



Market Structure Report

04-11-2024

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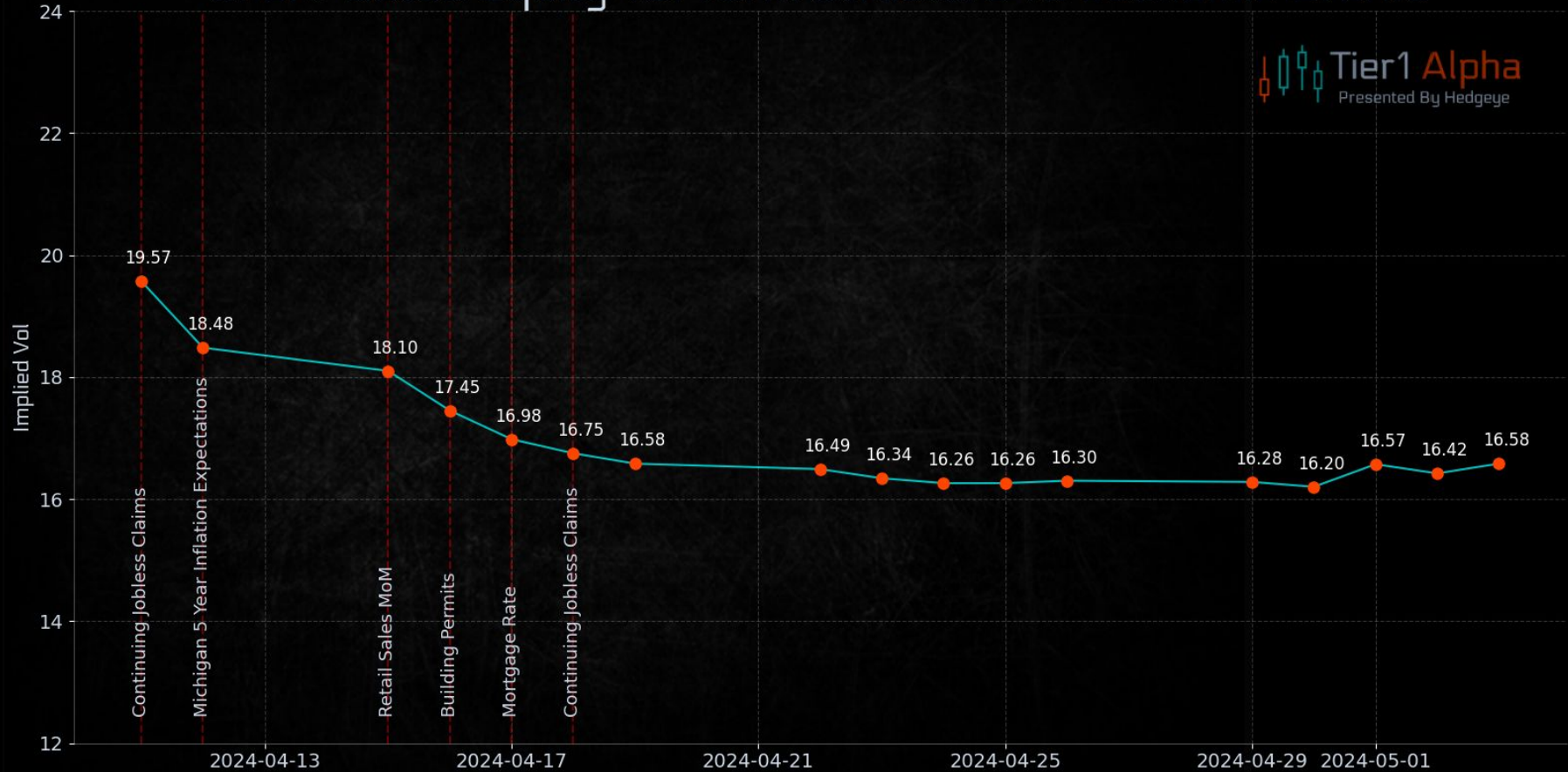
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Summary:

- Dealers slipped further into negative gamma yesterday, which suggests that more volatility could be on the horizon.
- Interestingly, despite the broad-based nature of yesterday's sell-off, there was no significant increase in implied volatility skew. This indicates that the downward move was not driven by a surge in demand for longer-dated put options.
- Instead, it's more likely that the sell-off was largely a result of dealers hedging their existing downside exposure, combined with some less predictable, actively managed flow.
- We're seeing a similar dynamic in our fixed strike volatility model, where implied vol for Puts slightly fell, implying the lack of demand for downside protection.
- On the other hand, there was a strong increase on the Call side, which we suspect was largely driven by Call overwriting programs, essentially betting that the market won't exceed the 5300 strike by the April OpEx next week.
- As a consequence of these Call options being net **sold** to the dealers, dealers become more long gamma, which will ultimately have a greater **vol-compressing effect** on the market if/ when the SPX approaches the 5200 strike again.
- Our Probable Volatility bands worked as expected yesterday, with SPX finding support just north of the 5150 strike. While our bands trended modestly lower on the move, the risk/ reward setup favors the upside at this point, with the 5200 strike a clear target towards the topside.
- Remember, since dealers remain short gamma, they'll be required to buy SPX futures if the market rises, potentially generating some upside volatility in the process.
- Despite the SPX falling nearly -1% yesterday, our realized volatility models were surprisingly stable. However, given there is a string of less volatile returns that will be falling out of sample over the next two weeks, we suspect we will see a gradual rise in these levels, especially given dealers are currently positioned in negative gamma. Remember, upside volatility is still volatility!

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



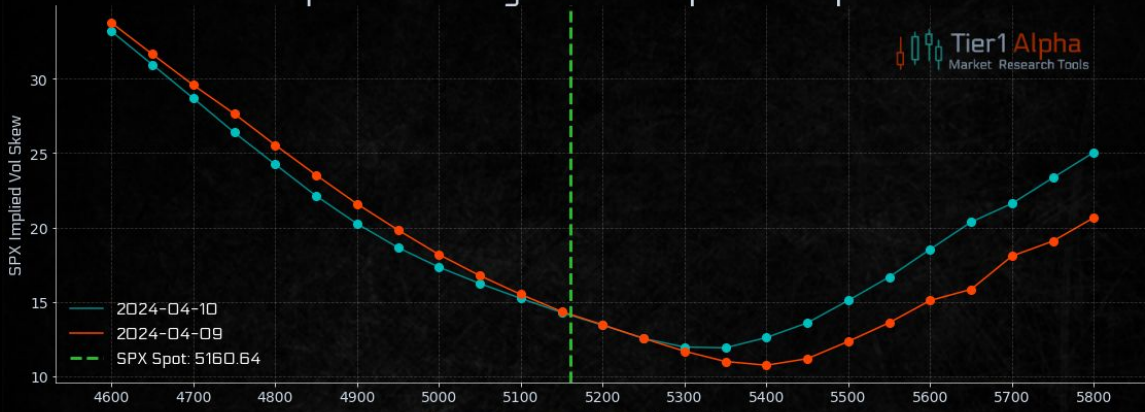
Date: 2024/04/10

Source: Orats/Tier1Alpha.com

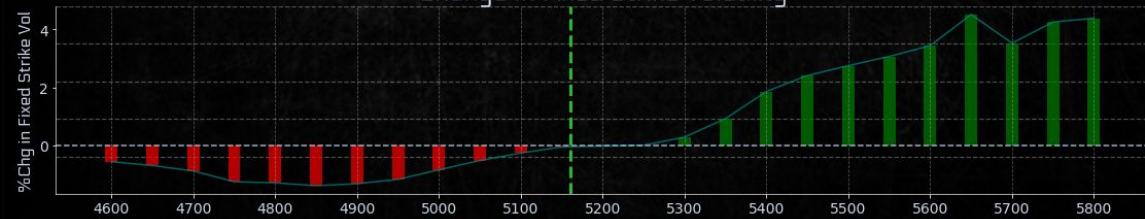
Economic Event Calendar With Short-Dated Options Positioning

Date	Event	Estimate	Previous	Impact	Call IV	Put IV	SPX IV	Expected Move	P/C Vol	P/C OI
2024-04-11	Continuing Jobless Claims	--	1791.0	low	16.09	22.84	19.46	+/- 1.01%	1.16	2.46
2024-04-11	Initial Jobless Claims	215.0	221.0	medium	16.09	22.84	19.46	+/- 1.01%	1.16	2.46
2024-04-11	Producer Price Inflation MoM	0.3	0.6	high	16.09	22.84	19.46	+/- 1.01%	1.16	2.46
2024-04-12	Michigan 5 Year Inflation Expectations	--	2.8	low	16.14	20.8	18.47	+/- 1.36%	1.79	2.22
2024-04-12	Consumer Confidence	79.0	79.4	high	16.14	20.8	18.47	+/- 1.36%	1.79	2.22
2024-04-15	Retail Sales MoM	0.3	0.6	high	16.5	19.91	18.21	+/- 1.65%	1.76	3.06
2024-04-16	Building Permits	1.514	1.524	high	16.3	18.85	17.58	+/- 1.84%	1.45	2.91
2024-04-17	Mortgage Rate	--	--	low	16.2	18.11	17.16	+/- 2.0%	0.91	4.1
2024-04-17	Mortgage Applications	--	0.1	low	16.2	18.11	17.16	+/- 2.0%	0.91	4.1
2024-04-17	MBA Mortgage Refinance Index	--	--	low	16.2	18.11	17.16	+/- 2.0%	0.91	4.1
2024-04-17	MBA Purchase Index	--	--	low	16.2	18.11	17.16	+/- 2.0%	0.91	4.1
2024-04-18	Philly Fed Employment	--	-9.6	low	16.5	17.38	16.94	+/- 2.17%	2.03	2.94

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



Change In Fixed Strike Volatility



Date: 2024/04/10

Source: Orats/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	28.69	-0.89	19.77	-0.42	19.45	-0.24
4750.0	26.39	-1.26	18.91	-0.4	18.77	-0.24
4800.0	24.25	-1.3	18.07	-0.35	18.1	-0.22
4850.0	22.13	-1.4	17.27	-0.31	17.44	-0.2
4900.0	20.26	-1.33	16.5	-0.26	16.81	-0.16
4950.0	18.66	-1.18	15.78	-0.18	16.18	-0.15
5000.0	17.34	-0.85	15.08	-0.12	15.59	-0.11
5050.0	16.24	-0.53	14.41	-0.07	14.99	-0.11
5100.0	15.24	-0.27	13.76	-0.04	14.44	-0.09
5150.0	14.29	-0.06	13.21	0.06	13.92	-0.05
5200.0	13.44	-0.03	12.67	0.1	13.46	-0.01
5250.0	12.55	0.0	12.16	0.1	13.02	0.04
5300.0	11.97	0.28	11.75	0.13	12.6	0.05
5350.0	11.92	0.92	11.39	0.14	12.23	0.07
5400.0	12.61	1.86	11.19	0.23	11.9	0.08
5450.0	13.6	2.41	11.17	0.42	11.63	0.11
5500.0	15.1	2.75	11.23	0.56	11.41	0.14
5550.0	16.68	3.07	11.44	0.73	11.24	0.16
5600.0	18.54	3.44	11.76	0.86	11.16	0.22
5650.0	20.37	4.52	12.12	0.95	11.12	0.28
5700.0	21.62	3.53	12.49	0.96	11.18	0.36

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



Strikes In Play

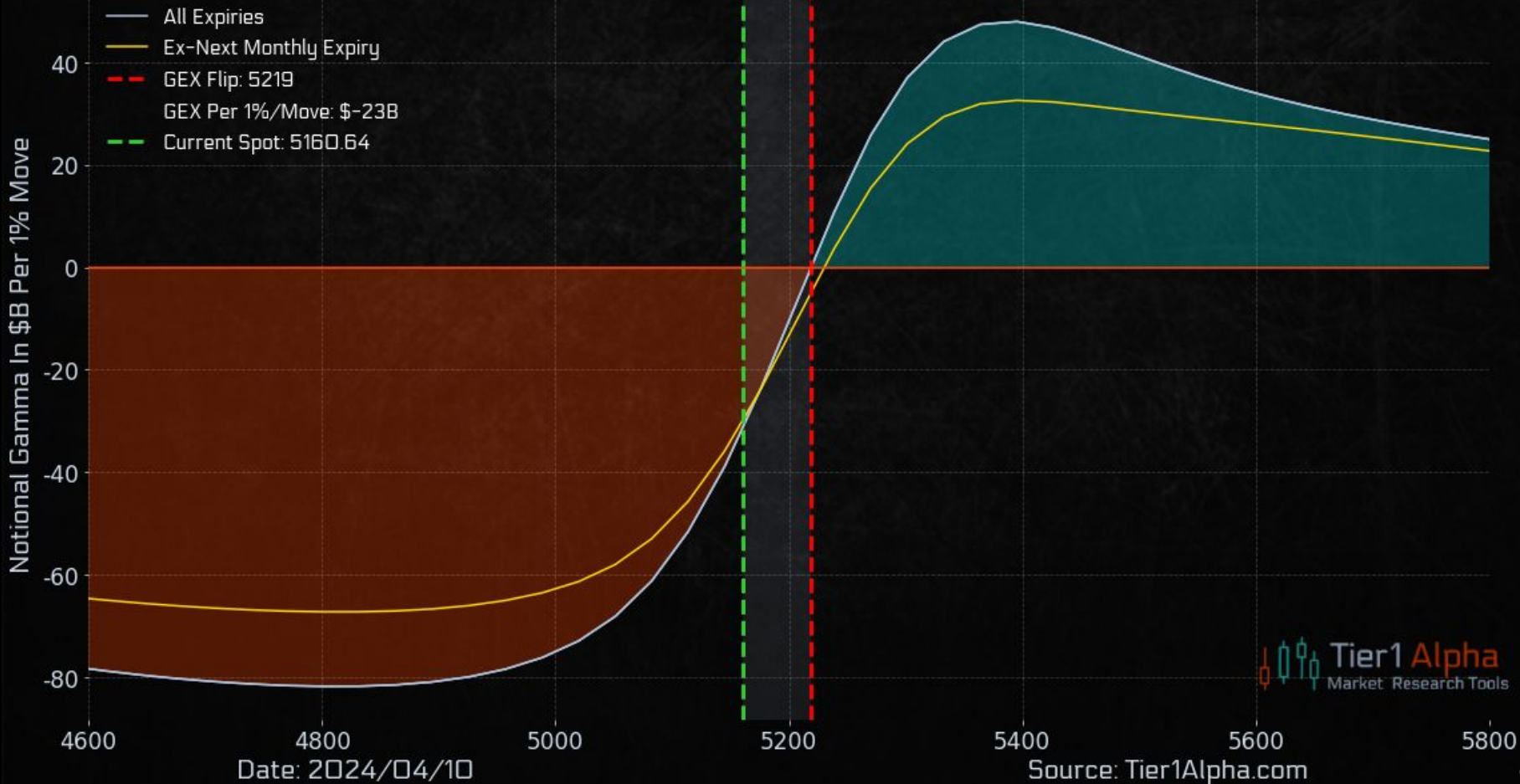
5125.0
5150.0
5175.0
5200.0
5250.0



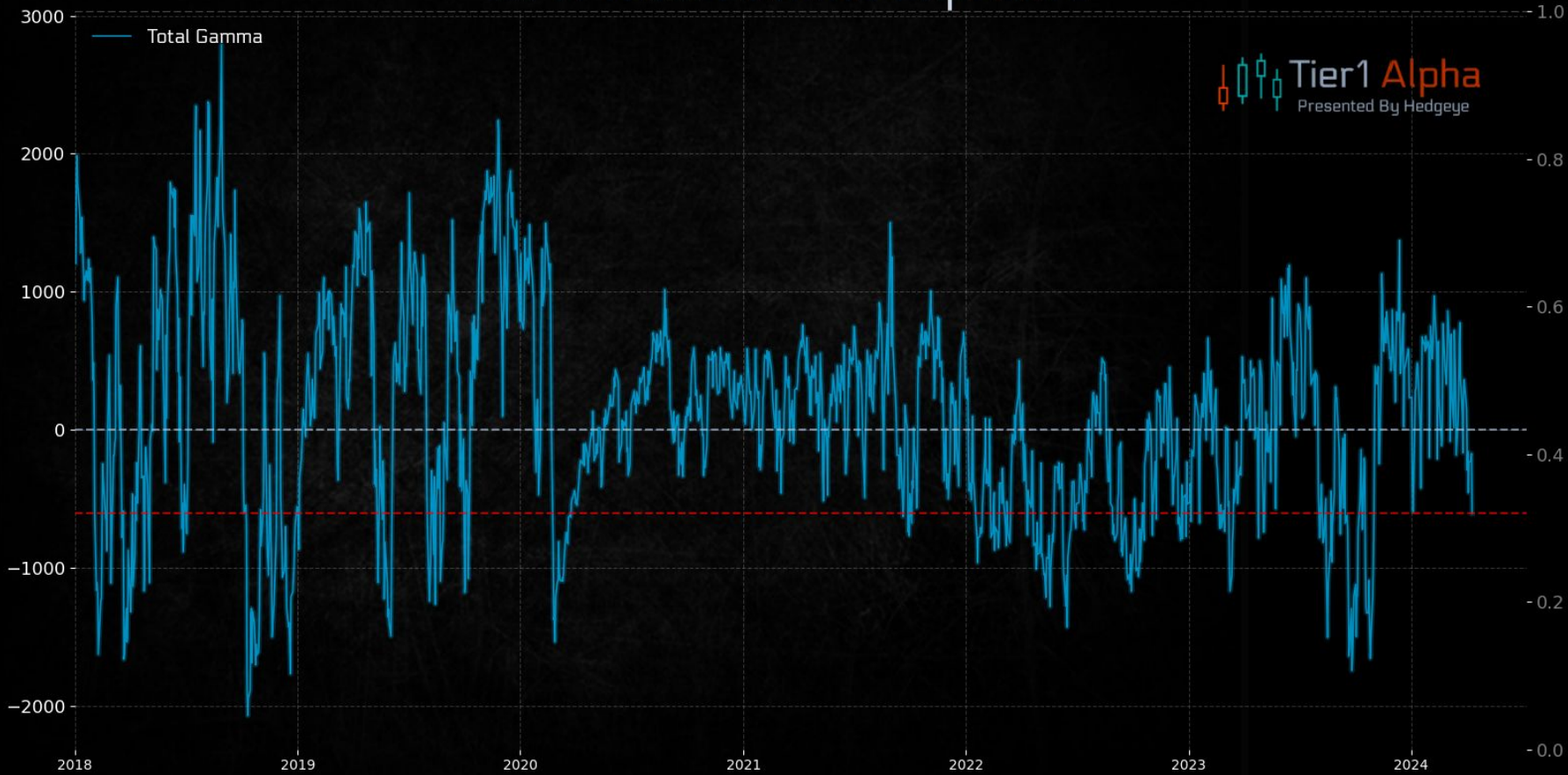
Date: 2024/04/10

Source: Intrinio/Tier1Alpha.com

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



SPX Total Gamma Exposure



Tier1 Alpha
Presented By Hedgeye

Date: 2024/04/10

Source: Tier1Alpha.com

SPX Total Gamma Exposure By Strike -- Weighted Expirations



Date: 2024/04/10

Source: Intrinsic/Tier1Alpha.com

SPX+SPXW ODTE Put/Call Ratio Open Interest 5d Avg.



SPX+SPXW ODTE Put/Call Ratio Volume 5d Avg.

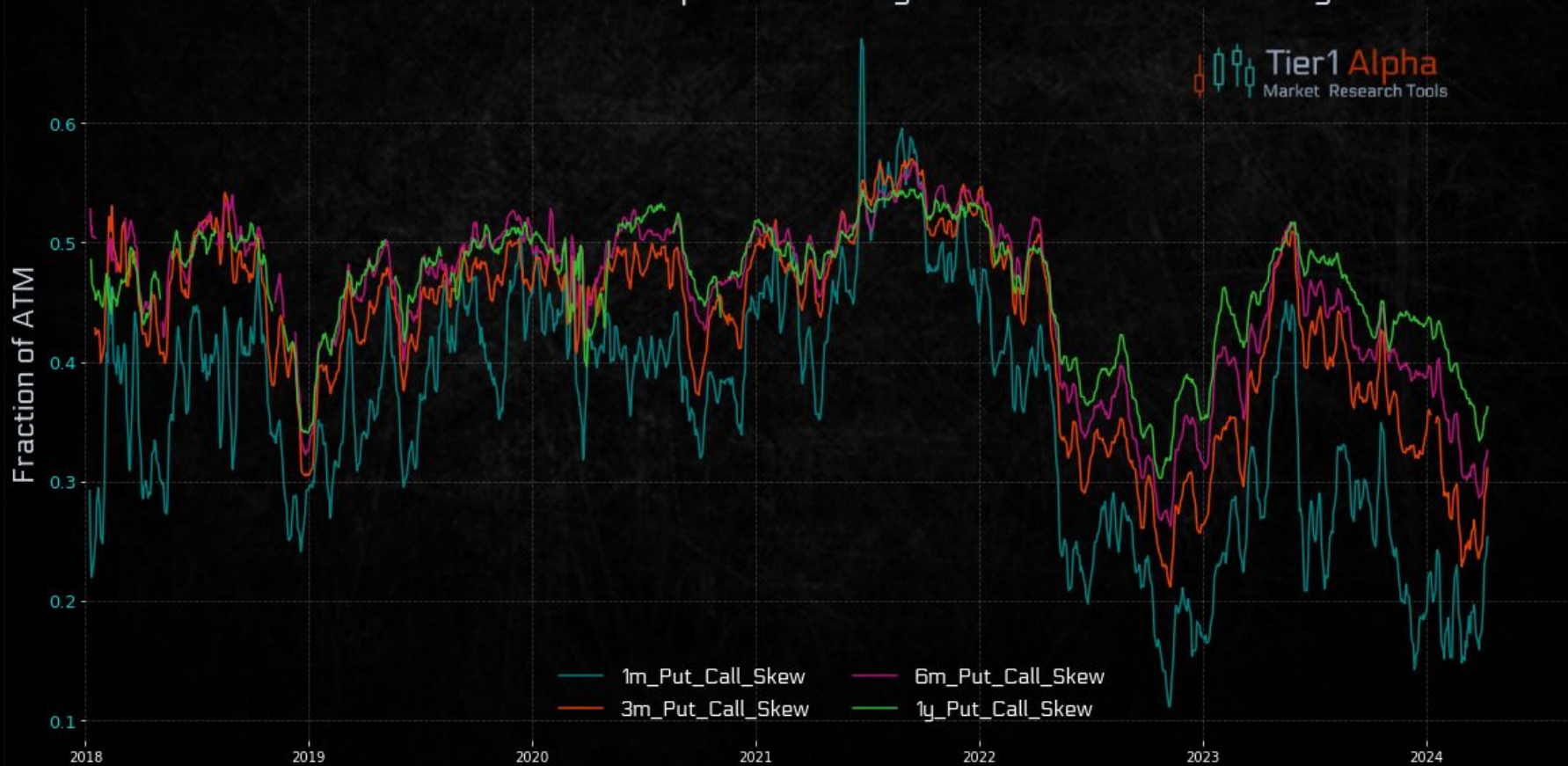


Date: 2024/04/10

Source: Intrinio/Tier1Alpha.com

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

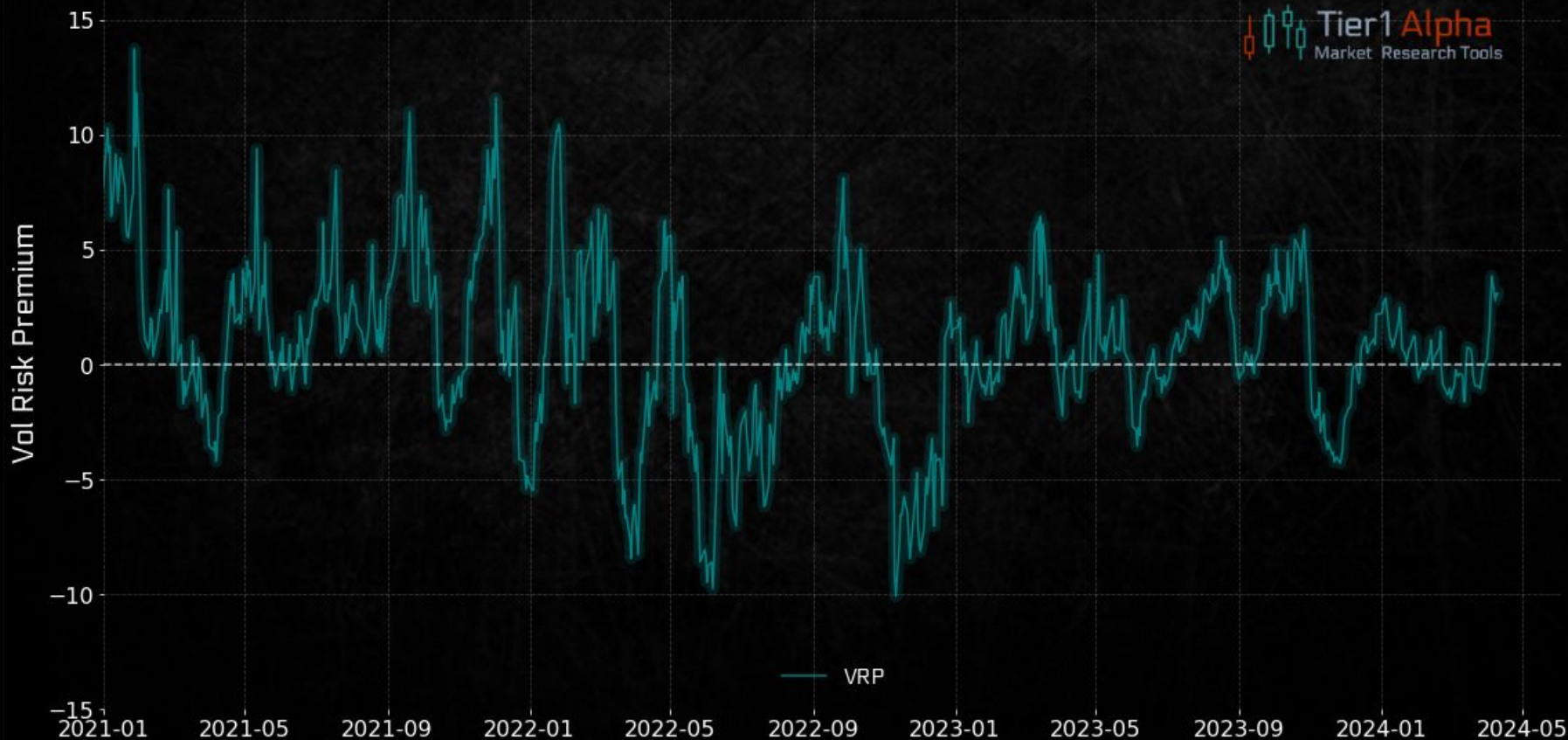
Tier1 Alpha
Market Research Tools



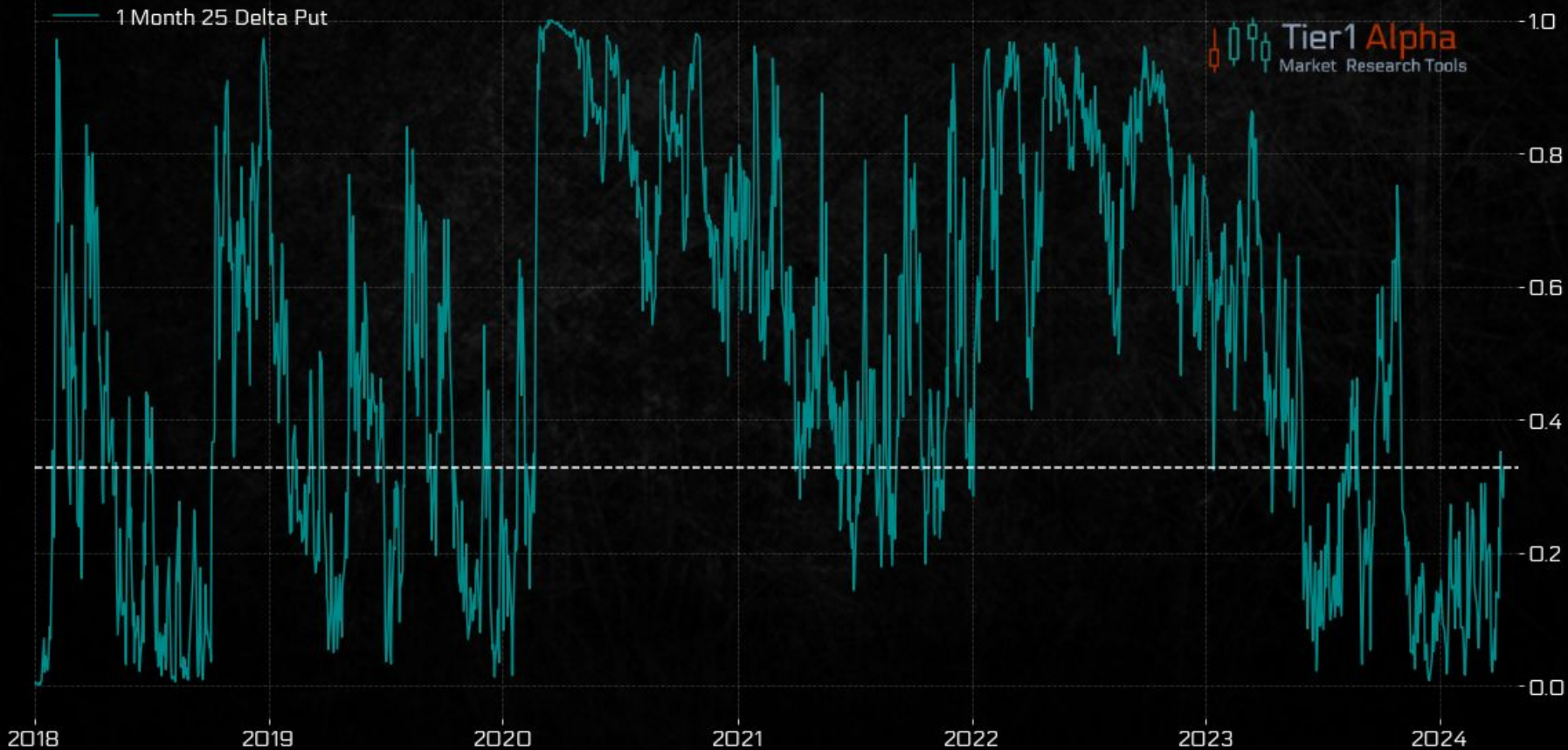
Date: 2024/04/10

Source: Tier1Alpha.com

SPX Volatility Risk Premium: 1m ATM Implied Vol vs 1m Realized Vol



Rolling Cost of 1 Month 25 Delta Put Options Percentile Rank



Tier1 Alpha
Market Research Tools

Date: 2024/04/10

Source: Tier1Alpha.com

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



Date: 2024/04/10

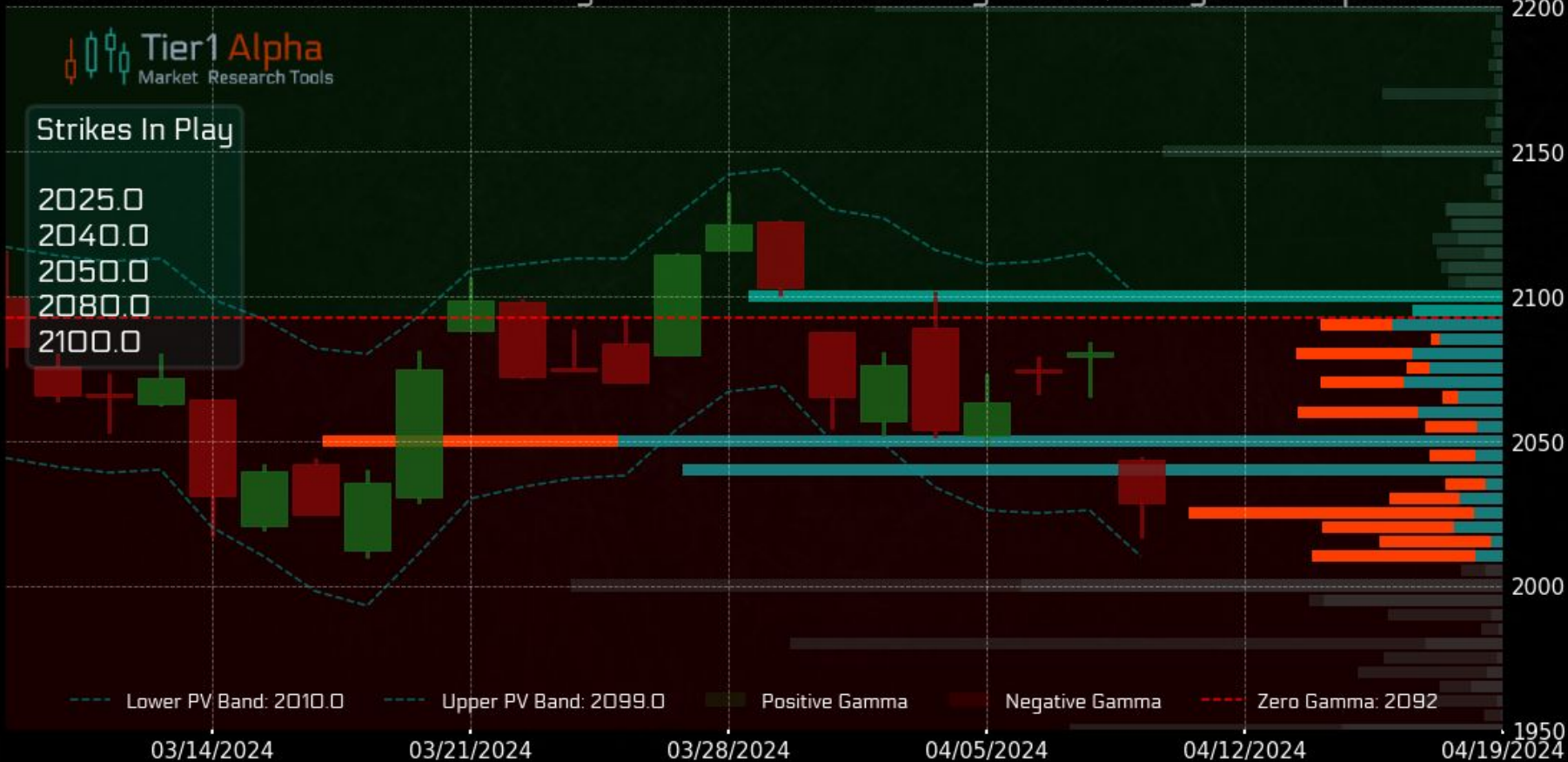
Source: Intrinio/ Tier1Alpha.com

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



Strikes In Play

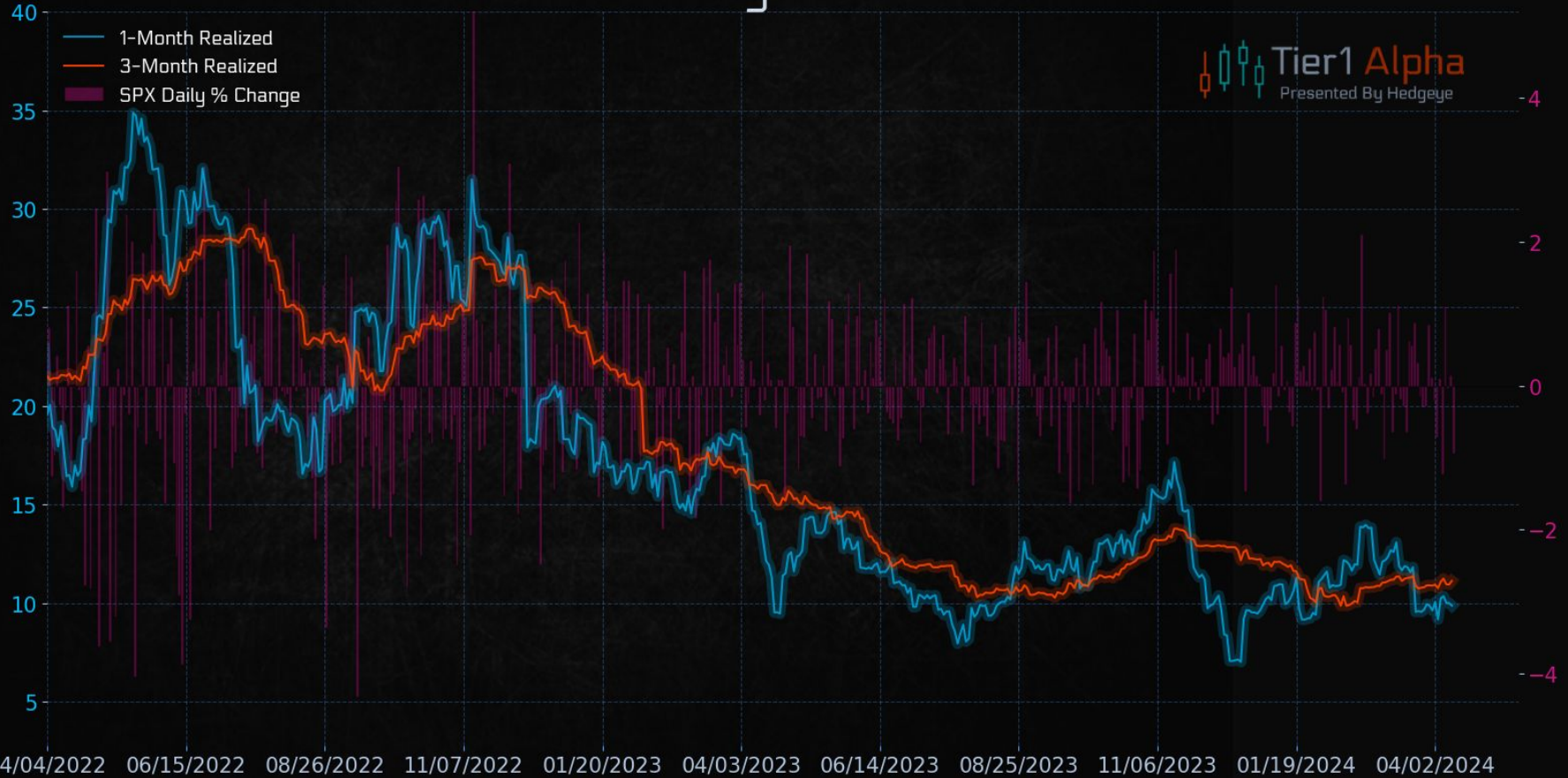
2025.0
2040.0
2050.0
2080.0
2100.0



Date: 2024/04/10

Source: Intrinio/ Tier1Alpha.com

SPX Realized Volatility -- 1 Month vs 3 Month



Tier1 Alpha
Presented By Hedgeye

Date: 2024/04/10

Source: Tier1Alpha.com

Vol Control Implied Notional Flows

Tier1 Alpha
Presented By Hedgeye



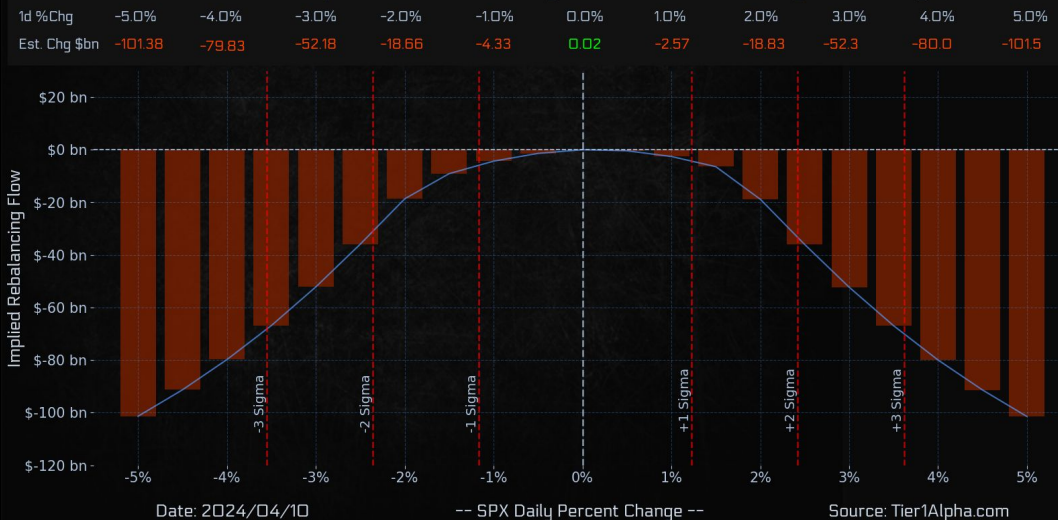
Date: 2024/04/10

Source: Tier1Alpha.com

SPX Realized Vol Data In Sample for 2024-04-11

Dropoff	1m Dates	1m Drop %	3m Dates	3m Drop %
T+1	2024-03-13	-0.2%	2024-01-11	-0.1%
T+2	2024-03-14	-0.3%	2024-01-12	0.1%
T+3	2024-03-15	-0.6%	2024-01-16	-0.4%
T+4	2024-03-18	0.6%	2024-01-17	-0.6%
T+5	2024-03-19	0.6%	2024-01-18	0.9%
T+6	2024-03-20	0.9%	2024-01-19	1.2%
T+7	2024-03-21	0.3%	2024-01-22	0.2%
T+8	2024-03-22	-0.1%	2024-01-23	0.3%
T+9	2024-03-25	-0.3%	2024-01-24	0.1%
T+10	2024-03-26	-0.3%	2024-01-25	0.5%

Vol Control Implied Rebalancing Flow vs SPX Daily %Change

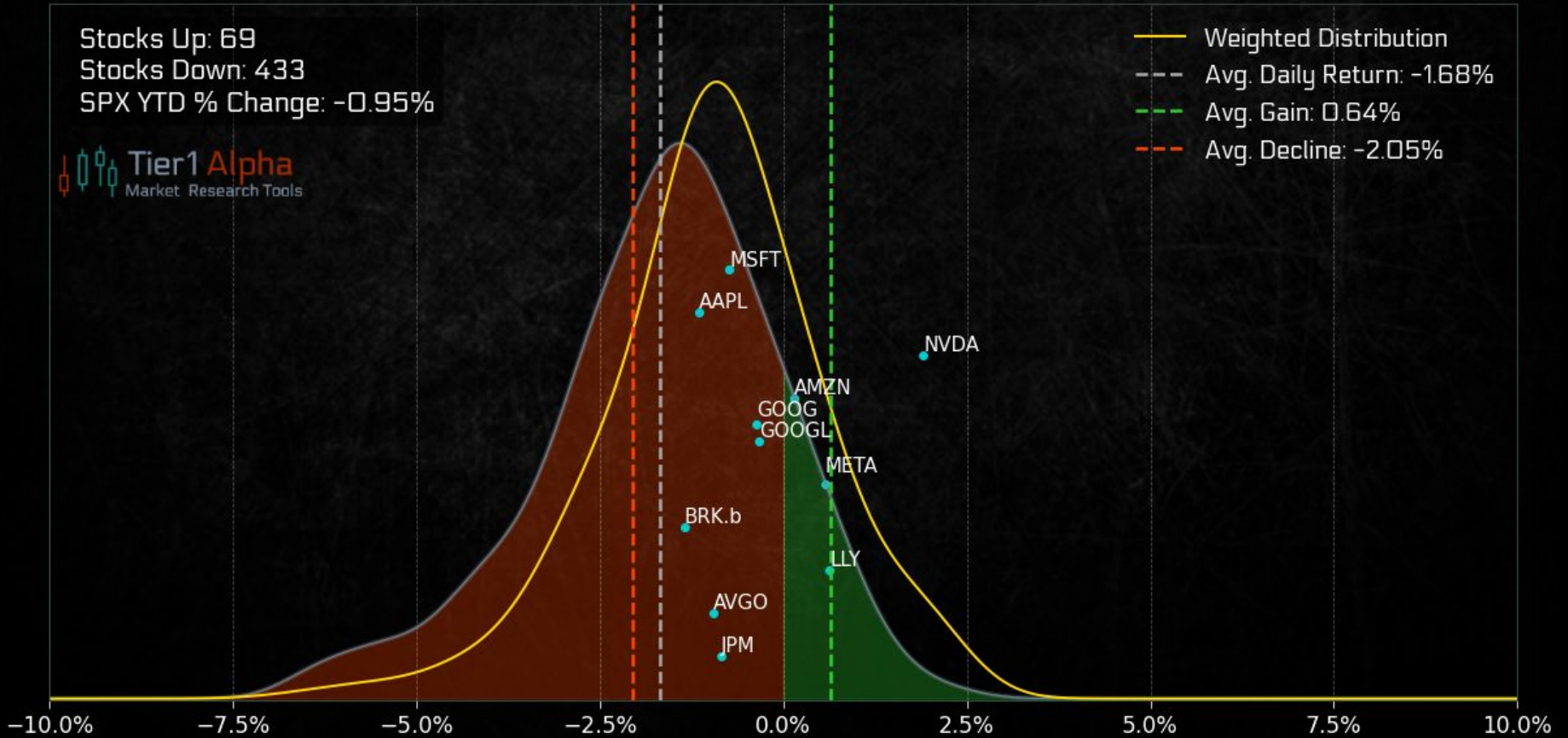


S&P 500 MBAD Indicator for 2024/04/10

Stocks Up: 69
Stocks Down: 433
SPX YTD % Change: -0.95%



- Weighted Distribution
- - - Avg. Daily Return: -1.68%
- - - Avg. Gain: 0.64%
- - - Avg. Decline: -2.05%

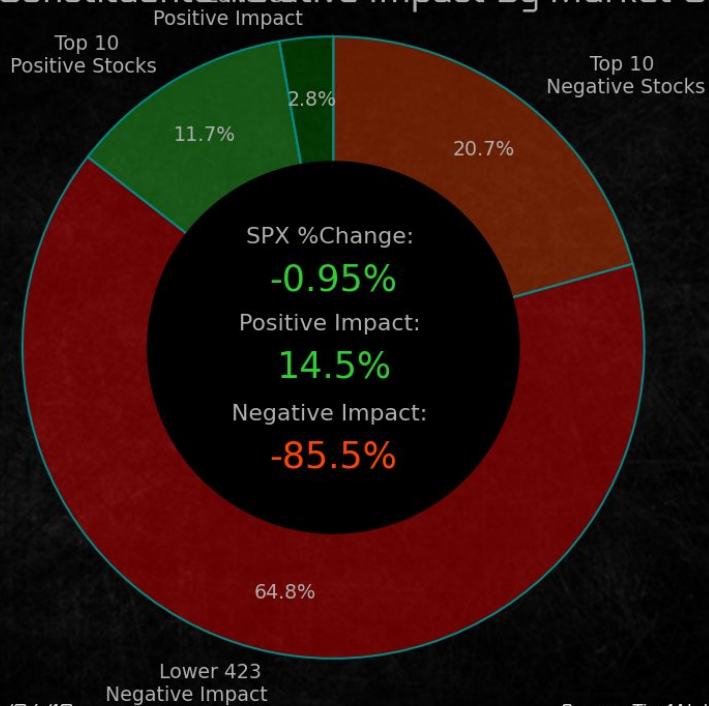


Date: 2024/04/10

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

Source: IEX Cloud/ Tier1Alpha.com

SPX Constituents Relative Impact By Market Cap



Date: 2024/04/10

Source: Tier1Alpha.com

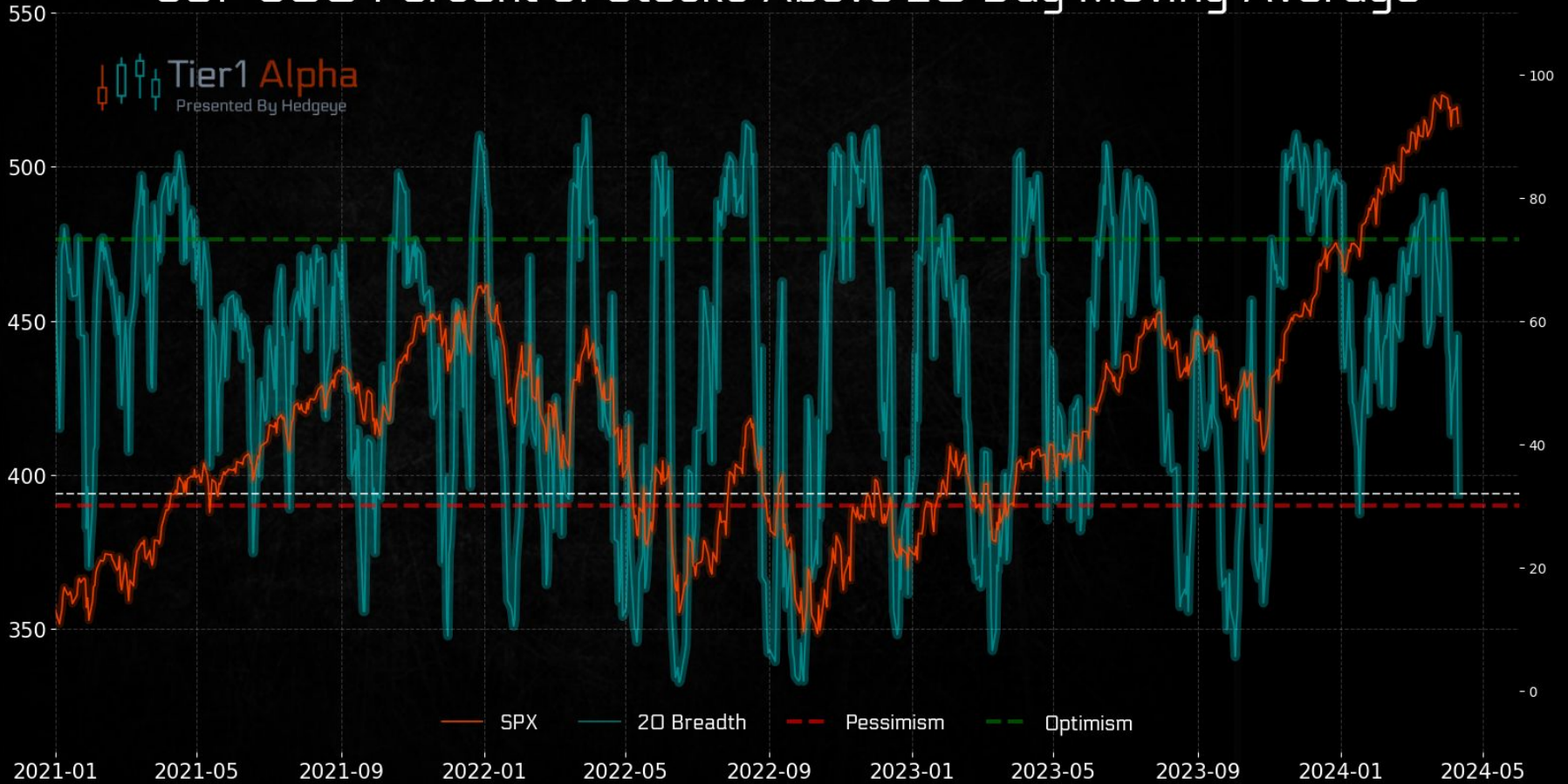
SPX Constituents Relative Impact By Market Cap

Largest Positive Impact

Largest Negative Impact

Top Contributor	Daily %Return	Positive Impact	% Weight	Top Detractor	Daily %Return.1	Negative Impact	% Weight.1
NVDA	1.9%	7.2%	5.07%	AAPL	-1.1%	-4.8%	5.61%
META	0.6%	1.0%	2.46%	MSFT	-0.7%	-3.9%	7.17%
XOM	0.8%	0.7%	1.06%	TSLA	-2.9%	-2.3%	1.1%
LLY	0.6%	0.6%	1.38%	HD	-3.0%	-1.9%	0.83%
WMT	1.4%	0.6%	0.58%	BRK.B	-1.3%	-1.7%	1.74%
GE	1.4%	0.4%	0.43%	UNH	-2.1%	-1.6%	1.03%
AMZN	0.2%	0.4%	3.76%	BAC	-2.9%	-1.3%	0.59%
COST	0.5%	0.3%	0.73%	AMD	-2.2%	-1.1%	0.67%
PG	0.4%	0.2%	0.86%	ACN	-3.0%	-1.1%	0.48%
CVX	0.4%	0.2%	0.63%	TMO	-2.6%	-1.0%	0.51%

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



Date: 2024/04/10

Source: IEX Cloud/ Tier1Alpha.com



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