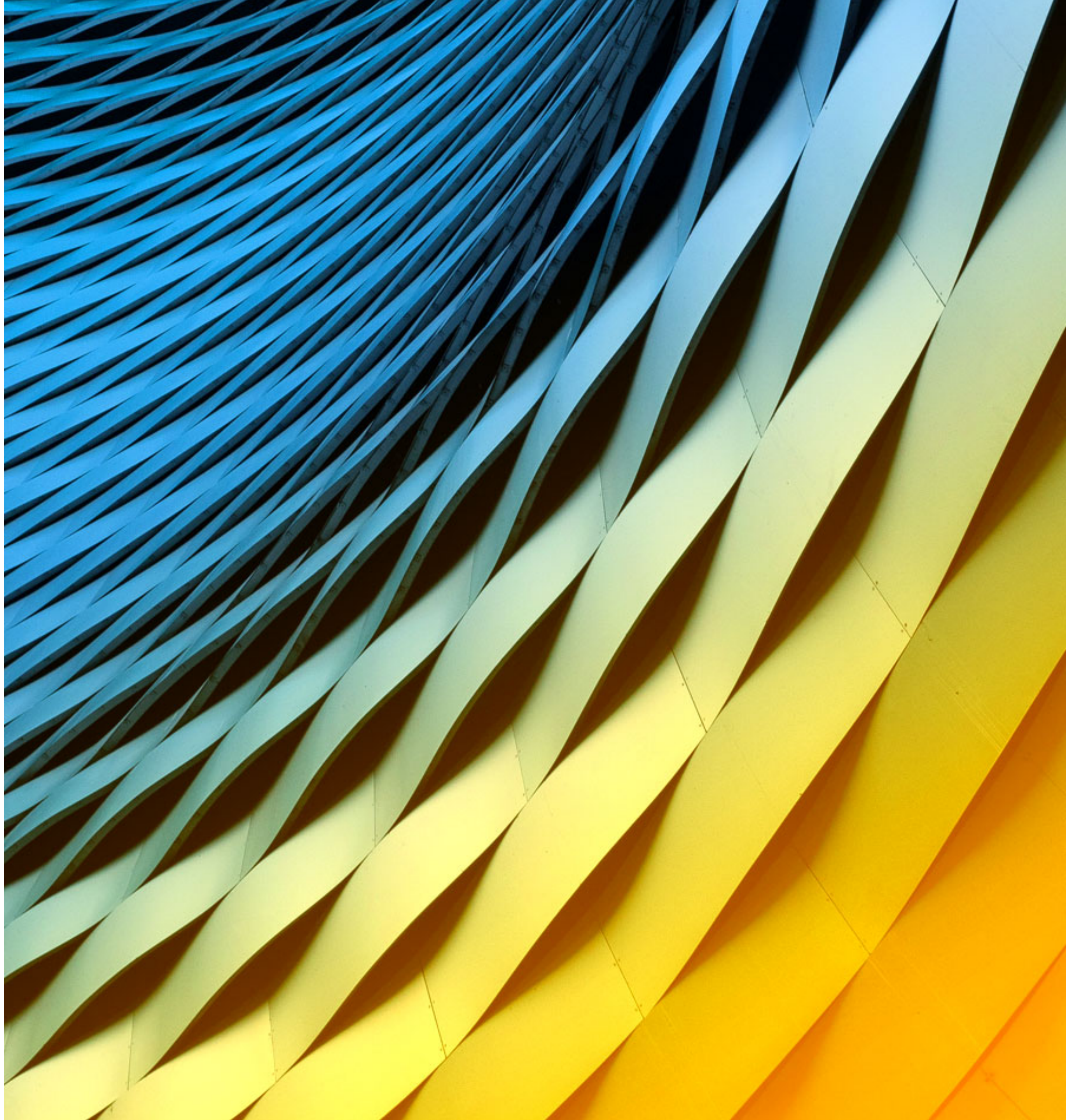
CME Group – Tools for Active Traders

Craig Bewick,
Senior Director, Client Development & Sales
CME Group

April 6, 2021

IBKRWebinars
by InteractiveBrokers



Disclosures

Options involve risk and are not suitable for all investors. For information on the uses and risks of options, you can obtain a copy of the Options Clearing Corporation risk disclosure document titled Characteristics and Risks of Standardized Options by calling (312) 542-6901.

Futures are not suitable for all investors. The amount you may lose may be greater than your initial investment. Before trading futures, please read the CFTC Risk Disclosure. For a copy visit interactivebrokers.com.

Security futures involve a high degree of risk and are not suitable for all investors. The amount you may lose may be greater than your initial investment. Before trading security futures, please read the Security Futures Risk Disclosure Statement. For a copy visit Interactivebrokers.com.

There is a substantial risk of loss in foreign exchange trading. The settlement date of foreign exchange trades can vary due to time zone differences and bank holidays. When trading across foreign exchange markets, this may necessitate borrowing funds to settle foreign exchange trades. The interest rate on borrowed funds must be considered when computing the cost of trades across multiple markets.

The Order types available through Interactive Brokers LLC's Trader Workstation are designed to help you limit your loss and/or lock in a profit. Market conditions and other factors may affect execution. In general, orders guarantee a fill or guarantee a price, but not both. In extreme market conditions, an order may either be executed at a different price than anticipated or may not be filled in the marketplace.

There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations.

IRS Circular 230 Notice: These statements are provided for information purposes only, are not intended to constitute tax advice which may be relied upon to avoid penalties under any federal, state, local or other tax statutes or regulations, and do not resolve any tax issues in your favor.

Interactive Brokers LLC is a member of NYSE FINRA SIPC

CME Group – Toolbox

April 6, 2021

Craig Bewick
Senior Director, Client Development and Sales

Disclaimer

Neither futures trading nor swaps trading are suitable for all investors, and each involves the risk of loss. Swaps trading should only be undertaken by investors who are Eligible Contract Participants (ECPs) within the meaning of Section 1a(18) of the Commodity Exchange Act. Futures and swaps each are leveraged investments 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 either a futures or swaps 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 traders cannot expect to profit on every trade.

CME Group, the Globe Logo, CME, Globex, E-Mini, CME Direct, CME DataMine and Chicago Mercantile Exchange are trademarks of Chicago Mercantile Exchange Inc. CBOT is a trademark of the Board of Trade of the City of Chicago, Inc. NYMEX is a trademark of New York Mercantile Exchange, Inc. COMEX is a trademark of Commodity Exchange, Inc. All other trademarks are the property of their respective owners.

The information within this communication has been compiled by CME Group for general purposes only. CME Group assumes no responsibility for any errors or omissions. Additionally, all examples in this communication are hypothetical situations, used for explanation purposes only, and should not be considered investment advice or the results of actual market experience. All matters pertaining to rules and specifications herein are made subject to and superseded by official CME, CBOT, NYMEX and COMEX rules. Current rules should be consulted in all cases concerning contract specifications.

Resources for Individual Traders – Cross Asset Class

- Pricing and Volatility Tools
  - "QuikVol" (Constant Maturity, Historical Expirations)
  - Option Volatility Term Structure
  - Event Volatility Calculator
  - "Vol2Vol" Expected Range
  - Options Calculator / Strategy Simulator
  - Correlation Tool
  - Price Action Alerts
- Product and Market Data Tools
  - Contract Directory and Calendar
  - CME Globex Trade Browser
- Volume and Open Interest Tools
  - "This Week in Options" Report
  - Open Interest Heatmap
  - "Most Active Strike"
  - Commitment of Traders

Resources for Individual Traders – Single Asset Class

- Treasury Analytics
  - TreasuryWatch Tool
  - Treasury Analytics
  - FedWatch Tool
- Pace of the Roll – Energy
- OPEC Watch – Energy
- Equity Index Total Cost Analysis

Implied Volatility – Primer

Option Pricing – Known Elements

Days to Expiration

Strike Price

Futures Price

Open Int	Volume	Last	Δ	QS	+	C Qty	C Bid	Theo	C Ofr	C Qty	Strike	P Qty	P Bid	Theo	P Ofr	P Qty	+	QS	Δ	Last	Volume	Open Int
− Gold Option Apr21, 22.11 days, F: 1,709.1											ATM		1710.0 ▼ ▲		10 strikes − +							
Gold Future Apr21												8	1,709.0		1,709.2	4	+			1,709.1	140,127	341,428
27	2		0.60	QS	+	1	42.2	42.4	42.6	1	1690.0	11	23.1	23.3	23.5	14	+	QS	-0.40	23.4	147	356
8	1	46.0	0.58	QS	+	9	39.0	39.3	39.6	3	1695.0	6	25.0	25.2	25.4	13	+	QS	-0.42	23.9	53	337
3,124	141	36.7	0.55	QS	+	5	36.1	36.4	36.6	5	1700.0	22	27.0	27.2	27.5	29	+	QS	-0.44	26.9	909	6,830
16	5		0.53	QS	+	23	33.2	33.4	33.7	7	1705.0	21	29.1	29.4	29.6	12	+	QS	-0.47	27.8	27	534
61	40	31.4	0.50	QS	+	42	30.5	30.7	31.0	12	1710.0	23	31.4	31.7	31.9	17	+	QS	-0.49	31.6	70	1,004
19	304	27.0	0.48	QS	+	15	28.0	28.2	28.4	12	1715.0	13	33.9	34.1	34.3	12	+	QS	-0.52	30.7	9	363
75	69	27.2	0.45	QS	+	16	25.6	25.8	26.0	12	1720.0	12	36.4	36.7	36.9	11	+	QS	-0.55	34.1	440	1,083
363	453	23.3	0.43	QS	+	45	23.3	23.5	23.7	12	1725.0	25	39.1	39.4	39.6	4	+	QS	-0.57	39.0	179	2,457
147	39	21.3	0.40	QS	+	38	21.2	21.4	21.6	18	1730.0	1	42.0	42.2	42.5	1	+	QS	-0.60	39.0	107	554
60	24	20.5	0.38	QS	+	33	19.3	19.4	19.7	33	1735.0	1	45.1	45.3	45.5	1	+	QS	-0.62	42.3	12	595

Source: CME Direct

Current Option Price

Risk Free Interest Rate

Implied Volatility – Primer

Option Pricing – SO, What Don't We Know?

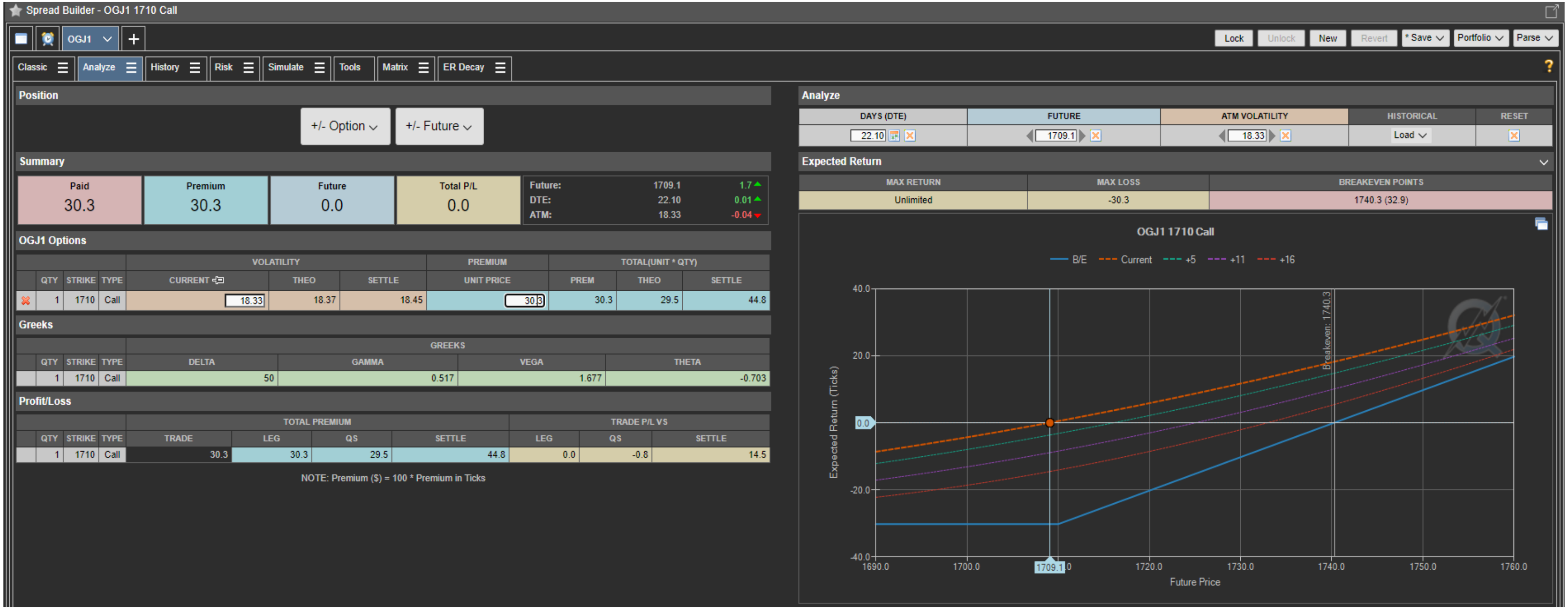
Open Int	Volume	Last	Vol	Δ	QS	+	C Qty	C Bid	Theo	C Ofr	C Qty	Strike	P Qty	P Bid	Theo	P Ofr	P Qty	+	QS	Δ	Vol	Last	Volume	Open Int
– Gold Option Apr21, 22.1 days, F: 1,709.1												ATM		1710.0 ▼ ▲		10 strikes – +								
Gold Future Apr21													8	1,709.0		1,709.1	5	+				– 1,709.1	141,264	341,428
27	2		18.88%	0.60	QS	+	2	41.7	42.0	42.2	1	1690.0	14	22.6	22.9	23.1	30	+	QS	-0.40	18.87%	– 23.4	147	356
8	1	46.0	18.74%	0.58	QS	+	4	38.6	38.9	39.1	3	1695.0	8	24.5	24.8	25.0	17	+	QS	-0.42	18.73%	↑ 23.9	53	337
3,124	141 ↑	36.7	18.58%	0.56	QS	+	6	35.6	35.8	36.1	5	1700.0	5	26.7	26.9	27.0	15	+	QS	-0.44	18.64%	↓ 26.9	909	6,830
16	5		18.48%	0.53	QS	+	8	32.8	33.1	33.3	17	1705.0	8	28.7	28.9	29.1	7	+	QS	-0.47	18.45%	↑ 27.8	27	534
61	40 ↑	31.4	18.33%	0.50	QS	+	8	30.1	30.3	30.5	7	1710.0	1	31.0	31.2	31.4	7	+	QS	-0.50	18.33%	– 31.6	76	1,004
19	304 –	27.0	18.22%	0.48	QS	+	8	27.5	27.8	28.0	15	1715.0	8	33.4	33.6	33.9	16	+	QS	-0.52	18.22%	↓ 30.7	9	363
75	79 ↑	27.2	18.12%	0.45	QS	+	8	25.1	25.4	25.6	17	1720.0	7	35.9	36.2	36.4	6	+	QS	-0.55	18.06%	↑ 34.1	450	1,083
363	454 –	23.3	18.03%	0.43	QS	+	1	22.9	23.1	23.3	7	1725.0	3	38.7	39.0	39.3	12	+	QS	-0.57	18.01%	↑ 39.1	182	2,457
147	39 –	21.3	17.96%	0.40	QS	+	1	20.8	21.0	21.2	22	1730.0	1	41.6	41.9	42.1	1	+	QS	-0.60	17.93%	↓ 42.0	109	554
60	24 ↑	20.5	17.90%	0.37	QS	+	1	18.9	19.1	19.2	8	1735.0	1	44.6	44.9	45.1	1	+	QS	-0.63	17.84%	↓ 42.3	12	595

Source: CME Direct

How much will the future move?

Implied Volatility – Primer

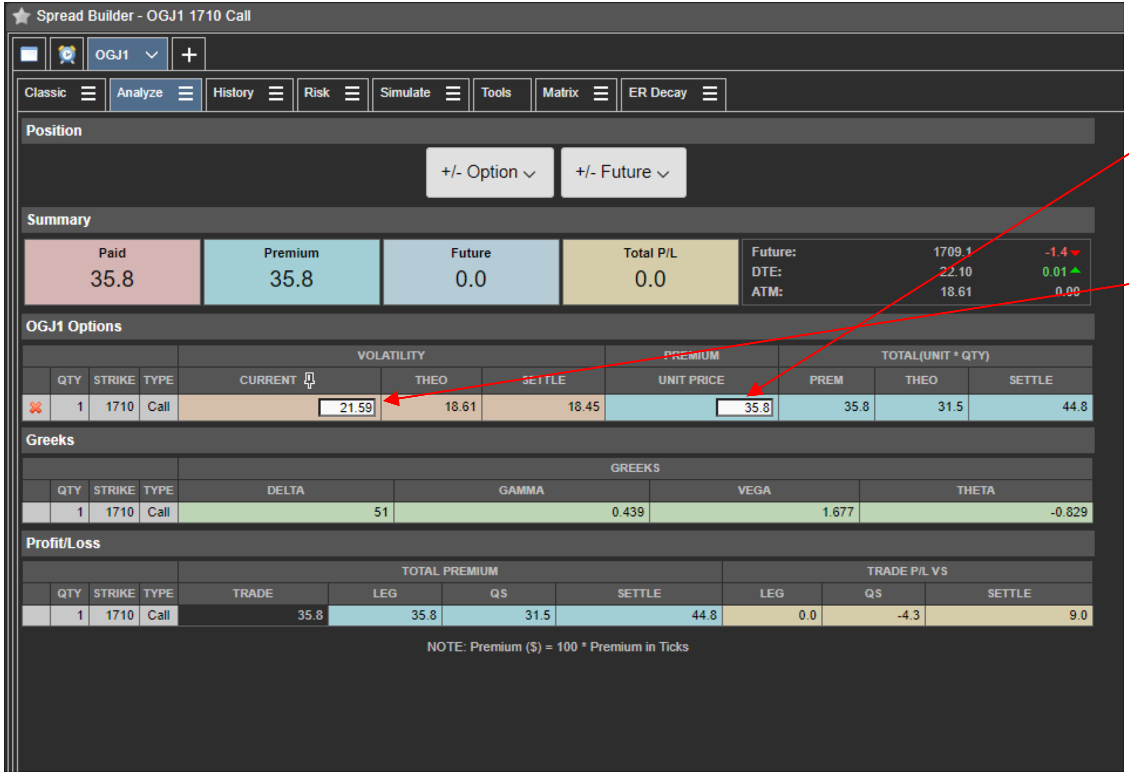
Option Pricing



Source: QuikStrike

Implied Volatility – Primer

Option Pricing



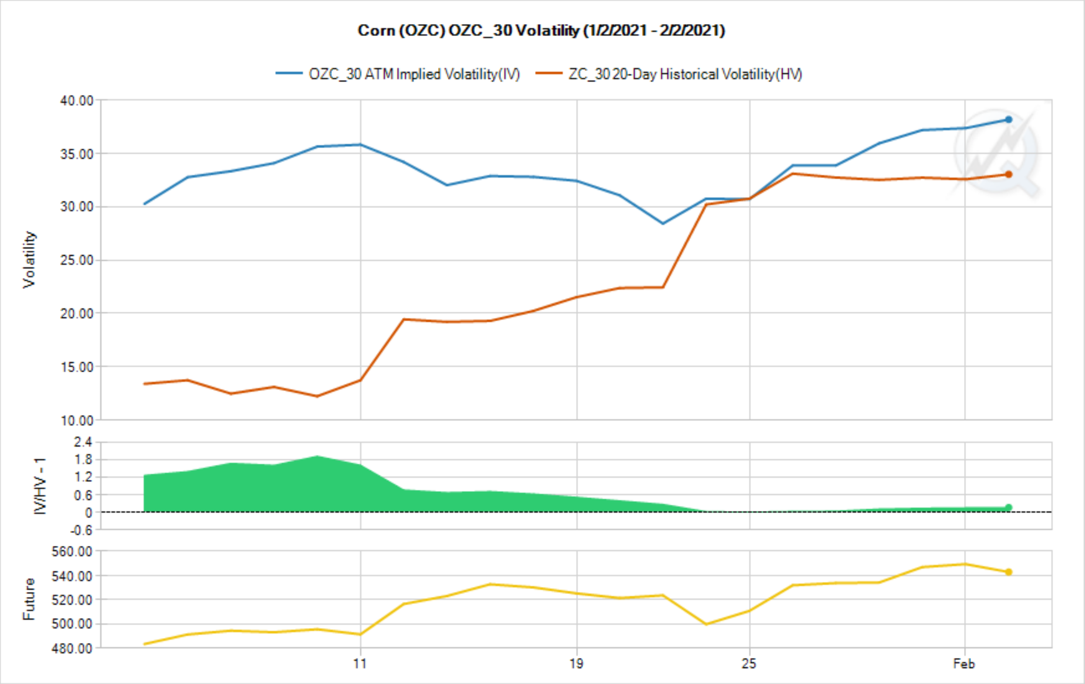
Changed the Options Price to 35.8 from 30.3

Implied Volatility moved to 21.59% from 18.3%

Source: QuikStrike

Pricing and Volatility Tools

"QuikVol" (Constant Maturity, Historical Expirations)

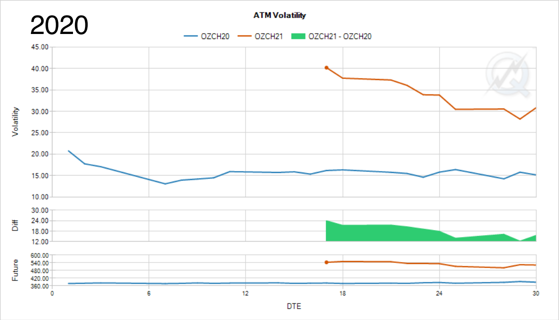


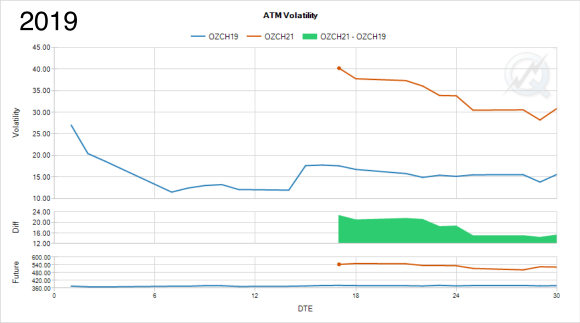
Source: QuikStrike

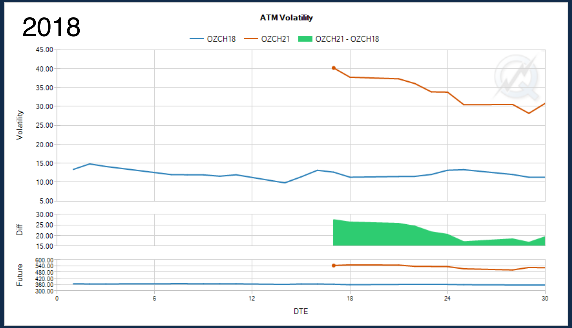
https://www.cmegroup.com/tools-information/quikstrike/pricing-volatility-strategy-tools/quikvol-tool.html

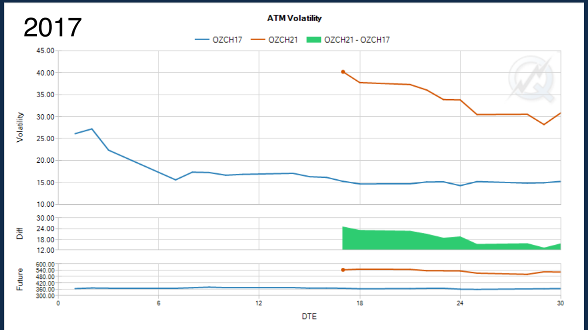
Pricing and Volatility Tools

"QuikVol" (Constant Maturity, Historical Expirations)







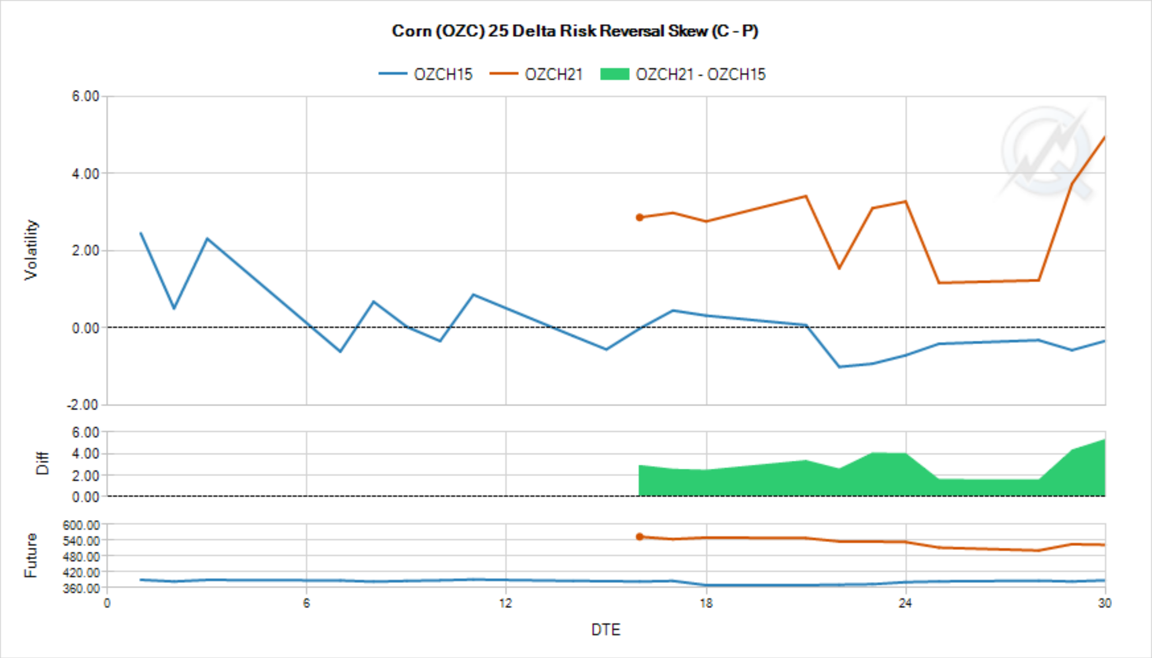


Source: QuikStrike

https://www.cmegroup.com/tools-information/quikstrike/pricing-volatility-strategy-tools/quikvol-tool.html

Pricing and Volatility Tools

"QuikVol" (Constant Maturity, Historical Expirations)



Source: QuikStrike

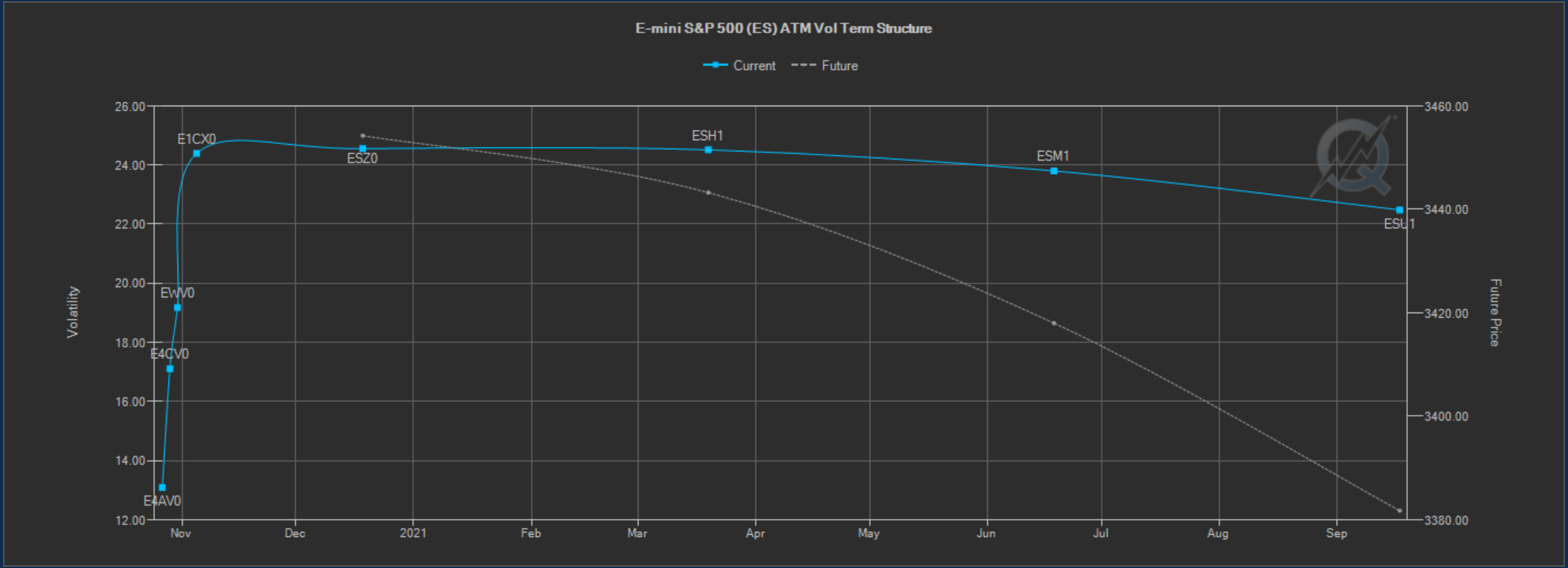
https://www.cmegroup.com/tools-information/quikstrike/pricing-volatility-strategy-tools/quikvol-tool.html

CME Grains/Livestock Products

- Corn
- Wheat
- Soybean
- Soybean Oil
- Soybean Meal
- Live Cattle
- Lean Hogs

Pricing and Volatility Tools

Term Structure Implied Volatility
10/23/2020



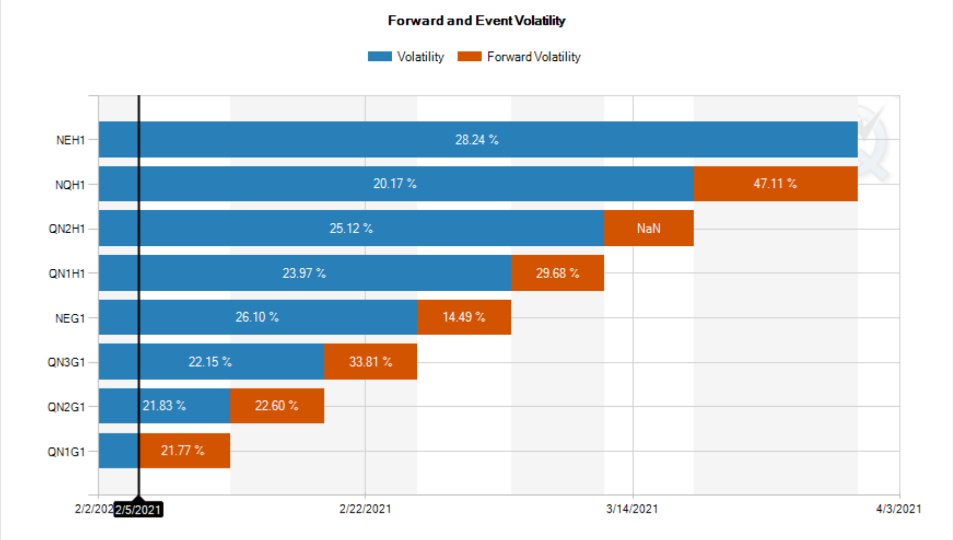
Source: QuikStrike

https://www.cmegroup.com/tools-information/quikstrike/volatility-term-structure.html

Pricing and Volatility Tools

Event Volatility Calculator

NQH1 FUTURE PRICE, RANGE AND TICK CHANGE AS OF 4:16 PM CT		
LOW	CURRENT	HIGH
13463.66 (-34.34)	13498.00	13532.34 (34.34)

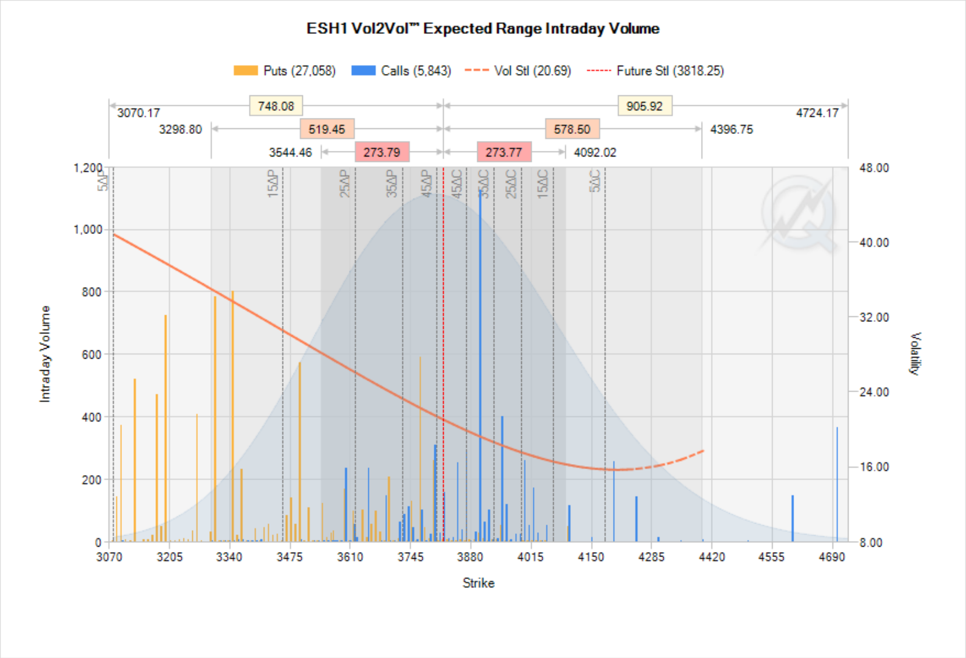


Source: CME Group Event Volatility Calculator

https://www.cmegroup.com/tools-information/quikstrike/event-volatility-calculator.html

Pricing and Volatility Tools

Vol2Vol Expected Range
2/3, 44 Days until Expiration, 21% Vol



Source: QuikStrike

https://www.cmegroup.com/tools-information/quikstrike/vol2vol-expected-range.html

Pricing and Volatility Tools

Strategy Tool (https://www.cmegroup.com/tools-information/quikstrike/strategy-simulator.html)
Correlation Tool (https://www.cmegroup.com/tools-information/quikstrike/cross-correlation.html)

1 Week

CORRELATION OF DAILY LOG RETURNS OF 30-DAY CONSTANT MATURITY FUTURE PRICES FOR MAJOR BENCHMARKS
(11/4/2020 - 11/11/2020)

	INDEXES			
	ES	NQ	YM	RTY
ES				
NQ	.56			
YM	.77	-.10		
RTY	.73	-.07	.97	
	ES	NQ	YM	RTY

1 Year

CORRELATION OF DAILY LOG RETURNS OF 30-DAY CONSTANT MATURITY FUTURE PRICES FOR MAJOR BENCHMARKS
(11/11/2019 - 11/11/2020)

	INDEXES			
	ES	NQ	YM	RTY
ES				
NQ	.93			
YM	.98	.88		
RTY	.91	.80	.93	
	ES	NQ	YM	RTY

Source: QuikStrike

Pricing and Volatility Tools

Equity Index Products

- E-mini Futures & Micro E-mini Futures
  - S&P 500 (ES, MES)
  - Nasdaq-100 (NQ, MNQ)
  - Russell 2000 (RTY, M2K)
  - Dow Jones Industrials Average (YM, MYM)
- E-mini Options
  - S&P 500, Nasdaq-100, DJIA, Russell 2000
- Micro E-mini Options
  - S&P 500, Nasdaq-100

Pricing and Volatility Tools

Price Action Alerts

MARKET EVENT

E-mini S&P 500 (H21) trades 1 standard deviation above its 5-day moving average

Traded 3839.75 on 03 Feb at 01:52 am

5 hours after E-mini S&P 500 trades 1 standard deviation above its 5-day moving average has shown the most consistent results

39% (17 out of 44 times) the price has declined five hours later by an average of -19.82 points . The maximum price decline has been -84.75 points.

61% (27 out of 44 times) the price has increased five hours later by an average of 14.42 points . The maximum price increase has been 59.75 points.

ALERTS

Sign up for alerts today

Use your CME Group Account to set alerts for the products you trade and get notifications when markets move.

SET ALERT

Change Summary

Hourly Daily

	1 DAY LATER	2 DAYS LATER	3 DAYS LATER	4 DAYS LATER	5 DAYS LATER
AVERAGE PRICE CHANGE	5.94	4.75	16.3	16.01	22.77
NUMBER OF TIMES PRICE INCREASED	27	29	32	31	31
AVERAGE INCREASE	24.96	33.6	48.36	58.31	63.41
MAX INCREASE	90	114.25	196.75	199.75	200.25
NUMBER OF TIMES PRICE DECREASED	17	15	12	13	13
AVERAGE DECREASE	-24.28	-51.03	-69.21	-84.87	-74.15
MAX DECREASE	-73	-196	-172	-152.5	-246

Source: CME Group Price Action Alerts

https://www.cmegroup.com/tools-information/quikstrike/vol2vol-expected-range.html

Product and Market Data Tools

Contract Directory and Calendar
https://www.cmegroup.com/tools-information/quikstrike/contract-directory-and-calendar-tool.htm

CME Globex Trade Browser
https://www.cmegroup.com/tools-information/quikstrike/cme-globex-trade-browser.html

Volume and Open Interest Tools

“This Week in Options” Report
https://www.cmegroup.com/tools-information/quikstrike/this-week-in-options.html

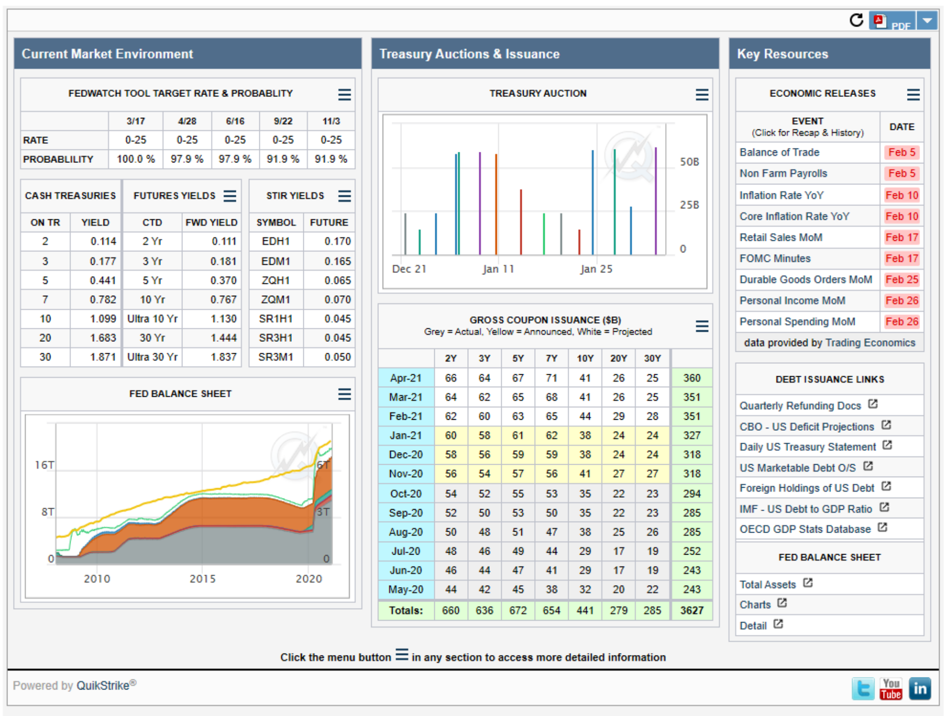
Open Interest Heatmap
https://www.cmegroup.com/tools-information/quikstrike/open-interest-heatmap.html

“Most Active Strike”
https://www.cmegroup.com/tools-information/quikstrike/options-most-active-strikes.html

Commitment of Traders
https://www.cmegroup.com/tools-information/quikstrike/commitment-of-traders.html

Resources for Individual Traders – Single Asset Class

Treasury Analytics



Current Market Environment

FEDWATCH TOOL TARGET RATE & PROBABLITY

	3/17	4/28	6/16	9/22	11/3
RATE	0-25	0-25	0-25	0-25	0-25
PROBABLILITY	100.0 %	97.9 %	97.9 %	91.9 %	91.9 %

CASH TREASURIES		FUTURES YIELDS		STIR YIELDS	
ON TR	YIELD	CTD	FWD YIELD	SYMBOL	FUTURE
2	0.114	2 Yr	0.111	EDH1	0.170
3	0.177	3 Yr	0.181	EDM1	0.165
5	0.441	5 Yr	0.370	ZQH1	0.065
7	0.782	10 Yr	0.767	ZQM1	0.070
10	1.099	Ultra 10 Yr	1.130	SR1H1	0.045
20	1.683	30 Yr	1.444	SR3H1	0.045
30	1.871	Ultra 30 Yr	1.837	SR3M1	0.050

FED BALANCE SHEET

Treasury Auctions & Issuance

TREASURY AUCTION

GROSS COUPON ISSUANCE ($B)
Grey = Actual, Yellow = Announced, White = Projected

	2Y	3Y	5Y	7Y	10Y	20Y	30Y	
Apr-21	66	64	67	71	41	26	25	360
Mar-21	64	62	65	68	41	26	25	351
Feb-21	62	60	63	65	44	29	28	351
Jan-21	60	58	61	62	38	24	24	327
Dec-20	58	56	59	59	38	24	24	318
Nov-20	56	54	57	56	41	27	27	318
Oct-20	54	52	55	53	35	22	23	294
Sep-20	52	50	53	50	35	22	23	285
Aug-20	50	48	51	47	38	25	26	285
Jul-20	48	46	49	44	29	17	19	252
Jun-20	46	44	47	41	29	17	19	243
May-20	44	42	45	38	32	20	22	243
Totals:	660	636	672	654	441	279	285	3627

Key Resources

ECONOMIC RELEASES

EVENT (Click for Recap & History)	DATE
Balance of Trade	Feb 5
Non Farm Payrolls	Feb 5
Inflation Rate YoY	Feb 10
Core Inflation Rate YoY	Feb 10
Retail Sales MoM	Feb 17
FOMC Minutes	Feb 17
Durable Goods Orders MoM	Feb 25
Personal Income MoM	Feb 26
Personal Spending MoM	Feb 26

data provided by Trading Economics

DEBT ISSUANCE LINKS

- Quarterly Refunding Docs
- CBO - US Deficit Projections
- Daily US Treasury Statement
- US Marketable Debt O/S
- Foreign Holdings of US Debt
- IMF - US Debt to GDP Ratio
- OECD GDP Stats Database

FED BALANCE SHEET

- Total Assets
- Charts
- Detail

Click the menu button in any section to access more detailed information

Powered by QuikStrike®

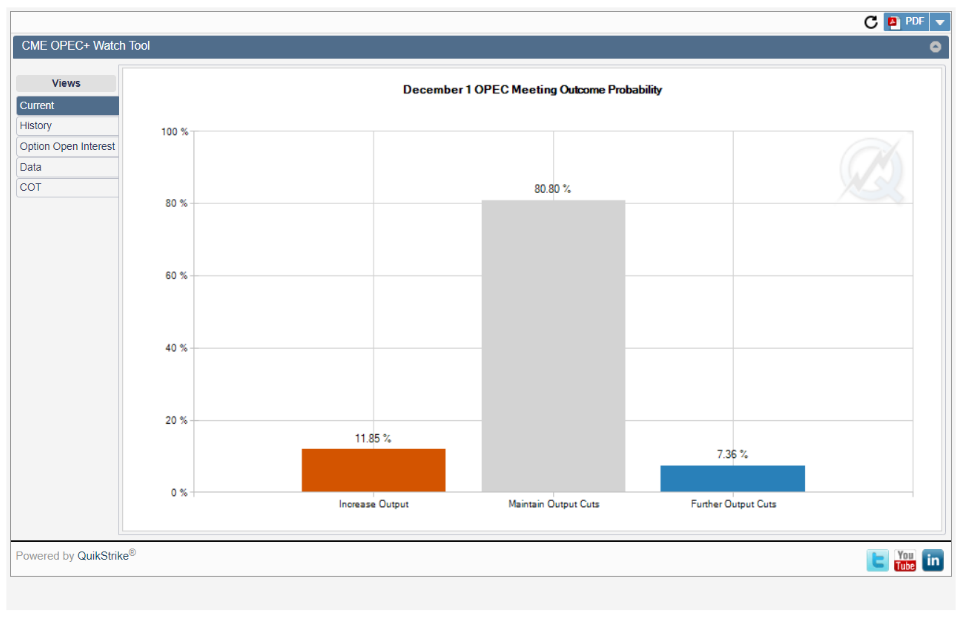
Source: CME Group Treasury Watch

https://www.cmegroup.com/tools-information/quikstrike/treasury-watch.html?itm_source=quikstrike_single_asset_page&itm_medium=tool_tile_&itm_campaign=treasury_watch_tool

Resources for Individual Traders – Single Asset Class

Energy
Pace of the Roll

OPEC Watch

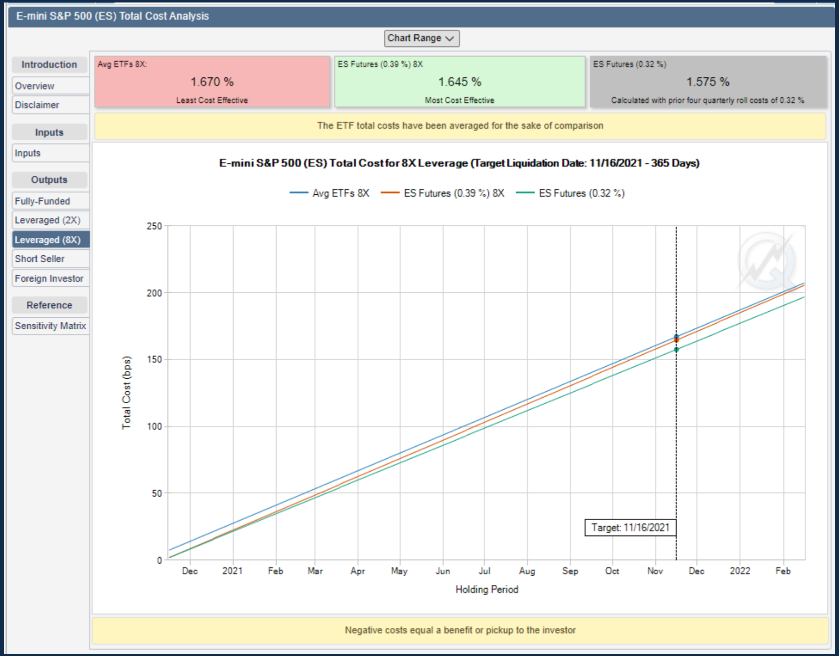


Source: CME Group OPEC Watch

https://www.cmegroup.com/trading/energy/paceoftheroll/

Resources for Individual Traders – Single Asset Class

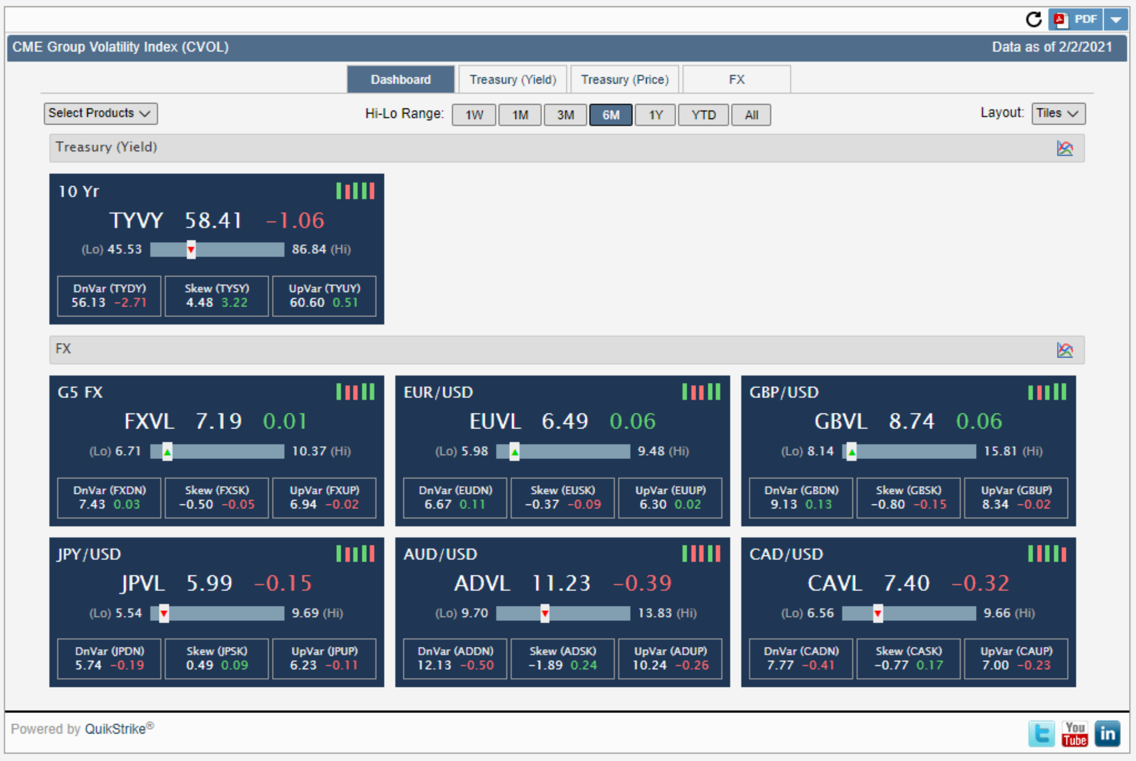
Equity
Equity Total Cost Analysis



Source: Equity Total Cost Analysis

https://www.cmegroup.com/tools-information/quikstrike/big-picture-tca-tool.html

CME Group CVOL Indexes



Source: CME Group CVOL

http://www.cmegroup.com/cvol

Learn More at activetrader.cmegroup.com

- Understand Micro contracts and product specifications
- Futures Education
- Daily Trading Insight Videos
- Register for the *Daily* InFocus Newsletter to inform your futures trading
- Follow us on Twitter @CMEActiveTrader

CME Group