



Machinery: Are German exports at risk?

The export strength of the machinery sector is under increasing pressure. Productivity improvements and the courage to innovate are in demand. Can investments and the green transformation boost the sector? We expect production to fall by 1 % this year.



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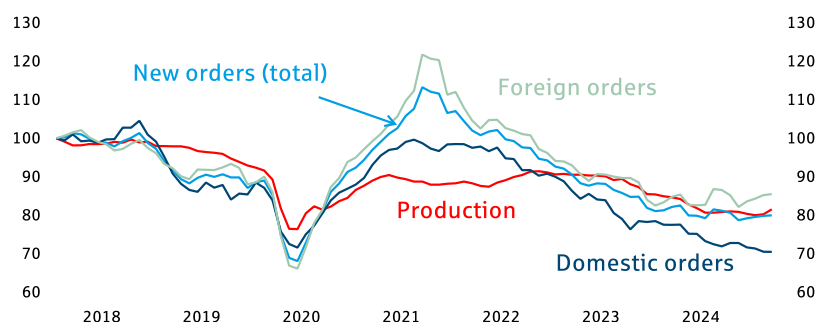
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which are still in free fall, are a cause for concern. At least foreign new orders stabilized. Due to its export orientation, the future development of the sector depends to a large extent on foreign markets. And it is questionable whether the machinery industry can rely on export successes in the future to the same extent as it did in the past.

Machinery is one of Germany's key industries. In 2024, it generated around 275 billion euros, accounting for 12 % of turnover in the manufacturing sector.¹ This makes machinery its second-largest industry. The sector **heavily relies on foreign markets**: Almost 65 % of turnover comes from exports. As in the manufacturing industry as a whole, production has fallen sharply in recent years – the economic downturn in Germany did not leave this sector untouched. However, production has recently shown the first signs of bottoming out.

New orders: stable abroad, free fall in Germany

Real indices*, Jan. 2018 = 100, calendar and seasonally adjusted, 3M moving averages

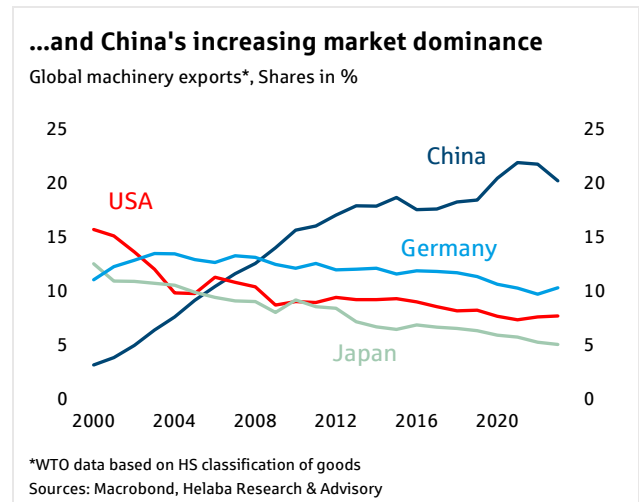


* WZ 28: Manufacture of machinery and equipment
Sources: Macrobond, Helaba Research & Advisory

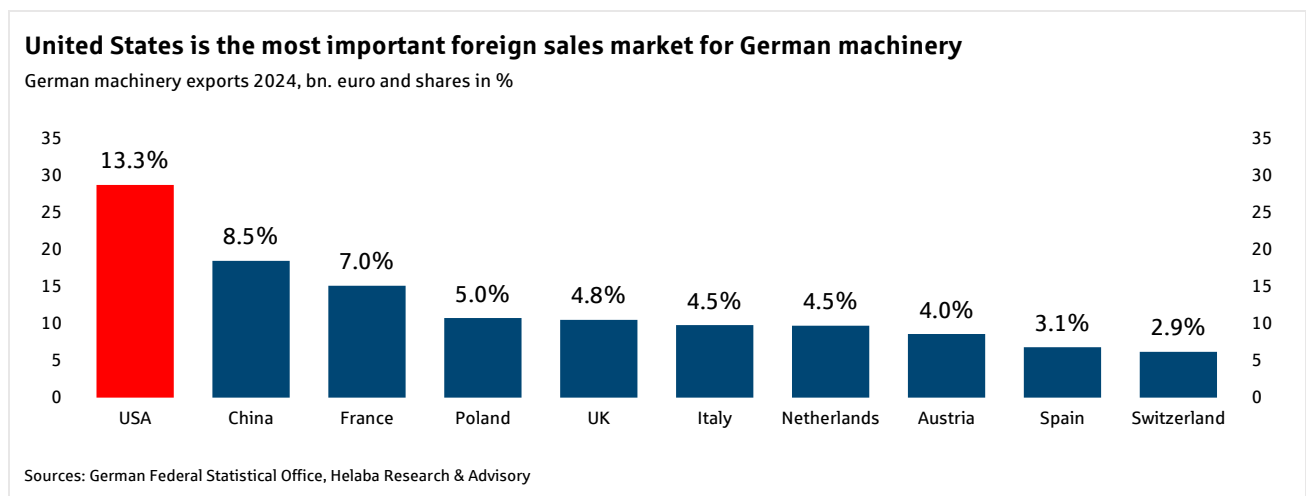
Export markets: structural loss of superiority and tariff issues

China has developed from a **primary customer to a competitor in the industry**. The People's Republic was the second most important export destination in 2024. However, German machinery exports to China have hardly developed any momentum in recent years (see chart p. 2). Imports, on the other hand, have risen sharply, causing the bilateral trade balance to increasingly decline and fall to its lowest level since 2008 – except for the crisis year 2022. In addition, China has been able to expand its position on the global market since the beginning of the millennium. While it was responsible for just 3 % of global exports in 2000, this figure rose to 20.2 % in 2023. At the same time, Germany's share fell slightly, while Japan and the USA lost even more of their dominance (see chart p. 2). This together implies three conclusions: firstly, the German machinery industry is increasingly losing China as a customer; secondly, Germany is increasingly becoming a customer for Chinese machinery; and thirdly, China is increasingly dominating the global market.

¹ For companies with ≥ 20 employees. The official definition by the German Federal Statistical Office is used here and below.



With a 13.3 % export share, the USA is the largest foreign sales market for German machinery. The planned tariffs will harm the machinery sector, but it is likely to **prove more robust than other sectors** of the economy. This is because sales volumes generally react less sensitively to tariffs if the affected products cannot be replaced by domestic products, or not in a timely manner, or if it is difficult to do without them. US machinery only plays a leading role in isolated areas and over time this market has structurally shifted towards foreign suppliers. In addition, **there is no significant US production in some machinery sectors** that could be used in the short term.



One could now counter that this lack of industry is precisely the purpose of the tariffs, and that the USA could thus rebuild or further develop its own machinery sector. However, for several reasons, this plan is likely to succeed in the medium to long term at best:

- Machinery is not an energy-intensive industry, which is why the low energy costs in the USA do not represent a particularly strong competitive advantage.
- The industry is labor-intensive and wages in the USA are quite high.
- There are not enough or no accordingly skilled workers in the USA.
- Sectors with a high degree of one-off production require technical expertise which is not readily available.

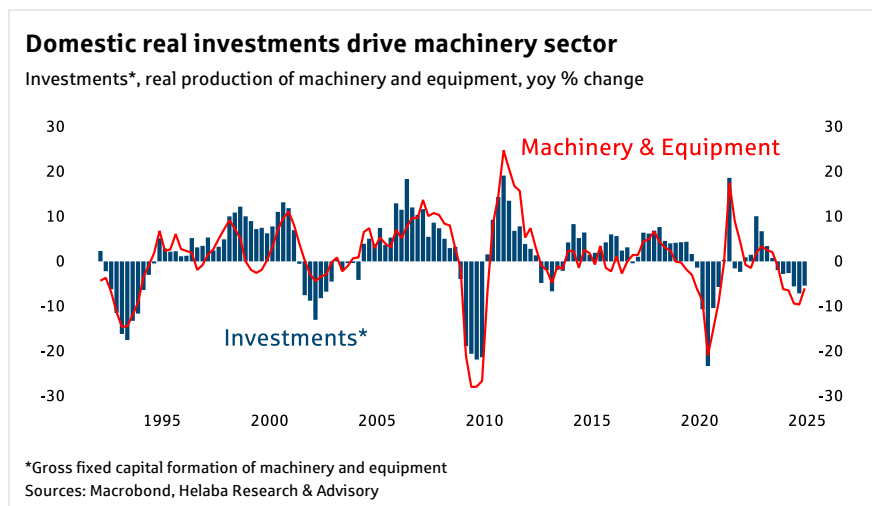
If the tariffs imposed by the US on China are higher than those imposed on the EU in the future, this constellation could even give Germany a relative competitive advantage on the US market. However, despite the potential resilience on the US market and a possible competitive advantage, the **future foreign demand situation is unclear**. Prospectively, there are opportunities in the European market, where the machinery industry is already strongly represented (see chart p. 2). The fact that, according to the German Mechanical Engineering Industry Association

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(VDMA), Germany is still the global market leader in some product segments such as machine tools or measuring and testing technology (as of 2022) also supports the industry. Nevertheless, the negative effects of burgeoning protectionism and increasing competition from China are threatening the success of the export-oriented model.

Domestic investment and fiscal packages can boost weak domestic machinery demand

Export surpluses on the scale of previous years are unlikely to be maintained in the long term due to the high wage level in Germany, China's uprise and increasing protectionism. On the other hand, there is pent-up demand for domestic investment, which offers the machinery industry a great opportunity.



The machinery sector produces extensive inputs for almost all industries. Machinery is therefore **an important component of German capital investment**. On the one hand, this includes construction investments, and thus indirectly the demand for machinery for construction. On the other hand, it includes machinery and equipment investment, which directly influences demand for various machinery segments. There is therefore a strong co-movement between

investment in machinery & equipment and production in the machinery sector. The weak investment momentum of recent years is therefore harming the sector domestically, as shown by low domestic new orders (see chart p. 1).

The **machinery sector is therefore waiting for an upturn in investment** in Germany. The planned **fiscal packages** of the new federal government offer an opportunity in this regard. This is because they are likely to flow to a considerable extent into construction and defense. Both sectors will directly benefit various segments of the machinery industry. Multiplier effects from the fiscal packages as a result of a macroeconomic stimulus in general and investment activity in particular could also boost the machinery sector.

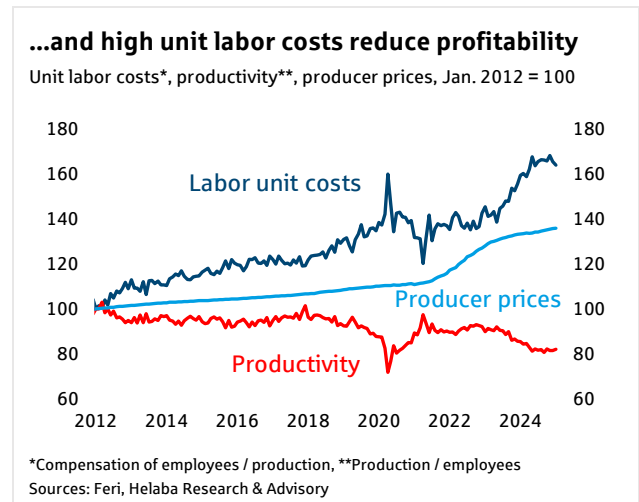
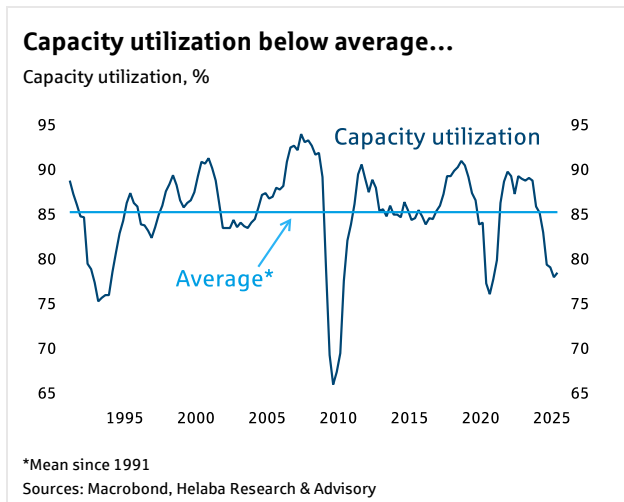
Productivity increases urgently needed

The fiscal packages can provide the much-needed economic stimulus and, above all, improve the currently very **below-average capacity utilization** through additional orders (see chart p. 4).

However, the fiscal stimulus would not be a panacea. After a long period of stagnation, **productivity in the sector has fallen**. With wages rising, **unit labor costs increased** at the same time (see chart p. 4). Producer prices were unable to fully offset this increase, **which weighed on sector profitability**. For a long time, growing unit labor costs represented a low risk for the production location Germany because machinery is based on one-off production and technical expertise in many segments - a traditionally German domain. This means that many production processes cannot easily be relocated to countries with lower wages. However, China is increasingly conquering precisely those market segments which are based on one-off production rather than mass production. In order to defy this growing competition, the industry urgently needs to increase productivity due to the high German wage levels in Germany.

Innovations are another key factor for surviving on the global markets in the future. VDMA figures give cause for hope in this respect: Around 15 % of the approximately 70,000 global patent applications in machinery came from Germany in 2021. This makes the machinery industry a key driver of innovation in Germany, as these almost 10,000 patents accounted for a third of all German patent applications in 2021.

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Green transformation: risks from endangered demand and opportunities in new markets

At first glance, machinery is one of the **environmentally friendly sectors**: According to the Federal Statistical Office, only 1.1 % of the manufacturing industry's emissions were generated there in 2022. This is partly due to the low share of total energy consumption in the manufacturing industry of around 4.5 % (as of 2023). As direct emissions and energy consumption are low, there are relatively few hurdles and little risks to the competitiveness of the industry regarding a rising carbon price.

However, **machinery serves the more emission-intensive production of other sectors** through upstream services for other industries. Problems for the machinery industry can arise if products that serve this emission-intensive production are less in demand as a result of the targeted reduction in emissions. Examples for endangered products include chemical reactors, combustion engines and mining machinery.

In addition to these risks, the green transformation also offers opportunities for the machinery industry. To achieve the climate targets, it is essential for the industry **to develop new technologies and consequently invest in new machines**. Whether it is solar cells, heat pumps, systems for carbon capture and storage or machines for hydrogen electrolysis: the green transformation offers opportunities that the machinery sector should take advantage of. However, regarding China, which is already strongly represented in these market segments, there is some catching up to do.

Conclusion: The sector should focus on improving productivity and creating new sales opportunities

It is questionable whether exports will be able to provide sufficient momentum for the German machinery sector in the future. Of course, foreign sales markets will continue to play an essential role for the industry. However, **additional demand must come from the domestic economy**. Overall **economic investment is currently still lacking the necessary momentum**, as the fiscal packages are not expected to take effect until next year. Construction investment is likely to stagnate this year and machinery and equipment investment is set to fall for the third year in a row. As a consequence to the lack of investment momentum, the current high level of global uncertainty and increasing competition from China, production is expected to fall by 1 % this year before picking up again next year.

Due to the risks for existing customer industries in the course of the green transformation, but also because of the opportunities this presents for new markets, the machinery industry should urgently try to keep up with innovations. In the long term, productivity increases are essential if the cheaper and increasingly advanced technology from China needs to be countered.



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