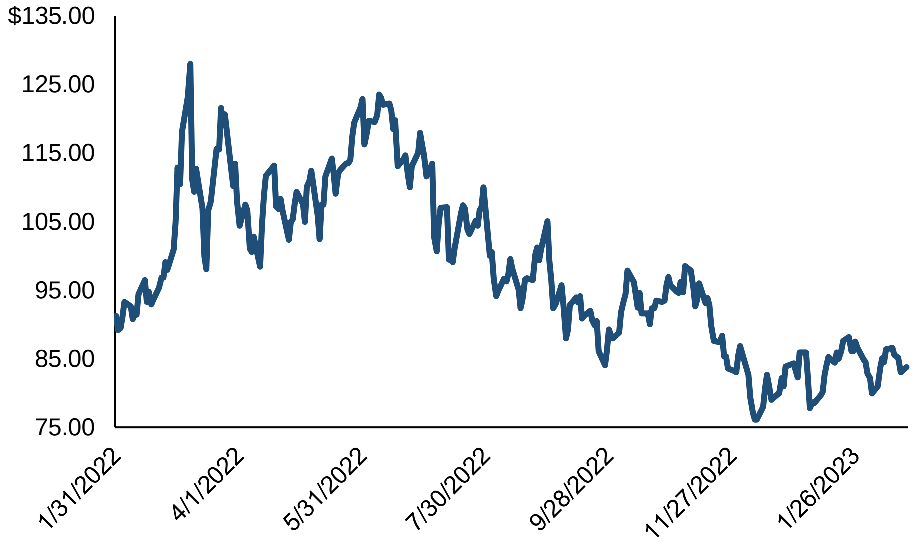
The Asset Management Group

Pennsylvania State University

Brent Crude| One-year price chart



Position Details

- Brent Crude | COM3
- Underlying Price: $82.29
- Bull Call Spread
- Expiration Date: April 25, 2023

Energy Sector

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I. Product & Position Overview

Product & Position Overview

Product Description

- **Brent Crude Oil**
  - Brent Crude is waterborne crude oil extracted in the North Sea that tends to trade at a premium to other types of crude oil due to its low sulfur content and storage qualities
  - It tends to serve as a benchmark for other crudes in Europe, the Middle East, and Africa, as it is commonly used to price two-thirds of international crude oil
  - **Major countries involved**

Exporters

- U.S. | 16.00%
- Saudi Arabia | 12.00%
- Russia | 11.00%

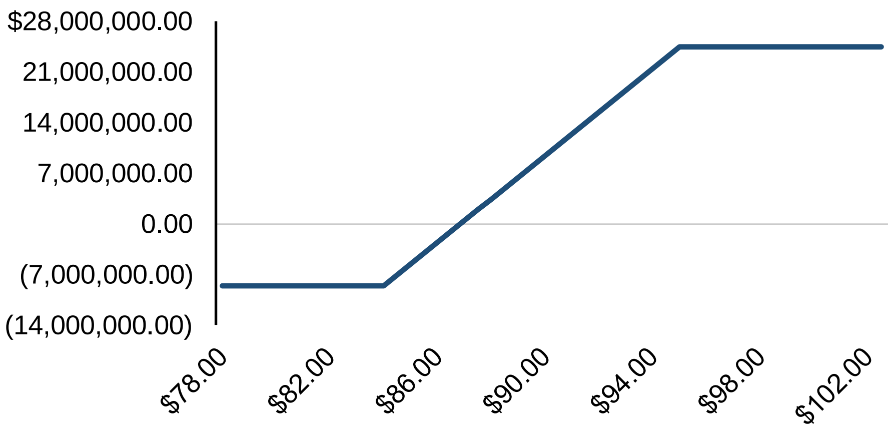
Importers

- China | 14,060,000.00 Bbl/d
- U.S. | 8,400,000 Bbl/d
- India | 7,900,000.00 Bbl/d

Trade Breakdown

- **Bull Call Spread**
  - This trade benefits from bullish price movements in the underlying futures contract
- **Setup**
  - We Buy – 7.50 k OTM $84.00 Calls | COK3
  - We Sell – 7.50 k OTM $95.00 | COK3
  - Max Loss: $8,583,000.00
  - Max Profit: $24,417,000.00
- **Expiration**
  - Date: April 25, 2023

Payoff Diagram



Exit Strategy & Potential Hedge Strategy

- **Bull Base & Bear Case**
  - **$92.00** / $**87.00** / **$84.00**
  - Breakeven – $86.86
- **Methodology**
  - The Sector believes that the underlying will increase in price throughout the trade more than the 5.55% needed to breakeven
- **Hedge Strategy**
  - If the trade faces converse price movements, the Sector will look to reverse trade or sell off Brent futures positions

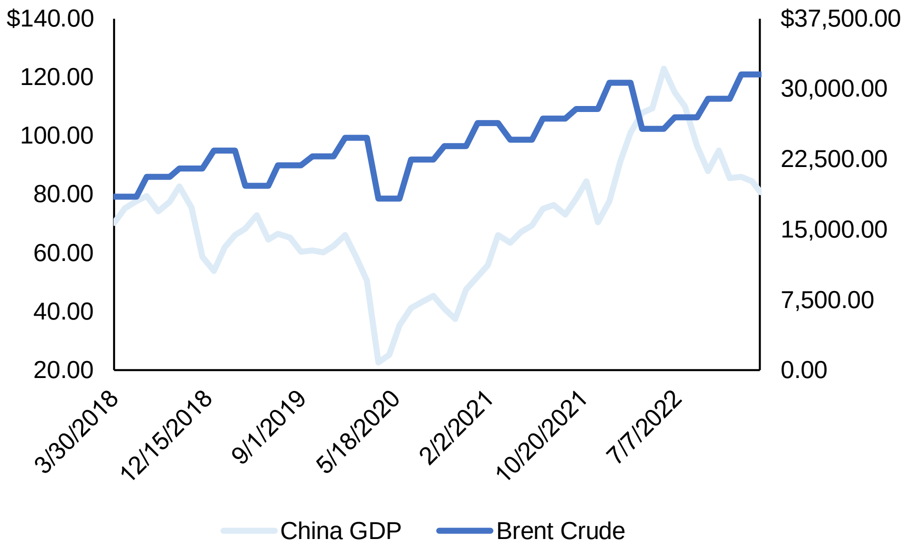
II. Macroeconomic Thesis

Macroeconomic Thesis

Macroeconomic Summary

- **Chinese demand continues to increase**
    - Chinese PMI for the month of January came in at 50.10, indicating continued expansion in the manufacturing and service sectors
        - The International Energy Agency is forecasting an increase in crude oil demand of 2.00 mm Bbl/d, 900.00k of which is expected to come from China
    - The number of scheduled flights is currently at 676.00k and is forecasted to climb to 900.00k by the beginning of April
- **Russia threatens to further cut exports**
    - As a response to EU price caps, Russia has pledged to cut its oil exports by 500.00k Bbl/d, which is close to a 5.00% decrease
        - OPEC delegates signaled that they do not intend to cover Russia's massive supply cut
    - With already depleting storage levels, areas such as the EU will most likely find their supply to be further constricted
- **Economic data further reflects a strong U.S. economy**
    - The U.S. economy continues to remain resilient despite the 4.75% interest rate and the continuously hawkish Fed
        - The labor market is showing few signs of slowing as jobless claims slipped to 194.00k for the week of February 11
    - Retail demand saw a 3.00% jump alongside a 0.70% MoM PPI increase in January, further indicating increased demand growth
    - Healthy economic data and stark implications of an expanding economy depict strong demand levels that will translate to supply chain demand for crude oil

China GDP vs. Brent Crude | Five-year chart



Market Pros & Cons

- Cold winter forecasts for Northwestern and Central Europe
- India maintains six-month high crude oil import rate
- U.S. continues to sell oil reserves into the market
- High levels of oil supply in the U.S.

III. Risk Analysis

Risk Analysis

Directional & Magnitude Risk

- **Delta Analysis**
  - The trade has a Delta value of 0.2632
  - The trade benefits from bullish movements in the underlying. Since the trade is composed of one long call and one short call, the net delta is subject to minimal changes as the price of the underlying changes
- **Gamma Analysis**
  - This trade has a Gamma value of 0.029842
  - Due to the composition of the trade consisting of a long and short call, Gamma is not going to impact the trade immensely.

Time Risk

- **Theta Analysis**
  - The trade has a Theta value of (0.0399)
  - Theta comes out to be slightly negative for this trade as the play is less likely to make a profitable move as the expiration date approaches

Implied Volatility Risk

- **Vega Analysis**
  - The trade has a Vega value of 0.0338
  - Vega is initially positive as the underlying is currently below the breakeven point.
  - Implied volatility for both legs of the trade is 41.00%

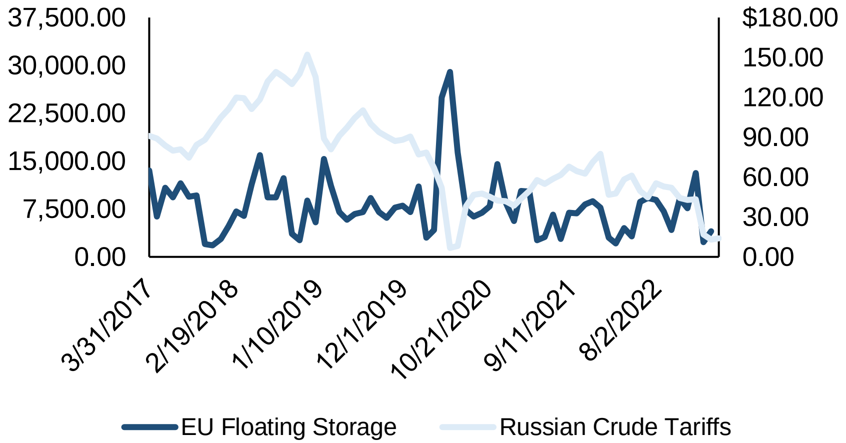
Interest Rate Risk

- **Rho Analysis**
  - The trade has a Rho value of (0.0052)
  - Rho comes in as slightly negative for this trade as rate hikes are expected in the next two months
  - The impact of Rho on the trade is minimal as the market has practically priced in the expected rate hikes, but it is also important to note that fluctuations in economic data could be reflected in the outcome of the trade

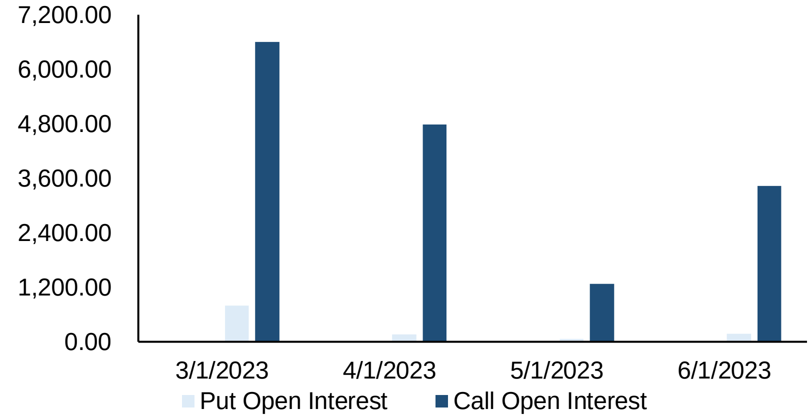
IV. Technical Bias & Fair Value

Technical Bias & Fair Value

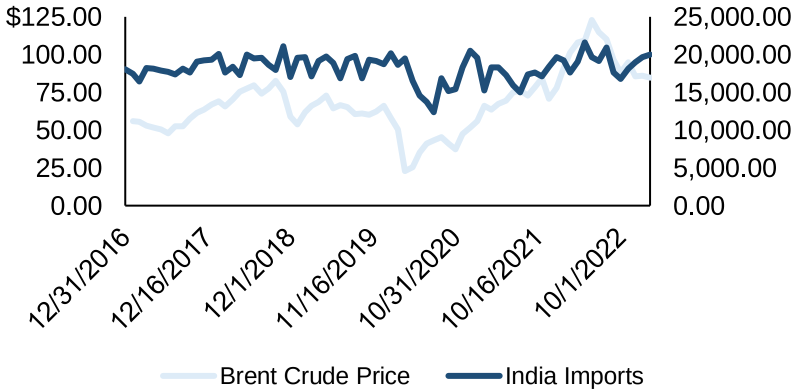
EU Floating Crude Oil Storage vs. Russian Crude Tariffs | Five-year chart



Put to Call Open Interest Ratio | Three-month chart



India Import Quantity vs. Brent Crude | Six-year chart



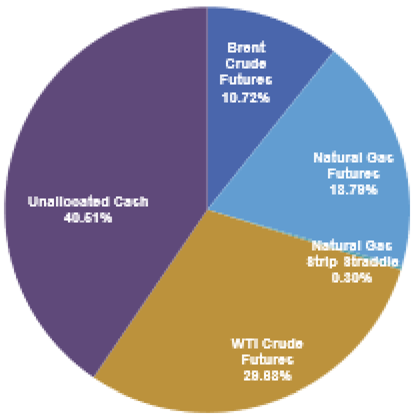
Synopsis

- Russia continues to be a major exporter of crude oil to Europe, as it is one of the main producers in the Euro-Asia area. Russian tariffs tend to go down as EU storages decline, which then allows Europe to replenish oil reserves
- As one of the largest importers of crude oil in the world, India has the ability to drive prices through its foreign demand. Imports for the region are currently at a six-month high, with a 18.99% increase from the end of September
- The put to call open interest ratio indicates investor sentiment in the options market. Listed at 0.12, the put to call interest ratio indicates fervently bullish sentiment all the way through June delivery

V. Capital Allocation

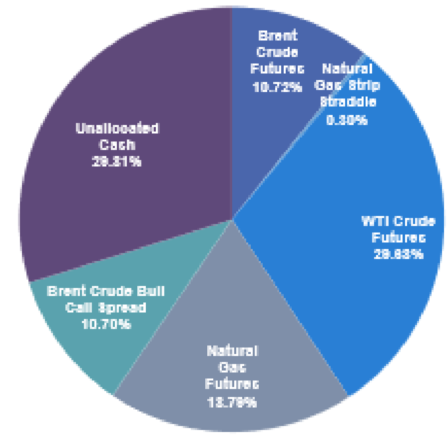
Capital Allocation

Current Portfolio Allocation

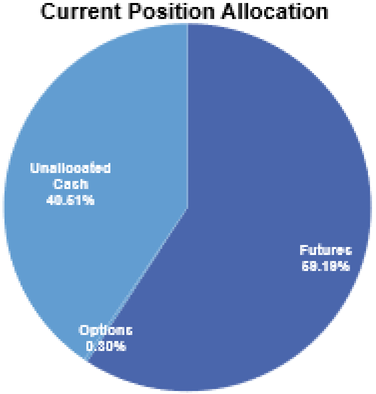


Transaction Summary		
	Position Change	
Ticker	Contracts	Allocation
WTI Crude Futures	0	$0.00
Brent Crude Futures	0	$0.00
Natural Gas Futures	0	$0.00
Natural Gas Strip Straddle	0	$0.00
Brent Crude Bull Call Spread	+ 3000	$8,583,000.00
Allocation Change		($8,583,000.00)

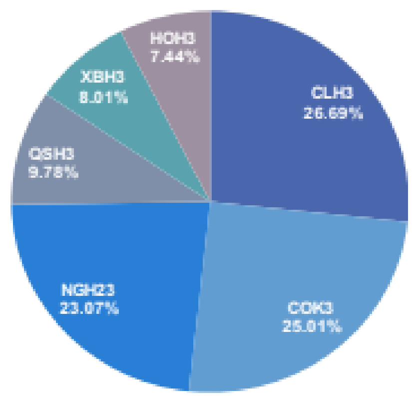
Proposed Portfolio Allocation



Current Position Allocation



Benchmark Allocation



Proposed Position Allocation