

Rare earths: China's silent weapon in the new cold war

- China hits back at US tariffs with export controls on key rare earths on 7-Apr-25
- This could jeopardize supply chains of from smartphones to EV and aircraft
- The significance of rare earths has grown as a weapon for China

China tightens rare earth controls in strategic counter to U.S.

On 7-Apr-25, China escalated its strategic countermeasures against the U.S. by imposing new export controls on 7 rare earth elements critical to the global high-tech and defense industries. The latest move requires exporters to obtain licenses and permissions before shipping seven key rare earth elements and their alloys—samarium, gadolinium, terbium, dysprosium, lutetium, scandium, and yttrium—with Chinese customs authorized to confiscate any shipment lacking a buyer clarity and declarations. Although this is not a blanket ban, the procedural tightening significantly raises the risk of disrupted global supply chains, particularly for the U.S. that rely heavily on Chinese rare earths.

How China is tightening the noose on global tech supply chains?

This development builds on a string of prior export restrictions China had imposed since 2023. In July-23, China introduced controls on gallium and germanium—two elements essential for semiconductors. This was followed by additional curbs on tungsten, tellurium, bismuth, molybdenum, and indium in Feb-24, and a complete export ban on antimony to the U.S. in Aug-24. The cumulative effect of these actions signals a calculated effort by Beijing to weaponize its dominance over strategic minerals in response to U.S. trade and tech sanctions.

From smartphones to EV: Mineral squeeze hits tech industry

The latest rare earth restrictions are of grave concerns for U.S. and global tech companies. Scandium is a critical input for RF front-end modules used in smartphones and Wi-Fi equipment. Dysprosium and terbium are essential for producing heat-resistant magnets in EV motors and HDD heads. Meanwhile, gallium and germanium, which are already under restriction, are used in advanced battery technologies. Companies such as Broadcom, GlobalFoundries, Qualcomm, TSMC, Samsung, Seagate, and Western Digital may face higher production costs or even supply chain disruptions due to these constraints.

Beijing's long game in rare earth supremacy

China's dominance in rare earths is the result of over four decades of state-led investment in exploration, refining, and technological innovation. Since the early 1980s, Beijing has identified rare earths as a strategic resource—transforming itself into the world's leading supplier. Today, China produces over 60% of global rare earth output, and more than 70% of heavy rare earths (HREE), according to the U.S. Geological Survey. China consolidated its production through the 2021 merger of three major state-owned enterprises—China Minmetals, Aluminum Corp. of China, and Ganzhou Rare Earth Group—into the China Rare Earths Group, which now controls roughly 70% of China's medium and heavy rare earth production.

Rare earths as China's answer to U.S. energy power

The strategic significance of rare earths has drawn comparisons to oil and gas in terms of geopolitical leverage. Just as the U.S. has historically used its energy exports to influence global markets, China now wields rare earths as a geopolitical tool. The current standoff between the U.S. and China can thus be viewed as a battle of strategic commodities, where each side leverages its respective strength.

Analyst

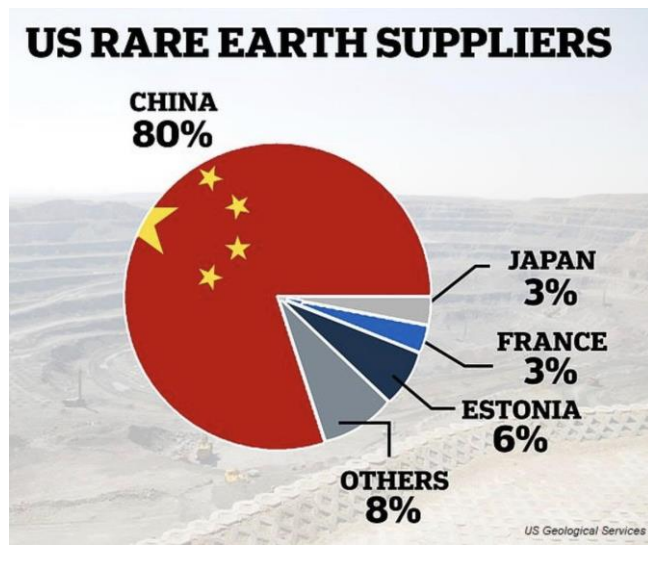
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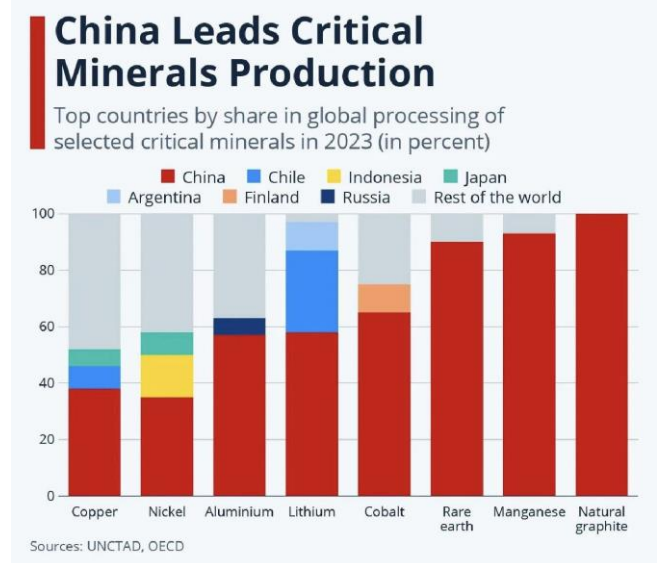
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Exhibit 1: U.S. rare earth suppliers



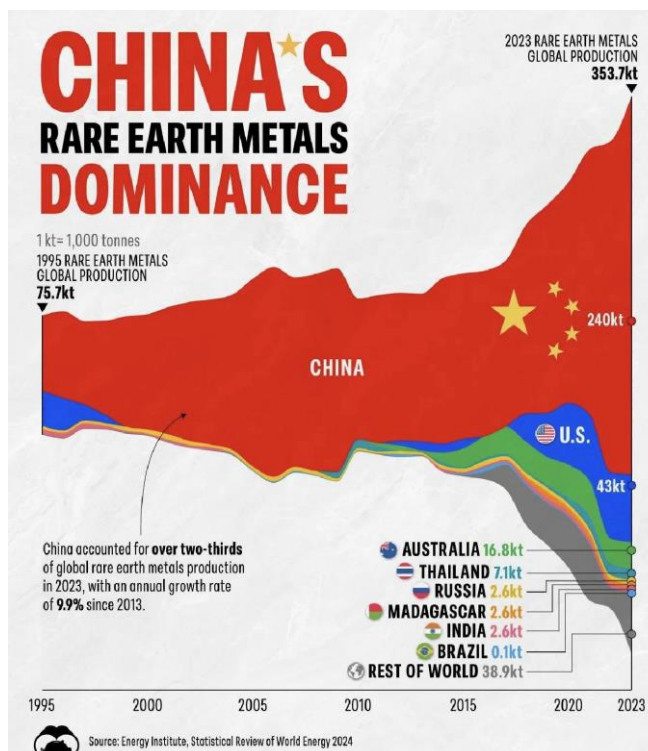
Sources: US Geological Services

Exhibit 2: China's critical mineral dominance in 2023



Sources: UNITAD, OECD

Exhibit 3: China's rare earth metals dominance



Sources: Energy Institute, Statistical Review of World Energy 2024

Exhibit 4: Europe's dependence on Chinese resources



Sources: European Commission, Bloomberg

Exhibit 5: Rare earths' applications

Element	Symbol	Selected Applications
Scandium	Sc	Super alloys, ultra-light aerospace components, X-ray tubes, baseball bats, lights, semiconductors
Yttrium	Y	Ceramics, metal alloys, rechargeable batteries, TV phosphors, high-temperature superconductors
Lanthanum	La	Batteries, optical glass, camera lenses, petroleum refining catalysts
Cerium	Ce	Catalysts, metal alloys, radiation shielding, water purifier
Praseodymium	Pr	Magnets, lasers, pigments, cryogenic refrigerant
Neodymium	Nd	High-strength permanent magnets, lasers, infrared filters, hard disc drives
Samarium	Sm	High temperature magnets, nuclear reactor control rods and shielding, lasers, microwave filters
Europium	Eu	Liquid crystal displays, fluorescent lighting, red and blue phosphors
Gadolinium	Gd	Magnetic resonance imaging contrast agent, memory chips, nuclear reactor shielding, compact discs
Terbium	Tb	Green phosphors, lasers, fluorescent lamps, optical computer memories
Dysprosium	Dy	Permanent magnets, lasers, catalysts, nuclear reactors
Holmium	Ho	Lasers, nuclear reactors, catalysts, magnets
Erbium	Er	Lasers, vanadium steel, infrared absorbing glasses, optical fibers
Thulium	Tm	Portable X-ray machines, microwaves,
Ytterbium	Yb	Infrared lasers, chemical reducing agent, rechargeable batteries, fiber optics
Lutetium	Lu	PET scan detectors, superconductors, high refractive index glass, x-ray phosphor

Sources: USGS

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Stock ratings are based on absolute upside or downside, which we define as $(\text{target price}^* - \text{current price}) / \text{current price}$.

BUY: Expected return of 10% or more over the next 12 months.
HOLD: Expected return between -10% and 10% over the next 12 months.
REDUCE: Expected return of -10% or worse over the next 12 months.

Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause temporary mismatch between upside/downside for a stock based on market price and the formal recommendation.

* In most cases, the target price will equal the analyst's assessment of the current fair value of the stock. However, if the analyst doesn't think the market will reassess the stock over the specified time horizon due to a lack of events or catalysts, then the target price may differ from fair value. In most cases, therefore, our recommendation is an assessment of the mismatch between current market price and our assessment of current fair value.

Sector Recommendations

Overweight: The industry is expected to outperform the relevant primary market index over the next 12 months.
Neutral: The industry is expected to perform in line with the relevant primary market index over the next 12 months.
Underweight: The industry is expected to underperform the relevant primary market index over the next 12 months.

Country (Strategy) Recommendations

Overweight: Over the next 12 months, the analyst expects the market to score positively on two or more of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

Neutral: Over the next 12 months, the analyst expects the market to score positively on one of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

Underweight: Over the next 12 months, the analyst does not expect the market to score positively on any of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.