



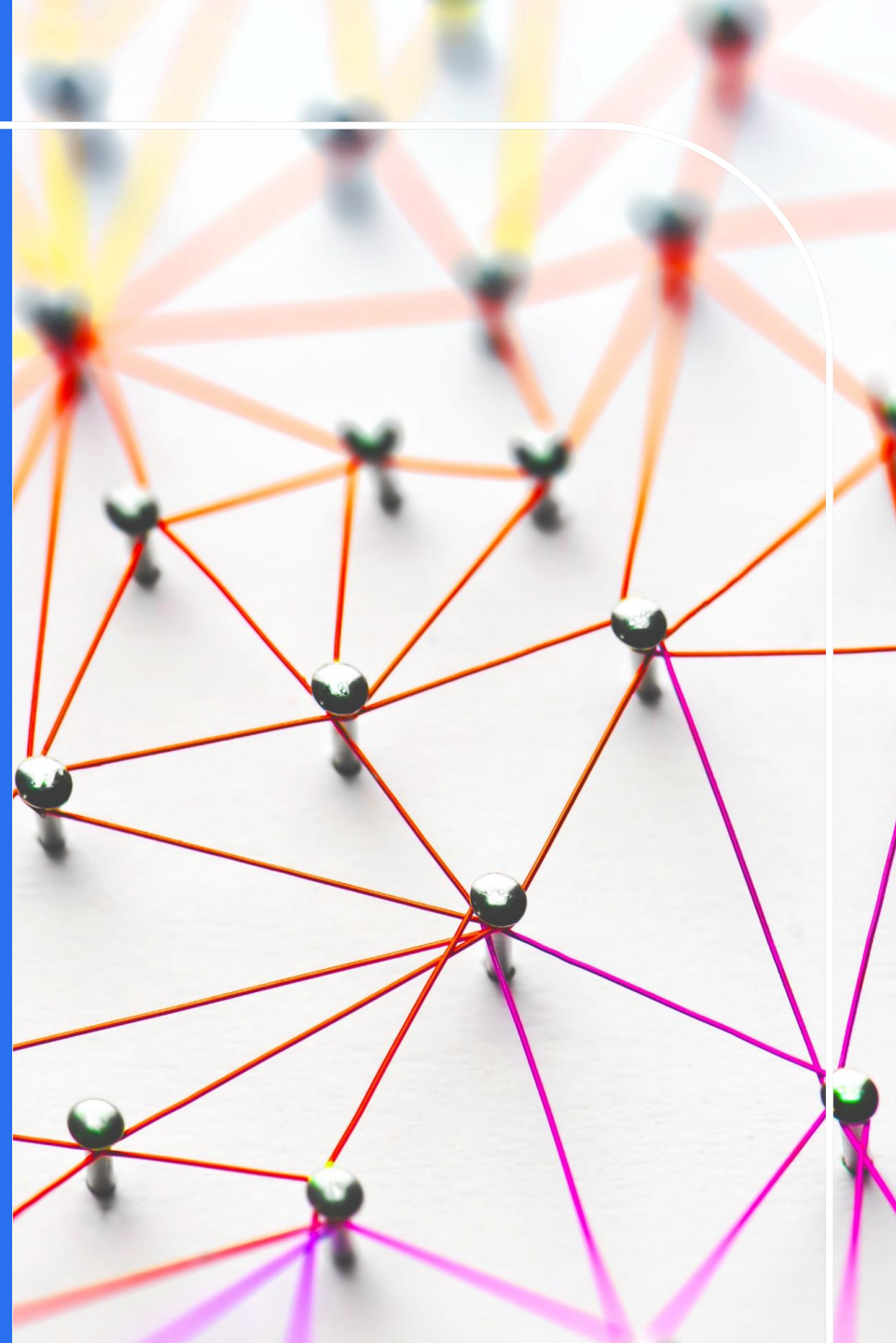
To what extent is CEE resilient to German slowdown?

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contribution on Germany: Gerald Walek

Note: Past performance is not necessarily indicative of future results.
CEE8: Croatia, Czechia, Hungary, Poland, Romania, Slovenia, Slovakia, Serbia

CEE ties to German economy

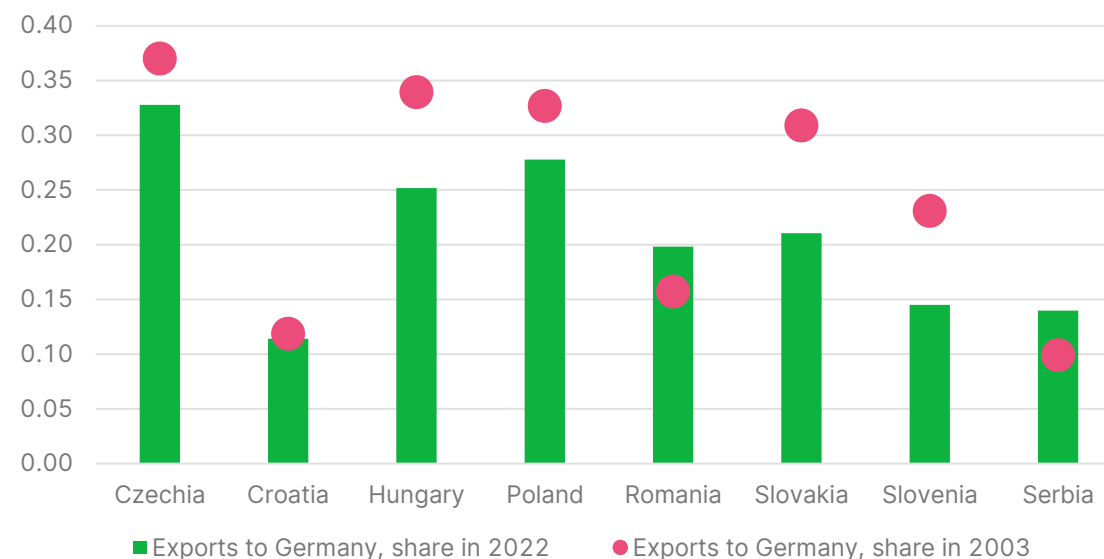
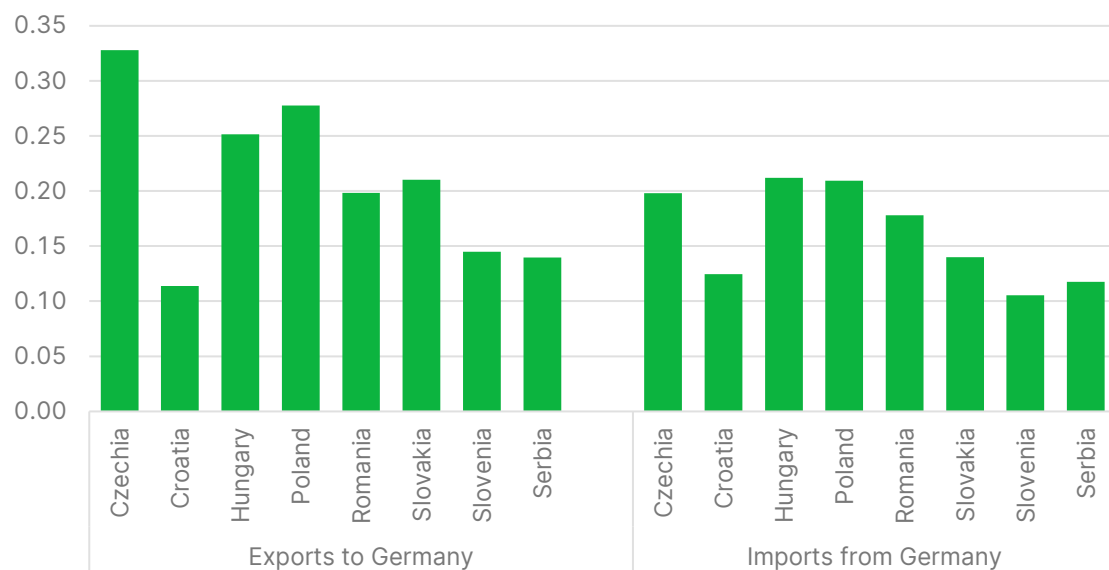
The German economy has stagnated for the last couple of quarters and has been facing structural challenges alongside cyclical fluctuations. The development of the CEE region is closely tied to the German performance.



German weakness and structural challenges that economy is facing worry region

- Although the share of exports to Germany declined over the last two decades, **Germany remains the main trading partner of the region.**
- The gross value added in German exports is twice as high as in final demand. **Growth of German exports is thus particularly important for the prospects of industry in CEE.**
- **GDP growth in Germany and CEE is strongly correlated.** Czechia would be the most impacted country from any shock to German growth. Interestingly, Romania sees the second highest impact, but the shock recedes quickly. For Poland and Slovakia, the bottom point of the impact comes with a delay of one quarter.

Germany is number one trading partner for CEE, but share of exports to Germany went down over last decades



Germany is main trading partner for CEE countries

Czechia exports roughly one third of goods to Germany, Hungary and Poland a quarter of it. Croatia is the least exposed to the German economy with roughly 10% of total exports going to Germany.

Share of exports to Germany declined across region

Compared to two decades ago, the share of exports to Germany declined the most in Hungary and Slovakia. In Romania and Serbia, it marginally increased, on the other hand.

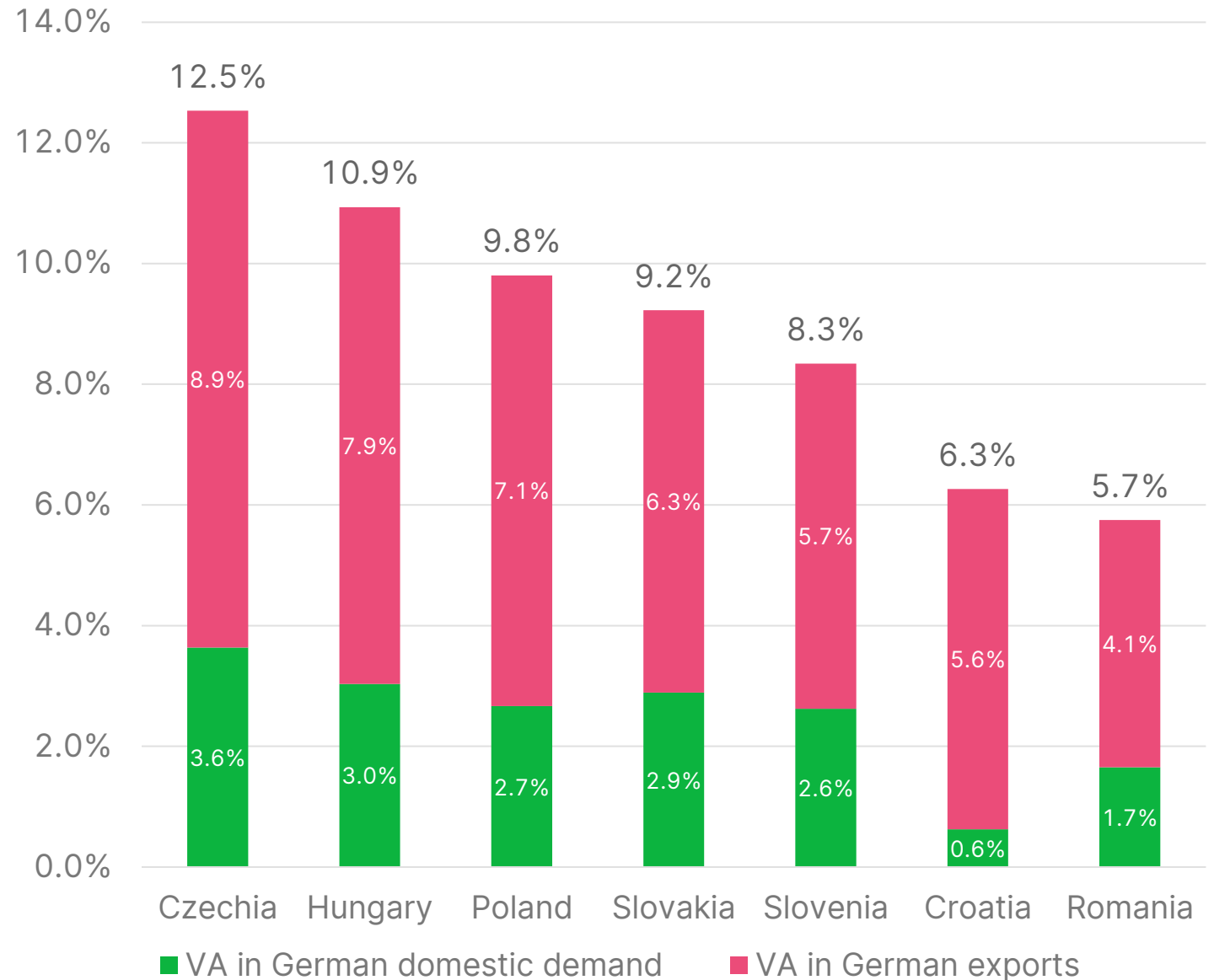
Share of CEE value added embedded in German economy

In every CEE country the value added embedded in German exports and final demand to total value added differs from 12.5% in Czechia to 5.7% in Romania.

It is worth pointing out that value added in German exports is twice as high as in case of share of value added in final demand. The performance of German exports thus seems to be of particular importance for the region.

From that perspective, the recent slowdown in the growth of German exports is a negative factor for CEE development.

VALUE ADDED IN GERMAN EXPORTS AND FINAL DEMAND

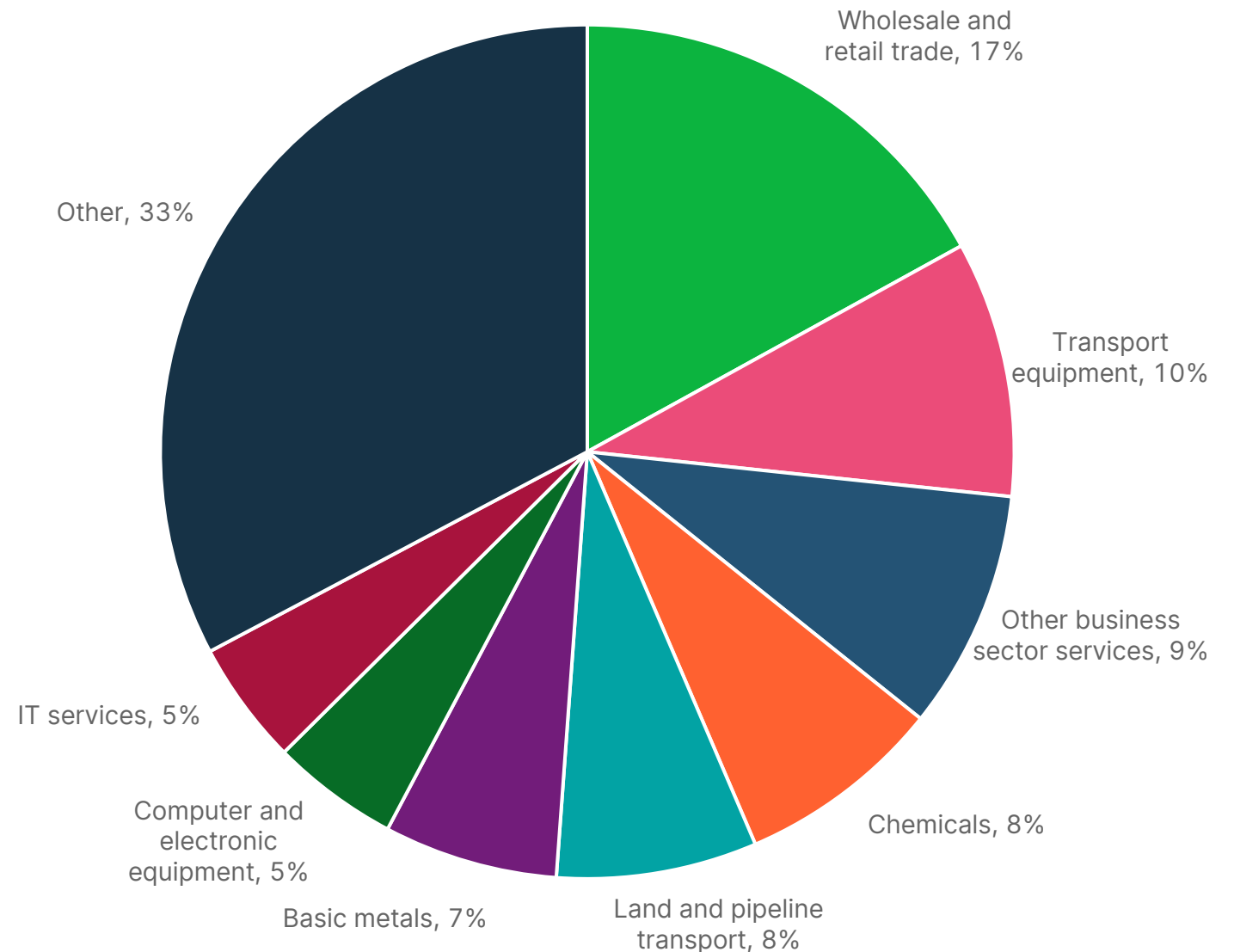


Share of value added exported to Germany by industry

Looking across the industries, wholesale and retail trade has the highest share in the gross value added exported to Germany (17% of total value added), followed by transport equipment (10% of total value added).

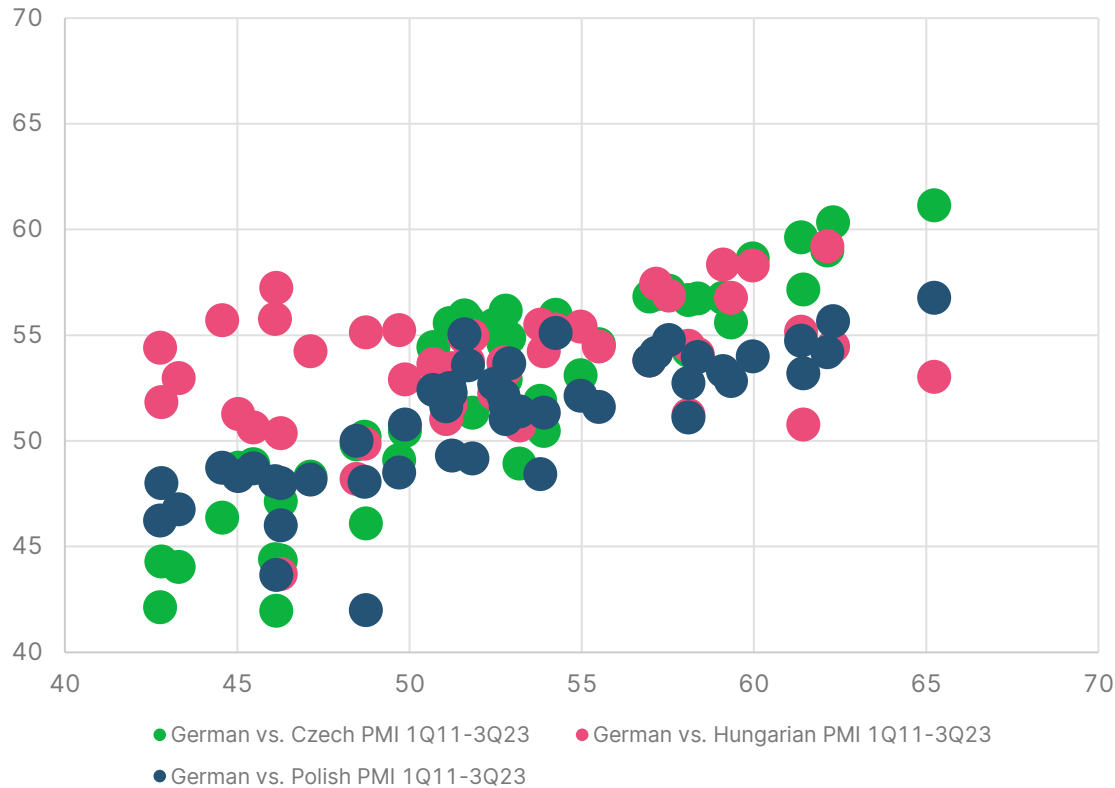
Another strong industry is business sector services, which includes companies providing administrative and technical support to German firms. Chemicals, metal industry and transportation are also significant, in line with CEE's economic structure.

INDUSTRIAL SHARE IN GVA EXPORTED TO GERMANY

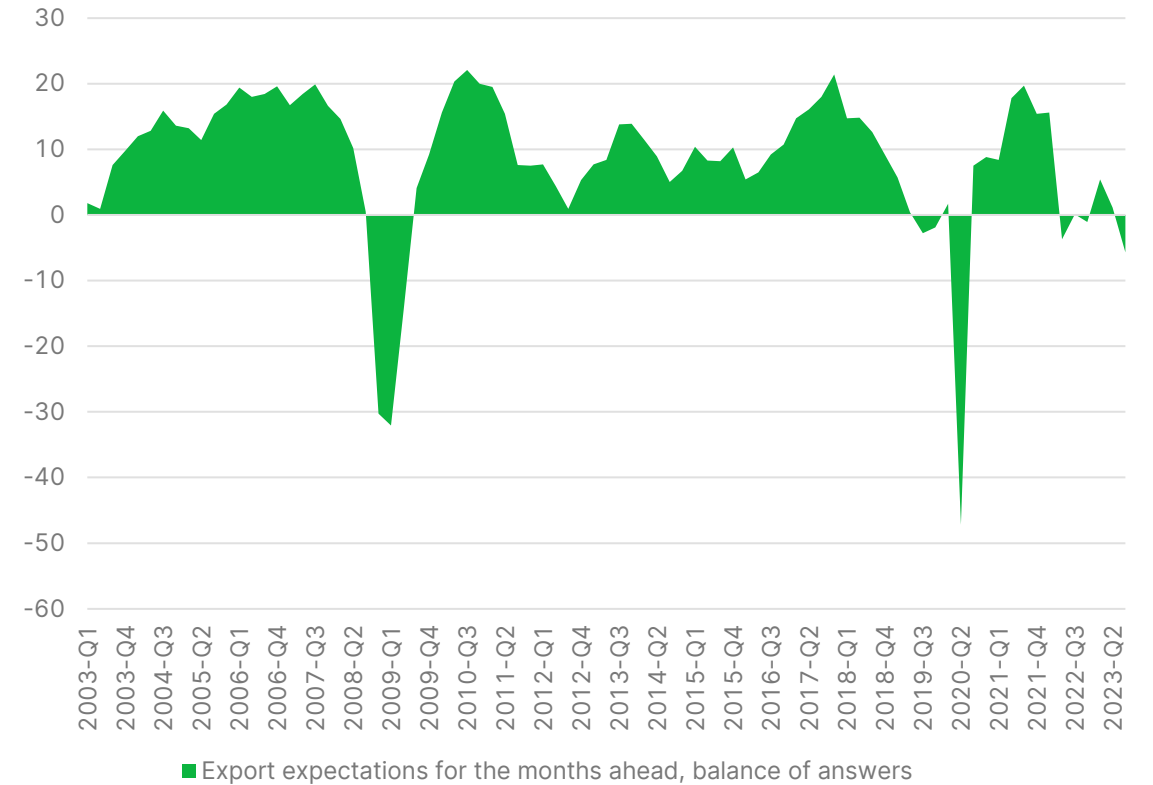


Weak market sentiment in Germany is source of pessimism in region

Manufacturing PMI Index in Germany and selected CEE countries

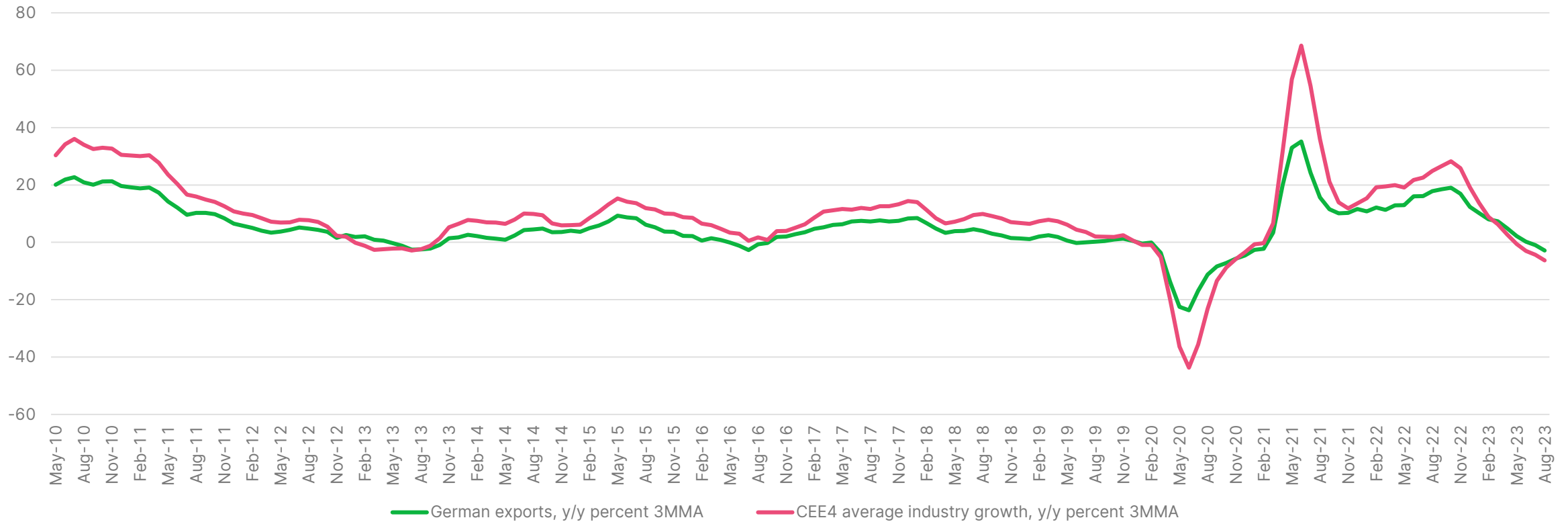


Export expectations for months ahead in Germany are weakest since 2008/2009 (excl. pandemic)



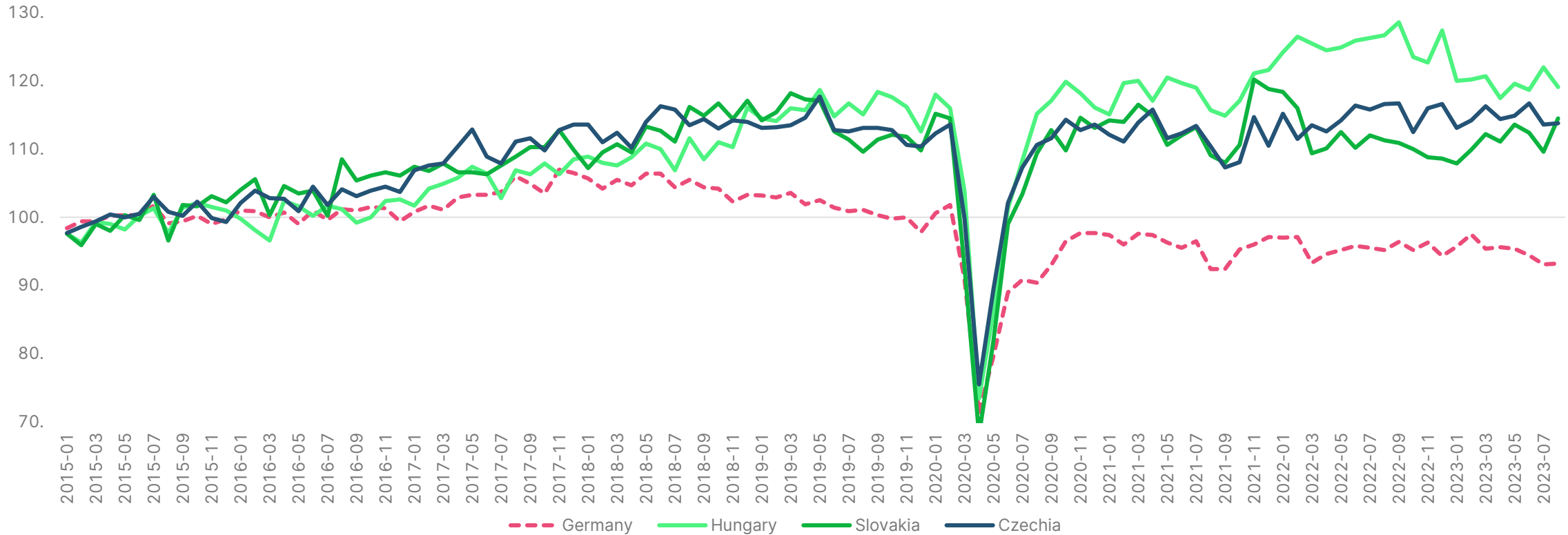
German exports and growth of industry in region go hand in hand

Industrial output growth in CEE4 and German exports, 3-month moving average, percent y/y

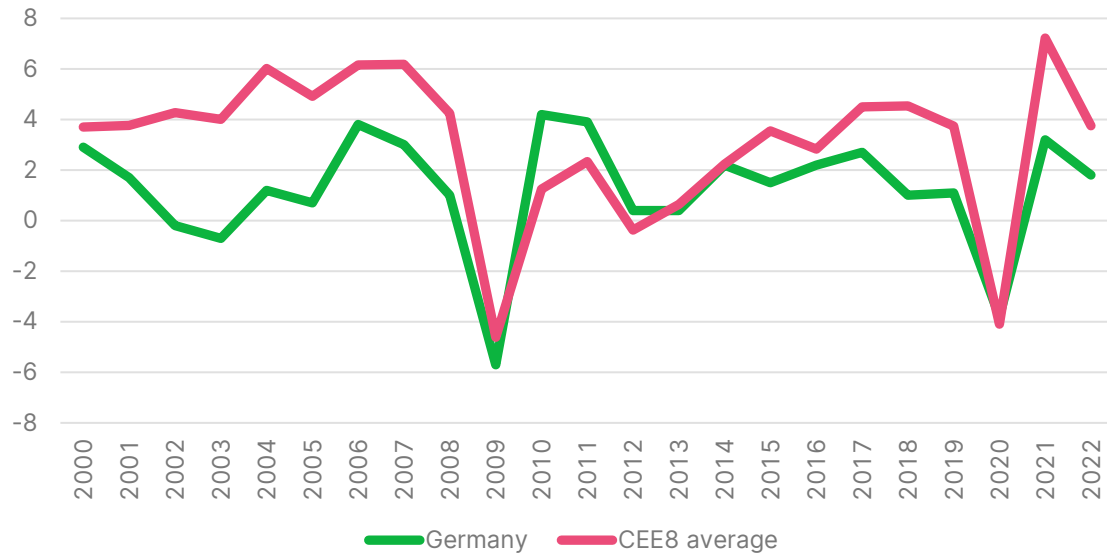


Although growth rates correlate strongly, level of industrial output in Germany and in the CEE region diverged

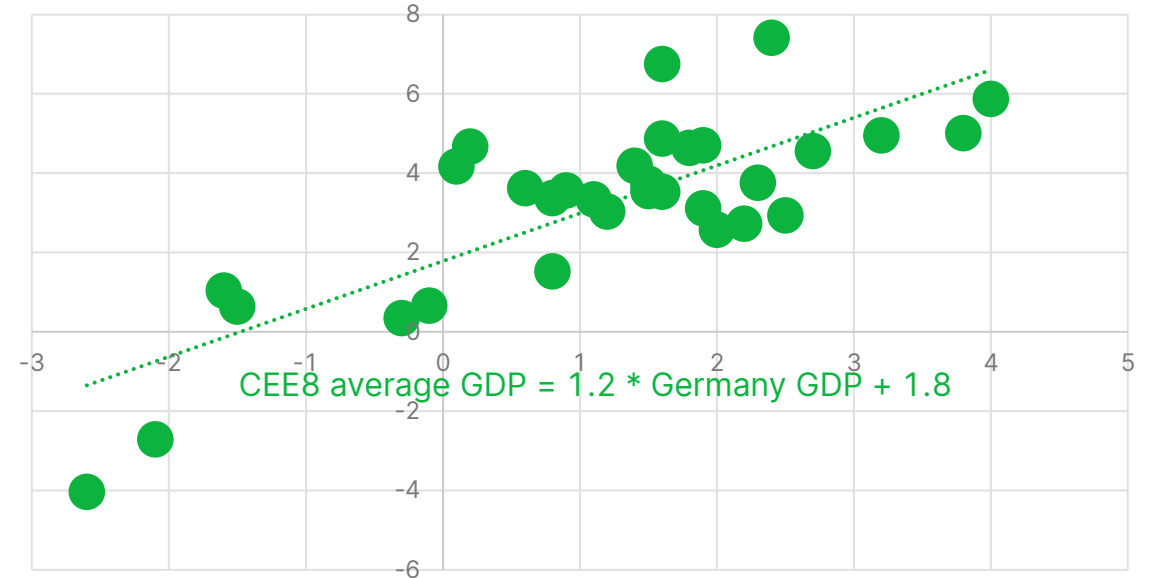
Industrial output. Index 2015=100 seasonally and calendar adjusted



Growth rates in Germany and CEE correlate strongly



German vs. CEE8 average annual growth, 2000-22, percent

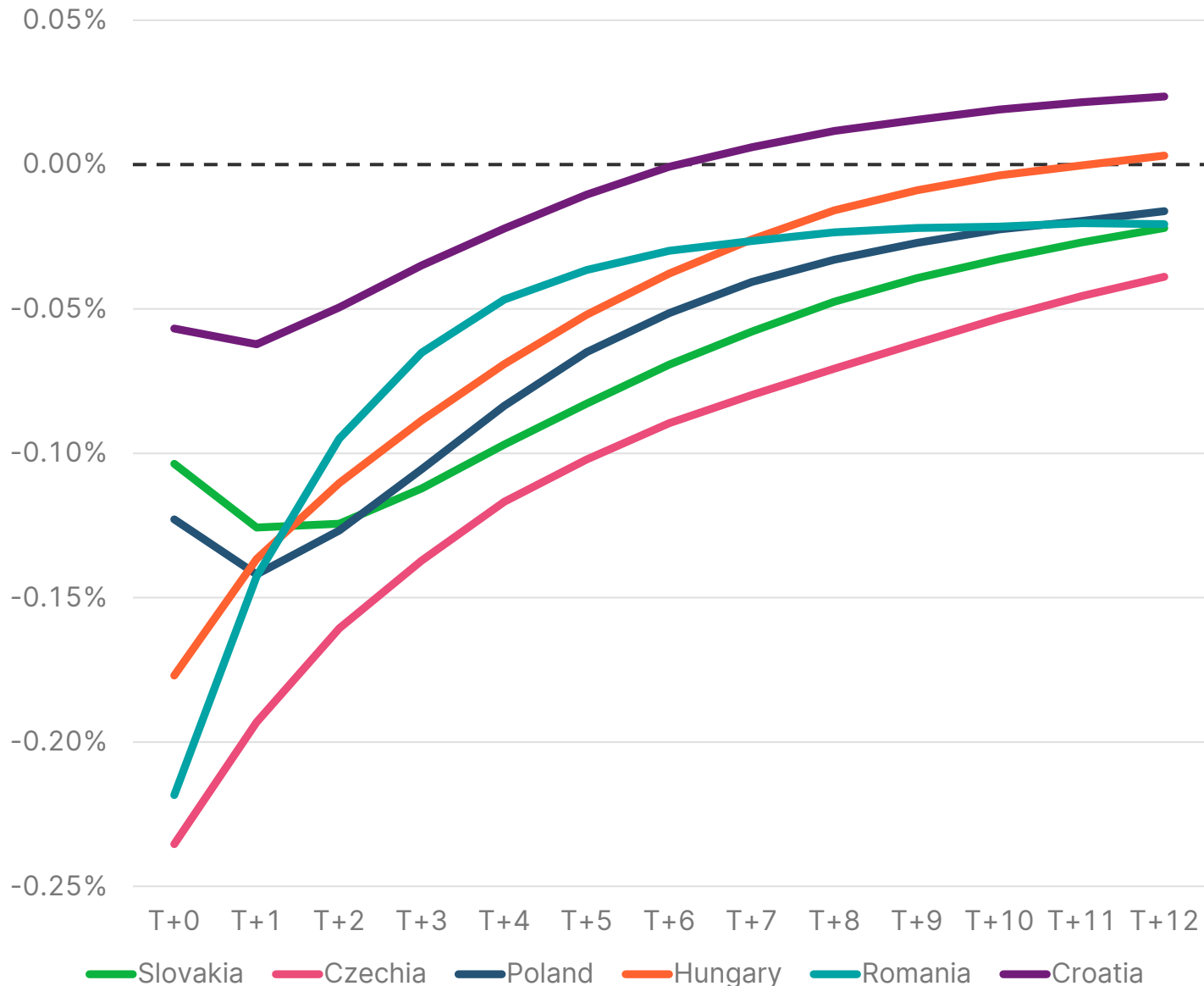


German (X axis) vs. CEE8 avg quarterly growth (Y axis), 1Q15-2Q23, percent y/y

There is a clear relationship between the performance of the German economy and the development of the CEE region. However, the size of economic contraction in Germany matters. The correlation between Germany and respective countries differs, obviously. German growth correlates the most with GDP in Czechia, Hungary, Slovenia and Slovakia, the least with GDP in Serbia.

RESPONSES OF Q/Q GDP GROWTH TO -0.5% SHOCK TO GERMAN GDP

CEE AND GERMAN TIES



Growth response to German shocks

To quantify the relationships between CEE economies and Germany, we used a (Bayesian) Global Vector Autoregression Model (BGVAR), whose sole purpose is to model relations among complex entities.

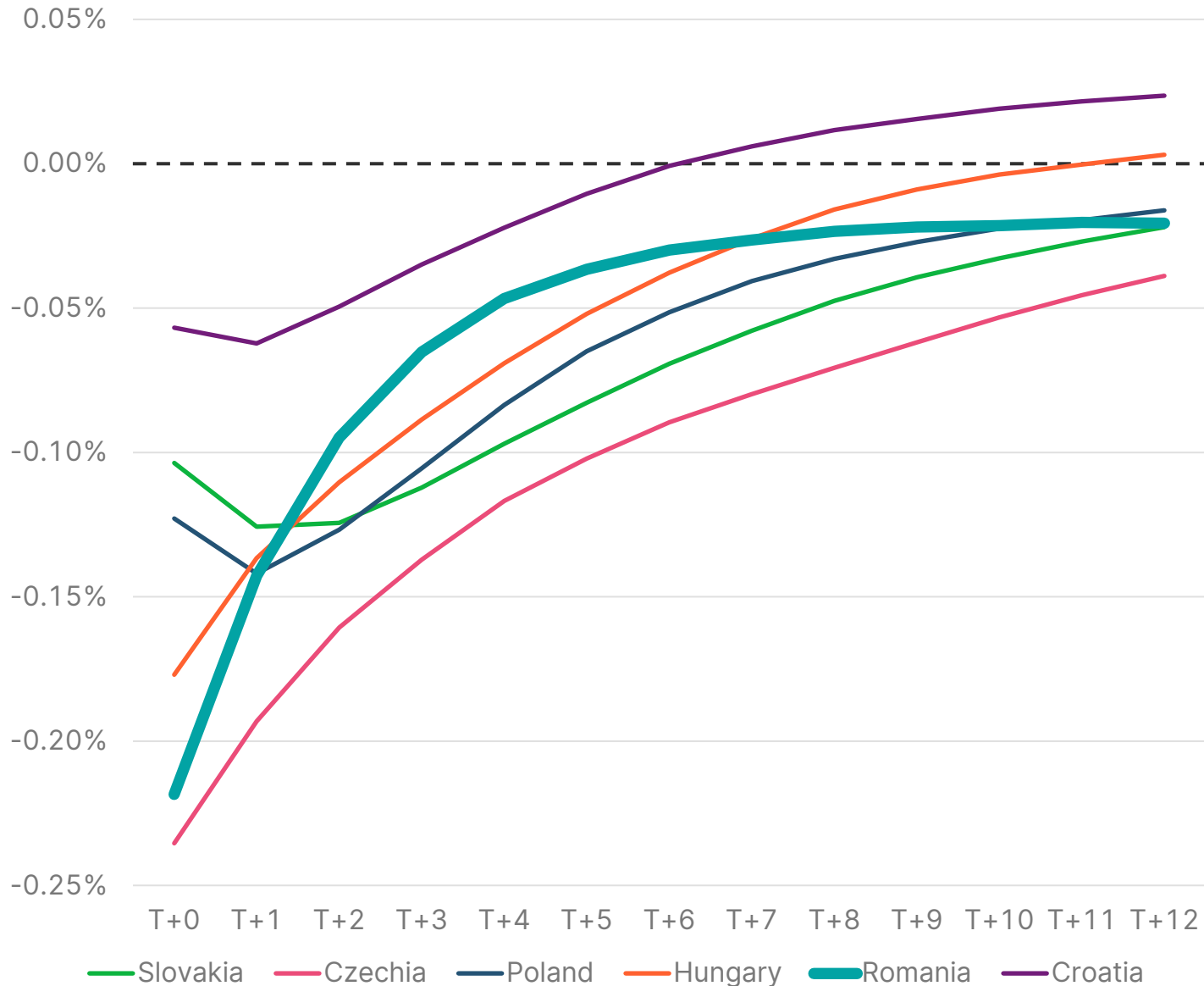
The responses to a -0.5% q/q shock to German GDP follow expectations. Czechia is the most impacted country; from the very moment the shock occurs until the end of the observation period.

Interestingly, Romania sees the second highest impact at T+0, but the shock recedes quickly. For Poland and Slovakia, the bottom of the impact comes with a delay of one quarter, and the absorption is also much slower than in Romania or Hungary.

**Poland and Romania have restricted sample size 3Q2009-2Q2023, otherwise the sample is 1Q2008-2Q2023*

RESPONSES OF Q/Q GDP GROWTH TO -0.5% SHOCK TO GERMAN GDP

CEE AND GERMAN TIES



Why Romania is so sensitive to German shock?

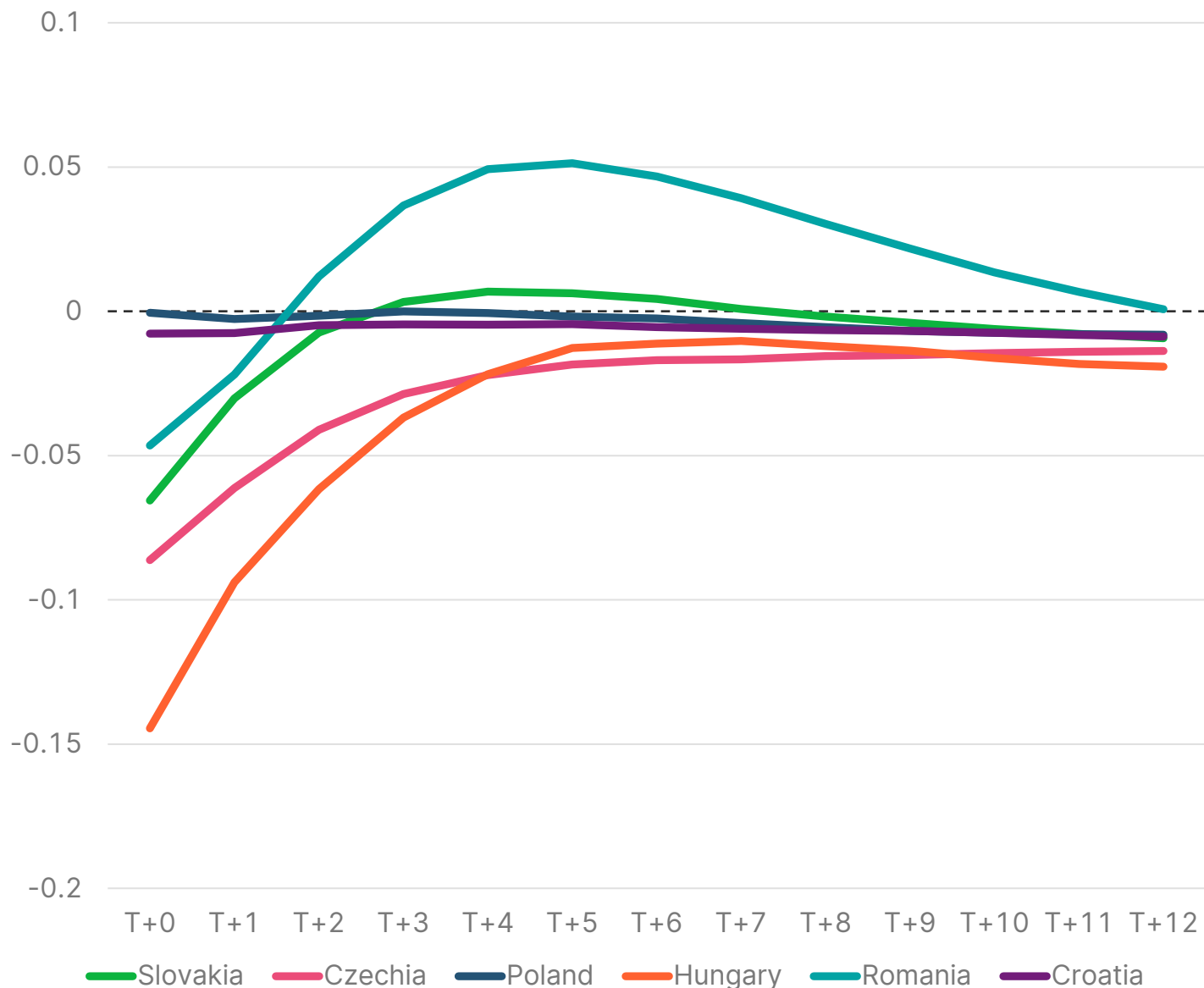
Although Romania has the lowest share of gross value added in German exports and final demand, it is affected quite strongly in case of shock to German growth.

One reason behind such response maybe that Romanian car manufacturing value chains provide mostly low value-added components. Romanian suppliers are smaller and prone to be less integrated in the value chains also due to geographical distance. It would thus seem natural for German manufacturing in face of lower demand to cut orders from the less important and more distant suppliers to save the costs, as well.

**Poland and Romania have restricted sample size 3Q2009-2Q2023, otherwise the sample is 1Q2008-2Q2023*

RESPONSES EXPORT/IMPORT RATIO TO -0.5% SHOCK TO GERMAN GDP

CEE AND GERMAN TIES



**If exports and imports are equal, the ratio is one.*

Export/import ratio response

The ratio between exports and imports also reacts to a negative shock to German output. The most affected is Hungary, where we see a decline in the ratio by -0.15* as the German economy struggles. Czechia follows a similar path, albeit at a smaller magnitude from the beginning. Slovakia recovers quickly, while Romania, Poland and Croatia seem to be relatively unaffected.

Almost all countries converge to equilibrium after five quarters, except for Romania, which actually sees a slight uptick in the export/import ratio in this period. However, for this country, the confidence intervals were quite substantial, so the trajectory should be taken with caution.

Why is Germany so weak?

Germany's economy has already been below-average compared with the other Eurozone countries since mid-2021. Germany's high dependence on manufacturing and global trade play a key role in this development. The economic model, which relied on cheap Russian gas imports and high-quality industrial exports, seems to have come to an end.

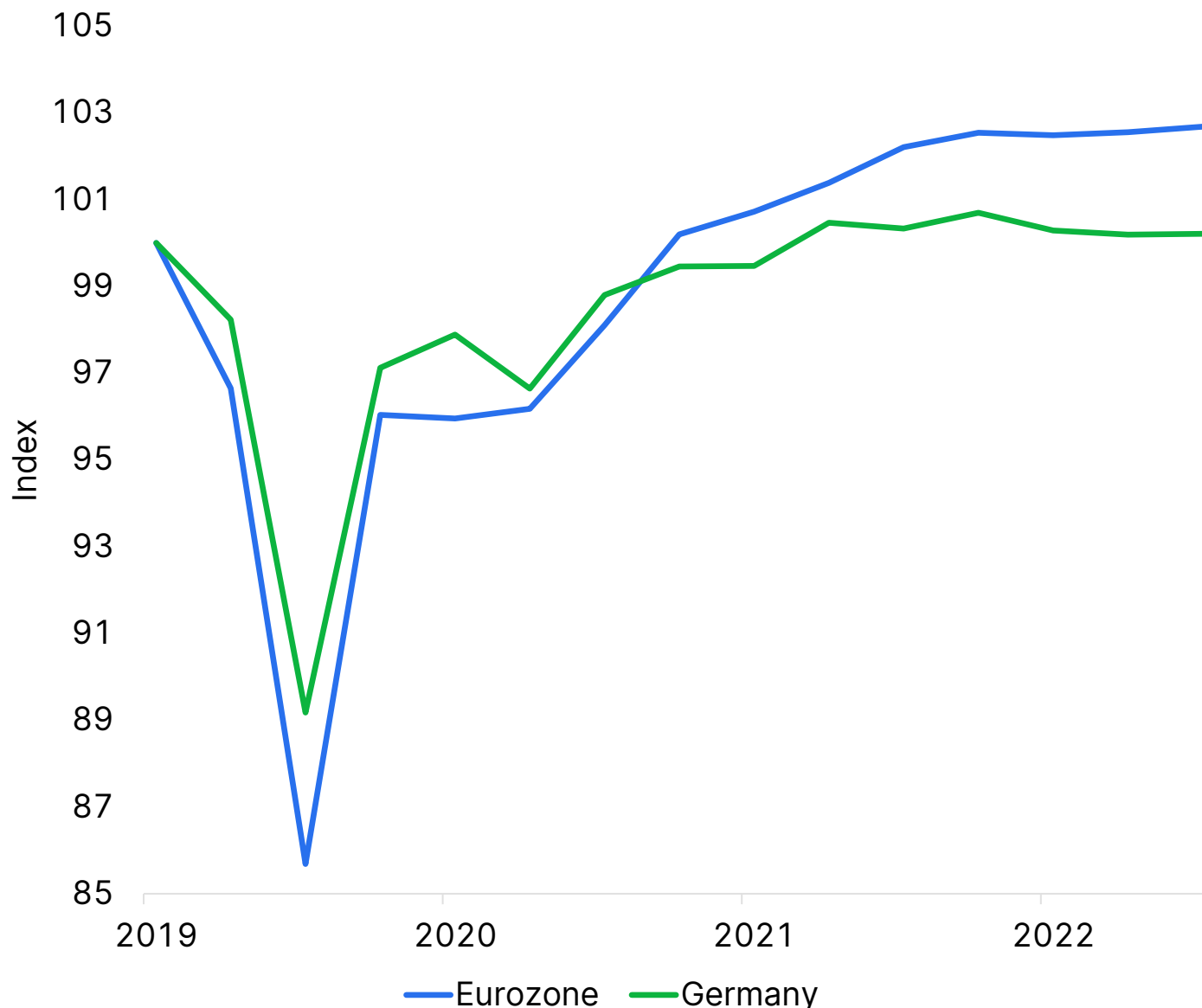


Stagnating German economy

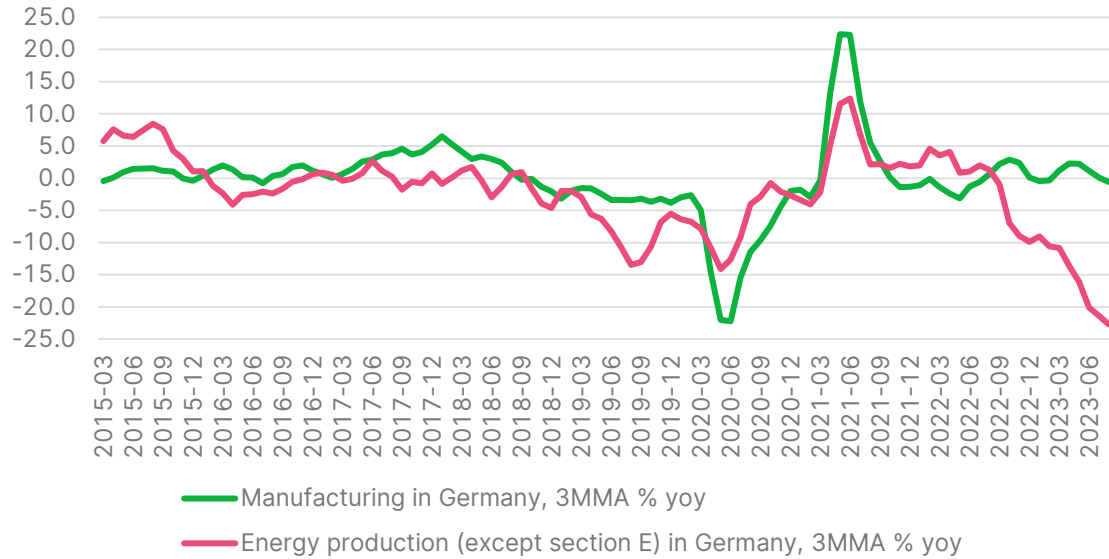
Germany's economy has already been stuck in a phase of stagnation for several quarters. A comparison with the growth momentum of the Eurozone shows that Germany's growth has already been below-average compared with the other Eurozone countries since mid-2021.

Germany's high dependence on manufacturing and global trade play a key role in this development. While the average contribution of the manufacturing sector to value added in the Eurozone is around 17%, Germany's contribution is significantly higher at 21%.

EUROZONE VS. GERMAN ECONOMIC PERFORMANCE

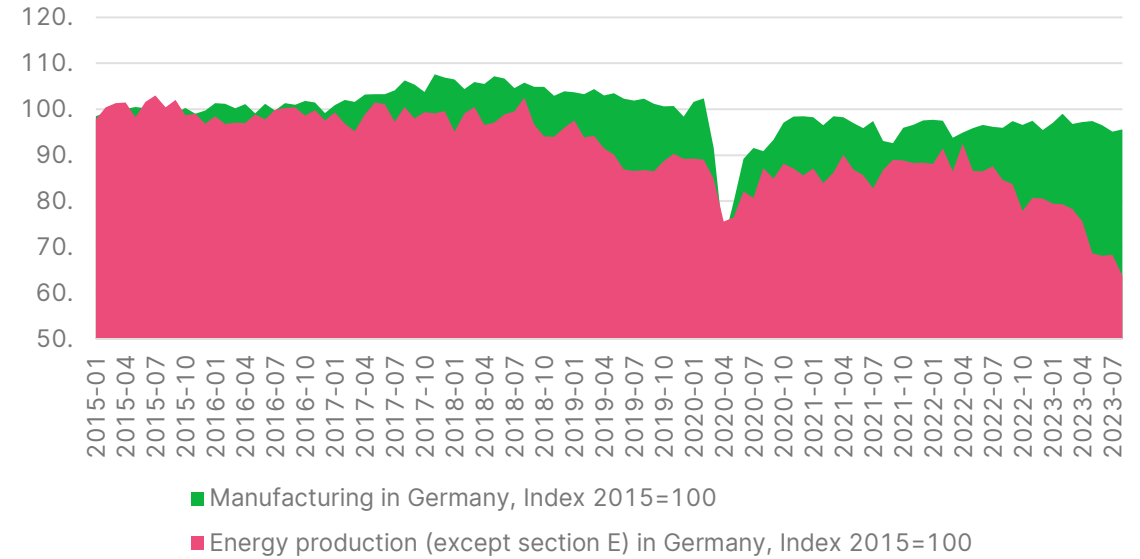


Trends in industrial production in Germany



Year-on-year production dynamics in the whole manufacturing sector vs. the energy sector

Following an overshoot at the height of the pandemic, the manufacturing sector has been facing continuously declining demand since the end of 2021. The energy sector is in a particularly weak condition, marking more than a 20% decline y/y in the second half of 2023.



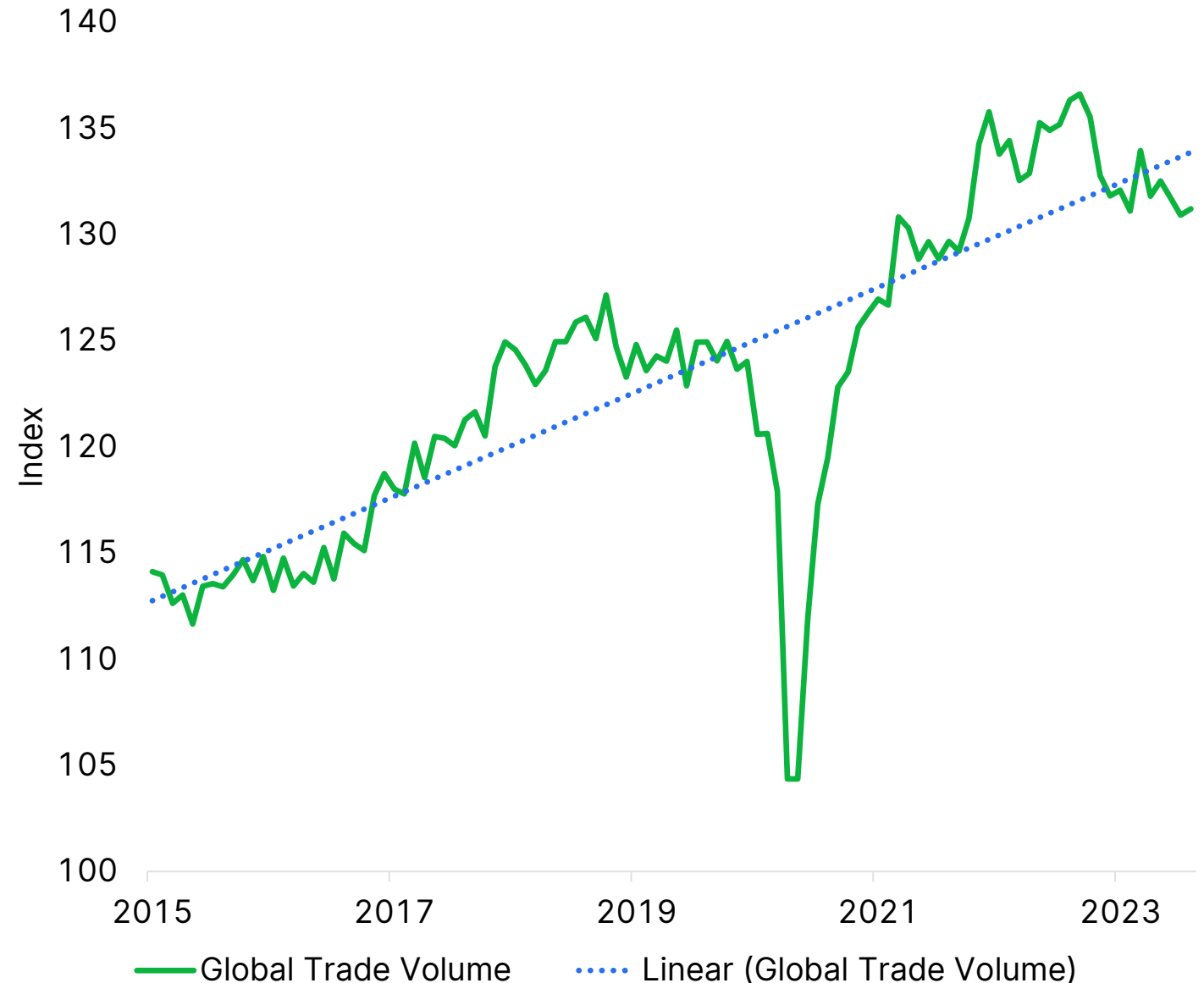
Long-term performance of the whole manufacturing sector vs. the energy sector

Stagnation in world trade hits German manufacturing

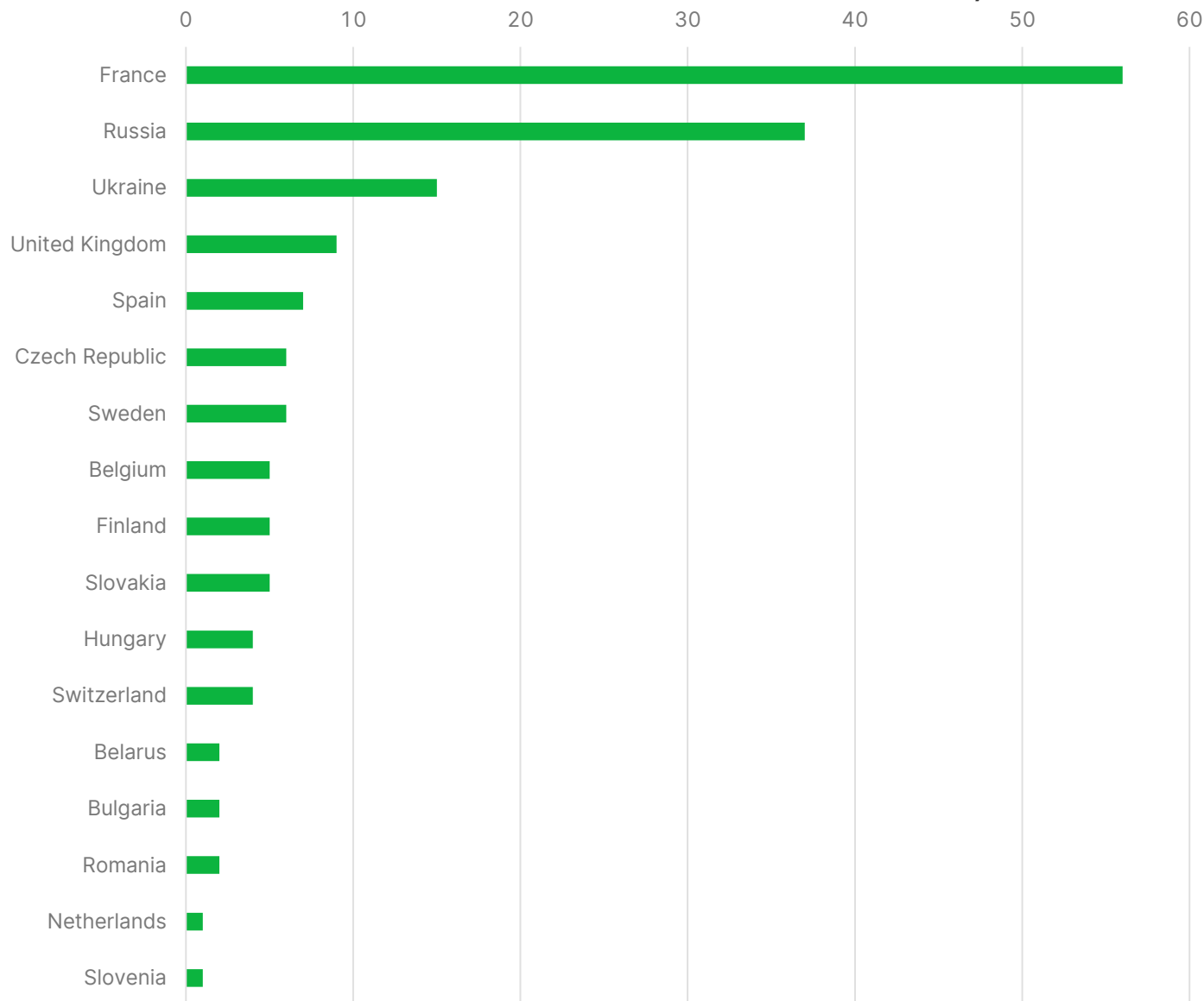
The weakness of global manufacturing is reflected in continued stagnation in world trade. After overshooting in 2021 and 2022, the volume of world trade during the last few months has again fallen well below the growth trend of recent years.

Given the high importance of foreign trade for the German economy (German exports account for around 50% of GDP), this development is hitting Germany harder than average.

GLOBAL TRADE VOLUME



NUCLEAR POWER PLANTS IN USE IN EUROPE, 2023



No electricity production from nuclear power plants

Germany decided not to produce electricity from nuclear power plants and has no nuclear power plants in use as of April 2023. In Europe, there are 168 nuclear power plants in use and another 10 under construction.

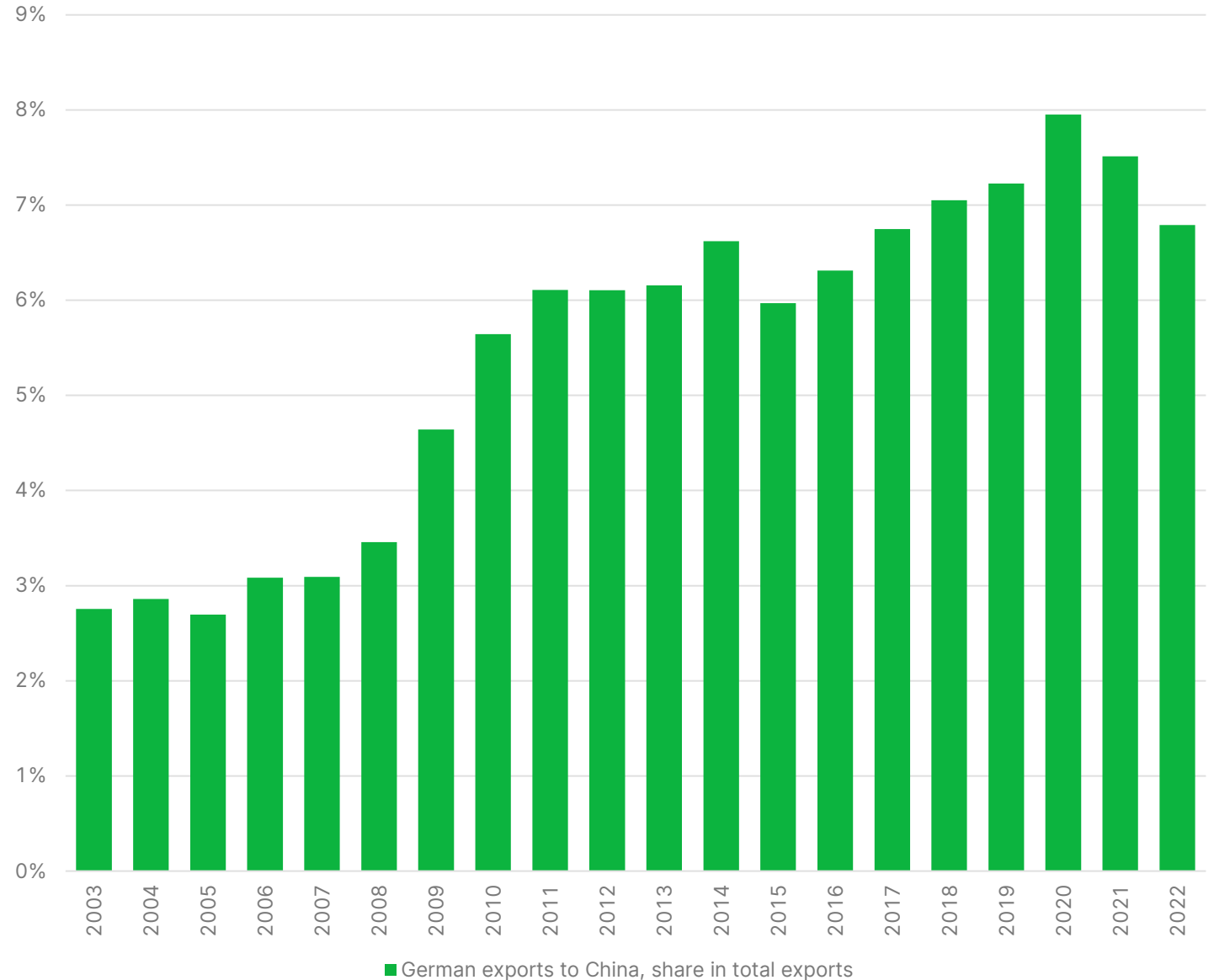
A sustainable electricity supply seems essential for securing economic development. Higher levels of GDP are correlated with greater electricity use. Historical evidence suggests that energy consumption and growth are strongly related.

China remains main trading partner for Germany

Since 2016, China has become Germany's main trading partner. Furthermore, Germany has a significant degree of dependence on China for imports of strategic inputs. The key German industries are also dependent on Chinese domestic demand.

The share of German exports to China peaked in 2020 and since then has been falling.

GERMAN EXPORTS TO CHINA

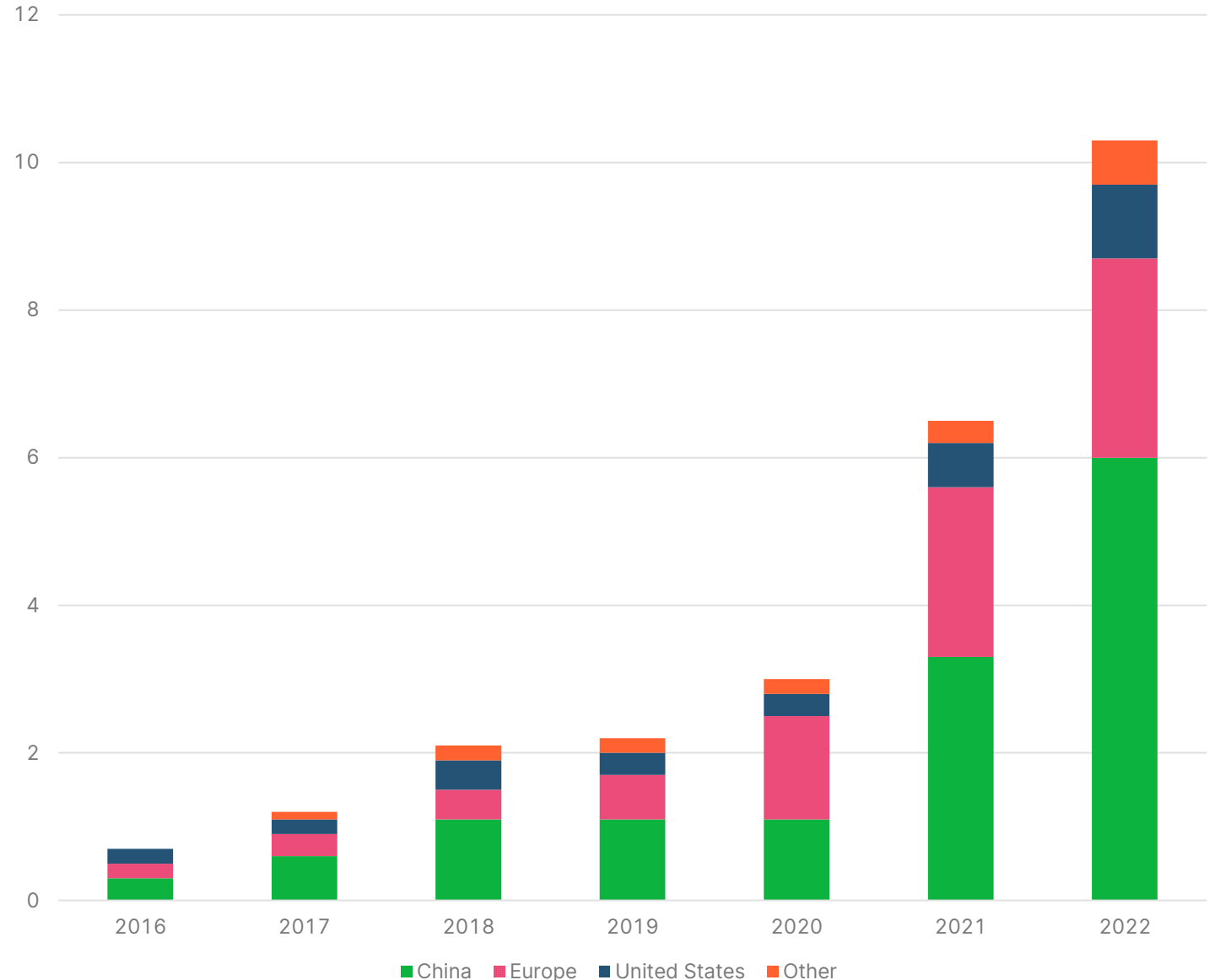


Automotive sector threatened

Germany's car making is also under threat from China. China has become the world's leading exporter of electric cars, with a 35% share in 2022, compared to 25% in 2021.

China announced it will require export permits for some graphite products to protect national security. China is the world's top graphite producer and exporter. It also refines more than 90% of the world's graphite into the material that is used in virtually all EV battery anodes.

ELECTRIC CAR SALES



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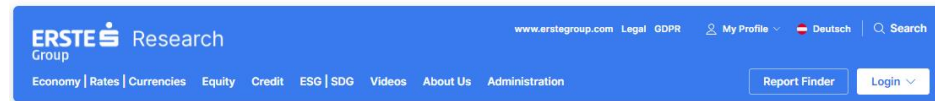


Jakub Cery



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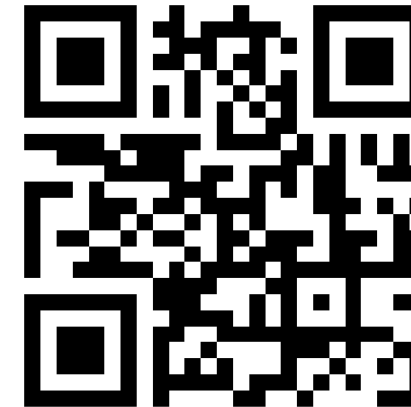
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