



ICE Brent vs. NYMEX WTI

What are the differences?

Mike Wittner

Head of Oil Market Research, ICE

16 June 2020

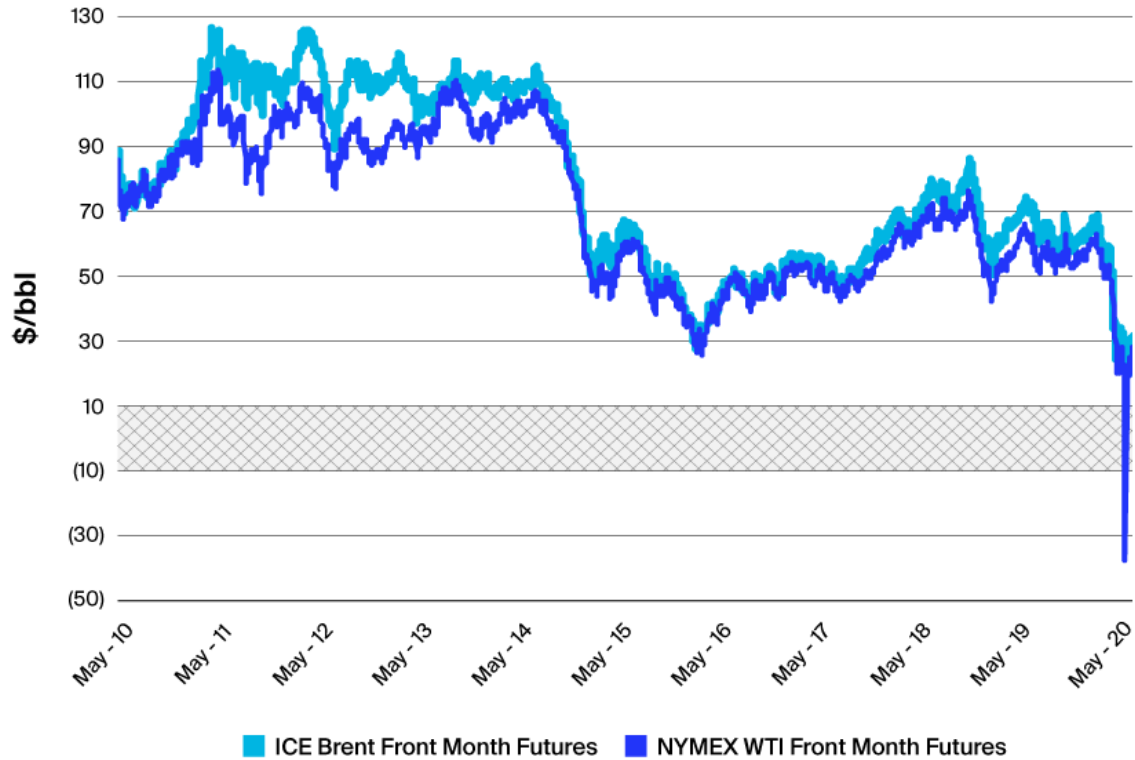


Today's topics

- Introduction: a look at recent oil markets
- What are the differences between ICE Brent and NYMEX WTI?
- For both crudes:
 - General information
 - How does the futures contract work?
 - What are the physical storage constraints?
- What are the market and price implications of these differences?

ICE Brent and NYMEX WTI Futures: Prices

ICE Brent and NYMEX WTI Front Month Prices



NYMEX WTI vs. ICE Brent (5-Day Average)

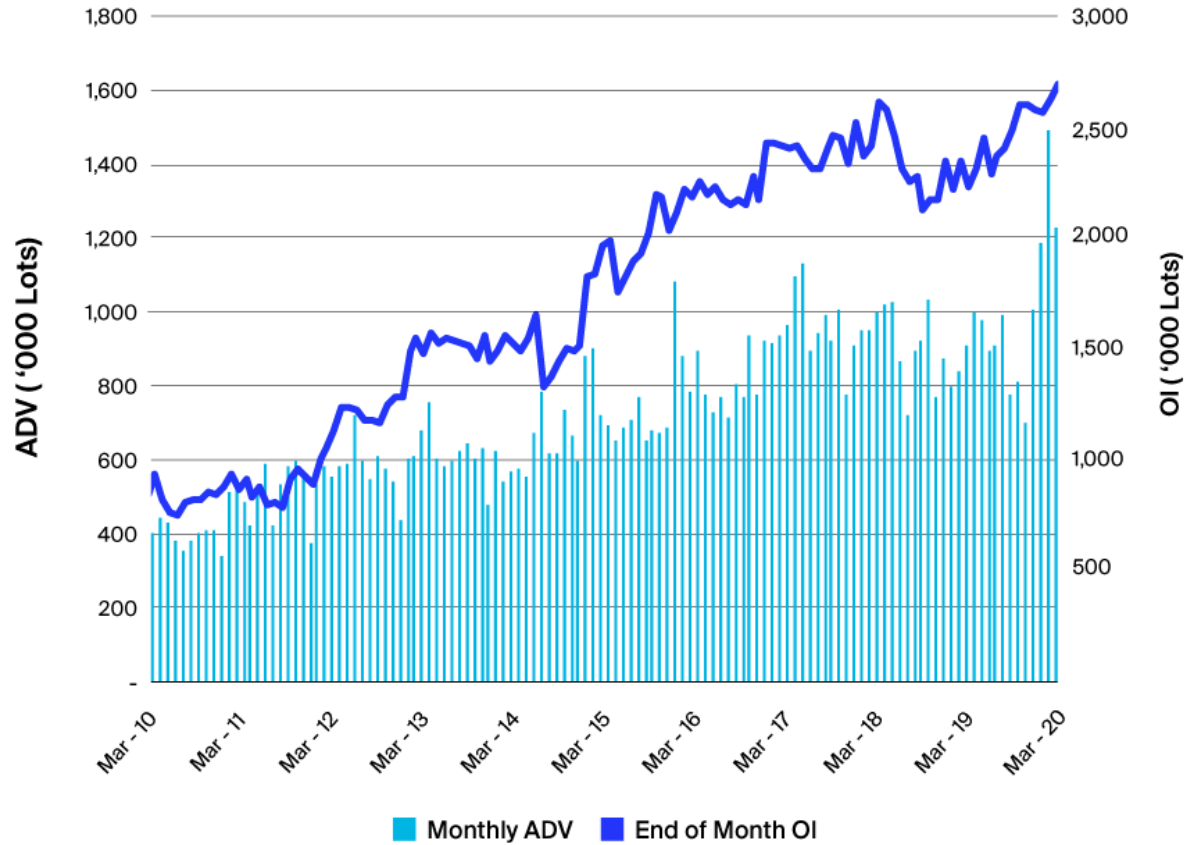


Source: ICE

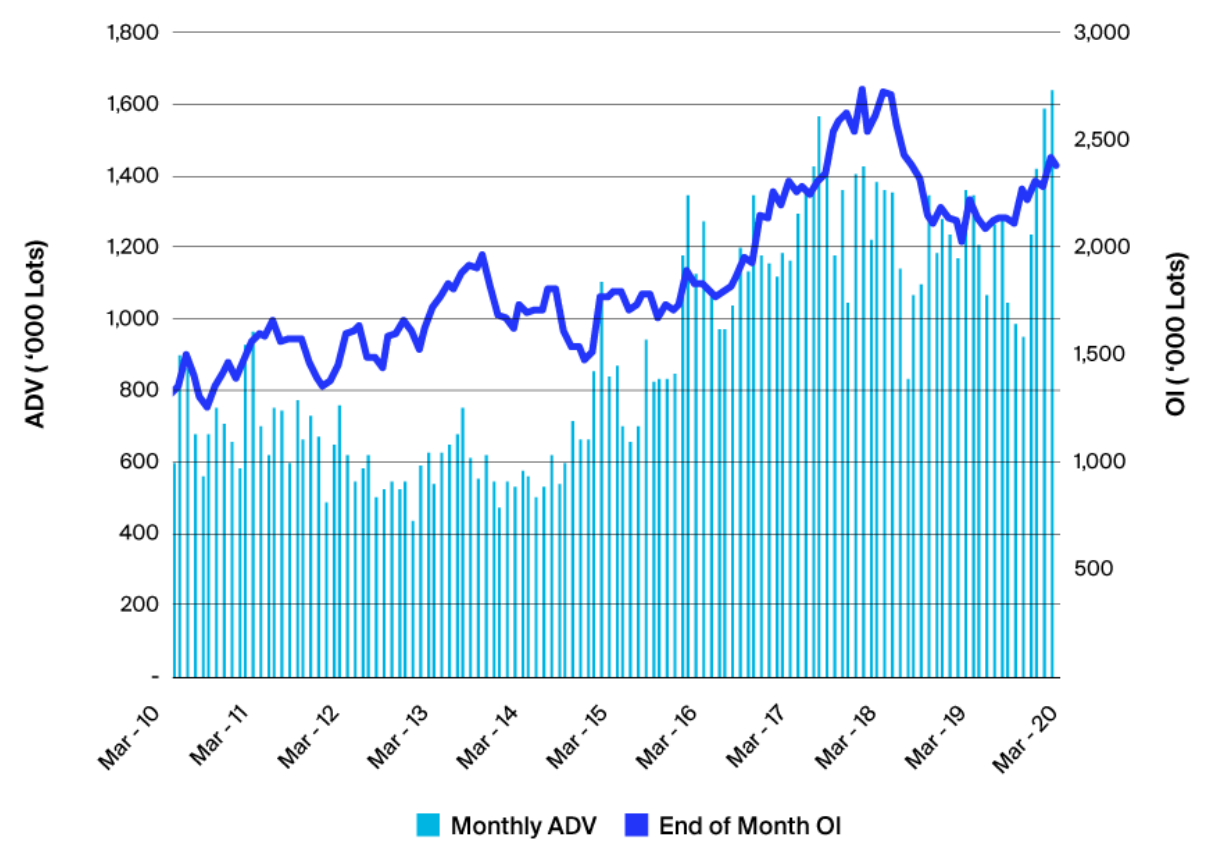
- In March and April, severe downward pressure on crude prices. In May, a fragile recovery. What were the key market drivers?
- April 20, 2020 closing prices: May NYMEX WTI -\$37.63, June ICE Brent \$25.57

ICE Brent and NYMEX WTI Futures: Volume and Open Interest

ICE Brent Futures Volume and Open Interest



NYMEX WTI Futures Volumes and OI



Source: ICE

ICE Brent Crude

The global benchmark

About Brent crude

Waterborne and global

- A **basket of five crudes**, comprised of Brent, Forties, Oseberg, Ekofisk, and Troll (BFOET)
- Brent is a **waterborne** crude
- It can be **shipped and stored globally**, either on land or in floating storage
- Brent reflects **global oil market fundamentals** and the global economy
- Approximately **70% of the world's traded crude** is priced relative to Brent
- Brent has **much more flexibility** than WTI in terms of **logistics and storage**, so it is **less prone to negative pricing**

Storage constraints for Brent

Greater logistics and storage flexibility relative to WTI.

Less prone to negative pricing.

- Global crude storage at end-April 2020 (onshore and floating)
 - Capacity 6.7 Billion bbls
 - Working capacity 5.0-5.7 Billion bbls
 - Crude stocks 4.6 Billion bbls (86% of working capacity)
 - Spare capacity remaining 750 Million bbls
- Floating storage at end-April 2020
 - Stored at sea 120-125 Million bbls
 - Available 130-155 Million bbls

How the ICE Brent futures contract works

The option – but not the obligation – to take physical delivery

- A deliverable contract based on Exchange for Physical (EFP) delivery, with an option to cash settle against the ICE Brent Index.
- Market participants have the option – but not the obligation – of taking physical delivery by using EFP mechanism (a swap of a futures position for a physical position).
- On contract expiry, ICE Brent futures converges with the physical Brent market through the ICE Brent Index. The Index represents the average price of BFOET in the physical market in the relevant delivery month.
- The EFP mechanism, together with the ICE Brent Index, ensures that the futures markets remains linked with the physical Brent market.
- **What's the bottom line?**

NYMEX WTI

The regional crude

About WTI crude

Landlocked and regional

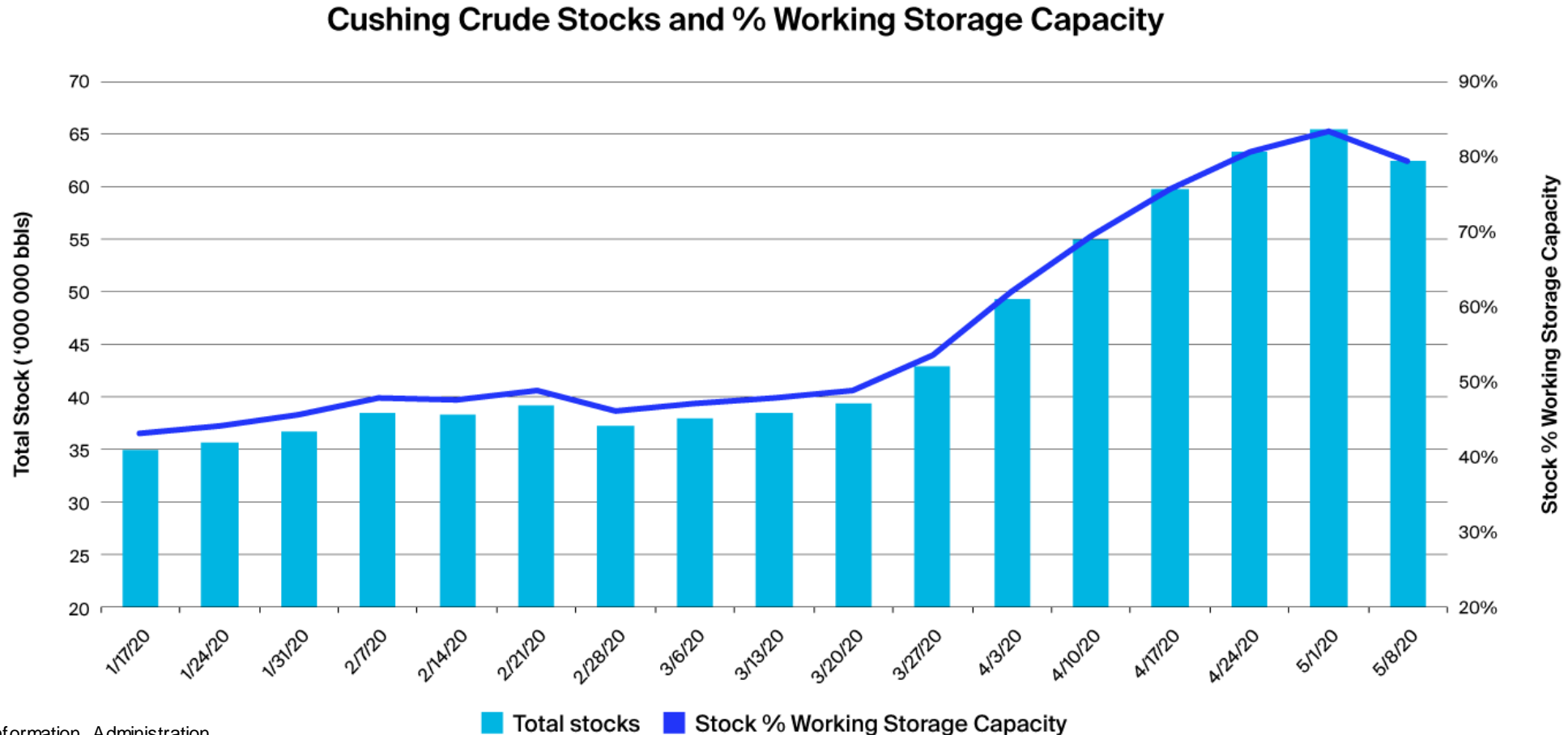
- WTI (West Texas Intermediate) is a **landlocked** crude
- WTI reflects oil market fundamentals in the **midcontinent region** of the US
- WTI has **logistics and storage constraints** at a very specific location: Cushing, Oklahoma
- **Limited pipeline capacity** to transport crude in and out of Cushing
- **Limited crude storage capacity** at Cushing

How the NYMEX WTI futures contract works

Physically deliverable at Cushing.

- Physically deliverable at Cushing.
- On contract expiry, a participant with an open long position must accept delivery of physical WTI crude. A participant with an open short position must make delivery of physical WTI crude.
- Contract expiry usually 3 business days prior to the 25th calendar day of the month before delivery (adjusted earlier if 25th is not a business day). Physical delivery made between first and last day of the delivery month.
- For example, the May 2020 contract expired on April 21, 2020. Physical delivery had to be made between May 1 and May 31, 2020.

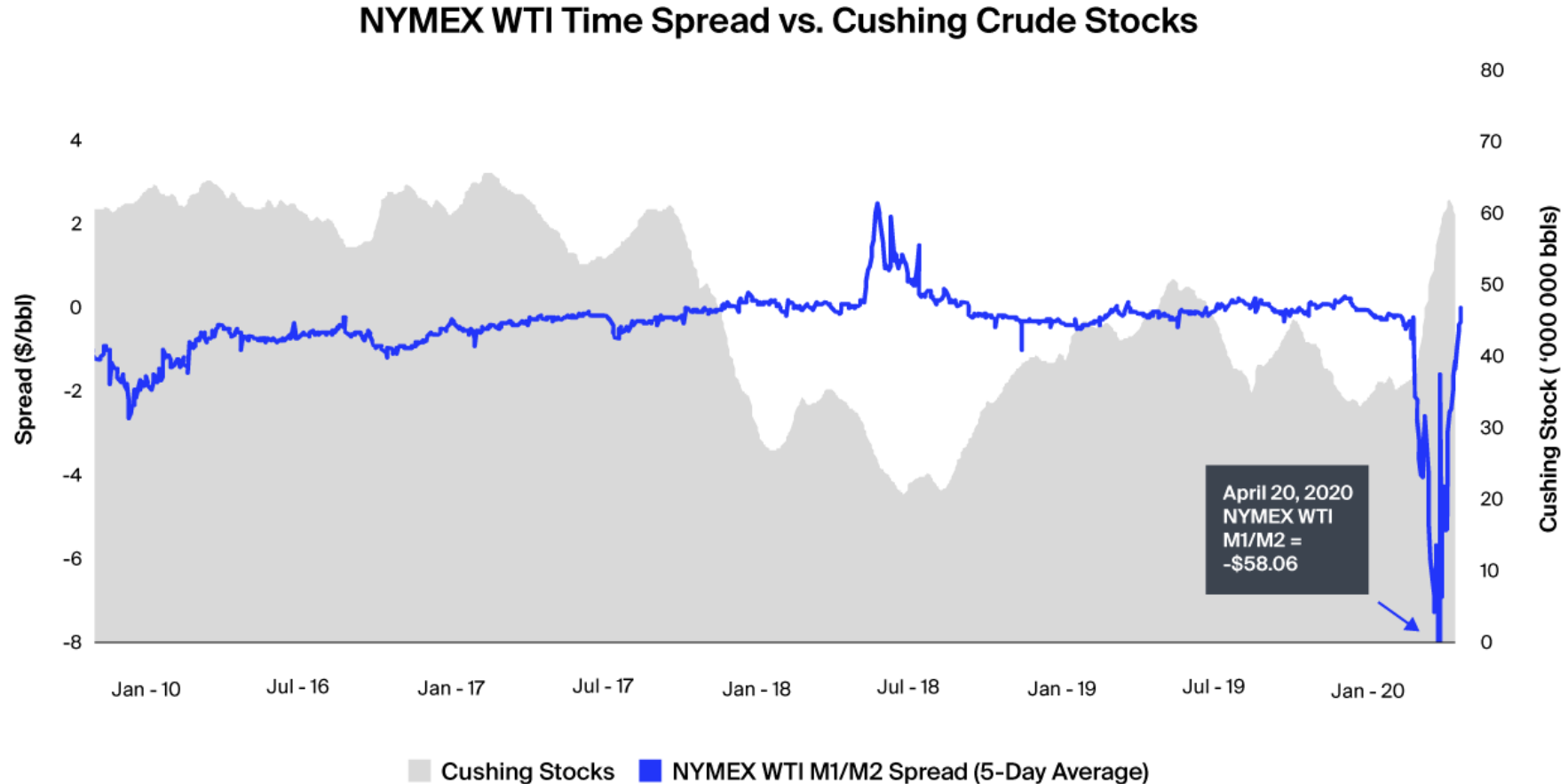
Storage Constraints for WTI: Cushing Stocks vs. % Working Storage Capacity



Source: US Energy Information Administration

- Working storage capacity at Cushing is 75.8 Mb.
- At the recent peak on May 1, crude stocks were 63.2 Mb (after adjusting for pipeline fill). This was 83% of working capacity, leaving only 12.6 Mb spare. In addition, all spare capacity was reportedly leased, so none was available.

Storage Constraints for WTI: Cushing Stocks vs. Time Spreads



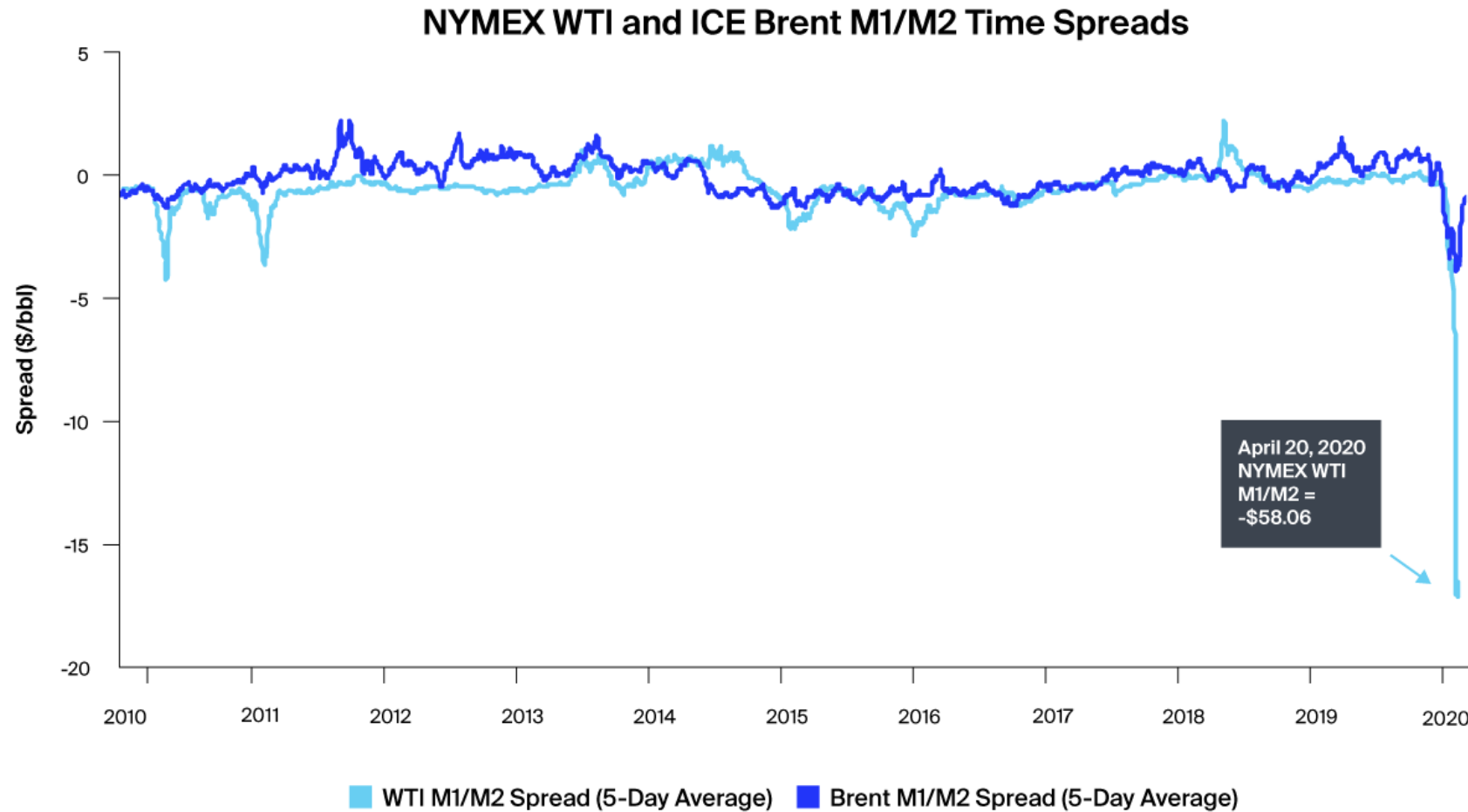
Source: US Energy Information Administration, ICE

- WTI prices and time spreads are sensitive to constraints. This can magnify the impact of crude oversupply or shortage.
- Oversupply leads to stockbuilds. Higher inventories lead to steeper contango (spot discount vs. forward premium). This is a self-reinforcing cycle. The same holds for the reverse situation: crude shortage, stockdraws/lower inventories, and steeper backwardation.
- The same inverse relationship between inventories and prices/time spreads holds for Brent. However, compared to WTI, Brent has much more flexibility in terms of logistics and storage.

ICE Brent vs NYMEX WTI

Market & Price Implications of the Differences

ICE Brent M1-M2 vs. NYMEX WTI M1-M2 Time Spreads

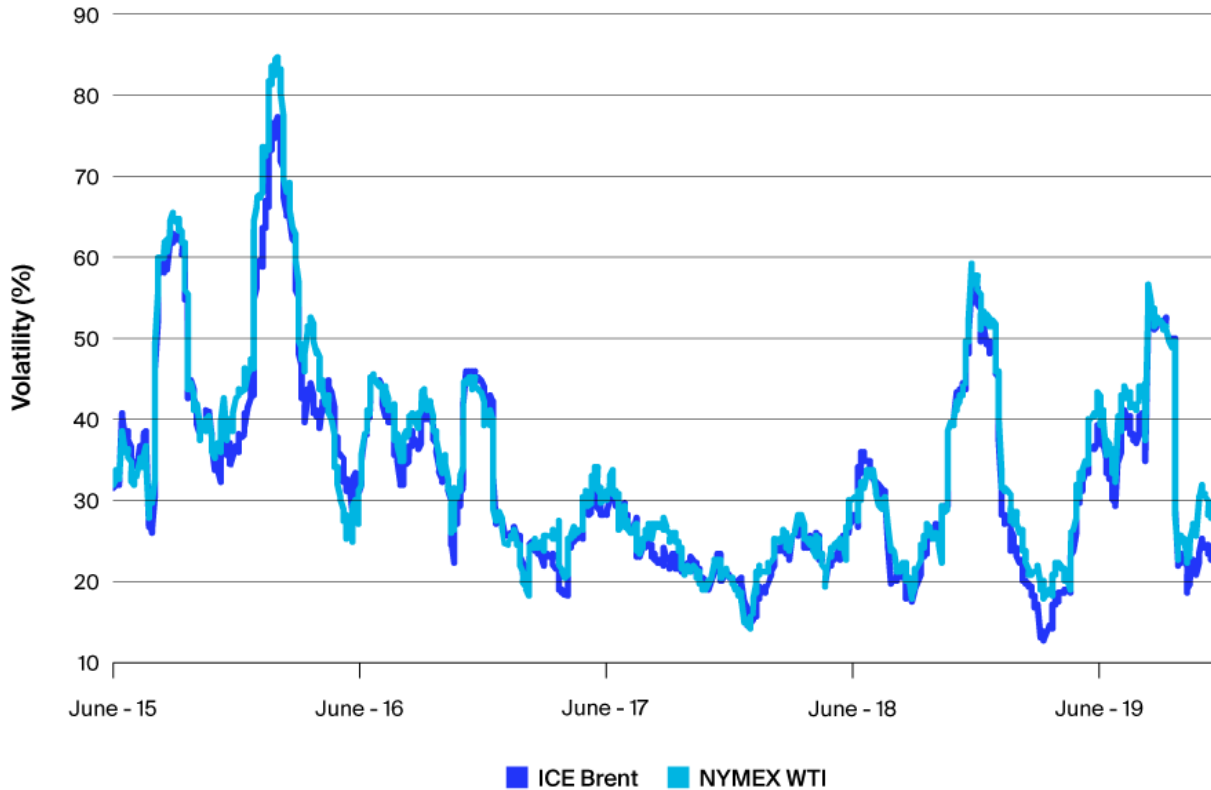


Source: ICE

- Because Brent is global and doesn't have severe regional/local logistics and storage constraints like WTI, it is less subject to extreme price swings than WTI, particularly at the front of the forward curve. This can be seen in a comparison of Brent and WTI Month 1 – Month 2 time spreads.

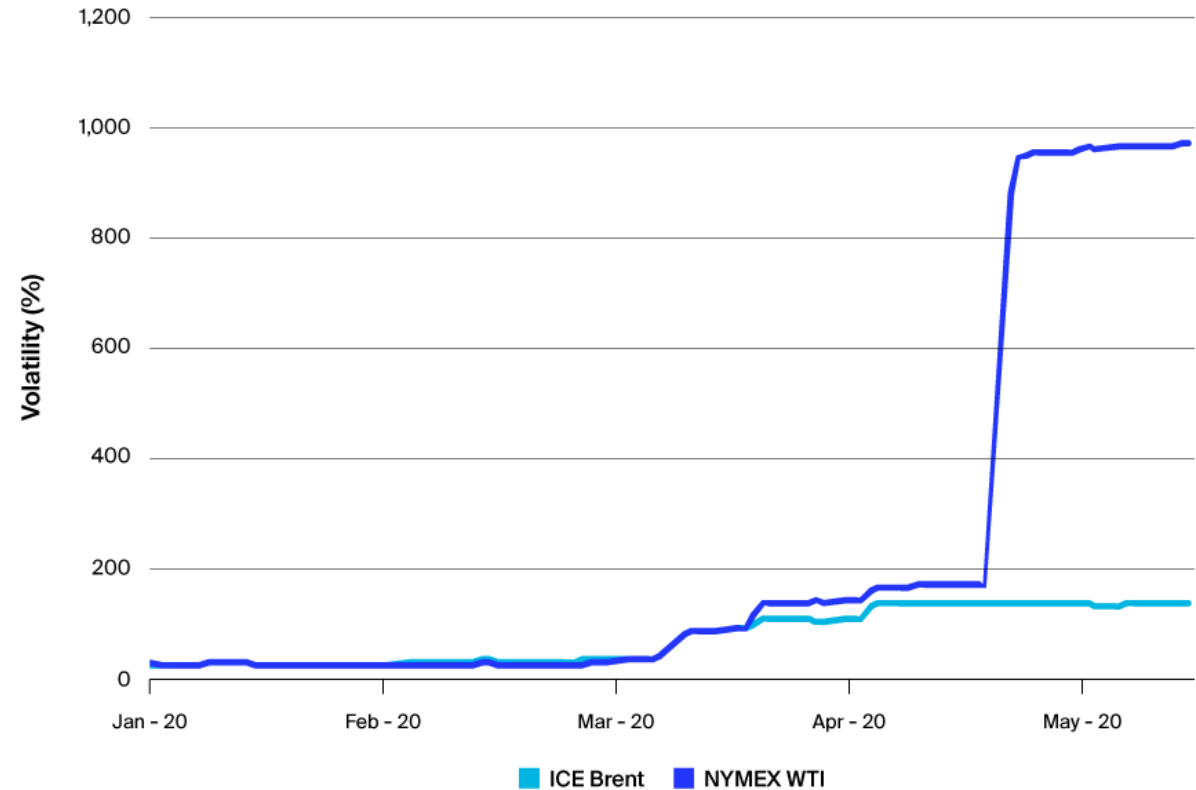
ICE Brent vs. NYMEX WTI Volatility

ICE Brent and NYMEX WTI Front Month Realized Volatility (30 Day) – June '15 to Dec '19



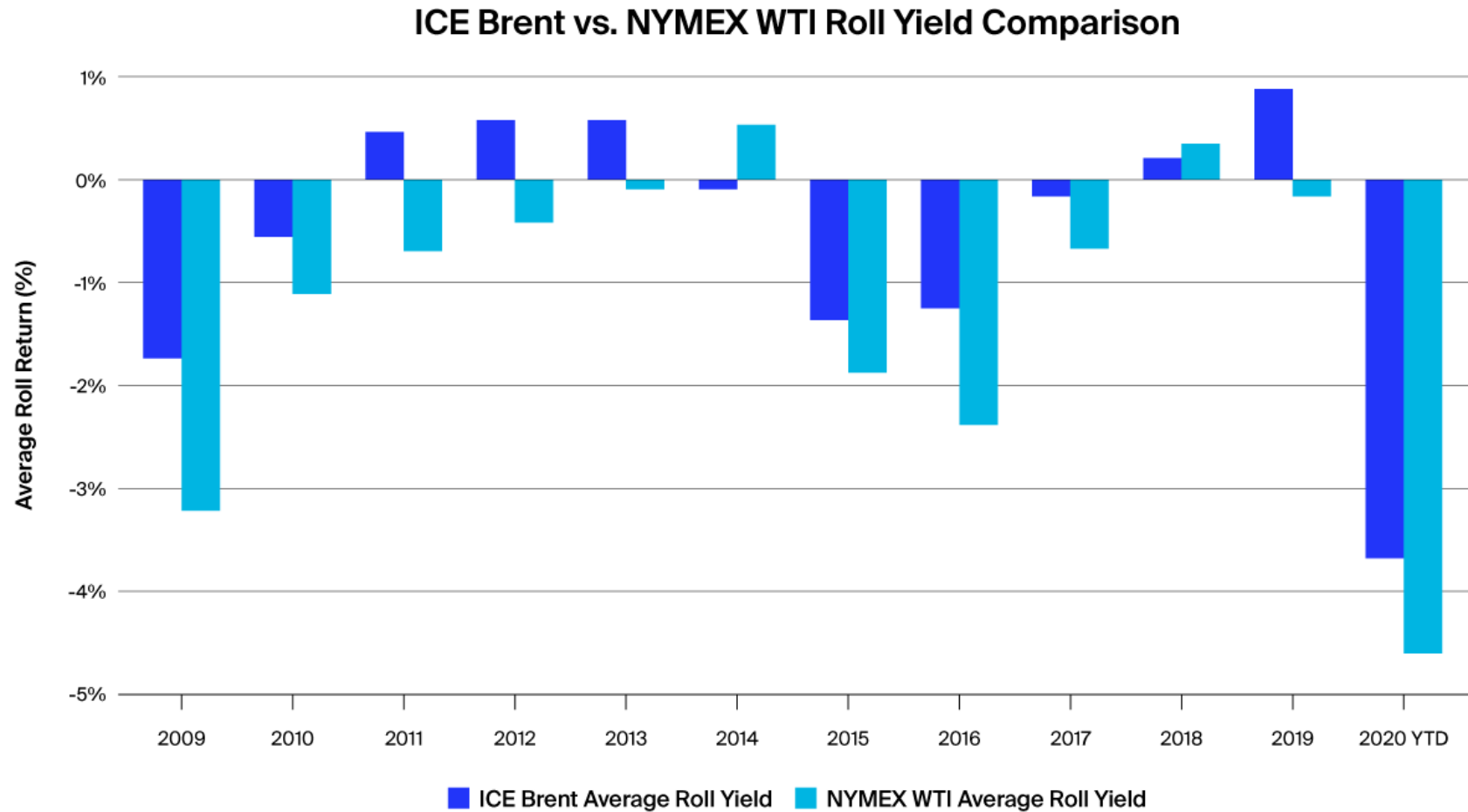
Source: ICE

ICE Brent and NYMEX WTI Front Month Realized Volatility (30 Day) – Jan '20 onwards



- Directly driven by the less extreme price swings for Brent, the realized volatility for Brent is almost 3% lower than WTI. Over the full timeframe, Brent volatility was 36.3%, while WTI volatility was 39.1%. In 2019, Brent vol was 31.9%, while WTI vol was 34.9%.
- This is a material difference; lower vol can reduce costs for those managing risks (commercials) and for those taking risks (investors).

ICE Brent vs. NYMEX WTI Roll Yield Comparison

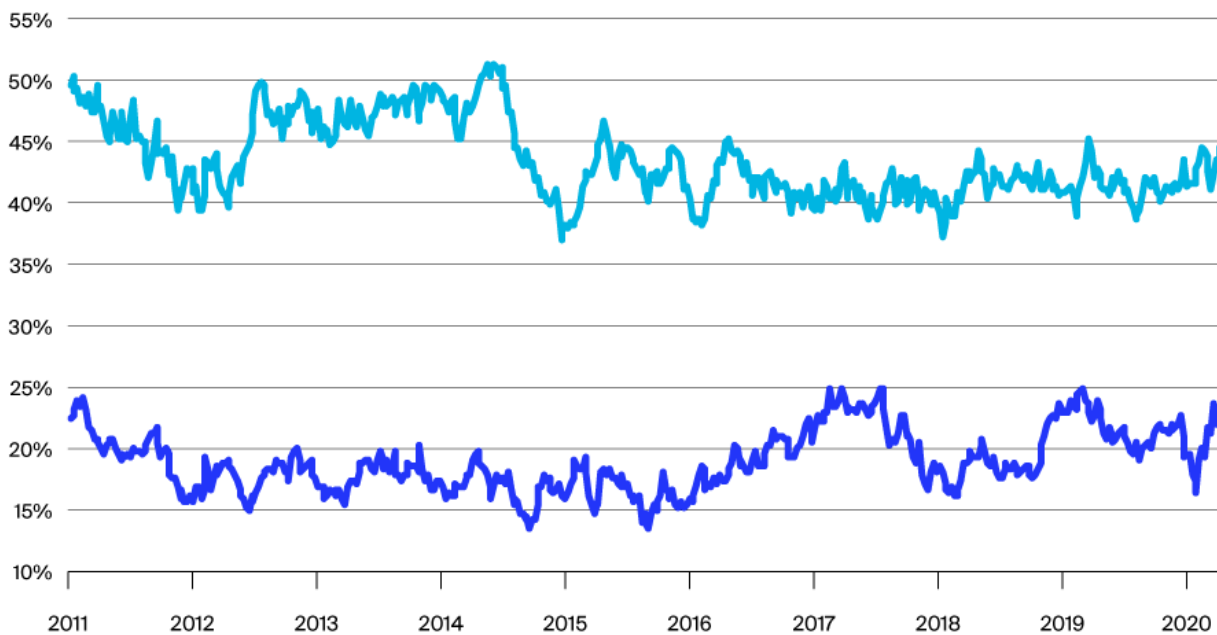


Source: ICE

- Directly as a result of less extreme swings in time spreads for Brent, the roll yield return for Brent usually outperforms WTI.
- The roll yield return simply comes from buying the front-month, holding it until expiry, then selling it and buying the next front-month.
- The roll yield is positive in a tight “backwardated” market; it is negative in an oversupplied “contango” market.
- Every year since 2009, with only 2 exceptions, the roll yield for Brent was more positive or less negative. 2014? 2018?

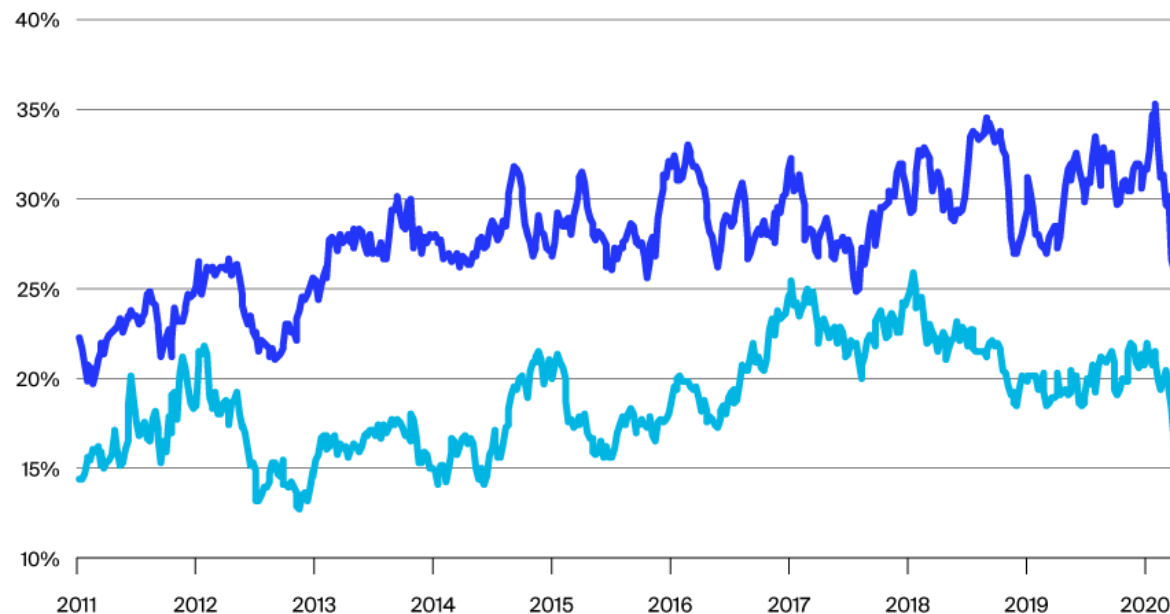
ICE Brent vs. NYMEX WTI Comparison of Commercial and Managed Money Participation (% of Open Interest)

Percentage of Total Open Interest Held by Commercials
ICE Brent vs. NYMEX WTI Futures



■ ICE Brent Commercials % ■ NYMEX WTI Commercials %

Percentage of Total Open Interest Held by Managed Money
ICE Brent vs. NYMEX WTI Futures



■ ICE Brent Managed Money % ■ NYMEX WTI Managed Money %

Source: ICE, CFTC

- Brent attracts a higher proportion of commercial participants (producers, refiners, consumers, physical traders). Goal: to manage risk.
- Brent has a lower proportion of non-commercial participants (managed money or investors). Goal: to take risk.
- Managed money or investor flows tend to exaggerate and add momentum to fundamentally driven price moves in both directions.

Summary and Conclusions

ICE Brent

- Waterborne. Reflects global oil market fundamentals. 70% of world's traded crude priced off Brent.
- Flexible logistics and storage.
- No obligation to take physical delivery.

NYMEX WTI

- Landlocked. Reflects regional oil market fundamentals in the US midcontinent.
- Logistics and storage constraints at Cushing.
- Physically deliverable.

What are the market and price implications of these differences?

- Brent is less subject to extreme price swings than WTI, especially at the front of the forward curve. Less prone to negative pricing,
- Brent realized volatility is almost 3% lower than WTI.
- The roll yield return for Brent usually outperforms WTI (either more positive or less negative).
- Brent has a higher proportion of commercial participants and a lower proportion of managed money participants than WTI. Managed money or investor flows tend to exaggerate and add momentum to fundamentally driven price moves in both directions.

Contacts and resources

For more information on ICE Brent crude oil

Mike Wittner – Director, Head of Oil Market Research

+1 646 733 5007 mike.wittner@theice.com

Jeff Barbuto – VP, Global Head of Oil

+1 646 733 5014 jeff.barbuto@theice.com

Europe:

Deborah Pratt – Senior Director, Oil Markets

+44 (0) 20 7065 7734 deborah.pratt@theice.com

US:

Kevin Kelly – Market Manager, Crude Oil & Options

+1 646 733 5003 kevin.kelly@theice.com

Asia:

Julius Foo – Director, Asia Pacific

+65 6594 0162 julius.foo@theice.com

Legal disclaimer

© 2020 Intercontinental Exchange, Inc. The information and materials contained in this document - including text, graphics, links or other items - are provided "as is" and "as available." ICE and its subsidiaries do not warrant the accuracy, adequacy or completeness of this information and materials and expressly disclaims liability for errors or omissions in this information and materials. This document is provided for information purposes only and in no way constitutes investment advice or a solicitation to purchase investments or market data or otherwise engage in any investment activity. No warranty of any kind, implied, express or statutory, is given in conjunction with the information and materials. The information in this document is liable to change and ICE undertakes no duty to update such information. You should not rely on any information contained in this document without first checking that it is correct and up to date. The content of this document is proprietary to ICE in every respect and is protected by copyright. No part of this material may be copied, photocopied or duplicated in any form by any means or redistributed without the prior written consent of ICE. All third party trademarks are owned by their respective owners and are used with permission.

Trademarks of ICE and/or its affiliates include Intercontinental Exchange, ICE, ICE Brent and ICE Brent Index. Information regarding additional trademarks and intellectual property rights of Intercontinental Exchange, Inc. and/or its affiliates is located at <https://www.intercontinentalexchange.com/terms-of-use>.

Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995 - Statements in this presentation regarding ICE's business that are not historical facts are "forward-looking statements" that involve risks and uncertainties. For a discussion of additional risks and uncertainties, which could cause actual results to differ from those contained in the forward-looking statements, see ICE's Securities and Exchange Commission (SEC) filings, including, but not limited to, the risk factors in Intercontinental Exchange, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2015, as filed with the SEC on February 4, 2016.