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Tracking the Potential Profitability with Dr. Russell Rhoads

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Paper Info / Highlights

Organization is Academic Market Insights – partnering with Dr. Larissa Adamiec from Purdue
Highlights:

- Recorded the largest directional / non-spread trade with at least 9 days to expiration for each trading day in 2022 and 2023
- Four types of trades – long call, long put, short call, short put
- Each trade initiated with a credit or debit of \$1000 for consistency
- Surprising stats
 - More long option than short option trades (57% vs. 43%)– belief is institutions are net option sellers – block analysis shows otherwise
 - Wide number of stocks (227) had a trade in the study – a large portion of volume is focused in on 50 stocks

Results:

- Long Call in 2022 was the only approach that resulted in losses – 2023 was not much better for long call with an average win of about \$70 a trade
- Long Put in 2022 was very successful, gaining \$478 per trade and despite strength in 2023 for the equity market buying puts was up \$297 per trade
- Short option trades consistently made profits over the 2 year period for both selling calls and selling puts – despite 2022 being bearish and 2023 being bullish for equities
- Further screens around delta (over 50 / under 50) and time to expiration improved results for buying puts when using puts with a delta over 50
- Screen for time to expiration found trades using shorter dated options (less than 30 days) had better results than using longer dated options

ACADEMIC MARKET INSIGHTS

Following the Money...

**Is replicating block option trading a
path to trading profits?**

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Executive summary

The popularity of option trading among individuals has exploded over the past decade with 2025 volume expected to exceed thirteen billion contracts. This is a figure that was under four billion in 2010. Various educators and service providers focusing on the retail traders have emerged along with this trend. One category of service providers focuses on large or block option trades. The belief is that large institutions, who would be the entity behind such transactions, are better informed than the average market participant. Therefore, when they take a position, it may be worth replicating. This study breaks down following large option trades over a two-year period to determine if focusing on this type of market activity is a worthwhile trading approach.

Methods

This study analyzes the results from following the largest directional equity option trade for each trading day in 2022 and 2023. These two years were dramatically different for the equity markets. For example, the S&P 500 (SPX) was down about 19% in 2022 and rose over 24% in 2023. These two contrasting years are perfect for testing various option approaches and the market behavior does have impact on the results.

The largest trade each day is based on total volume divided by open interest. This method is appropriate as it indicates a large opening transaction. There are three screens in this process. First, an option is excluded from this study if it has less than nine calendar days to expiration. Also, trades that are part of a spread trade not included, as the goal is to follow trades that have a directional bias for an underlying stock. A final method of excluding an option trade is if there is any uncertainty around the direction of the trade (buy or sell). The result after these screens is an option trade that has a defined bullish or bearish price outlook for the underlying stock.

Changes in open interest determine if the trade is exited before expiration. If the option's open interest drops by 50% from post-trade levels or more before expiration the trade is considered closed. In the case of exiting before expiration, the exit price is equal to the largest block trade execution on that day. If open interest remains above 50% of post-trade open interest, the trade is assumed held through expiration and profit or loss is determined using the intrinsic value of the option.





Data from two different subscription services were combined to determine the largest directional trade as percentage of option open interest on each trading day in 2022 and 2023. An abbreviated version of the Unusual Option Volume function on Barchart from May 7, 2024, appears on the following page in Figure 1.

Figure 1 – Barchart Most Active Options May 7, 2024

Symbol	Price	Type	Strike	Exp Date	DTE	Bid	Mid	Ask	Last	Volume	Open Int	Vol/OI
+ DIS	105.39	Call	108.00	05/10/24	2	0.31	0.33	0.36	0.39	32,365	298	108.61
+ DIS	105.39	Call	105.00	05/10/24	2	1.28	1.36	1.44	1.42	13,459	130	103.53
+ PFE	27.77	Put	27.00	06/07/24	30	0.41	0.44	0.46	0.41	15,871	225	70.54
+ CCJ	51.75	Call	56.00	05/17/24	9	0.36	0.38	0.39	0.34	10,536	180	58.53
+ HA	12.50	Put	10.00	10/18/24	163	0.70	0.80	0.90	0.68	17,006	300	56.69

Data Source: Barchart.com

This example selects the Pfizer (PFE) Jun 7th 27 Put after passing on two Walt Disney Co. (DIS) calls. Those DIS calls are excluded due to having only two days remaining until expiration. However, they also are part of a spread trade which would have excluded them as well. The other step, to determine if the trade is a buy or sell, uses Cboe Global Markets' Trade Alert system.

An abbreviated version of the largest block option trades using PFE options on May 7, 2024 from Trade Alert is displayed in Figure 2. Note the biggest trade that day was in the PFE Jun 7th 27 Puts, and this trade price was closer to the bid side. A trade executed at 0.285, which is closer to the bid (0.28) than ask (0.31) indicates selling by a public customer.

Figure 2 – PFE Largest Block Option Trades May 7, 2024

Top Trades and Sweeps (top PFE 5/7)												
PFE 27.77 close 5/7 @HLTH2												
>>	15740	PFE Jun24 7th 27.0 Puts	\$0.285 (CboeTheo=0.30)	BID	[BOX]	10:54:31.910	IV=20.9%	-1.2	AMEX 147 x \$0.28 - \$0.31 x 267 BOX	FLOOR - OPENING	Vega=\$43k	PFE=28.27 Ref Detail
>>	3009	PFE May24 10th 27.0 Puts	\$0.19 (CboeTheo=0.13)	ASK	[MULTI]	15:25:22.140	IV=27.8%	+2.6	CBOE 186 x \$0.14 - \$0.19 x 64 NOM	Vega=\$2864	PFE=27.59 Ref Detail	
>>	2000	PFE Jul24 27.0 Puts	\$0.82 (CboeTheo=0.84)	BID	[PHLX]	15:40:10.034	IV=23.0%	-0.2	EMLD 266 x \$0.82 - \$0.85 x 6 BXO	FLOOR	Vega=\$9376	PFE=27.79 Ref Detail
>>	1975	PFE May24 27.5 Puts	\$0.25 (CboeTheo=0.24)	ASK	CBOE	11:21:43.526	IV=21.2%	-1.4	C2 2279 x \$0.24 - \$0.25 x 96 EMLD	COB/AUCTION	Vega=\$3456	PFE=28.20 Ref Detail
>>	1975	PFE May24 27.0 Puts	\$0.11 (CboeTheo=0.12)	BID	CBOE	11:21:43.526	IV=21.5%	-2.0	EMLD 1738 x \$0.11 - \$0.12 x 1070 EMLD	COB/AUCTION	Vega=\$2578	PFE=28.20 Ref Detail
>>	1867	PFE May24 10th 27.0 Puts	\$0.20 (CboeTheo=0.12)	BID	[ARCA]	15:25:31.433	IV=30.1%	+4.8	ARCA 467 x \$0.20 - \$0.21 x 55 BOX	Vega=\$1768	PFE=27.63 Ref Detail	
>>	1368	PFE May24 10th 27.5 Puts	\$0.09 (CboeTheo=0.10)	MID	[MULTI]	11:07:44.388	IV=21.2%	-3.8	GEMX 3421 x \$0.09 - \$0.11 x 191 MPRL	Vega=\$1181	PFE=28.25 Ref Detail	
>>	1299	PFE Dec25 40.0 Calls	\$0.74 (CboeTheo=0.80)	ASK	ISE	15:56:55.765	IV=26.5%	-0.6	PHLX 514 x \$0.56 - \$0.84 x 50 NOM	COB/TIED	Vega=\$11k	PFE=27.82 Ref Detail
>>	1297	PFE May24 10th 28.0 Puts	\$0.28 (CboeTheo=0.29)	ASK	ARCA	10:45:44.969	IV=21.1%	-3.1	CBOE 2950 x \$0.26 - \$0.28 x 1297 ARCA	Vega=\$1336	PFE=28.30 Ref Detail	
>>	1092	PFE May24 28.0 Puts	\$0.60 (CboeTheo=0.61)	ASK	[ARCA]	13:32:59.029	IV=19.9%	-3.1	C2 1239 x \$0.59 - \$0.60 x 1092 ARCA	ISO	Vega=\$1809	PFE=27.98 Ref Detail

Source: Trade-Alert.com

Each trade size is \$1000 which will often result in a partial option contract. For consistency sake the decision was made to apply \$1000 to each trade, so the PFE Jun 7th 27 Put signal sold 36.0877 (\$1000 / \$28.50) contracts.





Open interest for the PFE Jun 7th 27 Put jumped from 225 to 15,995 based on the May 7, 2024 block trade. This figure remained over 15,995 through expiration and PFE closed at 28.58 at June 7, 2024 expiration. The result is this trade made the full 0.285 premium received when the option was sold since this option expired out of the money. Again, if the open interest had dropped below 50% of the 15,995 level the trade would be considered closed.

Over the two year period analyzed there are a total of 498 observations. A surprisingly large number of individual stocks (227) ended up having an option trade included in the study. Table 1 shows the stocks that showed up five or more times.

Table 1 – Stocks With With Five Or More Trades In Study

Trades	Ticker	Company		Trades	Ticker	Company
13	AAPL	Apple Inc.		5	AFRM	Affirm Holdings Inc
9	NKLA	Nikola Corp		5	DIS	Walt Disney Company
7	TSLA	Tesla Inc		5	FSR	Fisker Inc
6	AAL	American Airlines Group		5	GOOGL	Alphabet Inc (Class A)
6	CCJ	Cameco Corp		5	LAZR	Luminar Technologies
6	SIRI	Sirius XM Holdings		5	MRVL	Marvell Technology
6	SNAP	Snap Inc		5	SLB	Schlumberger Ltd

Sources: Barchart & Trade-Alert.com

The wide distribution of stocks that had block trades included in the study is interesting and surprising. This is due to a sizable percentage of volume (80% - 90%) each year concentrated in the top fifty stocks based on option volume.

Of the four potential strategies: Long Call, Long Put, Short Call, and Short Put, the Long Call was the most common trade. Table 2 breaks down the 498 trades by trade type.

Table 2 – Type of Trade

Trade	Count	% Trades
Long Call	164	32.93%
Long Put	117	23.49%
Short Call	129	25.90%
Short Put	88	17.67%

Sources: Barchart & Trade-Alert.com





A common phrase associated with option trading is 'retail buys options, institutions sell.' The results from this study's screens refute this as long strategies represent 283 of the trades or just over 56% of trades. This is a surprising figure for many market participants based on the common belief that institutions are mostly sellers of options.

Results

Table 3 shows results broken down by year and strategy as well as net results for all trades over the two-year period covered in this study. Note the net result is a profit of \$95,625.40 across all strategies and 51.00% of those observations being positive. Just over 72% of the trades were held to expiration. Finally, the per trade result is \$196.03 across all strategies with the best results coming from Short Call and Long Put in 2022 at \$478 per trade.

Table 3 – Results By Year and Strategy – \$1000 Per Trade

Year	Trade Type	Trades	Held To Exp.	% Held to Exp.	Wins	%Win	Total P/L	Avg P/L
2022	Long Call	80	49	61.25%	21	26.25%	(\$27,113.19)	(\$338.91)
2022	Long Put	58	42	72.41%	15	25.86%	+\$27,745.53	+\$478.37
2022	Short Call	64	50	78.13%	53	82.81%	+\$30,648.14	+\$478.88
2022	Short Put	48	39	81.25%	36	75.00%	+\$12,917.51	+\$269.11
2023	Long Call	84	56	66.67%	22	26.19%	+\$5,830.57	+\$69.41
2023	Long Put	59	43	72.88%	19	32.20%	+\$17,522.04	+\$296.98
2023	Short Call	65	50	76.92%	55	84.62%	+\$11,224.20	+\$172.68
2023	Short Put	40	30	75.00%	33	82.50%	+\$18,850.63	+\$471.27
Total	All	498	359	72.09%	254	51.00%	+\$97,625.40	+\$196.03

Sources: Barchart & Trade-Alert.com

All strategies, except Long Call in 2022 had positive returns. Recall SPX was down almost 20% in 2022 so bullish strategies had a challenging year. In 2023 results were positive for all strategies, but Long Call was the worst of the four strategies gaining only \$69.41, with Short Put, gaining \$471.27, having the best result that year.





To determine if screens can improve the profitability of following the largest trade, we explored days to expiration and option deltas. Table 4 shows the average days to expiration and average delta by strategy, along with the minimum and maximum days to expiration.

Table 4 – Days To Expiration / Delta by Year and Strategy

Year	Type of Trades	Average Days To Exp	Max Days To Exp	Min Days To Exp	Average Delta
2022	Long Call	97	583	9	36.81
2022	Long Put	83	836	9	-31.75
2022	Short Call	73	829	9	31.75
2022	Short Put	88	856	9	-28.59
2023	Long Call	63	289	9	39.32
2023	Long Put	52	220	9	-31.73
2023	Short Call	71	344	9	32.83
2023	Short Put	63	319	9	-31.87

Sources: Barchart & Trade-Alert.com

Long Call trading in 2022 continues to be an outlier with the longest average days until expiration at 97, followed by Short Put in 2022 at 88 days. Across all strategies 2022 trades used longer dated trades than in 2023. This is skewed by exceedingly long dated trades occurring in 2022, for example Long Put, Short Call, and Short Put in 2022 all had trades using options with more than eight hundred days to expiration while the longest trade in 2023 was a Short Call transaction with 344 days to expiration.

The delta of trades varies by strategy as well. Note the highest deltas are for both 2022 and 2023 Long Call trades with an average in the upper thirties. Also, short option trades have lower deltas than long trades, likely a function of selling options with the goal of them expiring out of the money.

On the next page, Table 5 shows results by year and strategy only by executing trades in options with a delta of 50.00 or higher for calls or below -50.00 for puts (for simplicity either situation will be referred to as 'over 50.00'). Only ninety of the 498 observations used options with a delta over 50.00 indicating an in the money option.





Table 5 – Results By Year and Strategy – Screen Delta Over 50.00

Year	Trade Type	Trades	Held To Exp.	% Held to Exp.	Wins	%Win	Total P/L	Avg P/L
2022	Long Call	16	8	50.00%	5	31.25%	(\$2,279.76)	(\$142.49)
2022	Long Put	8	5	62.50%	4	50.00%	+\$7,733.50	+\$966.69
2022	Short Call	12	9	75.00%	8	66.67%	+\$2,990.57	+\$249.21
2022	Short Put	8	6	75.00%	5	62.50%	+\$904.51	+\$113.06
2023	Long Call	20	7	35.00%	10	50.00%	+\$6,677.79	+\$333.89
2023	Long Put	8	4	50.00%	5	62.50%	+\$4,483.90	+\$560.49
2023	Short Call	13	9	69.23%	9	69.23%	+\$2,204.36	+\$169.57
2023	Short Put	5	3	60.00%	3	60.00%	\$1,901.93	+\$380.39
Total	All	90	51	56.67%	49	54.44%	\$24,616.80	+\$273.52

Sources: Barchart & Trade-Alert.com

The percent profitable for long trades is lower when screening for a delta over 50.00 improves from 51.00% with no screen to 54.44%. A significant figure on the table is profit per trade which is \$273.52, significantly higher than the non-screened per trade profit of \$196.03.

The majority of trades occurred with options that had a delta below 50.00 which indicates the options were out of the money. Table 6 shows the results for trades based on this screen.

Table 6 – Results By Year and Strategy – Screen Delta Under 50.00

Year	Trade Type	Trades	Held To Exp.	% Held to Exp.	Wins	%Win	Total P/L	Avg P/L
2022	Long Call	64	41	64.06%	16	25.00%	(\$24,833.40)	(\$388.02)
2022	Long Put	50	37	74.00%	8	16.00%	+\$20,012.10	+\$400.24
2022	Short Call	52	41	78.85%	45	86.54%	+\$27,657.57	+\$531.88
2022	Short Put	40	33	82.50%	31	77.50%	+\$12,013.00	+\$300.33
2023	Long Call	64	49	76.19%	11	17.18%	(\$847.21)	(\$13.24)
2023	Long Put	51	39	76.47%	14	27.45%	+\$13,038.10	+\$255.65
2023	Short Call	52	41	78.85%	45	86.54%	+\$9,019.84	+\$173.46
2023	Short Put	35	27	77.14%	30	85.71%	+\$16,948.70	+\$484.25
Total	All	408	308	75.25%	200	49.02%	+\$73,008.70	+\$178.94

Sources: Barchart & Trade-Alert.com





Of the 408 trades generated using a screen for a delta under 50.00, 308 were held to expiration or just over 75%. The percent profitable was 49.02% or 200 of the 408 trades. Buying out of the money calls was losing prospect in both 2022 and 2023. Short Call strategies, using options with a delta below 50.00 profitted over 85.00% of the time in both 2022 and 2023. However, the average trade result across all strategies using this screen was a gain of \$178.95, lower than the average of \$196.03 for all trades.

A second screen divided trades by options with more than 30 days to expiration and those with fewer than 30 days to expiration. Screening for time did not change the results as dramatically as the screens for delta.

The total profit for trades using options expiring 30 days or more was \$52,510.50 or \$175.62 per trade. This is the lowest per profit result of the five screens run in this study. Long Call trades in both 2022 and 2023 did not benefit from focusing on longer dated options. Additionally, Long Put in 2023 was a loser when options expiring in more than 30 days were a net loss.

Table 7 – Results By Year and Strategy - Screen Expirations Over 30 Days

Year	Trade Type	Trades	Held To Exp.	% Held to Exp.	Wins	%Win	Total P/L	Avg P/L
2022	Long Call	53	30	56.60%	17	32.08%	(\$12,110.29)	(\$228.50)
2022	Long Put	41	32	78.05%	8	19.51%	+\$26,941.64	+\$657.11
2022	Short Call	35	28	80.00%	30	85.71%	+\$19,212.84	+\$548.94
2022	Short Put	26	22	84.62%	20	76.92%	+\$4,505.12	+\$173.27
2023	Long Call	50	33	66.00%	13	26.00%	(\$16.19)	(\$0.32)
2023	Long Put	37	26	70.27%	13	35.14%	(\$2,808.66)	(\$75.91)
2023	Short Call	32	26	81.25%	27	84.38%	+\$10,027.88	+\$313.37
2023	Short Put	25	18	72.00%	19	76.00%	+\$6,758.16	+\$270.33
Total	All	299	215	71.91%	147	49.16%	+\$52,510.50	+\$175.62

Sources: Barchart & Trade-Alert.com

Note the profit for Long Put in 2022 is +\$26,941.63, despite a win rate of 19.51%. This is due to just a couple of very profitable trades that benefitted from the market's weakness in 2022. Finally, 71.91% of these trades were held to expiration, another surprising finding considering these positions were using longer dated options.





On 199 of the 498 trades used options that had less than 30 days to expiration. Recall, options with less than 9 days to expiration were excluded from this study so the results in Table 8 represent options with less than 30 days but at least 9 days to expiration.

Table 8 – Results By Year and Strategy – Screen Expiration Under 30 Days

Year	Trade Type	Trades	Held To Exp.	% Held to Exp.	Wins	%Win	Total P/L	Avg P/L
2022	Long Call	27	19	70.37%	4	14.81%	(\$15,002.90)	(\$555.66)
2022	Long Put	17	10	58.82%	8	47.06%	+\$803.96	+\$47.29
2022	Short Call	29	22	75.86%	23	79.31%	+\$11,435.30	+\$394.32
2022	Short Put	22	17	77.27%	16	72.73%	+\$8,412.39	+\$382.38
2023	Long Call	34	23	67.65%	8	23.53%	+\$5,846.76	+\$171.96
2023	Long Put	22	17	77.27%	6	27.27%	+\$20,330.70	+\$924.12
2023	Short Call	33	24	72.73%	27	81.82%	+\$1,196.32	+\$36.25
2023	Short Put	15	12	80.00%	14	93.33%	+\$12,092.47	+\$806.16
Total	All	199	144	72.36%	106	53.27%	+\$45,115.00	+\$226.71

Sources: Barchart & Trade-Alert.com

The total results is a profit of \$45,115.00 which is \$226.71, an improvement of over \$30.00 per trade versus the non-screened results. Long Put in 2023, when only using options that have between 9 and 30 days to expiration are use, realized an average profit of \$924.12. This is the second best per trade performance of any screened or non-screened approach in this study. Long Call in 2022 is the only unprofitable strategy when using shorter dated options. Short strategies using options with less than 30 days to expiration were much more profitable than their long counterparts, a factor that should be kept in mind when considering taking a short position in equity options.

Discussion

This study scratches the surface on exploring block option trades through incorporating a couple of minor screens (delta and time to expiration) into the process. However, it appears certain block option trades may be worth noting and replicating, depending on type of trade, the option's delta, and time to expiration.

Disclosure: This study is for educational purposes only and does not represent any trading recommendations.

