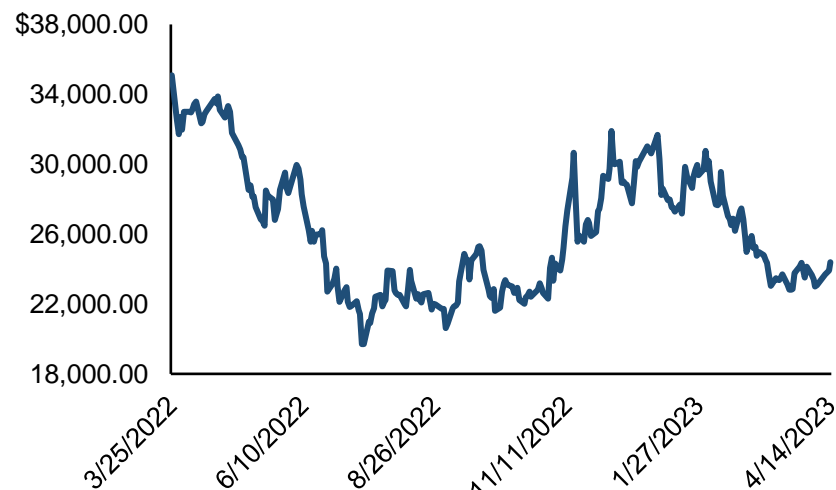




Nickel | One-Year Price Chart



Position Details

- LME Nickel | LNV3
- Underlying Price: \$24,701.00
- Long Straddle
- Expiration Date: October 23, 2023

Metals Sector

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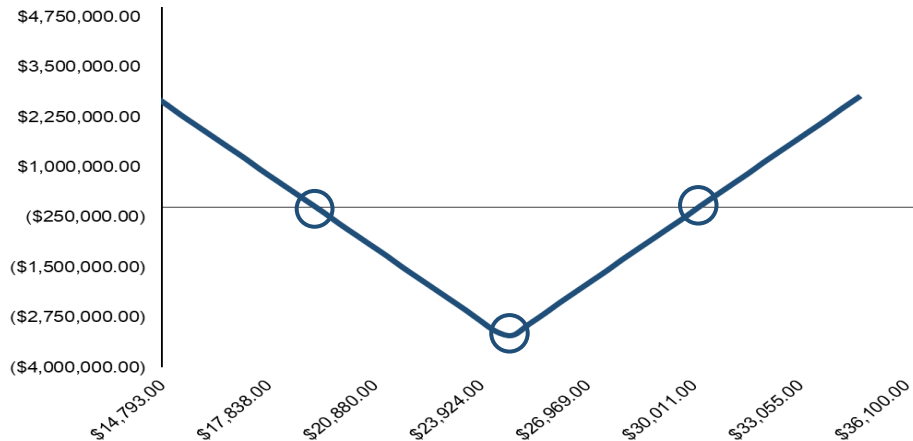
I. Product & Position Overview

Product & Position Overview

Product Description

- Nickel is a common and versatile industrial metal that is used across a variety of sectors within the economy. The majority of its demand comes from automobile, construction, and engineering industries
 - Nickel plays a vital role in the energy transition as it has become increasingly popular in renewables
 - Prices of nickel are impacted heavily by Chinese demand and the overall health of global economy
- Major Countries Involved**
 - Producers**
 - Indonesia | 28.00%
 - Philippines | 17.00%
 - Russia | 10.00%
 - Consumers**
 - China | 59.00%
 - United States | 17.00%
 - Europe | 9.00%

Payoff Diagram



Trade Breakdown

- Long Straddle**
 - This trade benefits from volatility in the underlying asset
- Setup**
 - We Buy – 6.00 ATM \$2,844.00 Calls | LNV3
 - We Buy – 6.00 ATM \$2,648.00 Puts | LNV3
 - Max Profit: Unlimited
 - Max Loss: (\$3,296,142.00)
- Expiration**
 - Date: October 23, 2023

Exit Strategy & Potential Hedge Strategy

- Bull Base & Bear Case**
 - Upper Breakeven – \$30,193.57
 - \$33,625.00 / \$30,500.00 / \$27,400.00**
 - Lower Breakeven – \$19,206.43
 - \$15,550.00 / \$19,400.00 / \$22,000.00**
- Methodology**
 - The Sector is looking for swings of ~20.00% in either direction to see profit for this trade
- Hedge Strategy**
 - If the underlying does not see the volatility necessary to reach our strikes, the sector will look to reverse trade the position to seek profitability by selling a call and put at the same strike prices



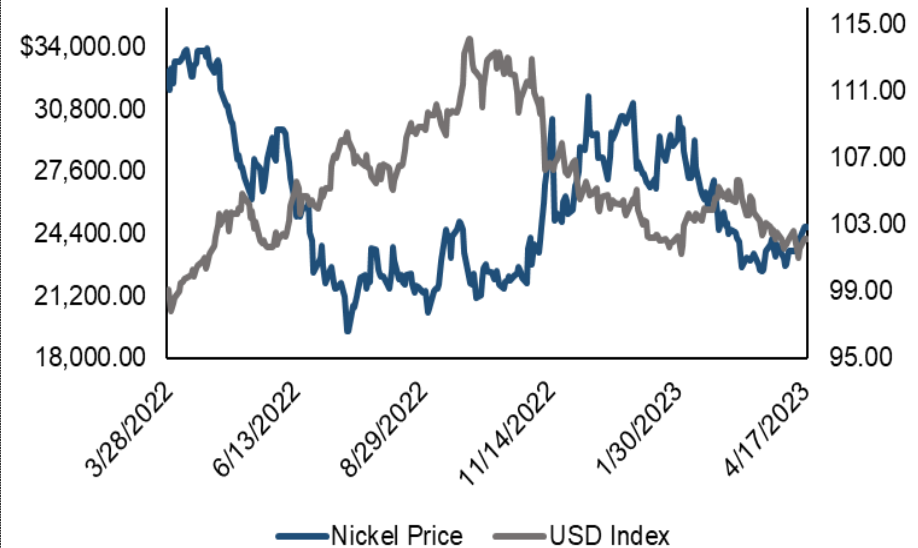
II. Macroeconomic Thesis

Macroeconomic Thesis

Macroeconomic Summary

- **Increased Production Furthering Surplus**
 - Chinese metal producer, Tsingshan Holding Group recently announced that they would be pushing to convert idle copper mines in China to produce class one nickel
 - The news of the potential increase in production sent nickel spiraling downward over 14.00% in January
 - The total influence of the increase of supply is yet to be seen in the market as production is starting to increase
- **Recovering Global PMIs**
 - Global Purchasing Manager Indices, a great indicator of business activity across the globe, have rebounded to their highest levels since last summer
 - The revival of business activity around the globe since last fall could spur increased consumption for nickel in 3Q2023
 - A weaker dollar will continue to push global trade higher and the recovery in China's economy will carry consumption of Nickel in the region to new highs
- **Electric Vehicle Manufacturing Bolsters Demand**
 - Nickel is a key component in the production of electric vehicle batteries. It provides more energy density than other metal components like cobalt and lithium
 - With consumer demand for EV's that have a further range, the amount of nickel required in batteries will rise generating a steady boost in market demand
 - EV demand has seen major increases over the last two years as total sales rose over 60.00% from 2021 to 2022, and are expected to see another substantial increase in 2023 as forecasts for global sales exceed 11.00 mm units

Nickel Spot Price vs. USD Index | One-Year Price Chart



Market Pros & Cons

- Increased Supply Widens Surplus in Nickel Markets
- Improved Global Economic Conditions Spur Consumption
- Strengthening U.S. Dollar Hinders Global Trade flow
- U.S. Economy Stabilizes With Dovish Fed

III. Risk Analysis

Risk Analysis

Directional & Magnitude Risk

- **Delta Analysis**

- The trade has a Delta with a value of 0.16922
 - For every \$1.00 change in the underlying, the options contract will gain or lose \$0.16922
 - This trade benefits from bullish or bearish price movement of the underlying. The delta will swing positive and negative depending on the direction of the underlying

- **Gamma Analysis**

- The trade has a positive Gamma of 0.00011
 - We are both buying a call and a put at the same strike prices, therefore their gamma values are nearly offsetting

Implied Volatility Risk

- **Vega Analysis**

- The trade is long Vega with a value of 138.25166
- Implied volatility input for the trade is 39.00%
- Vega is positive for long options while it is negative for short options, regardless of whether it is a call or put
 - Vega is easily the most important Greek in this trade as an increase in implied volatility increases the probability of large price swings in the underlying

Time Risk

- **Theta Analysis**

- The trade is short Theta with a value of (14.47988)
- Theta is negative in this trade as the potential for the position to end in the money decreases with every passing day. It negatively impacts each leg of this trade therefore it can play a crucial role. Theta could become positive if the trade were to become deeply in the money
- Theta will have its biggest impact when the price stays at the money strike price

Interest Rate Risk

- **Rho Analysis**

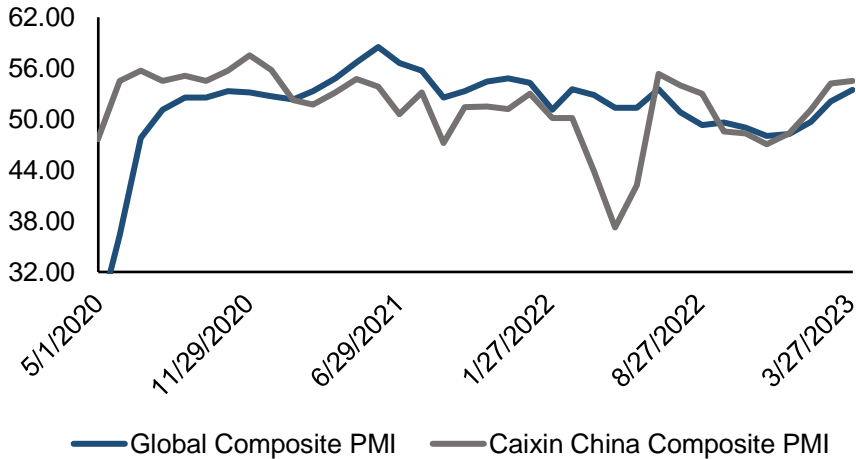
- The trade is short Rho with a value of (6.57752)
- Rho is significant in this trade as there are four Fed meetings before our expiration date, meaning four possible chances for a hike. Higher interest rates tend to have negative consequences for nickel as they interfere with consumption factors



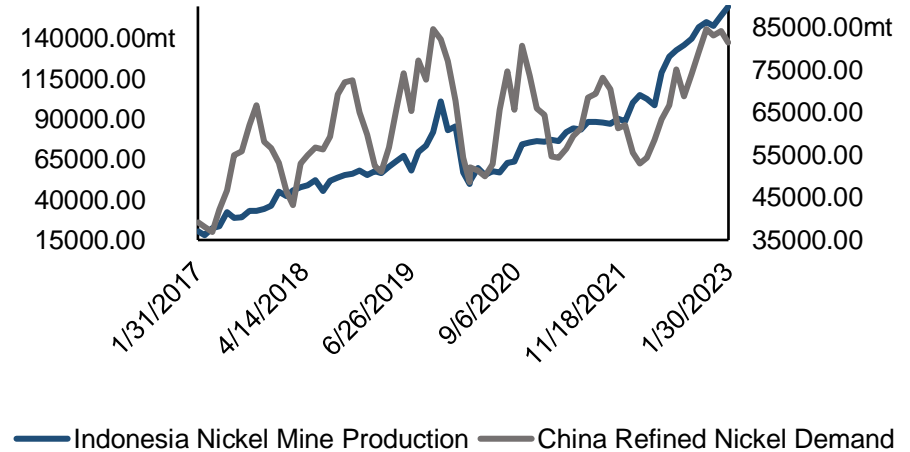
IV. Technical Bias & Fair Value

Technical Bias & Fair Value

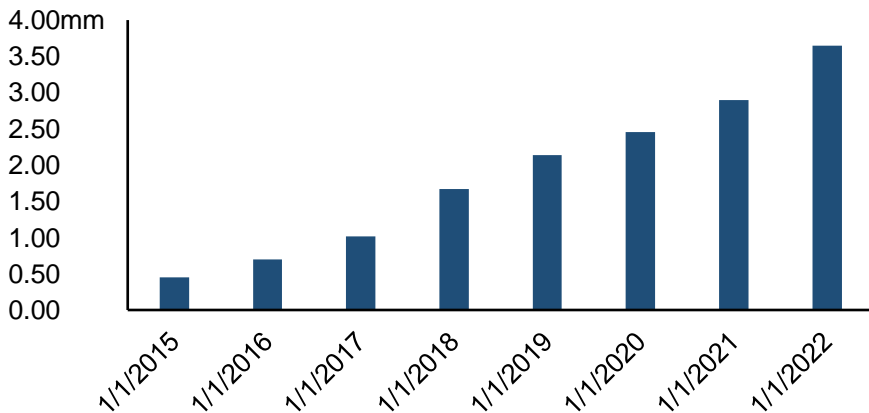
Global Composite PMI v. Caixin China Composite PMI | Three-Year Chart



IDN Nickel Mine Production Vs. CHN Nickel Demand | Six-Year Chart



Annual Global Electric Vehicle Sales Per-Year | Seven-Year Chart



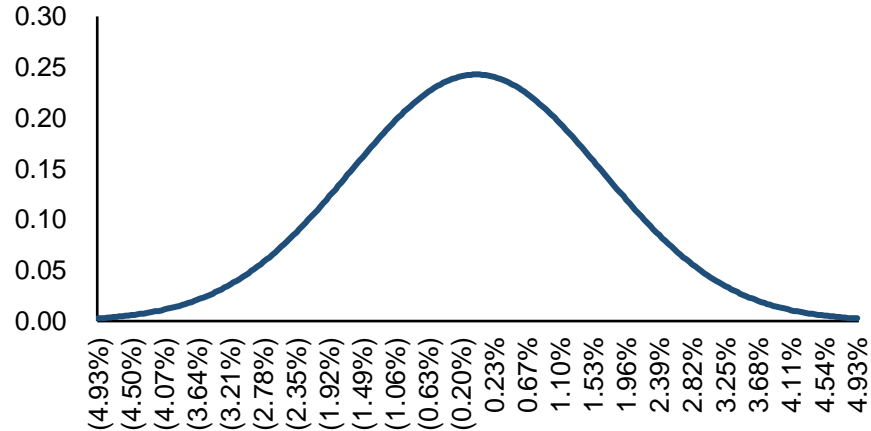
Synopsis

- Global PMIs have reached their highest levels in nine months and overseas markets have positioned themselves for a positive outlook for the rest of 2023. With increasing optimism overseas, global economies could spell increased consumption with bettering economic conditions
- Nickel supply coming out of major producers like Indonesia tends to have a fairly stable positive trajectory outside of the COVID-19 Pandemic. Nickel demand from major consumers like China tends to be much more cyclical, often creating imbalances in the deficit and surplus numbers for the commodity
- Electric Vehicle production is a major driver of nickel demand in the current market. As vehicle technology improves and the green transition movement progresses, EV sales are forecasted to continue their increase and market share

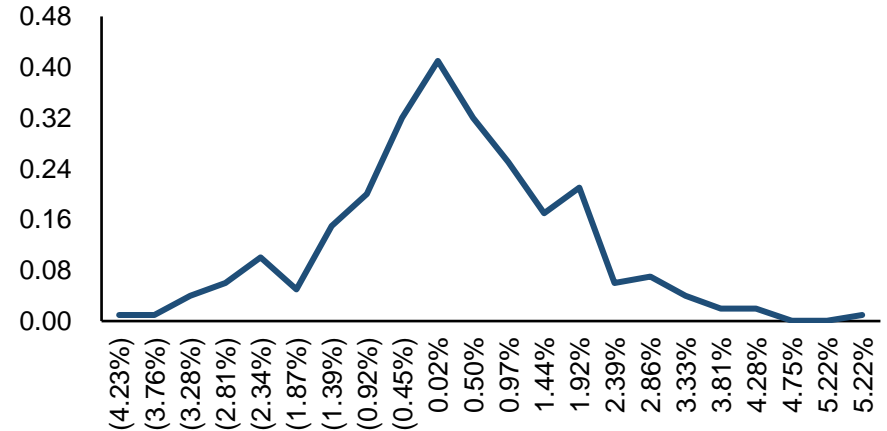
V. Volatility Analysis

Volatility Analysis

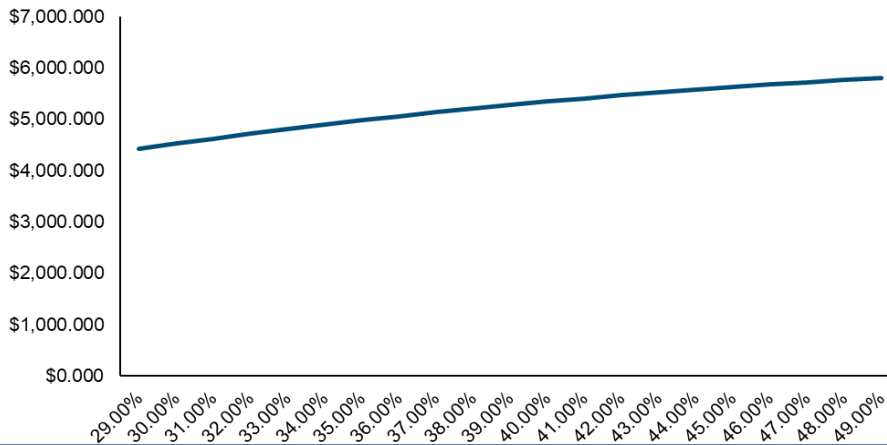
Expected Theoretical Daily Return Distribution



Historical Daily Return Distribution



Position Volatility Sensitivity



Theoretical Edge Analysis

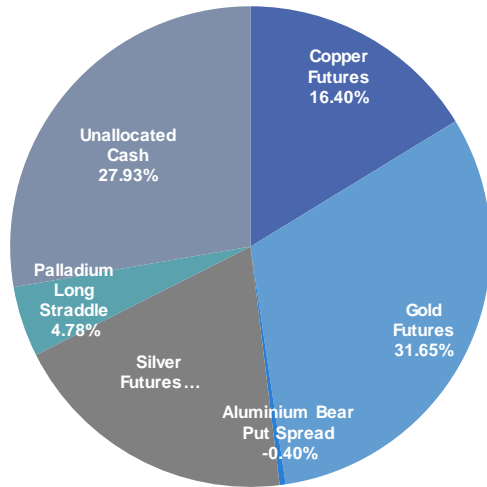
Asset Description	Option Premium
Theoretical Long Call	\$2,638.2637
Actual Long Call	\$2,844.7500
Theoretical Long Put	\$2,638.1363
Actual Short Put	\$2,648.8200
Theoretical Long Call Adj. for DV1	\$263,826.3731
Actual Long Call Adj. for DV1	\$284,475.0000
Theoretical Long Put Adj. for DV1	\$263,813.6328
Actual Long Put Adj. for DV1	\$264,882.0000
Theoretical Edge (LP) Assuming 6.00 Contracts	(\$123,891.7613)
Theoretical Edge (SP) Assuming 6.00 Contracts	\$6,410.2031
Total Theoretical Edge	(\$117,481.5582)



VI. Capital Allocation

Capital Allocation

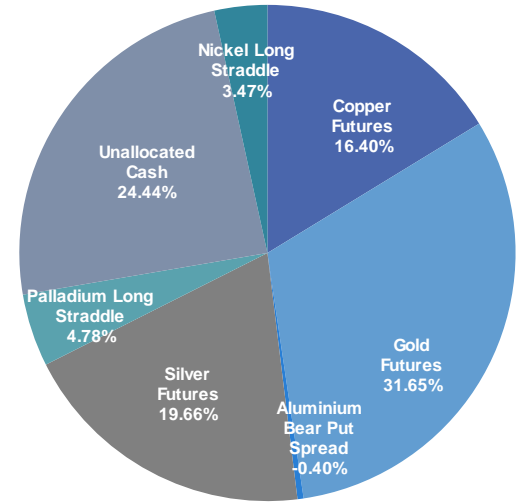
Current Portfolio Allocation



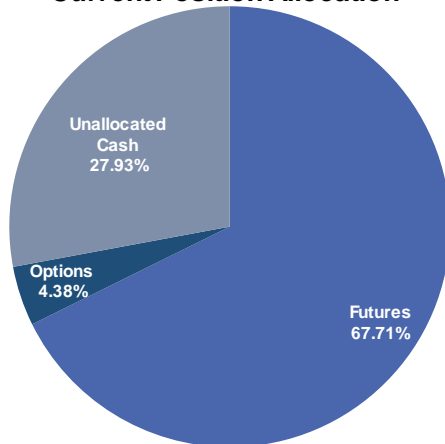
Transaction Summary

Ticker	Position Change	
	Contracts	Allocation
Aluminium Bear Put Spread	0	\$0.00
Copper Futures	0	\$0.00
Gold Futures	0	\$0.00
Palladium Long Straddle	0	\$0.00
Silver Futures	0	\$0.00
Nickel Long Straddle	+ 12	\$3,296,142.00
Allocation Change		\$3.29mm

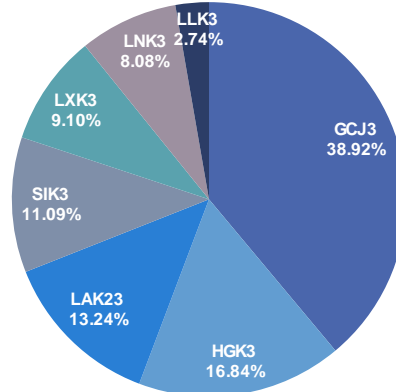
Proposed Portfolio Allocation



Current Position Allocation



Benchmark Allocation



Proposed Position Allocation

