Searching for Market Asymmetries: Case of Oil

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Searching for Market Asymmetries: Case of Oil

Price: The Maturity Curve, not just Spot

Volume and Open Interest: Looking for Changing Patterns

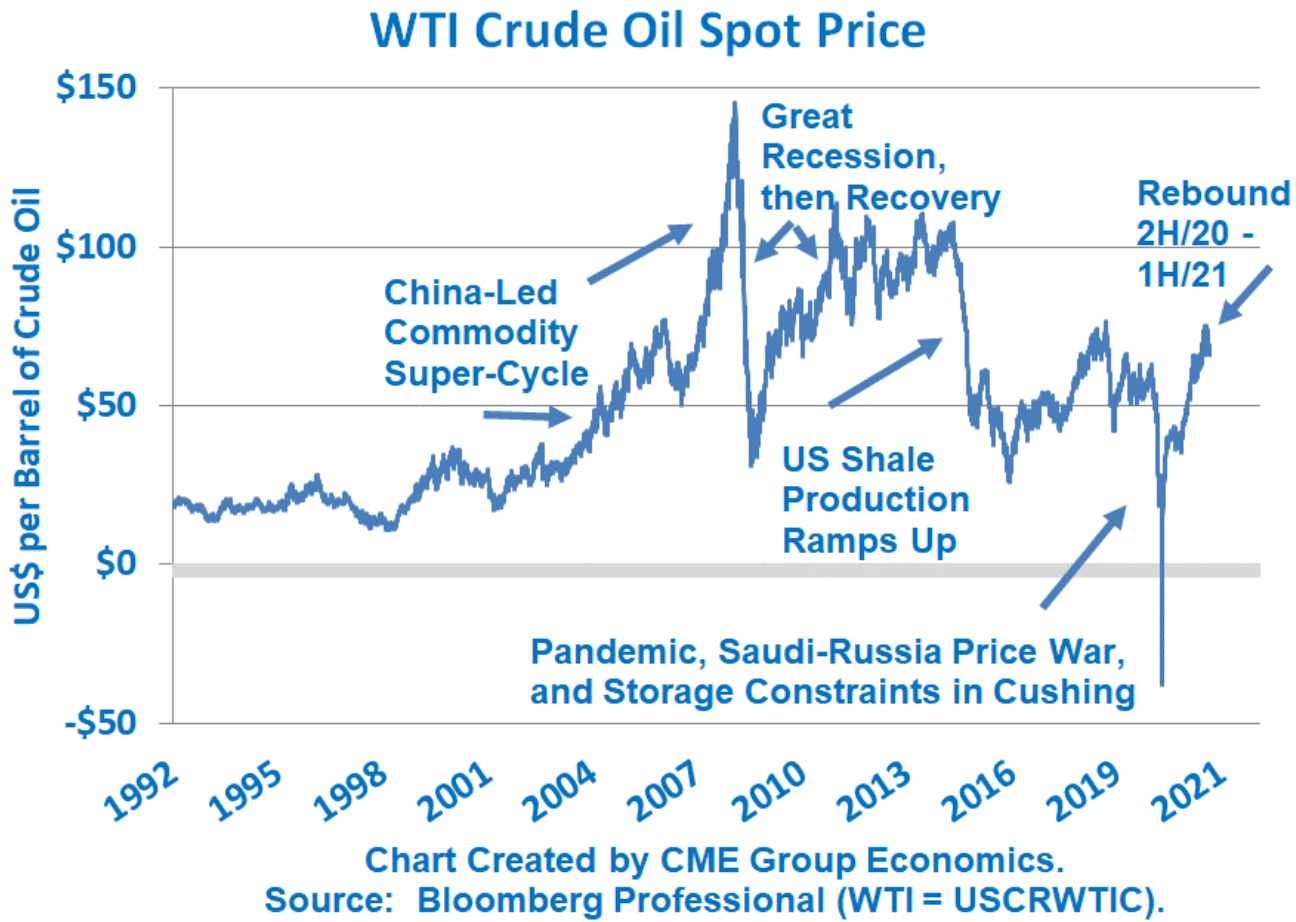
Implied Volatility: A Variety of Perspectives

Sentiment: Constructing Hypothetical Risk-Return Distributions

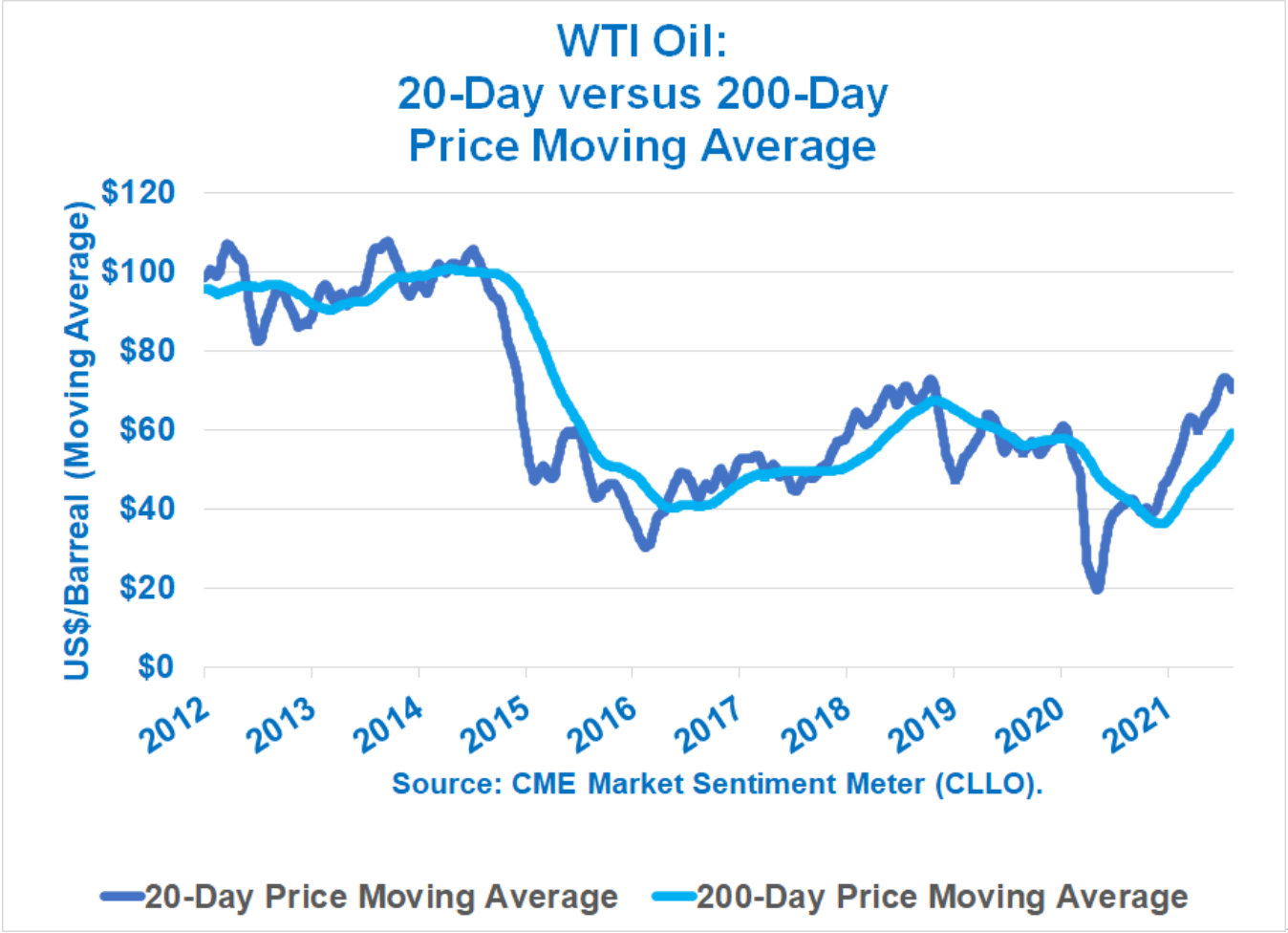
Commodity Super-Cycle? What is happening in other markets

Future Research Ideas

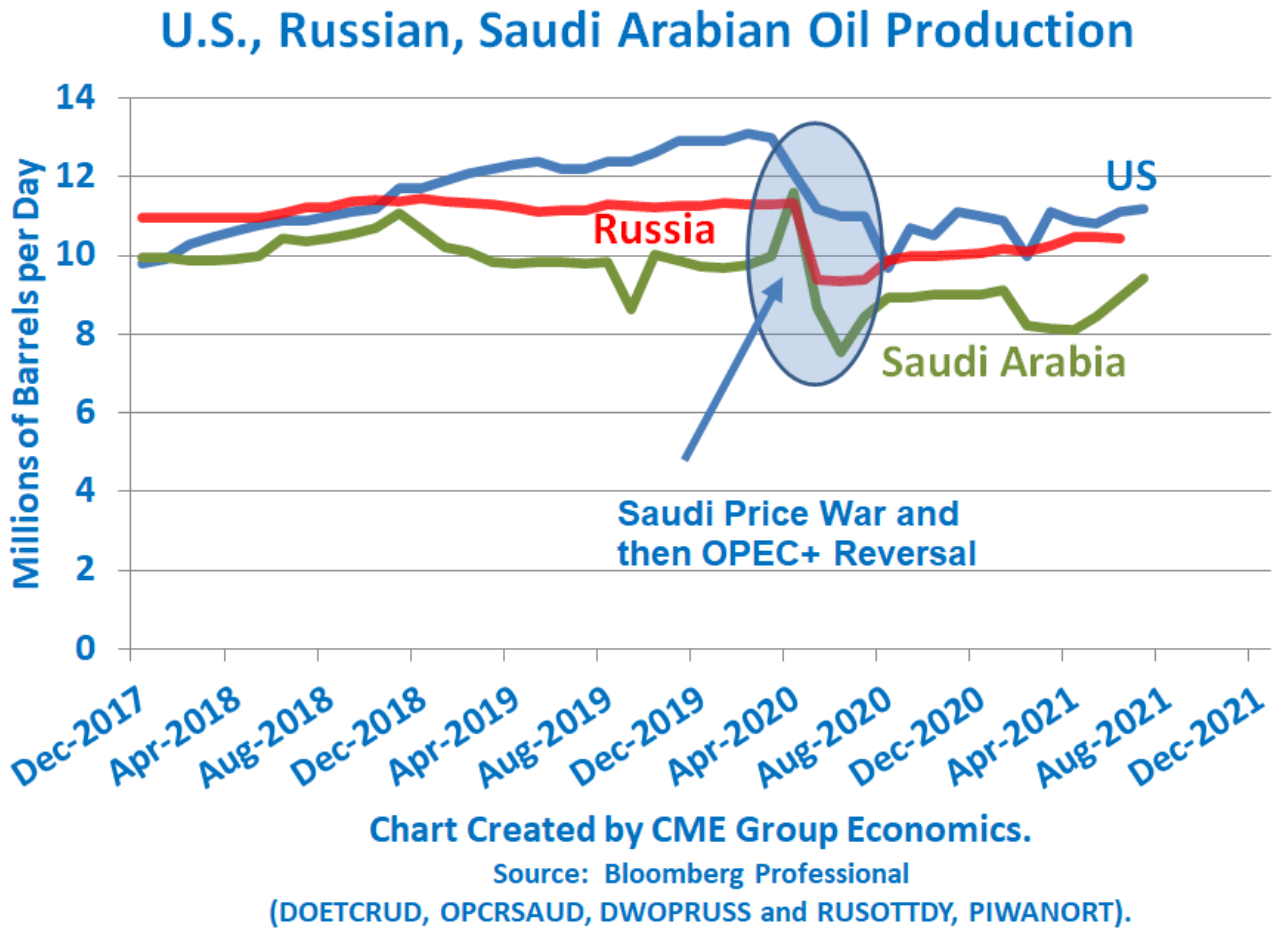
Price: The Maturity Curve, not just Spot



Appreciating the events that move markets.



Stepping back and studying the broad trends.



Case of the Saudi-Russian price war at the beginning of the Pandemic of 2020.

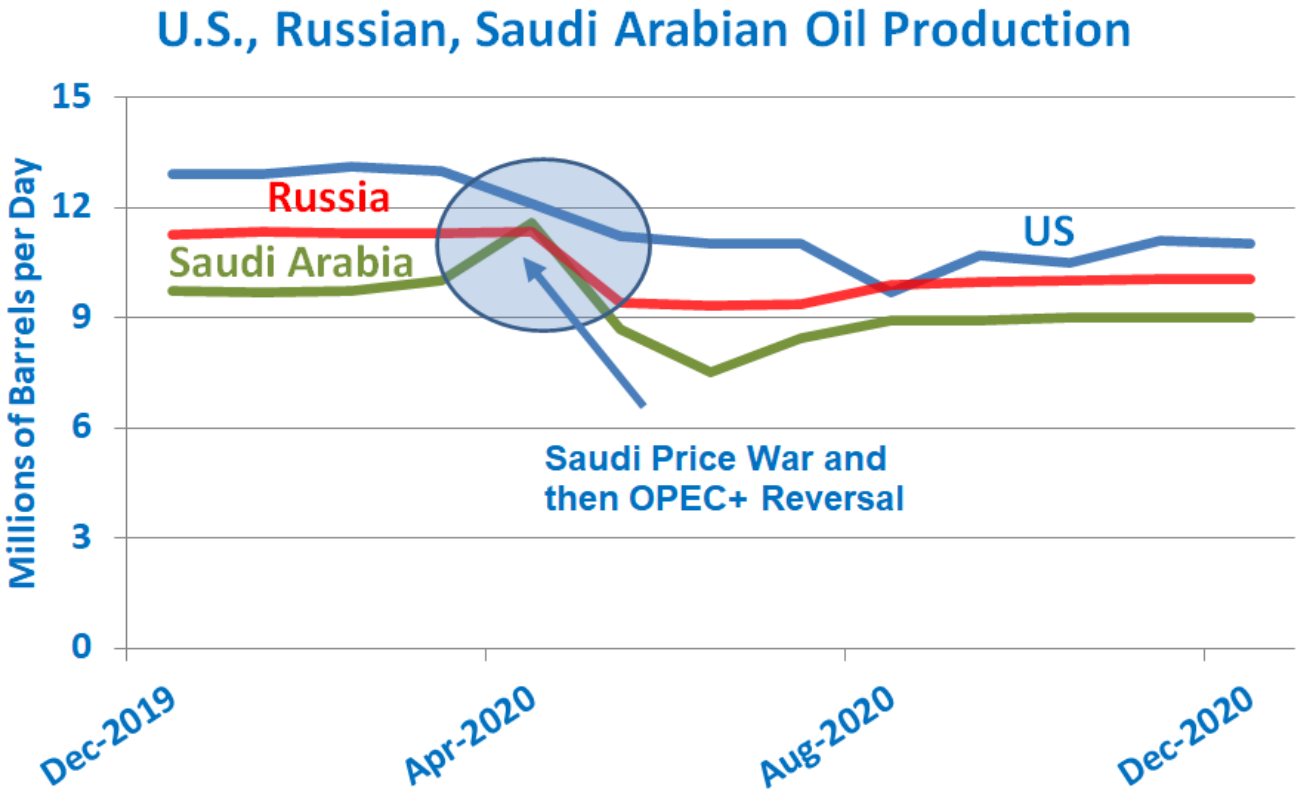
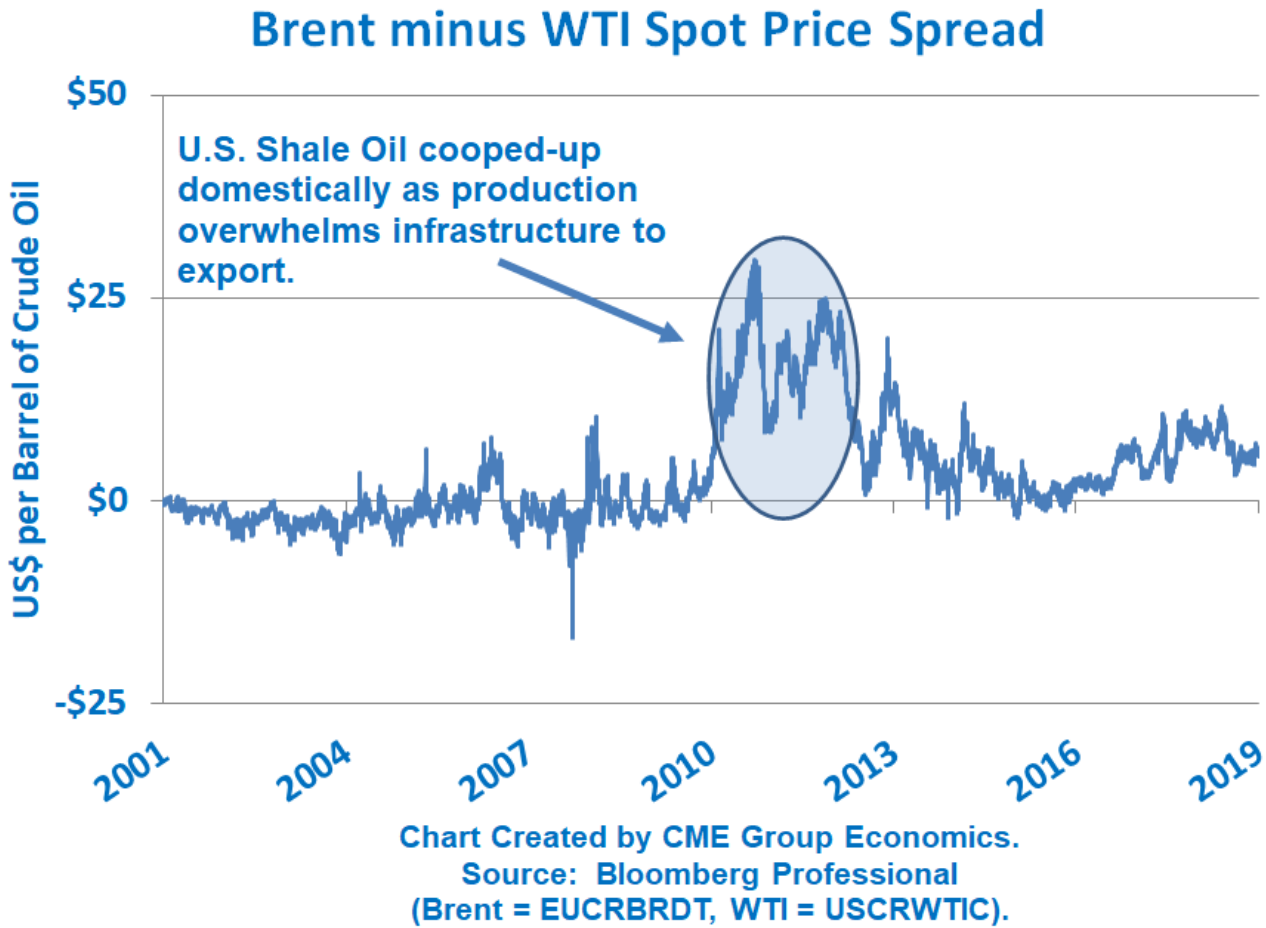


Chart Created by CME Group Economics.

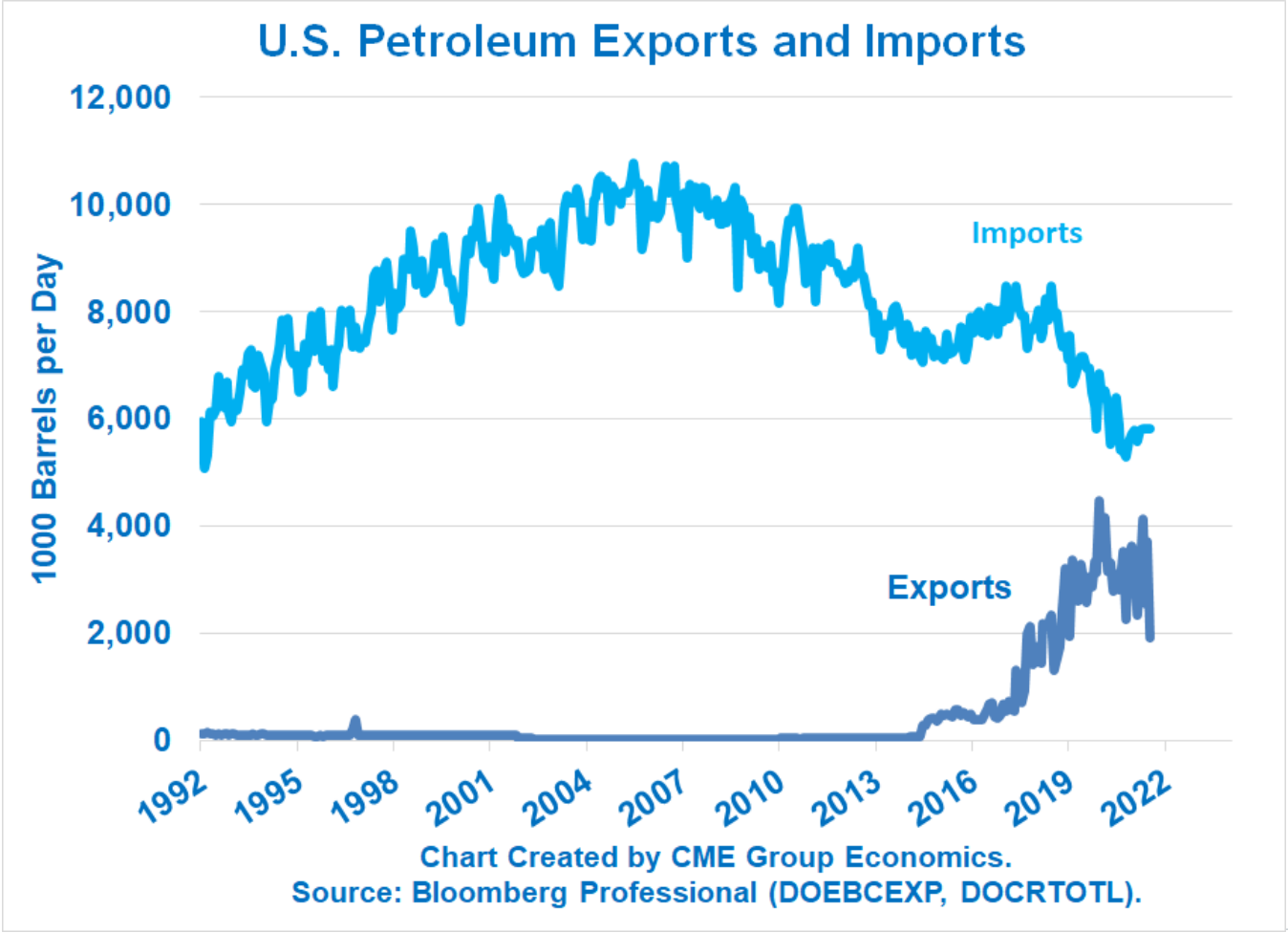
Source: Bloomberg Professional

(DOETCRUD, OPCRSAUD, DWOPRUSS and RUSOTTDY, PIWANORT).

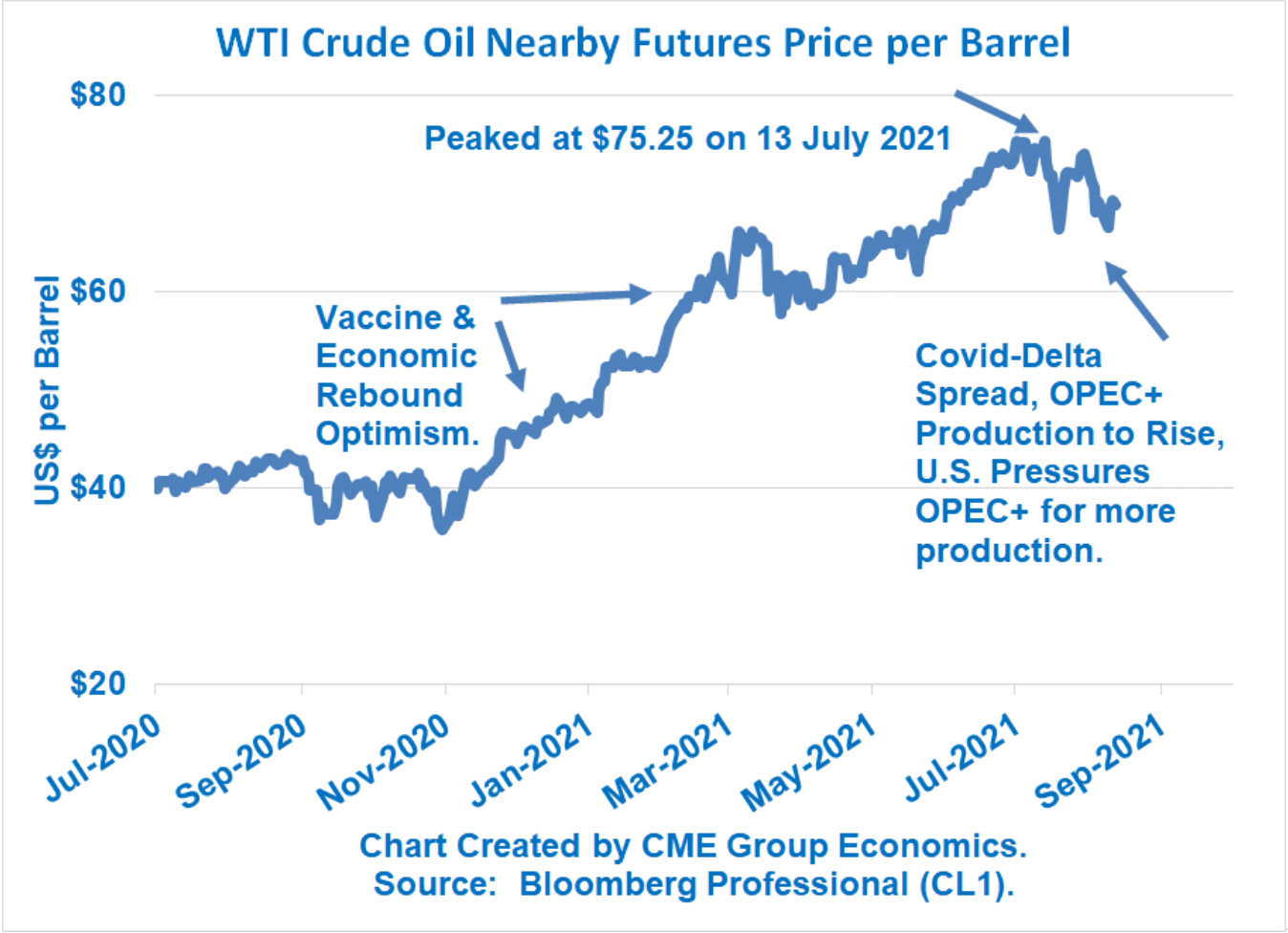
Case of the Saudi-Russian price war at the beginning of the Pandemic of 2020.



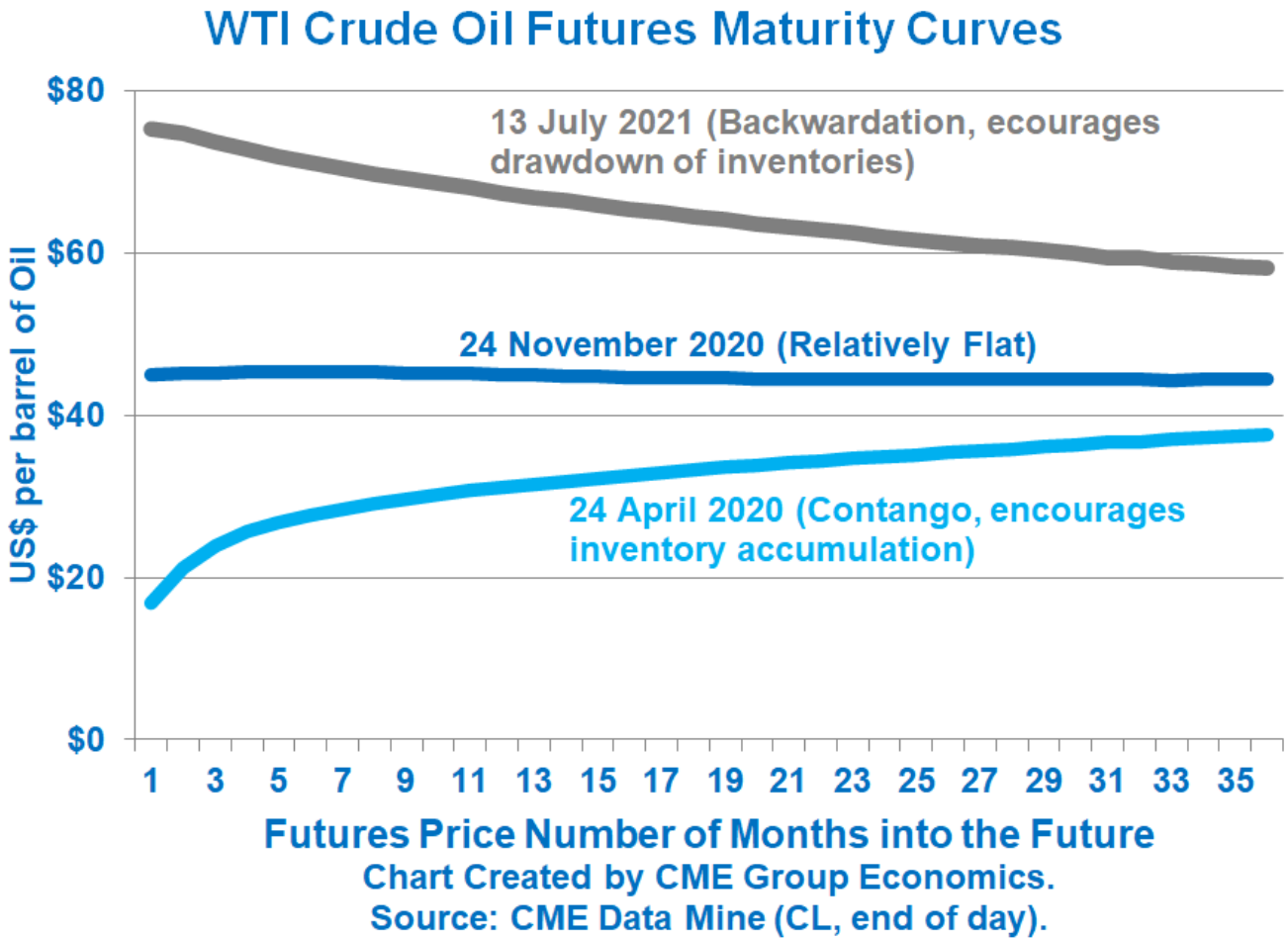
As the U.S. shales oil revolution accelerated, the country was not set-up to export oil.



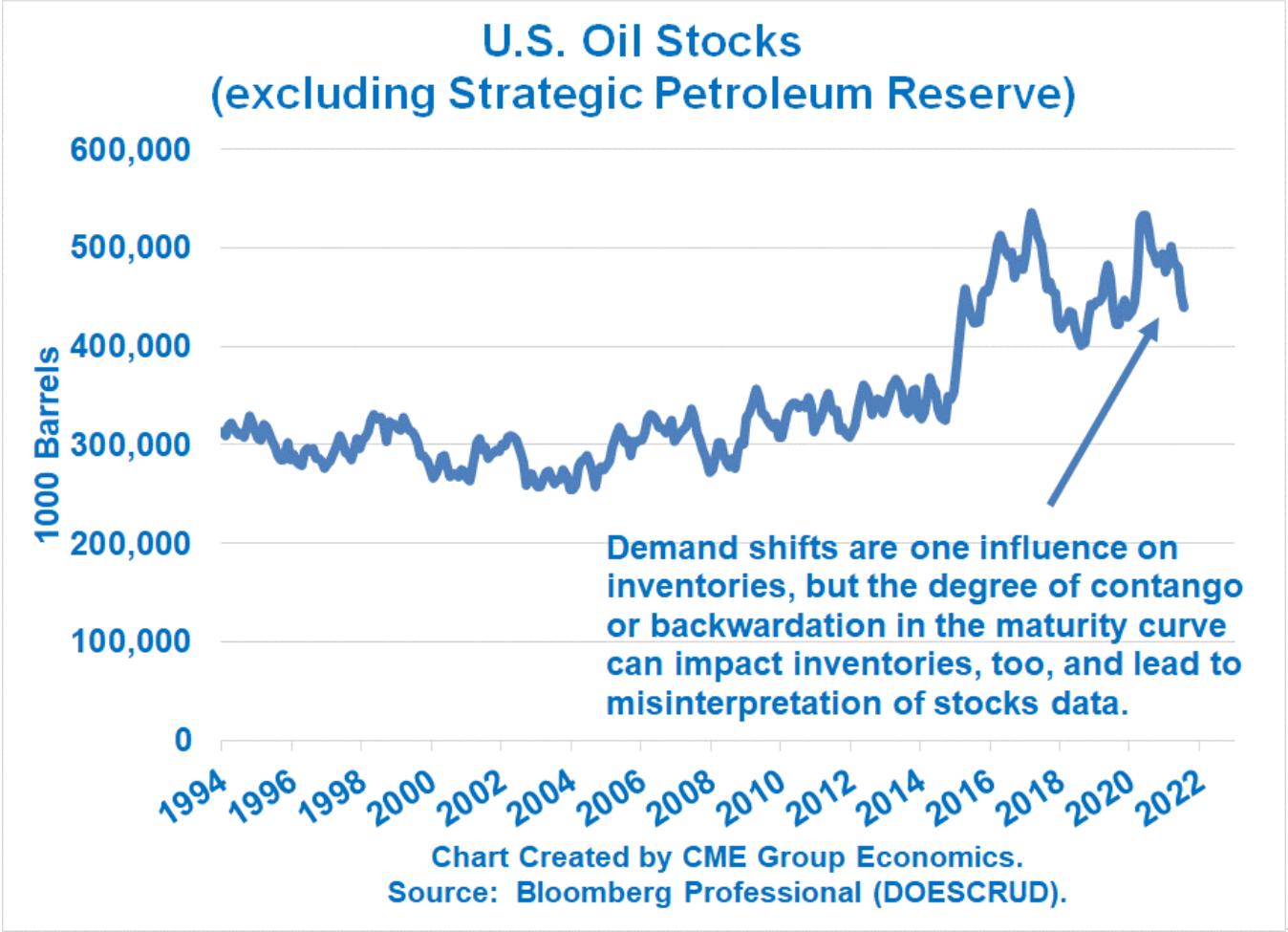
Once the U.S. was able to expand petroleum exports, the Brent-WTI price spread narrowed dramatically.



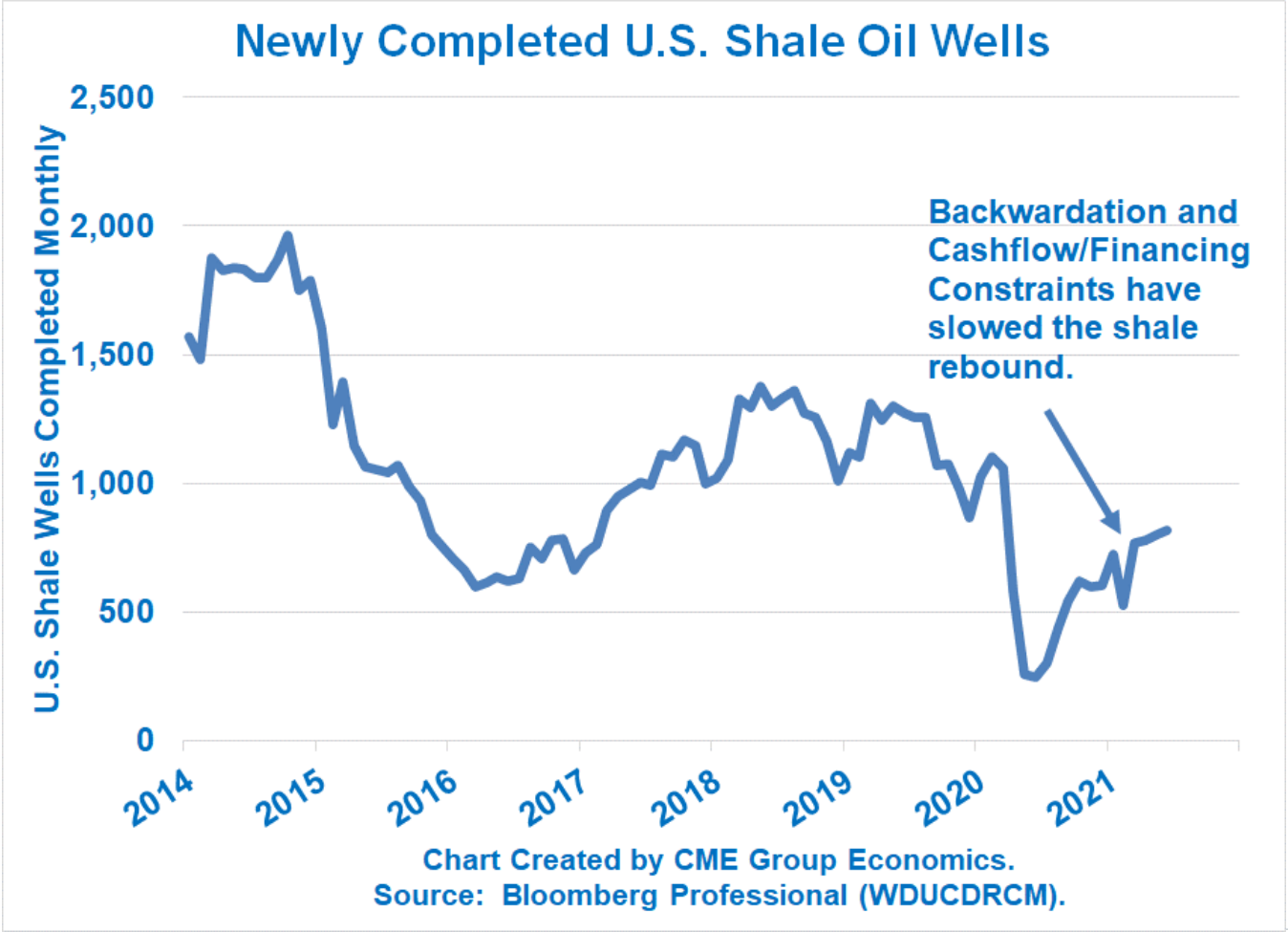
Oil prices had a nice rebound from the depths of the pandemic, but that rebound has taken a break.



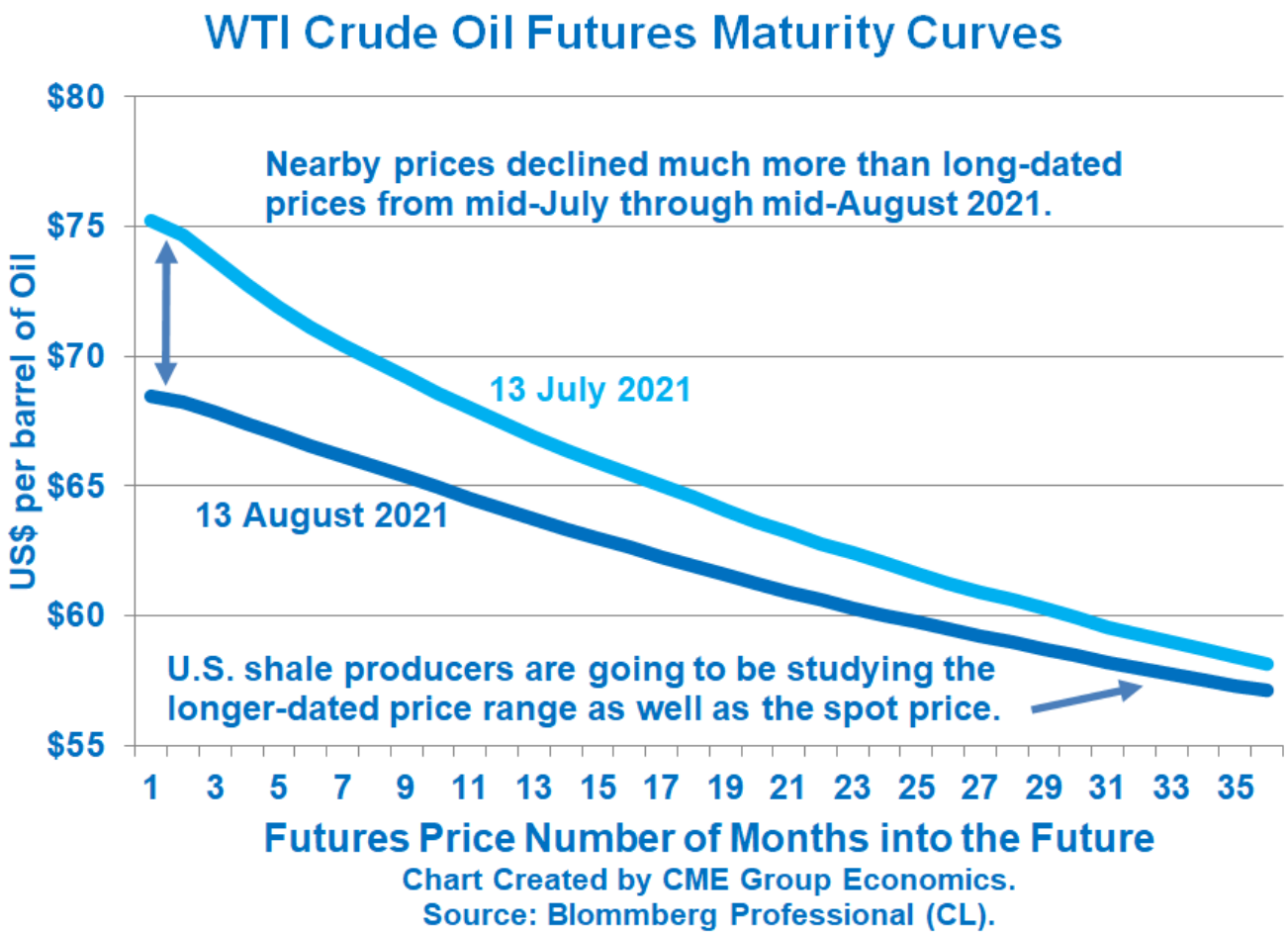
In addition to spot prices, the maturity curve is very important, especially in terms of how it impacts incentives to build or drawdown inventories.



Backwardation can encourage sales from inventories, even when demand might be slowing, as in July-August 2021.

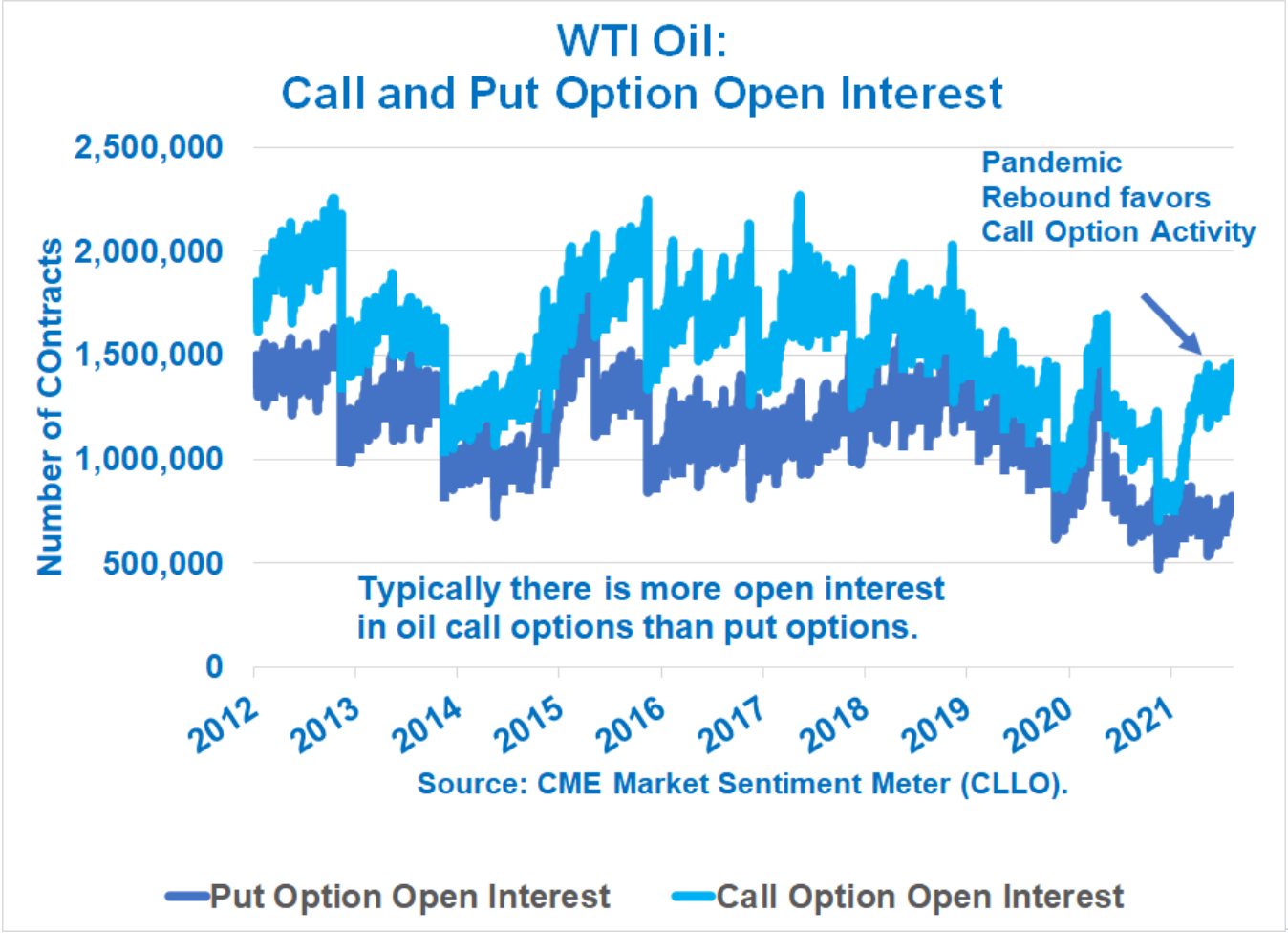


Backwardation is also a potential dis-incentive to expand shale oil production, given the relatively short production cycle and the hedging environment.

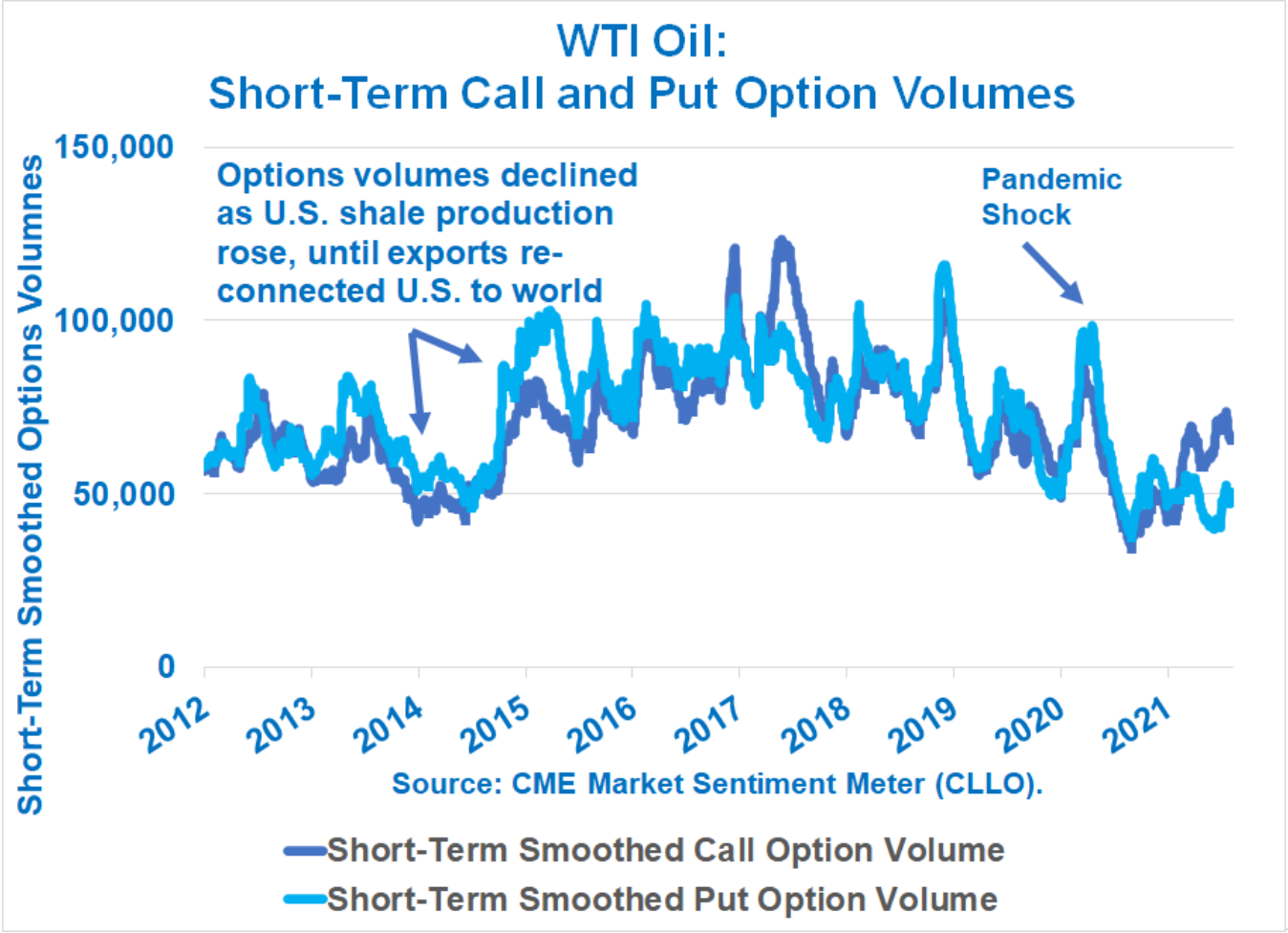


The oil maturity curve flattened (less backwardation) during the July-August 2021 period after oil prices had peaked.

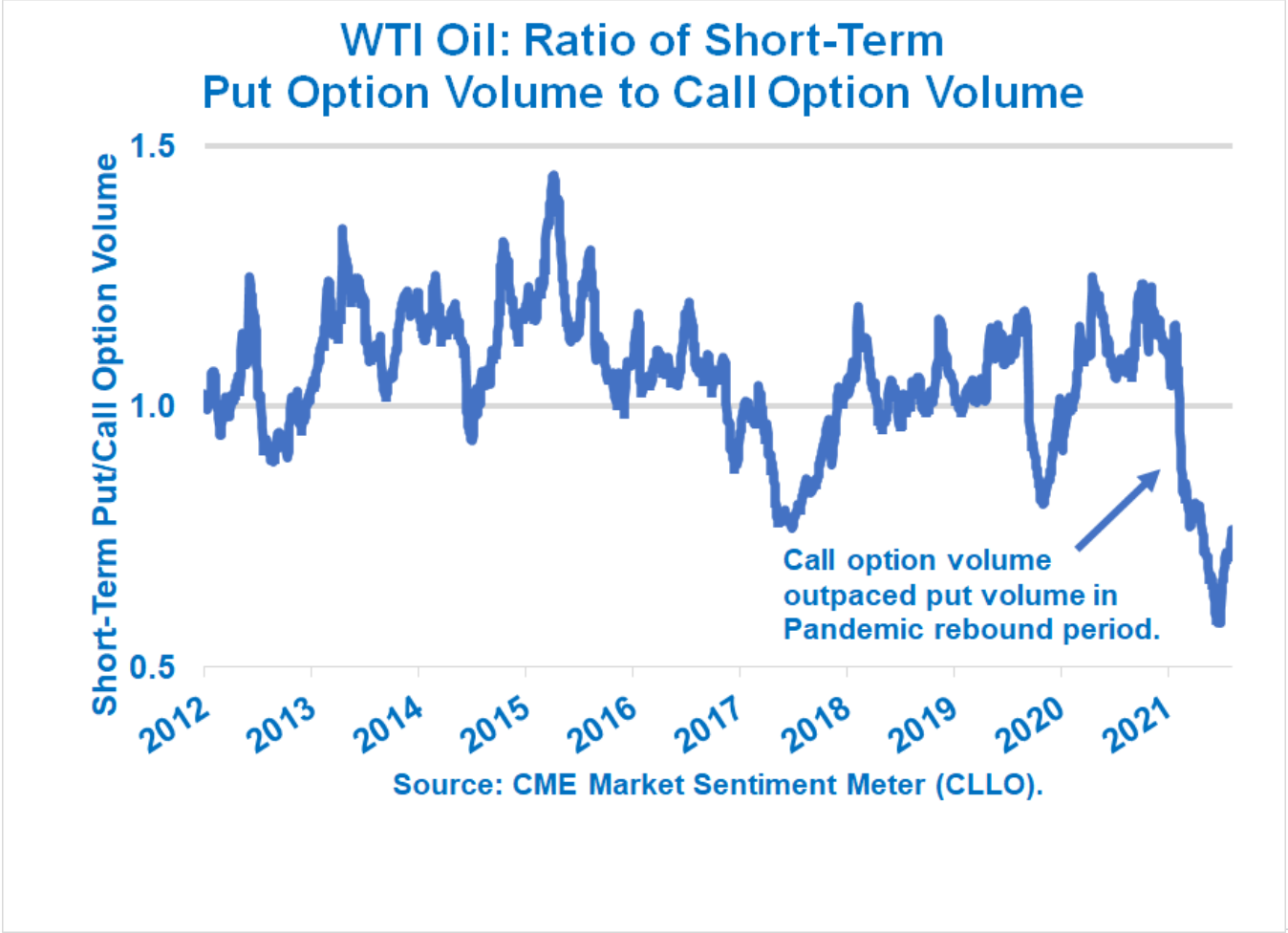
Volume and Open Interest: Looking for Changing Patterns



The oil market typically sees more volume of call options than puts; however, the relative pattern can be quite interesting.



The relative pattern of put option volume versus call options can signal which side of the market is more 'in play'.



When the trend is for rising prices, call options volume may be emphasized (until prices peak).

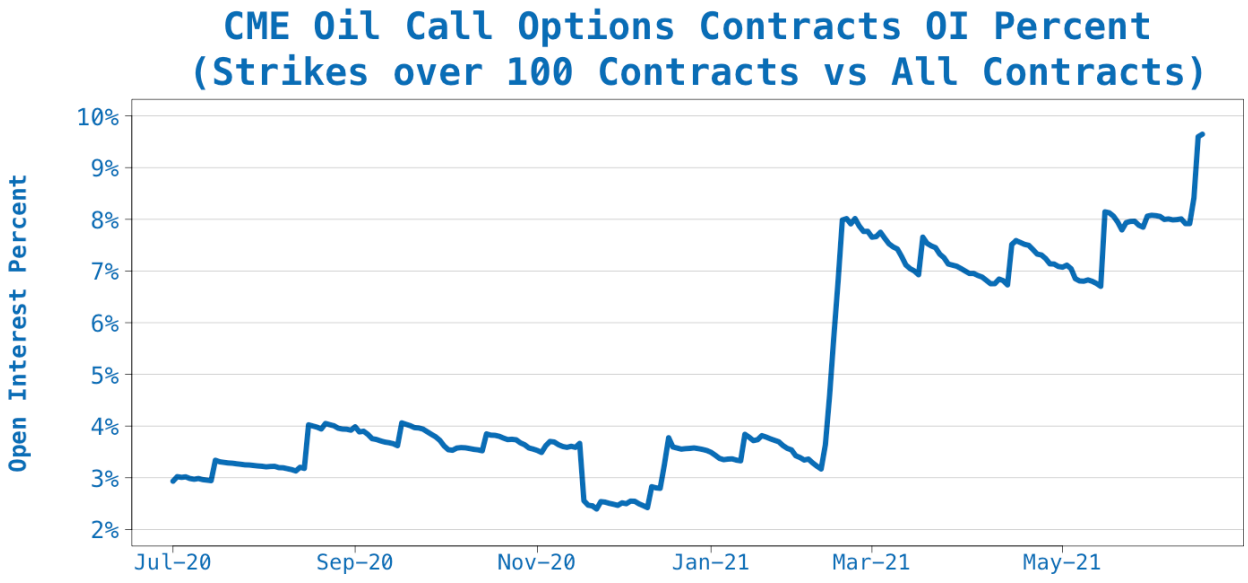
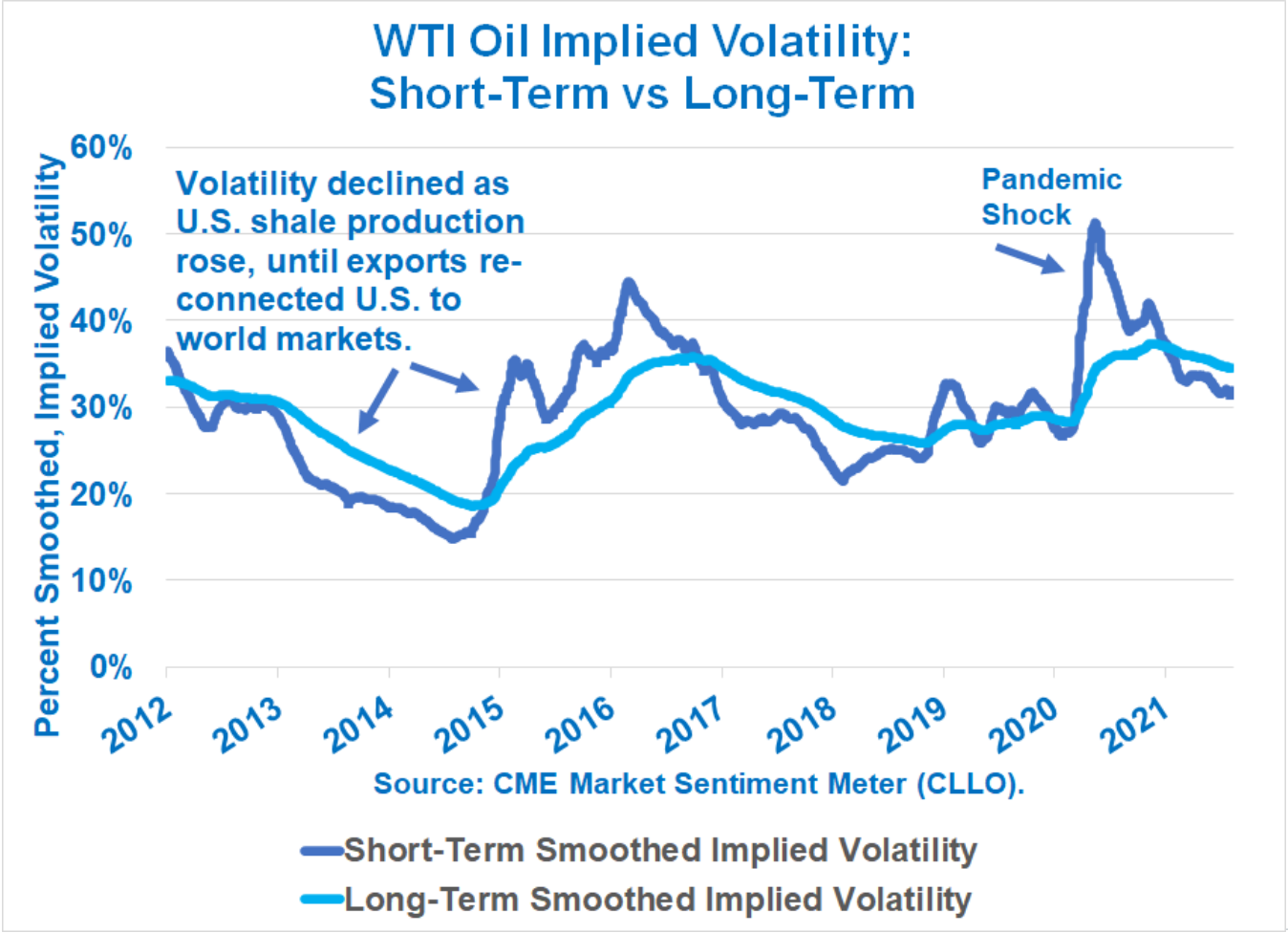


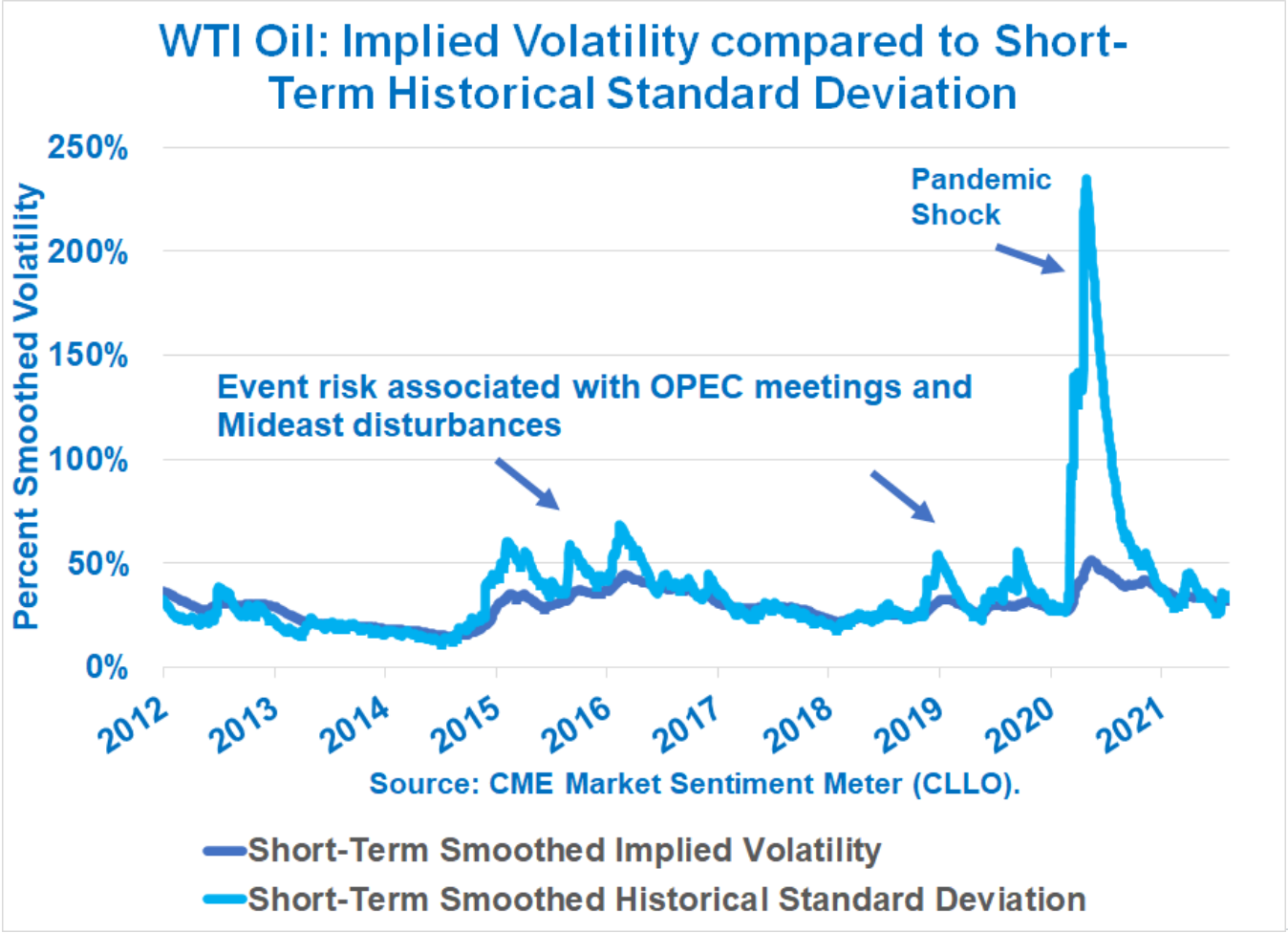
Chart: CME Group Economics
Source: CME Datamine
Data as of 06/18/2021

The oil market saw a surge in open positions for call option strikes at or above $100 per barrel. Remember there is a buyer for every seller.

Implied Volatility:
A Variety of Perspectives

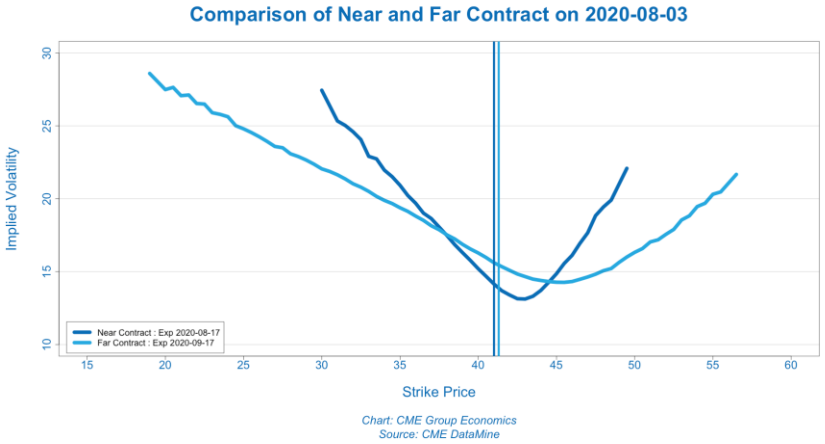


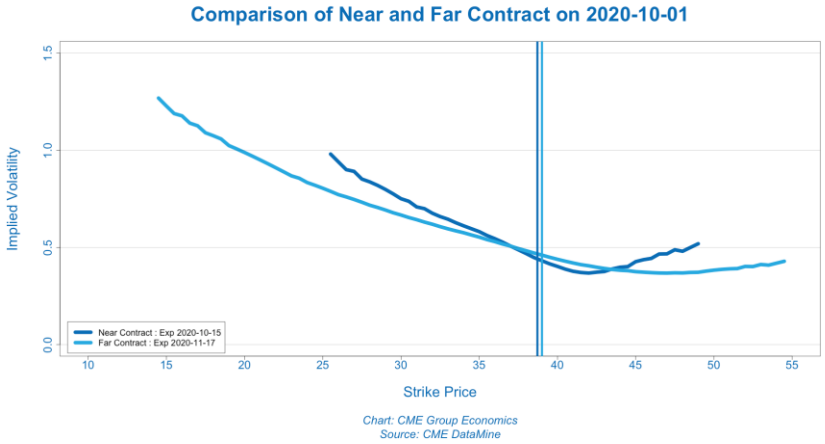
Just as with price momentum, it is also interesting to compare the short-term and longer-term momentum in implied volatility.



A shock event, typically raises implied volatility temporarily as the surprise is digested by risk managers.

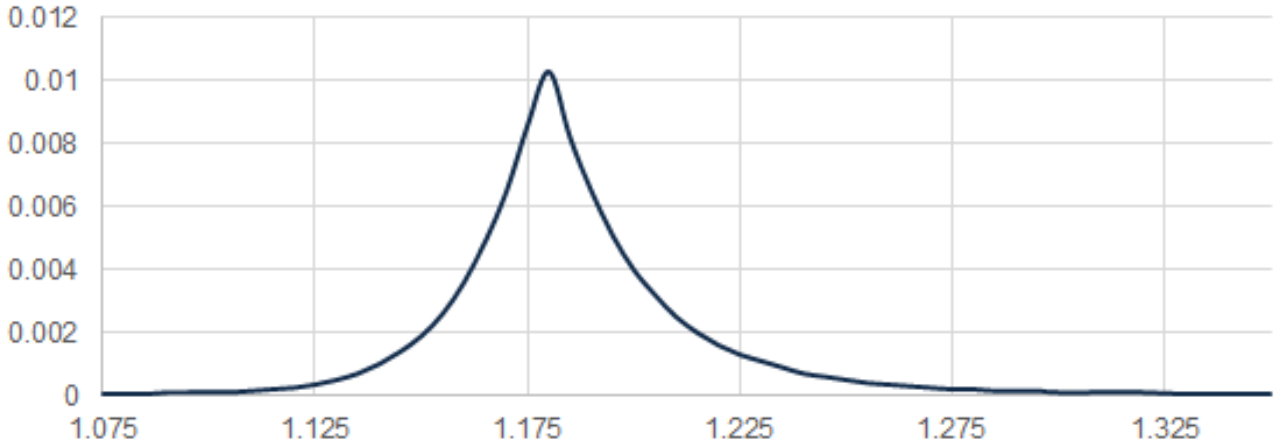
Comparison of Implied Volatility ‘Smiles’ for two different dates and two contract maturities can also provide information about changing expectations.





Cvol: An alternative method of calculating implied volatility

* Distribution Independent
* Uses out of the money put prices for the left side and out of the money call prices for the right side of the distribution
* Area under the curve represents a measure of variance



Sentiment: Constructing Hypothetical Risk-Return Distributions

Market Sentiment Meter

Analyze historical market sentiment on eight major products

When market-moving events create highly uncertain environments, a trader needs to assess possible outcomes and prepare for market implications

Partnering with 1QBit, CME Group created the Market Sentiment Meter to help assess the magnitude of historical market sentiment. Using eight of CME Group's major futures and options products, the tool tracks sentiment changes.

Based on data back to 2012, the Market Sentiment Meter updates daily with a variety of metrics available through CME DataMine, our cloud-based historical data platform.

Dive deeper with CME DataMine

Explore historical market sentiment and the data used for the Market Sentiment Meter with CME DataMine.

→ Access CME DataMine

https://www.cmegroup.com/tools-information/market-sentiment-meter.html

Market Sentiments

The Market Sentiment Meter focuses on four risk profiles common in the futures markets. Below are the illustrative charts that match the sentiment states.

COMPLACENT

Rare

Low level of market anxiety

BALANCED

Common

Normal level of market anxiety

ANXIOUS

Rare

High level of market anxiety

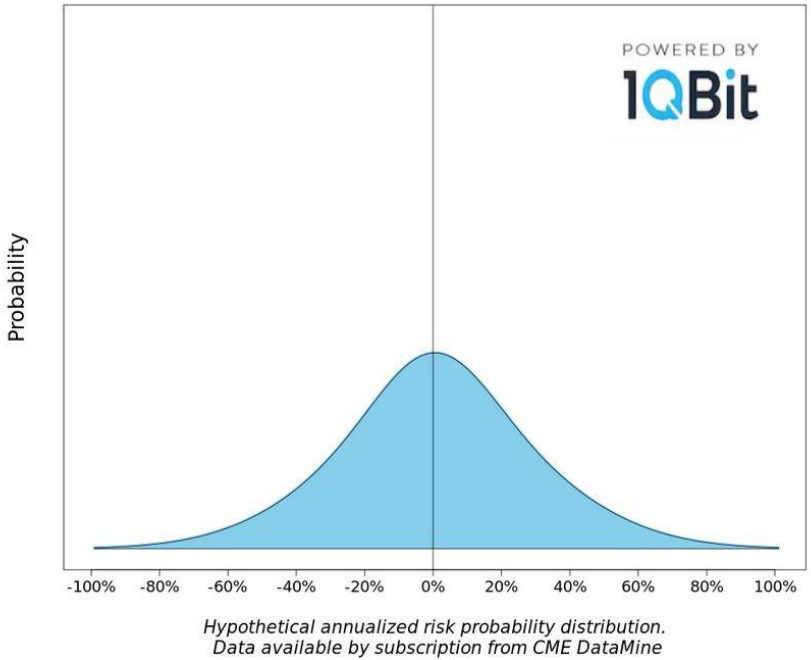
CONFLICTED

Extremely Rare

Price gap anxiety

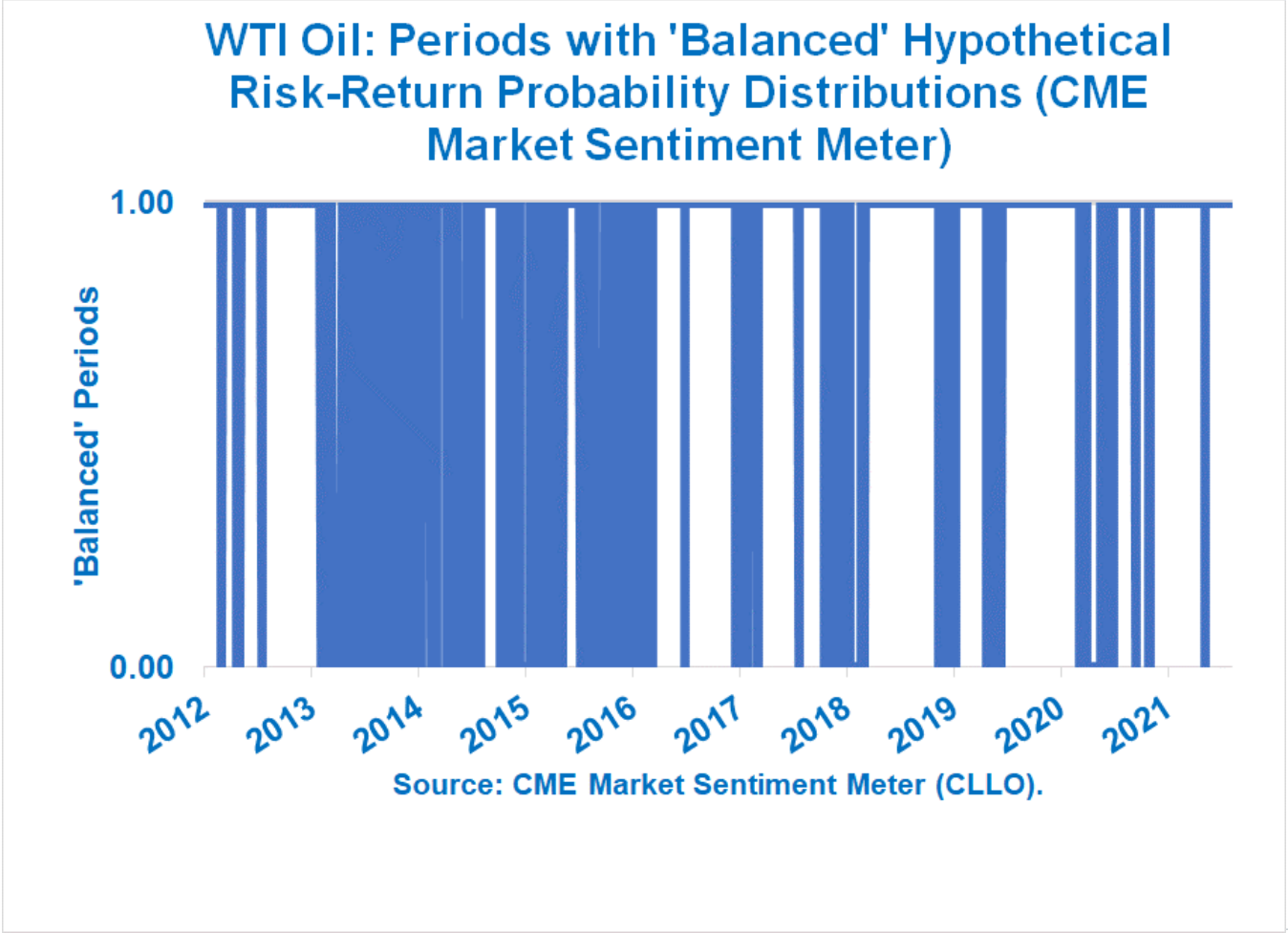
WTI Crude Oil (NYMEX)

Market Sentiment: Balanced

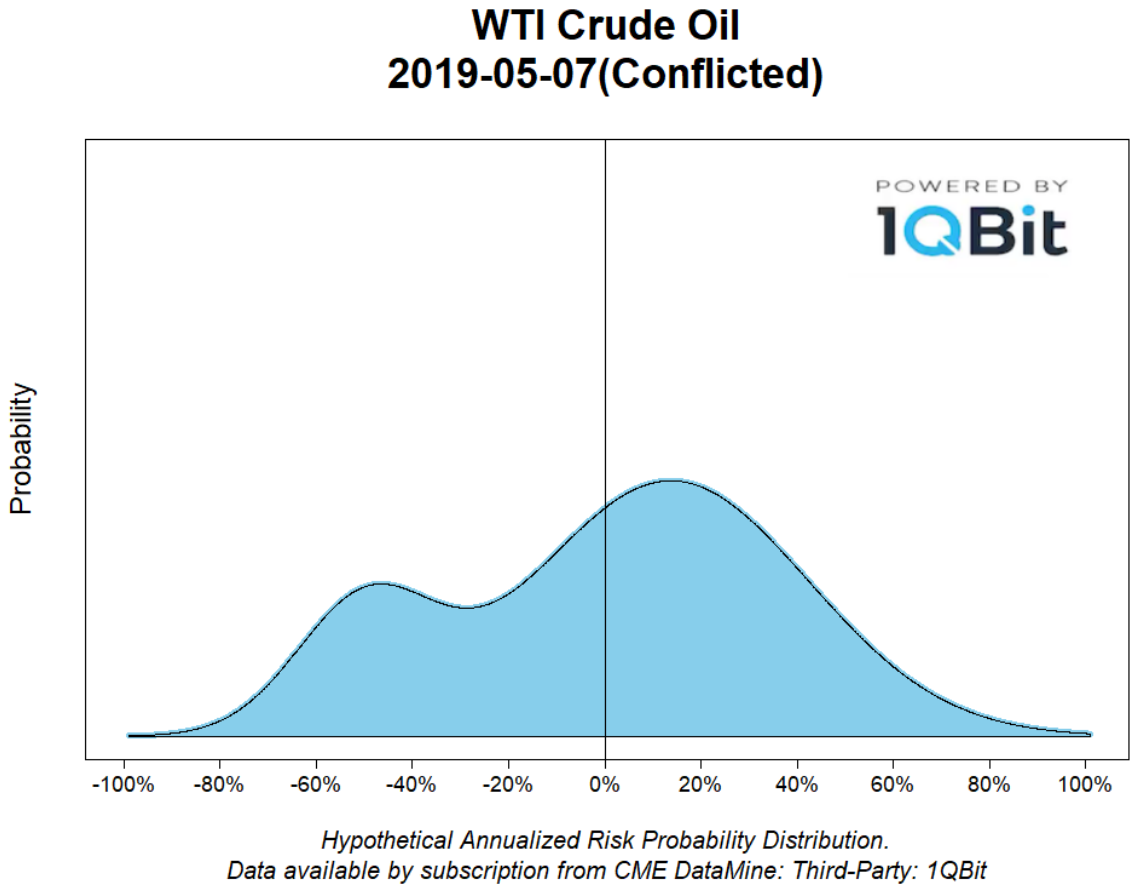


Hypothetical annualized risk probability distribution.
Data available by subscription from CME DataMine

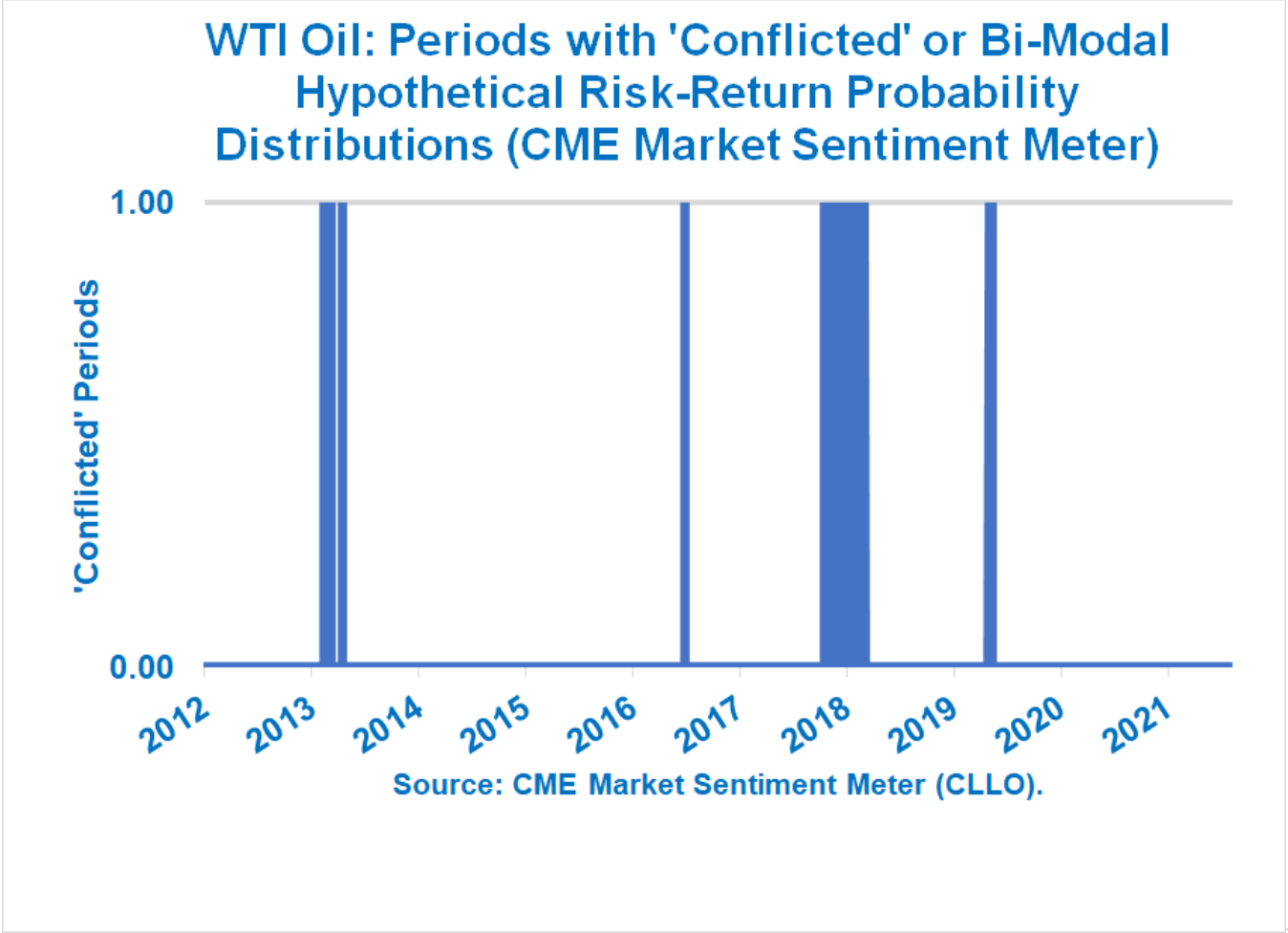
Most of the time, about 75%, markets typically exhibit a bell-shaped curve in the CME hypothetical risk-return probability distribution. In the balanced case, there are relatively neutral readings from put/call volumes, intra-day market volatility, implied volatility relative to historical standard deviations, etc.



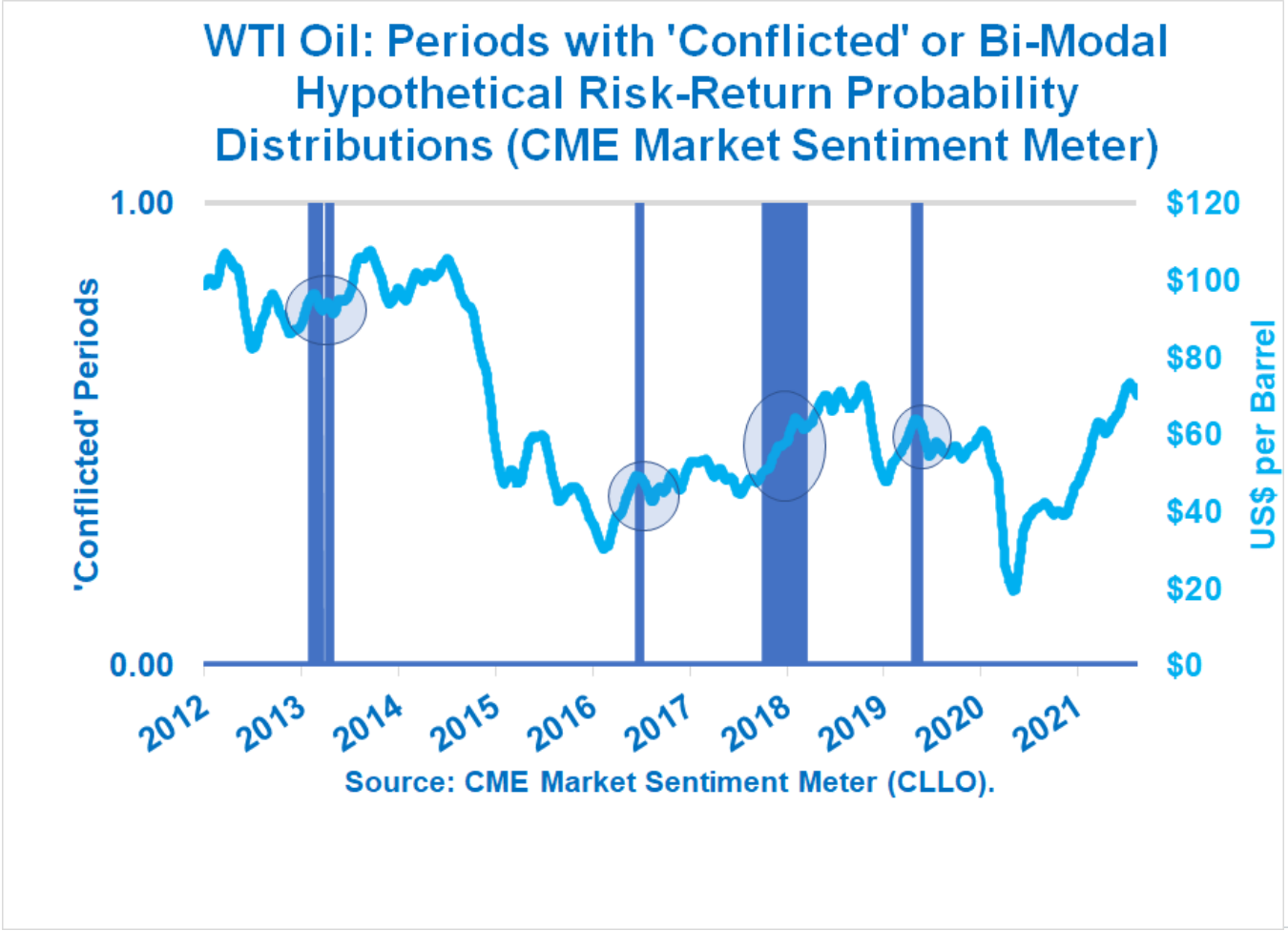
As noted, most of the time markets typically exhibit a bell-shaped curve in the risk-return probability distribution.



In rare cases, the Market Sentiment Meter observes a ‘Conflicted” or bi-modal risk-return probability distribution. Back in May 2019, this was due to uncertainties over Mideast tensions that might impact supply.

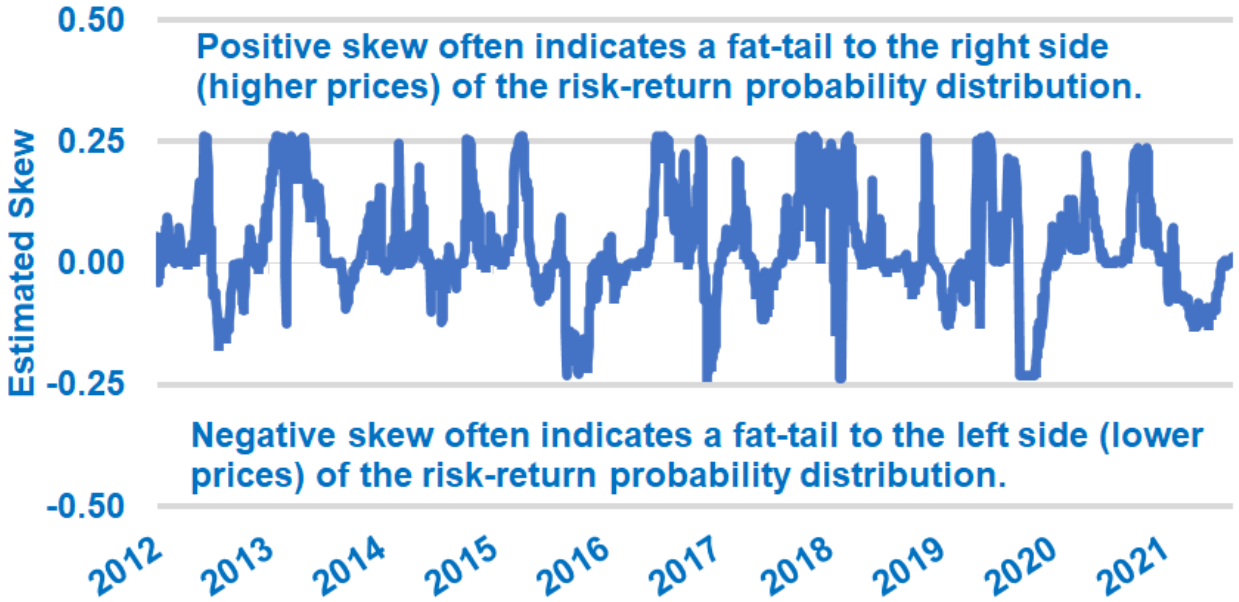


The 'Conflicted' or bi-modal case is rare and episodic. We interpret the 'conflicted' state as a possible indicator of an elevated probability of event risk.



'Conflicted' or bi-modal cases have been associated with both up and down price moves. Our research is studying non-directional options strategies to handle possible event risk.

WTI Oil: Estimated Skew of Hypothetical Risk-Return Probability Distribution from CME Market Sentiment Meter



Source: CME Market Sentiment Meter (CLLO).

We also study the skew in the risk-return probability distribution to provide another reading to compare with put/call options volume to appreciate which side of the market is more 'in play'.

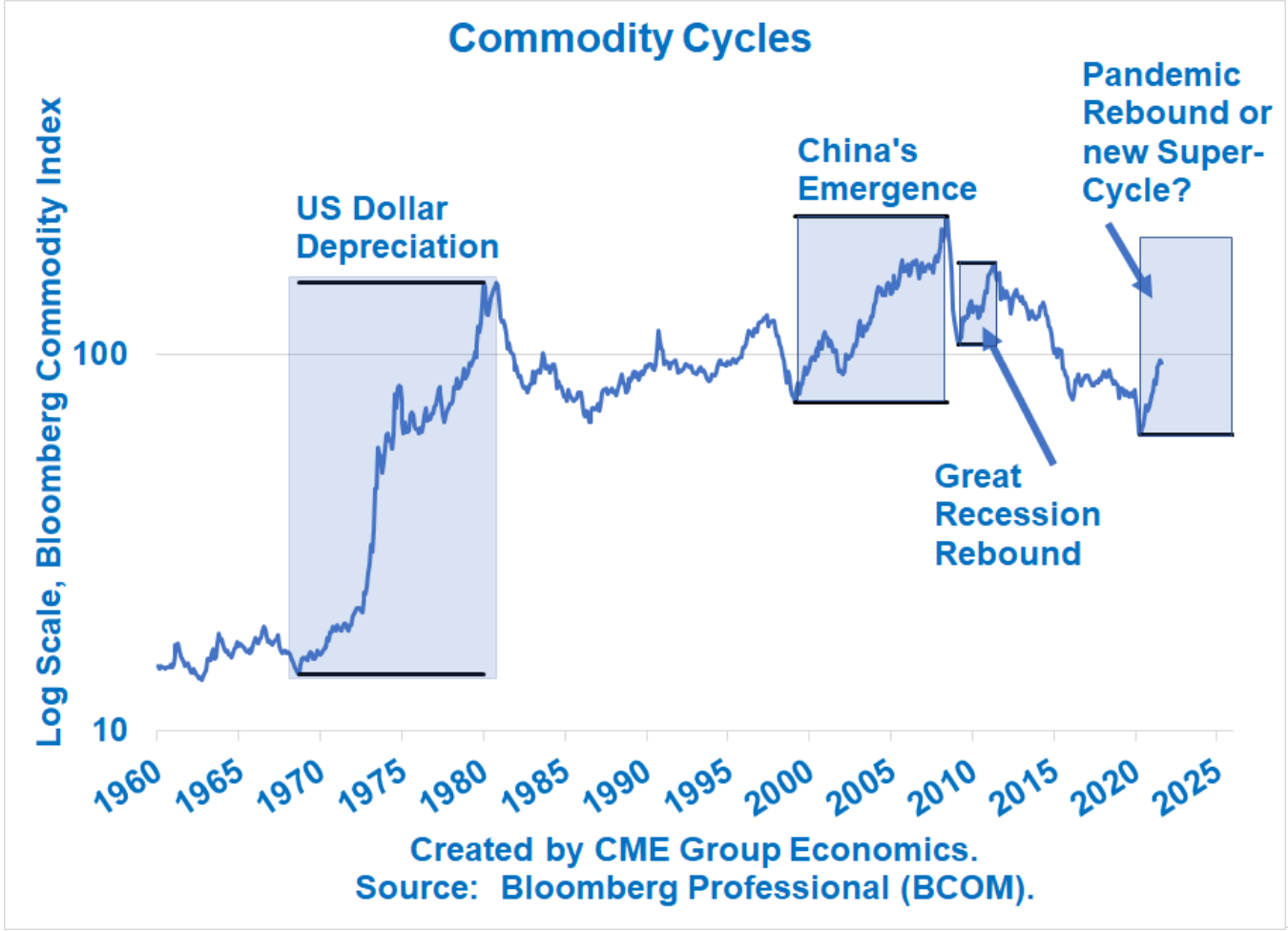
Commodity Super-Cycle?

Definition of a Commodity Super-Cycle

‘Commodity’ = a broad-based portfolio of commodities, not just one or two.

‘Super’ = an out-sized price move of a large magnitude such as 3x or 4x or more.

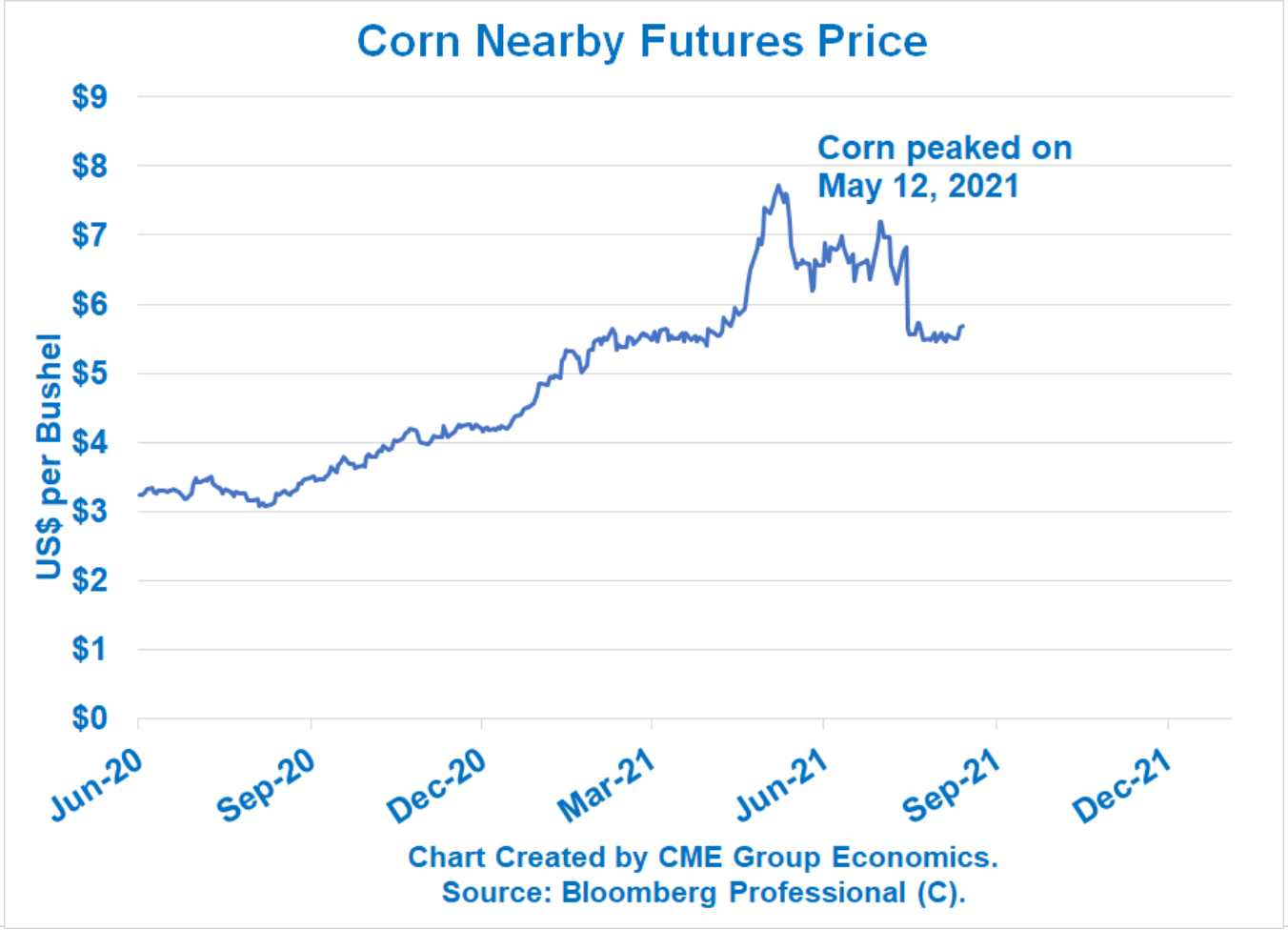
‘Cycle’ = commodity prices rise for many, many years; not just a rebound from an economic shock.

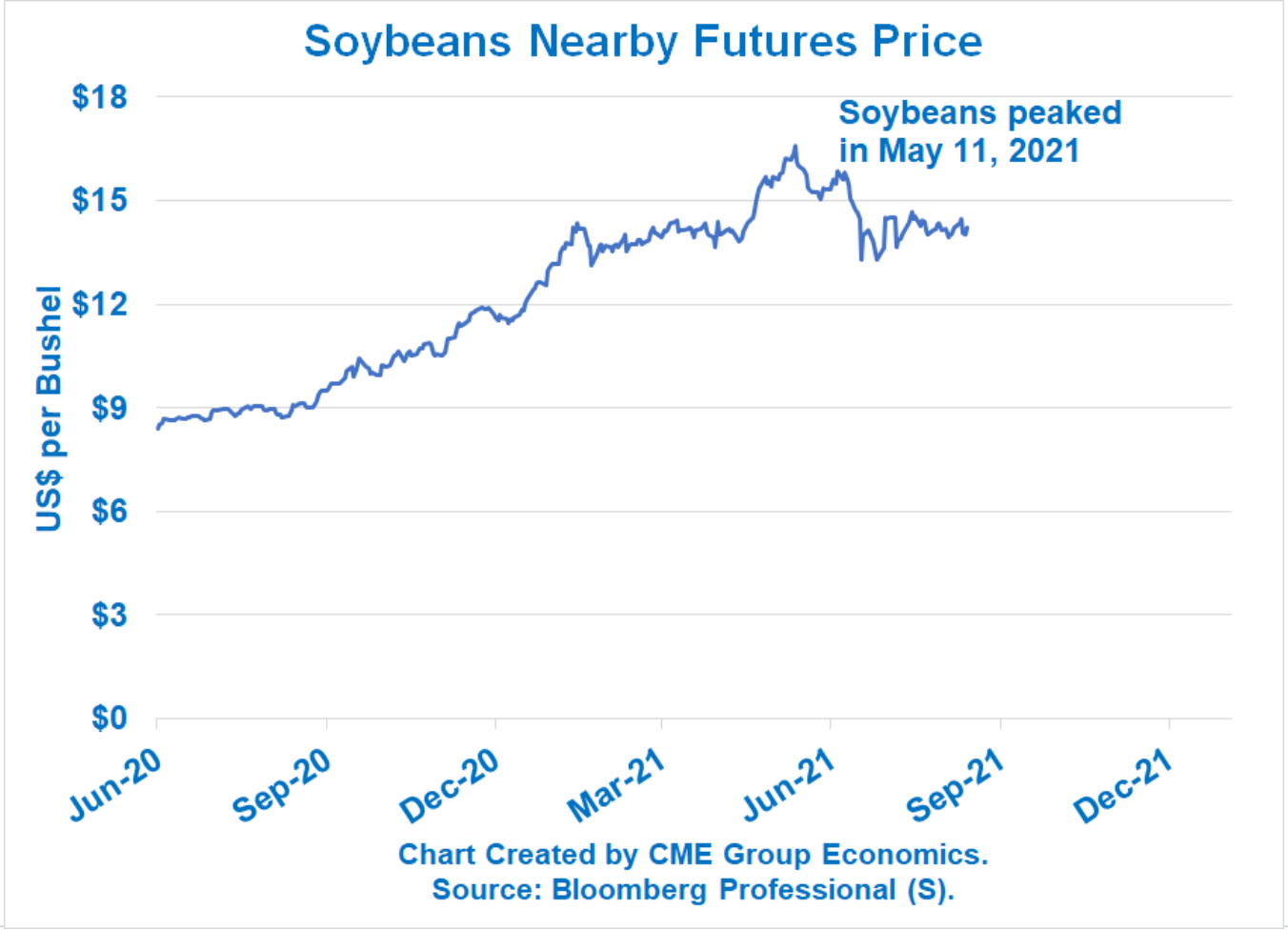


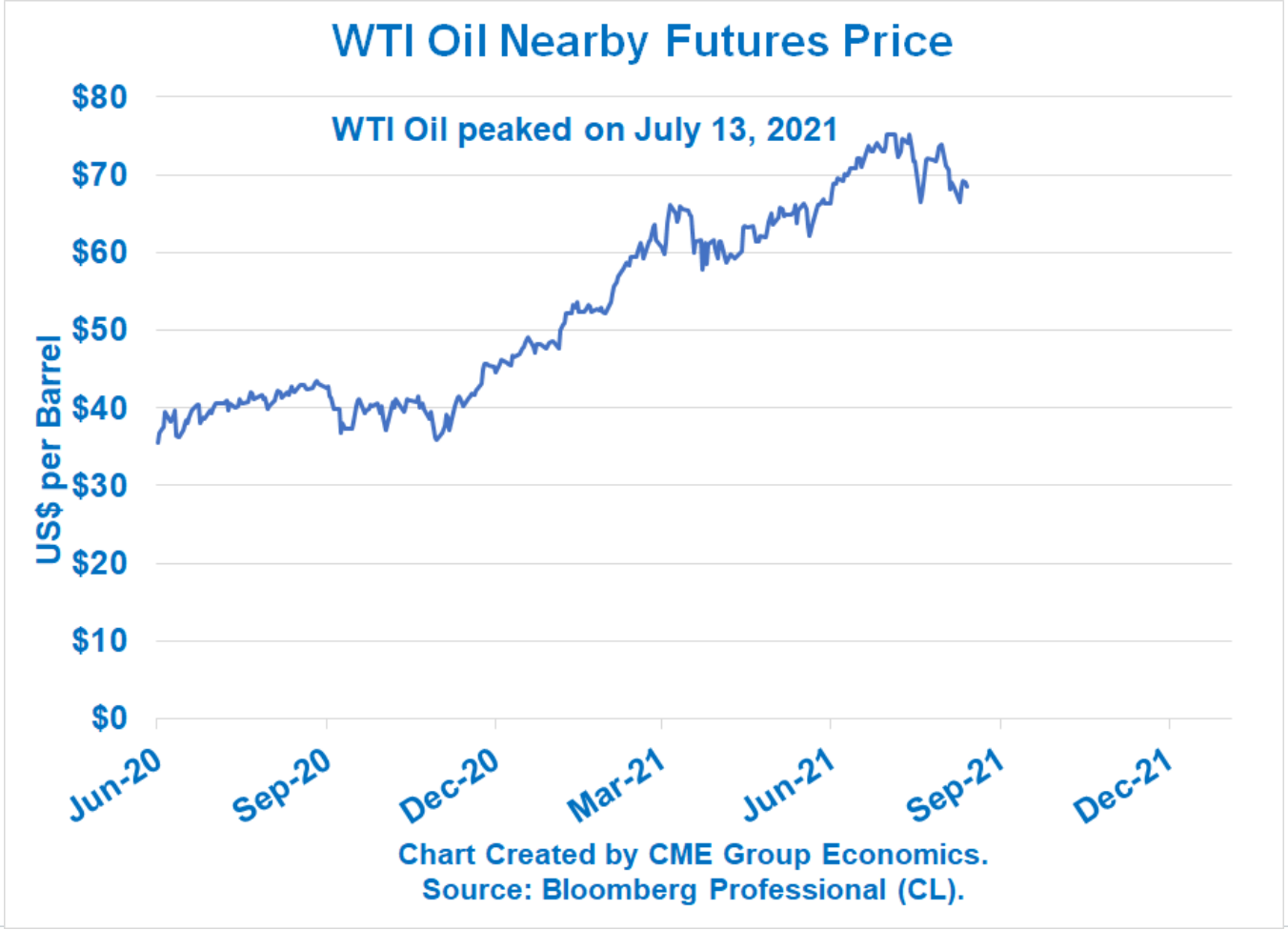
We arbitrarily distinguish between a super-cycle that might last a decade from a rebound from a disruptive event, such as a recession, that might only last a year or two.

Lumber Nearby Futures Price

Chart Created by CME Group Economics.
Source: Bloomberg Professional (LB).







Copper Nearby Futures Price

Chart Created by CME Group Economics.
Source: Bloomberg Professional (HG).

Gold Nearby Futures Price

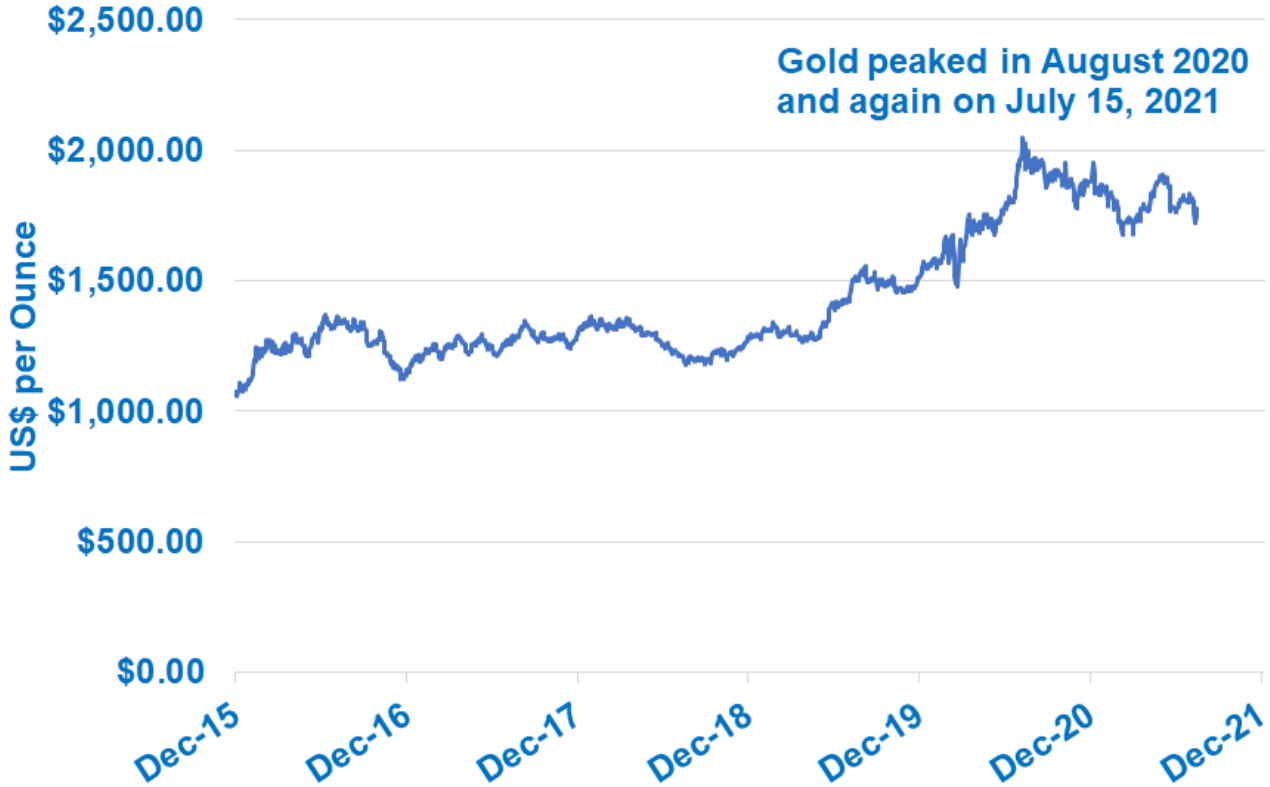


Chart Created by CME Group Economics.
Source: Bloomberg Professional (GC).

Bitcoin Nearby Futures Price

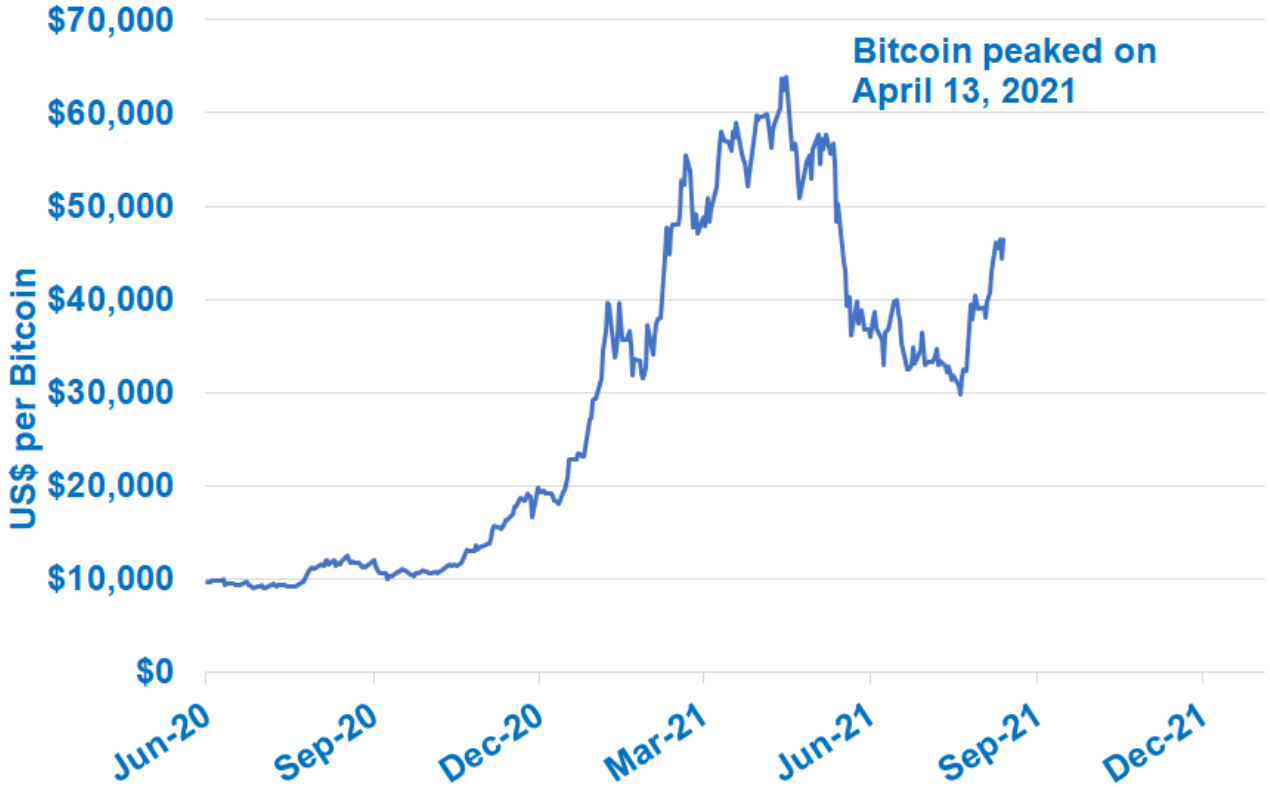
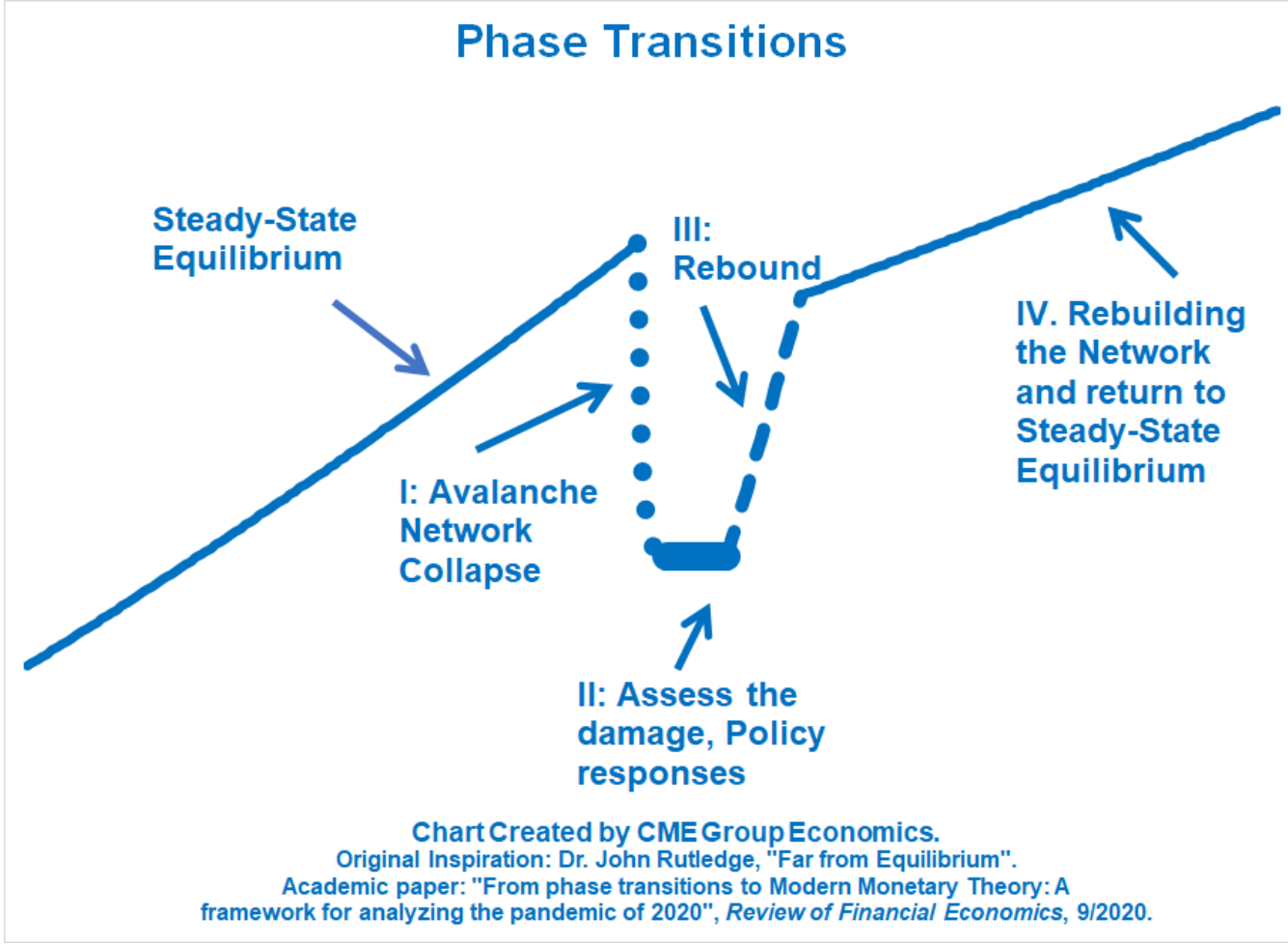


Chart Created by CME Group Economics.
Source: Bloomberg Professional (C).

Future Research Ideas

Effectiveness of non-directional options strategies to manage potential event risk when the Market Sentiment Meter signals an “Anxious’ or ‘Conflicted” sentiment state.

Review of Financial Economics. **"Case Study of Event Risk Management with Options Strangles and Straddles", Forthcoming Fall 2021.**



We have found using the physics of phase transitions as a very useful framework for analyzing the Pandemic.

***Review of Financial Economics*. "From phase transitions to Modern Monetary Theory: A framework for analyzing the pandemic of 2020", Fall 2020.**

Comparing the implied volatility smile for different maturity dates.

When nearby options contract shows elevated implied volatility compared to further-out contracts, we want to see if this is an immediate reaction to a surprise event.

When nearby options contract shows decreased implied volatility compared to further-out contracts, we want to see if this is an indicator of a higher probability environment for event risk.

In various research, we have noticed that developing trends toward more extreme implied skews in the Market Sentiment Meter is an important metric potentially signaling a higher probability of event risk. We are studying how to recalibrating our Market Sentiment Meter to increase to emphasis on the implied skew.

Thank you.