AAII San Diego Options Trading SIG

Saturday, April 22, 2023 @ 9:00am PT

Option Basics II: Buying and Selling Options

- Informal presentations to help you enhance your portfolio with options
- For addition to email list: Bruce Ennis, vicepresident@aaiisandiego.com
- Previous meetings: www.aaiisandiego.com/sub-groups/options-trading/

Flexible Meeting Fees

- New payment system: Flexible Meeting Fees instead of the Pay-As-You-Go.
- Motivated by the many of you who made generous, voluntary contributions online toward our expenses during COVID, Thank You.
- We need contributions to meet our expenses.
- Ways to make voluntary contributions
  - Cash or check
  - https://www.paypal.com/donate/?hosted_button_id=2M5F9F7L4C2HU
  - Use this QR code

Option Basics II Presentation Outline

- Review of Option Basics I
- Investing Objectives and Sentiment
- Selecting an Expiration and Strike Price
- Option Pricing and Moneyness

Why Options

Options allow an investor to achieve a variety of objectives:

- Risk Reduction: protect stock holdings from a decline in market price.
- Generate income.
- Stock acquisition at a lower price.
- Market speculation at lower risk and greater reward

What is an Option:

- An option is a contract that is either bought or sold.
- One contract provides for buying or selling 100 shares of an underlying asset.
- The underlying asset is bought or sold at specified price, on or before a specified date.
- The specified price is the Strike Price
- The date is the Expiration Date
- An option exists as either a Call or a Put
  - *Stock can be Called Away*
  - *Stock can be Put up for sale*

Describing Options

- If you sell a call, you have the obligation to sell the underlying asset (it gets called away).

- If you sell a put, you have the obligation to buy the underlying asset (it gets put up for sale and put to you).

Underlying Assets

- Stock (TSLA, AAPL, AMZN)
- ETF (SPY, QQQ, IWN)
- Index (SPX, VIX, RUT, NDX)
- Futures (/ES, /MES, /NQ)

The Market

Options are traded through your **brokerage firm** at **Exchanges**. Trade transactions are cleared through the Options Clearing Corporation **(OCC).**

- Markets are fragmented, anonymous and 90% electronic.
- Every trade has a buyer and a seller, but one initiator.
- There is information in every quote and every trade.

Major options exchanges in the U.S. are:

- Chicago Board Options Exchange (CBOE)
- American Stock Exchange (AMEX)
- Philadelphia Stock Exchange (Philly)
- Pacific Stock Exchange (PSE)
- International Securities Exchange (ISE)

Options Clearing Corporation (OCC)

- Established in 1973
- Owned by the CBOE, AMEX, PHLX, PSE
- Regulated by the SEC
- Main role: to act as a performance guarantor for all options
- OCC increases option marketability and liquidity by enabling option buyers and sellers to terminate their positions in the market at any time, by making an offsetting transaction.

MARCH 2023

Characteristics and Risks of Standardized Options

BOX EXCHANGE LLC
101 Arch Street, Suite 601
Boston, Massachusetts 02110

CBOE BZX EXCHANGE, INC.
433 W. Van Buren Street
Chicago, Illinois 60607

CBOE C2 EXCHANGE, INC.
433 W. Van Buren Street
Chicago, Illinois 60607

CBOE EDGX EXCHANGE, INC.
433 W. Van Buren Street
Chicago, Illinois 60607

CBOE EXCHANGE, INC.
433 W. Van Buren Street
Chicago, Illinois 60607

MIAMI INTERNATIONAL SECURITIES EXCHANGE, LLC
7 Roszel Road, Suite 1A
Princeton, NJ 08540

MIAX EMERALD, LLC
7 Roszel Road, Suite 1A
Princeton, NJ 08540

MIAX PEARL, LLC
7 Roszel Road, Suite 1A
Princeton, NJ 08540

NASDAQ BX, INC
2929 Walnut Street
Philadelphia, Pennsylvania 19104

NASDAQ GEMX, LLC
2929 Walnut Street
Philadelphia, Pennsylvania 19104

NASDAQ ISE, LLC
2929 Walnut Street
Philadelphia, Pennsylvania 19104

NASDAQ MRX, LLC
2929 Walnut Street
Philadelphia, Pennsylvania 19104

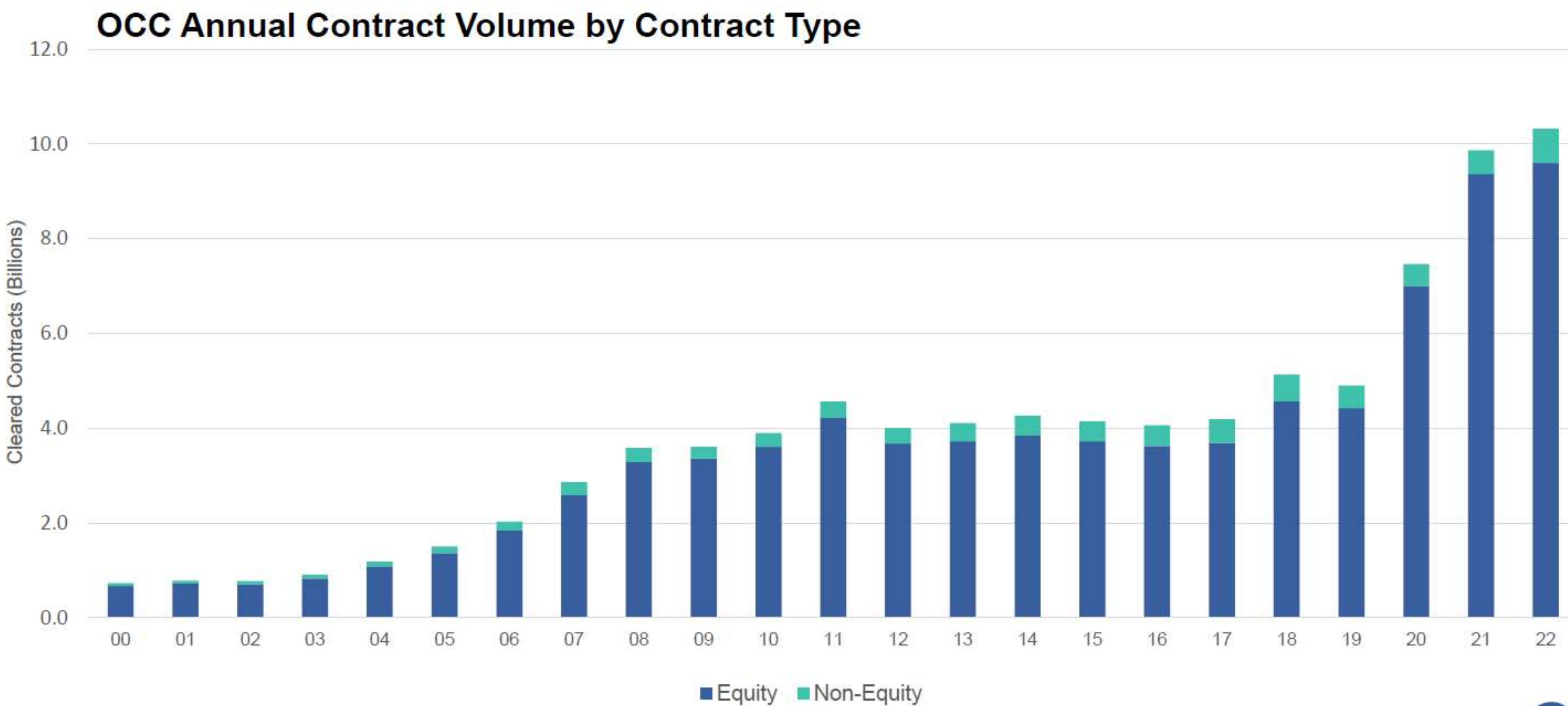
THE NASDAQ OPTIONS MARKET LLC
2929 Walnut Street
Philadelphia, Pennsylvania 19104

NASDAQ PHLX LLC
2929 Walnut Street
Philadelphia, Pennsylvania 19104

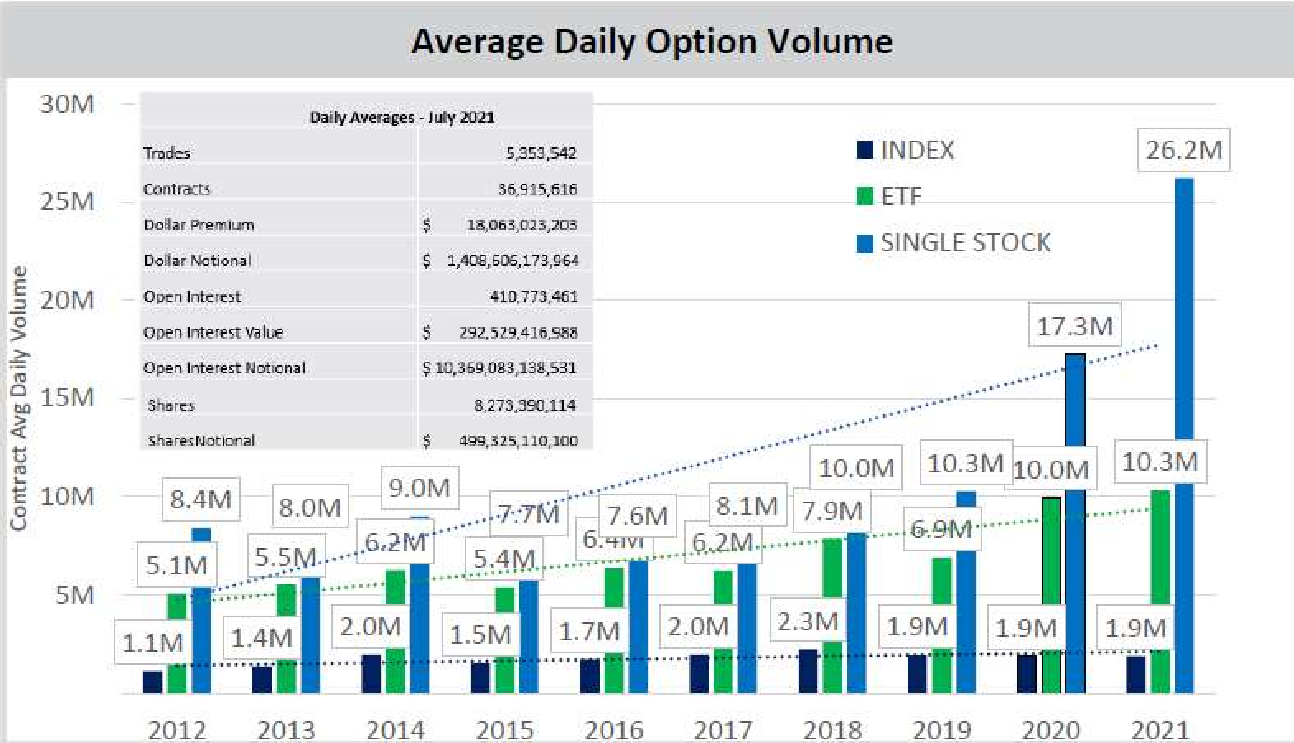
NYSE AMERICAN OPTIONS
11 Wall Street
New York, NY 10005

NYSE ARCA, INC.
11 Wall Street
New York, NY 10005

Annual Options Volume 2000-2022



Market Activity



Daily Averages - July 2021	
Trades	5,353,542
Contracts	36,915,616
Dollar Premium	$ 18,063,023,203
Dollar Notional	$ 1,408,606,173,964
Open Interest	410,773,461
Open Interest Value	$ 292,529,416,988
Open Interest Notional	$ 10,369,083,138,531
Shares	8,273,390,114
SharesNotional	$ 499,325,110,100

Growth

	Index
10yr	5.3%
5yr	-0.6%
1yr	-0.3%

	ETF
10yr	7.4%
5yr	10.7%
1yr	3.6%

	Stock
10yr	12.0%
5yr	26.4%
1yr	51.8%

	Total
10yr	10.2%
5yr	18.7%
1yr	31.9%

7/28/21 Options Clearing Corp and Cboe LiveVol, LLC

Options Volume by Exchange-Week Ending 10 FEB 2023

Data from OCC

Options						
	Equity		Index/Other		Exchange Total	
Exchange	Volume	Market Share	Volume	Market Share	Volume	Market Share
AMEX	16,162,114	7.54%	0	0.00%	16,162,114	6.99%
ARCA	28,010,277	13.06%	0	0.00%	28,010,277	12.12%
BATS	12,317,423	5.74%	4,668	0.03%	12,322,091	5.33%
BOX	11,913,885	5.56%	0	0.00%	11,913,885	5.15%
C2	9,277,066	4.33%	51,559	0.31%	9,328,625	4.04%
CBOE	20,663,181	9.63%	16,545,570	98.93%	37,208,751	16.09%
EDGX	13,950,320	6.50%	0	0.00%	13,950,320	6.03%
EMLD	6,932,530	3.23%	0	0.00%	6,932,530	3.00%
GEM	4,515,788	2.11%	2,380	0.01%	4,518,168	1.95%
ISE	12,499,967	5.83%	63,519	0.38%	12,563,486	5.43%
MCRY	3,441,121	1.60%	0	0.00%	3,441,121	1.49%
MIAX	15,267,980	7.12%	29	0.00%	15,268,009	6.60%
MPRL	14,989,679	6.99%	0	0.00%	14,989,679	6.48%
NOBO	7,290,644	3.40%	0	0.00%	7,290,644	3.15%
NSDQ	15,794,837	7.36%	0	0.00%	15,794,837	6.83%
PHLX	21,434,216	9.99%	56,341	0.34%	21,490,557	9.30%
OCC Totals	214,461,028	100%	16,724,066	100%	231,185,094	100%

Financial Objectives

- Protect a stock position from a decline in market price.
- Generate income.
- Stock acquisition at a lower price.
- Speculation

Market Opinion

- Bullish
- Bearish
- Neutral
- Up or down, how much for how long
- Buy (debit)
  - Buying: max. risk is premium paid &
  - max. reward significant to unlimited
- Sell (credit)
  - Selling: Max. reward is premium collected &
  - max. risk is significant to unlimited

Selecting an Option to Buy and/or Sell

- Study the Option chain
- Determine an expiration date: DTE
- Determine an option price
  - OTM
  - ITM
  - ATM

The Moneyness of Options

AAPL | APPLE INC COM | 166.65 | -.98 -0.58% | B: 166.71 A: 166.72 | ETB | NASDAQ | ±1.252

Underlying

Trade Grid

Option Chain | Filter: **Off** | Spread: **Single** | Layout: **Position, Intrinsic, Extrinsic**

21 APR 23	(1)	100	29.25% (±2.037)
28 APR 23	(8)	100 **(Weeklys)**	23.93% (±4.713)
5 MAY 23	(15)	100 **(Weeklys)**	31.03% (±8.375)
12 MAY 23	(22)	100 **(Weeklys)** POS	29.59% (±9.677)
19 MAY 23	(29)	100	28.84% (±10.833)
26 MAY 23	(36)	100 **(Weeklys)**	27.69% (±11.592)
2 JUN 23	(43)	100 **(Weeklys)**	27.23% (±12.464)
16 JUN 23	(57)	100	28.03% (±14.789)
21 JUL 23	(92)	100	27.47% (±18.455)
18 AUG 23	(120)	100	29.37% (±22.605)
15 SEP 23	(148)	100	29.29% (±25.089)
20 OCT 23	(183)	100	29.71% (±28.389)
17 NOV 23	(211)	100	30.60% (±31.503)
15 DEC 23	(239)	100	30.36% (±33.335)
19 JAN 24	(274)	100	30.65% (±36.155)
15 MAR 24	(330)	100	30.62% (±39.826)
21 JUN 24	(428)	100	30.85% (±46.11)
20 SEP 24	(519)	100	31.05% (±51.544)
20 DEC 24	(610)	100	31.23% (±56.699)
17 JAN 25	(638)	100	31.34% (±58.361)
20 JUN 25	(792)	100	31.28% (±65.793)
19 DEC 25	(974)	100	31.56% (±74.962)

Time is money but stuff happens as time passes!

Implied Volatility represents the expected volatility of a stock over the life of the option. IV is directly influenced by the market's expectation of the share price's direction.

IV increases with time (DTE)

AAPL | APPLE INC COM | 166.65 | -.98 -0.58% | B: 166.80 A: 166.90 | ETB | NASDAQ | ±1.404

Underlying

Option Chain | Filter: **Off** | Spread: **Single** | Layout: **Delta, Open Interest, Volume, Probabili...**

Strikes: 10

	CALLS							
	Delta	Open.Int	Volume	Prob.OTM	Bid X	Ask X	Exp	Strike
19 MAY 23 (29) 100								
	.96	14,152	55	4.36%	22.20 B	22.75 A	19 MAY 23	145
	.92	22,577	903	9.38%	17.60 X	18.00 X	19 MAY 23	150
	.84	24,056	305	18.01%	13.30 B	13.65 X	19 MAY 23	155
ITM	.73	25,203	581	29.03%	9.35 W	9.55 B	19 MAY 23	160
	.59	35,865	4,367	43.63%	5.95 X	6.10 E	19 MAY 23	165
	.42	37,208	5,977	60.46%	3.30 B	3.40 B	19 MAY 23	170
	.25	46,912	3,661	76.78%	1.54 N	1.57 P	19 MAY 23	175
OTM	.12	22,916	1,441	89.00%	.58 E	.61 W	19 MAY 23	180
	.05	19,347	1,376	95.21%	.22 Q	.24 W	19 MAY 23	185
	.02	13,557	58	97.90%	.09 T	.10 W	19 MAY 23	190
26 MAY 23 (36) 100 **(Weeklys)**								
2 JUN 23 (43) 100 **(Weeklys)**								
	.94	7	10	6.92%	22.65 B	23.15 B	2 JUN 23	145
	.88	41	23	14.17%	18.30 B	18.80 X	2 JUN 23	150
	.81	18	14	21.68%	14.10 B	14.45 X	2 JUN 23	155
	.72	57	12	31.33%	10.05 X	10.50 B	2 JUN 23	160
	.59	279	149	44.30%	6.90 X	7.10 D	2 JUN 23	165
	.45	1,257	88	58.56%	4.15 X	4.35 B	2 JUN 23	170
	.30	1,721	204	72.78%	2.21 C	2.37 X	2 JUN 23	175
	.17	326	174	84.53%	1.02 X	1.15 C	2 JUN 23	180
	.09	210	84	92.36%	.43 Z	.49 C	2 JUN 23	185
	.04	449	56	96.43%	.18 Z	.21 Z	2 JUN 23	190

Delta is the estimate of how much an option's value will change with a $1.00 change in the price of the underlying asset.

Delta values are between +1 and -1.

Call deltas are positive and Put deltas are negative.

ATM deltas = 50 = stock price

AAPL | APPLE INC COM | 166.65 | -.98 -0.58% | B: 166.95 A: 167.00 | ETB | NASDAQ | ±1.424 | Company Profile

Underlying

Option Chain | Filter: **Off** | Spread: **Single** | Layout: **Delta, Open Interest, Volume, Probabili...**

Strikes: 10

12 MAY 23 (22) 100 **(Weeklys)** POS — 29.71% (±9.677)

19 MAY 23 (29) 100 — 28.93% (±10.834)

	CALLS									PUTS					
	Delta	Open.Int	Volume	Prob.OTM	Bid X	Ask X	Exp		Strike	Bid X	Ask X	Delta	Open.Int	Volume	Prob.OTM
	.99	14,152	55	1.65%	22.20 B	22.75 A	19 MAY 23		145	.47 T	.50 W	-.07	44,122	3,451	92.15%
	.93	22,577	903	7.47%	17.60 X	18.00 X	19 MAY 23		150	.82 P	.84 B	-.11	50,404	9,240	87.44%
ITM	.85	24,056	305	16.66%	13.30 B	13.65 X	19 MAY 23	OTM	155	1.41 P	1.50 B	-.18	26,428	2,721	79.97%
	.74	25,203	581	28.03%	9.35 W	9.55 B	19 MAY 23		160	2.45 B	2.56 C	-.28	32,319	6,199	69.36%
	.60	35,865	4,367	42.95%	5.95 X	6.10 E	19 MAY 23		165	4.00 B	4.10 Z	-.41	20,500	6,562	56.05%
	.43	37,208	5,977	60.05%	3.30 B	3.40 B	19 MAY 23		170	6.30 N	6.50 X	-.57	3,455	1,201	40.73%
	.25	46,912	3,661	76.58%	1.54 N	1.57 P	19 MAY 23		175	9.25 X	9.75 X	-.73	901	44	25.59%
OTM	.12	22,916	1,441	88.92%	.58 E	.61 W	19 MAY 23	ITM	180	13.50 B	14.50 X	-.82	149	5	17.63%
	.05	19,347	1,376	95.17%	.22 Q	.24 W	19 MAY 23		185	17.95 Z	20.10 B	-.84	4	3	14.73%
	.02	13,557	58	97.89%	.09 T	.10 W	19 MAY 23		190	22.00 Z	25.05 Z	-.90	20	24	9.75%

Delta is the estimate of how much an option's value will change with a $1.00 change in the price of the underlying asset.

Delta values are between +1 and -1.

Call deltas are positive and Put deltas are negative.

ATM deltas = 50 = stock price

Intrinsic Value *vs.* Extrinsic Value

- **Option Premium = Intrinsic Value + Extrinsic Value**

- **Time Value = Extrinsic Value (undergoes time decay and becomes zero at expiration).**

- **Only Intrinsic value remains at expiration. It is the inherent value of an option. It is the ITM amount.**

Option Premium = Intrinsic Value + Extrinsic Value

AAPL | APPLE INC COM | 166.65 | -.98 -0.58% | B: 166.95 A: 167.00 | ETB | NASDAQ | ±1.434 | Company Profile

› Underlying

⌄ Option Chain | Filter: **Off** | Spread: **Single** | Layout: **Delta, Probability OTM, Extrinsic, Intr...**

Strikes: 20

⌄ 19 MAY 23 (29) 100 — 28.94% (±10.835

CALLS Delta	Prob.OTM	Extrinsic	Intrinsic	Bid X	Ask X	Exp	Strike	PUTS Bid X	Ask X	Delta	Prob.OTM	Extrinsic	Intrinsic
1.00	0.00%	.125	46.95	46.80 B	47.35 I	19 MAY 23	120	.06 T	.07 T	-.01	98.84%	.065	0
1.00	0.00%	.125	41.95	41.80 B	42.35 H	19 MAY 23	125	.08 T	.14 C	-.01	98.14%	.11	0
1.00	0.00%	.15	36.95	36.80 B	37.40 H	19 MAY 23	130	.12 T	.15 C	-.02	97.66%	.135	0
1.00	0.00%	.30	31.95	32.00 B	32.50 I	19 MAY 23	135	.18 N	.21 W	-.03	96.64%	.195	0
1.00	0.00%	.35	26.95	27.00 B	27.60 C	19 MAY 23	140	.29 T	.32 C	-.04	94.89%	.305	0
.99	1.65%	.525	21.95	22.20 B	22.75 A	19 MAY 23	145	.47 T	.50 W	-.07	92.15%	.485	0
.93	7.47%	.85	16.95	17.60 X	18.00 X	19 MAY 23	150	.82 P	.84 B	-.11	87.44%	.83	0
.85	16.66%	1.525	11.95	13.30 B	13.65 X	19 MAY 23	155	1.41 P	1.50 B	-.18	79.97%	1.455	0
.74	28.03%	2.50	6.95	9.35 W	9.55 B	19 MAY 23	160	2.45 B	2.56 C	-.28	69.36%	2.505	0
.60	42.95%	4.075	1.95	5.95 X	6.10 E	19 MAY 23	165	4.00 B	4.10 Z	-.41	56.05%	4.05	0
.43	60.05%	3.35	0	3.30 B	3.40 B	19 MAY 23	170	6.30 N	6.50 X	-.57	40.72%	3.35	3.05
.25	76.58%	1.555	0	1.54 N	1.57 P	19 MAY 23	175	9.25 X	9.75 X	-.73	25.59%	1.45	8.05
.12	88.92%	.595	0	.58 E	.61 W	19 MAY 23	180	13.50 B	14.50 X	-.82	17.62%	.95	13.05
.05	95.18%	.23	0	.22 Q	.24 W	19 MAY 23	185	17.95 Z	20.10 B	-.84	14.73%	.975	18.05
.02	97.89%	.095	0	.09 T	.10 W	19 MAY 23	190	22.00 Z	25.05 Z	-.90	9.75%	.475	23.05
.01	98.99%	.045	0	.04 D	.05 N	19 MAY 23	195	26.50 Z	29.60 Z	-1.00	0.00%	0	28.05
.01	99.37%	.03	0	.02 W	.04 W	19 MAY 23	200	31.65 Z	34.40 Z	-1.00	0.00%	-.025	33.05
.01	99.60%	.02	0	.01 D	.03 D	19 MAY 23	205	36.60 Z	39.00 B	-1.00	0.00%	-.25	38.05
.00	99.71%	.015	0	.01 Q	.02 N	19 MAY 23	210	42.85 B	43.95 B	-.91	6.18%	.35	43.05
.00	99.82%	.01	0	0 Q	.02 Q	19 MAY 23	215	47.55 Z	49.25 Z	-.91	5.91%	.35	48.05

Time Value = Extrinsic Value (undergoes time decay and becomes zero at expiration).

Only Intrinsic value remains at expiration. It is the inherent value of an option.

AAPL 31MAR Strangle

AAPL | APPLE INC COM | 165.20 | -1.45 -0.87% | ETB | NASDAQ | ±0.293 | Company Profile

Underlying

Last X	Net Chng	Bid X	Ask X	Size	Volume	Open	High	Low
165.20 P	-1.45	165.19 Q	165.20 Z	14 x 1	37,483,780	165.05	166.4521	164.49

Option Chain | Filter: **Off** | Spread: **Single** | Layout: **Delta, Probability OTM, Extrinsic, Intr...**

	CALLS						Strikes: 10		PUTS						
	Delta	Prob.OTM	Extrinsic	Intrinsic	Bid X	Ask X	Exp	Strike	Bid X	Ask X	Delta	Prob.OTM	Extrinsic	Intrinsic	
12 MAY 23 (21) 100 (Weeklys) POS														29.71% (±9.428)	
	.82	20.20%	1.65	10.20	11.75 X	11.95 X	12 MAY 23	155	1.29 T	1.30 Q	-.18	79.68%	1.295	0	POS
	.76	25.80%	2.10	7.70	9.70 X	9.90 X	12 MAY 23	157.5	1.77 B	1.78 Q	-.24	73.88%	1.775	0	
	.70	32.70%	2.725	5.20	7.85 B	8.00 B	12 MAY 23	160	2.39 P	2.41 P	-.30	67.04%	2.40	0	
	.62	40.56%	3.525	2.70	6.15 B	6.30 X	12 MAY 23	162.5	3.15 E	3.20 P	-.38	59.33%	3.175	0	
	.53	49.15%	4.475	.20	4.65 W	4.70 B	12 MAY 23	165	4.15 B	4.20 C	-.47	50.78%	4.175	0	
	.44	58.30%	3.375	0	3.35 T	3.40 W	12 MAY 23	167.5	5.30 B	5.45 X	-.56	41.81%	3.075	2.30	
POS	.35	67.63%	2.275	0	2.26 D	2.29 E	12 MAY 23	170	6.70 X	6.85 B	-.66	32.67%	1.975	4.80	
	.25	76.40%	1.45	0	1.44 D	1.46 T	12 MAY 23	172.5	8.40 X	8.55 X	-.75	24.18%	1.175	7.30	
	.18	83.88%	.875	0	.87 P	.88 Q	12 MAY 23	175	10.30 X	10.50 X	-.83	16.70%	.60	9.80	
	.11	89.63%	.505	0	.50 H	.51 Q	12 MAY 23	177.5	11.85 X	13.15 X	-.91	10.12%	.20	12.30	

	CALLS						Strikes: 10		PUTS						
	Delta	Prob.OTM	Volume	Open.Int	Bid X	Ask X	Exp	Strike	Bid X	Ask X	Delta	Prob.OTM	Volume	Open.Int	
12 MAY 23 (21) 100 (Weeklys) POS														29.72% (±9.417)	
	.82	20.50%	144	942	11.60 X	11.80 X	12 MAY 23	155	1.30 T	1.32 Q	-.19	79.42%	266	1,617	POS
	.76	26.29%	52	797	9.60 X	9.75 W	12 MAY 23	157.5	1.79 P	1.81 H	-.24	73.52%	146	1,764	
	.69	33.19%	35	756	7.70 X	7.90 X	12 MAY 23	160	2.43 T	2.45 B	-.31	66.58%	531	1,993	
	.62	41.09%	127	1,494	6.00 C	6.20 X	12 MAY 23	162.5	3.20 E	3.30 C	-.39	58.74%	349	947	
	.53	49.76%	666	2,185	4.55 C	4.60 H	12 MAY 23	165	4.20 B	4.30 C	-.47	50.18%	638	1,203	
	.44	58.97%	718	2,238	3.25 B	3.30 D	12 MAY 23	167.5	5.35 X	5.50 B	-.57	41.14%	213	579	
POS	.34	68.28%	690	1,885	2.19 H	2.22 D	12 MAY 23	170	6.80 B	6.95 B	-.66	32.04%	17	1,526	
	.25	76.95%	243	2,079	1.39 D	1.42 W	12 MAY 23	172.5	8.50 W	8.65 W	-.76	23.48%	11	201	
	.17	84.27%	1,090	3,305	.84 P	.86 W	12 MAY 23	175	10.05 X	10.60 A	-.87	13.88%	5	51	
	.11	89.96%	364	1,180	.48 D	.49 Q	12 MAY 23	177.5	12.30 X	13.20 X	-.90	11.14%	6	13	

AAPL 31MAR Strangle

Price Slices

Stk Price	Offset	Delta	Gamma	Theta	Vega	P/L Open	P/L Day	BP Effect
165.20	$0	-32.63	-11.49	34.26	-50.29	$565.76	$114.76	($4,171.82)

Positions and Simulated Trades

ALL Show All All 1 Series Single Symbol All groups Model: **Bjerksund-Stensland** Interest: 4.75% Date: 04/21/2023

Spread	Side	Qty	Symbol	Exp	Strike	Type	Price	Yield	Vol	Vol Adj	Delta	BP Effect
AAPL												
STK	LONG	+200	AAPL			STOCK	164.6641	0.56%	28.58%	0.00%	200.00	-
OPT	SHORT	-2	AAPL	12 MAY 23 (We...	155	PUT	2.69	1.65%	31.53%	0.00%	36.51	($32.66)
OPT	SHORT	-2	AAPL	12 MAY 23 (We...	170	CALL	3.70	1.65%	25.75%	0.00%	-69.08	($4,139.15)
												($4,171.82)

AAPL 31MAR Strangle

The End