

Nasdaq Sprott Copper Miners™ Index: Pureplay Approach to Tracking Copper

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Introduction

Copper has historically been considered a leading indicator of economic activity as it is widely used across many sectors. Copper inventories typically fall in the expansion phase of the business cycle while prices go up. The reverse occurs during the contraction phase of business cycles. Due to copper's beneficial properties of high thermal and electrical conductivity, high ductility, and corrosion resistance, it is widely used in building construction, electric and electronic products, power generation and vehicles. With the shift to EVs in recent years, another huge market for copper has opened as each EV requires two to four more times copper than a conventional vehicle.

Customers of copper have been either delaying clean energy projects or reducing their need for copper in anticipation of shortages in copper supply in recent years. Last year, prices of copper fell as demand for the metal weakened due to headwinds from global monetary tightening, recession fears, and the slowdown in China's property sector¹. This price decline is expected to reverse in the next couple of years, as a demand-supply mismatch is likely to result in copper prices surging by 20% by 2027, as per a study by BloombergNEF². As per another study by S&P Global, demand for copper is expected to double from 2022 levels by 2035. Mining supply disruptions, the transition to green energy along with macroeconomic factors such as Fed rate cuts, and a weaker dollar are all likely to be bullish for copper in the near-term³.

Companies are adapting to the changing dynamics of the copper mining industry. To meet the present and future demand for copper, they are making improvements to existing refineries. They are working on new technologies such as leaching, which will allow them to recover copper from low-grade sulfide deposits, along with supply-side innovations such as automation and electrification of operations.

60% of copper demand comes from wind and solar technology, electric vehicles, and infrastructure⁴. With the global energy transition underway, copper reserves are likely to be stressed. To mitigate these stresses, countries have begun working towards securing new copper reserves and making improvements to existing reserves.

The Nasdaq Sprott Copper Miners Index (NSCOPPTM), launched on December 18th 2023, is uniquely positioned to benefit from the current dynamics of the copper mining industry and the green energy transition.

¹ <https://think.ing.com/articles/uncertain-global-economic-recovery-looms-over-copper>

² <https://about.bnef.com/blog/copper-prices-may-jump-20-by-2027-as-supply-deficit-rises/>

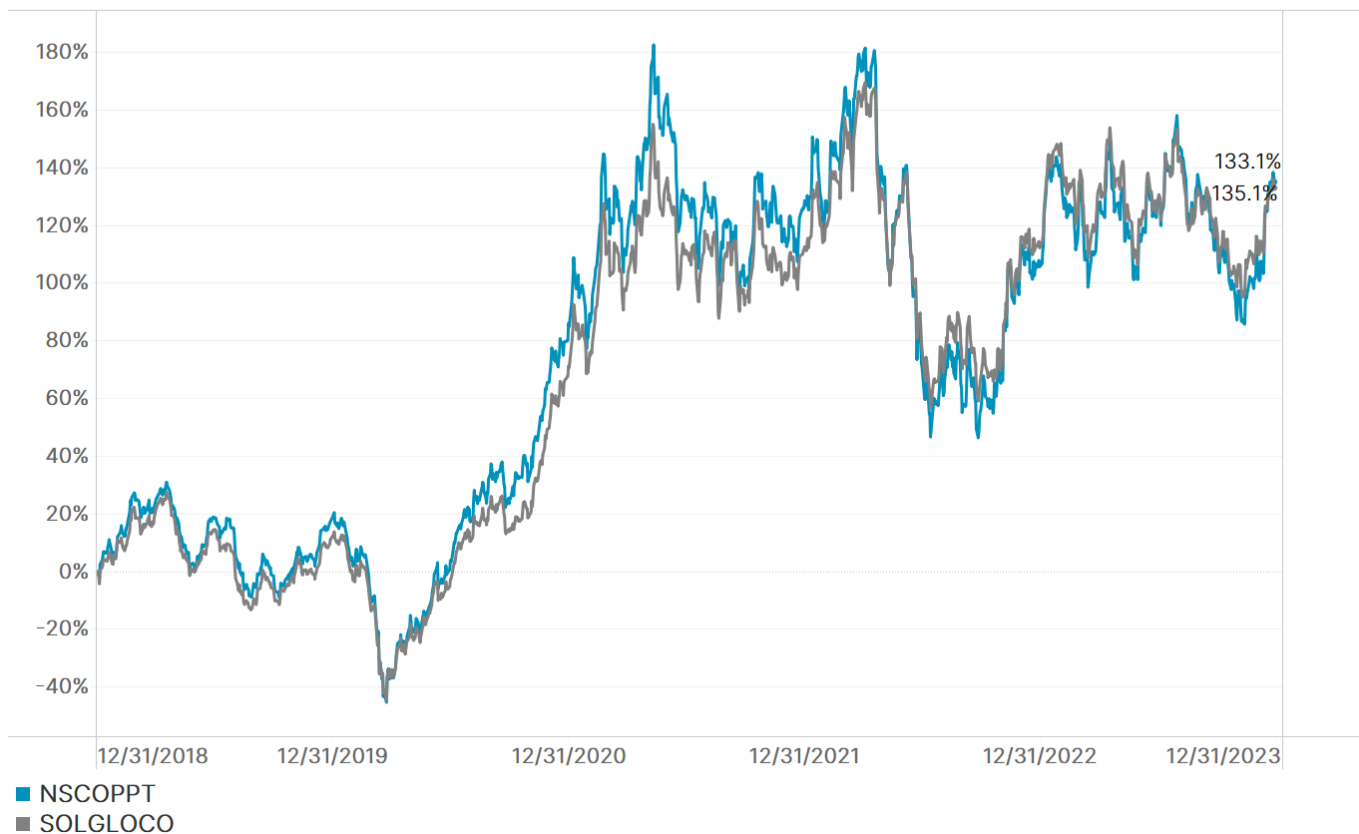
³ <https://www.cnbc.com/2024/01/03/copper-appears-set-to-rally-more-than-75percent-by-2025-analysts-say.html>

⁴ <https://energytransition.org/2021/07/the-energy-transition-and-its-copper-problem/>

Index Performance vs. Leading Competitor Benchmark

For the 5-year period ending December 31st 2023, the Nasdaq Sprott Copper Miners Total Return™ Index (NSCOPPT™) generated cumulative returns of 135.1%, marginally higher than that of the Solactive Global Copper Miners Index (SOLGLOCO), which generated returns of 133.1%. (Note: these results are largely based on simulated data given the Nasdaq index's recent launch.)

5-Year Performance of NSCOPPT and SOLGLOCO (%)



Source: Nasdaq Global Index Watch, Bloomberg, Data from 12/31/2018 - 12/29/2023

Index Performance vs. Copper Commodity Markets

The below chart compares the returns of Nasdaq Sprott Copper Miners to United States Commodity Copper Spot (Bloomberg Ticker: FJPPCOPR Index). As seen below, the direct purchase of copper via spot commodity markets has underperformed NSCOPPT during the five-year period of our study, ending December 31st 2023, by 93 percentage points. The level of volatility of the direct purchase of copper has been lower than that of NSCOPPT, however. Copper has seen an annualized volatility of 21.8% versus NSCOPPT's volatility of 37.0%. NSCOPPT and copper are strongly correlated with a correlation of 82.0% based on five years of monthly returns data.

NSCOPPT vs. Copper (FJPPCOPR) %



Source: Nasdaq Global Index Watch, Bloomberg, Data from 12/31/2018 - 12/29/2023

Index Methodology

The process of selecting and weighting securities differs between Nasdaq and Solactive's indexes, with NSCOPP's selection process more nuanced than that of SOLGLOCO's. NSCOPP's index selection process leverages the unique expertise of a third-party provider (Spratt), whereas SOLGLOCO's does not. Spratt is a leading player in precious metals and critical material investments, with a multi-decade history of investing, giving it a unique perspective on the global transition to clean energy. Only those securities that are classified by Spratt as a Copper Producer, Developer or Explorer with a copper intensity score (i.e., revenue exposure) of 50% are eligible for inclusion in NSCOPP. Spratt also outlines the types of copper companies (Producers, Developers, Explorers) eligible for inclusion based on their role in the value chain, whereas Solactive does not draw any such distinction between the types of copper companies. Solactive's selection process is more rudimentary with no revenue-based intensity score that quantifies alignment with the overall theme.

Additionally, the minimum free float market capitalization and average daily traded value requirements are different between the two indexes. Specifically, NSCOPP has lower minimum requirements of free float market capitalization and liquidity than SOLGLOCO. Securities that are already in the index must have a minimum market cap of at least \$30 million to remain in NSCOPP, versus \$100 million for SOLGLOCO. Securities not in the index must have a minimum market cap of at least \$50 million to qualify for inclusion in NSCOPP, versus at least \$200 million for SOLGLOCO. SOLGLOCO's constituents must have an average daily traded volume of at least \$500,000 over the trading measurement period (3 months or less) to be eligible for inclusion whereas NSCOPP's constituents must have a 3-month average daily traded value of at least \$50,000.

On the constituent selection day for SOLGLOCO, securities are ranked in descending order according to their average daily traded value. Those securities with the highest relative trading value are then chosen as index constituents. The maximum number of securities is set at 40 while the minimum number of securities is set at 20. In the case of NSCOPP, securities are chosen based on their copper intensity score rather than their average daily traded value, in line with the overarching goal of providing the highest purity of thematic exposure.

While securities are weighted proportionally according to their free float market capitalization for both indexes, the subsequent weighting restrictions differ. In the case of NSCOPP, all securities are capped at 24% individual weight, following which all but the heaviest security is capped at 10%. Securities with more than 5% weight are then grouped together. Should these securities that make up more than 5% exceed 50%, the smallest weights in the group are reduced to 4.75% until their aggregate weight no longer exceeds 49% of the index weight.

In the case of SOLGLOCO, the weighting restrictions are applied twice - on the selection day and during the continuous listing standard review. On the selection day, the weight of each index security is capped at 4.75% while the excess weight is allocated proportionally to all other index securities whose weights are not capped. During the listing review, the weights are reevaluated with the maximum weight of the top component capped at 25% and the maximum aggregate weights of the top five components capped at 60%. Additionally, unlike what is observed in NSCOPP, there are further caps for securities that do not meet specific liquidity and market capitalization criteria.

Both indexes are rebalanced and reconstituted semiannually, with NSCOPP scheduled in June and December, while SOLGLOCO's takes place in April and October.

Index Concentration

NSCOPP is more heavily concentrated at the top when compared to SOLGLOCO. The top 10 constituents of NSCOPP make up 74.8% of the index weight while the top 10 constituents of SOLGLOCO make up 50.1% of the index weight. Six constituents overlap between the top 10 names of the two indexes, suggesting a moderate degree of overlap.

The outlook for several companies in the top 10 appears optimistic. Leading companies such as Freeport-McMoRan are leveraging AI/ML across its mines to unlock production increases, to the tune of 200 million pounds of copper per year and EBITDA increases of \$350 million to \$500 million per day⁵. Other companies such as Ivanhoe Mines have indicated that they will quadruple their 2024 exploration budget to \$90 million⁶. Antofagasta's brownfield projects are likely to lift copper output by 25% by 2028, one of the few miners to achieve such copper growth⁷. These efforts suggest that the industry's leading participants are making changes to adapt to the changing dynamics of the copper mining industry.

⁵ <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/freeport-mcmoran-turns-data-into-value>

⁶ <https://www.ivanhoemines.com/news-stories/news-release/ivanhoe-mines-to-quadruple-2024-exploration-budget/>

⁷ <https://www.antofagasta.co.uk/media/4598/20231220-centinela-board-approval-presentation-dec23-vf.pdf>

NSCOPP Top 10 Holdings:

Name	Weight
Freeport-McMoRan	22.5%
Antofagasta	10.6%
Southern Copper	8.7%
Minas Buenaventura	6.3%
Lundin Mining	5.0%
Ivanhoe Mines	5.0%
First Quantum Minerals	4.7%
Amman Mineral International	4.3%
KGHM Polska Miedz	4.1%
Capstone Copper	3.7%

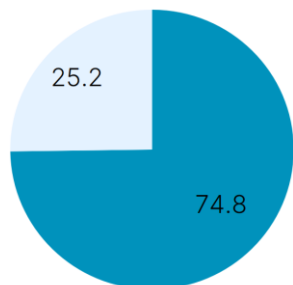
Source: Nasdaq Global Index Watch, Bloomberg, Data as of 1/31/2024

SOLGLOCO Top 10 Holdings:

Name	Weight
Antofagasta	5.9%
Ivanhoe Mines	5.8%
Lundin Mining	5.4%
Southern Copper	5.1%
Freeport-McMoRan	4.9%
BHP Group	4.9%
KGHM Polska Miedz	4.8%
Sumitomo Metal Mining	4.5%
Teck Resources	4.5%
Boliden	4.4%

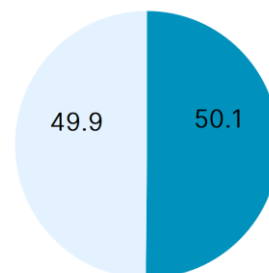
Source: Nasdaq Global Index Watch, Bloomberg, Data as of 1/31/2024

Top 10 Index Weights of NSCOPP (%)



■ Top 10
 ■ Rest of the Index

Top 10 Index Weights of SOLGLOCO (%)



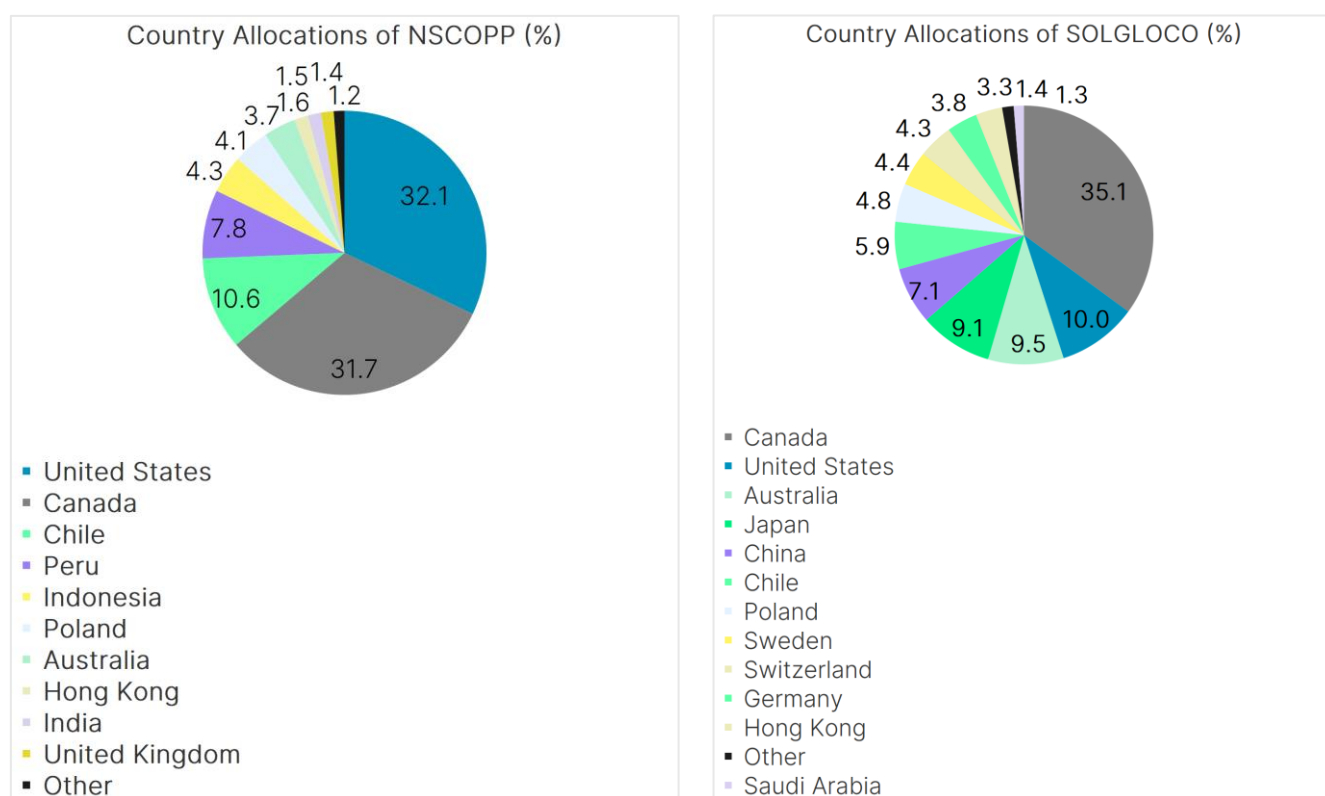
■ Top 10
 ■ Rest of the Index

Source: Nasdaq Global Index Watch, Bloomberg, Data as of 1/31/2024

Index Geographic Exposure

The geographic exposure differs quite significantly between the two indexes, especially in terms of US exposure, with a weighting of 32.1% in NSCOPP versus 10% in SOLGLOCO. This relatively larger exposure is likely to be favorable to investors who may be encouraged that the US has proven to be more resilient than expected while dealing with headwinds from high inflation in 2023. Additionally, hopes for a soft-landing are still alive, which is likely to boost overall investor sentiment¹⁰.

NSCOPP also offers a higher degree of exposure to emerging economies than SOLGLOCO, with a total index weight of 28.5% versus 19.1% for SOLGLOCO. It offers unique exposure to emerging economies including that of India, Peru, Indonesia and Philippines. This differentiation in exposure towards emerging economies is likely to be favorable for investors who have been underweight this segment. Emerging market equities appear to be attractive with valuation discounts relative to developed markets and US equities near 30% and 40%, respectively¹¹. Near-term, the outlook for emerging markets is constructive, with consensus expectations for a recovery in earnings growth in 2024¹².



Source: Nasdaq Global Index Watch, Bloomberg, Data as of 1/31/2024

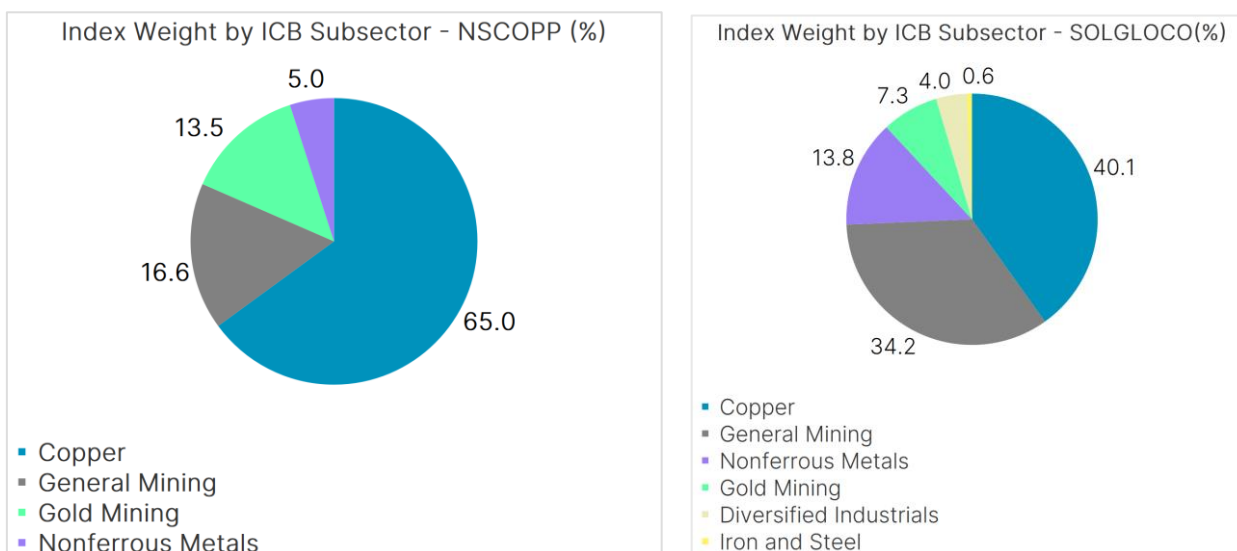
Index Industry Exposure

When compared to SOLGLOCO, NSCOPP is tilted heavily towards those companies whose primary line of business involves the mining, extraction, and distribution of copper. In that sense, it has more of a pure-play exposure to the theme. It has a lower combined index weight in other sub-sectors, including General Mining, Non-Ferrous Metals and Gold Mining. These related sub-sectors include companies that are involved in the mining and extraction of other metals including gold, aluminum and silver, and whose businesses are not limited to mostly copper.

¹⁰ <https://www.nytimes.com/2024/02/02/business/economy/soft-landing-economy-inflation.html>

¹¹ <https://www.lazardassetmanagement.com/research-insights/outlooks/emerging-markets>

¹² <https://www.franklintempleton.com/articles/2024/emerging-markets/emerging-markets-insights-january-2024>



Source: Nasdaq Global Index Watch, Bloomberg, Data as of 1/31/2024

Mixed Degree of Index Overlap Showcases NSCOPP's Differentiation & Purity

NSCOPP has a high degree of overlap with SOLGLOCO on an index weight basis, but not in terms of constituent count. 83.3% of NSCOPP's index weight (across 23 constituents) overlaps with SOLGLOCO, while 16.7% is unique to NSCOPP (across 17 constituents). As a group, these 17 constituents unique to NSCOPP have an average market cap and total market cap of \$3.5 billion and \$58.8 billion, respectively; they are substantially smaller than the group of constituents unique to SOLGLOCO, whose average market cap and total market cap are \$23.0 billion and \$321.6 billion, respectively. 7 out of 17 constituents that are unique to NSCOPP have market caps of less than \$100 million, thereby not fulfilling the minimum market cap requirements of SOLGLOCO. In contrast, only 58.0% of the index weight of SOLGLOCO (across 23 constituents) overlaps with NSCOPP, while 42.0% of the index weight is unique (across 14 constituents).

The largest constituents by market cap that are unique to NSCOPP derive a much higher percentage of revenues from copper, and in that sense, are more pure-play in nature. For example, the largest unique constituent by total market cap – Amman Mineral Internacional, a copper and gold mining company, with an index weight of 4.3% and a market cap of \$34.6 billion – derived 57% of revenues from copper in 2022, its most recently reported full year. The second largest constituent – Sociedad Minera Cerro Verde, a copper mining company with mines in Peru, with an index weight of 1.5% and a market cap of \$14.3 billion – derived 89% of its total revenues from copper (both copper concentrates and copper cathodes) in 2022. The third largest constituent – Minas Buenaventura, with an index weight of 6.3% and a market cap of \$3.6 billion – derived 46% of its total revenues from copper in 2022.

The largest constituents by market cap that are unique to SOLGLOCO, tend to have much lower degrees of revenue exposure to copper, rendering them ineligible for inclusion in NSCOPP. For example, the largest unique constituent – BHP Group, a manufacturer of base metals, with an index weight of 4.9% and a market cap of \$158.4 billion – derived approximately 31% of revenue from copper in 2023. The second largest constituent – Glencore, a diversified natural resources company, with an index weight of 4.3% and a market cap of \$65.3 billion – derived only 8% of its total revenue from copper in 2023. The third largest constituent – Teck Resources, with an index weight of 4.5% and a market cap of \$20.9 billion – derived only 23% of its revenues from copper in 2023.

Conclusion

NSCOPP tracks the copper mining industry which is set to transform due to the green energy transition. While demand for copper declined in 2023 due to near-term headwinds, this is set to reverse as the transition to green energy gathers momentum and macroeconomic factors become more favorable. The demand for copper is only expected to increase in the next couple of decades, and efforts are likely to be redirected towards securing copper reserves. With a strong return profile, NSCOPP offers strong equity exposure to the ongoing energy transition.

ETFs currently tracking the Nasdaq Sprott Copper Miners Index include Sprott Copper Miners ETF (Nasdaq: COPP).

Sources: Nasdaq Global Index Watch, Bloomberg, Reuters

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