



Market Structure Report

04-15-2024

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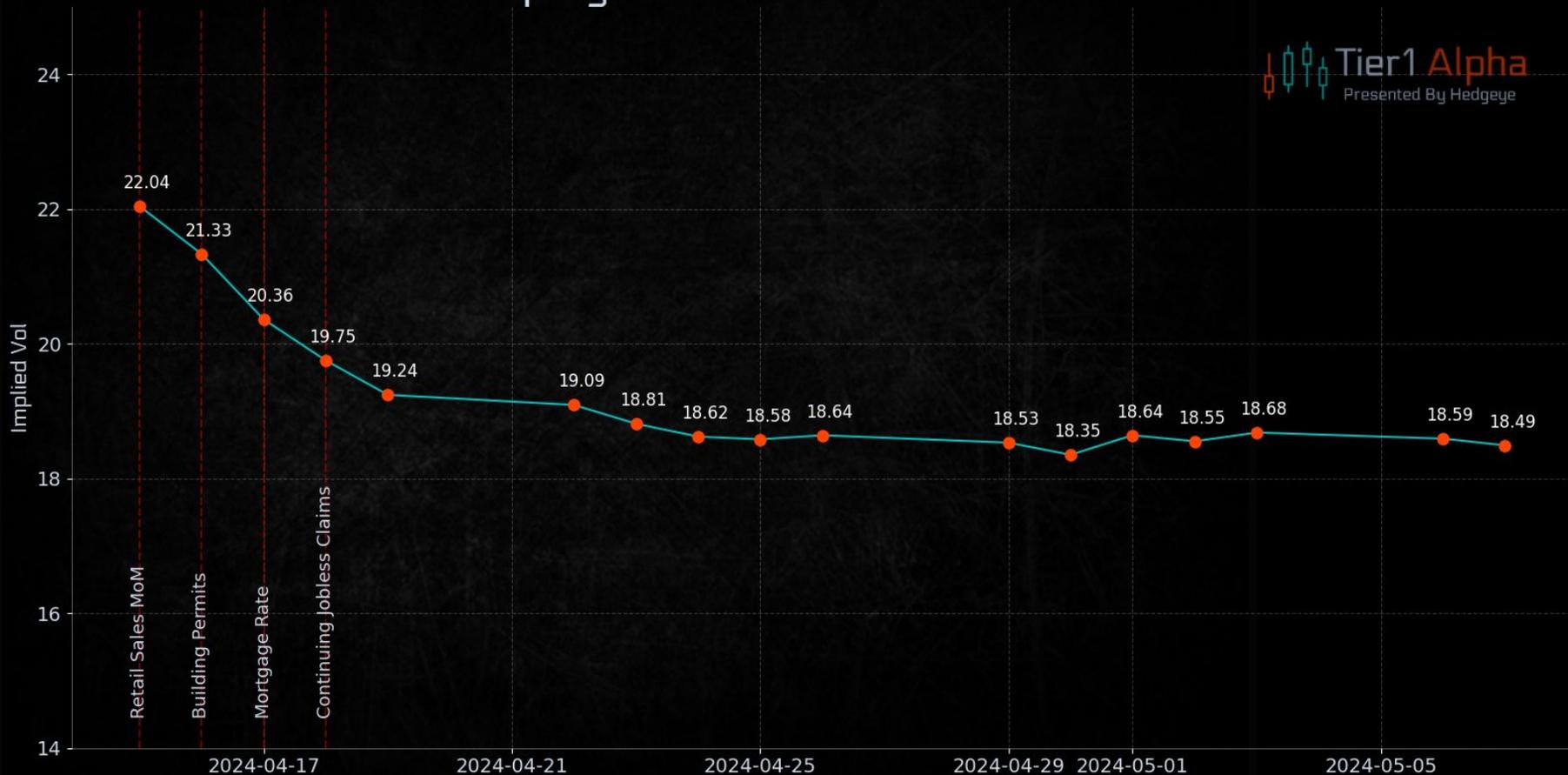
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Summary:

- Dealers will kick off the week in negative gamma, which means higher volatility should be expected. Although we can attribute last Friday's sell-off to various catalysts, including macro and geopolitical developments, the underlying mechanics of the decline were relatively straightforward.
- Ultimately, we suspect a bulk of the sell-off was driven by a considerable increase in demand for longer-dated Put contracts, which caused both premiums to surge and implied volatility levels to rise. As these Puts were net sold by the market makers, they needed to hedge the deltas of these contracts by aggressively shorting SPX futures, which put further pressure on the market.
- The other byproduct of these Puts being sold is that it increases the overall negative gamma dealers have to hedge on any subsequent moves in the underlying. This means selling SPX futures when the market declines and buying back futures when it rises, which can create some additional volatility.
- Last Friday, our PV bands performed exceptionally well as the SPX closed within just one point of our lower range at the 5122 strike. However, following the move, our bands have shifted notably lower, bringing the 5100 strike back into play for the first time since mid-March.
- Although the overall direction of the trend is concerning, it also presents a significant potential for upside, particularly if we observe some of those weekend hedges being sold back to the dealers. Such a scenario would necessitate the dealers to buy back the deltas of those contracts, providing the fuel for a short-term rally in equities.
- Remember, though, **upside volatility is still volatility**, which presents its own set of risks, particularly with the Systematic fund community.
- These next two weeks are going to be a crucial window for these mechanical strategies, as both Vol control funds and CTAs, in particular, are sitting at some critical levels. In our opinion, this is not the time for complacency.

Volatility Regime:	Low	Neutral	High
Flow Risk:	Bullish	Neutral	Bearish
PV Band Risk/Reward:	Long	Neutral	Short

Short-dated Equity Vol Term Structure vs Economic Events



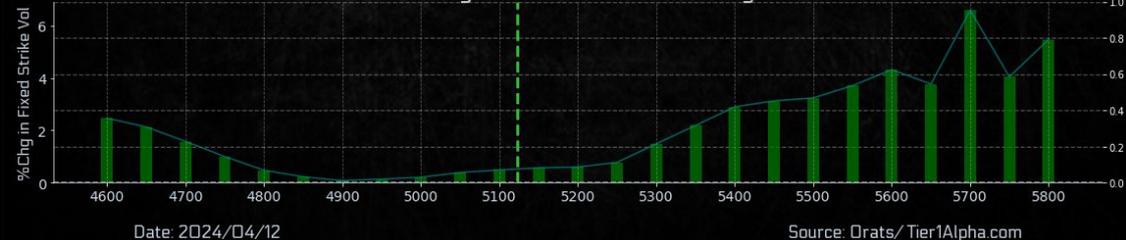
Date: 2024/04/12

Source: Orats/Tier1Alpha.com

Economic Event Calendar With Short-Dated Options Positioning

Date	Event	Estimate	Previous	Impact	Call IV	Put IV	SPX IV	Expected Move	P/C Vol	P/C DI
2024-04-15	Retail Sales MoM	0.3	0.6	high	20.59	23.61	22.1	+/- 1.15%	1.02	2.98
2024-04-16	Building Permits	1.514	1.524	high	20.61	22.29	21.45	+/- 1.58%	1.9	2.78
2024-04-17	Mortgage Rate	--	7.01	low	20.13	21.02	20.57	+/- 1.86%	2.35	2.15
2024-04-17	Mortgage Applications	--	0.1	low	20.13	21.02	20.57	+/- 1.86%	2.35	2.15
2024-04-17	MBA Mortgage Refinance Index	--	498.3	low	20.13	21.02	20.57	+/- 1.86%	2.35	2.15
2024-04-17	MBA Purchase Index	--	138.7	low	20.13	21.02	20.57	+/- 1.86%	2.35	2.15
2024-04-18	Continuing Jobless Claims	--	1817.0	low	20.1	19.91	20.0	+/- 2.09%	1.64	2.28
2024-04-18	Initial Jobless Claims	--	211.0	medium	20.1	19.91	20.0	+/- 2.09%	1.64	2.28
2024-04-18	Philly Fed Employment	--	-9.6	low	20.1	19.91	20.0	+/- 2.09%	1.64	2.28
2024-04-18	Philly Fed New Orders	--	5.4	low	20.1	19.91	20.0	+/- 2.09%	1.64	2.28
2024-04-18	Philly Fed Prices Paid	--	3.7	low	20.1	19.91	20.0	+/- 2.09%	1.64	2.28

SPX Implied Volatility Skew -- OpEx: Fri Apr 19 2024



Date: 2024/04/12

Source: Drats/ Tier1Alpha.com

SPX Implied Volatility with Fixed Strike Vol

Expiration	Fri Apr 19 2024		Fri May 17 2024		Fri Jun 21 2024	
	Strike	Implied Vol	FSV Change	Implied Vol	FSV Change	Implied Vol
4700.0	31.54	1.58	20.74	0.53	20.12	0.3
4750.0	28.74	1.0	19.91	0.57	19.44	0.31
4800.0	25.91	0.48	19.06	0.58	18.76	0.3
4850.0	23.42	0.23	18.26	0.61	18.1	0.32
4900.0	21.19	0.08	17.46	0.6	17.46	0.33
4950.0	19.4	0.14	16.72	0.62	16.82	0.33
5000.0	17.99	0.21	15.95	0.59	16.22	0.36
5050.0	16.9	0.39	15.23	0.57	15.64	0.37
5100.0	15.82	0.49	14.53	0.57	15.07	0.39
5150.0	14.78	0.57	13.87	0.55	14.54	0.42
5200.0	13.7	0.6	13.27	0.55	14.04	0.43
5250.0	12.91	0.78	12.72	0.52	13.6	0.47
5300.0	13.0	1.49	12.31	0.55	13.2	0.51
5350.0	13.93	2.19	12.02	0.6	12.83	0.53
5400.0	15.53	2.9	11.89	0.67	12.51	0.55
5450.0	17.16	3.13	11.89	0.74	12.25	0.58
5500.0	18.66	3.24	12.04	0.86	12.04	0.61
5550.0	20.83	3.71	12.39	1.0	11.88	0.6
5600.0	22.91	4.32	12.73	1.07	11.77	0.61
5650.0	23.55	3.77	13.27	1.16	11.76	0.65
5700.0	27.03	6.59	13.83	1.3	11.79	0.64

SPX Probable Volatility & Put/Call Gamma By Strike, Weighted Expirations



Strikes In Play

5100.0
5120.0
5125.0
5150.0
5200.0



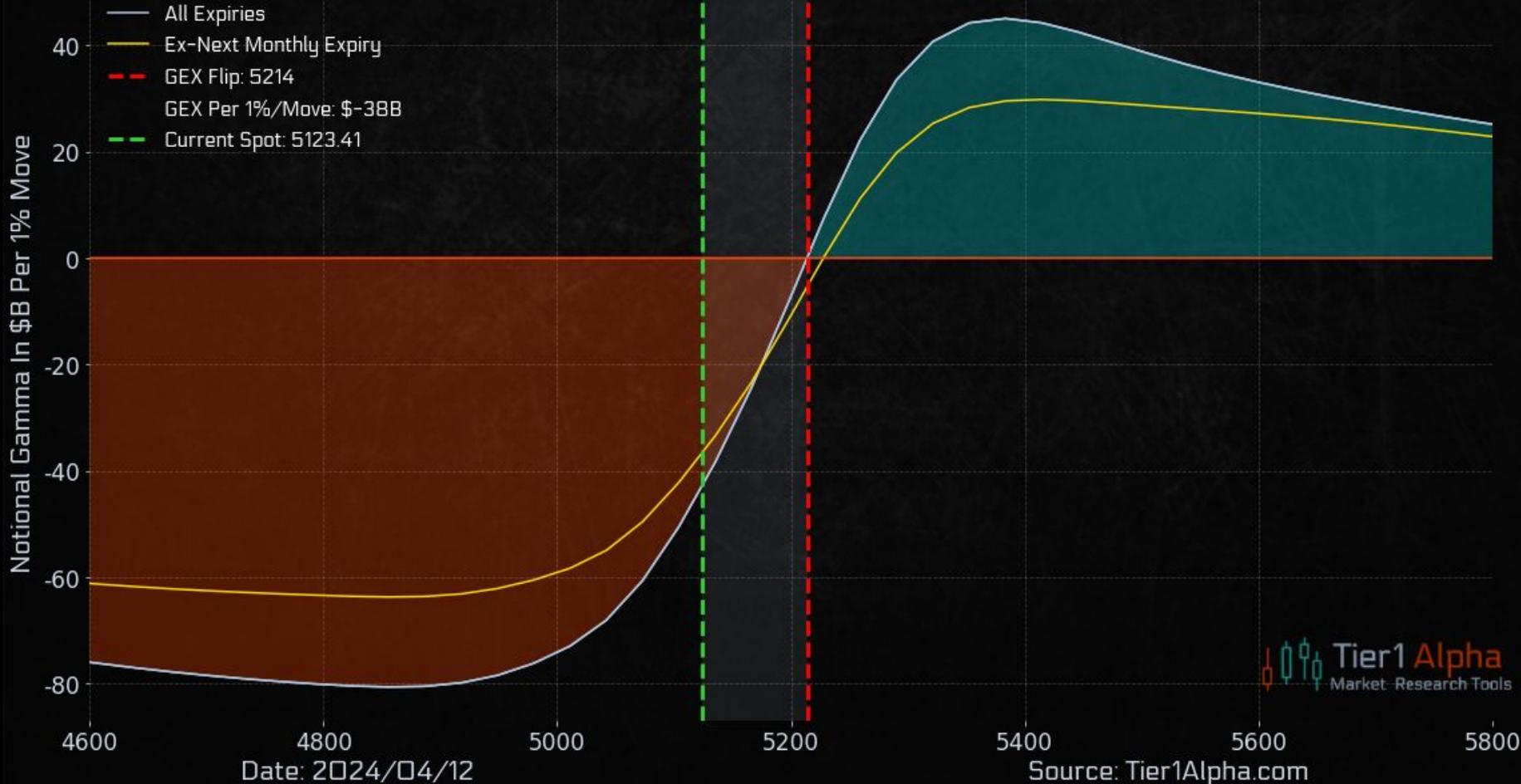
Positive Gamma Negative Gamma Zero Gamma: 5214 Lower PV Band: 5088.0 Upper PV Band: 5244.0

03/14/2024 03/21/2024 03/28/2024 04/05/2024 04/12/2024 04/19/2024

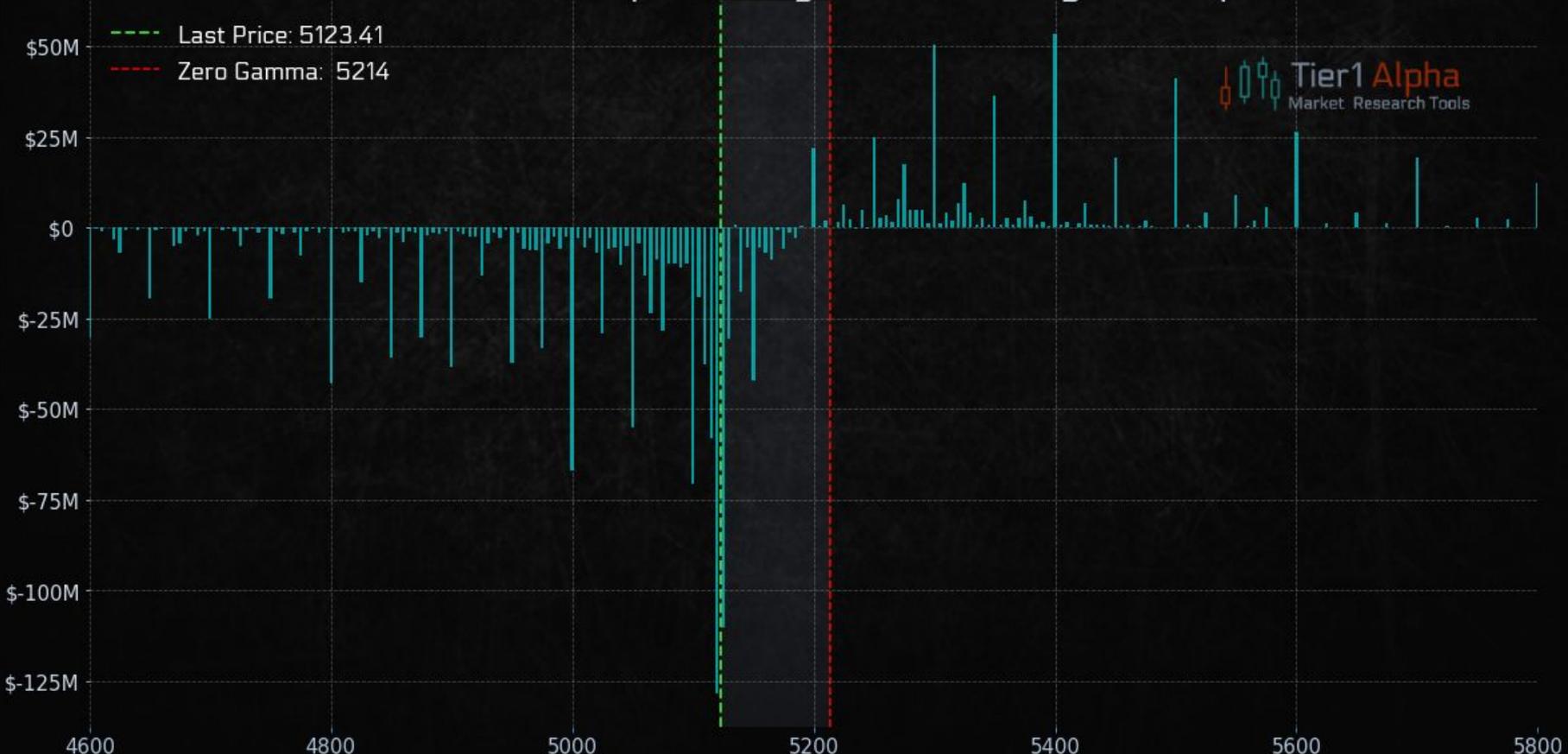
Date: 2024/04/12

Source: Intrinio/ Tier1Alpha.com

S&P 500 (SPX) Estimated Dealer Gamma Exposure - Weighted Expirations



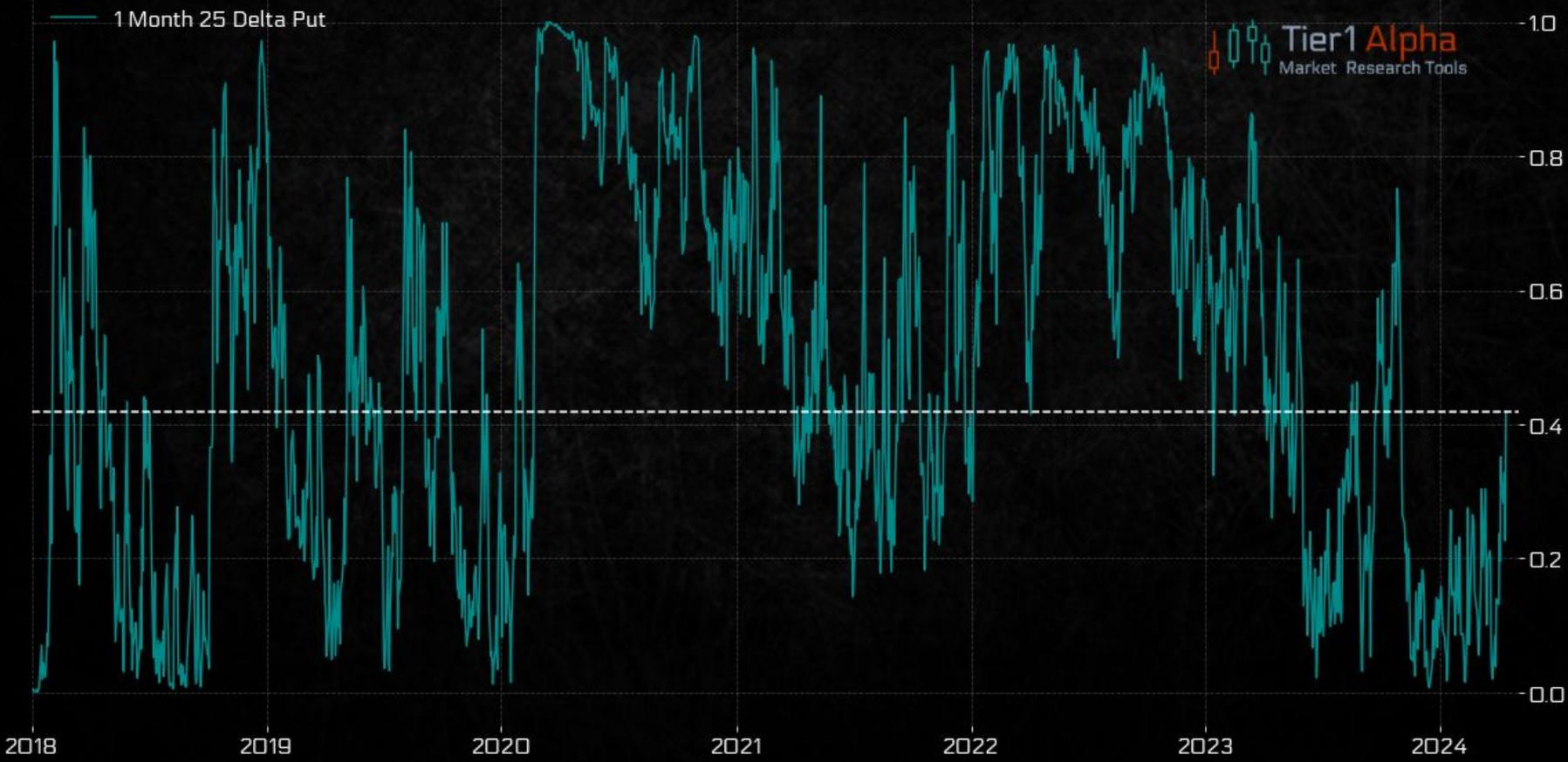
SPX Total Gamma Exposure By Strike -- Weighted Expirations



Date: 2024/04/12

Source: Intrinsic/Tier1Alpha.com

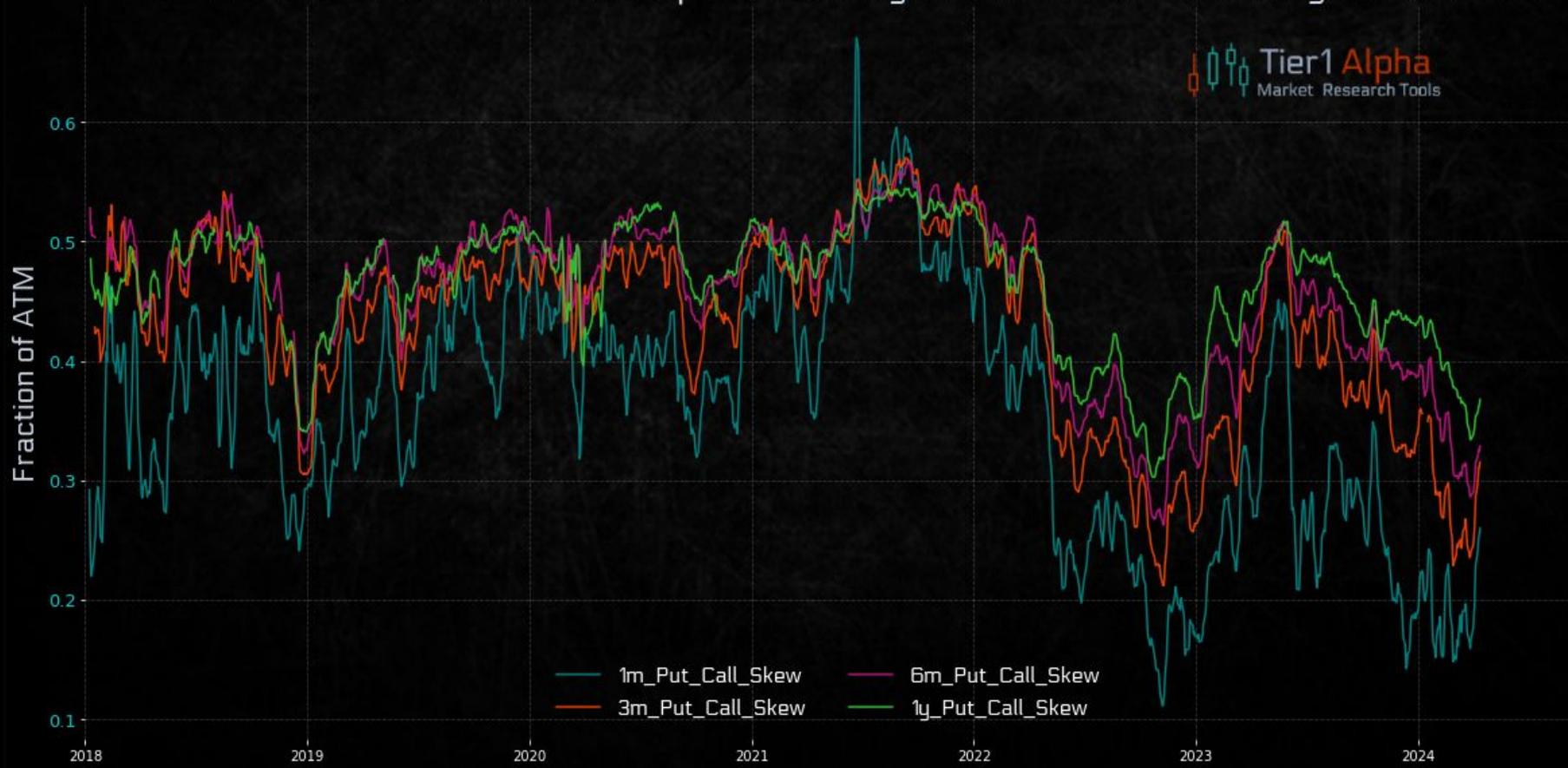
Rolling Cost of 1 Month 25 Delta Put Options Percentile Rank



Date: 2024/04/13

Source: Tier1Alpha.com

25-Delta Put vs 25-Delta Call Implied Volatility Skew, Constant Maturity, Normalized

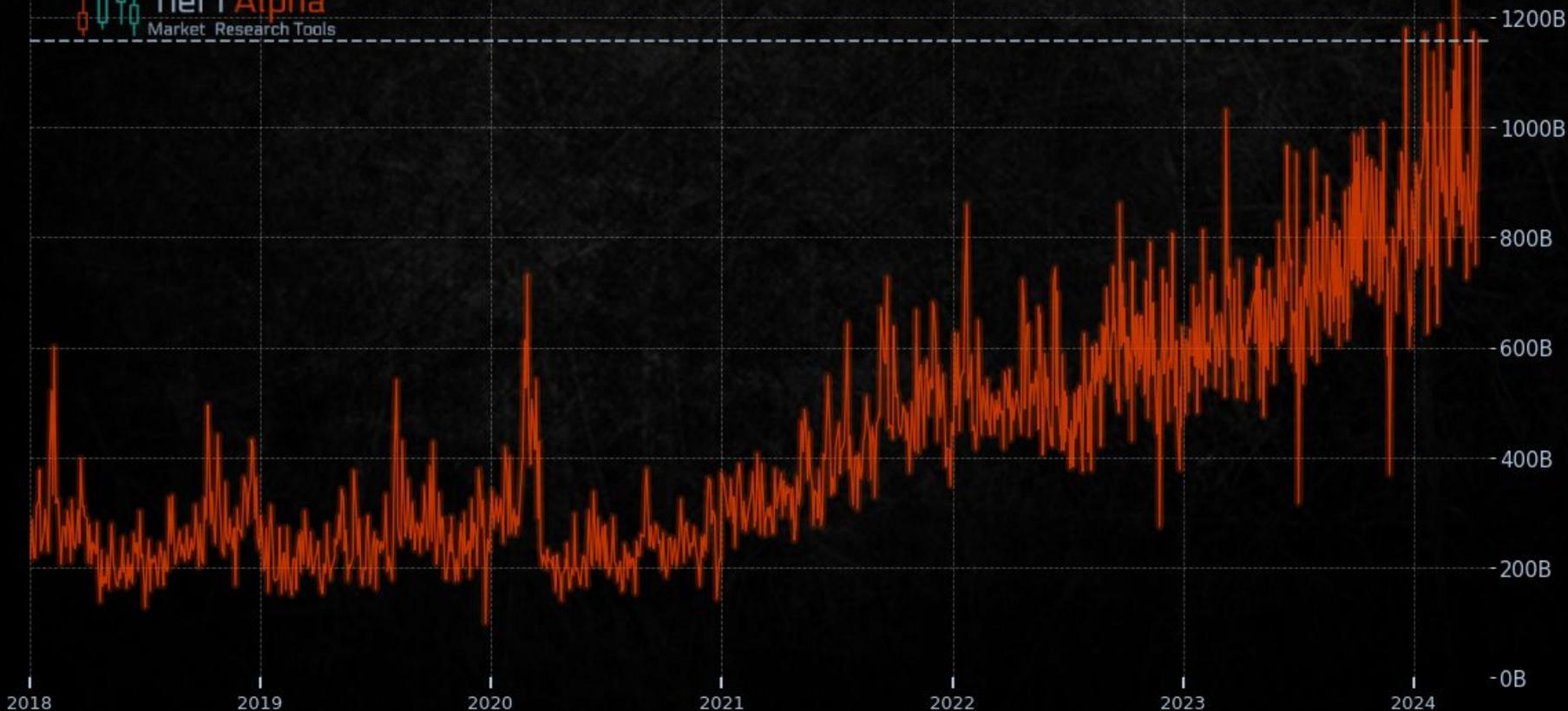


Date: 2024/04/13

Source: Tier1Alpha.com

SPX Total Notional Put Volume

Tier1 Alpha
Market Research Tools



Date: 2024/04/14

Source: Tier1Alpha.com

Nasdaq 100 (NDX) Probable Volatility & Put/Call Gamma By Strike, Weighted Expirations

Tier1 Alpha
Market Research Tools

Strikes In Play

17900.0
17990.0
18000.0
18010.0
18100.0



Date: 2024/04/12

Source: Intrinio/ Tier1Alpha.com

Russell 2000 Probable Volatility & Put/Call Gamma By Strike, Weighted Expirations



Strikes In Play

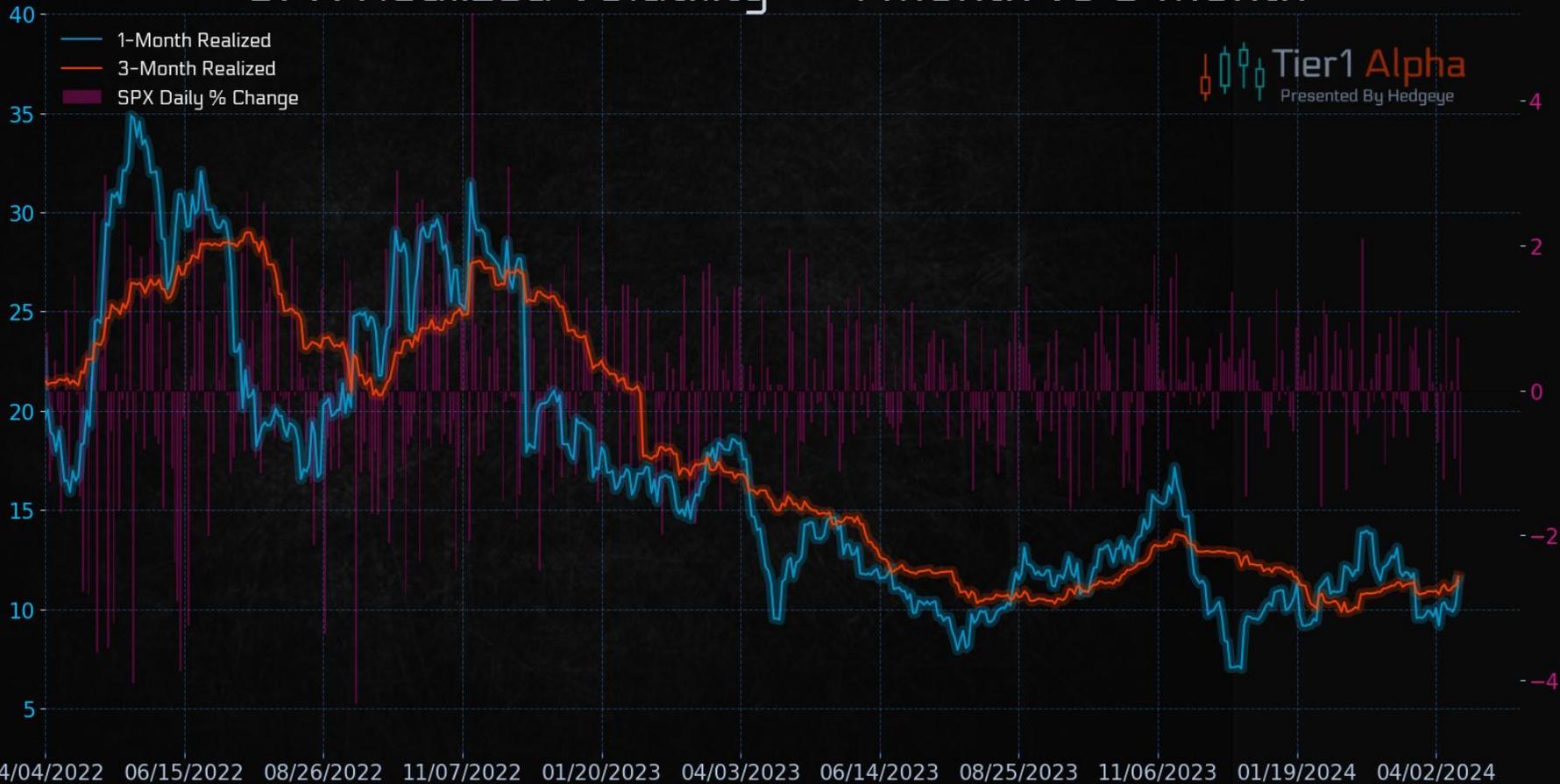
1995.0
2000.0
2025.0
2040.0
2050.0



Date: 2024/04/12

Source: Intrinio/ Tier1Alpha.com

SPX Realized Volatility -- 1 Month vs 3 Month



Tier1 Alpha
Presented By Hedgeye

Date: 2024/04/12

Source: Tier1Alpha.com

Vol Control Implied Notional Flows

Tier1Alpha
Presented By Hedgeye



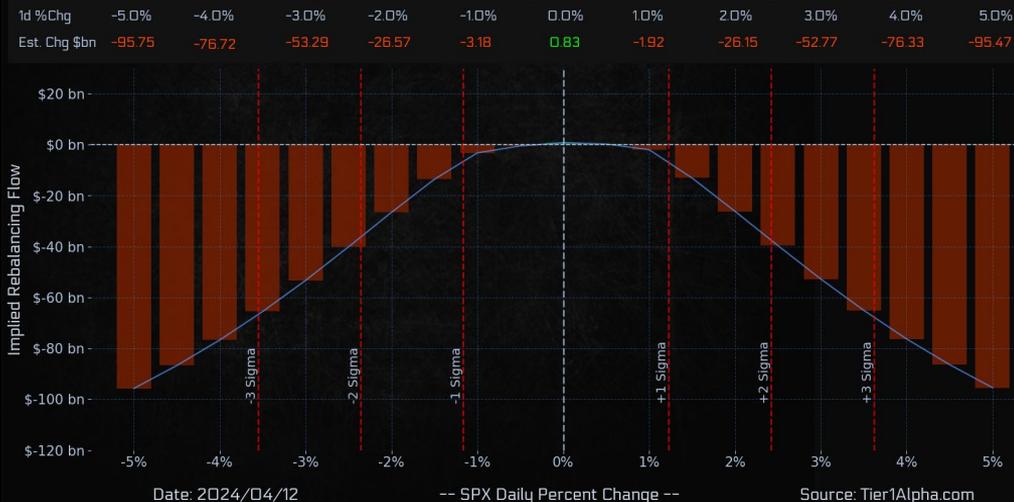
Date: 2024/04/12

Source: Tier1Alpha.com

SPX Realized Vol Data In Sample for 2024-04-15

Dropoff	1m Dates	1m Drop %	3m Dates	3m Drop %
T+1	2024-03-15	-0.6%	2024-01-16	-0.4%
T+2	2024-03-18	0.6%	2024-01-17	-0.6%
T+3	2024-03-19	0.6%	2024-01-18	0.9%
T+4	2024-03-20	0.9%	2024-01-19	1.2%
T+5	2024-03-21	0.3%	2024-01-22	0.2%
T+6	2024-03-22	-0.1%	2024-01-23	0.3%
T+7	2024-03-25	-0.3%	2024-01-24	0.1%
T+8	2024-03-26	-0.3%	2024-01-25	0.5%
T+9	2024-03-27	0.9%	2024-01-26	-0.1%
T+10	2024-03-28	0.1%	2024-01-29	0.8%

Vol Control Implied Rebalancing Flow vs SPX Daily %Change

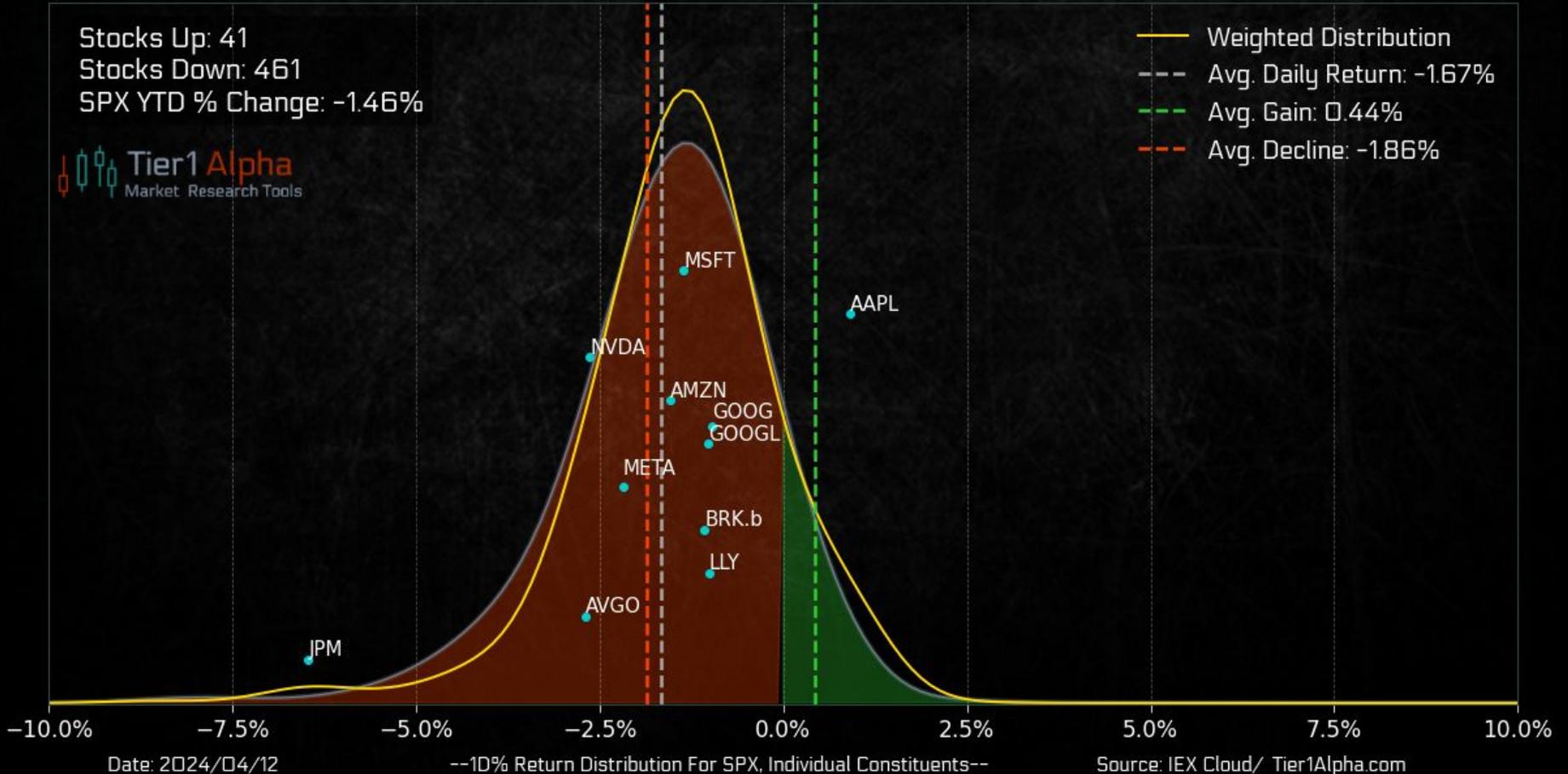


S&P 500 MBAD Indicator for 2024/04/12

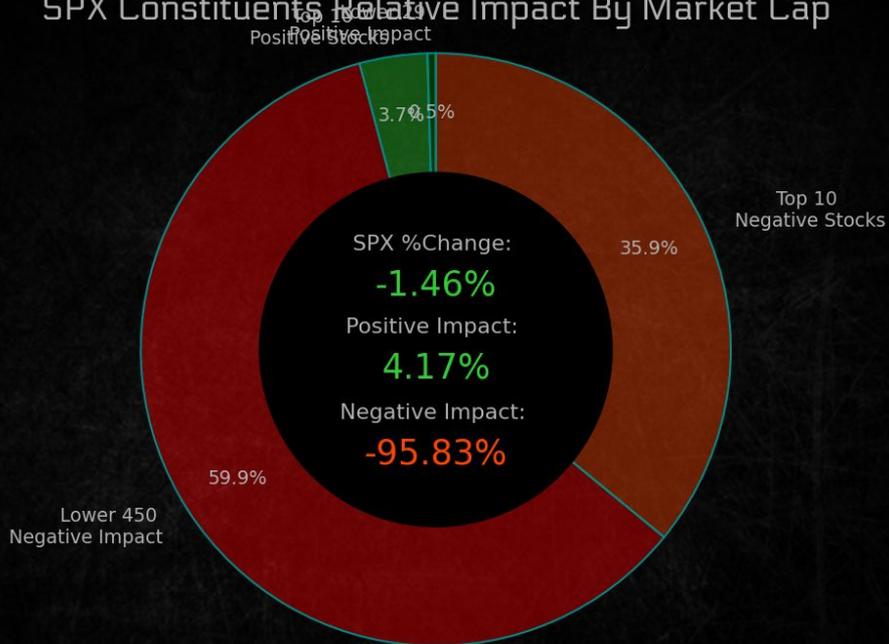
Stocks Up: 41
Stocks Down: 461
SPX YTD % Change: -1.46%



- Weighted Distribution
- - - Avg. Daily Return: -1.67%
- - - Avg. Gain: 0.44%
- - - Avg. Decline: -1.86%



SPX Constituents Relative Impact By Market Cap



SPX Constituents Relative Impact By Market Cap

Largest Positive Impact

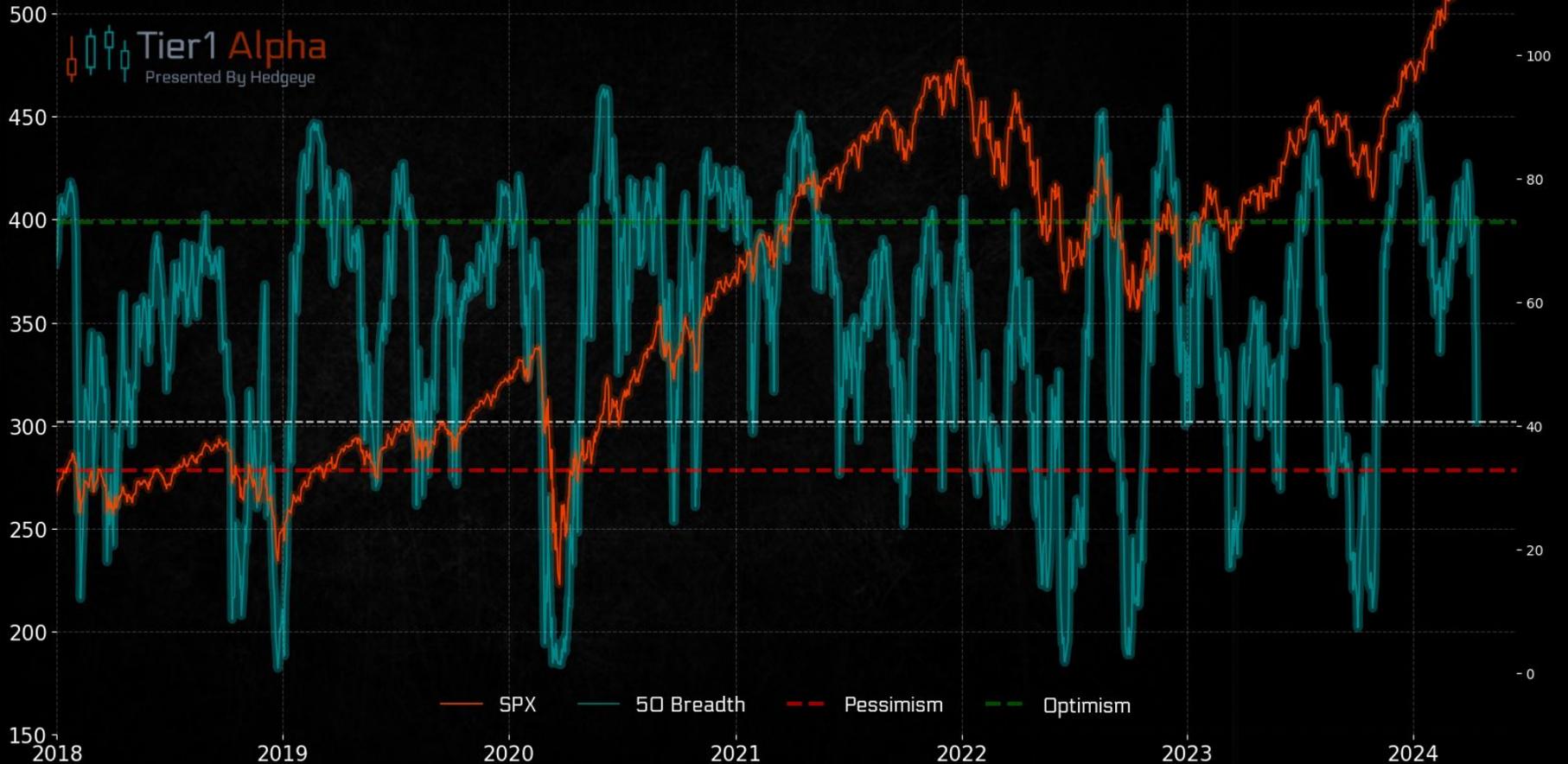
Largest Negative Impact

Top Contributor	Daily %Return	Positive Impact	% Weight	Top Detractor	Daily %Return.1	Negative Impact	% Weight.1
AAPL	0.9%	3.1%	5.61%	NVDA	-2.7%	-8.6%	5.07%
PGR	0.8%	0.1%	0.28%	MSFT	-1.4%	-6.4%	7.17%
STT	2.5%	0.1%	0.05%	JPM	-6.5%	-5.4%	1.31%
CB	0.5%	0.1%	0.24%	AMZN	-1.5%	-3.7%	3.76%
ETN	0.4%	0.1%	0.28%	META	-2.2%	-3.4%	2.46%
V	0.1%	0.1%	1.0%	AVGO	-2.8%	-2.4%	1.35%
FAST	0.8%	0.1%	0.1%	AMD	-4.2%	-1.8%	0.67%
AFL	0.8%	0.1%	0.1%	TSLA	-2.0%	-1.4%	1.1%
DHI	0.7%	0.0%	0.11%	INTC	-5.2%	-1.4%	0.43%
ALL	0.7%	0.0%	0.1%	GOOGL	-1.1%	-1.4%	2.08%

Date: 2024/04/14

Source: Tier1Alpha.com

S&P 500 Percent of Stocks Above 50 Day Moving Average



Date: 2024/04/13

Source: IEX Cloud/ Tier1Alpha.com



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