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February 24, 2022

CME Group

A Deeper Dive into CME Equity Index Options

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CME Group Equity Options

February 2022

CME Group

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Table of Contents

- Available Products
  - Expirations
  - Options Style
  - Tick Size
  - Trading Hours
- Use Cases
- Case Study

An Option is an Option… Sort Of…

Much of the options pricing, theory and strategies that traders use in Equity Options are applicable to Futures Options

However, there are some mechanical differences that a trader should know before trading Futures Options

- Expirations
- Options Style
- Tick Size
- Trading Hours etc.

Product Offering

S&P 500

- E-mini S&P 500 Options
- Micro E-mini S&P 500 Options

Nasdaq-100

- E-mini Nasdaq-100 Options
- Micro E-mini Nasdaq-100 Options

Dow Jones Industrials Average

- E-mini Dow Options

Russell 2000

- E-mini Russell 2000 Options

S&P 500

E-mini S&P 500 Futures and Options

- Equity Index Futures and Options have a “multiplier” that determines the contract value
  - E-mini S&P 500 Multiplier = 50
  - Current E-mini S&P 500 Price = 4,581.25
  - Current Notional Value E-mini S&P 500: 4,581.25*50= $229,062.50

X	CC	Product	Description	Status	+	Qty	Bid	Ofr	Qty	Pin	Last	Change
− E-Mini S&P 500 Future												
×	ES	E-Mini S&P 500 Future	Mar22	Open	+	15	4,581.25	4,581.50	23		4,58...	-73.50

- Therefore, the difference between 4,581.25 and 4,581.50 in dollars: .25*50 = $12.50
  - “Minimum Tick Value”
  - 1 Full Index Point: $12.50*4 = $50.00

Source: CME Direct 1/18/2022 9:00 AM

S&P 500

E-mini S&P 500 Futures and Options

- Similarly, E-mini S&P 500 Options have a $50 multiplier

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	Ope...
− E-Mini S&P 500 Week3 Opt Jan22, 3.18 days, F: 4,574.00													ATM		4575.00 ▼ ▲		10 strikes − +									
E-Mini S&P 500 Future Mar22														32	4,573.75		4,574.00	12	+				−	4,57...	1,177,5...	2,22...
111	22	↑	58.75	25.33%	0.57	QS	+	14	53.25	53.32	53.75	67	4555.00	84	34.25	34.19	34.75	126	+	QS	-0.43	25.33%	↑	34.50	228	682
426	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	QS	+	72	50.00	50.21	50.50	28	4560.00	99	36.00	36.09	36.50	43	+	QS	-0.44	25.14%	↑	36.00	309	1,819
96	[illegible]	↑	[illegible]	[illegible]	[illegible]	QS	+	65	47.00	47.18	47.50	45	4565.00	105	38.00	38.06	38.50	46	+	QS	-0.46	24.94%	↑	38.25	643	1,070
1,383	78	↓	44.75	24.75%	0.52	QS	+	79	44.00	44.26	44.50	30	4570.00	112	40.00	40.13	40.75	135	+	QS	-0.48	24.75%	↓	40.25	1,001	2,221
531	279	↓	41.25	24.56%	0.50	QS	+	44	41.25	41.43	41.75	58	4575.00	83	42.25	42.30	42.75	106	+	QS	-0.50	24.56%	↑	42.50	2,231	5,330
1,237	183	−	39.00	24.37%	0.48	QS	+	86	38.50	38.69	39.00	109	4580.00	75	44.50	44.57	45.00	82	+	QS	-0.52	24.37%	↑	45.00	1,182	2,594
129	253	↓	35.75	24.18%	0.46	QS	+	135	35.75	36.05	36.25	52	4585.00	39	46.75	46.93	47.50	61	+	QS	-0.54	24.18%	↓	42.00	490	1,329
958	406	↓	36.25	23.99%	0.44	QS	+	117	33.25	33.51	33.75	89	4590.00	67	49.00	49.39	49.75	19	+	QS	-0.56	23.99%	↓	43.25	996	1,812
243	257	↓	31.25	23.81%	0.42	QS	+	142	30.75	31.09	31.25	67	4595.00	55	51.50	51.96	52.25	14	+	QS	-0.58	23.81%	↑	49.00	227	1,294
3,937	2,418	↓	28.75	23.62%	0.40	QS	+	103	28.50	28.75	29.00	132	4600.00	61	54.25	54.62	55.00	30	+	QS	-0.60	23.62%	↑	55.00	5,852	6,886

E-Mini S&P 500 Future Mar22
[CME: ES, GLOBEX: ES]

Current E-mini S&P 500 "Weekly" Option

- 41.25 Bid @ 41.75 Offer
- In dollar terms: 41.75*50=**$2,087.50**

Source: CME Direct 1/18/2022 9:10 AM

E-mini S&P 500 Options

Expirations
- Weekly (Friday) (European)
- Monday (European)
- Wednesday (European)
- End of Month (European)
- Quarterly (American)

Trading Hours
Sunday – Friday
5:00 PM – 4:00 PM (Central)

Expiration
Quarterly
- 8:30 AM Central Time
- SOQ

All Other Expiries
- 3:00 PM Central Time

E-mini S&P 500 Options

Contract Directory and Calendar

Choose a Different Product

Comparison Matrix

E-MINI S&P 500

◄ PREV TODAY **FEBRUARY 2022** NEXT ►

SUN	MON	TUE	WED	THU	FRI	SAT
30	31 EWF2	1	2 E1CG2	3	4 EW1G2	5
6	7 E1AG2	8	9 E2CG2	10	11 EW2G2	12
13	14 E2AG2	15	16 E3CG2	17	18 EW3G2	19
20	21	22 E3AG2	23 E4CG2	24	25 EW4G2	26
27	28 EWG2	1	2	3	4 EW1H2	5
6	7 E1AH2	8	9	10	11	12

Option | Future | Resources

NAME	E-mini S&P 500 Weekly Options Wk 1
SYMBOL	**EW1G22**
EXPIRATION (EST)	2/4/2022 4:00 PM
DAYS TO EXPIRATION	17
FIRST AVAIL DATE	12/23/2021
EXERCISE STYLE	European
EXERCISE INFO	
OPTIONS EXPIRATION METHOD	Deliverable
UNIT OF MEASURE (UOM)	IPNT
UOM QUANTITY	50
PRICE QUOTATION FORMAT	U.S. dollars and cents per index point
OPTION TICK SIZE	
PRICE LIMIT RULE	Price Limits
TRADING TERMINATION RULES	Trading terminates at 4:00 p.m. ET on Friday of the contract week

Source: CME Contract Directory Tool (https://www.cmegroup.com/tools-information/quikstrike/contract-directory-and-calendar-tool.html)

E-mini S&P 500 Options-Full Expiration Calendar

MONTH CODES					
JANUARY	F	May	K	September	U
FEBRUARY	G	June	M	October	V
MARCH	H	July	N	November	X
APRIL	J	August	Q	December	Z

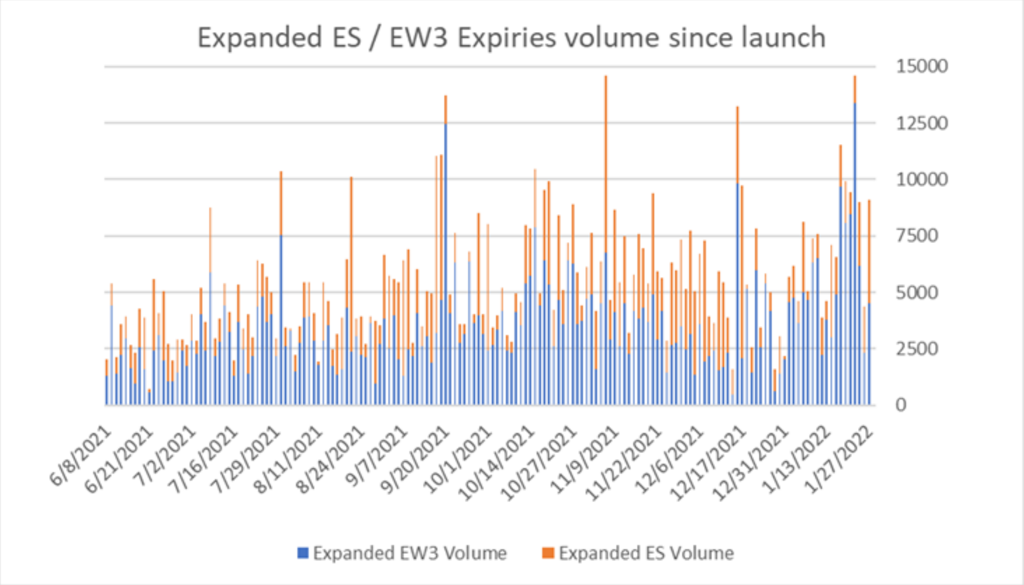
To get the latest updates on E-mini S&P 500 futures and options, visit cmegroup.com/equityoptions

Source: CME Option Listing Calendar (https://www.cmegroup.com/trading/equity-index/files/es-options-product-codes-and-listing-calendar.pdf)

E-mini S&P 500 Options

New longer-dated hedging opportunities spanning 5 years.

- Quarterly (ES) American style options available for 9 consecutive quarters, 3 December expiries.
- Week 3 (EW3) European style options available spanning over 1 year.



Source: CME Group

Micro E-mini S&P 500 Options

Micro E-mini S&P 500 Options are 1/10 size of E-mini

- Multiplier = 5

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	Ope...
− Micro E-Mini S&P 500 Weekly Option Wk3 Jan22, 3.19 days, F: 4,582.75												ATM		4585.00 ▼ ▲		10 strikes − +								
Micro E-mini S&P 500 Future Mar22													21	4,582.75		4,583.00	43	+				− 4,58...	979,648	152,...
9	1	104.25	25.00%	0.57	QS	+	36	51.50	52.02	52.25	36	4565.00	54	33.75	34.40	34.25	54	+	QS	-0.43	25.00%	↓ 24.00	4	6
11	1		24.81%	0.55	QS		45	48.50	48.94	49.00	45	4570.00	45	35.75	36.32	36.25	45		QS	-0.45	24.81%	↑ 36.75	19	298
0	2	47.50	24.63%	0.53	QS		45	45.50	45.97	46.00	45	4575.00	45	37.75	38.34	38.25	45		QS	-0.47	24.63%	− 40.25	30	35
37	14	↑ 44.50	24.44%	0.51	QS	+	45	42.75	43.07	43.00	45	4580.00	45	39.75	40.45	40.25	45	+	QS	-0.49	24.44%	↓ 38.50	86	25
1	6	↓ 40.75	24.25%	0.50	QS	+	45	39.75	40.27	40.25	45	4585.00	45	42.00	42.64	42.50	45	+	QS	-0.50	24.25%	↑ 43.00	39	15
20	15	↓ 39.00	24.07%	0.48	QS	+	45	37.00	37.58	37.50	45	4590.00	45	44.25	44.95	44.75	45	+	QS	-0.52	24.07%	↑ 44.75	51	105
18	19	↓ 37.75	23.88%	0.46	QS	+	45	34.25	34.97	35.00	45	4595.00	45	46.50	47.34	47.25	45	+	QS	-0.54	23.88%	↓ 41.75	14	6
94	294	↓ 32.50	23.70%	0.44	QS	+	54	32.00	32.47	32.25	45	4600.00	36	49.00	49.85	49.50	36	+	QS	-0.56	23.70%	↑ 47.75	337	67
19	7	↓ 37.25	23.51%	0.42	QS	+	54	29.50	30.06	30.00	54	4605.00	36	51.75	52.44	52.00	36	+	QS	-0.58	23.51%	↓ 50.50	81	63
71	39	↓ 26.00	23.33%	0.40	QS	+	54	27.25	27.77	27.50	54	4610.00	27	54.25	55.15	55.00	27	+	QS	-0.60	23.33%	↑ 55.00	31	39

Current Micro E-mini S&P 500 “Weekly” Option

- 39.75 @ 40.25 Offer
- In dollar terms: 40.25*5=**$201.25**

Source: CME Direct 1/18/2022 10:30 AM Central

Micro E-mini S&P 500 Options

Expirations
- Weekly (Friday) (European)
- End of Month (European)
- Quarterly (American)

Trading Hours
Sunday – Friday
5:00 PM – 4:00 PM (Central)

Expiration
Quarterly
- 8:30 AM Central Time
- SOQ

All Other Expiries
- 3:00 PM Central Time

Nasdaq-100

E-mini Nasdaq-100 Futures and Options

- E-mini Nasdaq-100 Multiplier = 20
- Current E-mini Nasdaq-100 Price = 15,343.50
- Current Notional Value E-mini Nasdaq-100: 15,343.50*20= $306,870

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
− E-Mini Nasdaq-100 Week3 Opt Jan22, 3.17 days, F: 15,343.50												ATM		15340.00 ▼ ▲		10 strikes − +								
E-Mini Nasdaq-100 Future Mar22													1	15,343.25		15,343.75	2	+				− 15,343.50	557,528	231,505
33	31	↑ 202.00	32.32%	0.54	QS	+	15	204.00	206.06	208.00	15	15300....	50	161.75	163.69	165.00	7	+	QS	-0.46	32.32%	↓ 160.00	420	547
	5	↑ 212.00	32.22%	0.53	QS	+	28	198.25	200.23	202.25	25	15310....	50	166.00	167.86	169.00	7	+	QS	-0.47	32.22%	↑ 174.00	12	48
20	4	↑ 182.00	32.12%	0.53	QS	+	35	192.50	194.49	196.50	35	15320....	50	169.50	172.11	173.00	8	+	QS	-0.47	32.12%	↓ 190.00	4	30
12	6	↑ 196.00	32.02%	0.52	QS	+	48	187.00	188.82	190.75	45	15330....	3	174.00	176.45	178.50	50	+	QS	-0.48	32.02%	↑ 155.00	5	46
			31.92%	0.51	QS	+	45	181.25	183.25	185.25	45	15340....	50	178.00	180.87	182.00	8	+	QS	-0.49	31.92%	197.00	4	95
9	14	↓ 170.25	31.82%	0.50	QS	+	50	175.75	177.76	179.75	58	15350....	58	182.50	185.39	186.50	8	+	QS	-0.50	31.82%	↑ 200.00	30	89
5			31.72%	0.49	QS	+	3	171.00	172.36	174.25	50	15360....	45	188.25	189.99	191.25	8	+	QS	-0.51	31.72%	↑ 225.25	12	73
171	5	↓ 152.50	31.62%	0.48	QS	+	50	165.25	167.05	169.00	50	15370....	40	193.00	194.67	196.50	8	+	QS	-0.52	31.62%		2	158
2	23	↓ 148.25	31.52%	0.47	QS	+	50	160.00	161.83	163.75	50	15380....	35	197.75	199.45	200.75	8	+	QS	-0.53	31.52%		1	344
28			31.43%	0.46	QS	+	50	154.75	156.75	159.25	8	15390....	3	201.50	204.37	206.50	33	+	QS	-0.54	31.43%			50

Current E-mini Nasdaq-100 "Weekly" Option

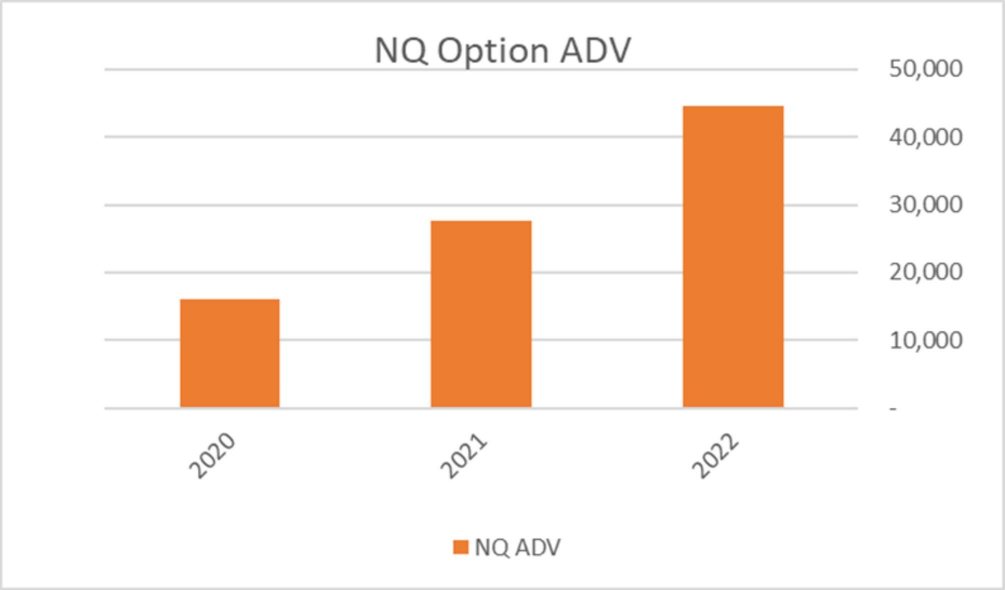
- 181.25 Bid @ 185.25
- In dollar terms: 185.25*20=**$3,705**

Source: CME Direct 1/18/2022 10:55 AM

Nasdaq-100

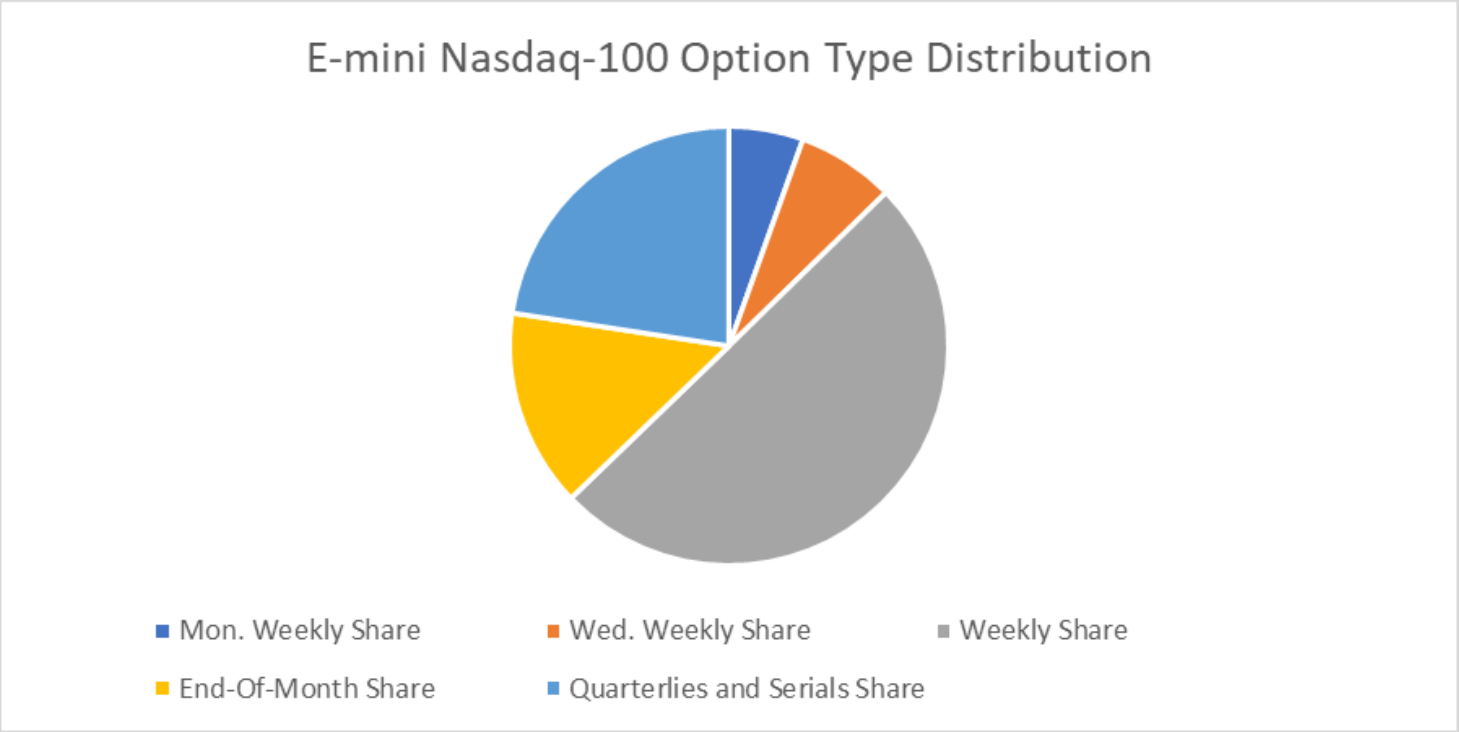
E-mini Nasdaq-100 have seen impressive volume growth since 2020.

- Monday & Wednesday options, listed in April 2021, have contributed significantly to this growth.
- Week 3 (QN3) European style options available for the first time on Quarterly dates.



Source: CME Group

Nasdaq-100



Source: CME Group

E-mini Nasdaq-100 Options

Expirations
- Weekly (Friday) (European)
- Monday (European)
- Wednesday (European)
- End of Month (European)
- Quarterly (American)

Trading Hours
Sunday – Friday
5:00 PM – 4:00 PM (Central)

Expiration
Quarterly
- 8:30 AM Central Time
- SOQ

All Other Expiries
- 3:00 PM Central Time

E-mini Nasdaq-100 Options

Contract Directory and Calendar

Choose a Different Product

Comparison Matrix

E-MINI NASDAQ 100

◄ PREV TODAY FEBRUARY 2022 NEXT ►

SUN	MON	TUE	WED	THU	FRI	SAT
30	31 QNEF2	1	2 Q1CG2	3	4 QN1G2	5
6	7 Q1AG2	8	9 Q2CG2	10	11 QN2G2	12
13	14 Q2AG2	15	16 Q3CG2	17	18 QN3G2	19
20	21	22 Q3AG2	23 Q4CG2	24	25 QN4G2	26
27	28 QNEG2	1	2	3	4 QN1H2	5
6	7 Q1AH2	8	9	10	11	12

Option | Future | Resources

NAME	E-mini Nasdaq-100 Weekly Options Wk 4
SYMBOL	QN4G22
EXPIRATION (EST)	2/25/2022 4:00 PM
DAYS TO EXPIRATION	38
FIRST AVAIL DATE	1/14/2022
EXERCISE STYLE	European
EXERCISE INFO	
OPTIONS EXPIRATION METHOD	Deliverable
UNIT OF MEASURE (UOM)	IPNT
UOM QUANTITY	20
PRICE QUOTATION FORMAT	U.S. dollars and cents per index point
OPTION TICK SIZE	
PRICE LIMIT RULE	Price Limits
TRADING TERMINATION RULES	Trading terminates at 4:00 p.m. ET on Friday of the contract week

Source: CME Contract Directory Tool (https://www.cmegroup.com/tools-information/quikstrike/contract-directory-and-calendar-tool.html)

Micro E-mini Nasdaq-100 Options

Micro E-mini Nasdaq-100 Options are 1/10 size of E-mini

- Multiplier = 2

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
− Micro E-Mini Nasdaq-100 Week3 Opt Jan22, 3.15 days, F: 15,321.00												ATM		15320.00 ▼ ▲		10 strikes − +								
Micro E-mini Nasdaq 100 Index Future Mar22													5	15,320.75		15,321.25	9	+				↑ 15,321.00	1,420,5...	101,558
1			32.38%	0.54	QS		50	205.25	204.83	210.00	50	15280....	50	163.00	163.95	168.50	50		QS	-0.46	32.38%	168.00	1	
			32.29%	0.53	QS		50	199.50	199.07	204.25	50	15290....	50	167.00	168.19	172.75	50		QS	-0.47	32.29%	↓ 157.75	2	1
10	55	↓ 183.00	32.20%	0.52	QS	+	50	193.75	193.39	198.25	50	15300....	50	171.25	172.52	177.00	50	+	QS	-0.48	32.20%	↓ 168.00	47	41
	2	↑ 208.25	32.10%	0.52	QS		50	188.00	187.75	192.75	50	15310....	50	175.75	176.87	180.25	50		QS	-0.48	32.10%			
	70	↓ 158.25	32.01%	0.51	QS	+	50	182.50	182.25	187.00	50	15320....	50	180.00	181.37	185.50	50	+	QS	-0.49	32.01%	81.50	2	1
			31.92%	0.50	QS		50	177.00	176.83	181.50	50	15330....	50	184.50	185.95	190.00	50		QS	-0.50	31.92%	185.75	1	2
			31.83%	0.49	QS		50	171.75	171.50	176.25	50	15340....	50	189.25	190.63	195.00	50		QS	-0.51	31.83%			16
16	26	− 180.00	31.73%	0.48	QS	+	50	166.25	166.21	170.75	50	15350....	50	193.75	195.33	198.50	50	+	QS	-0.52	31.73%	191.00	22	6
	11	↓ 175.00	31.64%	0.47	QS	+	50	161.00	161.05	165.50	50	15360....	50	198.50	200.18	204.50	50	+	QS	-0.53	31.64%			
5	1	174.00	31.55%	0.46	QS		50	156.00	155.99	160.50	50	15370....	50	203.25	205.12	209.00	50		QS	-0.54	31.55%	↑ 225.00	36	40

Current E-mini Nasdaq-100 “Weekly” Option

- 182.50 Bid @ 187.00
- In dollar terms: 187.00*2=**$374.00**

Source: CME Direct 1/18/2022 11:20 AM

Micro E-mini Nasdaq-100 Options

Expirations
- Weekly (Friday) (European)
- End of Month (European)
- Quarterly (American)

Trading Hours
Sunday – Friday
5:00 PM – 4:00 PM (Central)

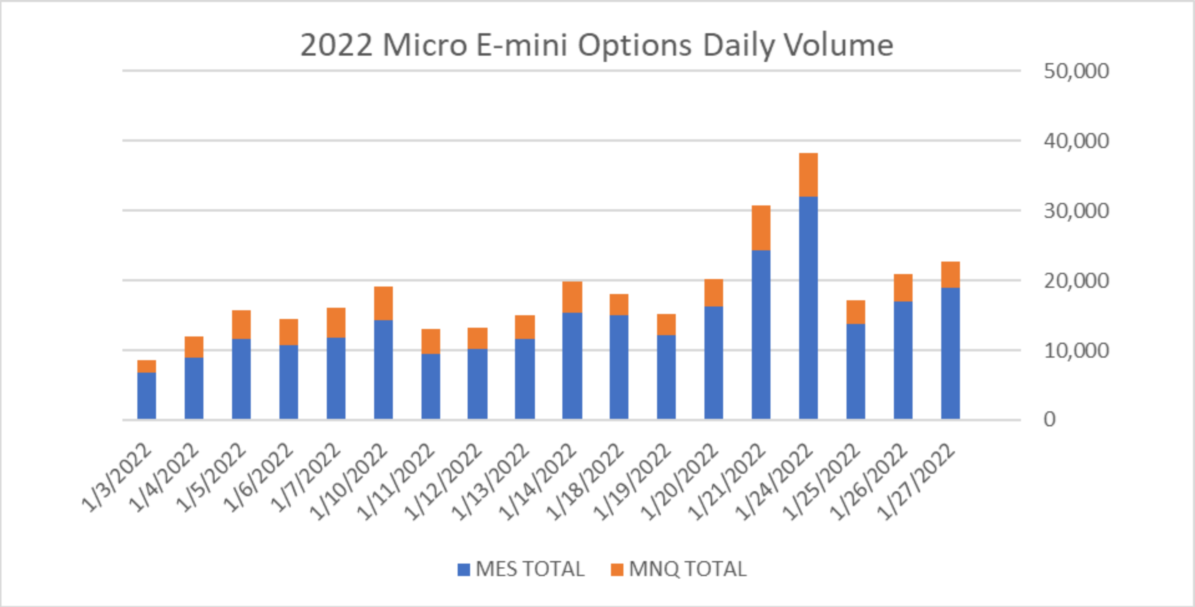
Expiration
Quarterly
- 8:30 AM Central Time
- SOQ

All Other Expiries
- 3:00 PM Central Time

Micro E-mini S&P 500 / Nasdaq-100 Options

Micro E-mini options have seen promising growth since August 2020 listing.

- 2021 ADV was roughly 10K contracts.
- Traders increasingly embracing MNQ options, nearly 4K ADV to start 2022.



Source: CME Group

Dow Jones Industrials

E-mini Dow Futures and Options

- E-mini Dow Multiplier = 5
- Current E-mini Dow Price = 35,325
- Current Notional Value E-mini Dow: 35,325*5= $176,625

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
− E-Mini Dow ($5) Option Week3 Opt Jan22, 3.03 days, F: 35,325												ATM		35350 ▼ ▲		10 strikes − +								
E-Mini Dow ($5) Future Mar22													4	35,325		35,327	5	+				35,325	291,113	92,910
			22.25%	0.60	QS	+	15	350	382	412	15	35150	16	177	205	230	16	+	QS	-0.40	22.25%			1
1			22.07%	0.57	QS	+	15	321	351	383	15	35200	16	193	224	248	16	+	QS	-0.43	22.07%			
			21.88%	0.55	QS	+	15	290	321	349	15	35250	16	214	244	270	15	+	QS	-0.45	21.88%			
	1	280	21.70%	0.52	QS	+	15	263	292	322	15	35300	15	233	265	290	15	+	QS	-0.48	21.70%	114	1	1
1			21.52%	0.49	QS	+	16	236	265	294	15	35350	15	255	288	313	15	+	QS	-0.51	21.52%			
			21.34%	0.46	QS	+	15	209	240	265	15	35400	15	280	313	340	15	+	QS	-0.54	21.34%			
			21.16%	0.43	QS	+	16	185	215	240	16	35450	15	304	338	366	15	+	QS	-0.57	21.16%			
7			20.98%	0.40	QS	+	16	163	193	216	15	35500	15	330	366	394	15	+	QS	-0.60	20.98%			1
			20.79%	0.37	QS	+	16	142	171	195	16	35550	14	358	394	423	14	+	QS	-0.63	20.79%			
			20.60%	0.34	QS	+	16	122	151	174	16	35600	14	387	424	454	14	+	QS	-0.66	20.60%			1

Current E-mini Dow "Weekly" Option
- 236 Bid @ 294 Offer
- In dollar terms: 294*5=**$1,470**

Source: CME Direct 1/18/2022 2:10 PM

E-mini Dow Options

Expirations
- Weekly (Friday) (European)
- End of Month (European)
- Quarterly (American)

Trading Hours
Sunday – Friday
5:00 PM – 4:00 PM (Central)

Expiration
Quarterly
- 8:30 AM Central Time
- SOQ

All Other Expiries
- 3:00 PM Central Time

Russell 2000

E-mini Russell 2000 Futures and Options

- E-mini Russell 2000 Multiplier = 50
- Current E-mini Russell 2000 Price = 2104.2
- Current Notional Value E-mini Russell 2000: 2,104.2*50 = $105,210

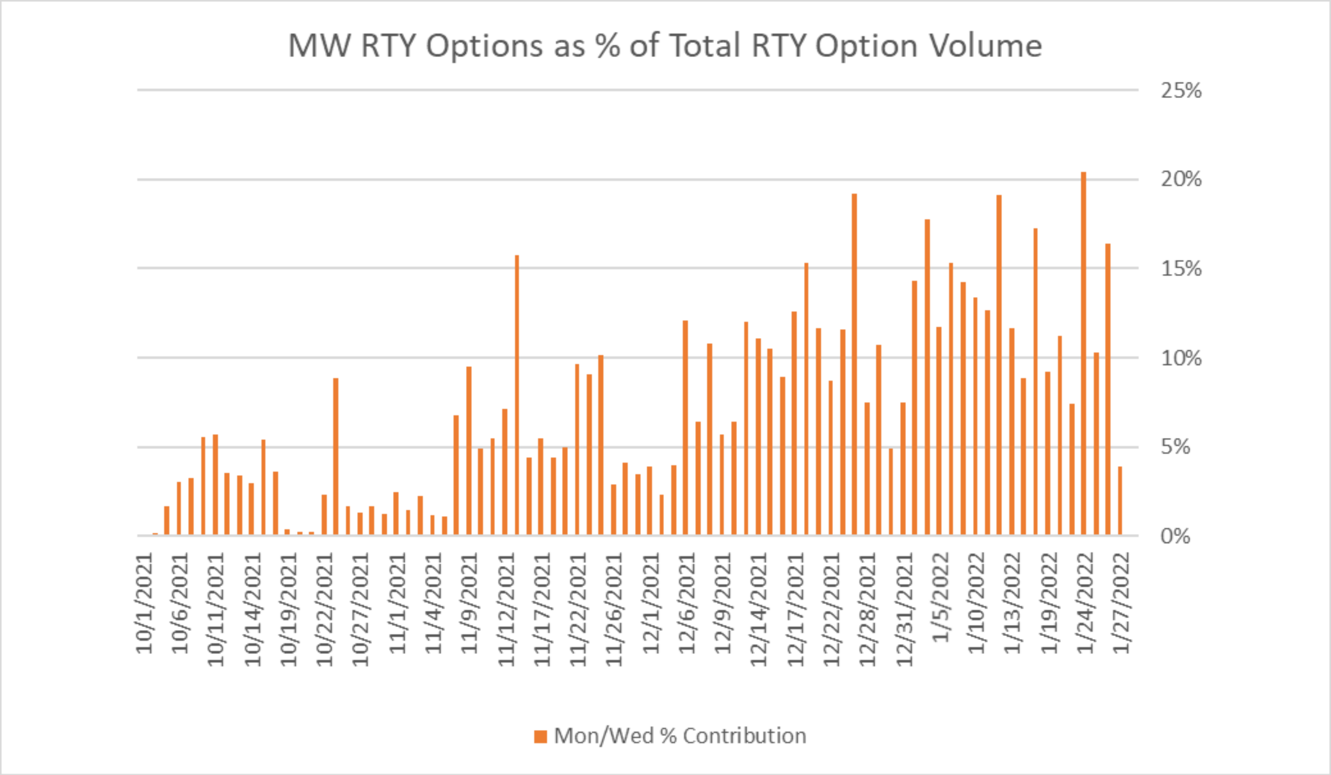
Open Int	Volume	Last	Vol	Δ	QS	+	C Qty	C Bid	Theo	C Ofr	C Qty	Strike	P Qty	P Bid	Theo	P Ofr	P Qty	+	QS	Δ	Vol	Last	Volume	Open Int
− E-mini Russell 2000 Weekly Option Wk3 Jan22, 3.03 days, F: 2,104.2												ATM		2105.0 ▼ ▲		10 strikes − +								
E-mini Russell 2000 Index Mar22													7	2,104.1		2,104.2	1	+				− 2,104.2	239,115	462,469
	E-mini Russell 2000 Index Mar22 [CME: RTY, GLOBEX: RTY]			…2	QS	+	20	35.30	36.91	39.70	11	2085.0	17	17.70	17.41	18.20	5	+	QS	-0.38	34.17%	22.80	16	338
				…9	QS	+	9	33.90	33.65	34.60	5	2090.0	14	19.40	19.15	20.00	35	+	QS	-0.41	33.80%	↑ 22.50	22	71
			33.45%	0.57	QS	+	9	30.80	30.55	31.50	14	2095.0	15	21.40	21.05	22.00	32	+	QS	-0.43	33.45%	↓ 15.20	57	234
22	29	↑ 28.50	33.10%	0.53	QS	+	6	27.80	27.60	28.60	14	2100.0	13	23.40	23.10	24.00	33	+	QS	-0.47	33.10%	↑ 19.00	108	272
			32.77%	0.50	QS	+	13	25.10	24.81	25.70	16	2105.0	16	25.50	25.31	26.30	26	+	QS	-0.50	32.77%	↓ 23.00	13	102
2	20	↑ 23.80	32.45%	0.47	QS	+	28	22.50	22.19	23.10	14	2110.0	15	27.90	27.69	28.60	6	+	QS	-0.53	32.45%	↓ 23.40	34	67
12	132	↓ 18.90	32.14%	0.44	QS	+	34	20.00	19.74	20.60	14	2115.0	12	30.40	30.24	31.20	16	+	QS	-0.56	32.14%	↑ 28.00	112	296
4	136	− 18.00	31.85%	0.41	QS	+	19	17.70	17.47	18.30	15	2120.0	6	33.10	32.97	33.90	16	+	QS	-0.59	31.85%	↑ 28.00	10	72
28	36	↑ 20.80	31.57%	0.37	QS	+	36	15.60	15.37	16.20	30	2125.0	1	34.60	35.87	37.60	20	+	QS	-0.63	31.57%	↑ 11.80	14	96
10	38	↑ 15.70	31.31%	0.34	QS	+	6	13.70	13.45	14.20	15	2130.0	21	37.70	38.95	40.90	21	+	QS	-0.66	31.31%	↑ 46.40	3	104

Current E-mini Russell 2000 "Weekly" Option

- 25.10 Bid @ Offer 25.70
- In dollar terms: =25.70*50 = **$1,285**

Source: CME Direct 1/18/2022 2:20 PM

Russell 2000



Source: CME Group

E-mini Russell 2000 Options

Expirations
- Weekly (Friday) (European)
- Monday (European)
- Wednesday (European)
- End of Month (European)
- Quarterly (American)

Trading Hours
Sunday – Friday
5:00 PM – 4:00 PM (Central)

Expiration
Quarterly
- 8:30 AM Central Time
- SOQ

All Other Expiries
- 3:00 PM Central Time

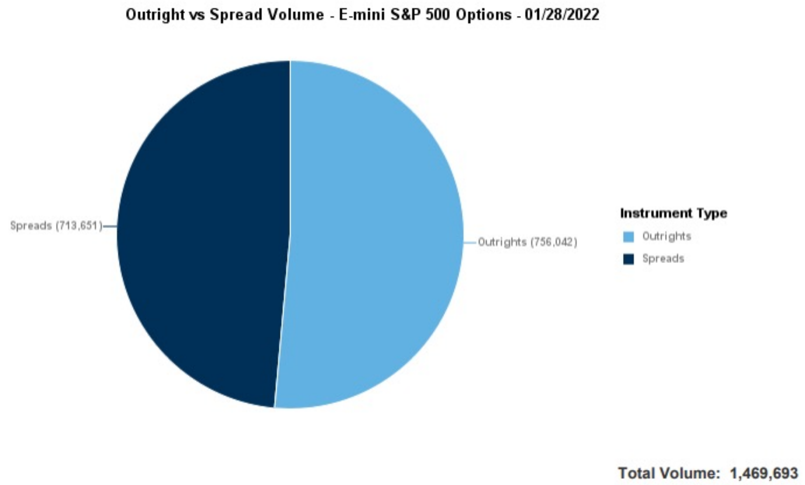
CME Equity Options Strategies

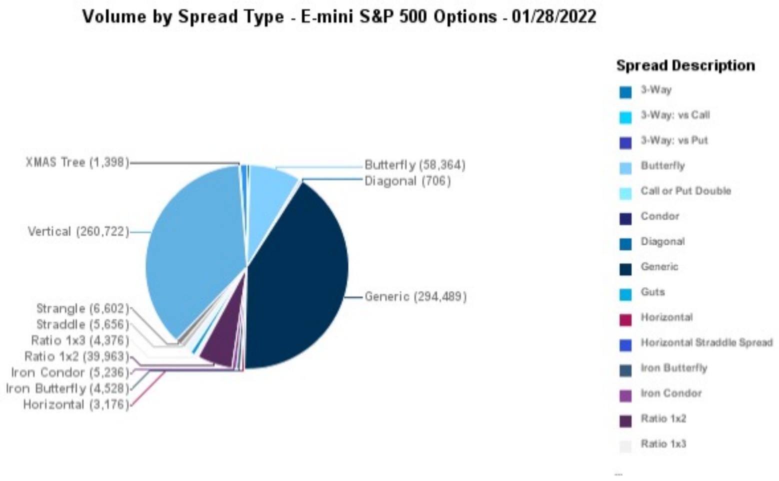
Top Strategies Executed in CME Equity Options

- Vertical
- Generic
- Ratio
- Delta-Hedged
- Butterfly
- Strangle
- Straddle
- Iron Condor
- 3-Way
- Box
- Iron Butterfly
- Diagonal
- Condor
- Risk Reversal
- Horizontal

Source: CME Group

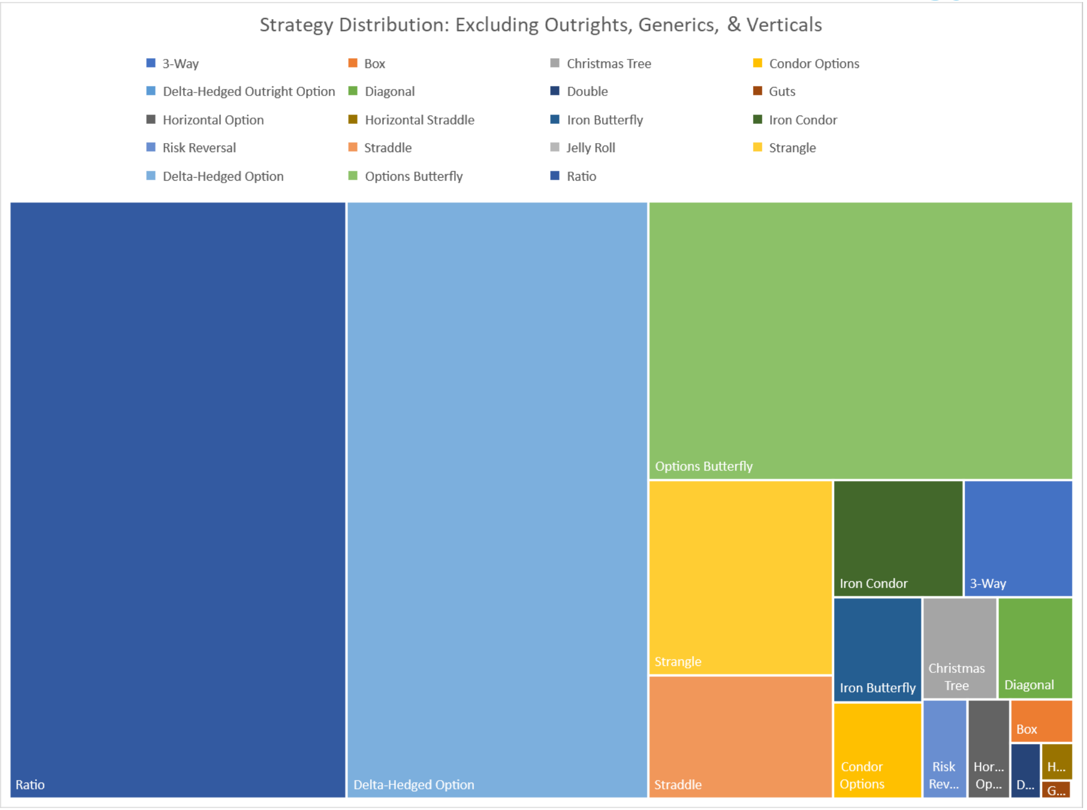
E-mini S&P 500 Options-Spread Activity





Source: CME Spread Activity Report (https://www.cmegroup.com/trading/equity-index/daily-index-option-spread-activity-report.html)

E-mini S&P 500 Options-Breadth of Strategy Activity



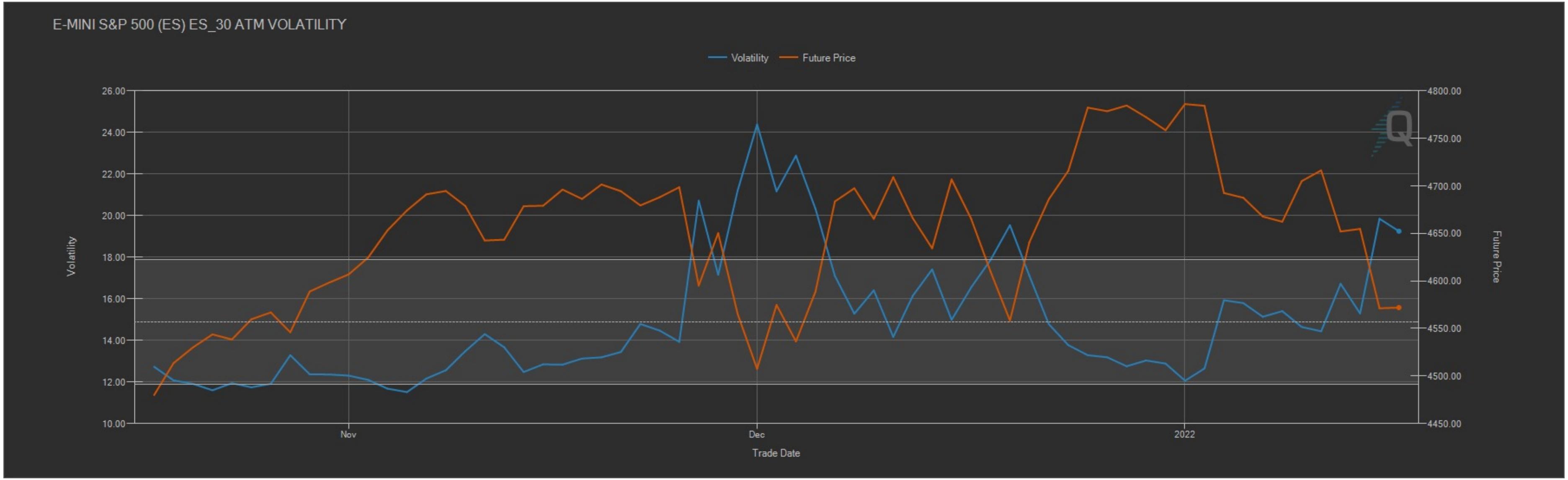
Source: CME Group

Vertical Spread Example – E-mini S&P 500

- Trader A believes the price of the E-mini S&P 500 will continue its recent downtrend
- They evaluate several different strategies using CME Group Products
  - Short E-mini S&P 500 Future
  - Buy E-mini S&P 500 Puts
  - Sell E-mini S&P 500 Calls

Due to the elevated levels of implied volatility relative to the last several weeks, the trader decides to sell E-mini S&P 500 Calls

Vertical Spread Example – E-mini S&P 500



Source: QuikStrike

Vertical Spread Example – E-mini S&P 500

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
− E-Mini S&P 500 Week4 Opt Jan22, 9.08 days, F: 4,570.50												ATM		4570.00			24 strikes − +							
E-Mini S&P 500 Future Mar22													24	4,570.50		4,570.75	21	+				4,570.50	1,349,6...	2,249,6...
3	17	94.25	22.32%	0.64	QS	+	6	95.25	95.28	96.00	9	4515.00	98	39.75	39.90	40.25	21	+	QS	-0.36	22.32%	36.75	71	664
13	8	89.75	22.18%	0.63	QS	+	1	91.75	91.78	92.50	24	4520.00	111	41.25	41.41	41.75	22	+	QS	-0.37	22.18%	41.00	136	309
38	5	99.50	22.04%	0.62	QS	+	28	88.25	88.34	89.00	28	4525.00	102	42.75	42.97	43.25	13	+	QS	-0.38	22.04%	41.50	189	2,189
154	2	98.00	21.90%	0.61	QS	+	1	85.00	84.95	85.50	11	4530.00	20	44.50	44.58	45.00	96	+	QS	-0.39	21.90%	44.25	30	168
65	1	100.25	21.76%	0.60	QS	+	51	81.50	81.62	82.25	43	4535.00	91	46.00	46.24	46.50	12	+	QS	-0.40	21.76%	46.00	102	380
38	30	89.00	21.62%	0.58	QS	+	17	78.25	78.34	78.75	19	4540.00	98	47.75	47.97	48.25	19	+	QS	-0.42	21.62%	43.25	167	174
12	142	77.00	21.49%	0.57	QS	+	7	75.00	75.15	75.50	19	4545.00	64	49.50	49.78	50.00	13	+	QS	-0.43	21.49%	44.75	145	613
124	936	74.50	21.35%	0.56	QS	+	43	71.75	72.13	72.25	14	4550.00	83	51.25	51.51	51.75	6	+	QS	-0.44	21.35%	51.25	670	1,189
14	80	70.00	21.21%	0.55	QS	+	49	68.50	69.03	69.25	29	4555.00	17	53.25	53.41	53.75	65	+	QS	-0.45	21.21%	51.00	187	201
54	129	75.25	21.07%	0.53	QS	+	64	65.50	65.99	66.25	70	4560.00	110	55.00	55.37	55.50	6	+	QS	-0.47	21.07%	55.50	151	279
137	13	70.00	20.93%	0.52	QS	+	44	62.50	63.02	63.00	23	4565.00	75	57.00	57.39	57.50	10	+	QS	-0.48	20.93%	54.25	223	156
131	295	60.00	20.80%	0.51	QS	+	49	59.50	60.13	60.25	75	4570.00	82	59.00	59.51	59.50	5	+	QS	-0.49	20.80%	59.50	244	386
424	136	58.50	20.66%	0.49	QS	+	7	56.75	57.29	57.25	63	4575.00	17	61.25	61.66	61.75	33	+	QS	-0.51	20.66%	55.25	323	463
102	86	62.50	20.52%	0.48	QS	+	90	53.75	54.51	54.50	90	4580.00	38	63.25	63.89	64.00	38	+	QS	-0.52	20.52%	57.75	349	323
64	22	59.75	20.38%	0.47	QS	+	86	51.00	51.80	51.50	17	4585.00	38	65.50	66.18	66.25	18	+	QS	-0.53	20.38%	64.75	92	107
58	168	56.50	20.25%	0.45	QS	+	4	48.50	49.19	49.00	101	4590.00	58	67.75	68.56	68.25	17	+	QS	-0.55	20.25%	67.00	29	481
96	168	52.25	20.11%	0.44	QS	+	54	45.75	46.62	46.25	71	4595.00	14	70.25	70.99	70.75	1	+	QS	-0.56	20.11%	80.00	7	326
241	656	46.00	19.98%	0.42	QS	+	12	43.25	44.05	43.75	85	4600.00	14	72.75	73.67	73.25	6	+	QS	-0.58	19.98%	73.00	217	2,442
225	94	46.50	19.84%	0.41	QS	+	13	40.75	41.62	41.25	127	4605.00	14	75.25	76.25	75.75	17	+	QS	-0.59	19.84%	67.75	51	222
144	128	45.25	19.71%	0.40	QS	+	99	38.25	39.30	38.75	43	4610.00	10	77.75	78.92	78.25	1	+	QS	-0.60	19.71%	69.50	47	350
45	75	37.25	19.57%	0.38	QS	+	13	36.00	37.03	36.50	97	4615.00	24	80.25	81.65	81.00	17	+	QS	-0.62	19.57%	74.50	23	70
183	143	38.75	19.44%	0.37	QS	+	14	33.75	34.85	34.25	112	4620.00	8	83.25	84.47	83.75	1	+	QS	-0.63	19.44%	82.75	6	339
61	144	31.75	19.31%	0.35	QS	+	86	31.50	32.75	32.00	105	4625.00	3	86.00	87.38	86.75	4	+	QS	-0.65	19.31%	77.75	81	299
206	183	30.25	19.17%	0.34	QS	+	7	29.50	30.70	30.00	155	4630.00	4	88.75	90.32	89.50	4	+	QS	-0.66	19.17%	88.50	2	476

Source: CME Direct 1/19/2022 1:00 PM

Vertical Spread Example – E-mini S&P 500

Due to the elevated levels of implied volatility relative to the last several weeks, the trader decides to sell E-mini S&P 500 Calls

In order to define the risk that the trader is exposed to, they decide to sell a Call Spread rather than a “naked” Call

Futures Price = 4,570

- Sell 1 4,590 Call @ 48.75 l Delta 45 lExpire 9 Days
- Buy 1 4,625 Call @ 31.75 l Delta 35 lExpire 9 Days

Trader A Collects 17 (48.75 minus 31.75) Points = $850 (17*50)

Vertical Spread Example – E-mini S&P 500

Spread Builder - EW4F2 4590/4625 CS

My Spreads | EW4F2 | Analyze | +

Position | History | Matrix | Simulate | Tools

Position Classic Mode

+/- Option | +/- Future

Summary

Earned	Premium	Future	Total P/L
17.00	-17.00	0.00	0.00

Future:	4570.00	49.00
DTE:	9.08	0.15
ATM:	22.41	0.00

EW4F2 Options

			VOLATILITY			PREMIUM	TOTAL(UNIT * QTY)		
QTY	STRIKE	TYPE	CURRENT	THEO	SETTLE	UNIT PRICE	PREM	THEO	SETTLE
-1	4590	Call	20.50	20.74	21.76	49.60	-49.60	-30.77	-56.25
1	4625	Call	19.31	19.92	20.60	32.60	32.60	19.34	38.75
			TOTALS:		Allocate		-17.00	-11.43	-17.50

Greeks

			GREEKS			
QTY	STRIKE	TYPE	DELTA	GAMMA	VEGA	THETA
-1	4590	Call	-0.45	-0.00268	-2.855	3.223
1	4625	Call	0.35	0.00267	2.678	-2.847
		TOTALS:	-0.10	-0.00001	-0.178	0.376

Profit/Loss

			TOTAL PREMIUM				TRADE P/L VS		
QTY	STRIKE	TYPE	TRADE	LEG	QS	SETTLE	LEG	QS	SETTLE
-1	4590	Call	-49.60	-49.60	-30.77	-56.25	0.00	18.84	-6.65
1	4625	Call	32.60	32.60	19.34	38.75	0.00	-13.26	6.15
		TOTALS:	-17.00	-17.00	-11.43	-17.50	0.00	5.57	-0.50

NOTE: Premium ($) = 50 * Premium in Ticks

Source: QuikStrike

Vertical Spread Example – E-mini S&P 500

Source: QuikStrike

Vertical Spread Example – E-mini S&P 500

Days to Expiration – 9 days to 5 days
Futures Price – Rallied from 4,570 to 4,580

Position — Classic Mode

+/- Option | +/- Future

Summary

Earned	Premium	Future	Total P/L
16.30	-16.30	0.00	0.00

Future:	4580.00	-9.50
DTE:	5.08	-3.09
ATM:	20.18	0.00

EW4F2 Options

				VOLATILITY			PREMIUM	TOTAL(UNIT * QTY)		
	QTY	STRIKE	TYPE	CURRENT	THEO	SETTLE	UNIT PRICE	PREM	THEO	SETTLE
	-1	4590	Call	20.50	20.05	20.45	39.42	-39.42	-54.69	-30.75
	1	4625	Call	19.31	19.14	19.19	23.12	23.12	36.78	18.25
					TOTALS:	Allocate		-16.30	-17.92	-12.50

Greeks

				GREEKS			
	QTY	STRIKE	TYPE	DELTA	GAMMA	VEGA	THETA
	-1	4590	Call	-0.47	-0.00359	-2.149	4.336
	1	4625	Call	0.34	0.00350	1.975	-3.754
			TOTALS:	-0.13	-0.00009	-0.174	0.582

Source: QuikStrike

Vertical Spread Example – E-mini S&P 500

Days to Expiration – 5 days to 2 days
Futures Price – Steady at 4,580

Position Classic Mode

+/- Option +/- Future

Summary

Earned	Premium	Future	Total P/L
13.51	-13.51	0.00	0.00

Future:	4580.00	-7.25
DTE:	2.08	-6.09
ATM:	20.05	0.00

EW4F2 Options

			VOLATILITY			PREMIUM	TOTAL(UNIT * QTY)		
QTY	STRIKE	TYPE	CURRENT	THEO	SETTLE	UNIT PRICE	PREM	THEO	SETTLE
-1	4590	Call	20.50	20.05	20.45	23.58	-23.58	-53.57	-30.75
1	4625	Call	19.31	19.12	19.19	10.07	10.07	35.83	18.25
			TOTALS:	Allocate			-13.51	-17.74	-12.50

Greeks

			GREEKS			
QTY	STRIKE	TYPE	DELTA	GAMMA	VEGA	THETA
-1	4590	Call	-0.45	-0.00558	-1.367	6.737
1	4625	Call	0.25	0.00479	1.107	-5.138
		TOTALS:	-0.19	-0.00078	-0.260	1.599

Source: QuikStrike

Vertical Spread Example – E-mini S&P 500

Days to Expiration – 2 days to .5 days
Futures Price – Steady at 4,580

Position — Classic Mode

+/- Option | +/- Future

Summary

Earned	Premium	Future	Total P/L
8.15	-8.15	0.00	0.00

Future:	4580.00	-8.00
DTE:	0.50	-7.67
ATM:	20.05	0.00

EW4F2 Options

			VOLATILITY			PREMIUM	TOTAL(UNIT * QTY)		
QTY	STRIKE	TYPE	CURRENT	THEO	SETTLE	UNIT PRICE	PREM	THEO	SETTLE
-1	4590	Call	20.50	20.05	20.45	9.45	-9.45	-53.94	-30.75
1	4625	Call	19.31	19.12	19.19	1.29	1.29	36.12	18.25
				TOTALS:	Allocate		-8.15	-17.82	-12.50

Greeks

			GREEKS			
QTY	STRIKE	TYPE	DELTA	GAMMA	VEGA	THETA
-1	4590	Call	-0.39	-0.01103	-0.650	13.317
1	4625	Call	0.09	0.00480	0.267	-5.148
		TOTALS:	-0.30	-0.00622	-0.383	8.169

Source: QuikStrike

Vertical Spread Example – E-mini S&P 500

So, what happens next?

Remember, at initiation, our trader collected $850.00

Futures Price = 4,570

- *Sell 1 4,590 Call @ 48.75 | Delta 45 |Expire 9 Days*
- *Buy 1 4,625 Call @ 31.75 | Delta 35 |Expire 9 Days*

*Trader A Collects 17 (48.75 minus 31.75) Points = $850 (17*50)*

At expiration, E-mini S&P 500 futures price = 4,580

- Because both the Short (4,590) and Long (4,625) Calls are out of the money, they are worthless at expiration
- Therefore, the position simply “goes away” and the trader profits the $850.00

HOWEVER,

Let’s assume the futures price at expiration = 4,595

- Because the Short Call positions would be in the money, our trader would be assigned a Short futures position
- Trader could either post the margin to hold a short futures position (currently ~$11,500)
- OR, liquidate the position. If the futures price remained at 4,595, the traders overall P&L on the trade would be
    - $850.00 minus (5*$50) = $600.00

Vertical Spread Example – Micro E-Mini Nasdaq-100 Options

- Trader B believes the price of the Micro E-mini Nasdaq-100 is oversold and believes the index will bounce higher over the next several weeks
- Trader B likes the flexibility that the Micro-sized options provide to scale out of their position

Using QuikStrike, we created the following **hypothetical** position:

Long 5 Week 2 February 14,000 Call

- Micro E-mini Nasdaq-100 Futures Price: 13,900.75
- Days Until Expiration: 18
- ATM Volatility: 20%
- Premium (points): 195 per option (975 Total)
  - Premium (dollars): $1,950

Vertical Spread Example – Micro E-Mini Nasdaq-100 Options

- Assume one week later, the futures price had indeed spiked higher by ~5%
- Implied Volatility has dropped by 2%

Long 5 Week 2 February 14,000 Call

- Micro E-mini Nasdaq-100 Futures Price: 14,595
- Days Until Expiration: 11
- ATM Volatility: 18%
- New Hypothetical Premium Value (points): 615 per option (3,075 Total)
    - Premium (dollars): $6,150

Because of the flexibility that Micro-sized contracts provide, our Trader can take some of their risk off:

- Sell 3 @ 615 = 1,845 points ($3,690)
- “Locks in” a minimum profit of at least $1,740
- Remains Long 2 Calls

Vertical Spread Example – Micro E-Mini Nasdaq-100 Options

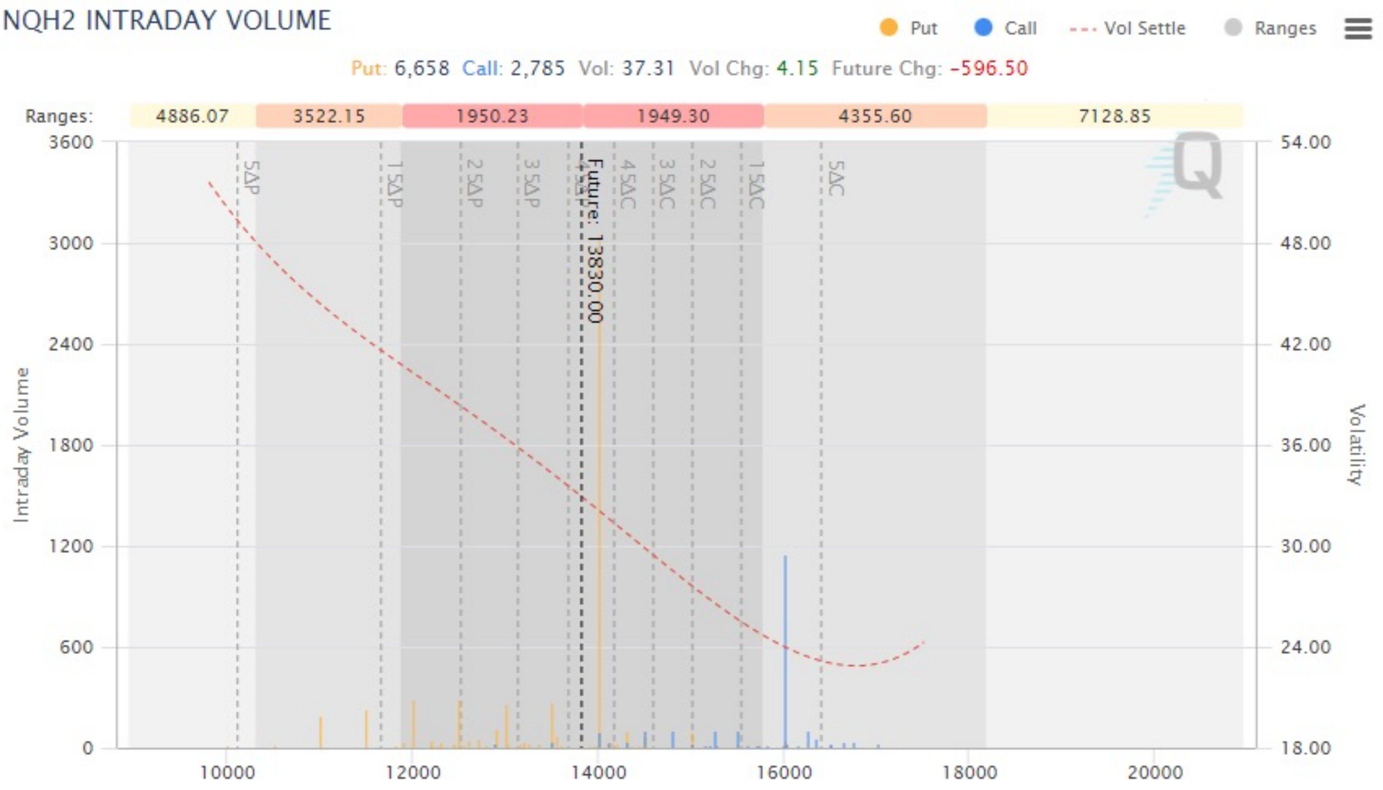
- Assume 10 days later, the futures price had fallen by 7%
- Implied Volatility has rising by 5%

Long 5 Week 2 February 14,000 Call

- Micro E-mini Nasdaq-100 Futures Price: 13,574
- Days Until Expiration: 1
- ATM Volatility: 23%
- New Hypothetical Premium Value (points): 2.75 per option (5.5Total)
    - Premium (dollars): $11.00

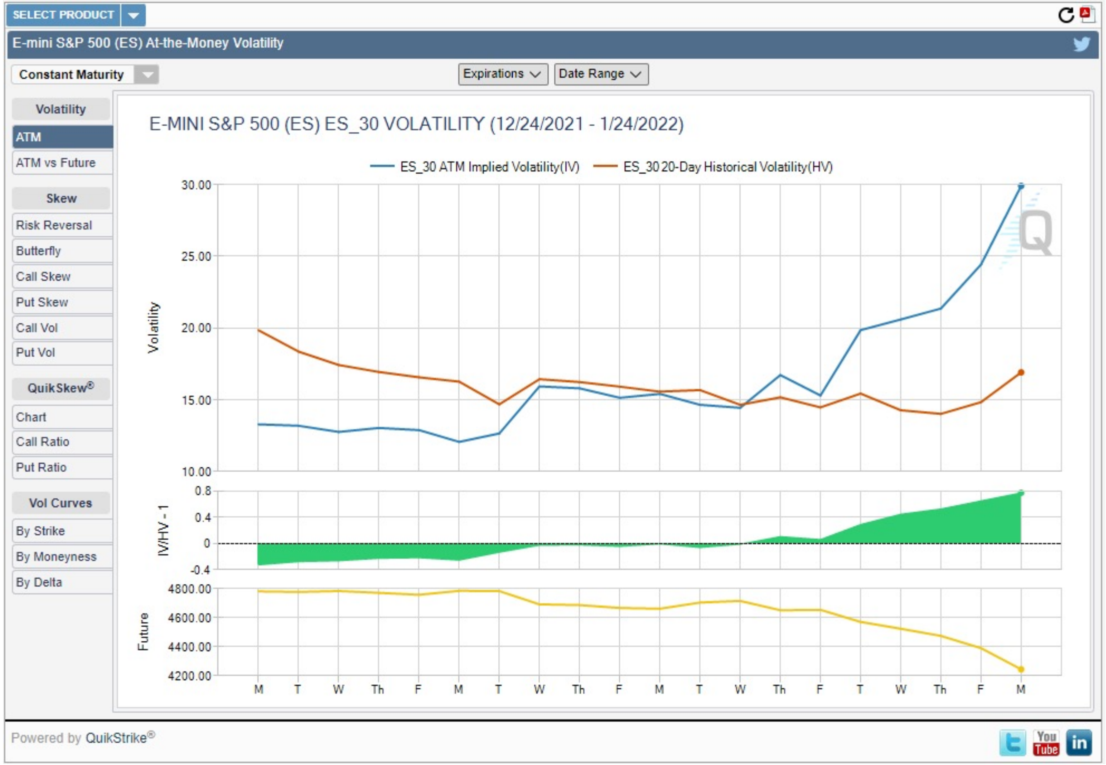
Even though the options have become nearly worthless, the ability of our trader to take some of their risk off after the initial price spike allows them to lock in profit on this trade

QuikStrike Tools



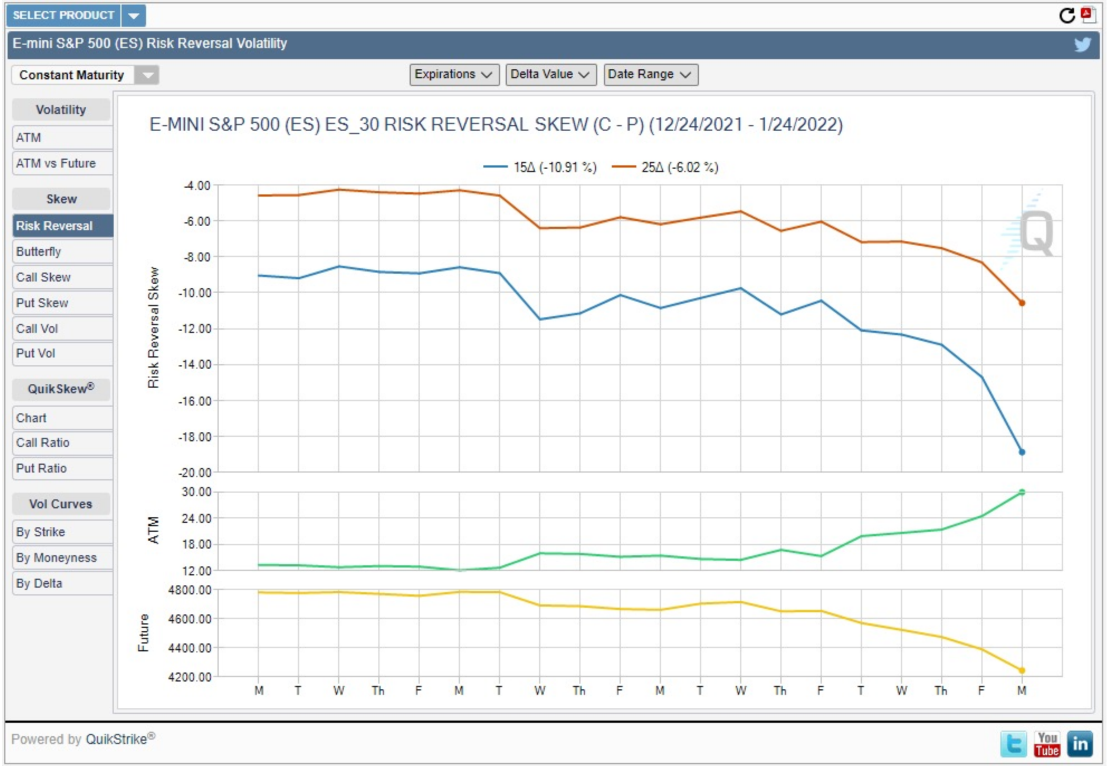
Source: QuikStrike (CME Group Website)

QuikStrike Tools



Source: QuikStrike (CME Group Website) 1/24/2022 11:50 AM

QuikStrike Tools



Source: QuikStrike (CME Group Website) 1/24/2022 11:50 AM

QuikStrike Tools

CME Group Volatility Index (CVOL) Data as of 1/21/2022

Dashboard | Tsy (Yield) | Tsy (Price) | STIRs | FX | Metals | Energy | Ags | Aggregates

Select Products Hi-Lo Range: 1W 1M 3M 6M 1Y YTD All Layout: Grouped List

Tsy (Yield)

PRODUCT	SYMBOL	CVOL	CHG	TREND	HI-LO CVOL	DNVAR	SKEW	UPVAR	ATM	SKEW R	CONVEX
2 Yr	TUVY	43.78	-0.55		13.87 52.46	42.97 0.49	1.60 -2.02	44.57 -1.53	42.35 0.09	1.04 -0.05	1.03 -0.02
10 Yr	TYVY	89.20	-2.63		63.98 98.30	86.71 -4.38	4.93 3.43	91.63 -0.94	86.05 -1.72	1.06 0.04	1.04 -0.01
30 Yr	USVY	90.69	-2.68		67.45 103.75	90.79 -3.38	-0.19 1.42	90.60 -1.96	84.53 -2.72	1.00 0.02	1.07 0.00
Treasury	TVL	88.86	-2.85		63.15 98.98	85.94 -4.44	5.71 3.10	91.65 -1.34	85.87 -1.91	1.07 0.04	1.04 -0.01
5 Yr	FVVY	89.82	-3.82		53.04 104.10	84.36 -5.44	10.62 3.08	94.98 -2.36	88.58 -2.44	1.13 0.04	1.01 -0.01

FX

PRODUCT	SYMBOL	CVOL	CHG	TREND	HI-LO CVOL	DNVAR	SKEW	UPVAR	ATM	SKEW R	CONVEX
AUD/USD	ADVL	10.18	0.42		8.32 11.44	10.83 0.57	-1.33 -0.33	9.50 0.25	9.40 0.37	0.88 -0.03	1.08 0.00
GBP/USD	GBVL	6.52	0.32		5.80 8.27	6.91 0.36	-0.80 -0.07	6.11 0.28	6.30 0.26	0.88 0.00	1.04 0.01
CAD/USD	CAVL	7.58	0.23		5.98 9.50	7.93 0.39	-0.71 -0.32	7.22 0.07	7.08 0.08	0.91 -0.04	1.07 0.02
G5 FX	FXVL	6.71	0.17		5.66 8.40	6.80 0.20	-0.19 -0.06	6.61 0.14	6.34 0.14	0.97 -0.01	1.06 0.00
JPY/USD	JPVL	7.10	0.13		5.21 10.10	6.36 0.08	1.42 0.09	7.78 0.17	6.44 0.15	1.22 0.01	1.10 -0.01
EUR/USD	EUVL	5.90	0.08		4.95 7.70	5.98 0.08	-0.15 0.00	5.83 0.08	5.67 0.07	0.98 0.00	1.04 0.00

Metals

PRODUCT	SYMBOL	CVOL	CHG	TREND	HI-LO CVOL	DNVAR	SKEW	UPVAR	ATM	SKEW R	CONVEX
Gold	GCVL	14.11	-0.51		13.51 17.37	13.93 -0.38	0.35 -0.25	14.29 -0.63	12.51 -0.36	1.03 -0.02	1.13 -0.01
Metals	MVL	15.16	-0.54		14.30 18.39	14.79 -0.36	0.72 -0.35	15.51 -0.71	13.37 -0.37	1.05 -0.02	1.13 -0.01
Copper	HGVL	29.48	-1.03		24.96 36.84	27.61 -0.65	3.63 -0.70	31.24 -1.36	26.40 -0.94	1.13 -0.02	1.12 0.00
Silver	SIVL	29.57	-1.68		26.28 33.15	25.98 -0.26	6.80 -2.52	32.78 -2.79	24.45 -0.92	1.26 -0.09	1.21 -0.02

Energy

PRODUCT	SYMBOL	CVOL	CHG	TREND	HI-LO CVOL	DNVAR	SKEW	UPVAR	ATM	SKEW R	CONVEX
Nat Gas	NGVL	62.05	3.98		36.74 143.59	46.93 1.63	27.22 4.01	74.15 5.64	52.42 4.30	1.58 0.07	1.18 -0.02
Energy	EVL	48.93	1.50		36.65 87.78	44.46 1.22	7.82 0.29	52.27 1.51	42.24 1.42	1.18 0.00	1.15 0.00
RBOB	RBVL	40.55	1.25		28.73 72.08	42.77 1.07	-4.56 0.37	38.21 1.45	37.89 0.83	0.89 0.01	1.07 0.01
Heating Oil	HOVL	36.53	0.23		29.70 64.76	36.66 0.32	-0.26 -0.18	36.40 0.15	33.27 -0.04	0.99 0.00	1.10 0.01
WTI	CLVL	41.53	0.20		30.60 73.66	43.12 1.02	-3.26 -1.70	39.86 -0.68	36.47 -0.15	0.92 -0.04	1.14 0.01

Source: CVOL (CME Group Website) 1/24/2022 11:50 AM

Questions?

For a copy of today's presentation, please email
ActiveTrader @cmegroup.com

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