GLOBAL BUNKERING SUMMIT 2020 • VIRTUAL •

Hedging Done Right

Session 7 - Risk Mitigation

Managing Price Risk

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R^2

Risked Revenue
Energy Associates

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The assumptions used in R^2 analysis provide a practical framework from which a successful hedge program can be developed and maintained. R^2, while mathematically rigorous, is not a substitute for logic, common sense or the fiduciary responsibilities that drive hedging or any other business decisions.

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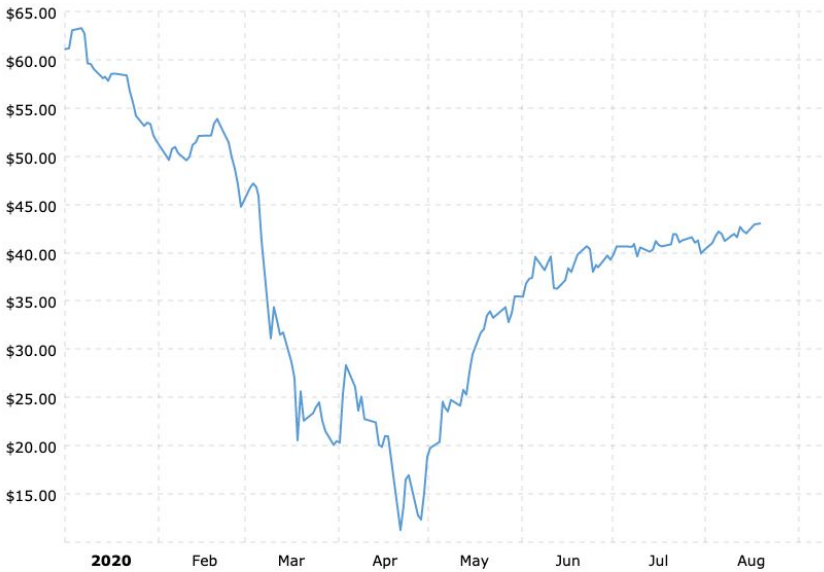
Background

- **Chris Thorpe, Chartered Financial Analyst**
  - 25 years experience in oil, gas, petrochemicals and energy finance and risk management
  - Advisor to corporate hedging and High Net Worth clients
  - Principal private equity investor in middle market transactions with minimum $5MN EBITDA
  - MBA-INSEAD, BA-University of British Columbia
- **Andrew Furman, R^2**
  - Career energy trader and risk manager delivering hedge solutions to public corporations, private firms, institutions and utilities.
  - Prior to joining R^2, Mr. Furman was a managing member of Atlantic Capital Consultants, a member firm on the NYMEX. At Atlantic, he designed the commodity options training and risk management platform which launched the careers of many successful professionals in the energy industry.
  - Mr. Furman received a Bachelor of Science degree in Chemical Engineering from MIT.

2020 Review – Big Picture

- COVID-19 demand destruction strikes almost immediately after Russian and Saudis announced a price war, indicating new supply could come to the market
- Oil prices fell dramatically hitting their low in April



2020 Overall Impact

	Changes	Impact
Oil market	2020 price collapse worse than 50% drop from July to Dec 2014 Well beyond expectations or bearish forecasts, spot futures price fell below zero Contango futures market	Un-hedged inventory owners taking large write downs Contango market price allows anyone with storage to hedge and lock in profit
Market participants	Storage quickly filling up	Scarcity of storage and ships
	Demand sharply dropping with complete halt of global transportation	Financial stress, and bankruptcies
Economy	Global interest rates pushed to new lows with central banks intervention	Markets flushed with liquidity and continue to rise – INCREASING RISK

World Oil Demand

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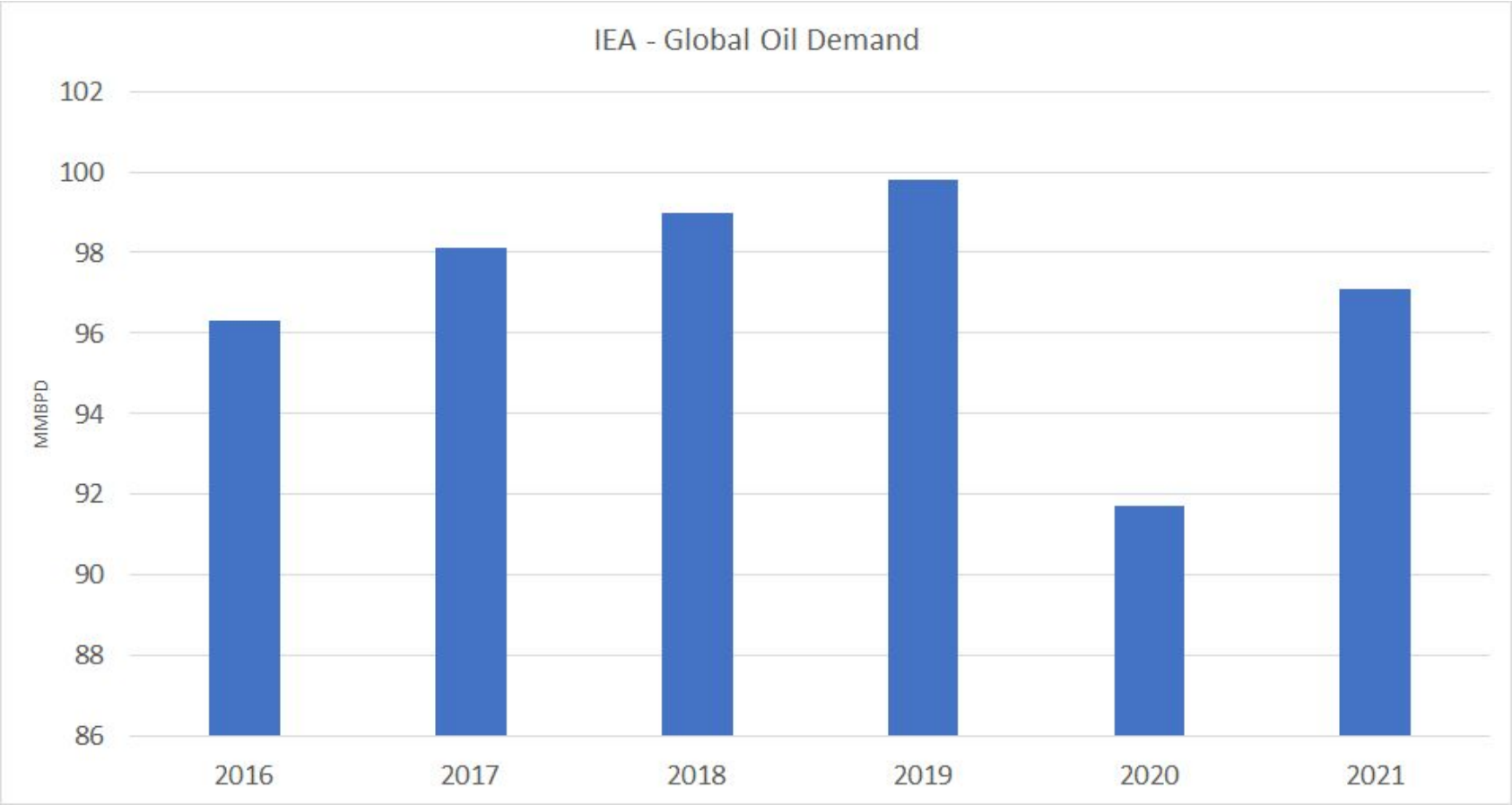
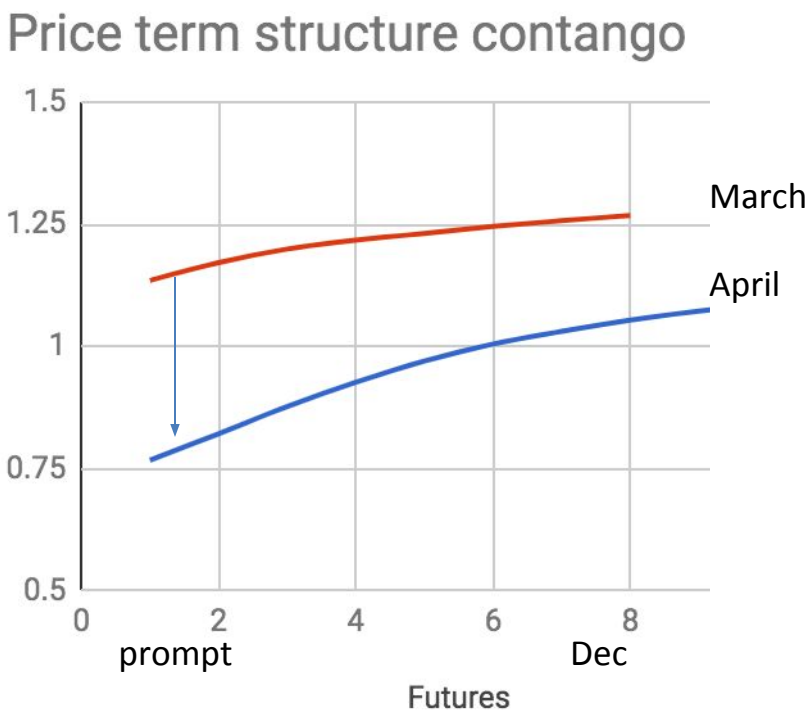


The IEA estimate for 2021 is lower due to reduced aviation demand.

Price spread widened creating profit opportunity

ULSD cpg



- ULSD prices dropped more in the prompt month (April - Blue Line) than they did for December futures.
- The "spread" widened by 20 cpg
- Resulting arbitrage opportunity for risk free trade IF you had ability to buy fuel and store it and then hedge for future delivery

Contango: when current spot market prices are below the price of any future delivery

Contango Forward Curve Snapshots

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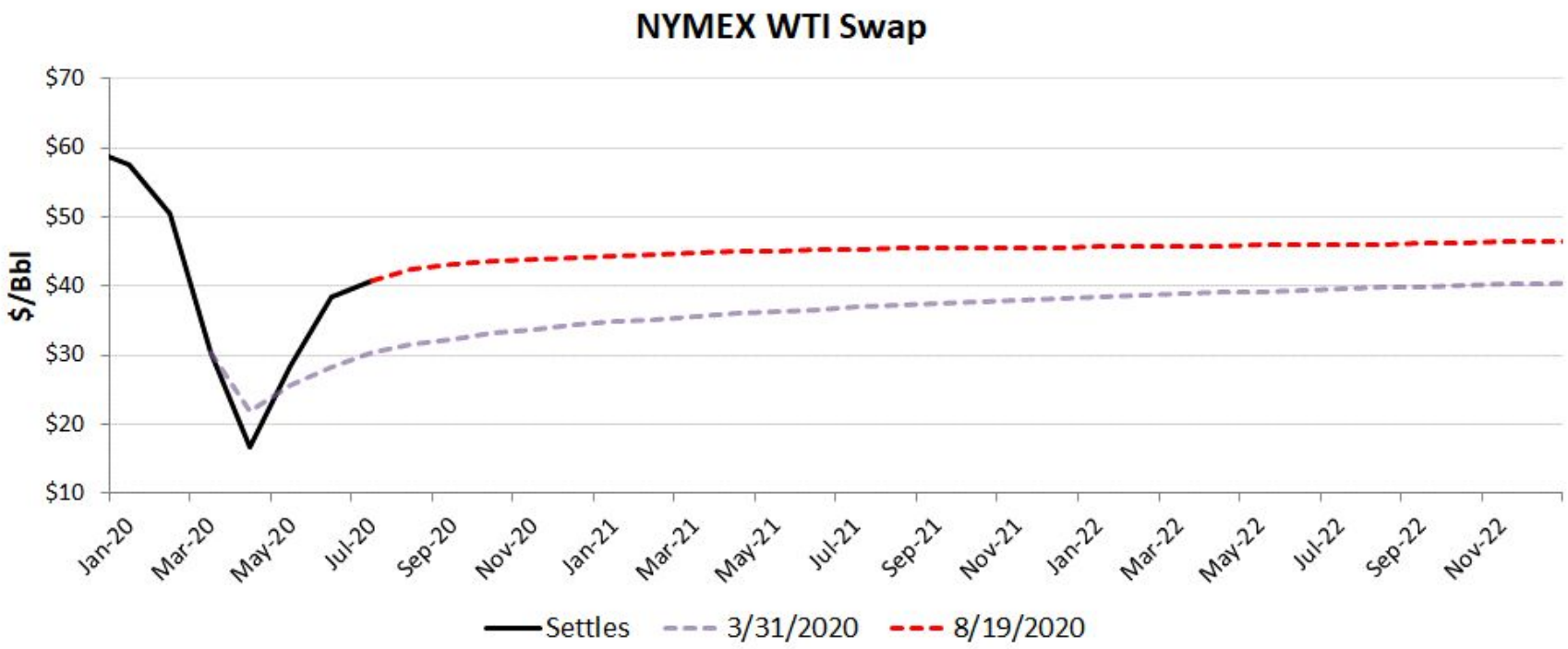

NYMEX WTI	Bal 2020	2021	2022	2023
8/19/2020 Fwd Curve	**$43.63**	**$45.15**	**$46.00**	**$46.79** 9
Change since 3/31/2020	$10.26 / 30.7%	$8.51 / 23.2%	$6.56 / 16.6%	$5.39 / 13.0%

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WTI Spot

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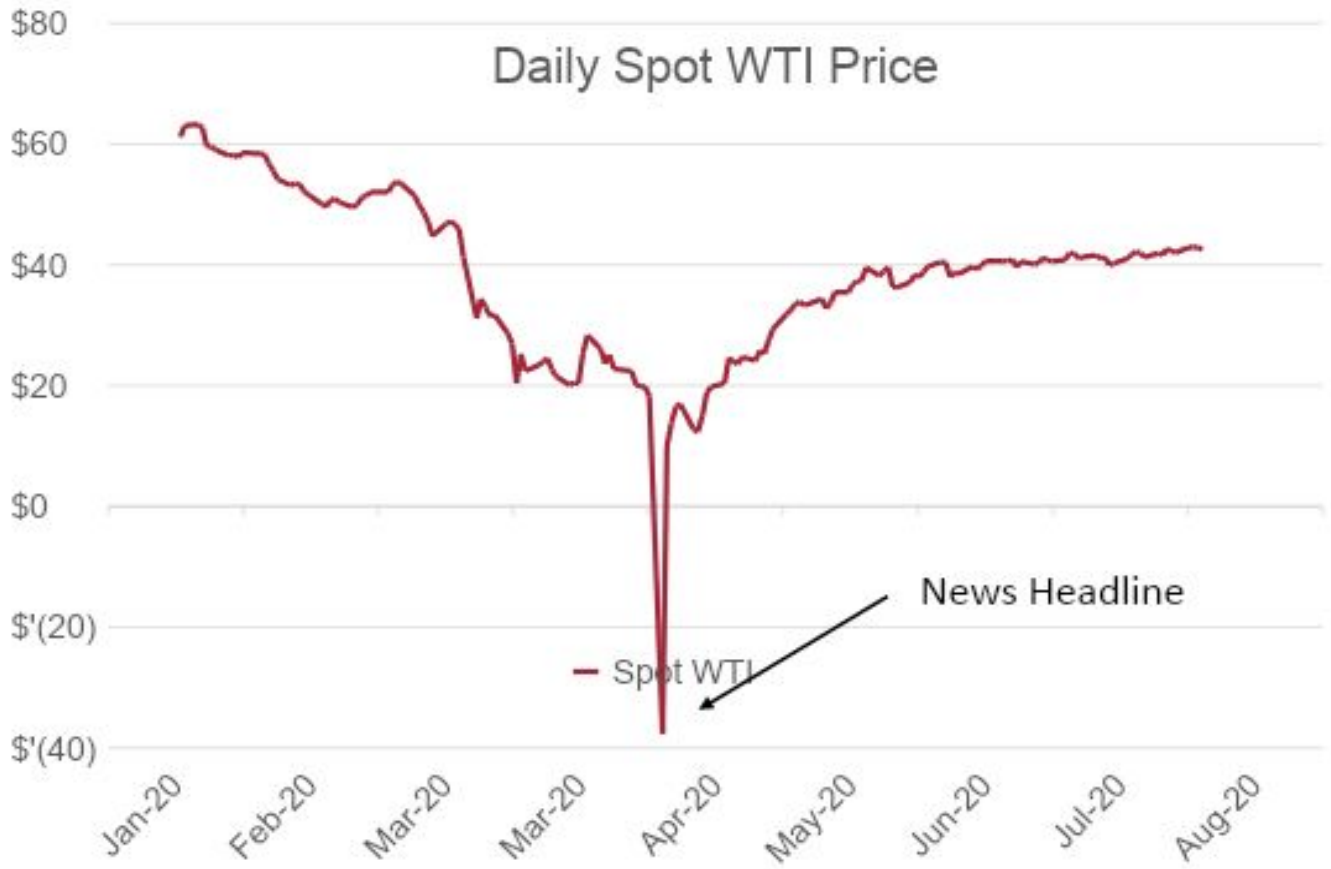

Futures contracts are bullets with prices settling on a single day.

WTI Spot + Calendar Monthly Average (CMA) Swap

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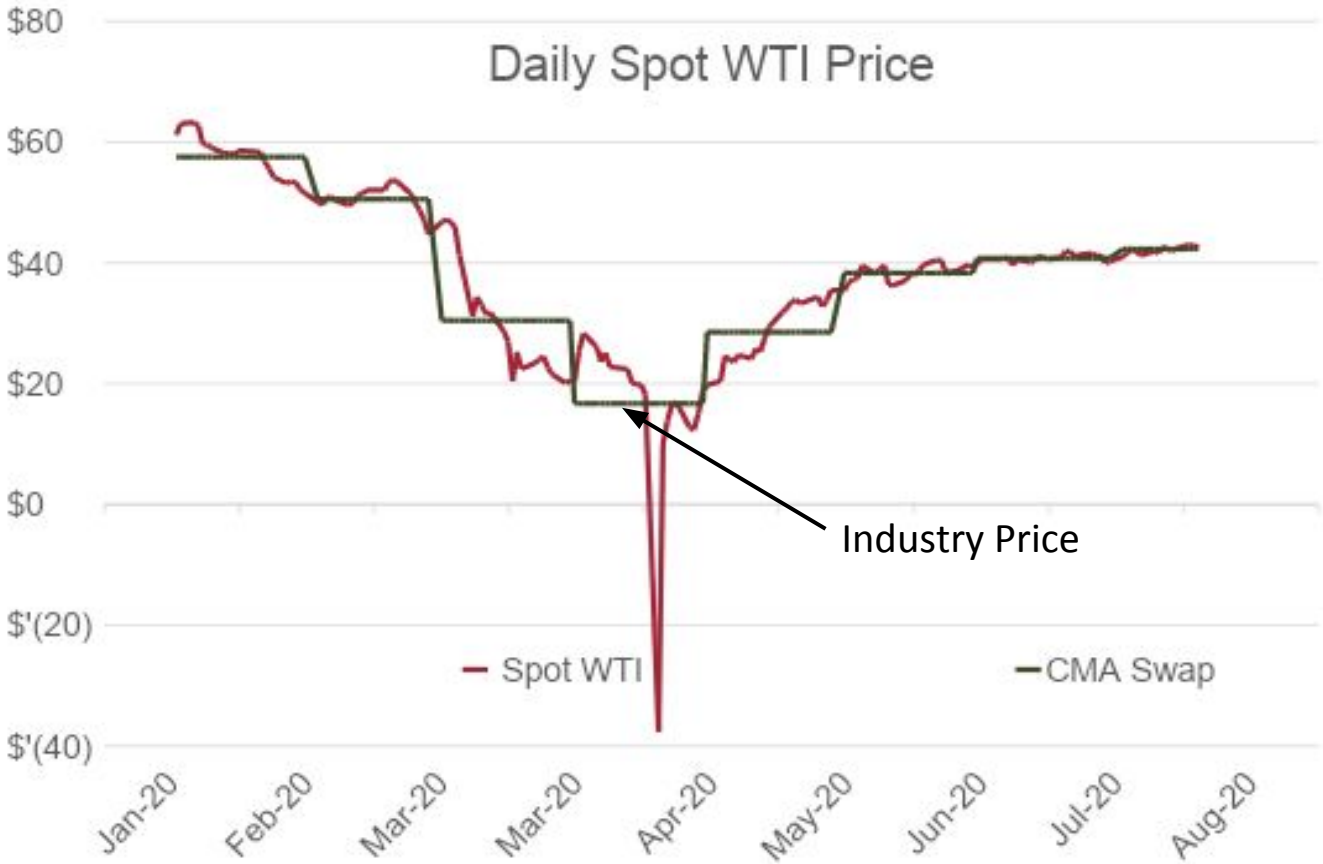
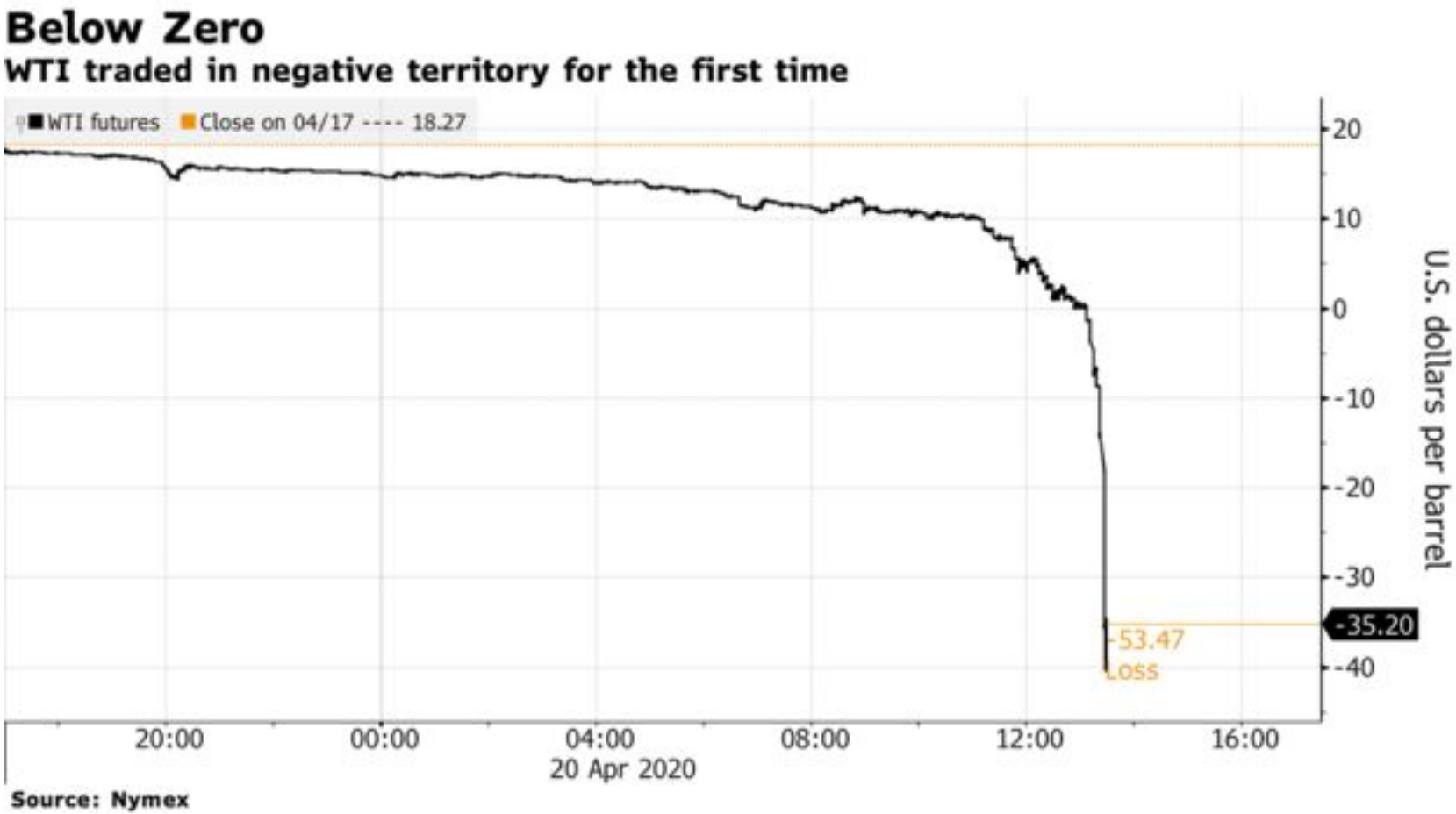


CMA Swaps settle during the entire month, mirroring the cash flows from physical liftings.

Dramatic single day price drop

April 20, 2020 future contracts for May delivery of WTI fell to minus $37.63 a barrel



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Negative Oil Prices?

- For many, selling at a steeply negative price was better than taking delivery of actual oil because there was nowhere left to put it. Furthermore, demand was falling.
- For retail investors seeing very low or negative prices, many placed large bets that oil prices would rebound. When prices were close to zero, small investors could take large positions and dramatically underestimated risk
- Large funds, that "roll" long position contracts from the expiring month to the following month, were forced to sell large volumes on the expiry day
- Small players were squeezed out, forced to sell their positions at negative prices

More: BloombergL 2020-08-14/oil-for-less-than-nothing-here-s-how-that-happened

Risk in a broader context

S&P 500 Median Results Through July 3, 2020

Company Size	Market Cap	P/E	P/S	P/FCF	P/B	YTD Returns
Top 10	$848.5 billion	31.4	6.3	33.2	6.3	9.6%
Top 50	$198.7 billion	28.7	4.6	23.3	5.5	2.4%
51-100	$77.6 billion	26.0	3.8	25.0	5.3	-5.7%
101-150	$49.5 billion	22.9	3.9	23.6	4.1	-1.9%
151-200	$30.5 billion	26.4	3.0	23.5	4.1	-6.7%
201-250	$24.6 billion	24.4	2.6	20.0	3.2	-9.3%
251-300	$20.2 billion	23.2	2.6	21.8	3.3	-5.5%
301-350	$14.9 billion	23.9	2.8	22.8	2.5	-8.5%
351-400	$11.8 billion	22.1	1.8	18.4	3.0	-17.6%
401-450	$8.9 billion	13.3	1.4	12.8	1.9	-22.6%
451-505	$5.1 billion	13.9	0.8	10.0	1.2	-38.5%
S&P 500	$21.8 billion	22.8	2.4	20.4	3.0	-11.0%

Souce: Ycharts

Oil Expense Indicator

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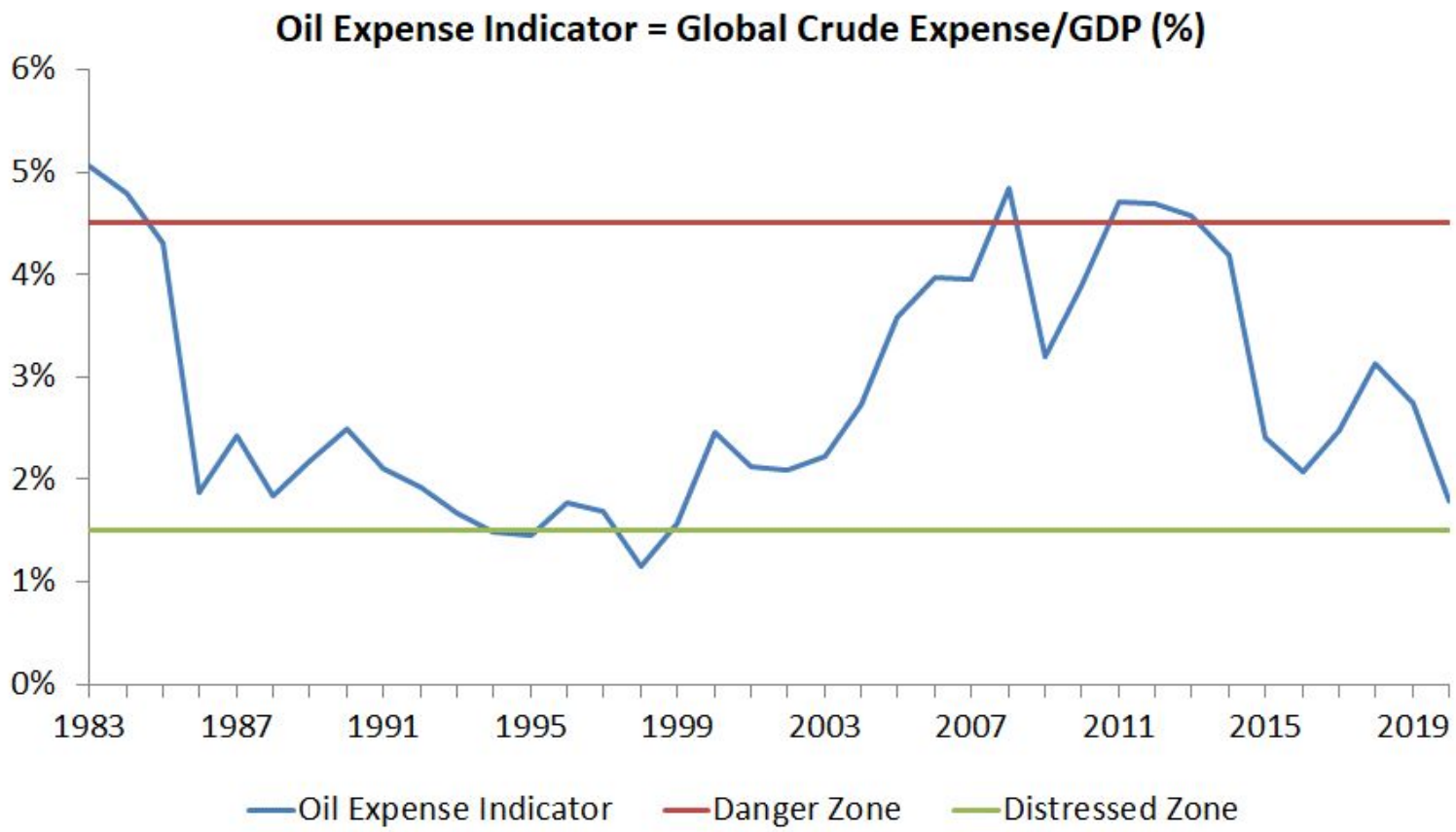

Crude Oil cost as a percentage of World GDP is an effective way of obtaining more clarity on its relative value. This drives better hedge decisions for producers and consumers.

Marine Fuel Risk Estimates

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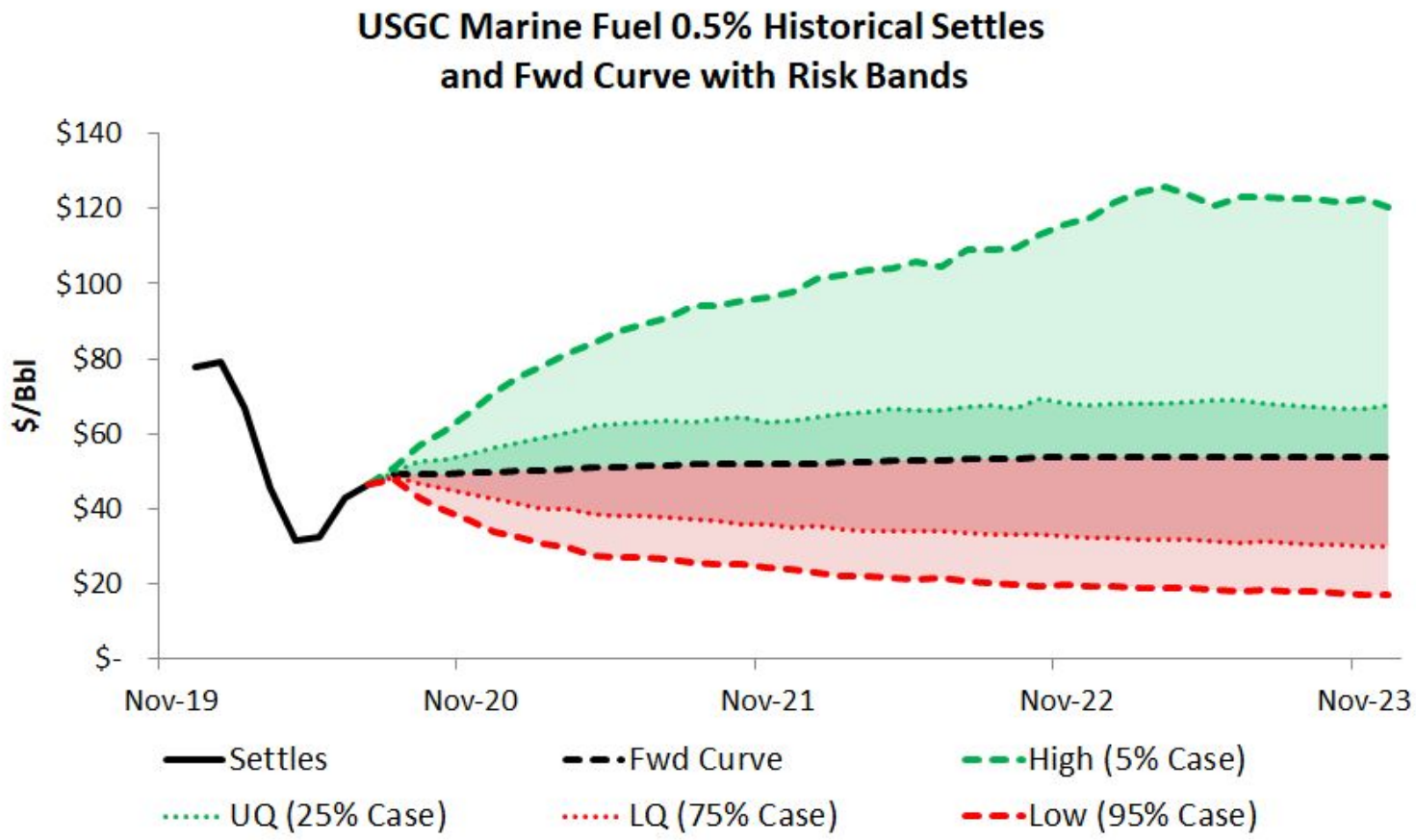

R^2 clients are provided objective confidence intervals for their costs and bottom line performance based on current forward curves and volatility surfaces.

Marine Fuel Risk Estimates

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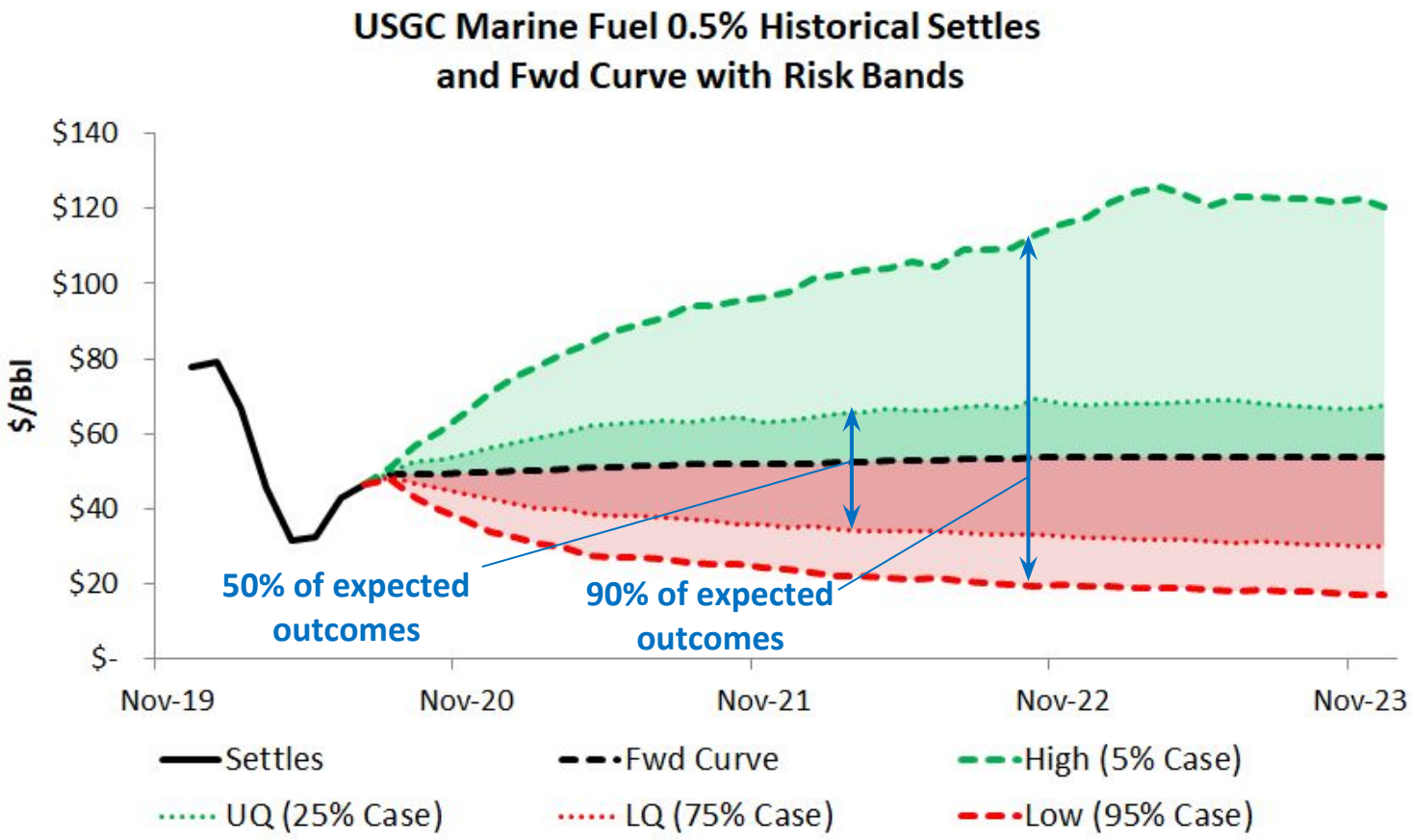

R^2 probability estimates are accurate vs historical outcomes in Year 1 (Months 1-12). Year 2 and Year 3 historically show an even great volatility than estimates- RESPECT THE RISK BANDS!!

Your Hedging strategy

Ask yourself the following questions:

1. Are the assumptions of why the hedge strategy is needed clear and defined?
2. Are there appropriate controls in place to manage the risks of using hedge tools?
3. Who makes the hedge decision, when is it taken and is it automatic based on rules?
4. Has the strategy been tested for extreme scenarios (worst case?)
5. **Are you prepared for the next volatility "event"? The best strategy is to be prepared!**

R^2 Wrote the Book on Enterprise Hedging

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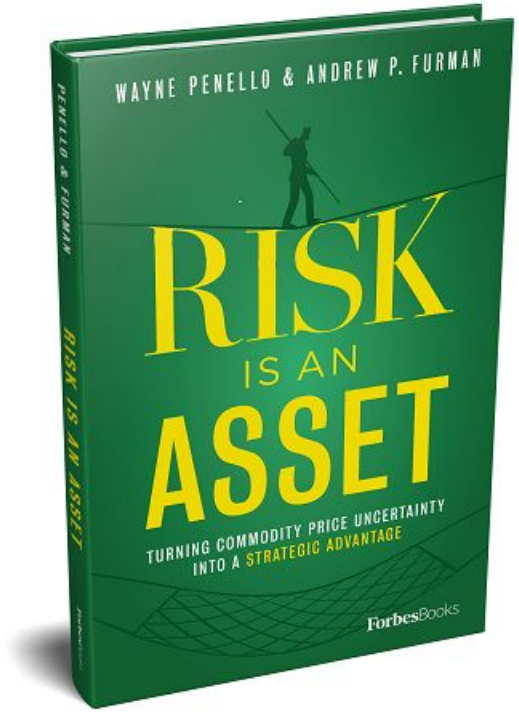

RiskIsAnAsset.com

"*Risk Is an Asset* is an easy-to-understand discourse on the complicated subject of hedging. In it, Wayne and Andy introduce the reader to their innovative and remarkably successful methodology for protecting a company from commodity price risk, Process Risk Management. This book is a game changer. I would not be surprised if it becomes required reading at business schools across America."

—**MIKE MCCONNELL**, *Director, The Robert M. Zinke Energy Management Program, Price College of Business, University of Oklahoma; former President, Jones Energy*

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