

How true is conventional wisdom about price volatility of tech metals?

February 12 2016, by Laura Millsaps

It's often assumed that exotic metals and minerals critical to clean energy technologies are more price volatile than more common commodity metals. They're mined in much smaller quantities and often as by-products of other high-volume production materials, and even slight changes in production, demand, and consumer end-uses can greatly affect markets.

But are they really more price-volatile? Preliminary research by the Colorado School of Mines (Mines) and funded by the Critical Materials Institute (CMI) suggests that conventional wisdom about the high price volatility of by-product metals and minerals is generally true, but with several caveats.

"There's actually been very little empirical evaluation of the [conventional wisdom](#), and this was an attempt to test that," said Rod Eggert, Deputy Director of CMI and professor at Mines. "This is a beginning. Further research could help us understand what's truly driving price volatility."

The research used regression analysis to compare the price volatility of by-product metals and minerals to commodity materials produced primarily or solely as main-products or individual products.

The data showed that over the past 50 years, using annual average pricing, metals and minerals with significant by-product production were 50 percent more volatile than those produced as main or individual products. But in contrast to annual data, monthly price data from the past

ten years showed only mixed evidence that by-products have greater price volatility.

Eggert said the mixed evidence of price volatility using monthly price data may be explained by the smaller volume of transactions for by-product materials on a month-to-month basis, often leading to unchanged published prices for several months at a time.

The paper laid the groundwork for further study, which should investigate the underlying determinants of price volatility, which may include one or more of the following characteristics of metals produced as by-products: the dependence of by-product supply on developments in markets for the associated main product, the generally small number of producing mines or companies, few consumers and end-use applications and the general lack of transparency in these markets. All of these characteristics make by-product prices potentially more prone to volatility.

Understanding price volatility helps CMI make assessments of what materials may face supply risks in the future—risks that may come in the form of either price volatility or physical unavailability of material, said Eggert.

"This helps us begin to understand the markets for a number of elements that up until now have been used in relatively small quantities in limited applications," said Eggert. "But these elements could be used in much greater quantities if certain clean [energy technologies](#) develop and grow."

"We read a lot of opinion about the prices of rare earths and other [critical materials](#) and where they're going. But CMI must focus on actual data. In order to direct our scientific research on the uses of these materials the most effectively, we must check these assumptions against

what the numbers are really telling us," said CMI Director Alex King.

The results of the research were published in the paper "Volatility of by-product metal and mineral prices" in *Resources Policy* by Michael Redlinger and Roderick Eggert from the Division of Economics and Business, Colorado School of Mines, and funded by the Critical Materials Institute.

More information: Michael Redlinger et al. Volatility of by-product metal and mineral prices, *Resources Policy* (2016). [DOI: 10.1016/j.resourpol.2015.12.002](https://doi.org/10.1016/j.resourpol.2015.12.002)

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