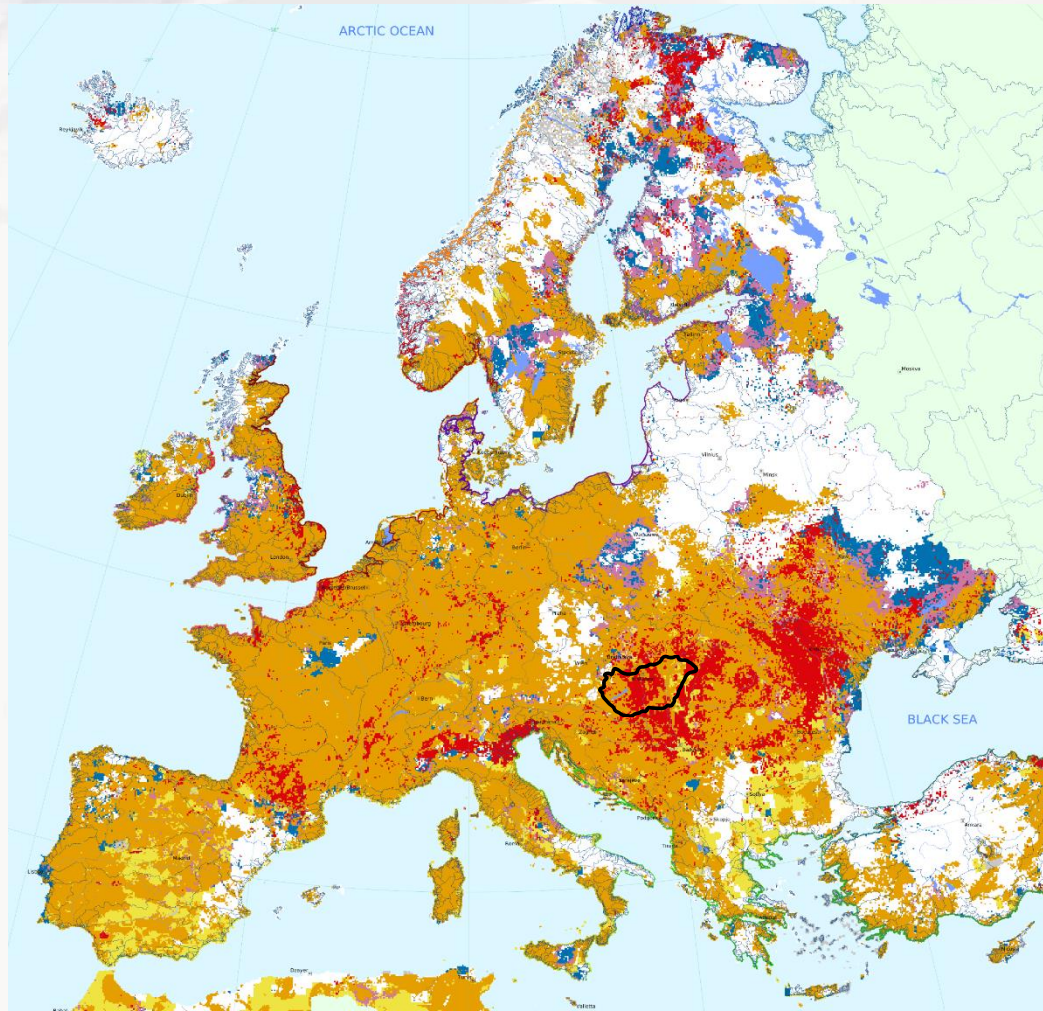
Producer prices are largely determined by changes in the prices of raw materials used in production, which seep into food prices, among others.

With regard to the means of agricultural production, Hungary faced substantially higher inflation in 2022 than the other countries in the region.

ANNUAL PRICE CHANGES FOR AGRICULTURAL INPUTS, INCLUDING FERTILISERS AND SOIL CONDITIONERS (2022)

Source | Eurostat

# IN 2022, ALL OF EUROPE WAS HIT BY DROUGHT WHICH WAS ESPECIALLY SEVERE IN THE CARPATHIAN BASIN



Extreme weather conditions brought a historically severe drought upon Europe in 2022.

This led to a significant reduction in crop averages and a tightening of supply, which also contributed to higher prices.

COMBINED DROUGHT INDICATOR FOR DIFFERENT AREAS IN EUROPE (AUGUST 2022)



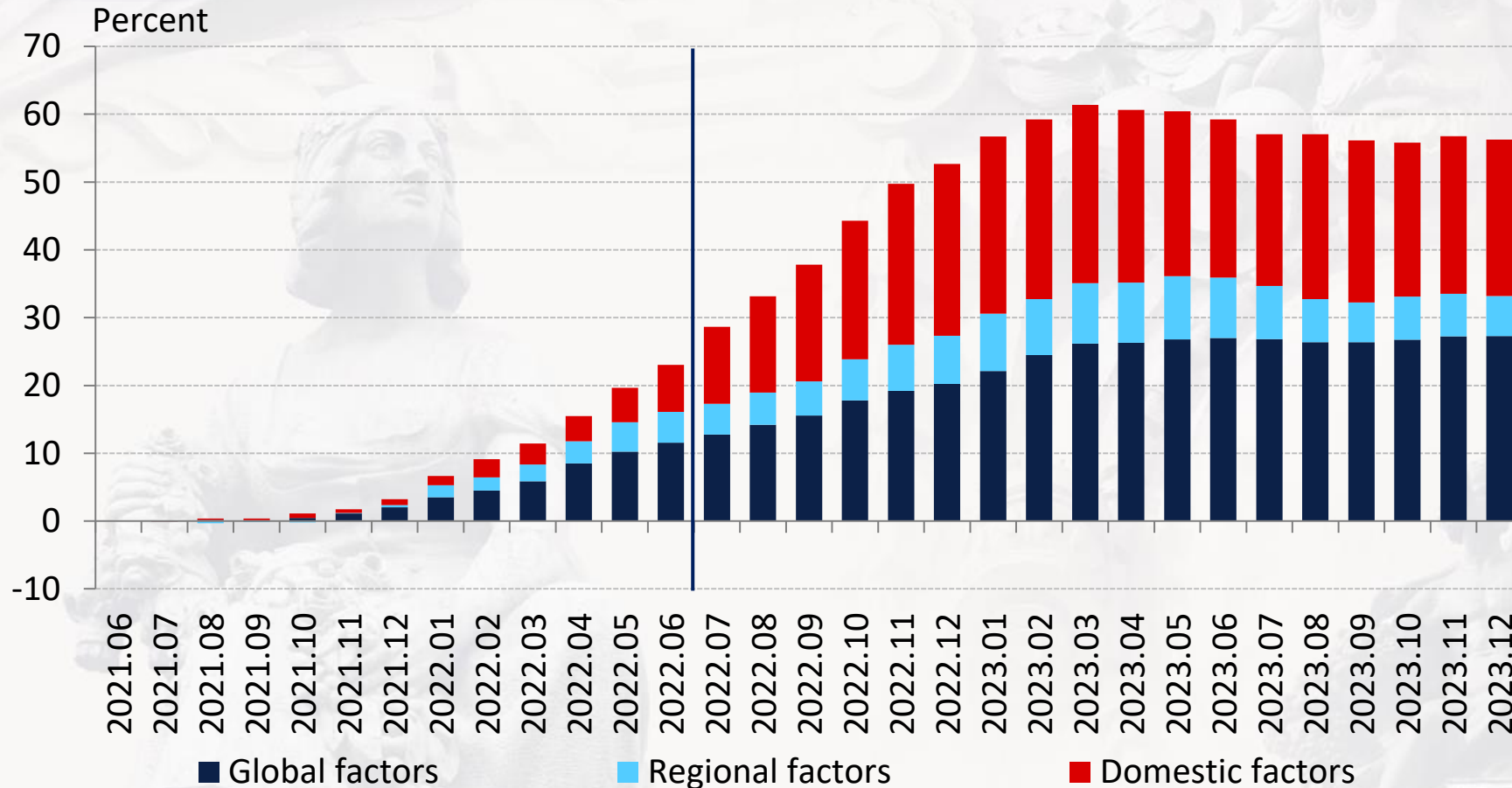


*100 years for Hungary's  
prosperity*

# DOMESTIC STRUCTURAL FACTORS

---

# IN MID-2022, DOMESTIC FACTORS THAT AFFECT FOOD INFLATION BECAME PREDOMINANT

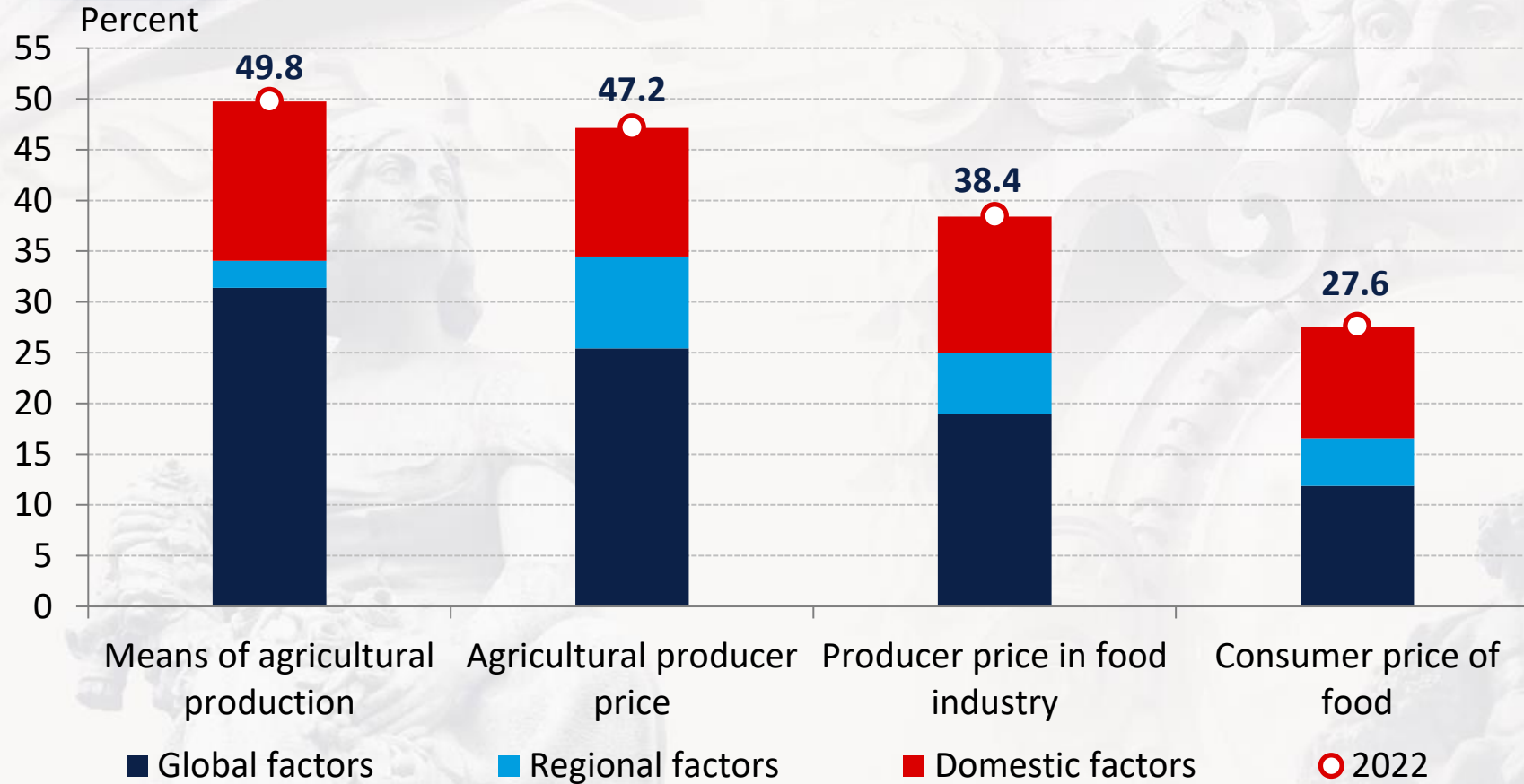


In addition to global effects, from mid-2022, domestic structural (productivity and competitiveness problems in the food industry) and cyclical (profit inflation, price freezes, exchange rate) impacts became more pronounced in the rise in food inflation.

## DECOMPOSITION OF CUMULATIVE PRICE CHANGES FOR FOOD SINCE JUNE 2021

Note | Based on HICP data. For regional factors, the V3 countries and Romania are considered. Source | Eurostat, MNB calculations

# DOMESTIC FACTORS HAD AN IMPACT ACROSS THE ENTIRE PRODUCTION CHAIN



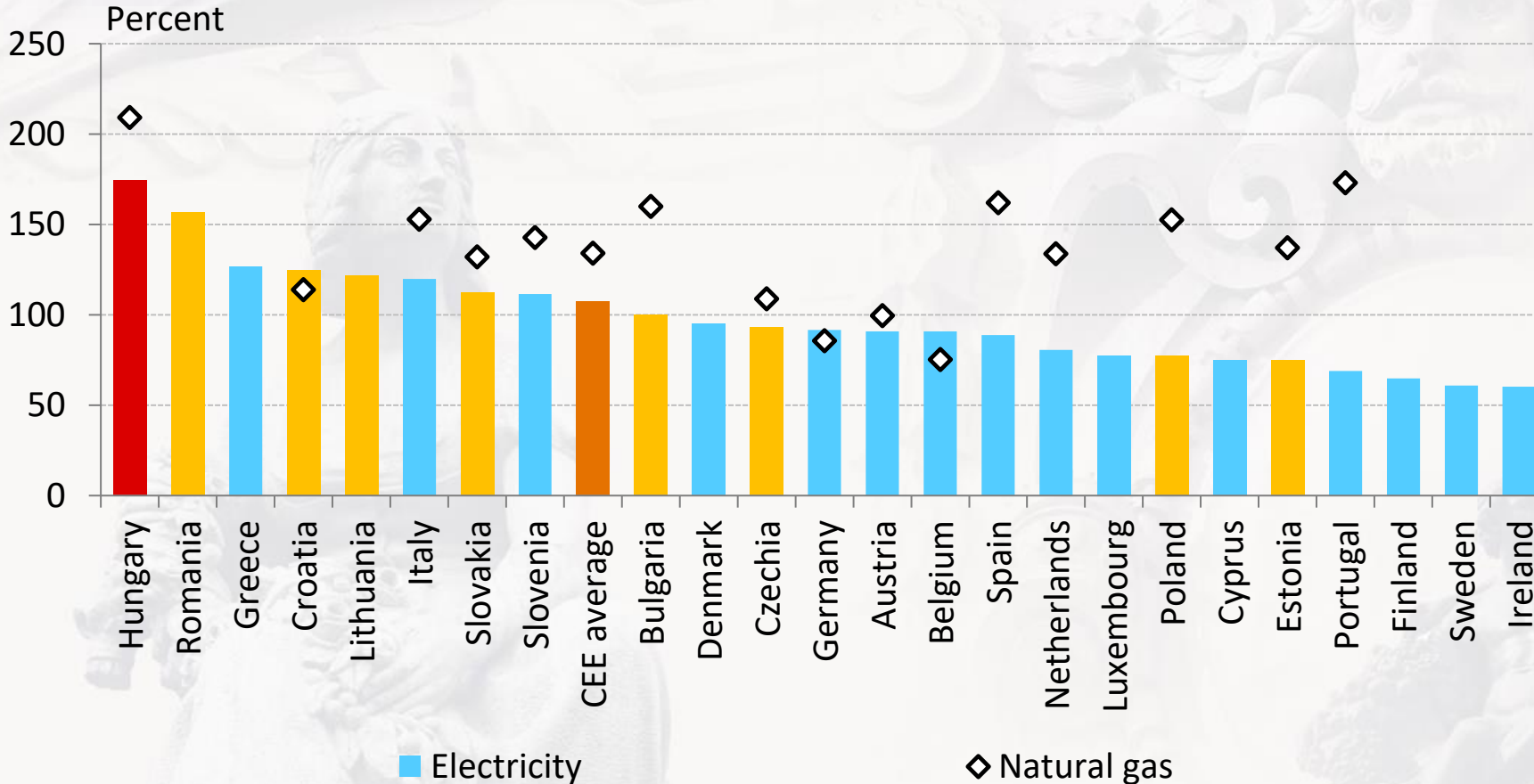
Domestic factors driving up food inflation permeated the entire production vertical, from agricultural inputs to food production.

Domestic factors had the largest relative weight in consumer prices.

## CHANGES IN FOOD INFLATION, PRODUCER PRICES AND AGRICULTURAL INPUT PRICES RELATIVE TO THE PREVIOUS YEAR (2022)

Note | HICP data for consumer prices. No data are available for Slovakia for food industry producer prices. For regional factors, the V3 countries and Romania are considered. Source | Eurostat, MNB calculations

# HUNGARY SAW THE LARGEST INCREASE IN CORPORATE ENERGY PRICES IN 2022



**Corporate energy prices that were high on an international scale also supported soaring domestic inflation.**

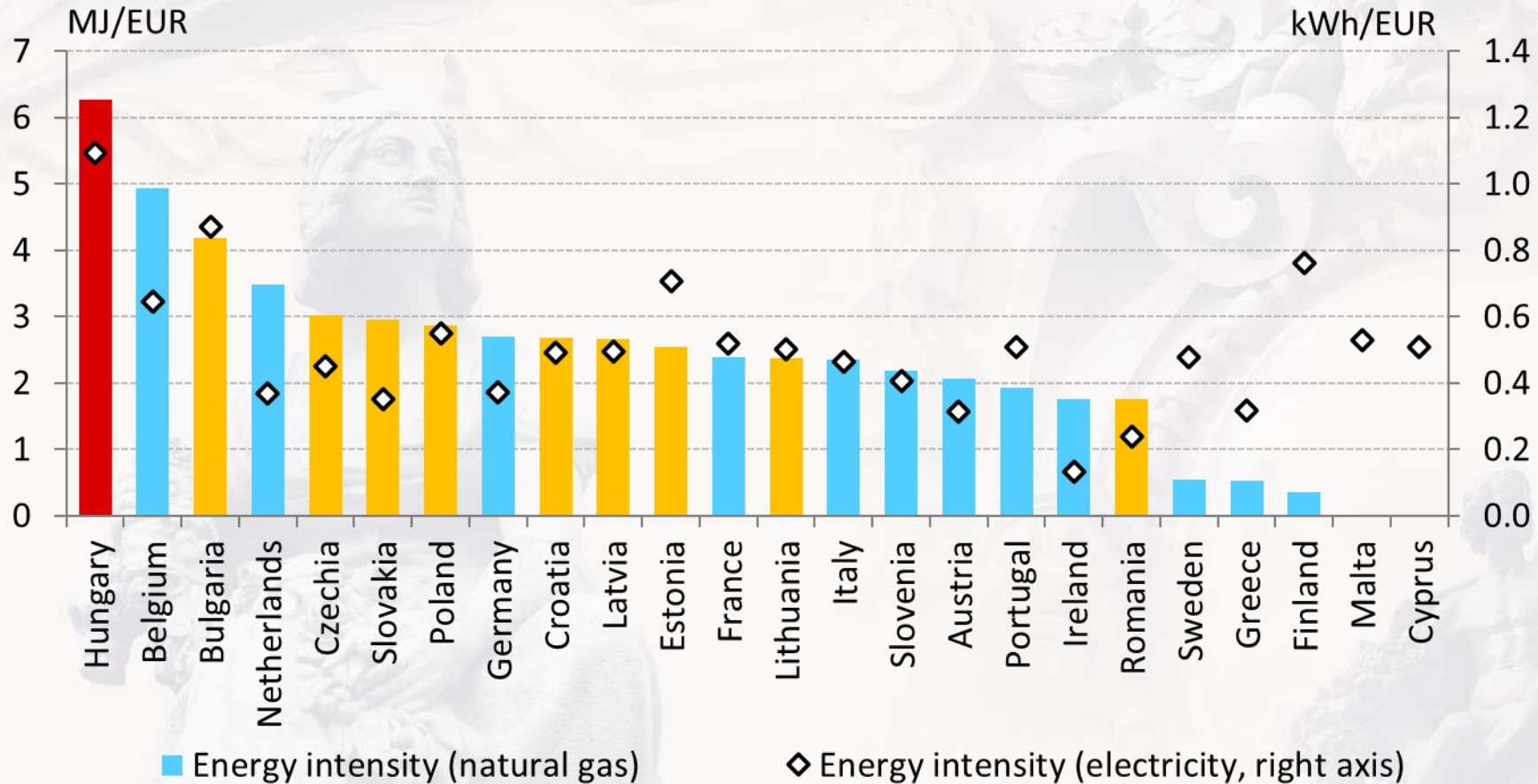
Increased concentration in the energy trading sector might have been one of the most important structural factors, allowing traders' interest to prevail more strongly in an environment of heightened risks.

## CHANGES IN CORPORATE ELECTRICITY AND GAS PRICES IN THE EUROPEAN UNION (2022)

Note | Average price change for all corporate user groups between 2022 H2 and 2021 H2. Based on data in national currency.

Source | Eurostat

# HIGHER ENERGY INTENSITY MAKES FOOD COMPANIES MORE SENSITIVE TO ENERGY PRICE INCREASES



**Less efficient and more energy-intensive industries are more exposed to volatility in the energy markets.**

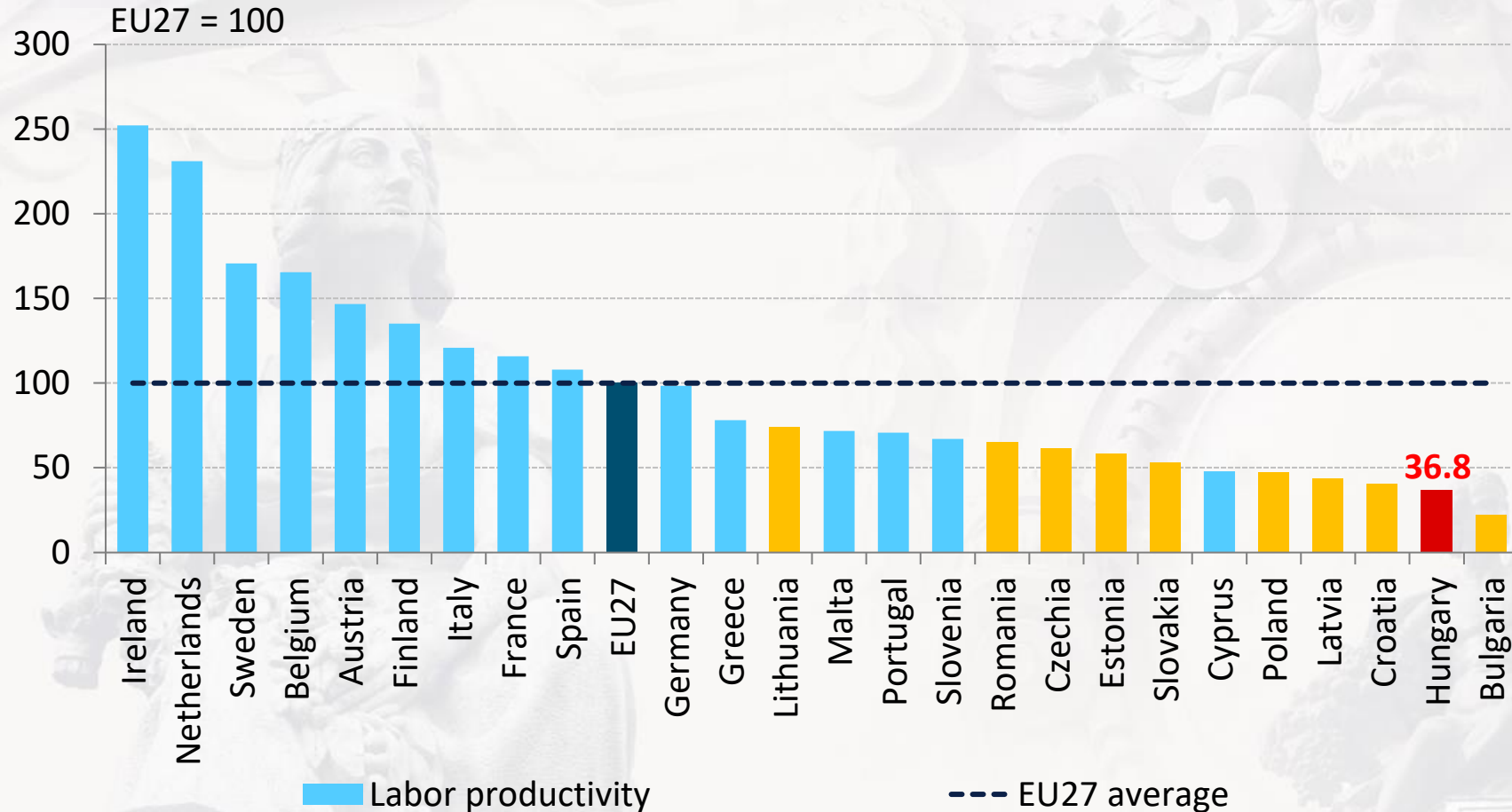
Compared with other EU Member States, Hungary has the most energy-intensive food industry, which may have supported high food inflation.

## ENERGY INTENSITY OF THE FOOD INDUSTRY IN EU MEMBER STATES

Note | Amount of energy used to produce one euro of gross value added.

Source | Eurostat

# ITS LOW PRODUCTIVITY MAKES THE HUNGARIAN FOOD INDUSTRY VULNERABLE TO COST SHOCKS



Experience of the past two years has shown that **food prices in Hungary are more sensitive to international cost shocks** than in other countries of the region or the EU.

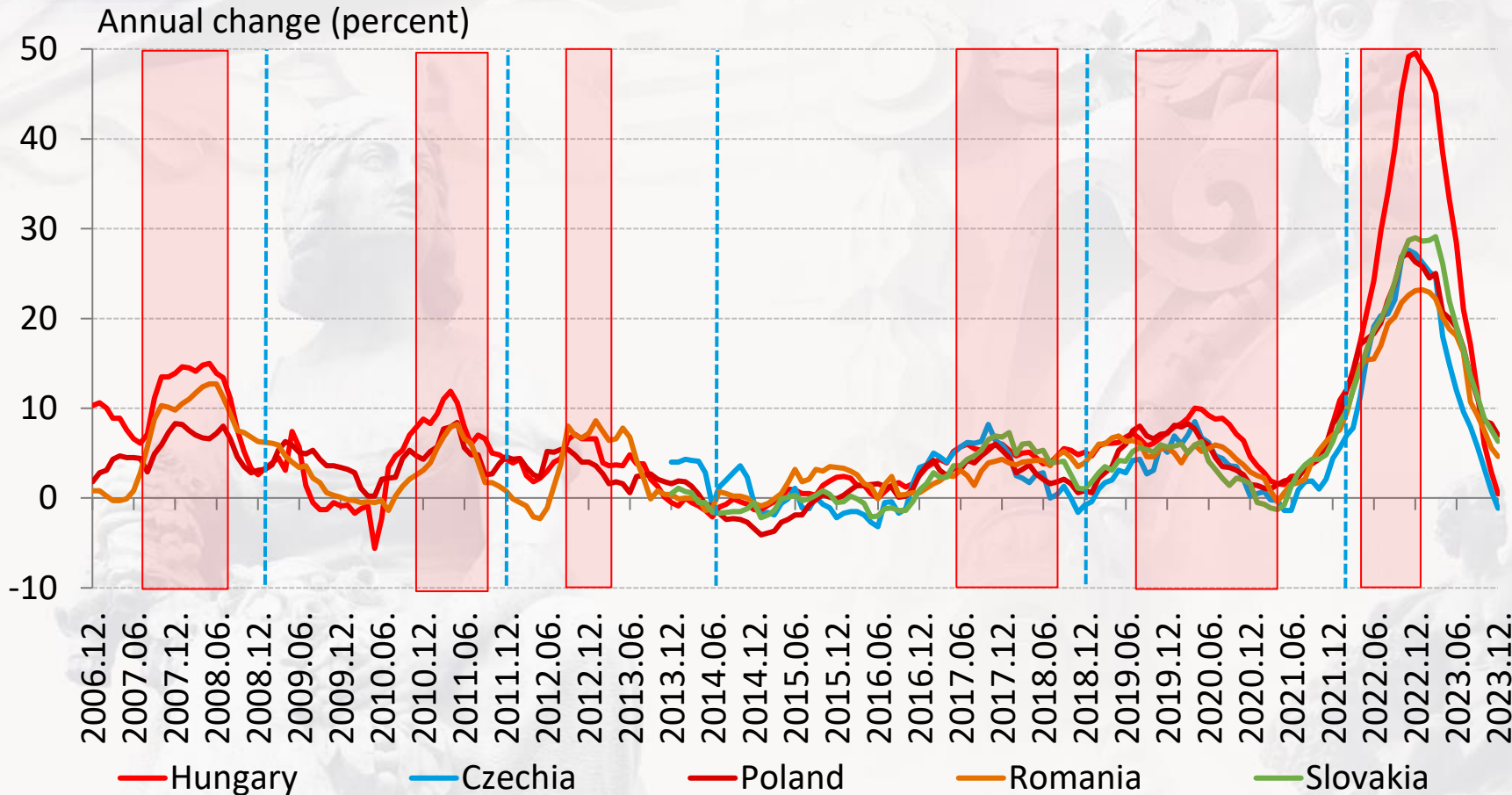
**One reason for this greater cost sensitivity is the low productivity of the Hungarian food industry, which is the second lowest in the European Union.**

## LABOUR PRODUCTIVITY OF THE FOOD INDUSTRY (2021)

Note | Gross value added per employed worker based on national accounts data.

Source | Eurostat

# GLOBAL FOOD PRICE SHOCKS TYPICALLY EXERT THEIR IMPACT ON FOOD INFLATION SIMULTANEOUSLY IN THE COUNTRIES OF THE REGION...



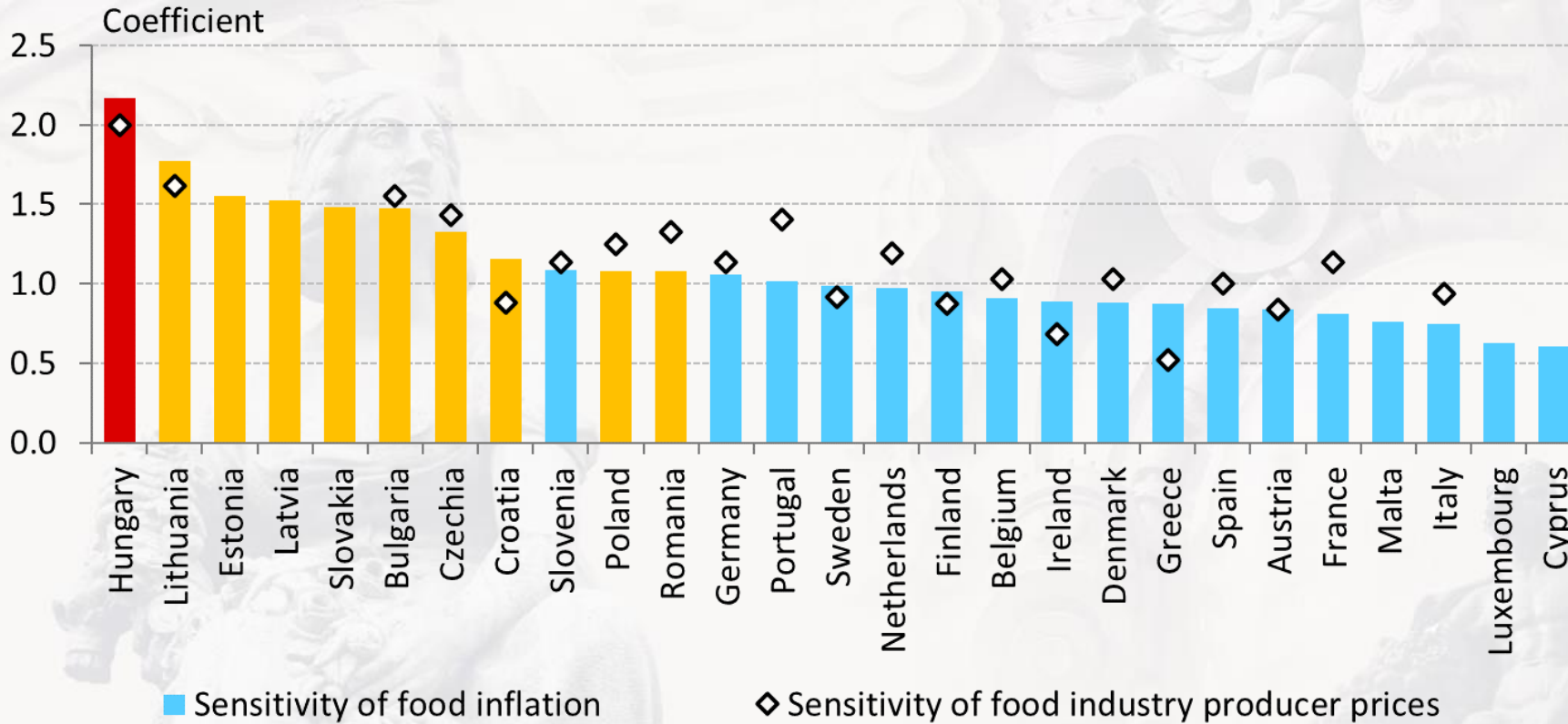
The effects of food price shocks tend to coincide in time in the countries of the region. On average, food price rises wore off within 7 months of the peak, but annual food inflation typically remained positive even when the rise discontinued.

## FOOD PRICE SHOCKS IN THE REGION

Note | HICP data at constant tax rates.

Source | Eurostat, MNB

# ... BUT STRUCTURAL SPECIFICITIES AND COMPETITIVENESS GAPS MAKE HUNGARIAN FOOD PRICES MORE VULNERABLE



Historical data also confirm that the Hungarian food industry is highly cost-sensitive by international standards. Hungarian food prices react more than twice as strongly to international cost shocks as the EU average. The domestic sensitivity coefficient is the highest in the EU. The same coefficient is also the highest for industrial producer prices in Hungary, a proof that our cost sensitivity applies not only to consumer prices but the whole food production chain.

## REGRESSION COEFFICIENTS FOR FOOD INFLATION AND FOOD INDUSTRY PRODUCER PRICES BY COUNTRY RELATIVE TO THE EU AVERAGE

Note | The coefficient represents the typical percentage point change in a country's food inflation (the annual rate of increase in producer prices) when average food inflation (the annual rate of increase in producer prices) in the European Union climbs by one percentage point. Based on data from the period of January 2000 to November 2023. Source | Eurostat, MNB



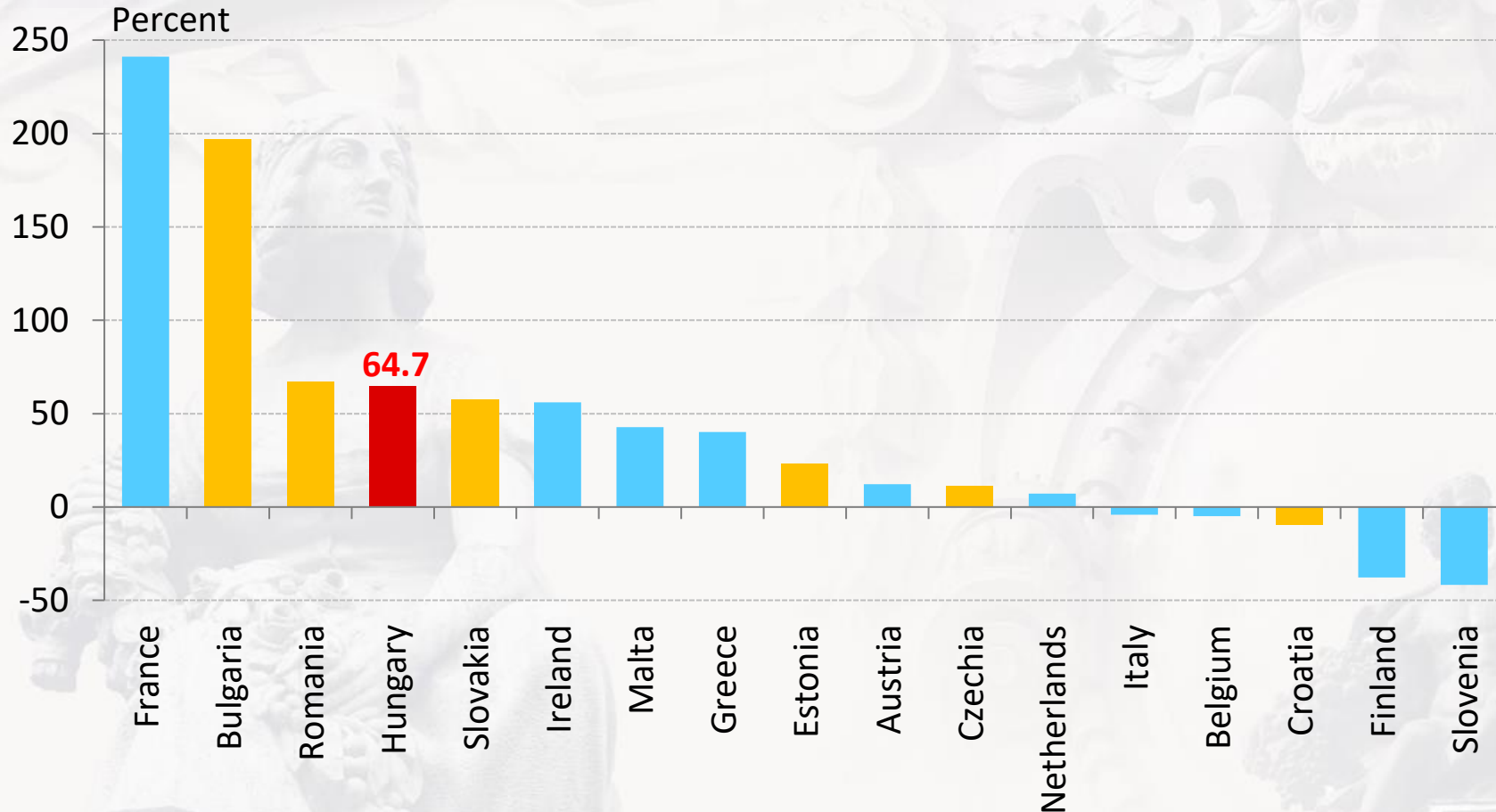
# DOMESTIC CYCLICAL FACTORS

---



*100 years for Hungary's  
prosperity*

# PROFIT-DRIVEN INFLATION HAD A NOTICEABLE IMPACT ON THE FOOD INDUSTRY TOO

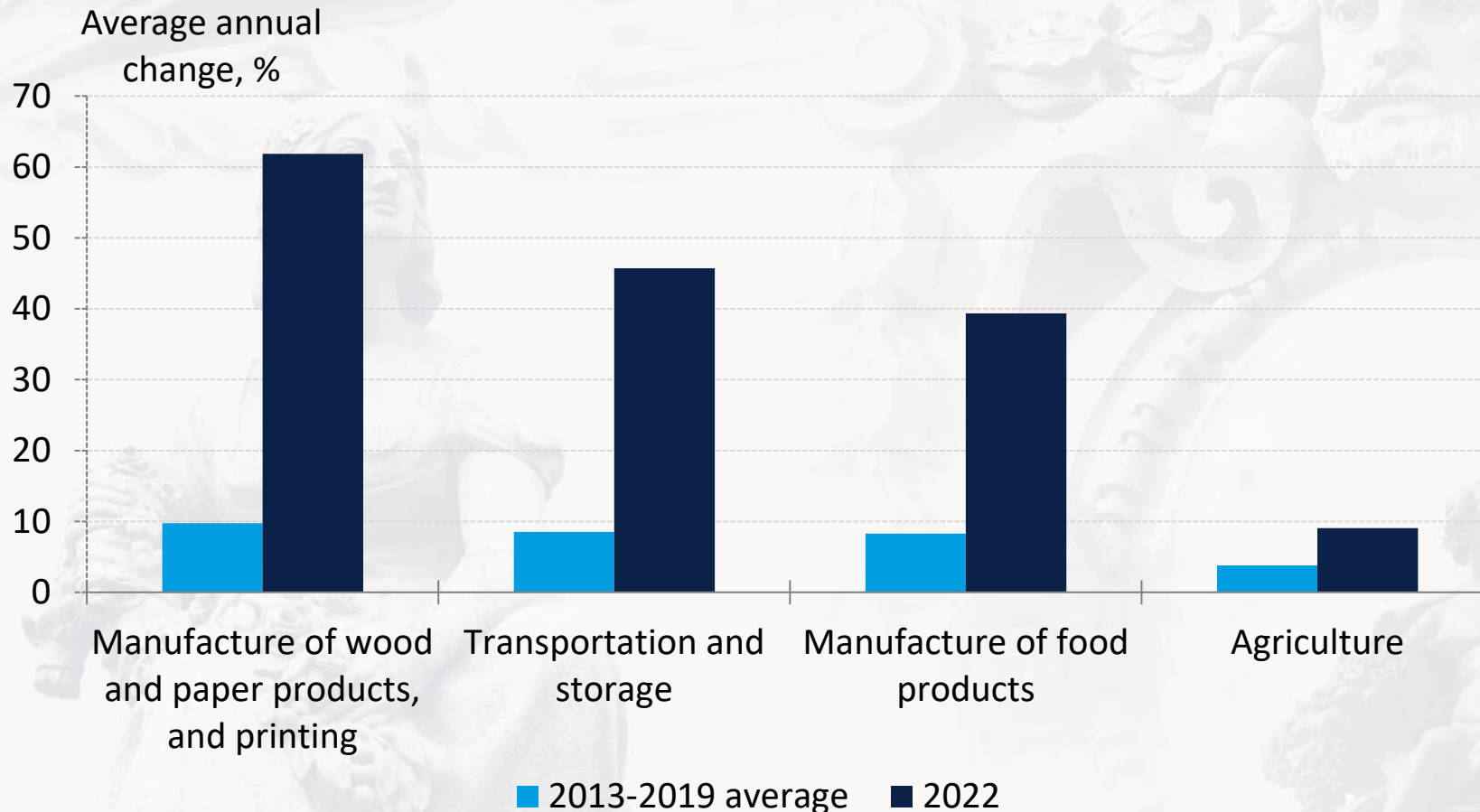


Over the past two years, inflation was increasingly driven by **companies raising their prices above the rate of cost growth**, i.e. profit-driven inflation. **According to available data, the net operating profit of the domestic food industry rose at the fourth fastest pace in the EU between 2019 and 2022.** A price increase well above costs tells of profit inflation.

CHANGES IN NET OPERATING PROFIT AND MIXED INCOME IN THE FOOD INDUSTRY BETWEEN 2022 AND 2019

Note | Nominal data  
Source | Eurostat

# PROFITS OF COMPANIES IN SECTORS SUPPLYING THE FOOD INDUSTRY ALSO WENT UP CONSIDERABLY



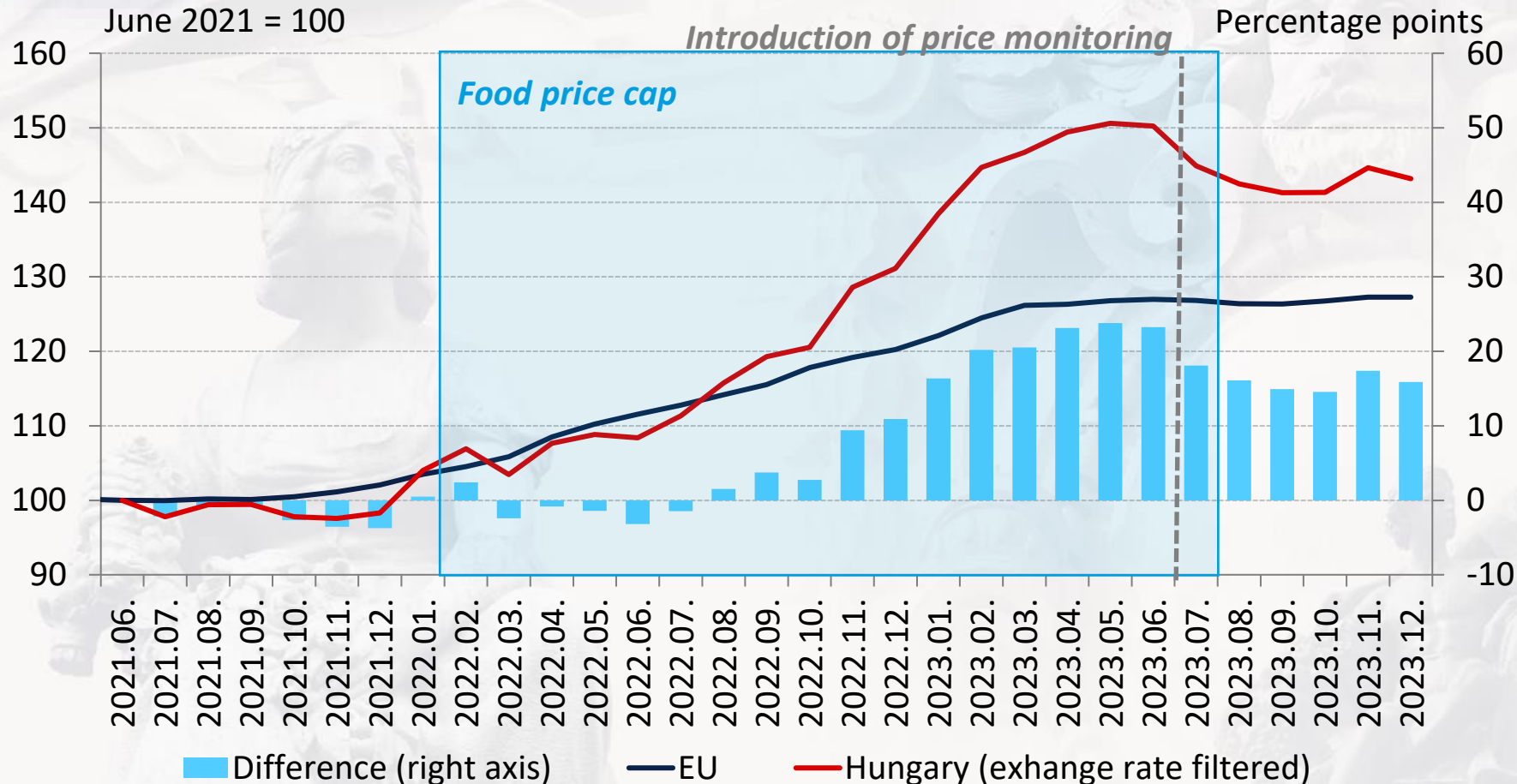
**In addition to the food industry, the supply sectors also contributed to profit-driven inflation.** One of the reasons why food prices moved up is the increase in margins in several sections of the production chain.

INCREASE IN GROSS OPERATING PROFIT IN THE FOOD INDUSTRY AND THE SUPPLY SECTORS

Note | 2022 preliminary data

Source | Hungarian Central Statistical Office (HCSO)

# PRICE FREEZES DID NOT HELP CURB FOOD INFLATION, MEASURES BOOSTING COMPETITION DID



**Price caps were of no help in containing food inflation.** Price freezes had a market distorting impact instead while in force, and the gap between domestic and regional food inflation widened.

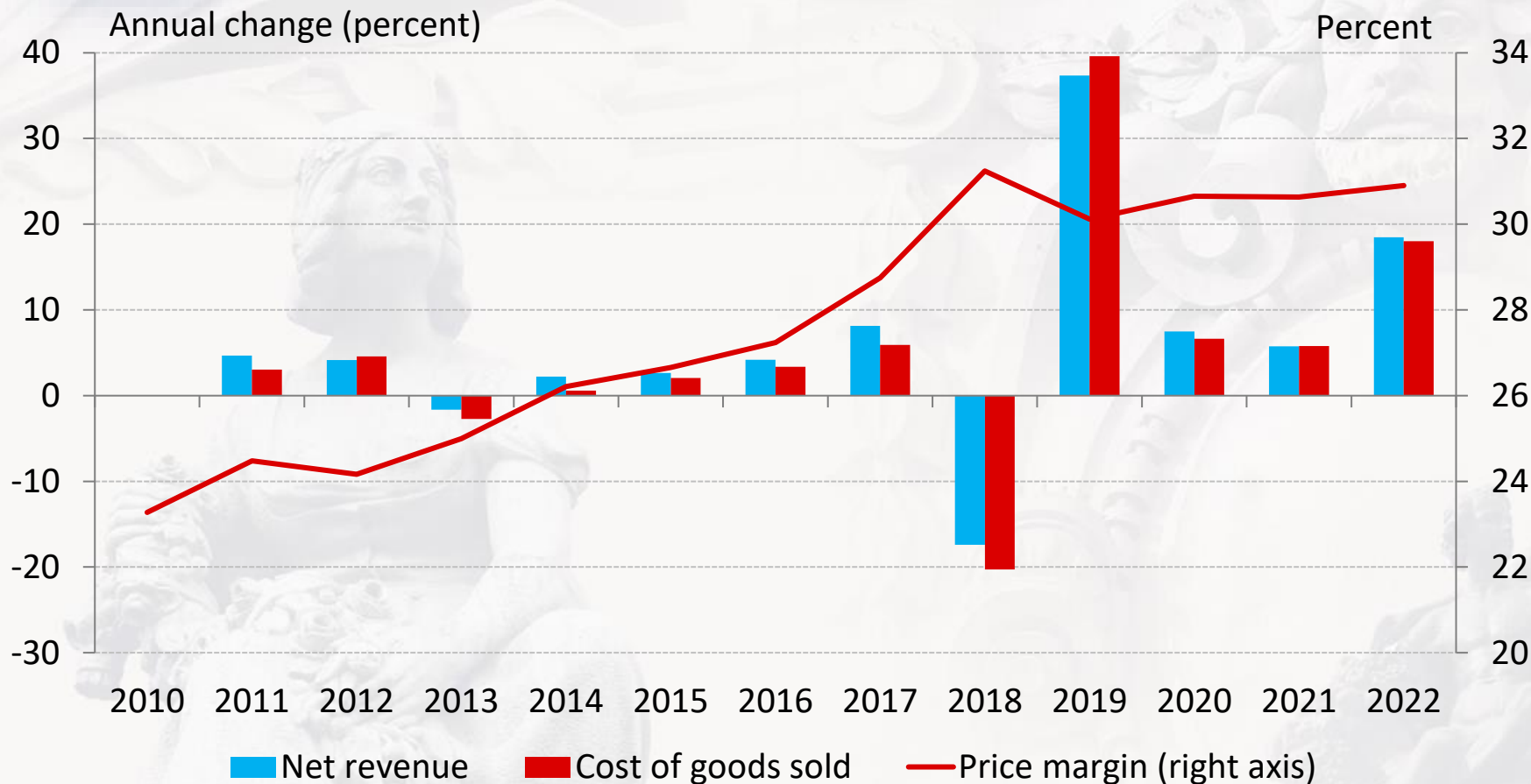
**Government measures to increase competition between companies,** such as the introduction of a price monitoring system, facilitated the easing of domestic food inflation.

## CUMULATIVE CHANGE IN FOOD PRICES NET OF EXCHANGE RATE CHANGES

Note | HICP data. Under Eurostat's methodology, food includes soft drinks. For Hungary, data are corrected for changes in the EUR/HUF exchange rate.

Source | Eurostat, MNB calculations

# MERCHANTS OFFSET THE FALL IN MARGINS THAT THE FIXED PRICE OF PRODUCTS COVERED BY THE FREEZE BROUGHT ABOUT BY RAISING THEIR MARGINS ON OTHER PRODUCTS

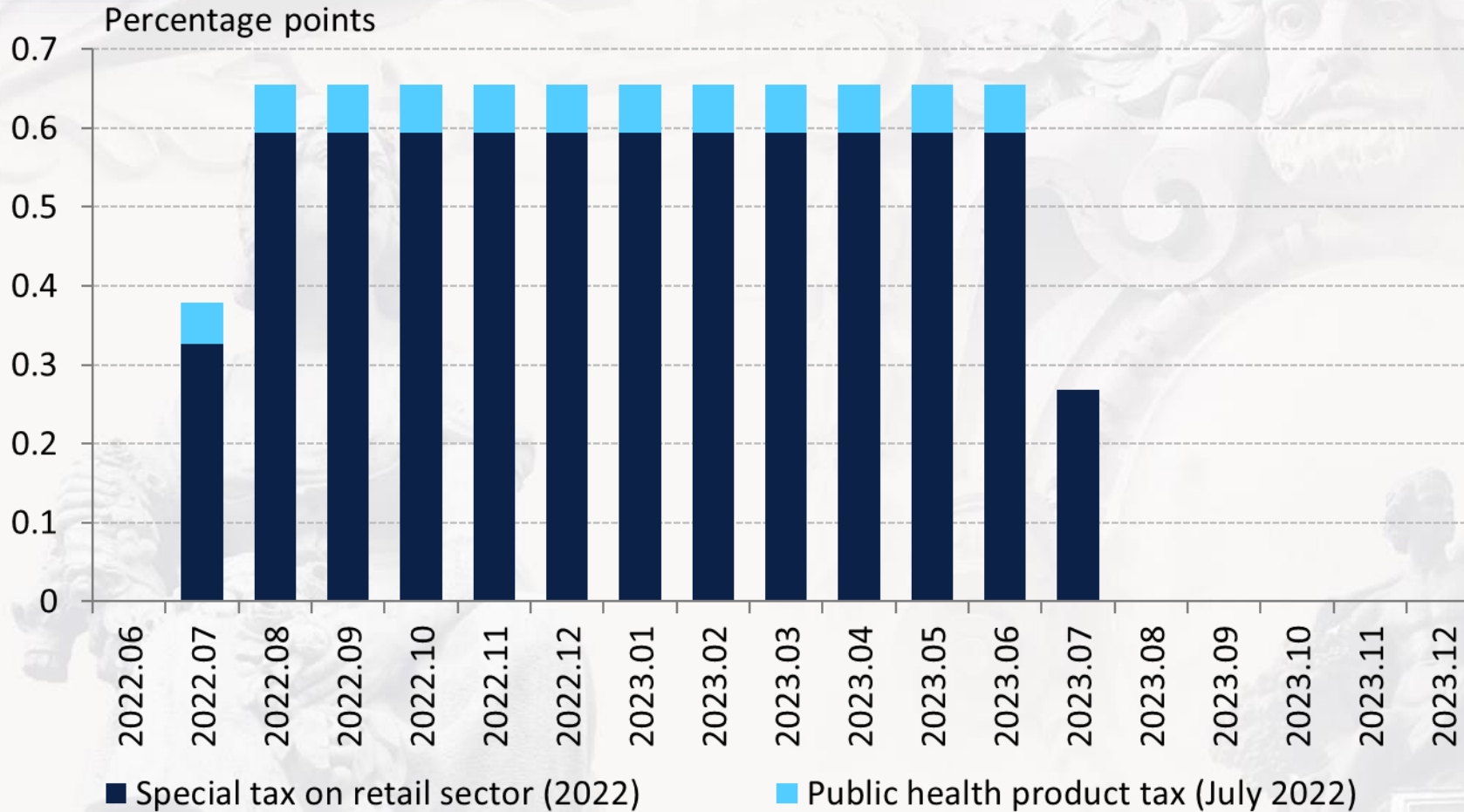


**Companies were quick to compensate for the loss on food products with a fixed price by raising the prices of other products.** The aggregate margin (net turnover relative to the cost of goods sold) of the retail trade sector calculated at sectoral level for all goods remained unchanged from 2021 to 2022. **Moreover, price caps had a knock-on effect in the entire food industry through the distortion of market demand and competition,** and pushed up the cost of purchase in other sectors, notably the hospitality sector.

## EVOLUTION OF MARGINS IN THE NON-SPECIALISED FOOD RETAIL SECTOR AND ANNUAL CHANGE IN NET TURNOVER AND THE COST OF GOODS SOLD

Note | The aggregate sectoral margin is the difference between net turnover and the cost of goods sold (NPV) in relation to net turnover. Source | Database of corporate and dividend tax

# TAX MEASURES DROVE UP FOOD INFLATION BETWEEN JULY 2022 AND JULY 2023

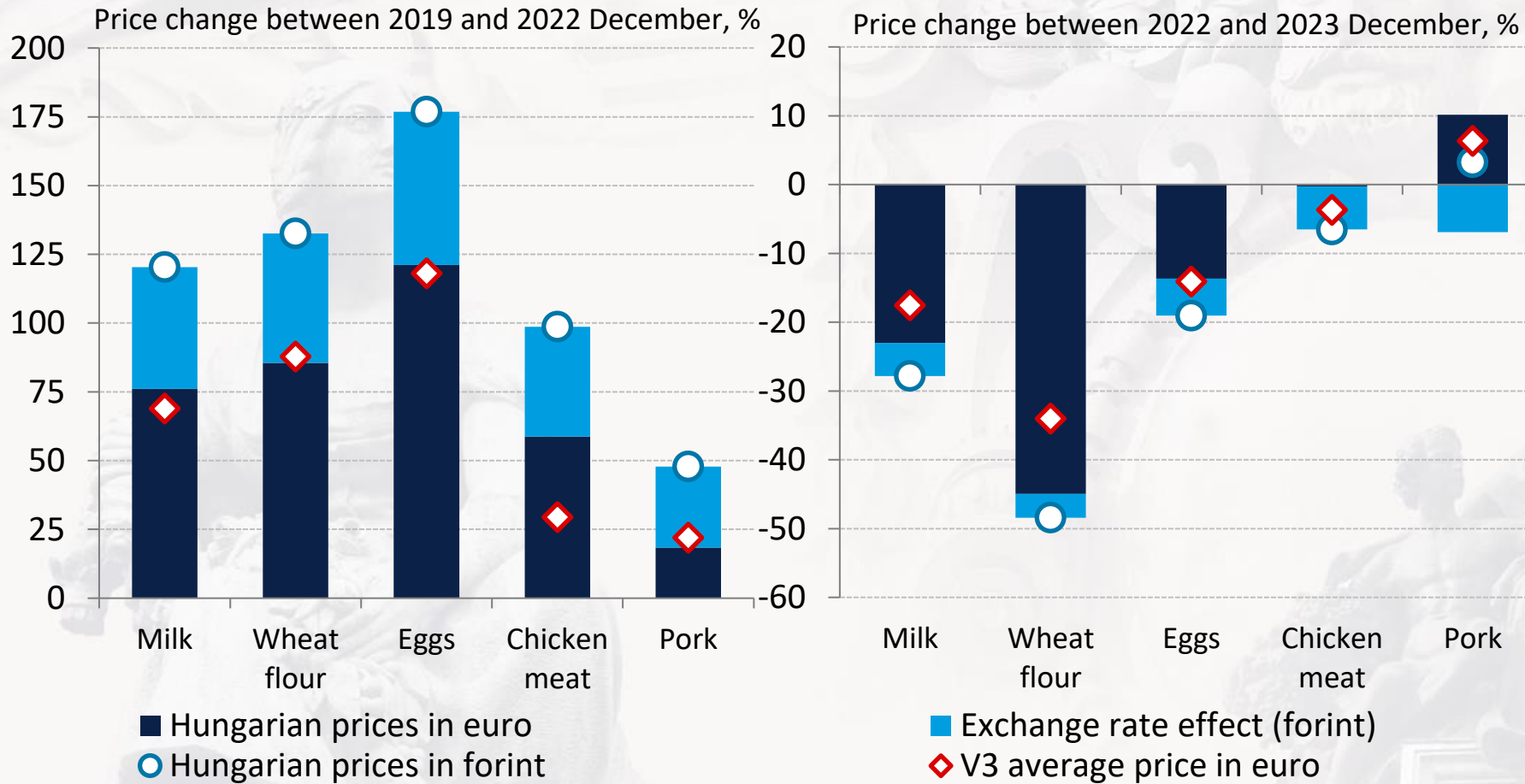


The special retail sales tax and the public health product tax introduced in 2022 exerted their inflationary impact on food between July 2022 and July 2023.

IMPACT OF TAX MEASURES ON FOOD INFLATION

Source | MNB estimates

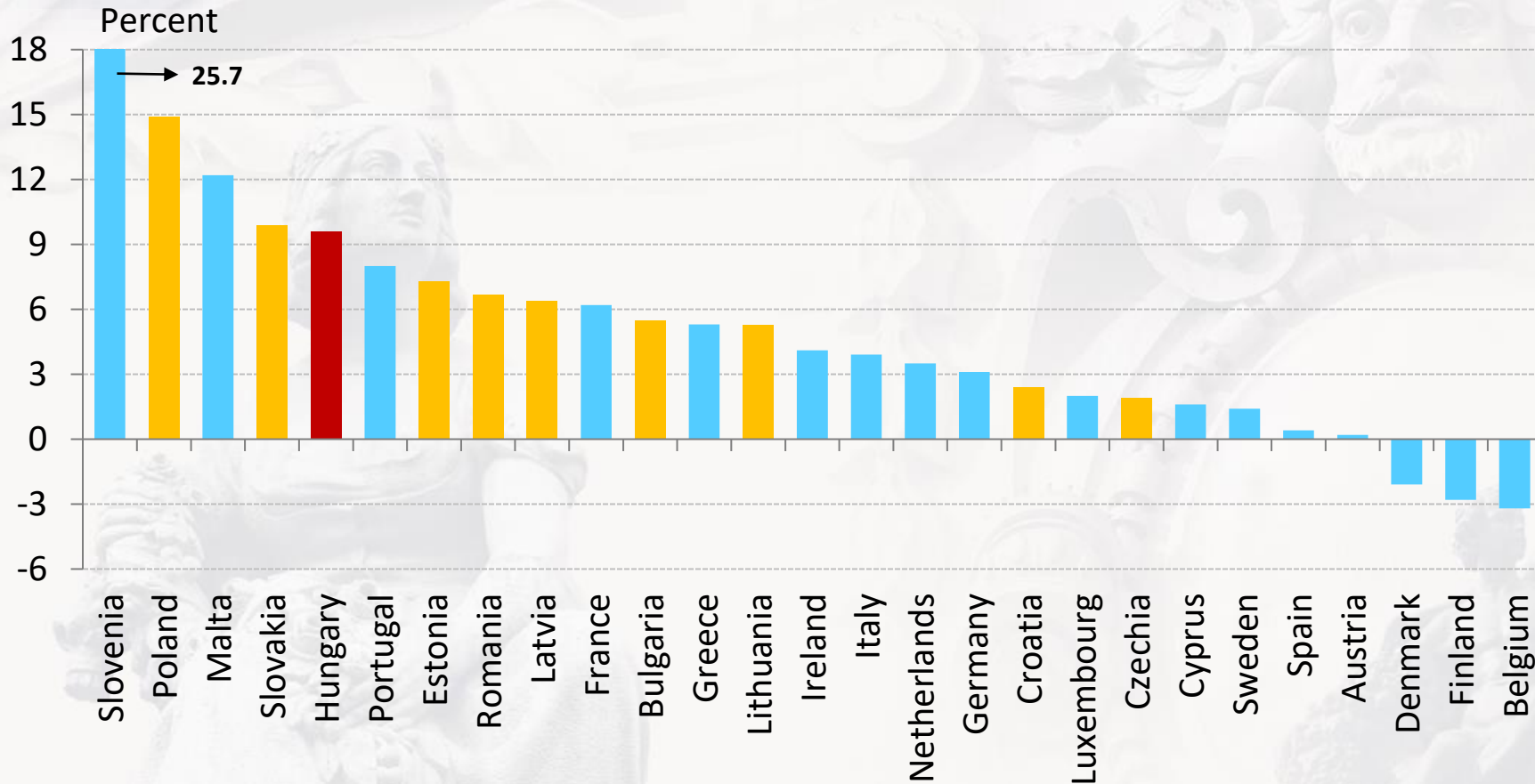
# CHANGES IN EXCHANGE RATE FUELLED INFLATION IN 2022 BUT HAD A DISINFLATIONARY EFFECT IN 2023



With stronger demand, it was easier for companies to pass on the exchange rate effect in 2021 and 2022 H1 than before; consequently, per-unit depreciation of the forint had a greater impact on prices.

After the MNB took steps to stabilise the financial markets, the strengthening of the forint had a disinflationary effect from October 2022 onwards.

# DEMAND-SIDE EFFECTS ALSO CONTRIBUTED TO THE RISE IN INFLATION IN 2022 H1



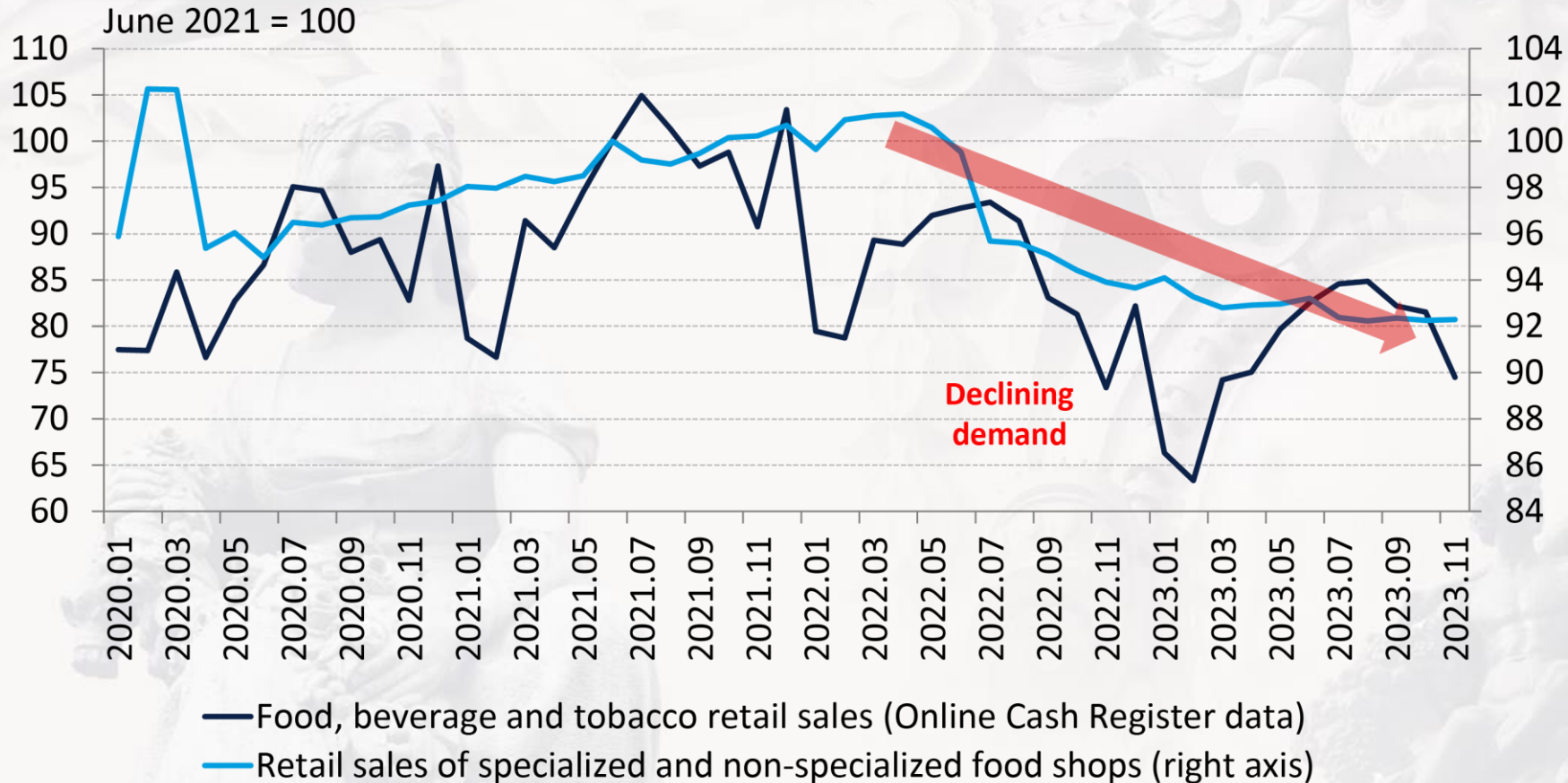
As a result of the government's income-boosting measures, retail sales in 2022 H1 moved up by nearly 10 percent in annual terms, landing Hungary in the top third of the European Union.

CHANGE IN RETAIL SALES IN 2022 H1 RELATIVE TO THE SAME PERIOD OF THE PREVIOUS YEAR

Note | Data adjusted for seasonal and calendar effects.  
Source | HCSO, MNB



# HOWEVER, DECLINING DEMAND REDUCED COMPANIES' PRICING LEEWAY IN 2023



While government transfers boosted domestic demand in 2022 H1, **from 2022 H2, weakening demand had a disciplining effect on corporate repricing.**

## VOLUME OF SALES OF SPECIALISED AND NON-SPECIALISED FOOD STORES

Note | Data adjusted for seasonal and calendar effects.

Source | Online Cash Register data, HCSO

# CYCLICAL AND INTERNATIONAL TRENDS HAVE IMPROVED BUT HUNGARY CONTINUES TO HAVE STRUCTURAL SHORTCOMINGS



## INTERNATIONAL FACTORS

- Falling **global food prices**
- Normalising **global energy prices**
- **More favourable weather conditions**



## DOMESTIC STRUCTURAL FACTORS

- Low **efficiency**
- High **energy intensity**
- Poor **productivity**
- **Competitiveness gaps**



## DOMESTIC CYCLICAL FACTORS

- **Base effects**
- Weakening **consumption** has a disciplining effect on repricing
- Easing **profit-driven inflation**
- The **disinflationary effect of exchange rates** is becoming increasingly apparent



**THANK YOU  
FOR YOUR  
ATTENTION!**

---

[mnb.hu/en](https://mnb.hu/en)



*100 years for Hungary's  
prosperity*