# QuikStrike®
# Analytics Guide

GET GREATER INSIGHTS FROM OUR SUITE OF POWERFUL ANALYTICS, SO THAT YOU CAN IDENTIFY TRENDS AND TRADING OPPORTUNITIES FASTER AND MORE DECISIVELY.

Access our full suite of QuikStrike tools at **cmegroup.com/quikstrike**
Learn more about QuikStrike at **quikstrike.net**

CME Group

# What is QuikStrike?

CME Group partners with QuikStrike to provide customers with free, interactive option pricing and analysis tools. Available across all CME Group benchmark products, QuikStrike gives you visibility into current and historical volatility (by strike), concise volume and open interest information, delta sheets, options pricing analysis, spread analysis & risk graphs. Using QuikStrike is a seamless experience as it runs from any PC, Mac, tablet or smartphone browser.

# QuikStrike Essentials

The base version of QuikStrike's benchmark pricing and analysis platform provides access to current and historical volatility (by strike), volume and open interest information, delta sheets, pricing analysis, spread analysis, and risk graphs.

*Figure 1 - Futures Information*

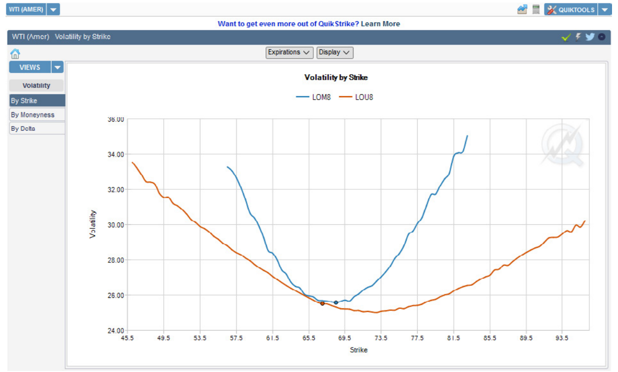


*Figure 2 - Vol Curve and Skew by Strike*

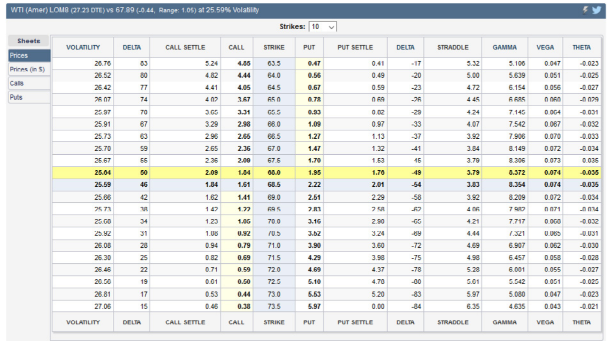


*Figure 3 - Pricing Sheet*

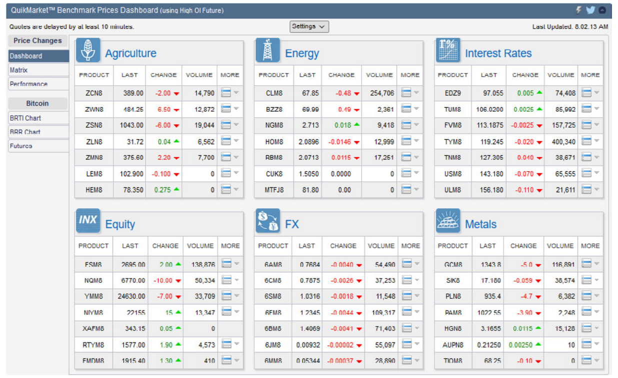
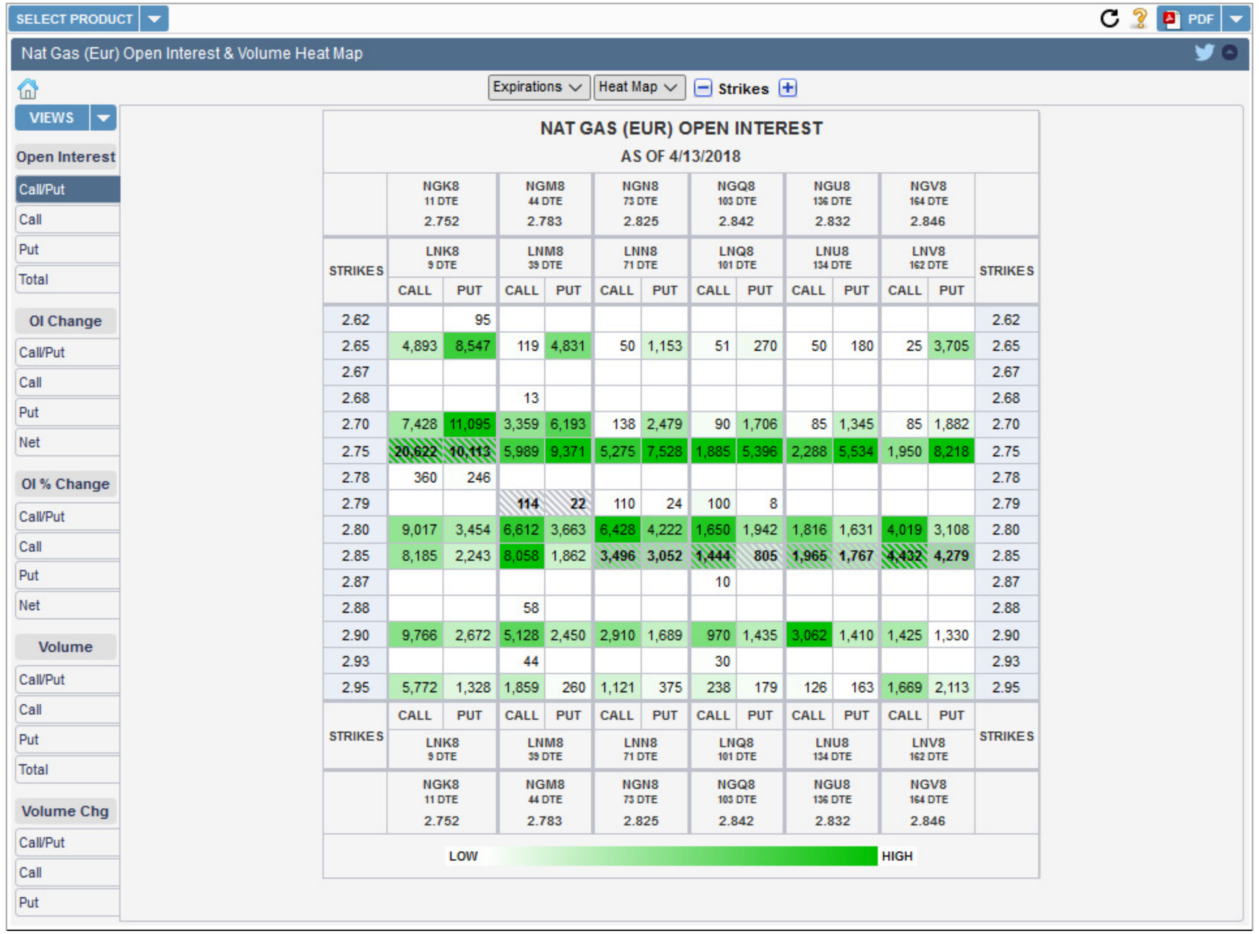


*Figure 4 - Benchmark Dashboard*

# Open Interest Heatmap

This tool gives you a concise view of how put/call option OI is distributed by strike and expiry. Explore the concertation of put/call positions by total open interest, change in open interest, percent change in open interest, total volume or change in volume.

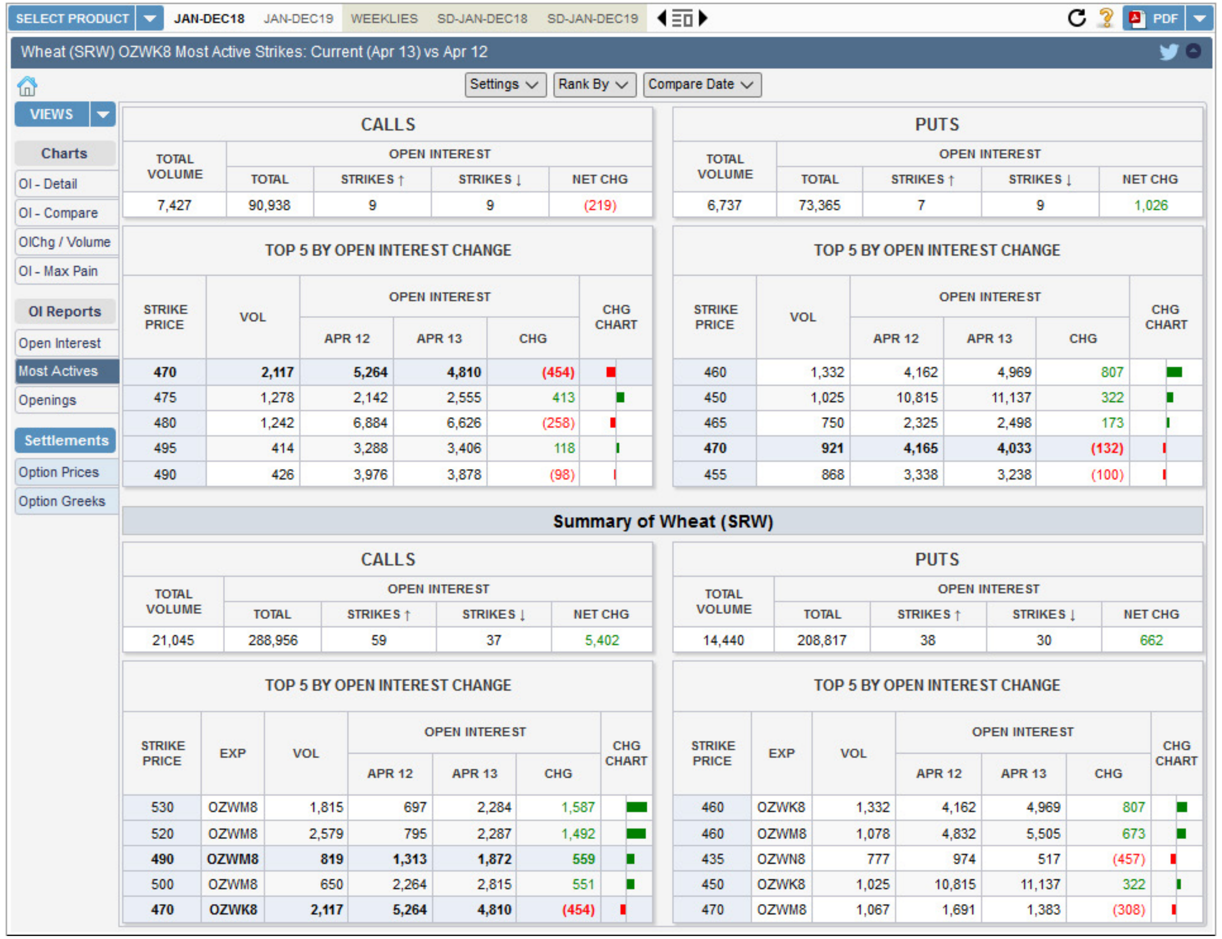



| STRIKES | NGK8 11 DTE 2.752 | | NGM8 44 DTE 2.783 | | NGN8 73 DTE 2.825 | | NGQ8 103 DTE 2.842 | | NGU8 136 DTE 2.832 | | NGV8 164 DTE 2.846 | | STRIKES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LNK8 9 DTE | | LNM8 39 DTE | | LNN8 71 DTE | | LNQ8 101 DTE | | LNU8 134 DTE | | LNV8 162 DTE | | |
| | CALL | PUT | CALL | PUT | CALL | PUT | CALL | PUT | CALL | PUT | CALL | PUT | |
| 2.62 | | 95 | | | | | | | | | | | 2.62 |
| 2.65 | 4,893 | 8,547 | 119 | 4,831 | 50 | 1,153 | 51 | 270 | 50 | 180 | 25 | 3,705 | 2.65 |
| 2.67 | | | | | | | | | | | | | 2.67 |
| 2.68 | | | 13 | | | | | | | | | | 2.68 |
| 2.70 | 7,428 | 11,095 | 3,359 | 6,193 | 138 | 2,479 | 90 | 1,706 | 85 | 1,345 | 85 | 1,882 | 2.70 |
| 2.75 | 20,622 | 10,113 | 5,989 | 9,371 | 5,275 | 7,528 | 1,885 | 5,396 | 2,288 | 5,534 | 1,950 | 8,218 | 2.75 |
| 2.78 | 360 | 246 | | | | | | | | | | | 2.78 |
| 2.79 | | | 114 | 22 | 110 | 24 | 100 | 8 | | | | | 2.79 |
| 2.80 | 9,017 | 3,454 | 6,612 | 3,663 | 6,428 | 4,222 | 1,650 | 1,942 | 1,816 | 1,631 | 4,019 | 3,108 | 2.80 |
| 2.85 | 8,185 | 2,243 | 8,058 | 1,862 | 3,496 | 3,052 | 1,444 | 805 | 1,965 | 1,767 | 4,432 | 4,279 | 2.85 |
| 2.87 | | | | | | | 10 | | | | | | 2.87 |
| 2.88 | | | 58 | | | | | | | | | | 2.88 |
| 2.90 | 9,766 | 2,672 | 5,128 | 2,450 | 2,910 | 1,689 | 970 | 1,435 | 3,062 | 1,410 | 1,425 | 1,330 | 2.90 |
| 2.93 | | | 44 | | | | 30 | | | | | | 2.93 |
| 2.95 | 5,772 | 1,328 | 1,859 | 260 | 1,121 | 375 | 238 | 179 | 126 | 163 | 1,669 | 2,113 | 2.95 |
| | CALL | PUT | CALL | PUT | CALL | PUT | CALL | PUT | CALL | PUT | CALL | PUT | |
| STRIKES | LNK8 9 DTE | | LNM8 39 DTE | | LNN8 71 DTE | | LNQ8 101 DTE | | LNU8 134 DTE | | LNV8 162 DTE | | STRIKES |
| | NGK8 11 DTE 2.752 | | NGM8 44 DTE 2.783 | | NGN8 73 DTE 2.825 | | NGQ8 103 DTE 2.842 | | NGU8 136 DTE 2.832 | | NGV8 164 DTE 2.846 | | |

Volume & Open Interest Tools

# Most Active Strikes

Understand active strikes by exploring volume, open interest and open interest change activity of the top 20 strikes by calls, puts and combined calls and puts.




CALLS

| TOTAL VOLUME | OPEN INTEREST TOTAL | STRIKES ↑ | STRIKES ↓ | NET CHG |
|---|---|---|---|---|
| 7,427 | 90,938 | 9 | 9 | (219) |

PUTS

| TOTAL VOLUME | OPEN INTEREST TOTAL | STRIKES ↑ | STRIKES ↓ | NET CHG |
|---|---|---|---|---|
| 6,737 | 73,365 | 7 | 9 | 1,026 |

TOP 5 BY OPEN INTEREST CHANGE (CALLS)

| STRIKE PRICE | VOL | OPEN INTEREST APR 12 | APR 13 | CHG | CHG CHART |
|---|---|---|---|---|---|
| 470 | 2,117 | 5,264 | 4,810 | (454) | |
| 475 | 1,278 | 2,142 | 2,555 | 413 | |
| 480 | 1,242 | 6,884 | 6,626 | (258) | |
| 495 | 414 | 3,288 | 3,406 | 118 | |
| 490 | 426 | 3,976 | 3,878 | (98) | |

TOP 5 BY OPEN INTEREST CHANGE (PUTS)

| STRIKE PRICE | VOL | OPEN INTEREST APR 12 | APR 13 | CHG | CHG CHART |
|---|---|---|---|---|---|
| 460 | 1,332 | 4,162 | 4,969 | 807 | |
| 450 | 1,025 | 10,815 | 11,137 | 322 | |
| 465 | 750 | 2,325 | 2,498 | 173 | |
| 470 | 921 | 4,165 | 4,033 | (132) | |
| 455 | 868 | 3,338 | 3,238 | (100) | |

Summary of Wheat (SRW)

CALLS

| TOTAL VOLUME | OPEN INTEREST TOTAL | STRIKES ↑ | STRIKES ↓ | NET CHG |
|---|---|---|---|---|
| 21,045 | 288,956 | 59 | 37 | 5,402 |

PUTS

| TOTAL VOLUME | OPEN INTEREST TOTAL | STRIKES ↑ | STRIKES ↓ | NET CHG |
|---|---|---|---|---|
| 14,440 | 208,817 | 38 | 30 | 662 |

TOP 5 BY OPEN INTEREST CHANGE (CALLS)

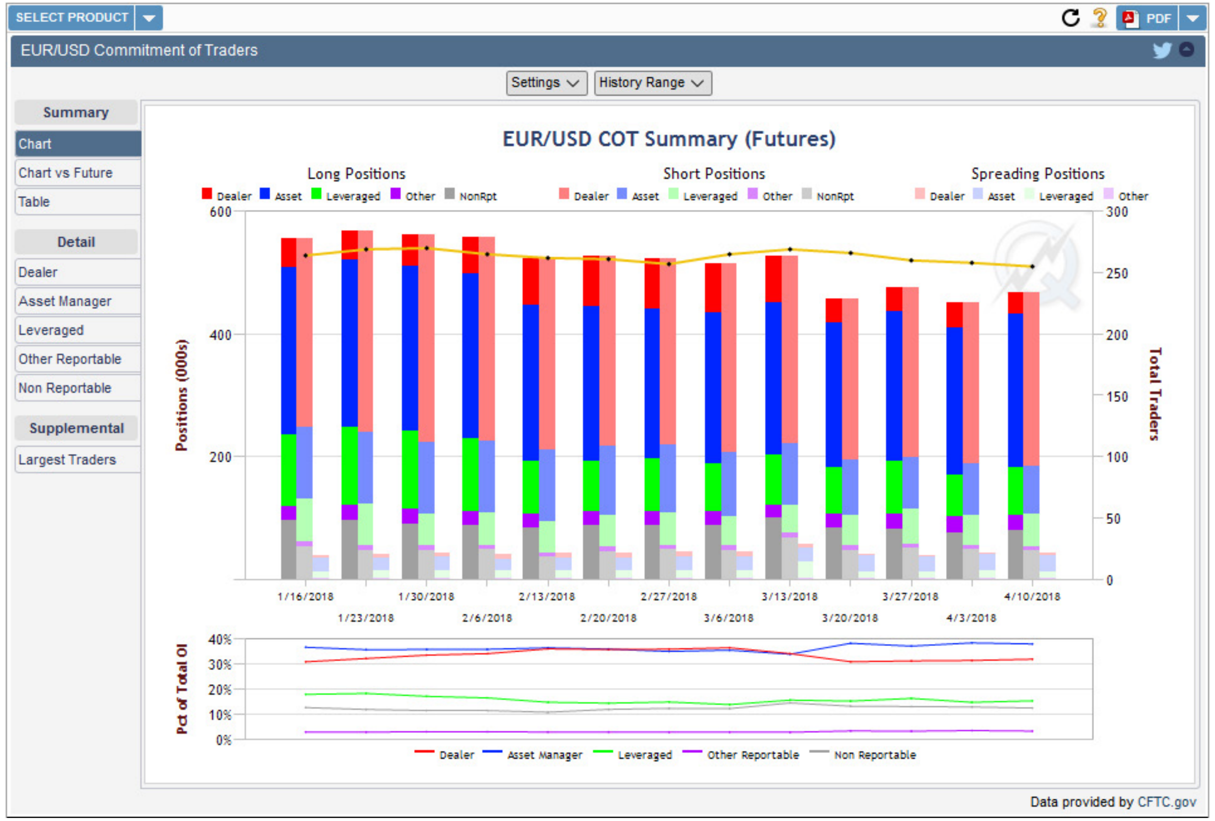
| STRIKE PRICE | EXP | VOL | OPEN INTEREST APR 12 | APR 13 | CHG | CHG CHART |
|---|---|---|---|---|---|---|
| 530 | OZWM8 | 1,815 | 697 | 2,284 | 1,587 | |
| 520 | OZWM8 | 2,579 | 795 | 2,287 | 1,492 | |
| 490 | OZWM8 | 819 | 1,313 | 1,872 | 559 | |
| 500 | OZWM8 | 650 | 2,264 | 2,815 | 551 | |
| 470 | OZWK8 | 2,117 | 5,264 | 4,810 | (454) | |

TOP 5 BY OPEN INTEREST CHANGE (PUTS)

| STRIKE PRICE | EXP | VOL | OPEN INTEREST APR 12 | APR 13 | CHG | CHG CHART |
|---|---|---|---|---|---|---|
| 460 | OZWK8 | 1,332 | 4,162 | 4,969 | 807 | |
| 460 | OZWM8 | 1,078 | 4,832 | 5,505 | 673 | |
| 435 | OZWN8 | 777 | 974 | 517 | (457) | |
| 450 | OZWK8 | 1,025 | 10,815 | 11,137 | 322 | |
| 470 | OZWM8 | 1,067 | 1,691 | 1,383 | (308) | |

# Commitment of Traders

Large Open Interest Holders, as reported by the CFTC's Commitment of Traders report, is a key metric for tracking breadth of participation and is proportional to overall liquidity. Use this highly configurable tool to analyze market open interest by client segment and position type, and how each is trending over time.






# This Week in Options

View intraday and weekly statistics for options including volatility, risk reversal prices, open interest, put/call ratios and more.

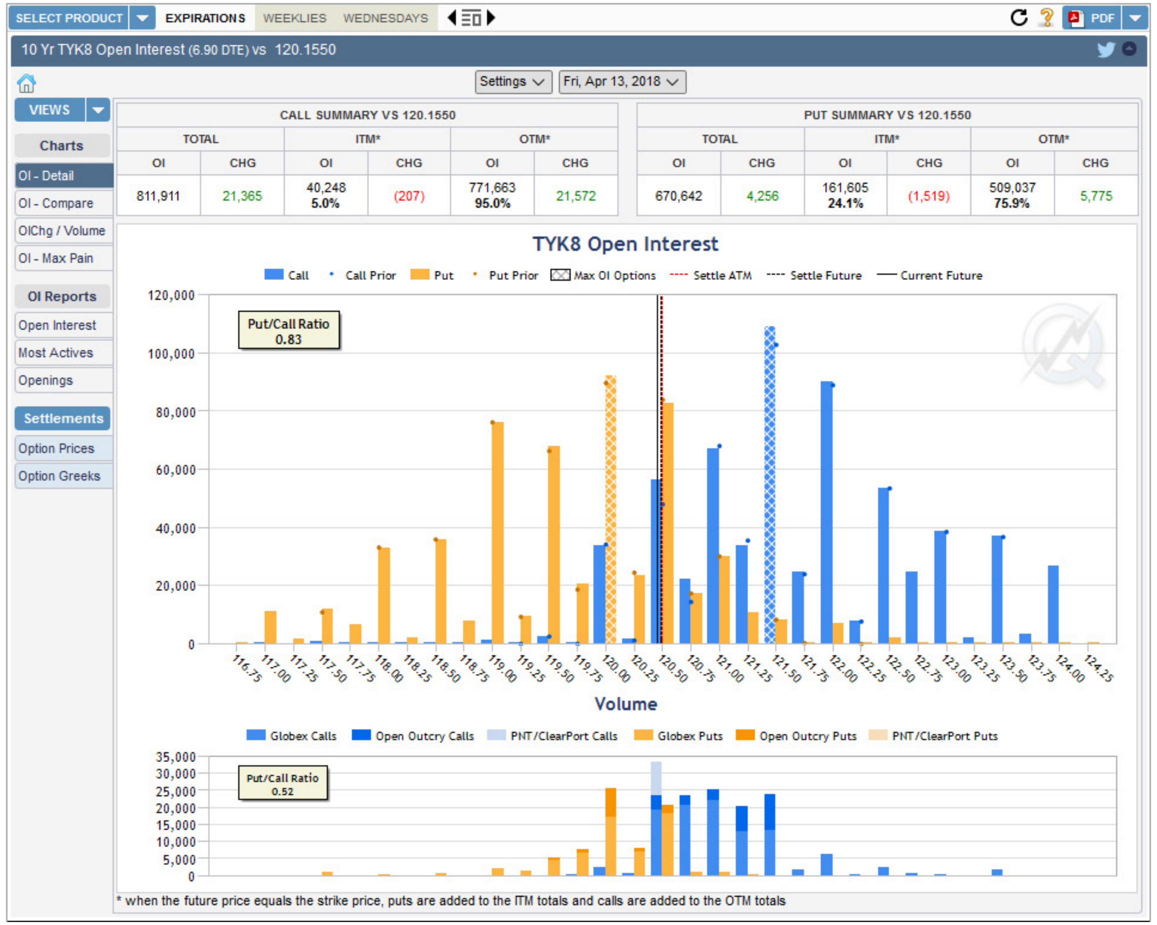
This Week in WTI (Amer) Options for Mon, Apr 9 thru Fri, Apr 13

| EXPIRATION | | ATM/FUTURE | | VOLATILITY | | | OPEN INTEREST | | | VOLUME | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SYMBOL | DTE | ATM STRIKE | FUTURE PRICE | ATM | 25D RR (C-P) | 25D QUIKSKEW™ | TOTAL | P/C RATIO | MOST ACTIVE | TOTAL | P/C RATIO | MOST ACTIVE |
| WTI (Amer) Totals** : | | | | | | | 3,334,370 268,115 ▲ 8.7% | 0.82 0.05 ▲ | | 1,138,631 | 0.88 | |
| LOK8 | 3.80 4/17/2018 | 67.5 5.5 ▲ | 67.39 5.33 ▲ 8.59% | 23.82 1.25 ▲ | 1.28 3.66 ▲ | 1.0P • 6.3C | 566,074 29,114 ▲ 5.4% | 1.37 0.22 ▲ | 65.0 P 11,062 ▲ 149.6% | 451,302 41.4% | 1.02 | 65.0 P 32,352 |
| LOM8 | 33.80 5/17/2018 | 67.5 5.5 ▲ | 67.33 5.23 ▲ 8.42% | 24.91 1.41 ▲ | 0.82 3.01 ▲ | 1.4P • 4.7C | 885,944 91,324 ▲ 11.5% | 0.90 0.07 ▲ | 60.0 P 14,656 ▲ 43.8% | 341,167 31.3% | 0.82 | 60.0 P 32,512 |
| LON8 | 62.80 6/15/2018 | 67.0 5.0 ▲ | 67.00 5.04 ▲ 8.13% | 24.91 1.22 ▲ | -0.22 1.82 ▲ | 3.0P • 2.1C | 207,458 28,201 ▲ 15.7% | 0.66 0.00 ▼ | 72.0 C 4,413 ▲ 287.3% | 97,085 8.9% | 0.85 | 75.0 C 8,110 |
| LOQ8 | 94.80 7/17/2018 | 66.5 5.0 ▲ | 66.45 4.81 ▲ 7.80% | 25.35 0.99 ▲ | -0.89 1.59 ▲ | 4.4P • 0.9C | 111,422 25,972 ▲ 30.4% | 0.94 -0.15 ▼ | 94.0 C 1,282 ▲ 295.4% | 52,243 4.8% | 0.67 | 75.0 C 2,870 |
| LOU8 | 124.80 8/16/2018 | 66.0 4.5 ▲ | 65.85 4.59 ▲ 7.49% | 25.40 0.94 ▲ | -1.68 1.24 ▲ | 5.9P • 0.7c | 284,641 25,608 ▲ 9.9% | 0.99 0.02 ▲ | 62.0 P 7,166 ▲ 331.8% | 58,810 5.4% | 1.48 | 55.0 P 7,490 |
| LOV8 | 156.80 9/17/2018 | 65.0 4.0 ▲ | 65.23 4.36 ▲ 7.16% | 25.36 0.95 ▲ | -1.97 1.28 ▲ | 6.8P • 1.0c | 61,955 16,799 ▲ 37.2% | 0.70 0.14 ▲ | 55.0 P 3,208 ▲ 232.5% | 21,902 2.0% | 1.09 | 50.0 P 3,681 |
| LOX8 | 186.80 10/17/2018 | 64.5 4.5 ▲ | 64.67 4.17 ▲ 6.89% | 25.57 0.73 ▲ | -2.34 1.25 ▲ | 7.6P • 1.6c | 24,721 3,537 ▲ 16.7% | 0.49 0.01 ▲ | 54.0 P 502 ▲ 25100.0% | 4,793 0.4% | 0.45 | 64.5 C 520 |
| LOZ8 | 214.84 11/14/2018 | 64.0 4.0 ▲ | 64.13 3.99 ▲ 6.63% | 25.84 0.92 ▲ | -2.75 1.15 ▲ | 8.4P • 2.3c | 627,299 16,578 ▲ 2.7% | 0.53 0.01 ▲ | 60.0 P 3,377 ▲ 58.6% | 62,649 5.7% | 0.42 | 100.0 C 10,036 |
| Totals: | | | | | | | 2,769,514 237,133 ▲ 9.4% | 0.86 0.06 ▲ | | 1,089,951 | 0.89 | |
| SYMBOL | DTE | ATM STRIKE | FUTURE PRICE | ATM | 25D RR (C-P) | 25D QUIKSKEW™ | TOTAL | P/C RATIO | MOST ACTIVE | TOTAL | P/C RATIO | MOST ACTIVE |
| EXPIRATION | | ATM/FUTURE | | VOLATILITY | | | OPEN INTEREST | | | VOLUME | | |

* Today's volume represents electronic market (Globex and Block trades)

## Open Interest Profile

Analyze open interest and open interest change patterns for all expirations within the selected product.





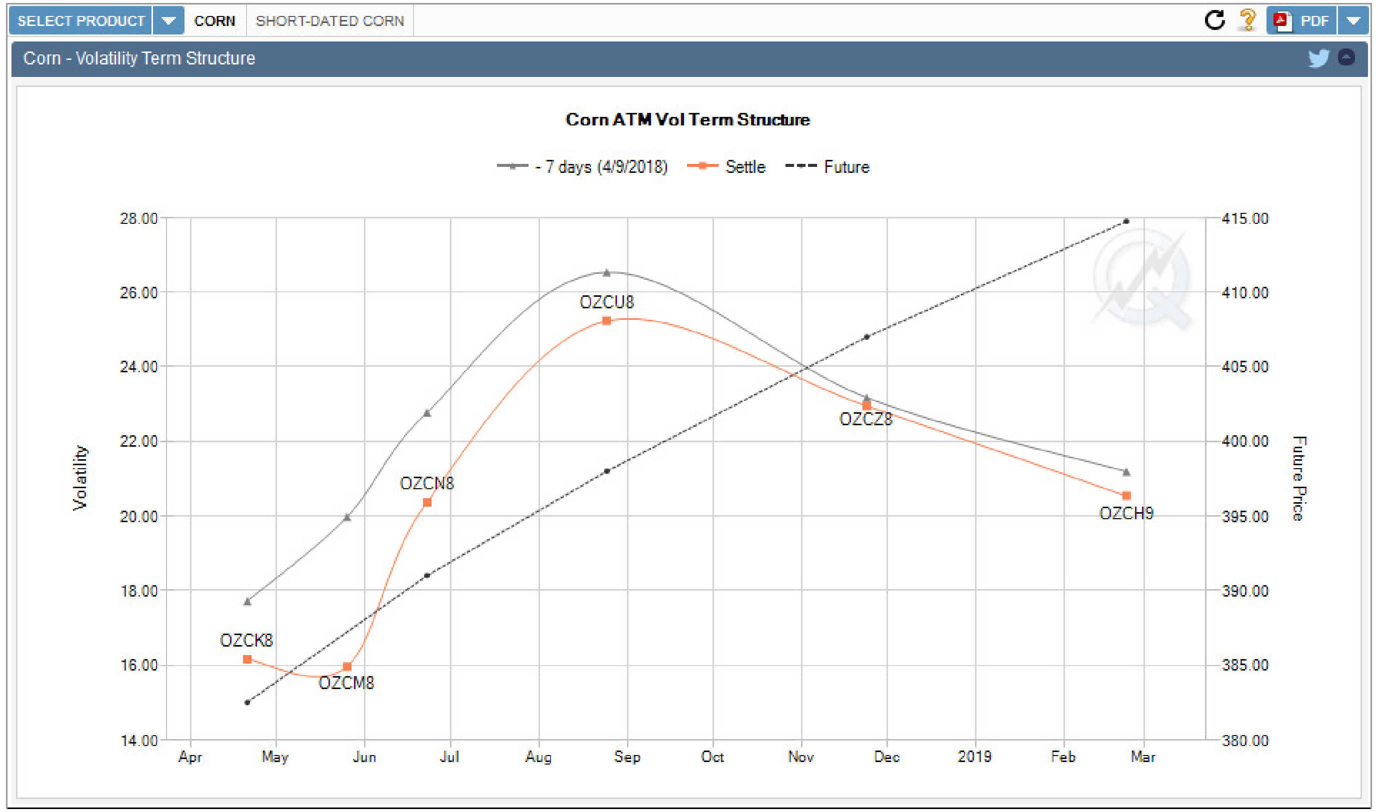



## Weekly Options

Track CME Group Weekly options complex with this daily snapshot of volume, open interest and open interest change.

## Volatility Term Structure

View charts of current implied volatilities across expirations, and compare this to one week prior.





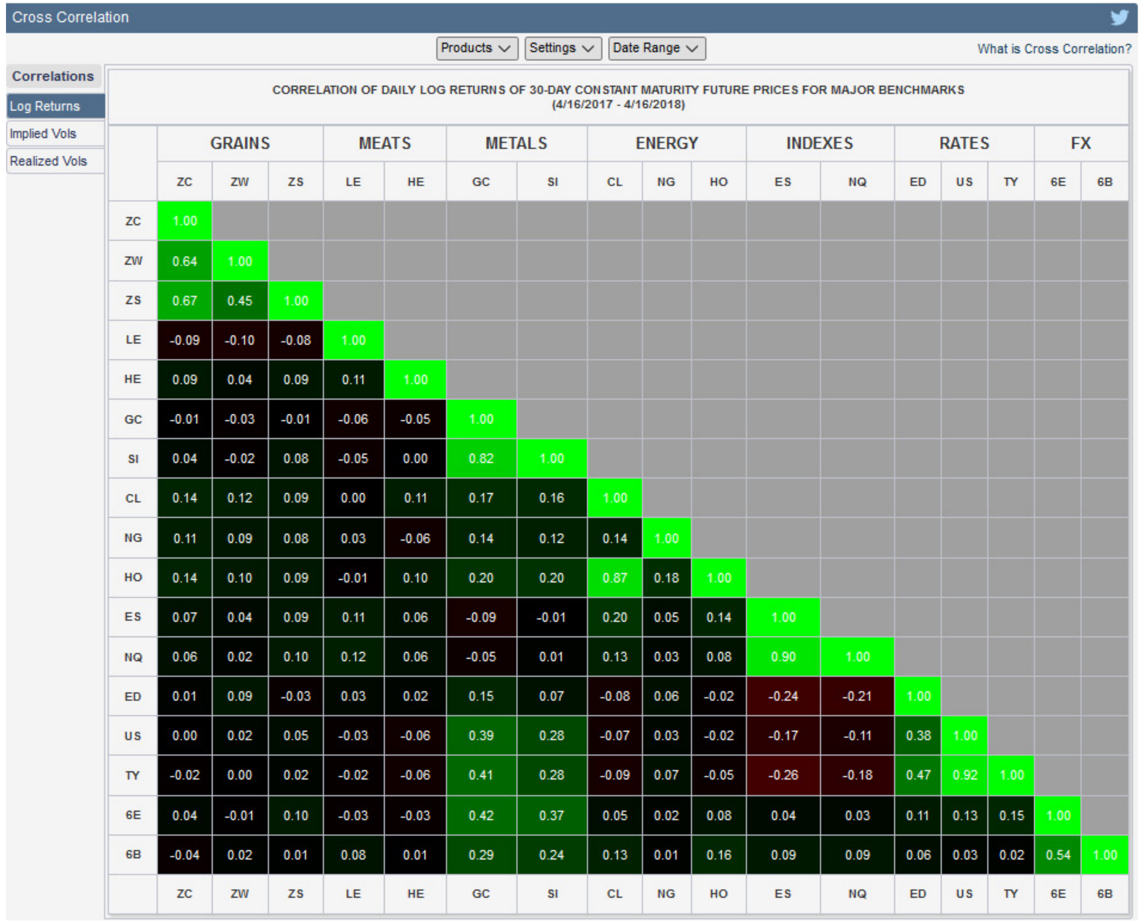



## Vol2Vol Expected Range

This comprehensive visual representation of volatility indicates the number of standard deviations a given strike is from the ATM futures price, while providing users with the flexibility to chart open interest, change in open interest, yesterday's volume or intra-day volume.

# Cross-Asset Correlation

Discover a simple, yet powerful, way to visualize pairwise correlations across CME Group products and identify the degree to which two products similarly vary. Visualizations include the correlation of daily log returns of a 30-day constant maturity future prices, the correlation of 30-day constant maturity ATM implied volatilities and the correlation of 20-day realized volatilities of 30-day constant maturity futures prices.



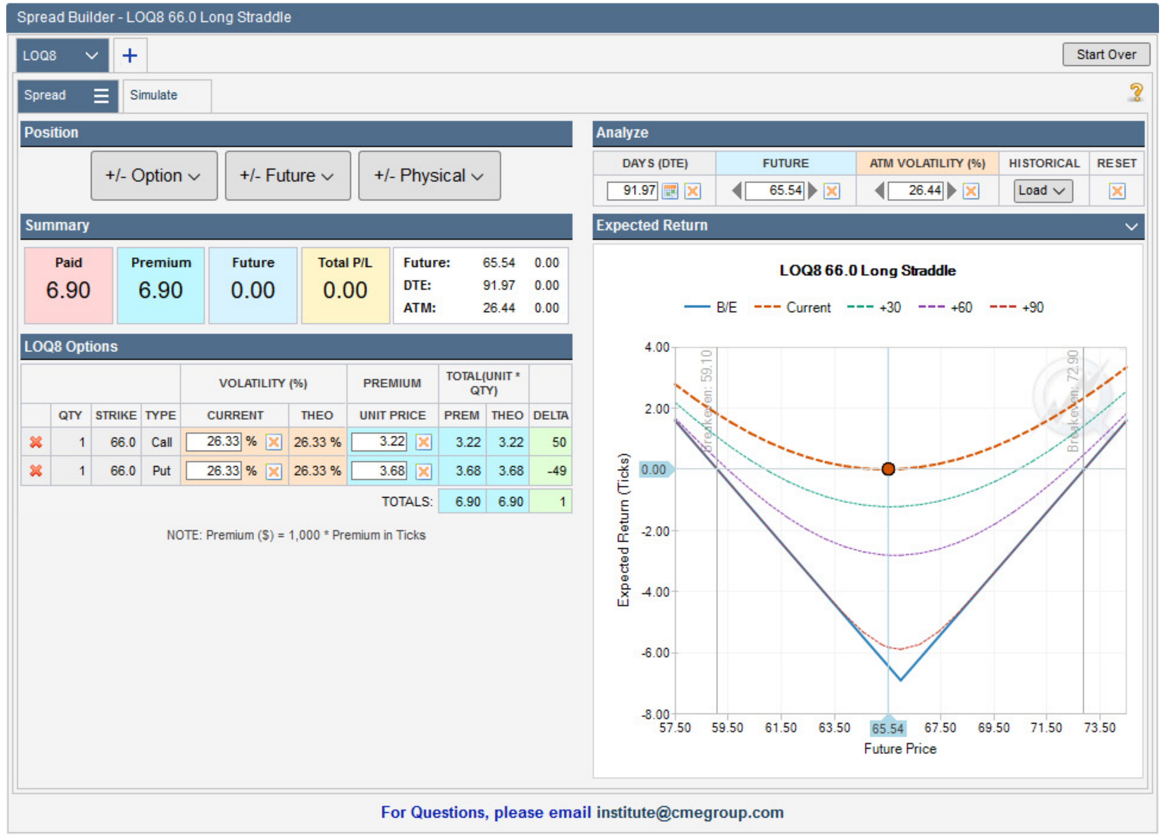

| | GRAINS | | | MEATS | | METALS | | ENERGY | | | INDEXES | | RATES | | | FX | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ZC | ZW | ZS | LE | HE | GC | SI | CL | NG | HO | ES | NQ | ED | US | TY | 6E | 6B |
| ZC | 1.00 | | | | | | | | | | | | | | | | |
| ZW | 0.64 | 1.00 | | | | | | | | | | | | | | | |
| ZS | 0.67 | 0.45 | 1.00 | | | | | | | | | | | | | | |
| LE | -0.09 | -0.10 | -0.08 | 1.00 | | | | | | | | | | | | | |
| HE | 0.09 | 0.04 | 0.09 | 0.11 | 1.00 | | | | | | | | | | | | |
| GC | -0.01 | -0.03 | -0.01 | -0.06 | -0.05 | 1.00 | | | | | | | | | | | |
| SI | 0.04 | -0.02 | 0.08 | -0.05 | 0.00 | 0.82 | 1.00 | | | | | | | | | | |
| CL | 0.14 | 0.12 | 0.09 | 0.00 | 0.11 | 0.17 | 0.16 | 1.00 | | | | | | | | | |
| NG | 0.11 | 0.09 | 0.08 | 0.03 | -0.06 | 0.14 | 0.12 | 0.14 | 1.00 | | | | | | | | |
| HO | 0.14 | 0.10 | 0.09 | -0.01 | 0.10 | 0.20 | 0.20 | 0.87 | 0.18 | 1.00 | | | | | | | |
| ES | 0.07 | 0.04 | 0.09 | 0.11 | 0.06 | -0.09 | -0.01 | 0.20 | 0.05 | 0.14 | 1.00 | | | | | | |
| NQ | 0.06 | 0.02 | 0.10 | 0.12 | 0.06 | -0.05 | 0.01 | 0.13 | 0.03 | 0.08 | 0.90 | 1.00 | | | | | |
| ED | 0.01 | 0.09 | -0.03 | 0.03 | 0.02 | 0.15 | 0.07 | -0.08 | 0.06 | -0.02 | -0.24 | -0.21 | 1.00 | | | | |
| US | 0.00 | 0.02 | 0.05 | -0.03 | -0.06 | 0.39 | 0.28 | -0.07 | 0.03 | -0.02 | -0.17 | -0.11 | 0.38 | 1.00 | | | |
| TY | -0.02 | 0.00 | 0.02 | -0.02 | -0.06 | 0.41 | 0.28 | -0.09 | 0.07 | -0.05 | -0.26 | -0.18 | 0.47 | 0.92 | 1.00 | | |
| 6E | 0.04 | -0.01 | 0.10 | -0.03 | -0.03 | 0.42 | 0.37 | 0.05 | 0.02 | 0.08 | 0.04 | 0.03 | 0.11 | 0.13 | 0.15 | 1.00 | |
| 6B | -0.04 | 0.02 | 0.01 | 0.08 | 0.01 | 0.29 | 0.24 | 0.13 | 0.01 | 0.16 | 0.09 | 0.09 | 0.06 | 0.03 | 0.02 | 0.54 | 1.00 |
| | ZC | ZW | ZS | LE | HE | GC | SI | CL | NG | HO | ES | NQ | ED | US | TY | 6E | 6B |



Volatility & Strategy Tools

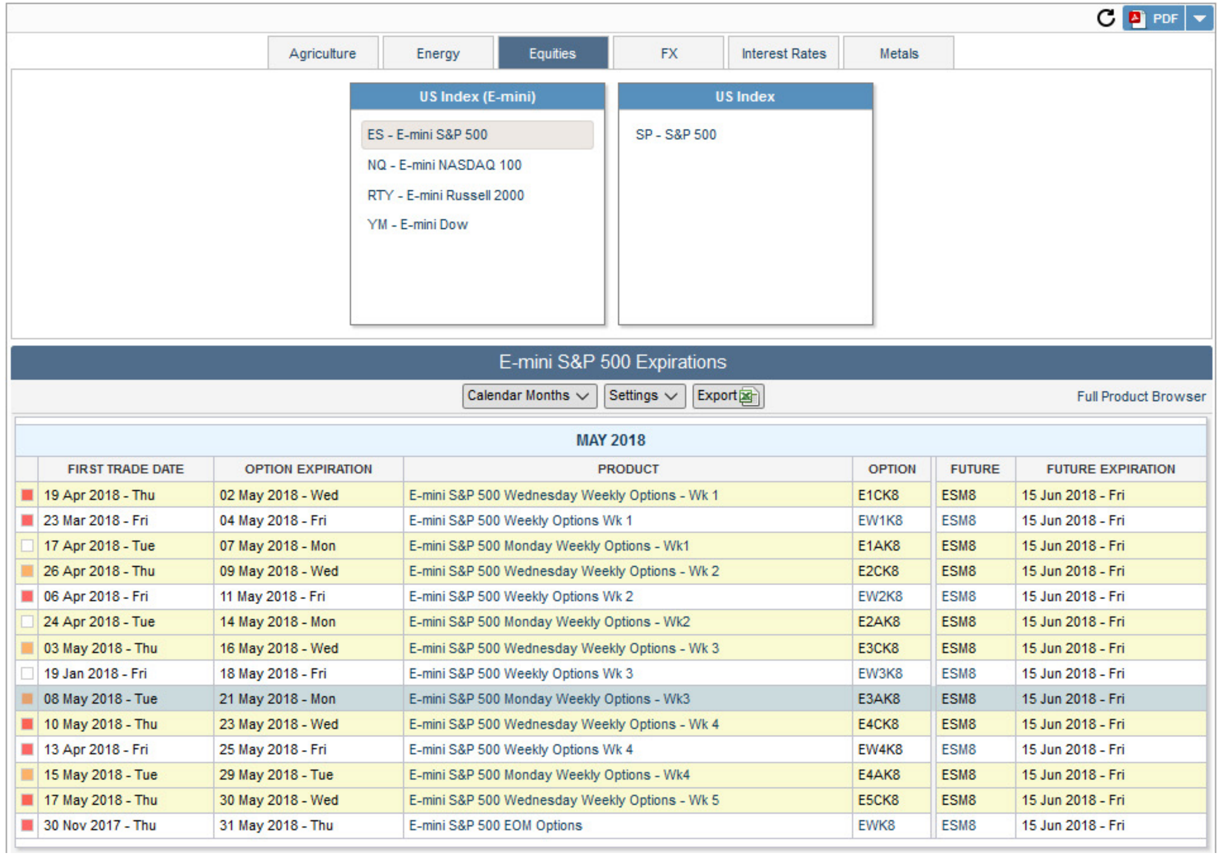
# Strategy Simulator

Allows market participants an environment to learn how an option contract, futures contract, or physical position will perform based on different hypothetical underlying price scenarios. Users can compare these custom-built strategies against each other to see how the positions performed in relation to each other. Additionally, users can apply "what-if" scenarios based on time decay or volatility.



# Options Expiration Calendar

View and download over a year's worth of listing and expiration dates across CME Group's benchmark options, including yet to be listed weekly expiries. Integrated U.S. economic event information notifies of potential high (red boxes) or medium (orange boxes) impact events for a given day, while clicking said boxes will pop-up a full list of the day's events.




MAY 2018

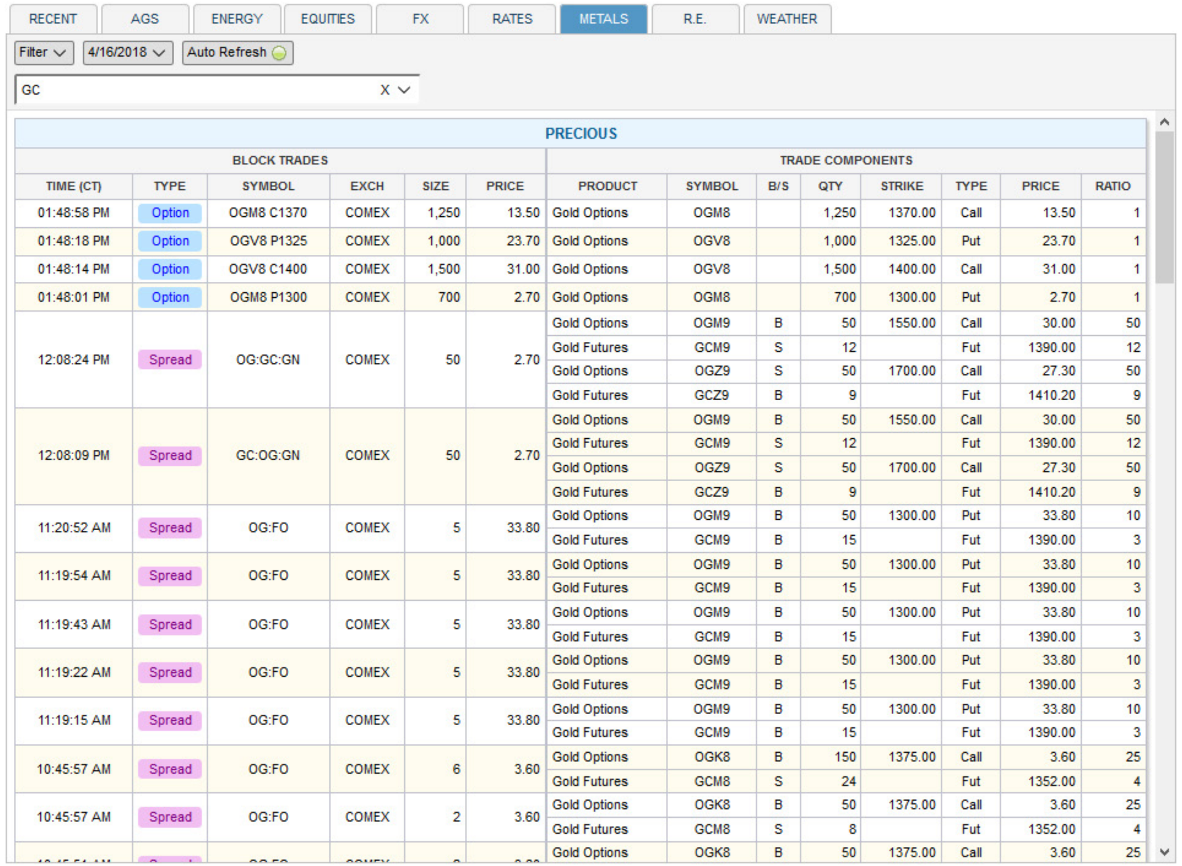
| FIRST TRADE DATE | OPTION EXPIRATION | PRODUCT | OPTION | FUTURE | FUTURE EXPIRATION |
|---|---|---|---|---|---|
| 19 Apr 2018 - Thu | 02 May 2018 - Wed | E-mini S&P 500 Wednesday Weekly Options - Wk 1 | E1CK8 | ESM8 | 15 Jun 2018 - Fri |
| 23 Mar 2018 - Fri | 04 May 2018 - Fri | E-mini S&P 500 Weekly Options Wk 1 | EW1K8 | ESM8 | 15 Jun 2018 - Fri |
| 17 Apr 2018 - Tue | 07 May 2018 - Mon | E-mini S&P 500 Monday Weekly Options - Wk1 | E1AK8 | ESM8 | 15 Jun 2018 - Fri |
| 26 Apr 2018 - Thu | 09 May 2018 - Wed | E-mini S&P 500 Wednesday Weekly Options - Wk 2 | E2CK8 | ESM8 | 15 Jun 2018 - Fri |
| 06 Apr 2018 - Fri | 11 May 2018 - Fri | E-mini S&P 500 Weekly Options Wk 2 | EW2K8 | ESM8 | 15 Jun 2018 - Fri |
| 24 Apr 2018 - Tue | 14 May 2018 - Mon | E-mini S&P 500 Monday Weekly Options - Wk2 | E2AK8 | ESM8 | 15 Jun 2018 - Fri |
| 03 May 2018 - Thu | 16 May 2018 - Wed | E-mini S&P 500 Wednesday Weekly Options - Wk 3 | E3CK8 | ESM8 | 15 Jun 2018 - Fri |
| 19 Jan 2018 - Fri | 18 May 2018 - Fri | E-mini S&P 500 Weekly Options Wk 3 | EW3K8 | ESM8 | 15 Jun 2018 - Fri |
| 08 May 2018 - Tue | 21 May 2018 - Mon | E-mini S&P 500 Monday Weekly Options - Wk3 | E3AK8 | ESM8 | 15 Jun 2018 - Fri |
| 10 May 2018 - Thu | 23 May 2018 - Wed | E-mini S&P 500 Wednesday Weekly Options - Wk 4 | E4CK8 | ESM8 | 15 Jun 2018 - Fri |
| 13 Apr 2018 - Fri | 25 May 2018 - Fri | E-mini S&P 500 Weekly Options Wk 4 | EW4K8 | ESM8 | 15 Jun 2018 - Fri |
| 15 May 2018 - Tue | 29 May 2018 - Tue | E-mini S&P 500 Monday Weekly Options - Wk4 | E4AK8 | ESM8 | 15 Jun 2018 - Fri |
| 17 May 2018 - Thu | 30 May 2018 - Wed | E-mini S&P 500 Wednesday Weekly Options - Wk 5 | E5CK8 | ESM8 | 15 Jun 2018 - Fri |
| 30 Nov 2017 - Thu | 31 May 2018 - Thu | E-mini S&P 500 EOM Options | EWK8 | ESM8 | 15 Jun 2018 - Fri |





# Block Trade Browser

View intra-day and one-week historical block trade data including type, quantity, price and more.

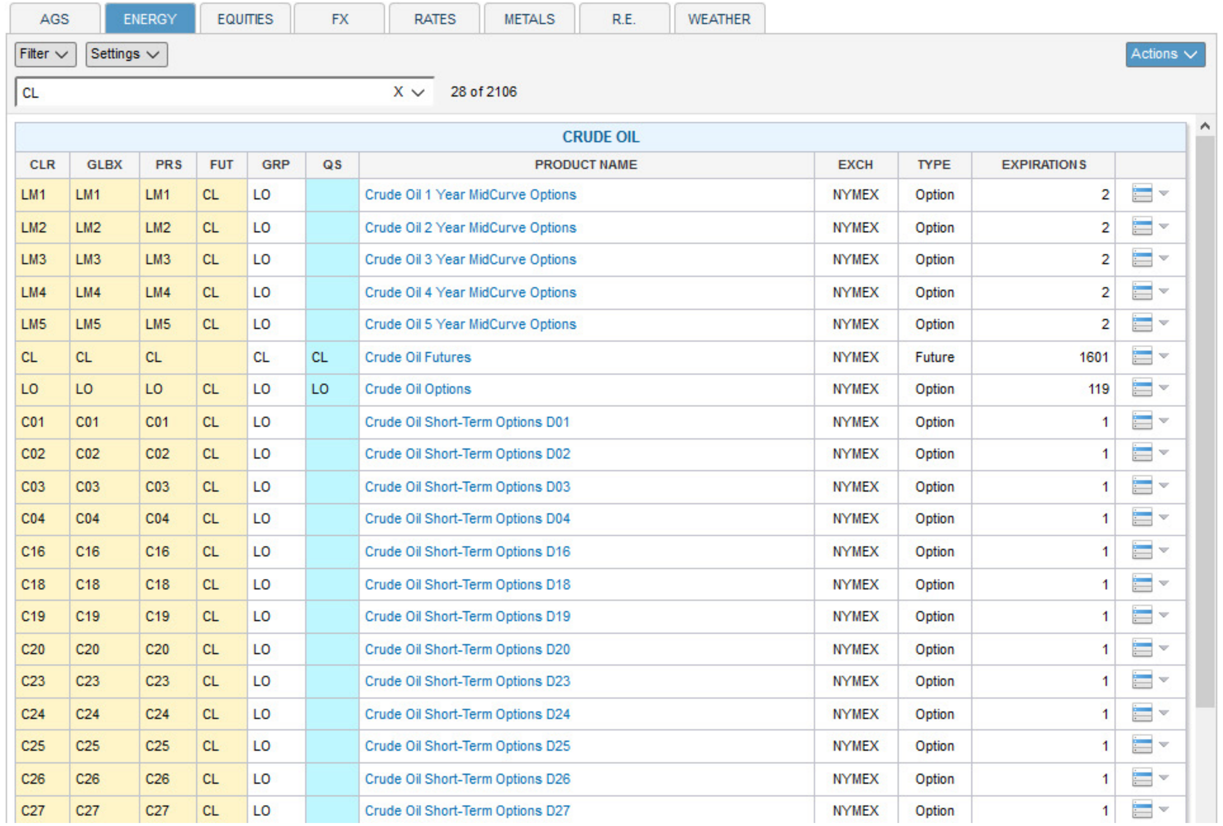



PRECIOUS

| BLOCK TRADES | | | | | | TRADE COMPONENTS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME (CT) | TYPE | SYMBOL | EXCH | SIZE | PRICE | PRODUCT | SYMBOL | B/S | QTY | STRIKE | TYPE | PRICE | RATIO |
| 01:48:58 PM | Option | OGM8 C1370 | COMEX | 1,250 | 13.50 | Gold Options | OGM8 | | 1,250 | 1370.00 | Call | 13.50 | 1 |
| 01:48:18 PM | Option | OGV8 P1325 | COMEX | 1,000 | 23.70 | Gold Options | OGV8 | | 1,000 | 1325.00 | Put | 23.70 | 1 |
| 01:48:14 PM | Option | OGV8 C1400 | COMEX | 1,500 | 31.00 | Gold Options | OGV8 | | 1,500 | 1400.00 | Call | 31.00 | 1 |
| 01:48:01 PM | Option | OGM8 P1300 | COMEX | 700 | 2.70 | Gold Options | OGM8 | | 700 | 1300.00 | Put | 2.70 | 1 |
| 12:08:24 PM | Spread | OG:GC:GN | COMEX | 50 | 2.70 | Gold Options | OGM9 | B | 50 | 1550.00 | Call | 30.00 | 50 |
| | | | | | | Gold Futures | GCM9 | S | 12 | | Fut | 1390.00 | 12 |
| | | | | | | Gold Options | OGZ9 | S | 50 | 1700.00 | Call | 27.30 | 50 |
| | | | | | | Gold Futures | GCZ9 | B | 9 | | Fut | 1410.20 | 9 |
| 12:08:09 PM | Spread | GC:OG:GN | COMEX | 50 | 2.70 | Gold Options | OGM9 | B | 50 | 1550.00 | Call | 30.00 | 50 |
| | | | | | | Gold Futures | GCM9 | S | 12 | | Fut | 1390.00 | 12 |
| | | | | | | Gold Options | OGZ9 | S | 50 | 1700.00 | Call | 27.30 | 50 |
| | | | | | | Gold Futures | GCZ9 | B | 9 | | Fut | 1410.20 | 9 |
| 11:20:52 AM | Spread | OG:FO | COMEX | 5 | 33.80 | Gold Options | OGM9 | B | 50 | 1300.00 | Put | 33.80 | 10 |
| | | | | | | Gold Futures | GCM9 | B | 15 | | Fut | 1390.00 | 3 |
| 11:19:54 AM | Spread | OG:FO | COMEX | 5 | 33.80 | Gold Options | OGM9 | B | 50 | 1300.00 | Put | 33.80 | 10 |
| | | | | | | Gold Futures | GCM9 | B | 15 | | Fut | 1390.00 | 3 |
| 11:19:43 AM | Spread | OG:FO | COMEX | 5 | 33.80 | Gold Options | OGM9 | B | 50 | 1300.00 | Put | 33.80 | 10 |
| | | | | | | Gold Futures | GCM9 | B | 15 | | Fut | 1390.00 | 3 |
| 11:19:22 AM | Spread | OG:FO | COMEX | 5 | 33.80 | Gold Options | OGM9 | B | 50 | 1300.00 | Put | 33.80 | 10 |
| | | | | | | Gold Futures | GCM9 | B | 15 | | Fut | 1390.00 | 3 |
| 11:19:15 AM | Spread | OG:FO | COMEX | 5 | 33.80 | Gold Options | OGM9 | B | 50 | 1300.00 | Put | 33.80 | 10 |
| | | | | | | Gold Futures | GCM9 | B | 15 | | Fut | 1390.00 | 3 |
| 10:45:57 AM | Spread | OG:FO | COMEX | 6 | 3.60 | Gold Options | OGK8 | B | 150 | 1375.00 | Call | 3.60 | 25 |
| | | | | | | Gold Futures | GCM8 | S | 24 | | Fut | 1352.00 | 4 |
| 10:45:57 AM | Spread | OG:FO | COMEX | 2 | 3.60 | Gold Options | OGK8 | B | 50 | 1375.00 | Call | 3.60 | 25 |
| | | | | | | Gold Futures | GCM8 | S | 8 | | Fut | 1352.00 | 4 |
| | | | | | | Gold Options | OGK8 | B | 50 | 1375.00 | Call | 3.60 | 25 |

## Product and Expiration Browser

View and download active expiration information across all CME Group futures and options.



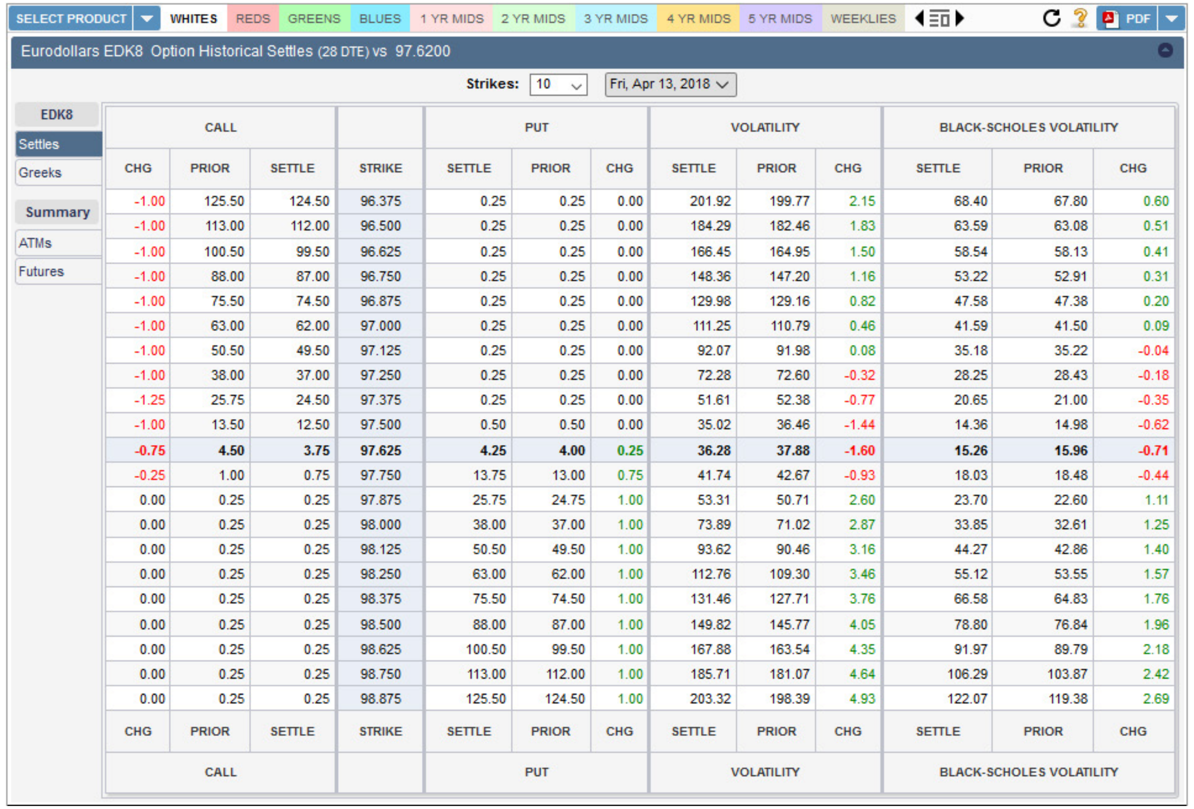

| CRUDE OIL | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CLR | GLBX | PRS | FUT | GRP | QS | PRODUCT NAME | EXCH | TYPE | EXPIRATIONS |
| LM1 | LM1 | LM1 | CL | LO | | Crude Oil 1 Year MidCurve Options | NYMEX | Option | 2 |
| LM2 | LM2 | LM2 | CL | LO | | Crude Oil 2 Year MidCurve Options | NYMEX | Option | 2 |
| LM3 | LM3 | LM3 | CL | LO | | Crude Oil 3 Year MidCurve Options | NYMEX | Option | 2 |
| LM4 | LM4 | LM4 | CL | LO | | Crude Oil 4 Year MidCurve Options | NYMEX | Option | 2 |
| LM5 | LM5 | LM5 | CL | LO | | Crude Oil 5 Year MidCurve Options | NYMEX | Option | 2 |
| CL | CL | CL | | CL | CL | Crude Oil Futures | NYMEX | Future | 1601 |
| LO | LO | LO | CL | LO | LO | Crude Oil Options | NYMEX | Option | 119 |
| C01 | C01 | C01 | CL | LO | | Crude Oil Short-Term Options D01 | NYMEX | Option | 1 |
| C02 | C02 | C02 | CL | LO | | Crude Oil Short-Term Options D02 | NYMEX | Option | 1 |
| C03 | C03 | C03 | CL | LO | | Crude Oil Short-Term Options D03 | NYMEX | Option | 1 |
| C04 | C04 | C04 | CL | LO | | Crude Oil Short-Term Options D04 | NYMEX | Option | 1 |
| C16 | C16 | C16 | CL | LO | | Crude Oil Short-Term Options D16 | NYMEX | Option | 1 |
| C18 | C18 | C18 | CL | LO | | Crude Oil Short-Term Options D18 | NYMEX | Option | 1 |
| C19 | C19 | C19 | CL | LO | | Crude Oil Short-Term Options D19 | NYMEX | Option | 1 |
| C20 | C20 | C20 | CL | LO | | Crude Oil Short-Term Options D20 | NYMEX | Option | 1 |
| C23 | C23 | C23 | CL | LO | | Crude Oil Short-Term Options D23 | NYMEX | Option | 1 |
| C24 | C24 | C24 | CL | LO | | Crude Oil Short-Term Options D24 | NYMEX | Option | 1 |
| C25 | C25 | C25 | CL | LO | | Crude Oil Short-Term Options D25 | NYMEX | Option | 1 |
| C26 | C26 | C26 | CL | LO | | Crude Oil Short-Term Options D26 | NYMEX | Option | 1 |
| C27 | C27 | C27 | CL | LO | | Crude Oil Short-Term Options D27 | NYMEX | Option | 1 |





## Option Settlement

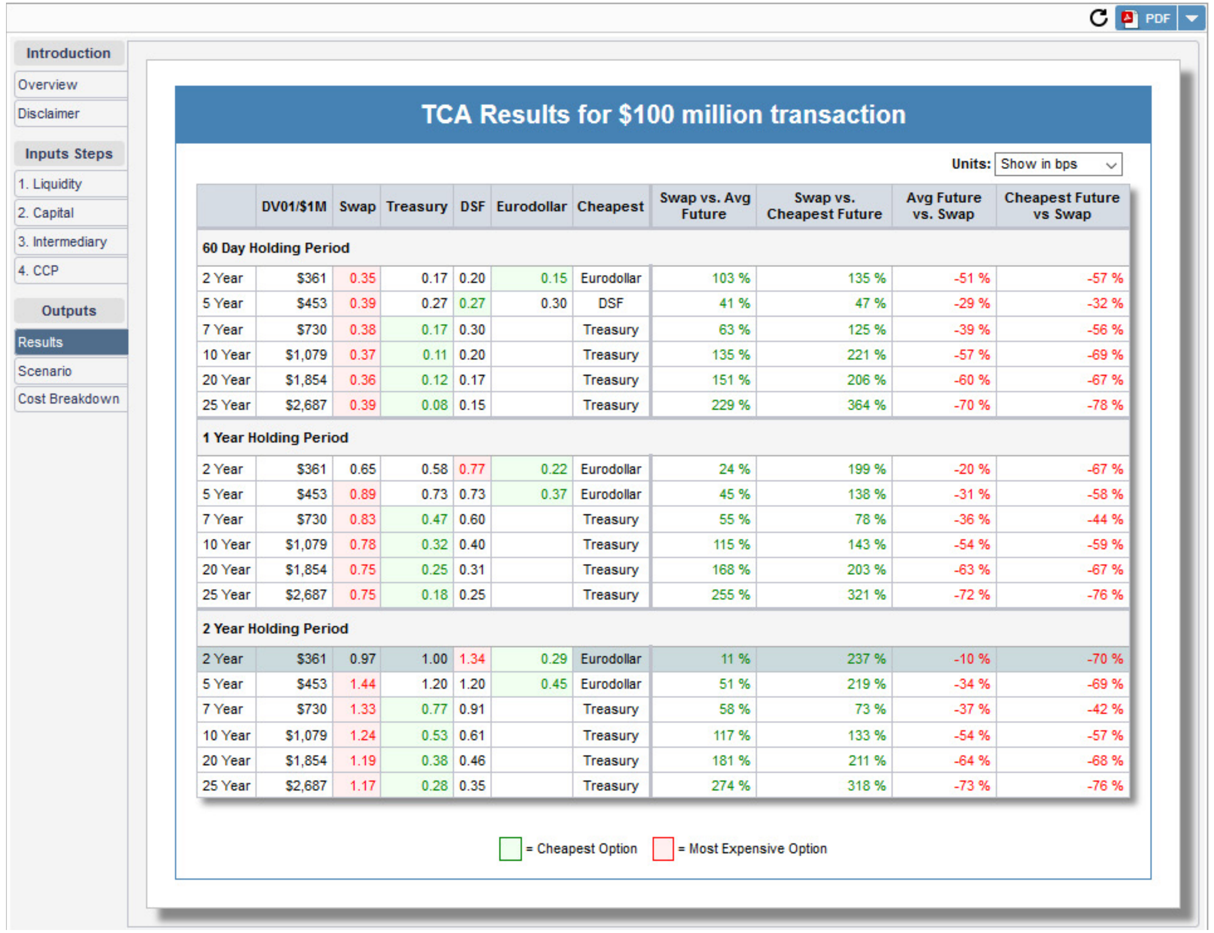
Analyze settlement values, including settlement prices and implied volatilities, for all CME Group Option products.




| CALL | | | | PUT | | | VOLATILITY | | | BLACK-SCHOLES VOLATILITY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHG | PRIOR | SETTLE | STRIKE | SETTLE | PRIOR | CHG | SETTLE | PRIOR | CHG | SETTLE | PRIOR | CHG |
| -1.00 | 125.50 | 124.50 | 96.375 | 0.25 | 0.25 | 0.00 | 201.92 | 199.77 | 2.15 | 68.40 | 67.80 | 0.60 |
| -1.00 | 113.00 | 112.00 | 96.500 | 0.25 | 0.25 | 0.00 | 184.29 | 182.46 | 1.83 | 63.59 | 63.08 | 0.51 |
| -1.00 | 100.50 | 99.50 | 96.625 | 0.25 | 0.25 | 0.00 | 166.45 | 164.95 | 1.50 | 58.54 | 58.13 | 0.41 |
| -1.00 | 88.00 | 87.00 | 96.750 | 0.25 | 0.25 | 0.00 | 148.36 | 147.20 | 1.16 | 53.22 | 52.91 | 0.31 |
| -1.00 | 75.50 | 74.50 | 96.875 | 0.25 | 0.25 | 0.00 | 129.98 | 129.16 | 0.82 | 47.58 | 47.38 | 0.20 |
| -1.00 | 63.00 | 62.00 | 97.000 | 0.25 | 0.25 | 0.00 | 111.25 | 110.79 | 0.46 | 41.59 | 41.50 | 0.09 |
| -1.00 | 50.50 | 49.50 | 97.125 | 0.25 | 0.25 | 0.00 | 92.07 | 91.98 | 0.08 | 35.18 | 35.22 | -0.04 |
| -1.00 | 38.00 | 37.00 | 97.250 | 0.25 | 0.25 | 0.00 | 72.28 | 72.60 | -0.32 | 28.25 | 28.43 | -0.18 |
| -1.25 | 25.75 | 24.50 | 97.375 | 0.25 | 0.25 | 0.00 | 51.61 | 52.38 | -0.77 | 20.65 | 21.00 | -0.35 |
| -1.00 | 13.50 | 12.50 | 97.500 | 0.50 | 0.50 | 0.00 | 35.02 | 36.46 | -1.44 | 14.36 | 14.98 | -0.62 |
| **-0.75** | **4.50** | **3.75** | **97.625** | **4.25** | **4.00** | **0.25** | **36.28** | **37.88** | **-1.60** | **15.26** | **15.96** | **-0.71** |
| -0.25 | 1.00 | 0.75 | 97.750 | 13.75 | 13.00 | 0.75 | 41.74 | 42.67 | -0.93 | 18.03 | 18.48 | -0.44 |
| 0.00 | 0.25 | 0.25 | 97.875 | 25.75 | 24.75 | 1.00 | 53.31 | 50.71 | 2.60 | 23.70 | 22.60 | 1.11 |
| 0.00 | 0.25 | 0.25 | 98.000 | 38.00 | 37.00 | 1.00 | 73.89 | 71.02 | 2.87 | 33.85 | 32.61 | 1.25 |
| 0.00 | 0.25 | 0.25 | 98.125 | 50.50 | 49.50 | 1.00 | 93.62 | 90.46 | 3.16 | 44.27 | 42.86 | 1.40 |
| 0.00 | 0.25 | 0.25 | 98.250 | 63.00 | 62.00 | 1.00 | 112.76 | 109.30 | 3.46 | 55.12 | 53.55 | 1.57 |
| 0.00 | 0.25 | 0.25 | 98.375 | 75.50 | 74.50 | 1.00 | 131.46 | 127.71 | 3.76 | 66.58 | 64.83 | 1.76 |
| 0.00 | 0.25 | 0.25 | 98.500 | 88.00 | 87.00 | 1.00 | 149.82 | 145.77 | 4.05 | 78.80 | 76.84 | 1.96 |
| 0.00 | 0.25 | 0.25 | 98.625 | 100.50 | 99.50 | 1.00 | 167.88 | 163.54 | 4.35 | 91.97 | 89.79 | 2.18 |
| 0.00 | 0.25 | 0.25 | 98.750 | 113.00 | 112.00 | 1.00 | 185.71 | 181.07 | 4.64 | 106.29 | 103.87 | 2.42 |
| 0.00 | 0.25 | 0.25 | 98.875 | 125.50 | 124.50 | 1.00 | 203.32 | 198.39 | 4.93 | 122.07 | 119.38 | 2.69 |
| CHG | PRIOR | SETTLE | STRIKE | SETTLE | PRIOR | CHG | SETTLE | PRIOR | CHG | SETTLE | PRIOR | CHG |
| CALL | | | | PUT | | | VOLATILITY | | | BLACK-SCHOLES VOLATILITY | | |

# Interest Rates: Total Cost Analysis

Compare the implications of using exchange-traded futures versus OTC instruments for interest rate exposure by analyzing the difference between all-in costs across Interest Rate Swaps, Treasury Futures, MAC Swap Futures and Eurodollar Futures.




TCA Results for $100 million transaction

Units: Show in bps

| | DV01/$1M | Swap | Treasury | DSF | Eurodollar | Cheapest | Swap vs. Avg Future | Swap vs. Cheapest Future | Avg Future vs. Swap | Cheapest Future vs Swap |
|---|---|---|---|---|---|---|---|---|---|---|
| **60 Day Holding Period** | | | | | | | | | | |
| 2 Year | $361 | 0.35 | 0.17 | 0.20 | 0.15 | Eurodollar | 103 % | 135 % | -51 % | -57 % |
| 5 Year | $453 | 0.39 | 0.27 | 0.27 | 0.30 | DSF | 41 % | 47 % | -29 % | -32 % |
| 7 Year | $730 | 0.38 | 0.17 | 0.30 | | Treasury | 63 % | 125 % | -39 % | -56 % |
| 10 Year | $1,079 | 0.37 | 0.11 | 0.20 | | Treasury | 135 % | 221 % | -57 % | -69 % |
| 20 Year | $1,854 | 0.36 | 0.12 | 0.17 | | Treasury | 151 % | 206 % | -60 % | -67 % |
| 25 Year | $2,687 | 0.39 | 0.08 | 0.15 | | Treasury | 229 % | 364 % | -70 % | -78 % |
| **1 Year Holding Period** | | | | | | | | | | |
| 2 Year | $361 | 0.65 | 0.58 | 0.77 | 0.22 | Eurodollar | 24 % | 199 % | -20 % | -67 % |
| 5 Year | $453 | 0.89 | 0.73 | 0.73 | 0.37 | Eurodollar | 45 % | 138 % | -31 % | -58 % |
| 7 Year | $730 | 0.83 | 0.47 | 0.60 | | Treasury | 55 % | 78 % | -36 % | -44 % |
| 10 Year | $1,079 | 0.78 | 0.32 | 0.40 | | Treasury | 115 % | 143 % | -54 % | -59 % |
| 20 Year | $1,854 | 0.75 | 0.25 | 0.31 | | Treasury | 168 % | 203 % | -63 % | -67 % |
| 25 Year | $2,687 | 0.75 | 0.18 | 0.25 | | Treasury | 255 % | 321 % | -72 % | -76 % |
| **2 Year Holding Period** | | | | | | | | | | |
| 2 Year | $361 | 0.97 | 1.00 | 1.34 | 0.29 | Eurodollar | 11 % | 237 % | -10 % | -70 % |
| 5 Year | $453 | 1.44 | 1.20 | 1.20 | 0.45 | Eurodollar | 51 % | 219 % | -34 % | -69 % |
| 7 Year | $730 | 1.33 | 0.77 | 0.91 | | Treasury | 58 % | 73 % | -37 % | -42 % |
| 10 Year | $1,079 | 1.24 | 0.53 | 0.61 | | Treasury | 117 % | 133 % | -54 % | -57 % |
| 20 Year | $1,854 | 1.19 | 0.38 | 0.46 | | Treasury | 181 % | 211 % | -64 % | -68 % |
| 25 Year | $2,687 | 1.17 | 0.28 | 0.35 | | Treasury | 274 % | 318 % | -73 % | -76 % |

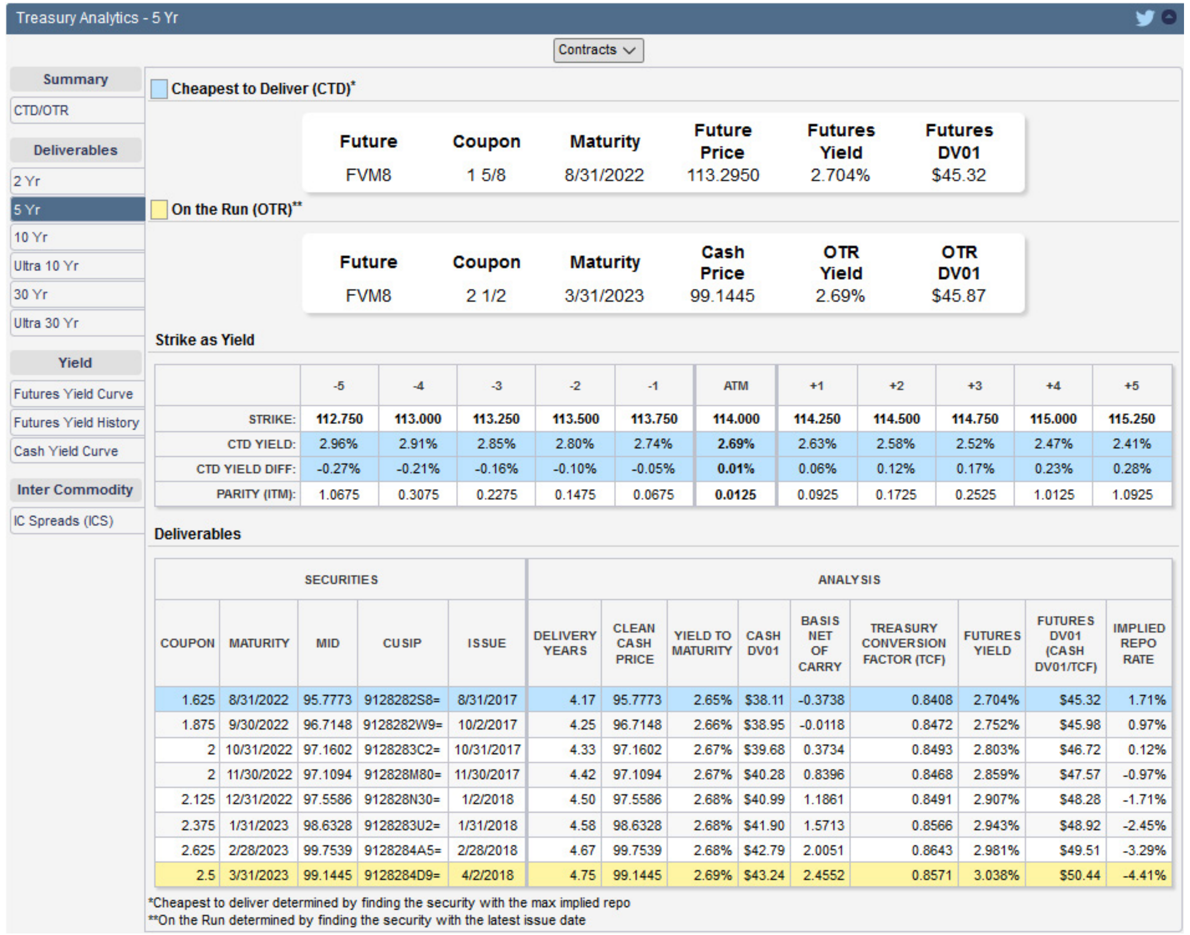
= Cheapest Option = Most Expensive Option





# Interest Rates: Treasury Analytics

View in-depth Treasury Product analysis, including a list of securities that make up the deliverable basket, implied yields for the cheapest to deliver and a conversion between strike prices and implied yields.




Cheapest to Deliver (CTD)*

| Future | Coupon | Maturity | Future Price | Futures Yield | Futures DV01 |
|---|---|---|---|---|---|
| FVM8 | 1 5/8 | 8/31/2022 | 113.2950 | 2.704% | $45.32 |

On the Run (OTR)**

| Future | Coupon | Maturity | Cash Price | OTR Yield | OTR DV01 |
|---|---|---|---|---|---|
| FVM8 | 2 1/2 | 3/31/2023 | 99.1445 | 2.69% | $45.87 |

Strike as Yield

| | -5 | -4 | -3 | -2 | -1 | ATM | +1 | +2 | +3 | +4 | +5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STRIKE: | 112.750 | 113.000 | 113.250 | 113.500 | 113.750 | 114.000 | 114.250 | 114.500 | 114.750 | 115.000 | 115.250 |
| CTD YIELD: | 2.96% | 2.91% | 2.85% | 2.80% | 2.74% | 2.69% | 2.63% | 2.58% | 2.52% | 2.47% | 2.41% |
| CTD YIELD DIFF: | -0.27% | -0.21% | -0.16% | -0.10% | -0.05% | 0.01% | 0.06% | 0.12% | 0.17% | 0.23% | 0.28% |
| PARITY (ITM): | 1.0675 | 0.3075 | 0.2275 | 0.1475 | 0.0675 | 0.0125 | 0.0925 | 0.1725 | 0.2525 | 1.0125 | 1.0925 |

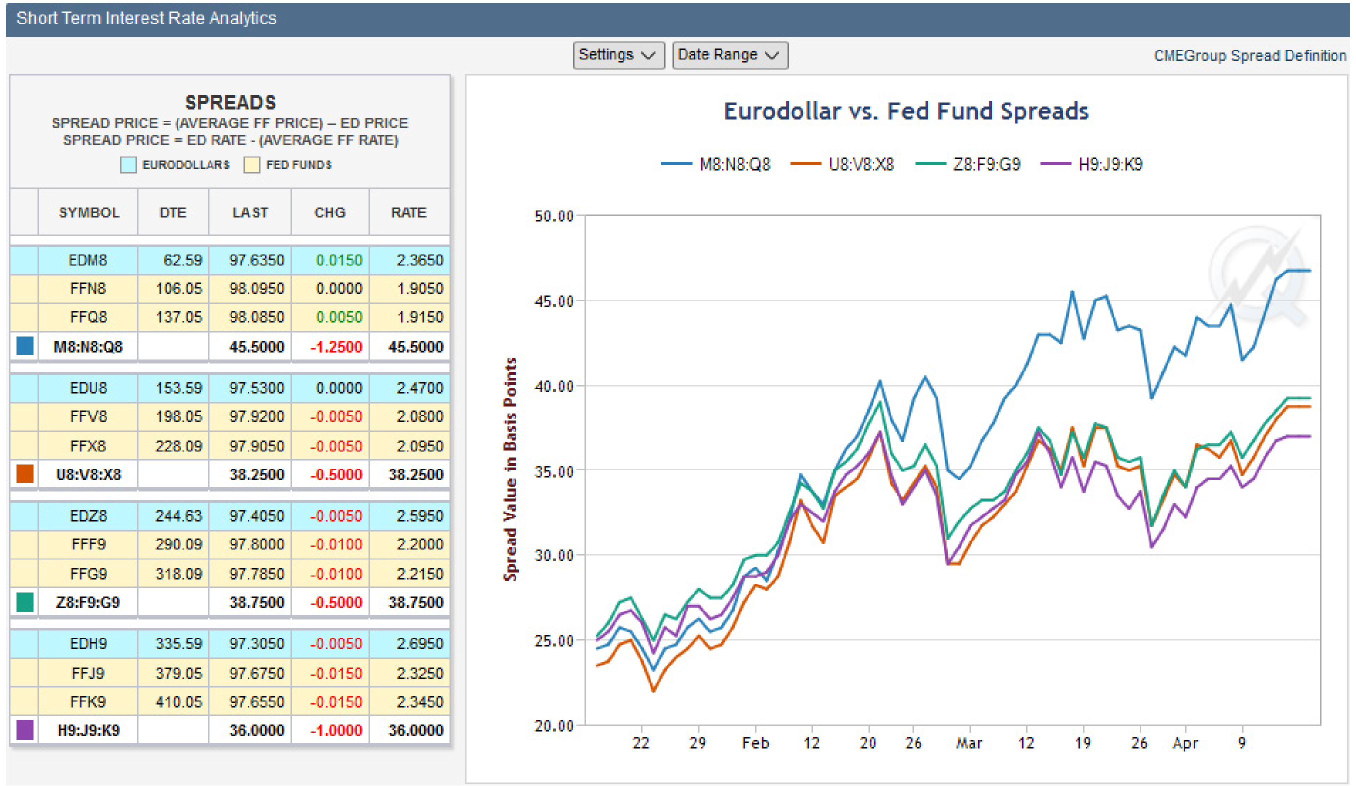
Deliverables

| SECURITIES | | | | | ANALYSIS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COUPON | MATURITY | MID | CUSIP | ISSUE | DELIVERY YEARS | CLEAN CASH PRICE | YIELD TO MATURITY | CASH DV01 | BASIS NET OF CARRY | TREASURY CONVERSION FACTOR (TCF) | FUTURES YIELD | FUTURES DV01 (CASH DV01/TCF) | IMPLIED REPO RATE |
| 1.625 | 8/31/2022 | 95.7773 | 9128282S8= | 8/31/2017 | 4.17 | 95.7773 | 2.65% | $38.11 | -0.3738 | 0.8408 | 2.704% | $45.32 | 1.71% |
| 1.875 | 9/30/2022 | 96.7148 | 9128282W9= | 10/2/2017 | 4.25 | 96.7148 | 2.66% | $38.95 | -0.0118 | 0.8472 | 2.752% | $45.98 | 0.97% |
| 2 | 10/31/2022 | 97.1602 | 9128283C2= | 10/31/2017 | 4.33 | 97.1602 | 2.67% | $39.68 | 0.3734 | 0.8493 | 2.803% | $46.72 | 0.12% |
| 2 | 11/30/2022 | 97.1094 | 912828M80= | 11/30/2017 | 4.42 | 97.1094 | 2.67% | $40.28 | 0.8396 | 0.8468 | 2.859% | $47.57 | -0.97% |
| 2.125 | 12/31/2022 | 97.5586 | 912828N30= | 1/2/2018 | 4.50 | 97.5586 | 2.68% | $40.99 | 1.1861 | 0.8491 | 2.907% | $48.28 | -1.71% |
| 2.375 | 1/31/2023 | 98.6328 | 9128283U2= | 1/31/2018 | 4.58 | 98.6328 | 2.68% | $41.90 | 1.5713 | 0.8566 | 2.943% | $48.92 | -2.45% |
| 2.625 | 2/28/2023 | 99.7539 | 9128284A5= | 2/28/2018 | 4.67 | 99.7539 | 2.68% | $42.79 | 2.0051 | 0.8643 | 2.981% | $49.51 | -3.29% |
| 2.5 | 3/31/2023 | 99.1445 | 9128284D9= | 4/2/2018 | 4.75 | 99.1445 | 2.69% | $43.24 | 2.4552 | 0.8571 | 3.038% | $50.44 | -4.41% |

*Cheapest to deliver determined by finding the security with the max implied repo
**On the Run determined by finding the security with the latest issue date

# Interest Rates: STIR Analytics

Analyze the spread between Short-Term Interest Rate futures over time – from one week to one year.





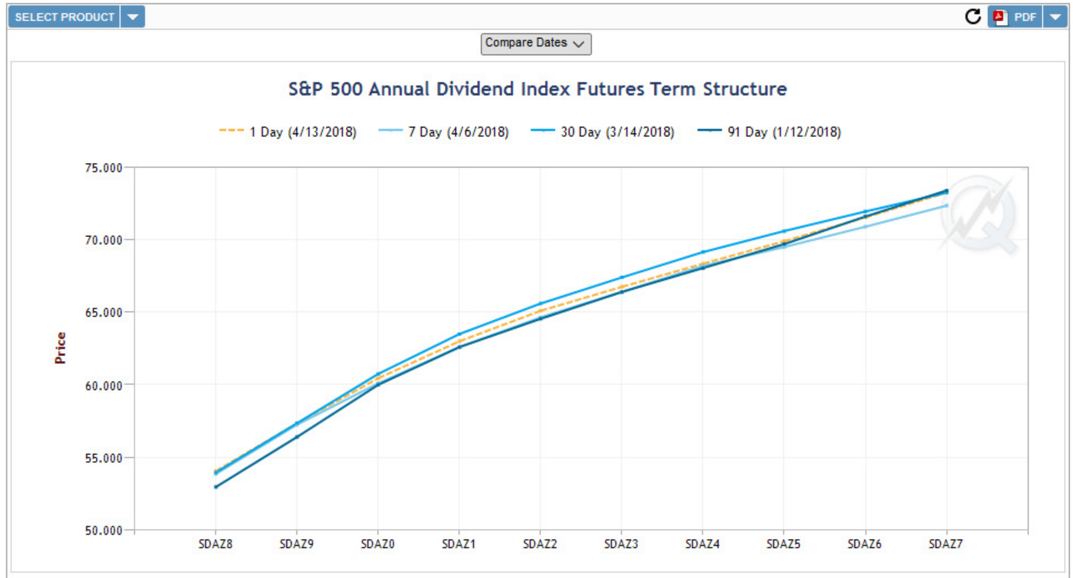



# Equity Index: Total Cost Analysis

Analyze the all-in costs of replicating the S&P 500 by trading equity index futures versus exchange-traded funds.

# Equity Index: Dividend Futures Term Structure

Explore the market's view of expected dividends on a quarterly and annual basis and analyze changes in dividend term structure across multiple points in time.




| 7 Day Change in Midpoint | | | |
|---|---|---|---|
| Contract | Apr 13, 2018 | Apr 06, 2018 | 7 Day Change |
| SDAZ8 | 54.050 | 53.850 | 0.200 ▲ |
| SDAZ9 | 57.350 | 57.250 | 0.100 ▲ |
| SDAZ0 | 60.450 | 60.100 | 0.350 ▲ |
| SDAZ1 | 63.000 | 62.600 | 0.400 ▲ |
| SDAZ2 | 65.100 | 64.650 | 0.450 ▲ |
| SDAZ3 | 66.750 | 66.400 | 0.350 ▲ |
| SDAZ4 | 68.350 | 68.200 | 0.150 ▲ |
| SDAZ5 | 69.900 | 69.500 | 0.400 ▲ |
| SDAZ6 | 71.550 | 70.900 | 0.650 ▲ |
| SDAZ7 | 73.250 | 72.350 | 0.900 ▲ |

| 30 Day Change in Midpoint | | | |
|---|---|---|---|
| Contract | Apr 13, 2018 | Mar 14, 2018 | 30 Day Change |
| SDAZ8 | 54.050 | 53.950 | 0.100 ▲ |
| SDAZ9 | 57.350 | 57.350 | 0.000 |
| SDAZ0 | 60.450 | 60.750 | -0.300 ▼ |
| SDAZ1 | 63.000 | 63.500 | -0.500 ▼ |
| SDAZ2 | 65.100 | 65.600 | -0.500 ▼ |
| SDAZ3 | 66.750 | 67.400 | -0.650 ▼ |
| SDAZ4 | 68.350 | 69.150 | -0.800 ▼ |
| SDAZ5 | 69.900 | 70.600 | -0.700 ▼ |
| SDAZ6 | 71.550 | 71.950 | -0.400 ▼ |
| SDAZ7 | 73.250 | 73.250 | 0.000 |

| 91 Day Change in Midpoint | | | |
|---|---|---|---|
| Contract | Apr 13, 2018 | Jan 12, 2018 | 91 Day Change |
| SDAZ8 | 54.050 | 52.950 | 1.100 ▲ |
| SDAZ9 | 57.350 | 56.400 | 0.950 ▲ |
| SDAZ0 | 60.450 | 60.000 | 0.450 ▲ |
| SDAZ1 | 63.000 | 62.600 | 0.400 ▲ |
| SDAZ2 | 65.100 | 64.550 | 0.550 ▲ |
| SDAZ3 | 66.750 | 66.400 | 0.350 ▲ |
| SDAZ4 | 68.350 | 68.050 | 0.300 ▲ |
| SDAZ5 | 69.900 | 69.700 | 0.200 ▲ |
| SDAZ6 | 71.550 | 71.600 | -0.050 ▼ |
| SDAZ7 | 73.250 | 73.400 | -0.150 ▼ |





# Bitcoin Historical Pricing

Explore the historical price of bitcoin, as tracked by the CME CF Bitcoin Real Time Index (BRTI) and CME CF Bitcoin Reference Rate (BRR).


| BITCOIN REAL TIME INDEX | | | | | CHART SUMMARY | | | |
|---|---|---|---|---|---|---|---|---|
| SYMBOL | PRICE | CHG | CHG % | UPDATED (CST) | FIRST | HIGH | LOW | LAST |
| BRTI | $8,009.29 | $42.86 ▲ | 0.54% | 4/16/2018 2:54 PM | $8,310.22 | $8,406.59 | $7,911.18 | $8,009.29 |

## QuikStrike and CME Direct

QuikStrike's powerful analytics suite is also integrated into CME Direct, the free, hyper-fast and highly configurable options front-end from CME Group. Without leaving CME Direct, access all your favorite QuikStrike tools and configure QuikStrike to follow the products you care about. Explore QuikStrike analytics with ease by adding the new QuikStrike window to your CME Direct layout like any other tab or grid.

For more information about QuikStrike and how its integration with CME Direct can benefit you, contact **cmedirectsales@cmegroup.com**

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