



# Market Structure Report

04-05-2024

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# Summary:

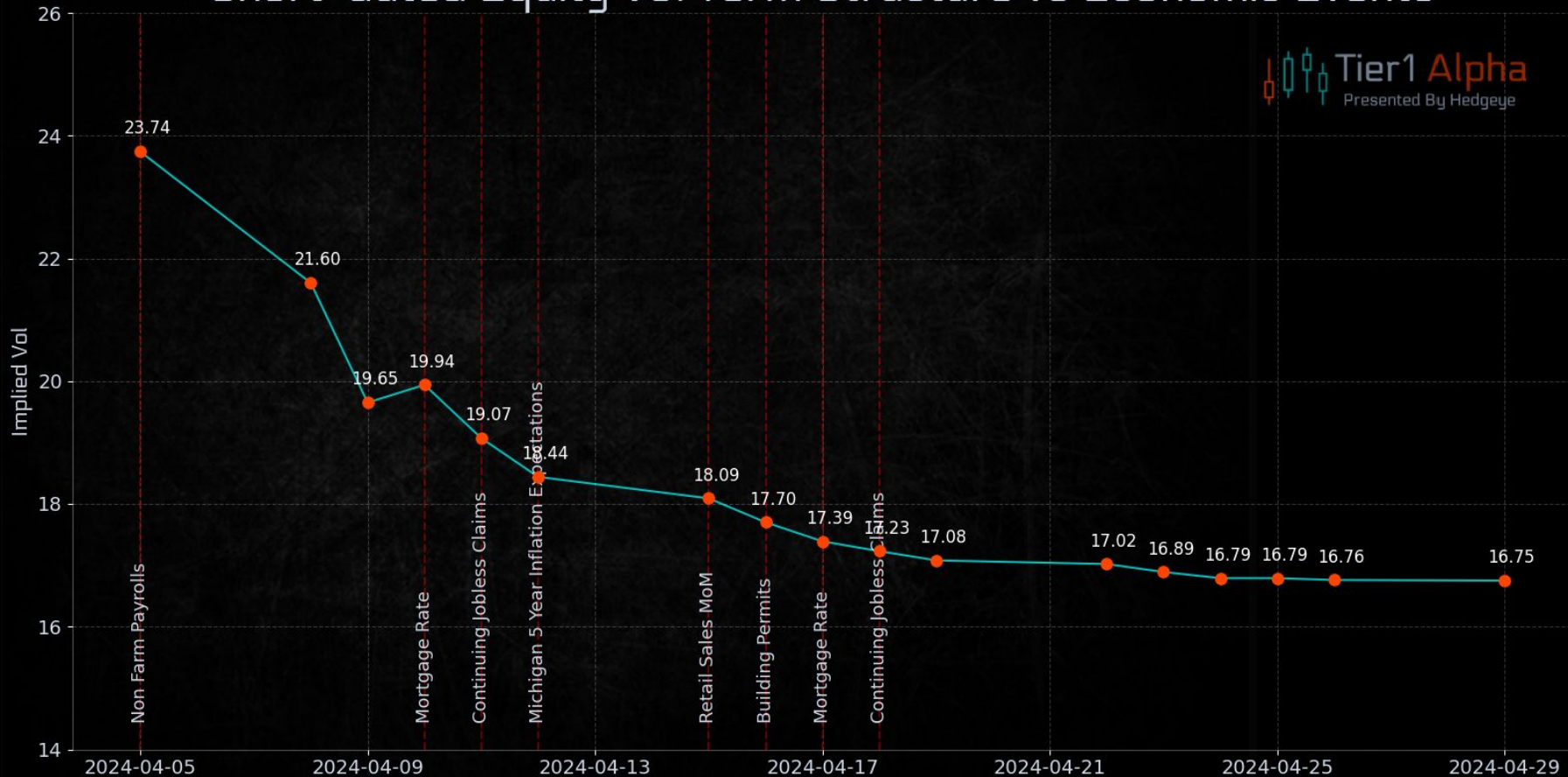
- Kashkari's remarks yesterday concerning no potential rate cuts this year evidently touched a nerve, prompting a notable increase in demand for downside protection via longer-dated Put contracts.
- Not only did this spike demand cause Put premiums to jump to the highest levels of the year, but it also drive a notable shift higher in our fixed strike volatility models, which indicates the move in vol was more than just a reflection of SPX moving lower.
- As these Puts were sold by the market makers, it introduced a sizable amount of fresh negative gamma into the market, which dealers then had to hedge by shorting the underlying, which in this case, meant selling SPY and SPX futures.
- This selling pressure ultimately contributed to yesterday's bearish momentum, which compelled market makers to sell an even greater number of futures contracts in order to continuously offset their delta exposure.
- Even though we haven't seen this dynamic in a while, it kickstarted a classic short-gamma feedback loop where selling led to even more selling, at least until dealers were finally able to balance out their deltas around the 5150 strike.
- Dealers will start the day off in negative gamma, which implies more volatility should be expected. While the downward trend of our PV bands continues to open up those lower levels, we'll still be looking for some support around the 5100 strike, right around where our gamma curve starts to flatten out.
- That said, if this volatility continues, we'll be at risk of triggering some aggressively selling flows from CTA's and Vol control funds, at which point all bets are off.
- For now, the trading range is between the 5250 strike and the 5150 strike, but with Non Farm Payrolls today, and CPI coming up next week, we're approaching this as an exceedingly high-risk setup.

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

# Summary:

- Breadth was weak yesterday as 85% of the S&P 500 closed in the red. Interestingly, the spot index started to decline before the significant deterioration in breadth, which suggests that it wasn't just the index components driving the market lower.
- Instead, we suspect that the initial decline was triggered by the market makers shorting shares of the SPY, which they had to do to delta hedge the sudden increase in downside protection.
- Without digging too far into the weeds, this created some arbitrage opportunities behind the scenes in the ETF space, where authorized participants (who have the right to create and redeem ETF shares) were able to redeem/ sell shares of the underlying assets within the index, eventually leading to the collapse in breadth and accelerating the decline.
- However, despite the -1.23% decline, the impact on realized volatility was relatively subdued. The 1-month volatility only saw a modest rise, reaching the lower 10's, while the 3-month volatility experienced a minor increase, entering the lower 11's.
- Although both models are expected to have a slight decline heading into next Tuesday, any persistent volatility beyond that point could propel these levels high enough to begin impacting the systematic fund space.
- We already saw some of this selling triggered yesterday in the volatility control space, as these funds mechanically sold off around \$7 billion in equities in order to rebalance their risk exposure. While these bearish flows certainly did not do the market any favors, we suspect that the impact was modest compared to the negative gamma flows that drove the broader move lower.
- However, that doesn't mean these positioning risks will stay dormant forever, and if realized volatility levels continue to trend higher, we could see these funds destabilize sooner rather than later, which would unleash a cascade of selling in a broadly under hedged market.
- Remember, while gamma exposure acts as a **throttle for volatility**, volatility acts as a **toggle for risk exposure**. This relationship creates a mechanism by which volatility itself can crash the markets, as these risk-based strategies are forced to deleverage.

# Short-dated Equity Vol Term Structure vs Economic Events



Date: 2024/04/04

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
2024-04-05	Non Farm Payrolls	200.0	275.0	high	27.12	20.85	23.98	+/- 1.24%	1.18	1.91
2024-04-05	Consumer Credit	15.0	19.49	low	27.12	20.85	23.98	+/- 1.24%	1.18	1.91
2024-04-10	Mortgage Rate	--	6.91	low	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	Mortgage Applications	--	-0.6	low	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	MBA Mortgage Refinance Index	--	453.5	low	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	MBA Purchase Index	--	145.6	low	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	Core Inflation Rate MoM	0.3	0.4	high	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	Core Inflation Rate	--	3.8	high	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	Inflation Rate Mom	0.3	0.4	high	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-10	Inflation Rate	--	3.2	high	22.46	18.5	20.48	+/- 2.14%	1.2	3.04
2024-04-11	Continuing Jobless Claims	--	--	low	21.91	17.37	19.64	+/- 2.29%	1.08	2.72
2024-04-11	Initial Jobless Claims	--	--	medium	21.91	17.37	19.64	+/- 2.29%	1.08	2.72

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



Date: 2024/04/04

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	25.78	1.34	19.86	0.77	19.44	0.48
4750.0	24.13	1.32	19.02	0.79	18.78	0.48
4800.0	22.62	1.35	18.17	0.76	18.12	0.5
4850.0	21.15	1.42	17.4	0.79	17.48	0.52
4900.0	19.75	1.41	16.66	0.83	16.86	0.53
4950.0	18.5	1.53	15.91	0.82	16.26	0.55
5000.0	17.31	1.59	15.26	0.87	15.68	0.57
5050.0	16.24	1.63	14.61	0.87	15.11	0.57
5100.0	15.25	1.67	14.06	0.81	14.58	0.58
5150.0	14.36	1.49	13.53	0.81	14.13	0.6
5200.0	13.56	1.52	13.02	0.79	13.67	0.58
5250.0	12.88	1.47	12.58	0.74	13.25	0.59
5300.0	12.4	1.46	12.24	0.73	12.87	0.57
5350.0	12.06	1.45	11.96	0.74	12.53	0.54
5400.0	12.02	1.54	11.76	0.76	12.24	0.52
5450.0	12.35	1.68	11.6	0.78	12.02	0.53
5500.0	12.94	1.77	11.55	0.84	11.84	0.55
5550.0	13.87	2.01	11.59	0.87	11.71	0.57
5600.0	14.76	1.94	11.76	0.96	11.62	0.6
5650.0	15.93	2.05	12.01	1.0	11.59	0.65
5700.0	16.57	1.87	12.34	1.05	11.6	0.67

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



## Strikes In Play

5150.0  
5160.0  
5175.0  
5200.0  
5250.0

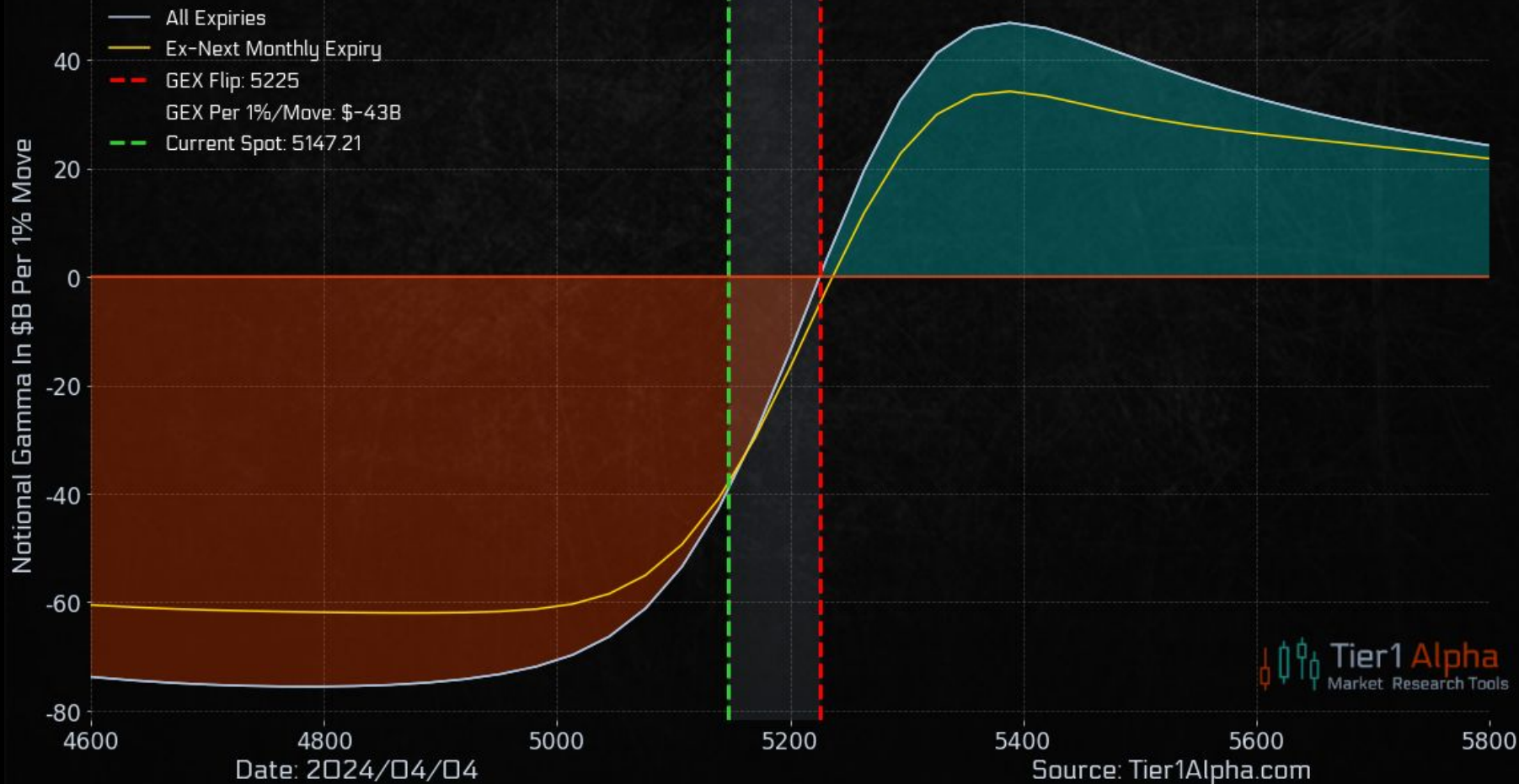


Date: 2024/04/04

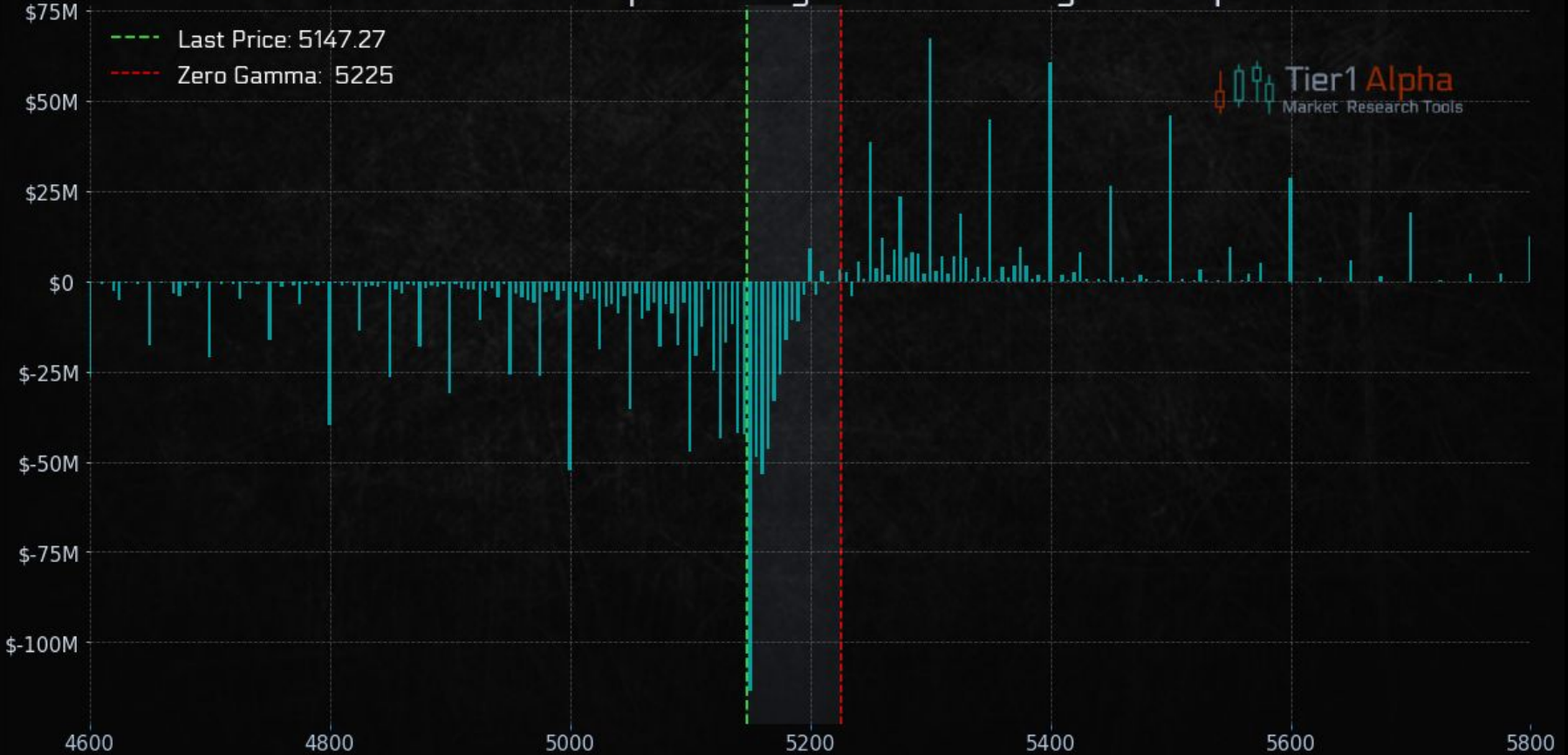
Source: Intrinio/ Tier1Alpha.com



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



# SPX Total Gamma Exposure By Strike -- Weighted Expirations



Tier1 Alpha  
Market Research Tools

Date: 2024/04/04

Source: Intrinsic / Tier1Alpha.com

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



Date: 2024/04/04

Source: Intrinio/Tier1Alpha.com

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



## Strikes In Play

2040.0  
2050.0  
2060.0  
2080.0  
2100.0

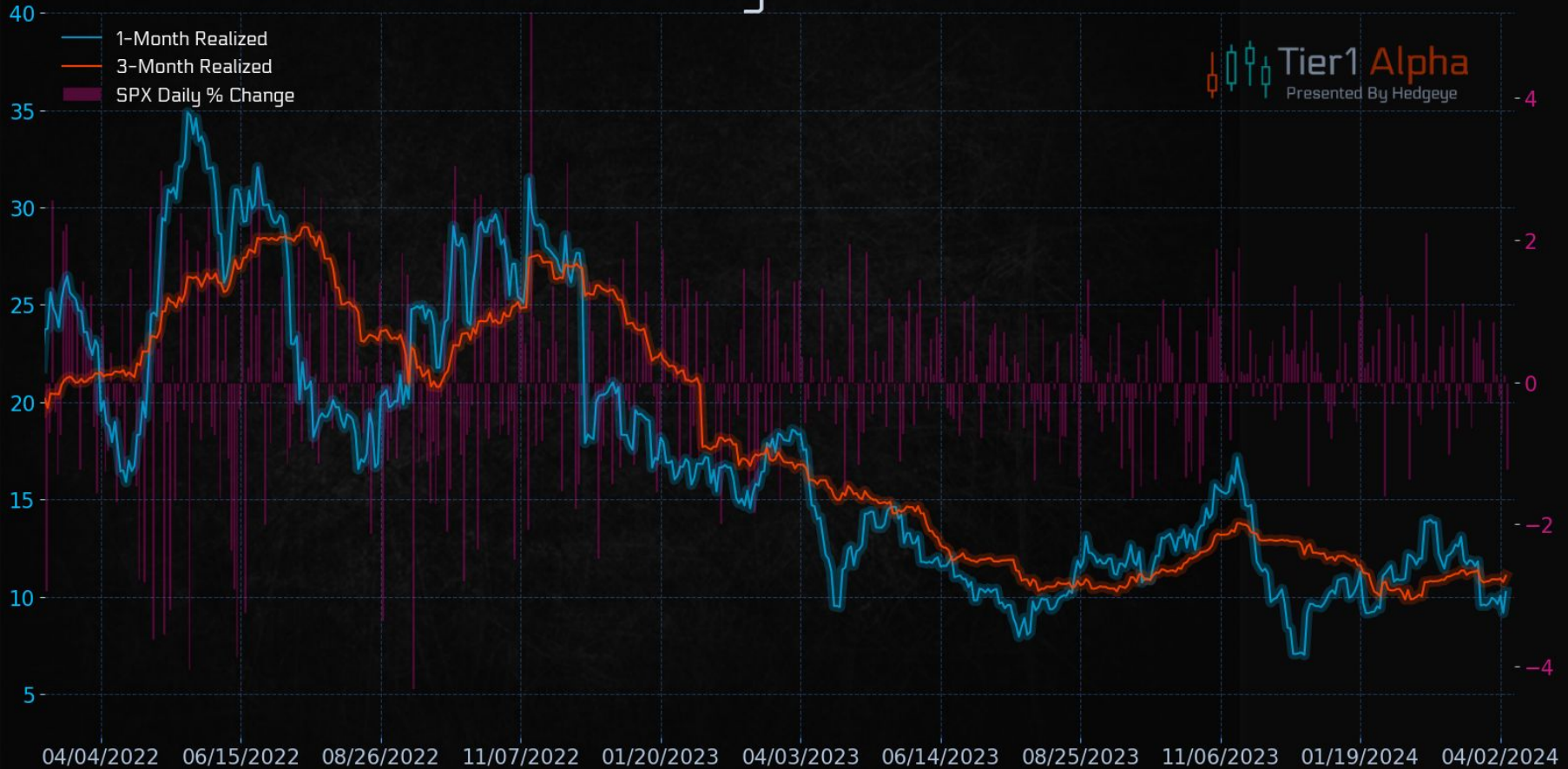


Date: 2024/04/04

Source: Intrinio/ Tier1Alpha.com



# SPX Realized Volatility -- 1 Month vs 3 Month



Tier1 Alpha  
Presented By Hedgeye

Date: 2024/04/04

Source: Tier1Alpha.com

# Vol Control Implied Notional Flows

Tier1 Alpha  
Presented By Hedgeye



Date: 2024/04/04

Source: Tier1Alpha.com

# Systematic Positioning Index



Date: 2024/04/04

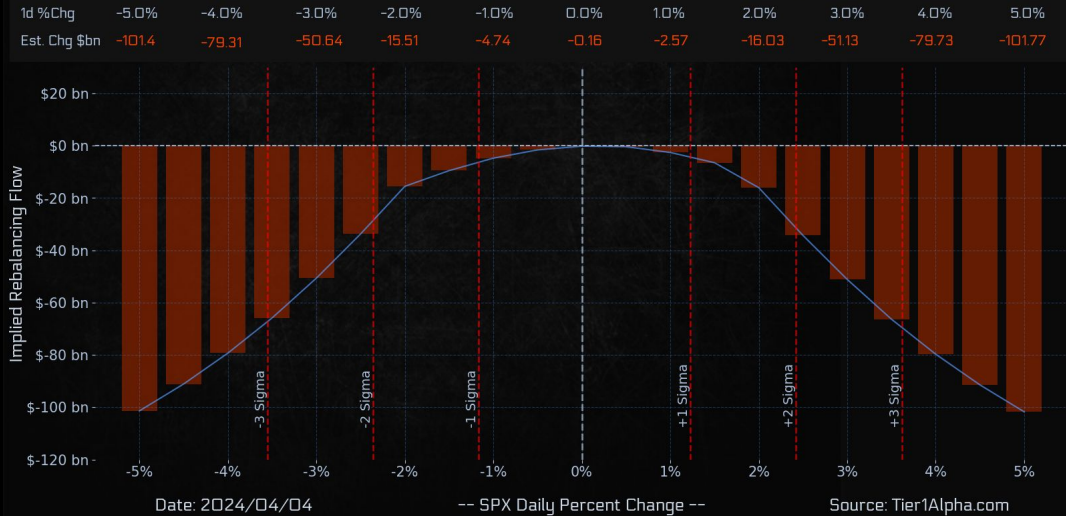
Source: Tier1Alpha.com



### SPX Realized Vol Data In Sample for 2024-04-05

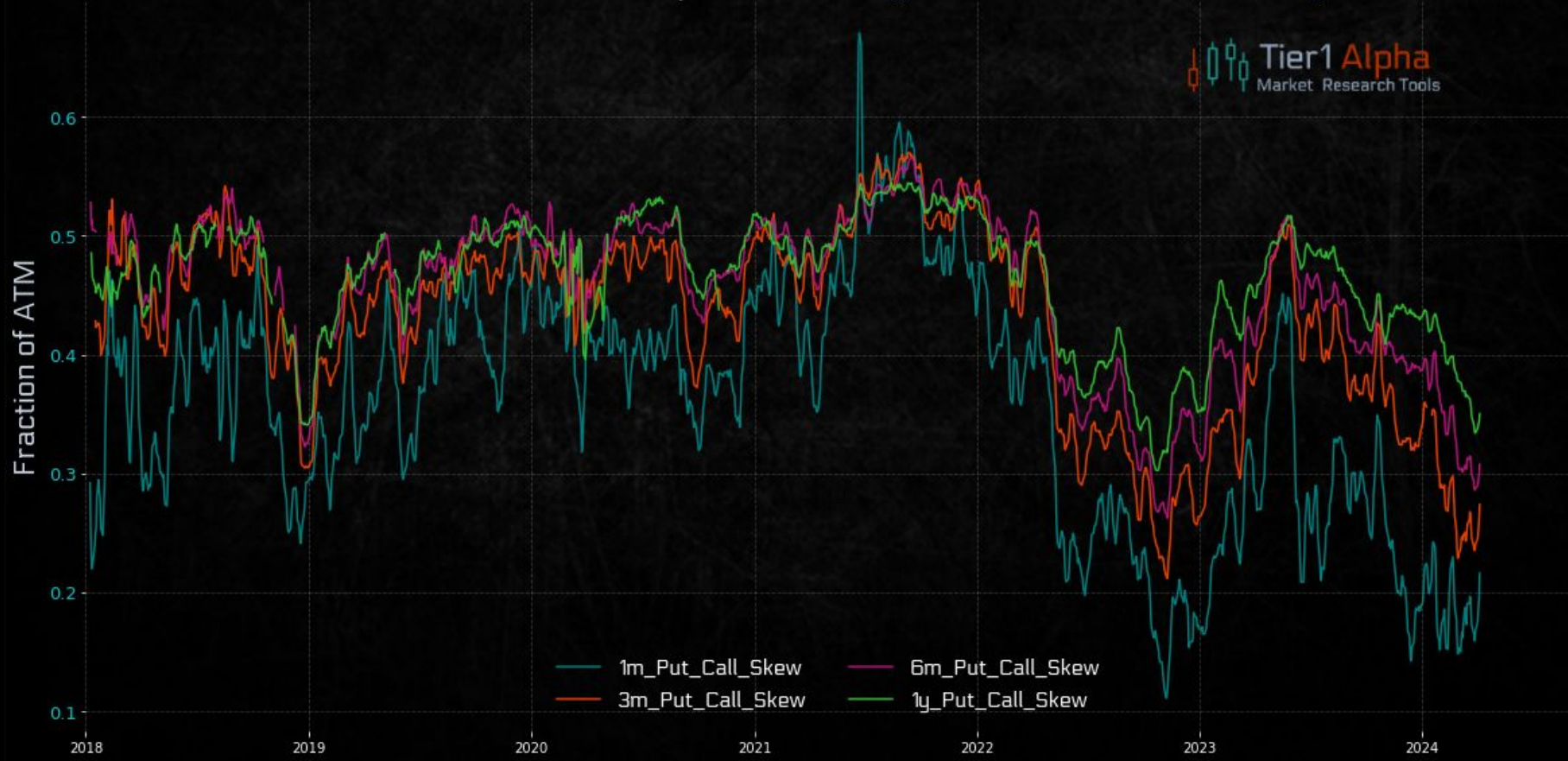
Dropoff	1m Dates	1m Drop %	3m Dates	3m Drop %
T+1	2024-03-07	1.0%	2024-01-05	0.2%
T+2	2024-03-08	-0.6%	2024-01-08	1.4%
T+3	2024-03-11	-0.1%	2024-01-09	-0.2%
T+4	2024-03-12	1.1%	2024-01-10	0.6%
T+5	2024-03-13	-0.2%	2024-01-11	-0.1%
T+6	2024-03-14	-0.3%	2024-01-12	0.1%
T+7	2024-03-15	-0.6%	2024-01-16	-0.4%
T+8	2024-03-18	0.6%	2024-01-17	-0.6%
T+9	2024-03-19	0.6%	2024-01-18	0.9%
T+10	2024-03-20	0.9%	2024-01-19	1.2%

### Vol Control Implied Rebalancing Flow vs SPX Daily %Change





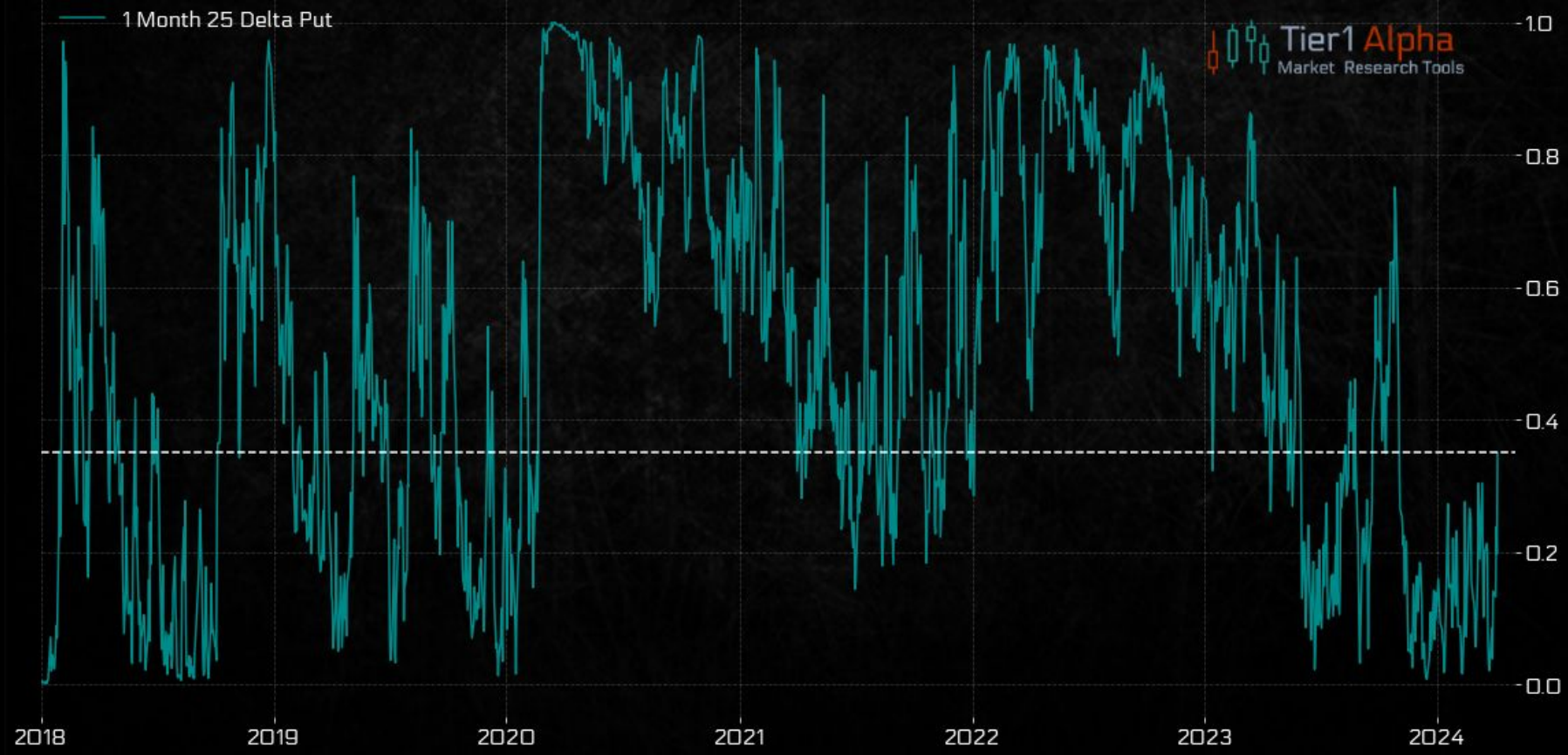
# 25-Delta Put vs 25-Delta Call Implied Volatility Skew, Constant Maturity, Normalized



Date: 2024/04/04

Source: Tier1Alpha.com

# Rolling Cost of 1 Month 25 Delta Put Options Percentile Rank



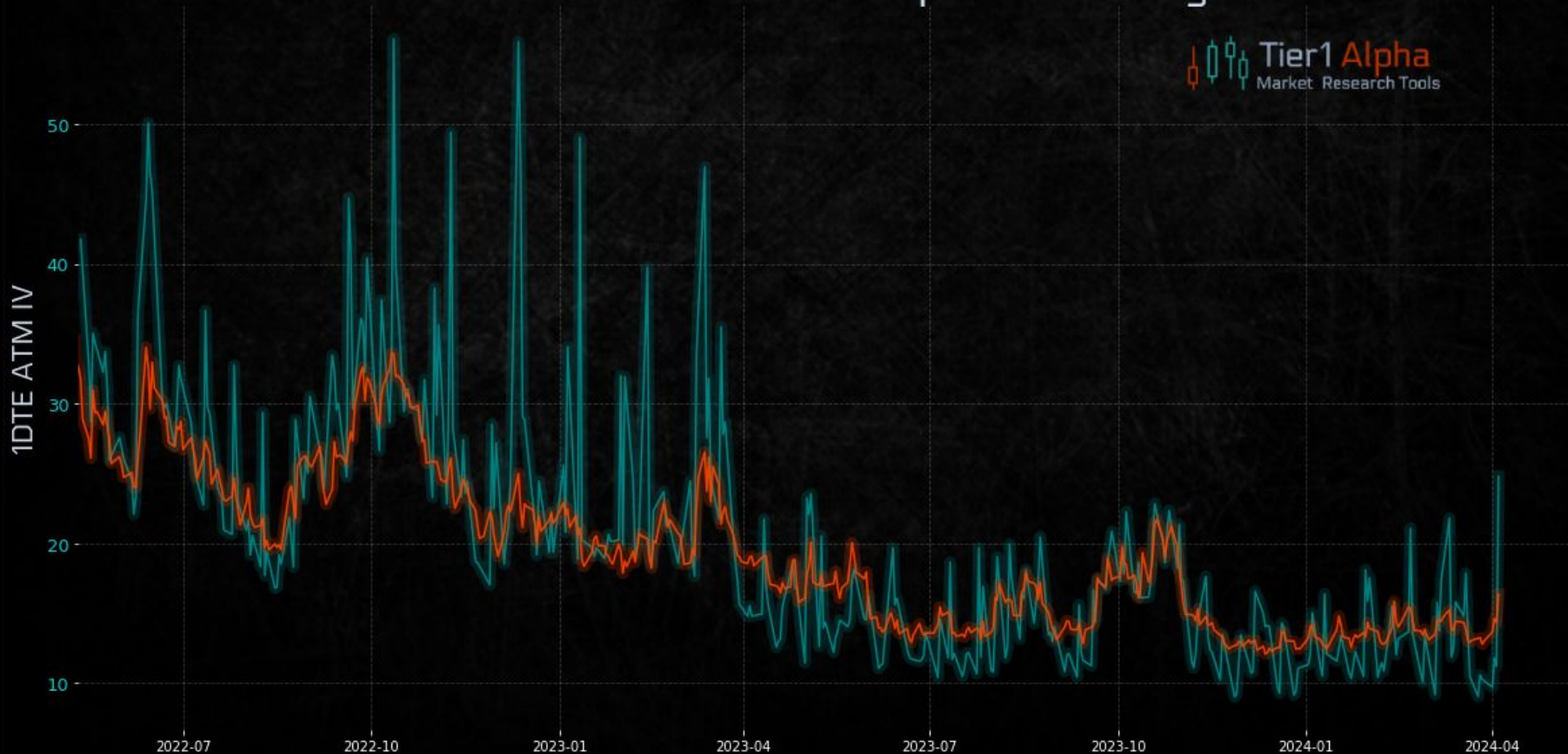
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Date: 2024/04/04

Source: Tier1Alpha.com

# SPX 1DTE 50-Delta Implied Volatility

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Market Research Tools

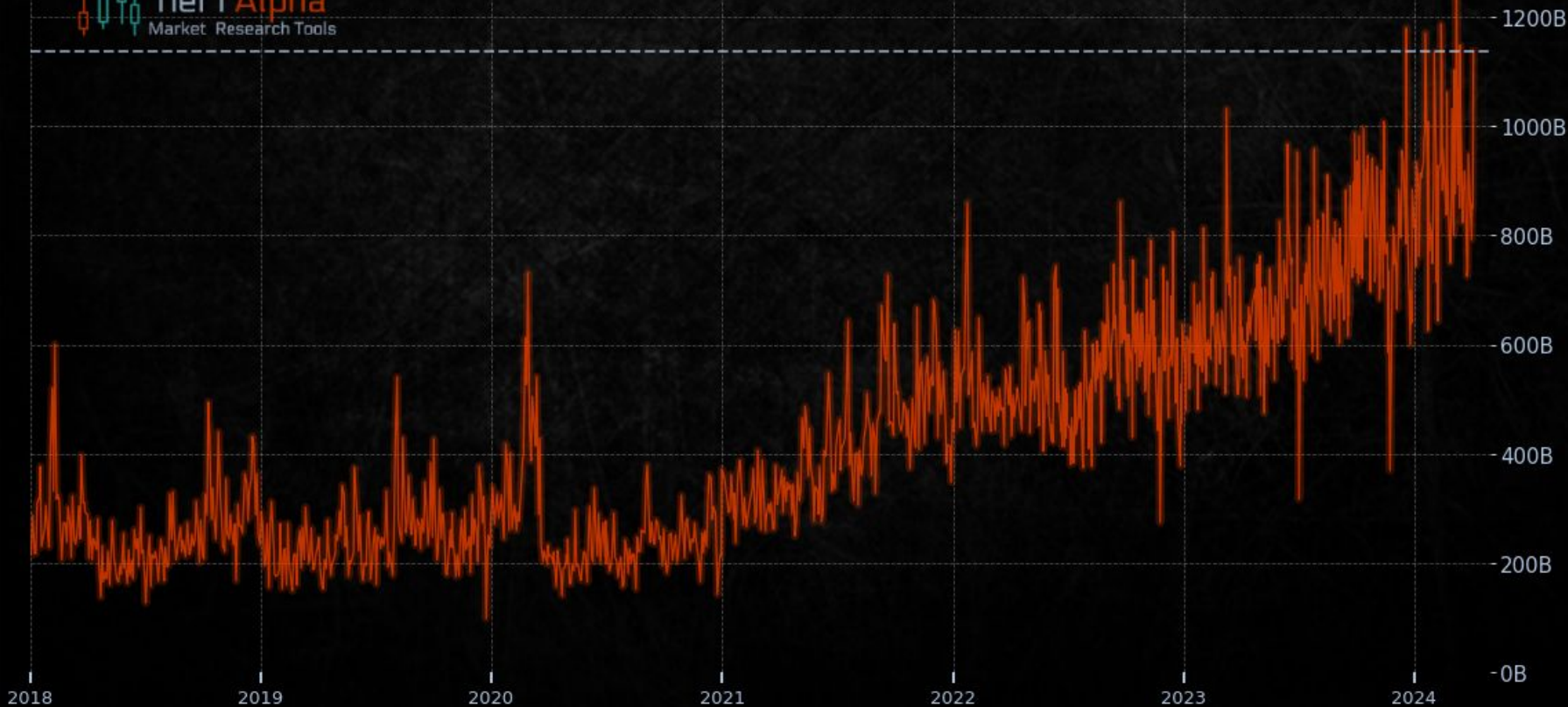


Date: 2024/04/04

Source: Tier1Alpha.com



# SPX Total Notional Put Volume



Date: 2024/04/05

Source: Tier1Alpha.com

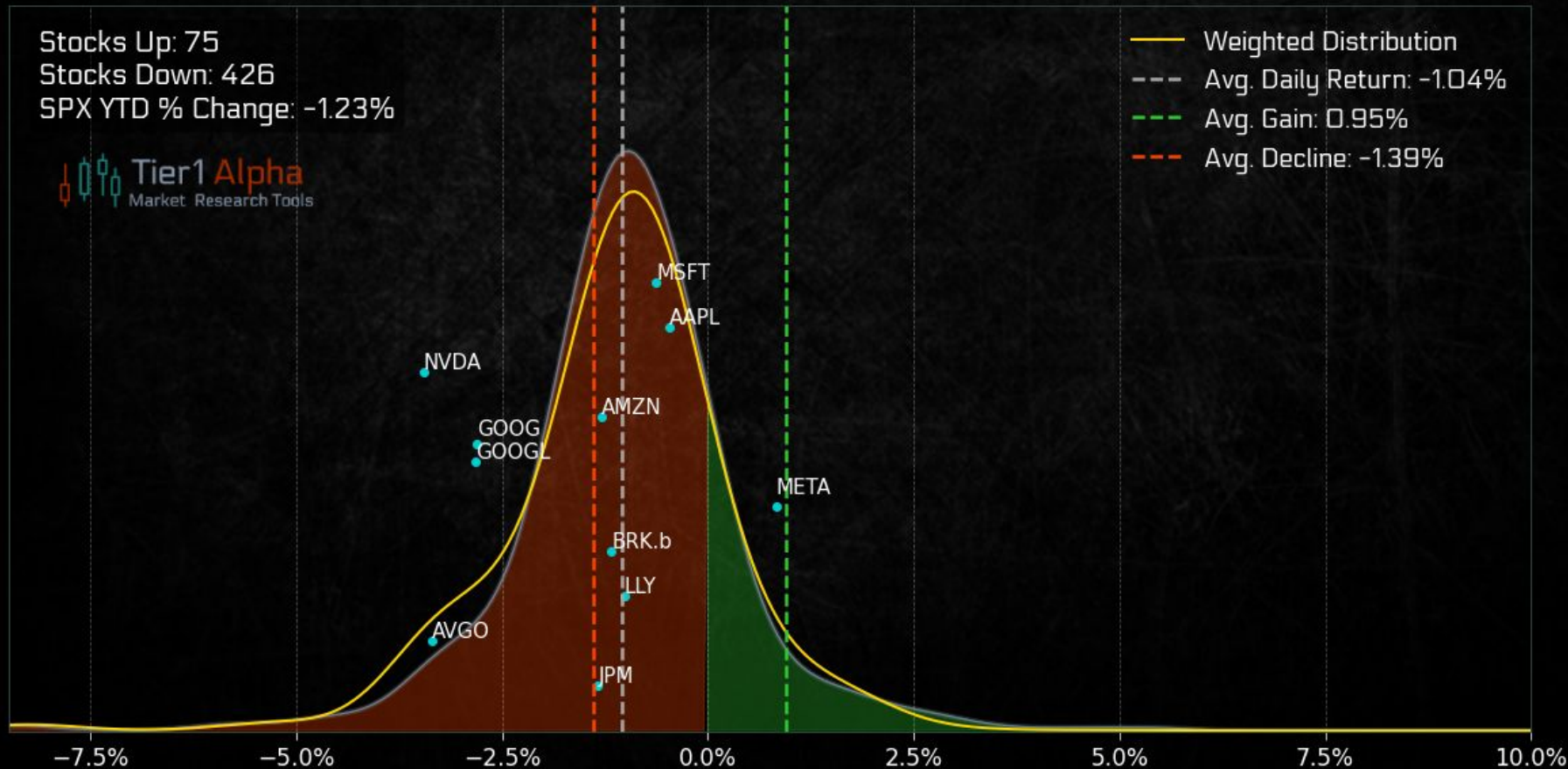


# S&P 500 MBAD Indicator for 2024/04/04

Stocks Up: 75  
Stocks Down: 426  
SPX YTD % Change: -1.23%



- Weighted Distribution
- - - Avg. Daily Return: -1.04%
- - - Avg. Gain: 0.95%
- - - Avg. Decline: -1.39%

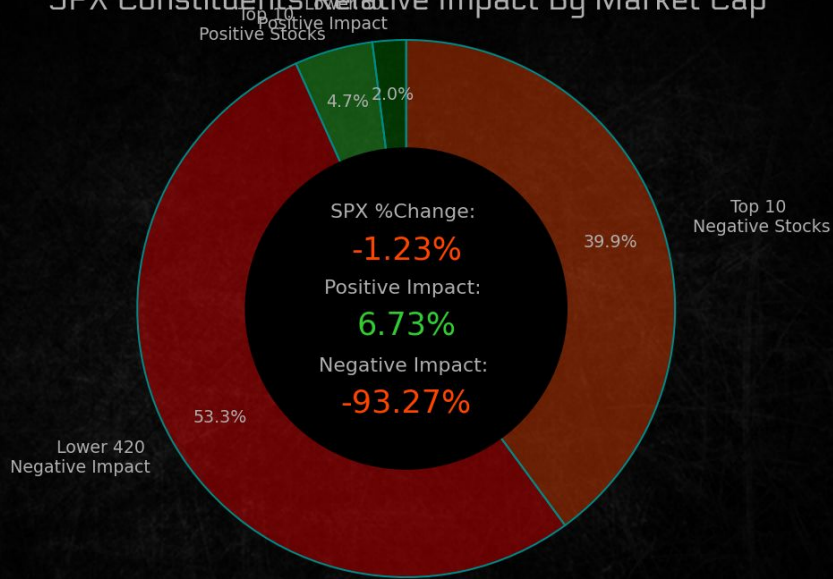


Date: 2024/04/04

--10% Return Distribution For SPX, Individual Constituents--

Source: IEX Cloud/ Tier1Alpha.com

## SPX Constituents Relative Impact By Market Cap



Date: 2024/04/04

Source: Tier1Alpha.com

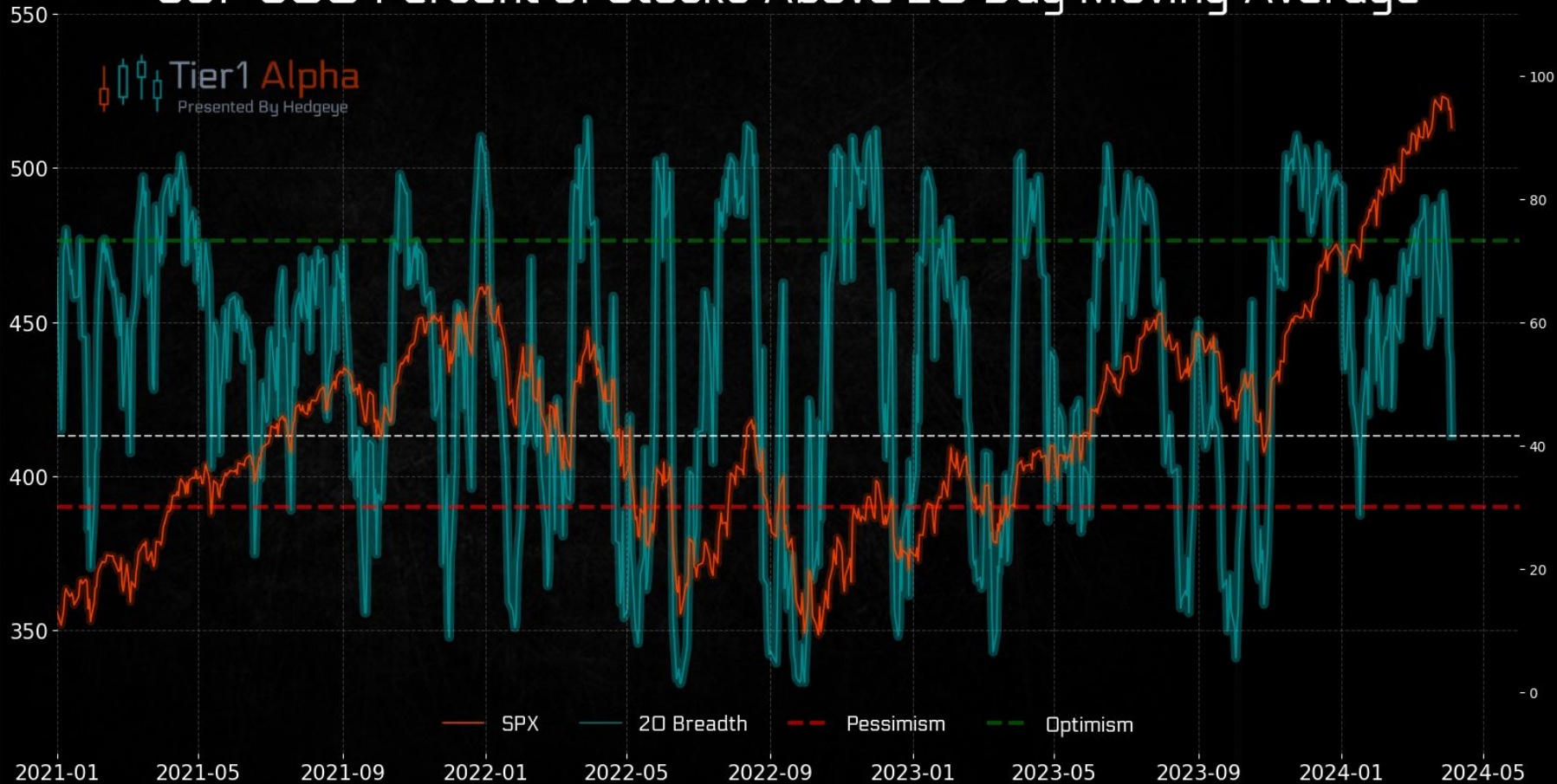
## SPX Constituents Relative Impact By Market Cap

### Largest Positive Impact

### Largest Negative Impact

Top Contributor	Daily %Return	Positive Impact	% Weight	Top Detractor	Daily %Return.1	Negative Impact	% Weight.1
META	0.8%	1.4%	2.46%	NVDA	-3.4%	-12.3%	5.07%
TSLA	1.6%	1.3%	1.1%	GOOGL	-2.8%	-4.2%	2.08%
NEE	1.9%	0.4%	0.3%	AMD	-8.3%	-3.9%	0.67%
RTX	1.8%	0.4%	0.29%	AMZN	-1.3%	-3.5%	3.76%
GE	1.2%	0.4%	0.43%	GOOG	-2.8%	-3.5%	1.75%
XOM	0.4%	0.3%	1.06%	AVGO	-3.4%	-3.2%	1.35%
LMT	1.4%	0.2%	0.22%	MSFT	-0.6%	-3.1%	7.17%
LHX	2.6%	0.2%	0.09%	ABBV	-5.3%	-2.7%	0.72%
GIS	2.0%	0.1%	0.09%	AAPL	-0.5%	-1.9%	5.61%
CAG	5.4%	0.1%	0.03%	CRM	-3.5%	-1.6%	0.67%

# S&P 500 Percent of Stocks Above 20 Day Moving Average



Date: 2024/04/04

Source: IEX Cloud/ Tier1Alpha.com



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