ECONOMY AND ECOLOGY 06.02.2025 | Yun Schüler-Zhou

A warning to Trump

China's export ban on high-tech metals shows Beijing is ready for a trade war with the new US administration. Will Europe be caught in the middle?

Shortly before Donald Trump returned to the White House, China imposed an export ban on dual-use items related to gallium, germanium, antimony and superhard materials to the US. In contrast to previous, more general and fairly cautious export restrictions on these high-tech metals, this time China sent a clear signal to the US that it would take tougher action if their trade dispute escalated. By revising its export control regime, China has strengthened its legal basis and prepared itself for an escalation of the trade war with the US.

Since August 2023, the Chinese government has issued successive export control measures on high-tech metals, which are crucial for both the semi-conductor industry and green technologies. For example, the export of gallium and germanium has been restricted, followed by similar restrictions on graphite since December 2023 and antimony since September 2024. Gallium and germanium are used in semi-conductor manufacture and solar applications. Graphite is a key raw material in the manufacturing of anode materials in lithium-ion batteries (LIB). Antimony plays an important role in the solar industry and also has military applications. New plans for export restrictions on technologies for the production of LIB cathode materials, the extraction of metallic gallium from aluminium oxide and the production of lithium are currently being discussed in China. This is intended to limit the transfer of know-how abroad in technologies in which China is a global leader.

How tough are the measures?

To date, export controls introduced have not significantly affected global raw material supply chains. Exports were briefly interrupted when control measures came into force because complex approval procedures take time. In due course, however, exports largely normalised again. Nevertheless, there have been marked changes in global raw materials prices. Since the onset of export restrictions, prices in and outside China

have developed in opposite directions. While gloomy export prospects, together with high production capacities, have driven down raw materials prices in China, prices abroad have risen sharply. High raw materials prices make new mining investments more attractive and boost the business case for diversification efforts outside China. For downstream industries, such as semi-conductors or solar, however, that means rising costs, impeding the digital and green transformations.

China's ban on the US export of dual-use items related to gallium, germanium, antimony and superhard materials announced on 3 December represents a much tougher stance.

The measures announced so far can be described as fairly cautious. Instead of banning exports completely, exporters are obliged to apply for licenses and provide information on end users and intended end uses. These measures are not officially directed at particular countries. The Chinese government's caution can be explained by the fact that strict export controls may also raise costs domestically, with adverse fallout for Chinese industries and economic growth. On top of falling domestic market demand, export options are limited. Furthermore, a blanket export ban could speed up customers' derisking efforts and supply chain diversification to other countries, to China's long-term detriment. The measures were therefore designed to send a signal, but without hitting the economy too hard.

China's ban on the US export of dual-use items related to gallium, germanium, antimony and superhard materials announced on 3 December 2024, however, represents a much tougher stance. It was not only a response to the US export restrictions on plant technology for the manufacture of advanced semi-conductors announced the previous day. It also demonstrates that it is both able and willing to push back harder against US sanctions. An export ban is the most stringent export control measure. Not only that, but as an additional constraint, the relevant items may not be supplied to the US via third parties or third countries — a restriction that the US has frequently imposed on China in the past.

In recent years, China has reformed its export control regime in view of a possible intensification of the US trade war. It is now much more closely aligned with international norms. This includes the publication of an export control law, the introduction (standardisation) of export control provisions for dual-use goods, the development of an unreliable entity list, and also laws on protection against foreign sanctions and a recently updated export control list for dual-use items, which came into force on 1

December 2024. The overhauled export control system creates more clarity and clears the way for effective implementation of future control measures.

What will happen in the future?

It is still too early to say whether the export ban will cause the US economy serious problems. It depends largely on how it's implemented in practice. Experts doubt whether China has the legal reach and implementation capacity to enforce compliance with its provisions abroad. For example, the US could continue to procure the goods affected by the ban via third countries. According to a US Geological Survey model, US GDP could fall by $ 3.4 billion if China were to implement a complete export ban on gallium and germanium.

What may induce China to refrain from an aggressive counter-response is the fact that it depends on the import of certain raw materials from the United States. For example, China imports ultra-pure quartz largely from the US. The purest of its kind, it is essential for, for example, a key component in the manufacture of silicon wafers, used in the solar and semi-conductor industries. On top of that, since 2018, the United States has been China's main source of rare earth ores and concentrates.

Given the new Trump administration's determination to inhibit China's further ascent in the high tech industries, as well as China's increasing willingness to counteract US containment measures by restricting the raw materials it needs, we can assume that the tit for tat in export controls between the two countries will continue. Furthermore, China is now much better prepared than at the beginning of Trump's first term.

In parallel with diversification efforts, existing supplier relations with China should be kept as stable as possible.

Both countries are exploiting their dominant market positions in global supply chains in pursuit of their trade war. While the United States dominates the semi-conductor industry, China leads the way in the production of important raw materials that industry needs.

Europe's raw materials security is inevitably caught up in this escalating conflict. Although to date EU countries have suffered few far-reaching effects from China's trade restrictions, uncertainties are accumulating. Europe needs to find ways of protecting itself against unforeseeable risks. The fact is that the EU is highly dependent on China for key raw materials and intermediate products that are important for the digital and green transformations.

The coming into force of the Critical Raw Materials Act in May 2024 showed that the EU intends to boost the resilience of its supply chains. Besides building capacity for the extraction, processing and recycling of raw materials in Europe, the sources of supply are also supposed to be diversified through global partnerships. In October 2024, Germany launched its raw materials fund. With a billion dollars in funding, the aim is to support projects to ensure Germany and the EU's long-term provision with strategic raw materials. This is an important step towards achieving greater independence going forward.

As things stand, production capacity for many raw materials outside China is limited, as is the potential for substitution in the short term. The development of new sources of supply, as well as the establishment of further processing capacities, needs time and money. This means that, in parallel with diversification efforts, existing supplier relations with China should be kept as stable as possible.



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