

Critical Metal Pricing Dynamics in the Transition to a Net Zero Economy: Exploring Financial Market Interdependencies

This research aims to examine the behaviour of prices of critical metals like copper, lithium, cobalt, and nickel, which play a pivotal role in enabling the transition to a net zero emissions economy in the face of climate change. Several key factors that may influence metal prices will be analyzed, including geopolitical events, economic uncertainties, the impact of traditional energy asset prices, the influence of other metal prices, and climate change awareness. The study highlights the increasing importance of understanding metal market dynamics due to the rising demand for these metals driven by the global push towards a low-carbon economy.

While traditional energy markets like oil and gas have been extensively studied in financial markets, metal markets have received less attention despite their growing relevance in the transition to clean energy technologies.

The research aims to address seven main questions: 1) assessing the level of financialization and investment opportunities for critical metals, 2) examining dependencies between metal prices, 3) exploring interdependencies between traditional energy sources and metals used in the low-carbon transition, 4) analyzing the influence of geopolitical risk on metal prices, 5) investigating whether economic uncertainty is priced into metal market returns and their potential hedging properties, 6) examining the impact of inflation on metal-related assets, and 7) exploring any causal relationship between metal prices and climate change awareness.

By delving into these research questions, the study seeks to provide insights into the complex interdependencies between metal markets and various factors relevant to financial markets, ultimately contributing to a better understanding of the pricing dynamics of these critical metals in the context of the global transition towards a net-zero emissions economy.

The transition towards a net-zero emissions economy has made understanding the dynamics of critical metals like lithium, cobalt, copper, and nickel crucial. However, the risks associated with investing in these "green metals" remain understudied compared to traditional energy sources. This research aims to comprehensively examine the behaviour of critical metal prices by investigating several key factors.

Firstly, the study will assess the financialization of metal markets and construct a database that includes prices from various sources like commodity exchanges and mining company stocks. It will explore interdependencies between metal prices themselves, as well as their linkages with traditional energy sources like oil and gas. Another focus is analyzing how geopolitical risks and economic uncertainties influence metal prices and returns. The impact of inflation and potential hedging properties of metal-based assets against other asset classes will also be evaluated. Finally, the research will investigate whether a causal relationship exists between critical metal prices and climate change awareness.

The proposed project will fill a gap in the research carried out on international markets. The project's innovative contribution lies in its multifaceted approach, simultaneously considering diverse factors affecting metal markets within the context of the ongoing energy transition. The findings are expected to have significant implications for investors, portfolio managers, regulatory bodies, and market facilitators. By shedding light on the complex dynamics surrounding critical metals, this study aims to inform risk mitigation strategies, asset allocation approaches, and policy frameworks essential for enabling a smooth shift from fossil fuels to renewable sources while maintaining financial stability.