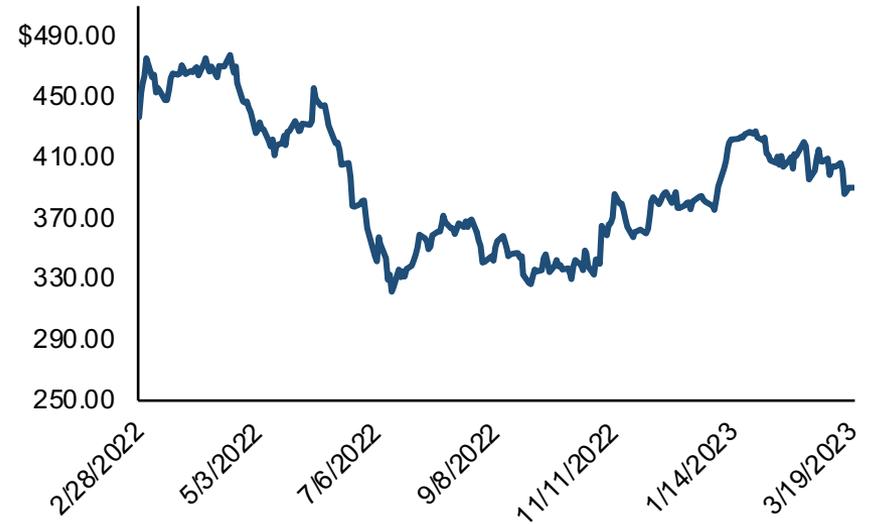


## HGZ3 | One-Year Price Chart



## Metals Sector

### Analyst

Steven Lupo  
Slupo223@gmail.com

### President

Anthony Bruno  
anthonybruno2186@gmail.com

### Vice President

Julia Petrova  
julia.petrova6100@gmail.com

### Chief Investment Officer

Phil Sullivan  
philsullivan10@gmail.com



## Position Details

- Copper | HGZ3
- Underlying Price: \$390.10
- Bull Call Spread
- Expiration Date: October 26<sup>th</sup>, 2023



## Table of Contents

- I. Product & Position Overview
- II. Macroeconomic Thesis
- III. Risk Analysis
- IV. Technical Bias & Fair Value
- V. Capital Allocation



## I. Product & Position Overview

### Product & Position Overview

#### Product Description

- Copper is an industrial metal that has widespread applications in all sectors of the economy. It is commonly used in construction, electronics, and transportation markets
  - Copper is a highly efficient channel for protective wiring, which makes it increasingly popular in renewable energy
  - Prices are largely influenced by the health of the economy and demand from major consumers
- **Major Countries Involved**
- Producers
  - Chile | 27.00%
  - Peru | 10.00%
  - China | 9.00%
- Consumers
  - China | 52.00%
  - Europe | 16.00%
  - United States | 11.00%

#### Payoff Diagram



#### Trade Breakdown

- **Bull Call Spread**
  - This strategy benefits from bullish price movements in the underlying asset
- **Setup**
  - We Buy – 300 OTM \$425.00 Calls | HGZ3
  - We Sell – 300 OTM \$435.00 Calls | HGZ3
  - Max Profit: \$5,400,000.00
  - Max Loss: \$2,100,000.00
- **Expiration**
  - Date: October 26<sup>th</sup>, 2023

#### Exit Strategy & Potential Hedge Strategy

- **Bull Base & Bear Case**
  - **\$433.00 / \$429.00 / \$425.00**
  - Breakeven – \$427.80
- **Methodology**
  - The sector expects at least a ~10.00% increase in the underlying asset before the expiration
- **Hedge Strategy**
  - In the event of the underlying facing adverse price movement, the sector will look to reverse trade and/or sell off some copper futures positions



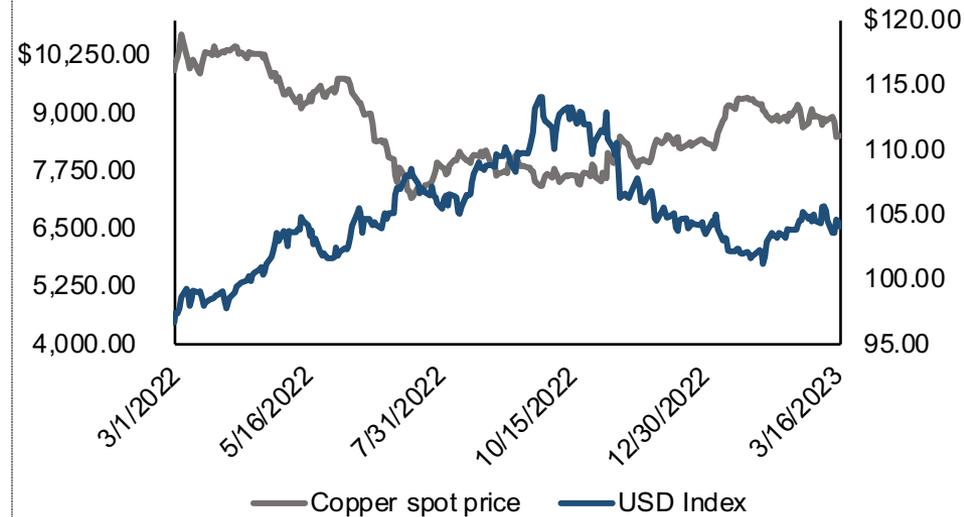
## II. Macroeconomic Thesis

### Macroeconomic Thesis

#### Macroeconomic Summary

- **Continued Reopening of China into Peak Construction Season**
  - Recent China PMI data came in at 52.60 last month, pointing towards signs of a faster recovery
  - Construction accounts for 46.00% of all domestic copper demand and infrastructure spending is a leading factor that Chinese policies have put emphasis on
  - China has invested heavily in digital infrastructure construction with plans of adding 2,000.00 local 5G base stations as a part of digital development
  
- **Global Clean Energy Shift Driving Demand**
  - The Inflation Reduction Act and the Infrastructure Stimulus Package proposed by the Biden administration will commit over \$2.00 T to construction and infrastructure sectors
    - The U.S. is one of many countries who pledged to commit 80.00% of electricity to renewables
  - Major copper producing mining agencies Rio Tinto, Copernico, and Antofagasta Minerals have committed to strict decarbonization goals by integrating renewables
  
- **New Applications Leading to Strategic Investments**
  - BHP Group, the world's biggest miner in market value acquired a Oz. Minerals Ltd. in a deal worth \$6.61 bn
  - Largest Peru copper mine Rio Tinto announced the acquisition of Turquoise Hill Inc. in a \$3.31 bn as they plan to raise capital investment to \$10.00 bn by 2025
  - McEwen Copper received a \$155.00 mm investment from Stellantis, the fourth largest car manufacturer and a \$30.00 mm investment from Nutona venture of Rio Tinto

#### Copper vs. USD Index | One-Year Chart



#### Market Pros & Cons

- Overall global outlook improves and economy restabilizes
- USD continues to fall as FED pivots to a more Dovish stance
- China fails to hit weak GDP growth numbers as economy lags
- Copper falls into supply surplus due to delayed weaker demand



## III. Risk Analysis

## Risk Analysis

### Directional & Magnitude Risk

---

- **Delta Analysis**

- This trade has a Delta value of 0.0323
- The trade benefits from bullish movement of the underlying. Because our trade is consisted of one long call with a lower strike price and one short call with a higher strike price, the net delta changes very little as the price of the underlying changes

- **Gamma Analysis**

- This trade has a Gamma value of 0.0001
- Gamma is near-zero in this trade as our long and call options have almost offsetting gamma values

### Implied Volatility Risk

---

- **Vega Analysis**

- The trade has a Vega value of 0.0263
- Vega is not likely to have a material impact on this trade as we are both long and well as short on a call. Initially vega is positive in our trade as the underlying price of our asset is below the breakeven point that we have set
- Implied volatility for both legs of the trade is 29.00%

### Time Risk

---

- **Theta Analysis**

- The trade has a Theta value of (0.0033)
- Theta is minimally negative in our trade as the value of our contract erodes by each passing day. As we approach the expiration, if the trade is not yet profitable, theta will hurt our contract value. If, however, the underlying asset price rises above the breakeven point, theta will become positive

### Interest Rate Risk

---

- **Rho Analysis**

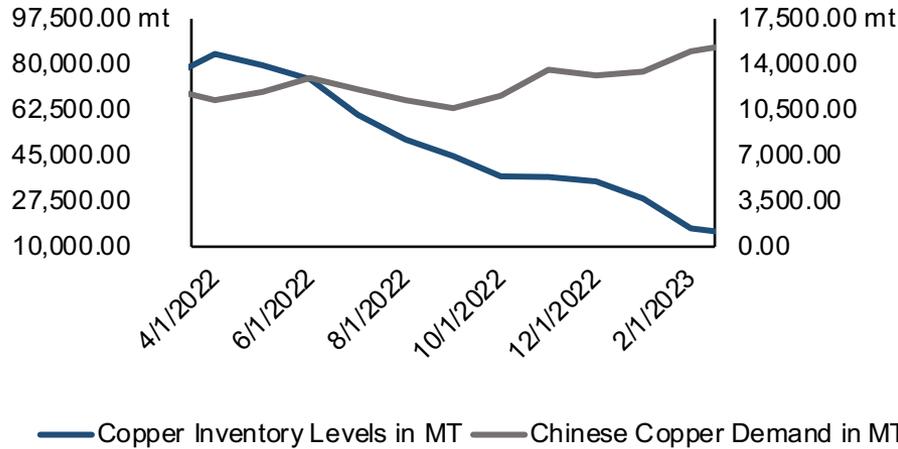
- The trade has a Rho value of (0.0246)
- Rho is slightly negative on our trade as we have a longer-term time till expiration and there are expected rate hikes
- It is pretty minimal in our trade as majority of interest rates expectations have been priced in by markets but if the Fed changes their policy in reaction to more economic data releases, rho will become more impactful



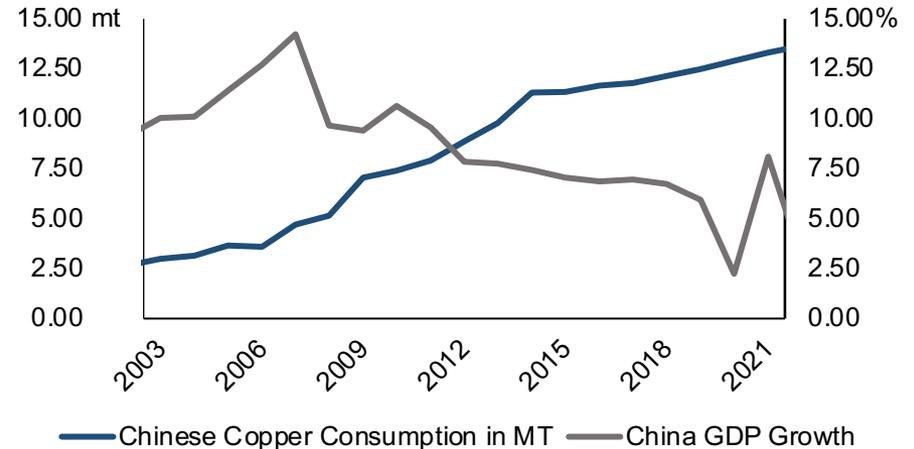
## IV. Technical Bias & Fair Value

## Technical Bias & Fair Value

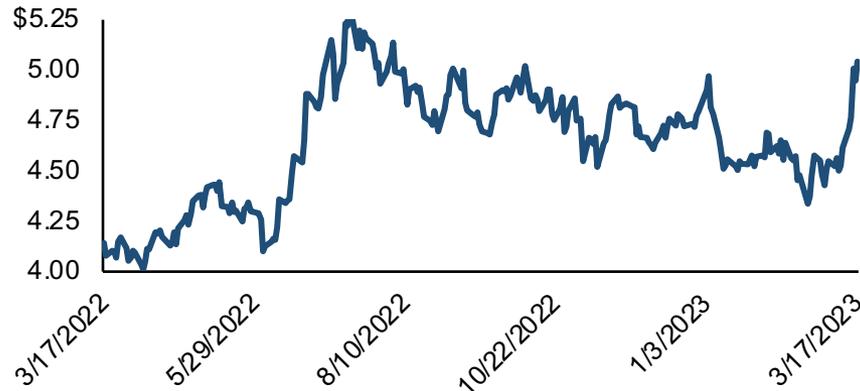
**Copper Inventory Levels vs. Chinese Copper Demand | One-Year Chart**



**Copper Consumption vs. China GDP | Eighteen-Year Chart**



**Copper-Gold Ratio | One-Year Chart**



### Synopsis

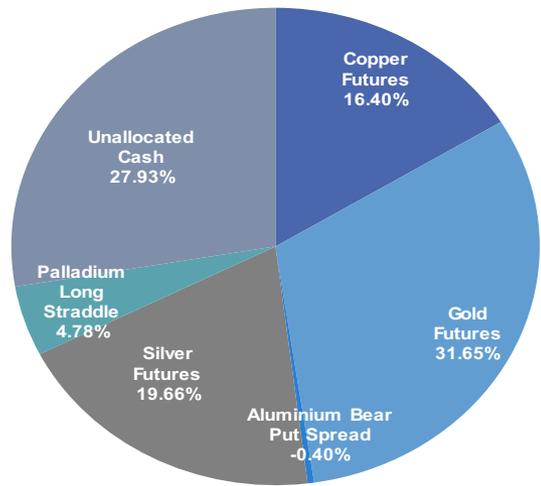
- There has been a strong disconnect between supply and demand of copper. Analysts foresee a supply shortage lasting till 2030
  - Peru has been affected by protests causing major mines to temporarily suspend mining operations amid fires and riots
  - Declining quality ore grades on copper mining in Chile fell 7.00% and analysts estimated less copper production
- Although these two respective metals hold much different uses, there has been a strong correlation between them over the years
  - This ratio measures the relative strength of industrial activity against fears of economic recession or inflation
- China has remained committed to injecting money into property developers and making lending more affordable



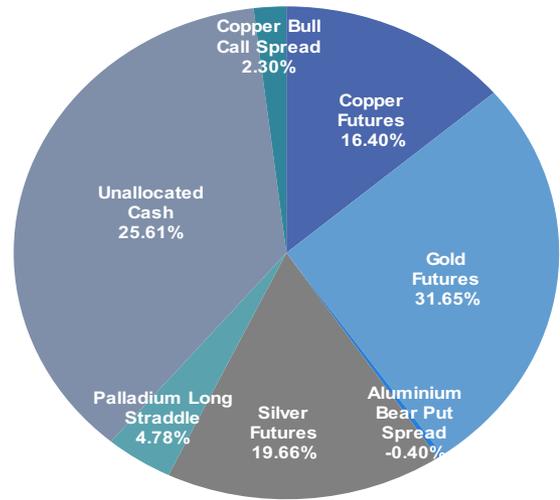
## V. Capital Allocation

### Capital Allocation

**Current Portfolio Allocation**

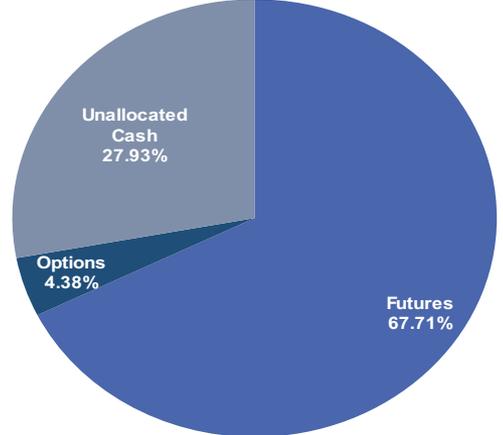


**Proposed Portfolio Allocation**

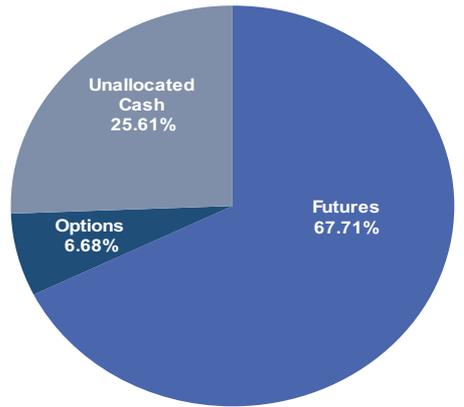


Transaction Summary		
Ticker	Position Change	
	Contracts	Allocation
Aluminium Bear Put Spread	0	\$0.00
Copper Futures	0	\$0.00
Gold Futures	0	\$0.00
Palladium Long Straddle	0	\$0.00
Silver Futures	0	\$0.00
Copper Bull Call Spread	+ 300	\$2,100,000.00
Allocation Change		\$2,100,000.00

**Current Position Allocation**



**Proposed Position Allocation**



**Benchmark Allocation**

