

The background of the slide features a blurred financial chart. It includes a line graph with a green arrow pointing upwards, a bar chart with green and red bars, and the word "Gas" in a large, bold, green font. The overall color scheme is light blue and green.

# Capstone Project

on Fuels Futures Data

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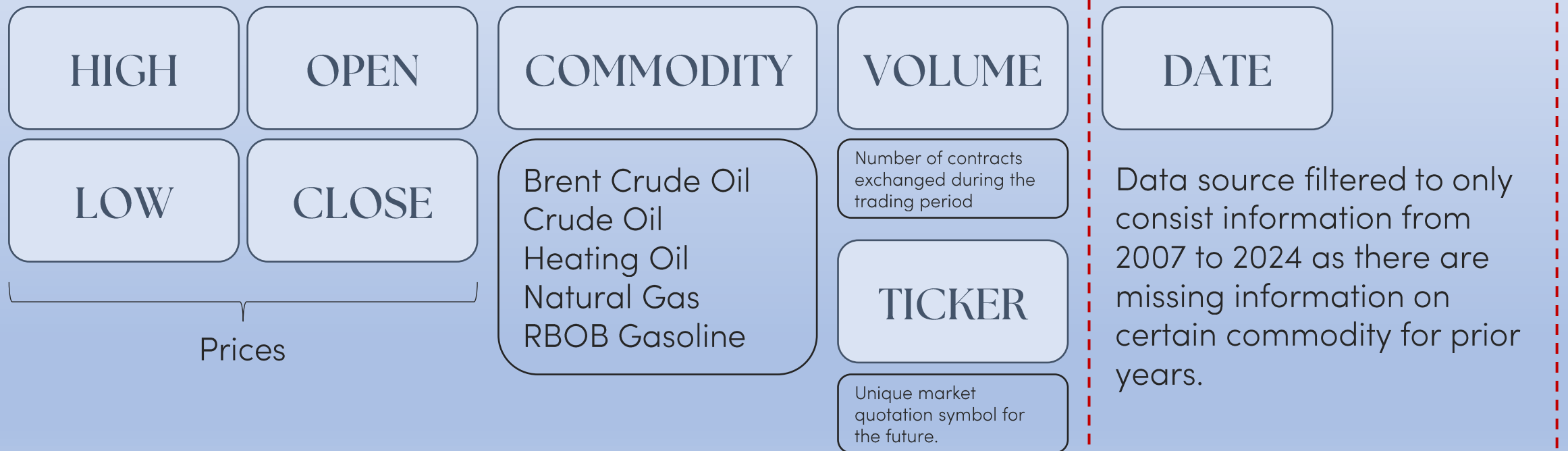
# Problem Statement

Understanding the complex dynamics of fuel futures is essential for optimizing investment strategies in the energy sector. By examining historical price trends, volatility patterns, and the impact of economic and geopolitical events, this study aims to identify key factors influencing fuel futures performance and develop insights to anticipate market movements and assess investment returns.

# Data Set

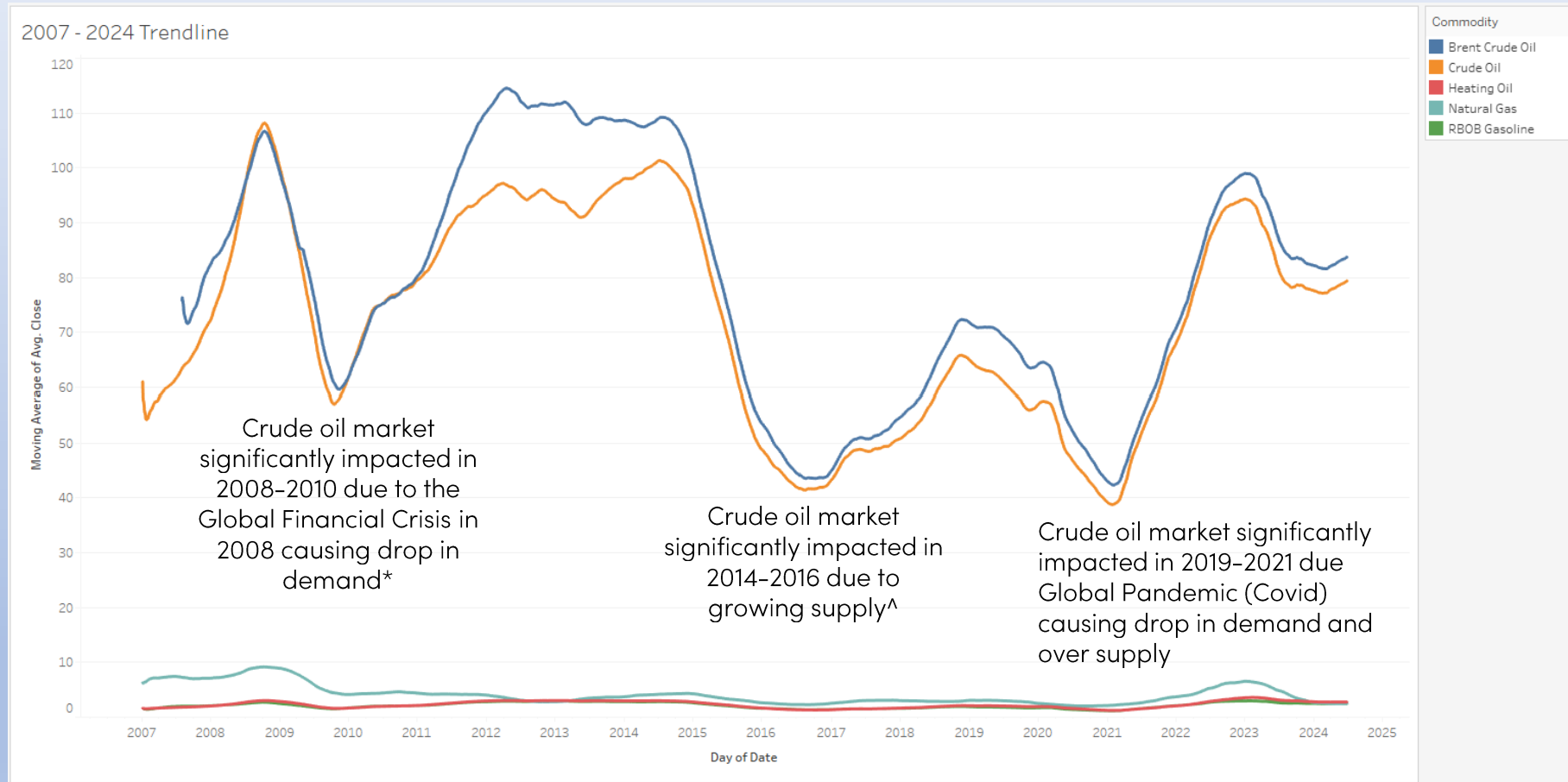
Retrieved from Kaggle – [Oil, Gas & Other Fuels Futures Data](#)

Consists of 8 Columns



# Visual Overview of Futures Trend

Utilizing calculation of **Moving averages** in 250-days to visualize long term trends



## Findings:

Crude oil and Brent crude oil prices are more susceptible and fluctuates significantly during compromised market conditions

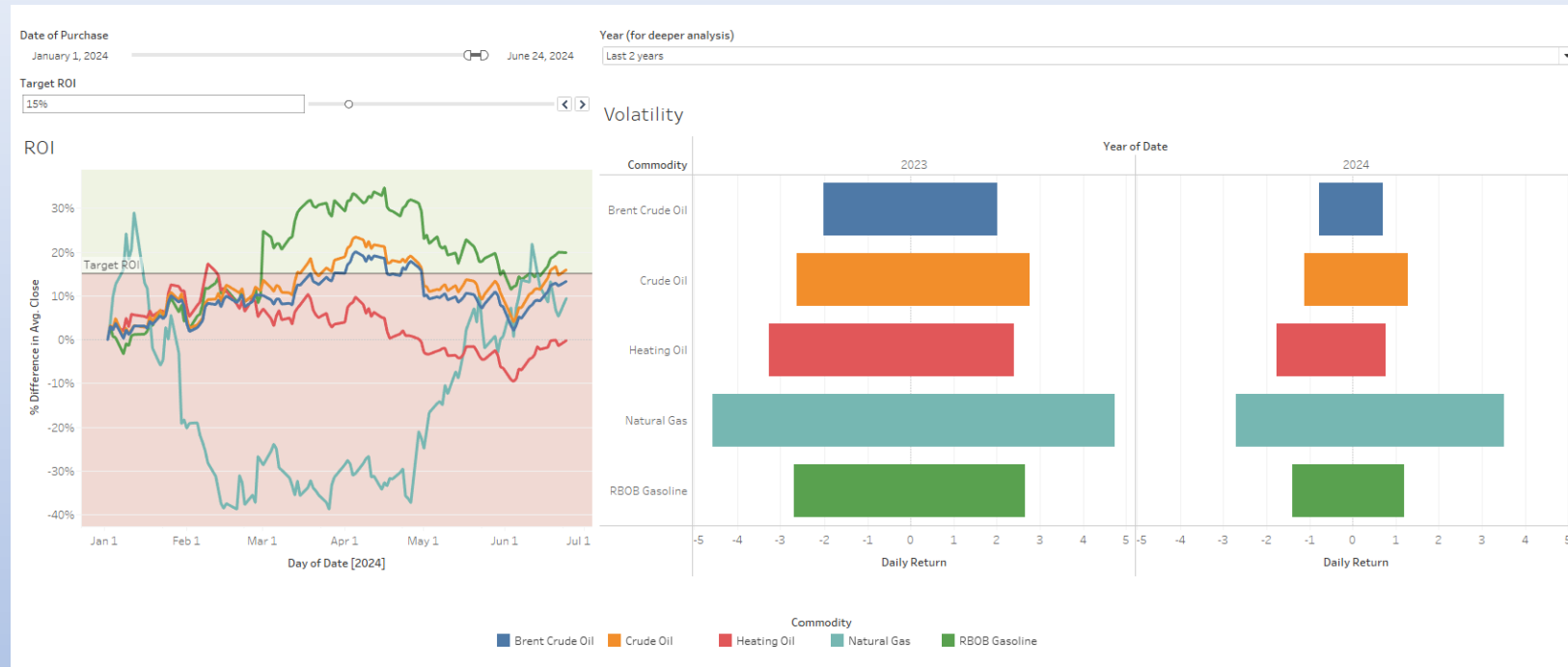
## References:

\*<https://www.sciencedirect.com/science/article/pii/S2211467X20300699>

^<https://blogs.worldbank.org/en/developmenttalk/what-triggered-oil-price-plunge-2014-2016-and-why-it-failed-deliver-economic-impetus-eight-charts>

\*<https://erl.scholasticahq.com/article/13154-impact-of-the-covid-19-pandemic-on-the-crude-oil-and-stock-markets-in-the-us-a-time-varying-analysis>

# Dashboard (Under normal market conditions)



## Findings:

### 1. Stable Commodities:

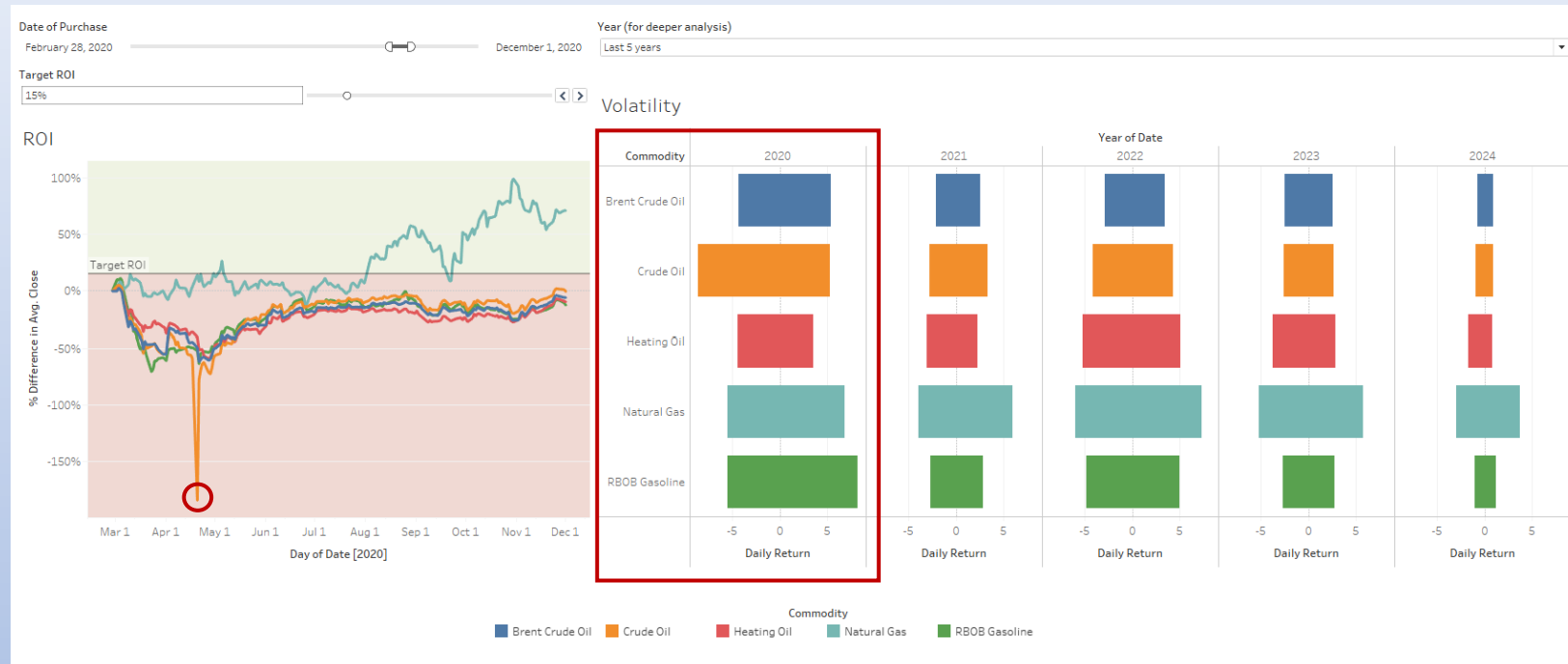
- Brent Crude Oil and Crude Oil appear to be the most stable commodities with moderate returns and lower volatility.
- These might be suitable for traders seeking steady growth with less risk.

### 2. Volatile Commodities:

- Natural Gas and Heating Oil exhibit high volatility, which could indicate higher risk but also the potential for higher rewards.
- Traders might consider these commodities for short-term trades, leveraging periods of high volatility for potential gains.

Traders can consider diversifying their portfolios to balance the stability of Brent Crude Oil and Crude Oil with the higher risk-reward profiles.

# Dashboard (Under compromised market conditions)



## Findings:

### 1. Stable Commodities

- Brent Crude Oil remained stable
- However, there was an unprecedented drop in crude oil prices in April 2020, highlighting the potential for extreme market conditions. In April 2020, an oversupply of oil led to an unprecedented collapse in oil prices, forcing the contract futures price to plummet to a negative figure.\* This also caused the volatility for Crude Oil in 2020 to increase.

### 2. Volatile Commodities:

- Natural Gas and RBOB Gasoline exhibit high volatility, which could indicate higher risk but also the potential for higher rewards.

## Reference:

\*<https://www.cnbc.com/2020/04/26/why-oil-prices-went-negative-and-why-they-can-go-negative-again.html>

# Conclusion

## Understanding the Dynamics of the Futures Market

The futures market for commodities is characterized by significant volatility, particularly in response to economic and geopolitical shocks.

Crude oil and Brent crude oil, as market benchmarks, are particularly susceptible to these fluctuations. While Brent Crude Oil and Crude Oil generally exhibit more stable price movements, the unprecedented events demonstrated their vulnerability to extreme market conditions. This highlights the importance of robust risk management strategies for investors in these commodities.

Natural Gas and Heating Oil, on the other hand, consistently demonstrate higher volatility, offering potential for higher returns but also exposing investors to greater risk.

In conclusion, understanding the underlying factors driving commodity price movements is crucial for making informed investment decisions. A diversified approach, considering both stable and volatile commodities, coupled with a thorough analysis of market conditions, is essential for managing risk and maximizing returns in the dynamic futures market.