

Introduction to Energy Futures

Presented by: Pete Mulmat and Dan Gramza

June 26, 2014

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Futures trading is not suitable for all investors, and involves the risk of loss. Futures are a leveraged investment, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for a futures position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade. All references to options refer to options on futures.

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Dan Gramza

President of Gramza Capital Management, Inc. and DMG Advisors, LLC. He is a trader, consultant to domestic and international clients, an advisor to hedge funds and is a developer of ETF securities.

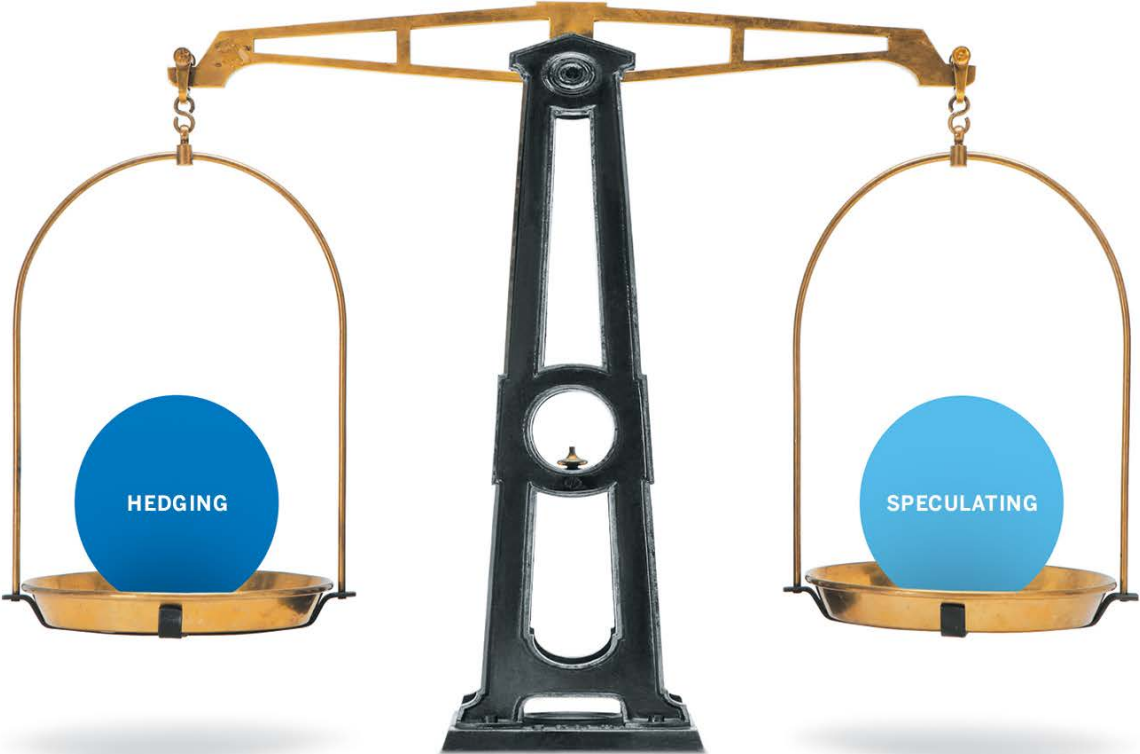
www.dangramza.com



Agenda

- Crude Oil
 - West Texas Intermediate (WTI)
 - Brent Crude
- Refined Products
 - RBOB Gasoline
 - ULSD
 - “Crack Spread”
- Natural Gas
- Options on Futures in the Energy Markets
- CME Group Resources

Hedging and Speculating



Why Trade?

- To make money from the various commodity & financial markets
- As part of a diversification of one's portfolio
- To generate a return greater than the risk free rate of return
- As a profession/business



Why Has the Speculative Community Focused on the Energy Markets?

- Wide Trading Ranges



Charts provided by Interactive Brokers

Important Terminology

- Trading Venues for Futures and Options on Futures
 - Open outcry
 - Electronic Trading
 - Globex
- Regulated Exchanges
- Category of Trades
 - Outright
 - Long or Short
 - Spreads
 - InterMonth (calendar spreads)
 - InterMarket (within an exchange)
 - IntraMarket (geography)



Key Definitions

Futures Contract	a standardized agreement between two parties to buy or sell a product at an agreed price on a future date.
“standardized agreement”	means futures contracts are fungible
“buy”	trade can be easily but not always offset with a sell trade before contract expiration
“sell”	trade can be easily but not always offset with a buy trade before contract expiration
“future date”	is the standardized expiration date for that futures contract

A Closer Look At A Futures Contract

- Agreement to buy or sell a commodity at a date in the future
- Everything is standardized except the price
- Price of the commodity is determined in the trading pit or on the electronic trading system of a futures exchange

What is standardized?

- Commodity
- Quantity
- Quality
- Delivery Date
- Delivery Point or Cash Settlement



Trader Dashboard

IB File Edit Trade Account Trading Tools Analytical Tools View Help

SIMULATED TRADING SIMULATED TRADING

Order Account Trade Log IB Information System LAUNCH Calendars News Fundamentals BookTrader OptionTrader Mkt Scanner Alerts

Trader Dashboard
 NDX 3787.69 (-0.27%) INDU 16800.50 (-0.26%)

× Pete Portfolio Pending (All) +

Contract	Last	Change	Change %	High	Low	Bid Size	Bid	Ask	Ask Size
	Action	Quantity	Time in Force	Type	Lmt Price	Destination	Transmit	Status	Trd Px
CL Jul'14 @NYMEX	• 105.92	+1.52	1.46%	106.53	104.35	2	• 105.92	105.93	• 44
CL Aug'14 @NYMEX	• 105.18	+1.56	1.51%	105.71	103.59	8	• 105.18	105.19	• 3
BZ Jul'14 @NYMEX	• 112.07	+2.12	1.93%	112.25	110.14	5	• 112.06	112.09	• 14
BZ Aug'14 @NYMEX	• 111.42	+2.05	1.87%	111.80	109.59	15	• 111.41	111.44	• 9
QM Jul'14 @NYMEX	• 105.900	+1.500	1.44%	106.550	104.350	20	• 105.900	105.925	• 4
HO Jul'14 @NYMEX	• 2.9576	+0.0533	1.84%	2.9674	2.9003	2	• 2.9576	2.9579	• 1
HO Aug'14 @NYMEX	• 2.9632	+0.0522	1.79%	2.9721	2.9080	2	• 2.9634	2.9637	• 1
RB Jul'14 @NYMEX	• 3.0511	+0.0503	1.68%	3.0605	3.0003	2	• 3.0511	3.0514	• 1
RB Aug'14 @NYMEX	• 3.0127	+0.0467	1.57%	3.0226	2.9666	2	• 3.0126	3.0129	• 1
NG Jul'14 @NYMEX	• 4.702	+0.194	4.30%	4.708	4.520	7	• 4.701	4.702	• 9
NG Aug'14 @NYMEX	• 4.701	+0.197	4.37%	4.705	4.519	15	• 4.700	4.702	• 20

NYMEX WTI

The World's Most Liquid Crude Oil Benchmark

- Key Facts about NYMEX Light Sweet Crude Oil
 - Most Liquid
 - Open Interest
 - Increased Access and Production
 - Most Transparency
 - Efficient Margining



WTI Light Sweet Crude Oil Futures

- Most liquid benchmark oil contract
- Unprecedented access to profit potential
- Deep pool of liquidity
- Flexible contract sizes to capitalize on supply and demand fluctuations

Product	Light Sweet Crude Oil Futures
Trading Venue ¹	CME Globex
Ticker Symbol	CL
Underlying Instrument	1,000 Barrels of Light Sweet Crude Oil
Approx. Dollar Value*	\$107,000 per contract
Minimum Tick	\$0.01 per barrel
Dollar Value of One Tick	\$10.00
Options	Yes

¹ Also available for trading in Open Outcry and for submission to clearing via CME Clearport

* As of 06/16/2014

Trade Scenario 1: Oil Futures

Strategy: Buy Oil Futures • Specs: 1,000 Barrels

June 6th

Buy 1 July 2014 Crude Oil @ 102.80

Contract Value (\$102.80 X 1,000 Barrels)	\$102,800
Initial Margin	\$3,190

June 11th

Sell 1 July 2014 Crude Oil @ 104.55

Contract Value (\$104.55 X 1000 barrels)	\$104,550
--	------------------

\$102.80	Buy Price
\$104.55	Sell price
\$1.75	Difference

\$1.75	Difference
x 1,000	Barrels
\$1,750	Profit

Trade Profit	Margin Requirement	Percentage Gain
\$1,750	÷ \$3,190 =	54%

E-mini Crude Oil Futures

- Smaller contract size allows traders the opportunity to participate with less market exposure
- Lower margin requirement

Product	E-mini Crude Oil Futures
Trading Venue ¹	CME Globex
Ticker Symbol	QM
Underlying Instrument	500 Barrels of Light Sweet Crude Oil
Approx. Dollar Value*	\$53,000 per contract
Minimum Tick	\$0.025 per barrel
Dollar Value of One Tick	\$12.50
Options	No

¹ Also available for trading in Open Outcry and for submission to clearing via CME Clearport

* As of 06/16/2014

Brent Crude Oil Futures

- Prices based on light sweet North Sea crude oil
- North Sea crude oil serves as an international benchmark grade
- Trading opportunities and margin efficiencies when used with WTI futures

Product	Brent Crude Oil Futures
Trading Venue ¹	CME Globex
Ticker Symbol	BZ
Underlying Instrument	1,000 Barrels of Light Sweet Crude Oil
Approx. Dollar Value*	\$113,000 per contract
Minimum Tick	\$0.01 per barrel
Dollar Value of One Tick	\$10.00
Options	Yes

¹ Also available for trading in Open Outcry and for submission to clearing via CME Clearport

* As of 06/16/2014

WTI Crude Oil



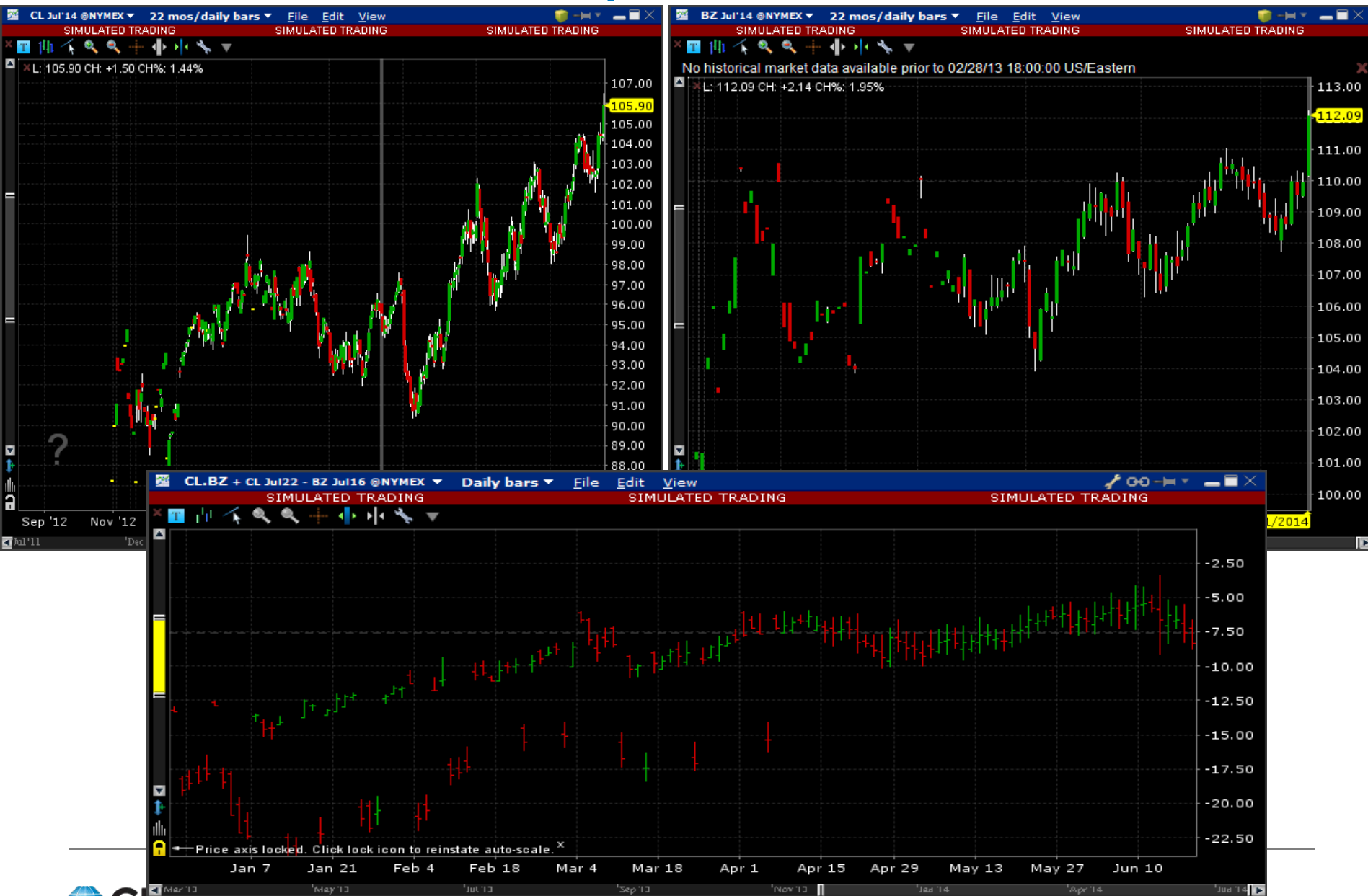
Charts provided by Interactive Brokers

Brent Crude Oil



Charts provided by Interactive Brokers

WTI and Brent Crude Oil Spread



RBOB Gasoline Futures

- U.S .consumed 134 Billion Gallons of Gasoline in 2013
- Ability for traders to participate in the “crack” spread

Product	RBOB
Trading Venue ¹	CME Globex
Ticker Symbol	RB
Underlying Instrument	42,000 gallons
Approx. Dollar Value*	\$128,000
Minimum Tick	\$0.0001 per barrel
Dollar Value of One Tick	\$4.20
Options	Yes

¹ Also available for trading in Open Outcry and for submission to clearing via CME Clearport

* As of 06/10/2014

ULSD Futures

Traders can gain exposure to:

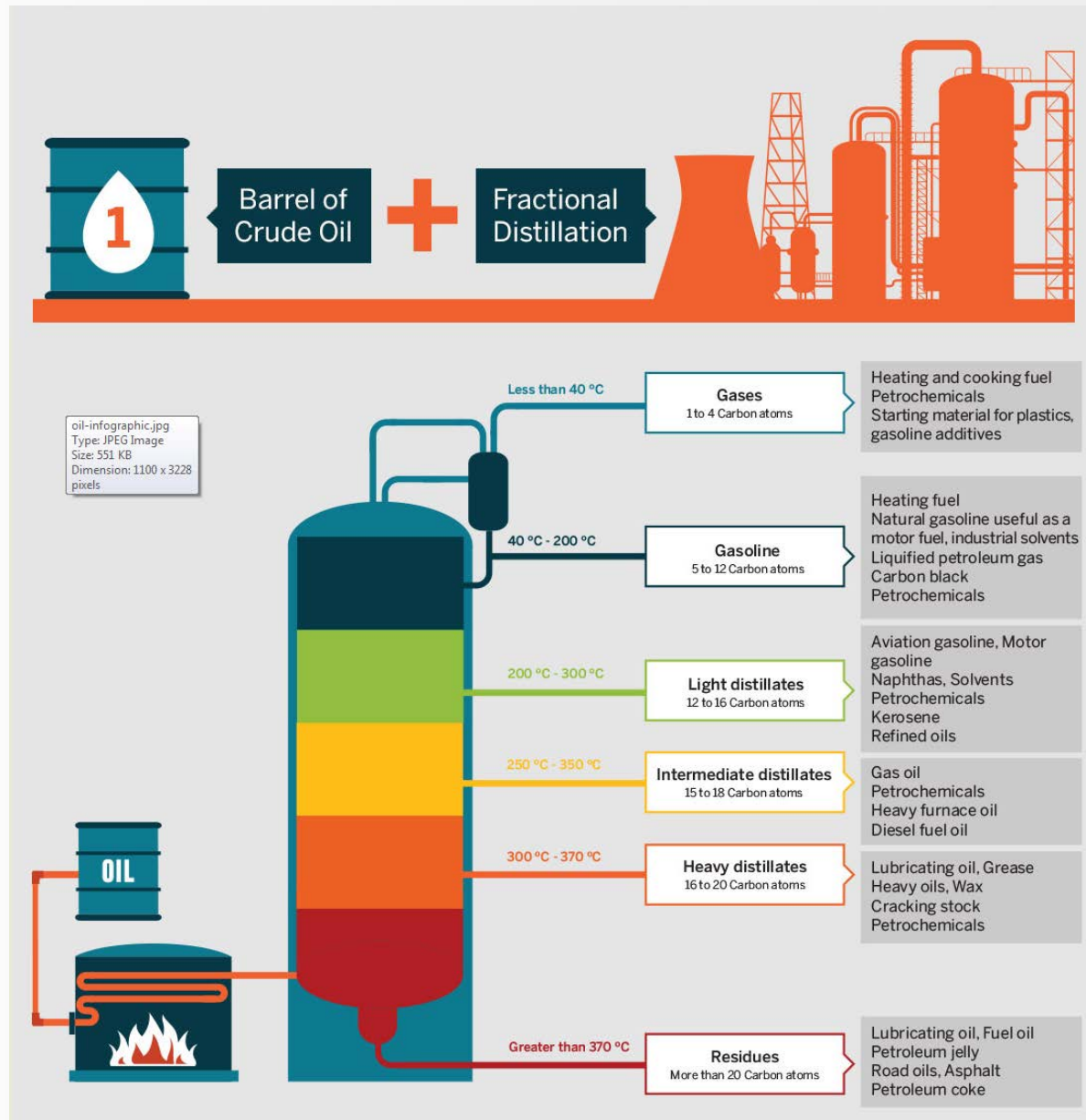
- Jet Fuel
- Heating Oil
- Road Diesel
- Coastal Marine Diesel

Product	ULSD
Trading Venue ¹	CME Globex
Ticker Symbol	HO
Underlying Instrument	42,000 gallons
Approx. Dollar Value*	\$125,000
Minimum Tick	\$0.0001 per barrel
Dollar Value of One Tick	\$4.20
Options	Yes

¹ Also available for trading in Open Outcry and for submission to clearing via CME Clearport

* As of 06/10/2014

Cracking Process



What is a Crack Spread

- Simple 1:1 Crack Spread
 - Most Common
 - Represents the refinery profit margin between the refined products
 - 1 RBOB Gasoline or 1 Diesel : 1 Crude oil
- Diversified 3:2:1 Crack Spread
 - 3 Crude oil : 2 RBOB Gasoline : 1 ULSD
- Diversified 5:3:2 Crack Spread
 - 5 Crude oil : 3 RBOB Gasoline : 2 ULSD



Factors Affecting Crack Spread Value

Issue		Typically Affects	Crack Spread Effect
1	Geopolitical issues – politics, geography, demography, economics and foreign policy	Crude oil supply	Crack weakens initially – higher crude prices relative to refined products. Crack strengthens later, as refineries respond to tighter crude oil supply and reduce product outputs
2	Winter seasonality	Increase in distillate demand	Crack strength
3	Slower economic growth	Decline in refined products demand	Crack weakness
4	Strong sustained product demand	High refinery utilization	Crack strength
5	Environmental regulation on tighter product specifications	Tightening of product supply	Crack strength
6	Expiration of trading month	Cash market realities – long or short products	Cracks values can vary due to closing positions
7	Tax increase after certain date	Increased sales in front of tax deadlines	Crack weakens in front of tax deadline and strengthens post deadline
8	Summer seasonality	Increase in gasoline demand	Crack strength
9	Refinery maintenance	Decline in product production	Crack strength
10	Currency weakness	Crude oil strength	Crack weakness

RBOB Gasoline



Charts provided by Interactive Brokers

ULSD



Charts provided by Interactive Brokers

Price Quotations and Tick Values for “Crack Spread”

Price Quotations

- Usually quoted as Refined product *minus* Crude price
- Crude is quoted in \$'s per barrel
- RBOB and ULSD are quoted in \$'s per *gallon*
- *We need to convert this to a common quotation*

Tick Values

- How do we convert?
- There are 42 gallons in a barrel
- So If we take the per gallon price and multiply it by 42
- we get an equivalent quantity/price for refined products when comparing it to crude pricing

Trader Dashboard

Convert RBOB to Crude equivalent pricing:
 $\$3.0511 \times 42 \text{ (gallons)} = 128.14 / \text{barrel}$
 $128.14 - 105.92 = \$22.22$

Trader Dashboard
 NDX 3787.69 (-0.27%) INDU 16800.50 (-0.26%)

Portfolio Pending (All)

Contract	Last Price	Change	Change %	High	Low	Bid Size	Bid	Ask	Ask Size
CL Jul'14 @NYMEX	105.92	+1.52	1.46%	106.53	104.35	2	105.92	105.93	44
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Note: If the refined product value is higher than the price of the crude oil, the cracking margin is positive

WTI Crude Oil-RBOB Gasoline: "Crack" Spread



Natural Gas Futures

Factors That Can Influence Natural Gas Prices

- Majority of Natural Gas consumed in the US is produced domestically
- Weather temperatures effect pricing
- Increasing use in power consumption
- Natural gas cannot be “shipped” around the world in pipes
 - It is difficult to store/transport unless converted to liquid natural gas
 - Seasonality/Storage Dynamics



Natural Gas Futures

- 3rd largest traded physical contract
- Increased production with “fracking” techniques
- Changing dynamics in terms of demand

Product	ULSD
Trading Venue ¹	CME Globex
Ticker Symbol	NG
Underlying Instrument	10,000 mmBtu
Approx. Dollar Value*	\$47,000
Minimum Tick	\$0.001 mmBtu
Dollar Value of One Tick	\$10.00
Options	Yes

¹ Also available for trading in Open Outcry and for submission to clearing via CME Clearport

* As of 06/10/2014

Natural Gas



Charts provided by Interactive Brokers

Energy Options on Futures

Liquidity and price transparency are one click away

- Create and execute custom options strategies including covered and multi-leg spreads
- Access the deep liquidity of NYMEX energy markets

Light Sweet Crude Oil (WTI) Futures	Futures		Options
Product Symbol	CL		LO
Venue and Hours	CME Globex	Sun – Fri 5:00pm – 4:15pm CT with a 45-minute break each day beginning at 4:15pm CT	
	Open Outcry	Mon – Fri 8:00am – 1:30pm CT	
Contract Size	1,000 barrels		A Light Sweet Crude Oil Put (Call) option traded on the exchange represents an options to assume a short (long) position in the underlying Light Sweet Crude Oil Futures traded on the exchange
Price Quotation	U.S. Dollars and Cents per barrel		U.S. Dollars and Cents per barrel
Min. Fluctuation	\$0.01 per barrel		\$0.01 per barrel

Short-Term Crude Oil (WTI) Options

Flexibility. Expanded trading opportunities. Quick action in the face of world events and weather anomalies

Short-term options on crude oil provide:

- A low cost, short-term option solution that can target specific nearby points
- Daily expiration for up to 5 business days forward following the first cycle week
- Alignment with standard strike prices and the standard front month futures contract
- Financial settlement



PRODUCTS: **CRUDE OIL** ▾ CRUDE OIL (AMER) CRUDE OIL (EUR) BRENT CRUDE (AMER) BRENT CRUDE (EUR)

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LON4 Prices (5 DTE) vs 104.40 (+0.00)

Settles as of 6/11/2014 ↕

Strikes: 15 ▾

Volatility	Delta	Call Settle	Call	Strike	Put	Put Settle	Delta	Straddle	Gamma	Vega	Theta
24.83	100	7.41	7.40	97.0	0.01	0.01	-1	7.41	0.529	0.002	-0.004
23.30	100	6.91	6.90	97.5	0.01	0.01	-1	6.91	0.598	0.002	-0.004
21.76	100	6.41	6.40	98.0	0.01	0.01	-1	6.41	0.681	0.002	-0.004
20.23	100	5.91	5.90	98.5	0.01	0.01	-1	5.91	0.783	0.002	-0.004
20.62	100	5.42	5.40	99.0	0.01	0.02	-1	5.41	1.393	0.004	-0.007
18.95	100	4.92	4.90	99.5	0.01	0.02	-2	4.91	1.632	0.005	-0.007
18.47	100	4.43	4.40	100.0	0.02	0.03	-2	4.42	2.411	0.007	-0.010
16.68	95	3.93	3.90	100.5	0.02	0.03	-3	3.92	2.906	0.007	-0.010
16.45	94	3.45	3.43	101.0	0.04	0.05	-4	3.46	4.491	0.011	-0.016
15.65	93	2.97	2.95	101.5	0.05	0.07	-6	3.00	6.340	0.015	-0.021
14.88	90	2.50	2.47	102.0	0.08	0.10	-9	2.55	8.920	0.020	-0.028
14.30	86	2.05	2.02	102.5	0.12	0.15	-14	2.14	12.399	0.027	-0.037
13.90	80	1.63	1.59	103.0	0.19	0.23	-20	1.79	16.509	0.035	-0.048
13.60	71	1.25	1.21	103.5	0.31	0.35	-29	1.52	20.542	0.042	-0.059
13.39	60	0.92	0.87	104.0	0.47	0.52	-40	1.35	23.502	0.047	-0.066
13.30	48	0.65	0.60	104.5	0.70	0.75	-52	1.31	24.375	0.049	-0.068
13.48	36	0.45	0.40	105.0	1.00	1.05	-64	1.41	22.638	0.046	-0.064
13.65	26	0.30	0.26	105.5	1.36	1.40	-74	1.62	19.338	0.040	-0.055
14.00	18	0.20	0.17	106.0	1.77	1.80	-82	1.93	15.262	0.032	-0.045
14.33	12	0.13	0.10	106.5	2.20	2.23	-88	2.30	11.388	0.025	-0.034
14.96	8	0.09	0.07	107.0	2.66	2.69	-91	2.73	8.271	0.019	-0.026
15.44	5	0.06	0.04	107.5	3.14	0.00	-94	3.18	5.825	0.014	-0.019
15.92	4	0.04	0.03	108.0	3.61	3.64	-95	3.64	4.024	0.010	-0.013
16.73	3	0.03	0.02	108.5	4.10	0.00	-98	4.12	2.910	0.007	-0.010
17.16	2	0.02	0.01	109.0	4.60	4.62	-100	4.61	1.973	0.005	-0.007

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WTI Oil Erases Gains After Crude Stockpiles Advance at Cushing

By Mark Shenk - Wed, 18 Jun 2014 14:42:23 GMT

June 18 (Bloomberg) -- West Texas Intermediate crude erased gains after a government report showed that U.S. supplies rose at Cushing, Oklahoma. Brent traded above \$113 as Islamist militants fought [Read More »](#)

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Treasuries Rise, Emerging Stocks Drop on Fed Policy Speculation

By Shelley Smith and Callie Bost - Wed, 18 Jun 2014 14:38:07 GMT

June 18 (Bloomberg) -- Treasuries rose and emerging-market stocks fell for a sixth day as investors speculated the Federal Reserve will continue to cut monthly bond purchases after its policy meeti [Read More »](#)

Gold Miners Seek Jackpot Hidden Among Nevada Hills: Commodities

By Liezel Hill - Wed, 18 Jun 2014 14:14:01 GMT

June 18 (Bloomberg) -- It's not just gamblers, celebrity chefs and brides-to-be that find Nevada irresistible. About 400 miles north of the Las Vegas strip, the world's two biggest gold producers a [Read More »](#)

U.K. Stocks Climb Before Fed Decision as BP, Shell Rise on Iraq

By Namitha Jagadeesh - Wed, 18 Jun 2014 14:05:58 GMT

June 18 (Bloomberg) -- U.K. stocks rose for a second day, with oil companies gaining, before the Federal Reserve's decision on U.S. interest rate and the pace of asset purchases. [Read More »](#)

U.S. Stocks Are Little Changed Before Federal Reserve Decision

By Inyoung Hwang and Callie Bost - Wed, 18 Jun 2014 13:52:19 GMT

June 18 (Bloomberg) -- U.S. stocks were little changed, following a three-day gain for the Standard & Poor's 500 Index, as investors awaited the latest monetary-policy decision from the Federal [Read More »](#)

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Upcoming Events					
Country	Release Date/Time	Headline	Actual	Consensus	Importance
	Jun 18 04:30 AM	BoE MPC Minutes			◆
	Jun 18 07:00 AM	MBA Purchase Applications	-9.20		◆
	Jun 18 08:30 AM	Current Account	-	-99.80	◆
	Jun 18 10:30 AM	EIA Petroleum Status Report	-0.60		◆
	Jun 18 02:00 PM	FOMC Meeting Announcement		0.00	◆
	Jun 18 02:00 PM	FOMC Forecasts			◆
	Jun 18 02:30 PM	Chair Press Conference			◆

Thank you

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