



Market Structure Report

04-09-2024

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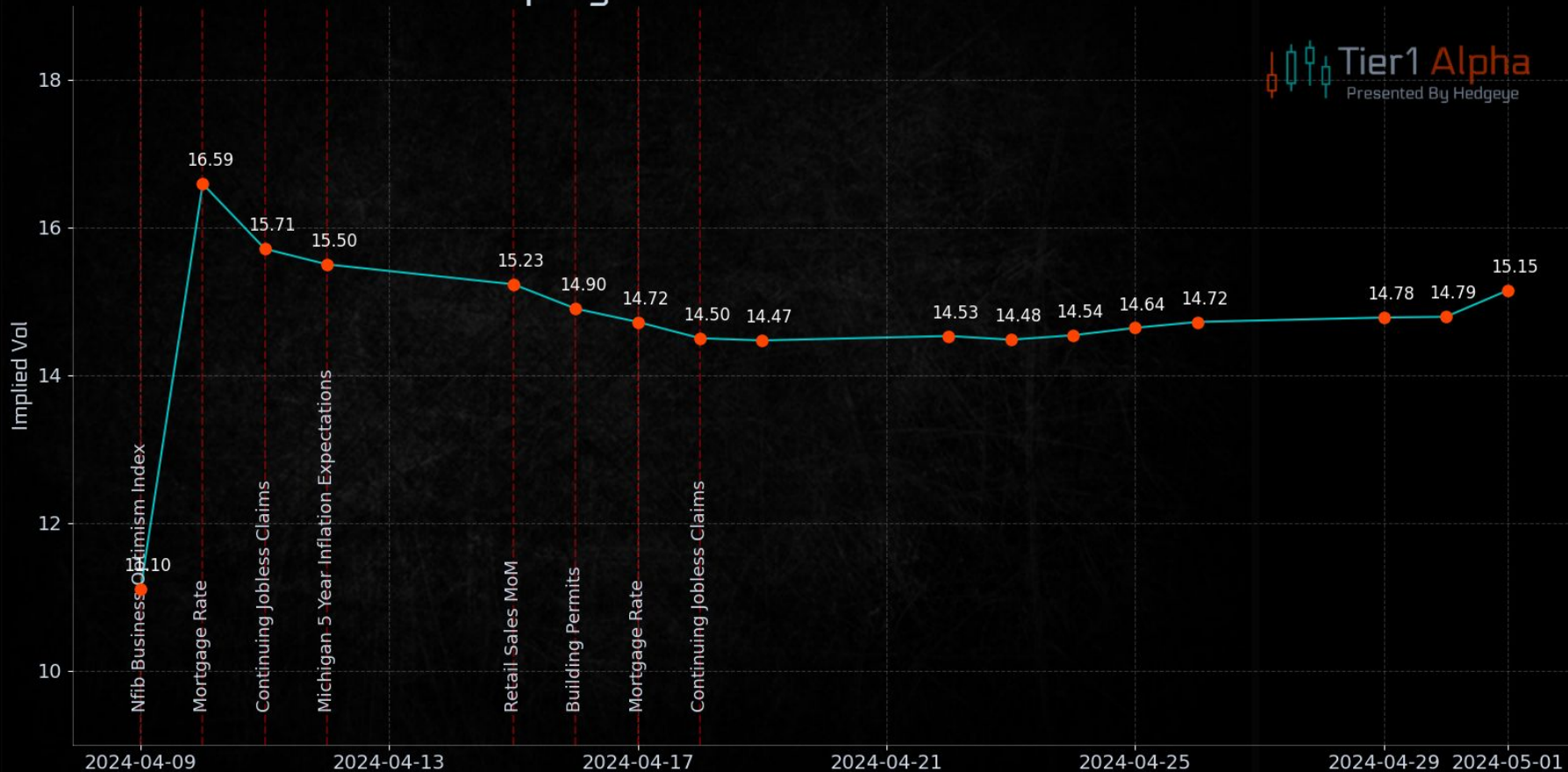
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Summary:

- Dealers remain in negative gamma, which leaves SPX in a higher volatility regime.
- Even though markets were calm yesterday, we suspect these underlying conditions were still prevalent. However, since SPX lacked any strong momentum, dealers were able to stay delta-neutral without materially impacting the market.
- This is why we always emphasize that negative gamma creates the conditions for higher volatility, but without the accompanying hedging from market makers, there is no mechanism to drive the realized volatility.
- That said, today, we are expecting to see an increase in short-dated implied volatility in the lead-up to tomorrow's CPI release. In a world increasingly dominated by zero-days-to-expiration (0DTE) options, short-dated contracts have become the preferred tools for hedging against single-day risk events.
- This means we typically see the largest jump in IV happen at the front end of our volatility curve, which dealers then broadly hedge with other 0dte contracts without interacting with the futures market.
- Interestingly, the recent rise in implied volatility skew across longer-term tenors suggests that market participants are hedging their exposure to the CPI event not only with 0DTE options but also with longer-dated contracts, particularly 1-month and 3-month put options.
- Contrary to hedging 0dte, when an option dealer sells a longer-term Put contract, they will neutralize their delta exposure by shorting SPX futures, which can introduce some selling pressure into the market.
- We don't know if we'll see a similar dynamic play out today, but if there is more demand in longer-term protection, then there is a reasonable chance we could see some weakness ahead of CPI, as dealers rush to hedge their side of the trade.
- On the other hand, if hedging is contained to the 0-1dte space, then we'd expect it to be business as usual.

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



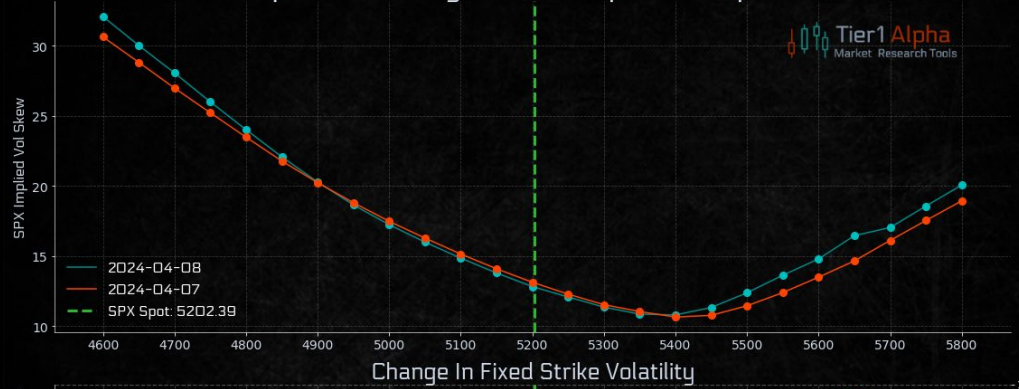
Date: 2024/04/08

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
2024-04-09	Nfib Business Optimism Index	--	89.4	low	14.23	7.97	11.1	+/- 0.58%	1.21	2.62
2024-04-09	Economic Optimism Index	--	43.5	medium	14.23	7.97	11.1	+/- 0.58%	1.21	2.62
2024-04-10	Mortgage Rate	--	6.91	low	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	Mortgage Applications	--	-0.6	low	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	MBA Mortgage Refinance Index	--	453.5	low	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	MBA Purchase Index	--	145.6	low	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	Core Inflation Rate MoM	0.3	0.4	high	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	Core Inflation Rate	3.7	3.8	high	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	Inflation Rate Mom	0.3	0.4	high	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-10	Inflation Rate	3.4	3.2	high	19.28	14.4	16.84	+/- 1.24%	1.86	2.08
2024-04-11	Continuing Jobless Claims	--	1791.0	low	18.86	13.62	16.24	+/- 1.47%	2.62	2.07
2024-04-11	Initial Jobless Claims	215.0	221.0	medium	18.86	13.62	16.24	+/- 1.47%	2.62	2.07

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



Date: 2024/04/08

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	28.06	1.08	20.07	-0.36	19.64	-0.36
4750.0	26.0	0.78	19.2	-0.36	18.94	-0.37
4800.0	24.01	0.53	18.34	-0.4	18.28	-0.36
4850.0	22.08	0.3	17.52	-0.38	17.61	-0.36
4900.0	20.28	0.04	16.72	-0.39	16.96	-0.36
4950.0	18.65	-0.16	15.93	-0.41	16.32	-0.37
5000.0	17.24	-0.24	15.19	-0.4	15.7	-0.36
5050.0	16.0	-0.29	14.46	-0.43	15.1	-0.38
5100.0	14.86	-0.29	13.78	-0.45	14.53	-0.38
5150.0	13.8	-0.3	13.14	-0.48	13.98	-0.39
5200.0	12.83	-0.31	12.55	-0.48	13.46	-0.4
5250.0	12.09	-0.2	12.05	-0.49	13.0	-0.25
5300.0	11.37	-0.17	11.61	-0.49	12.56	-0.4
5350.0	10.87	-0.18	11.26	-0.46	12.17	-0.4
5400.0	10.81	0.15	10.98	-0.42	11.84	-0.38
5450.0	11.34	0.56	10.8	-0.4	11.53	-0.39
5500.0	12.39	0.93	10.72	-0.34	11.3	-0.37
5550.0	13.64	1.24	10.76	-0.23	11.11	-0.37
5600.0	14.8	1.3	11.0	-0.11	11.0	-0.36
5650.0	16.46	1.8	11.28	0.02	10.92	-0.35
5700.0	17.04	0.92	11.7	0.13	10.92	-0.32

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



Strikes In Play

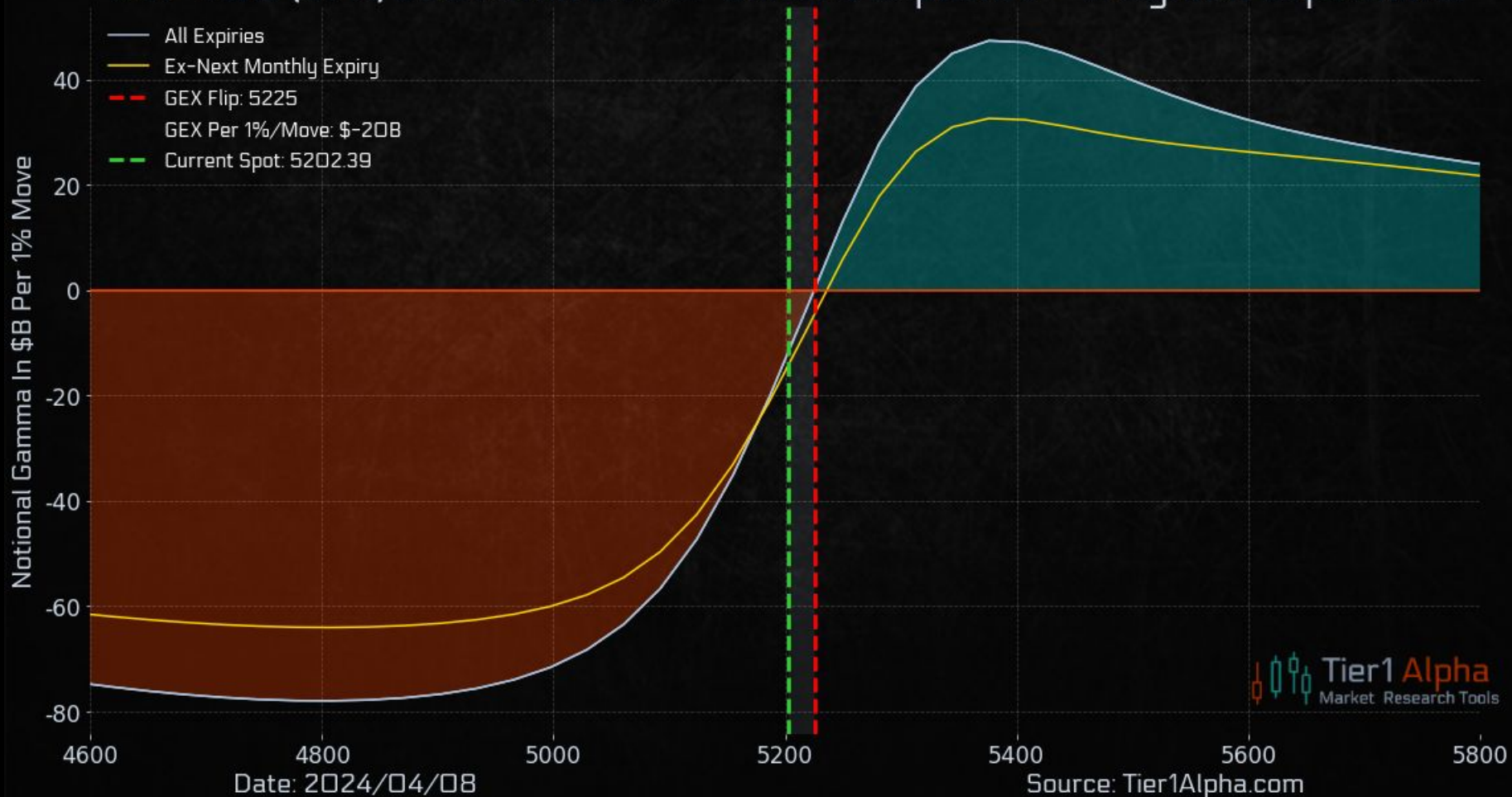
5150.0
5175.0
5200.0
5225.0
5250.0



Date: 2024/04/08

Source: Intrinio/ Tier1Alpha.com

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



SPX Total Gamma Exposure By Strike -- Weighted Expirations

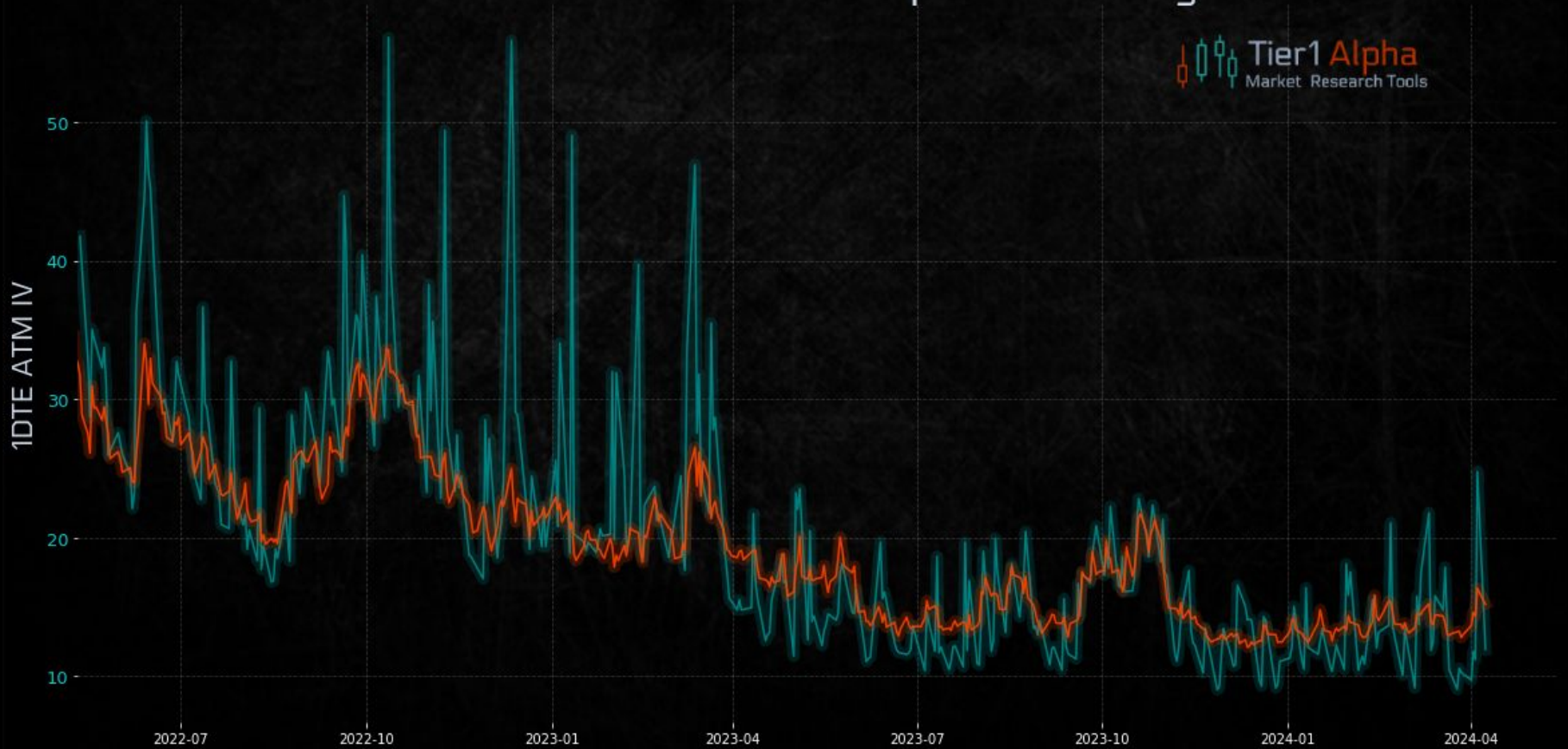


Date: 2024/04/08

Source: Intrinsic/Tier1Alpha.com

SPX 1DTE 50-Delta Implied Volatility

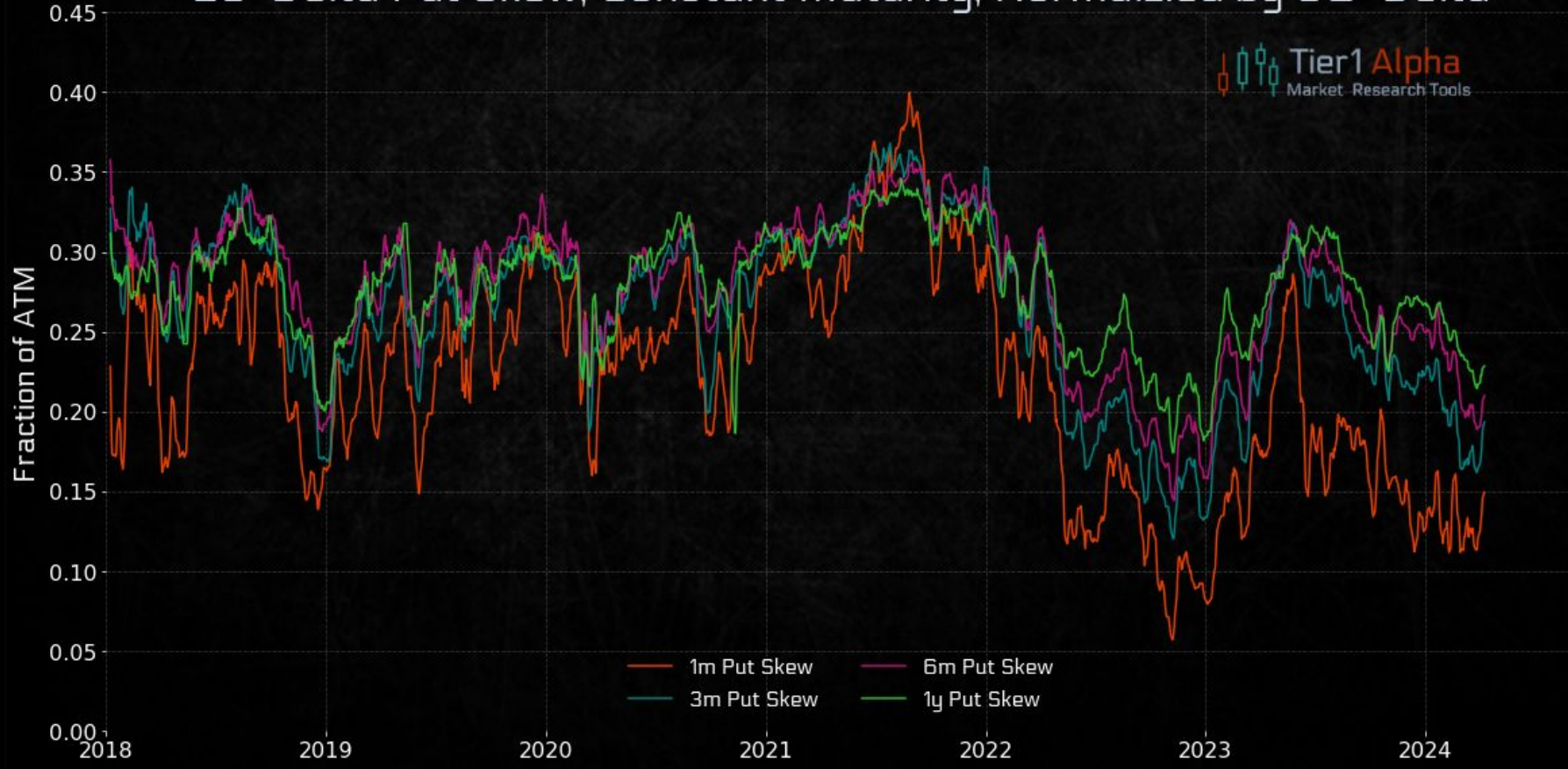
Tier1 Alpha
Market Research Tools



Date: 2024/04/08

Source: Tier1Alpha.com

25-Delta Put Skew, Constant Maturity, Normalized by 50-Delta

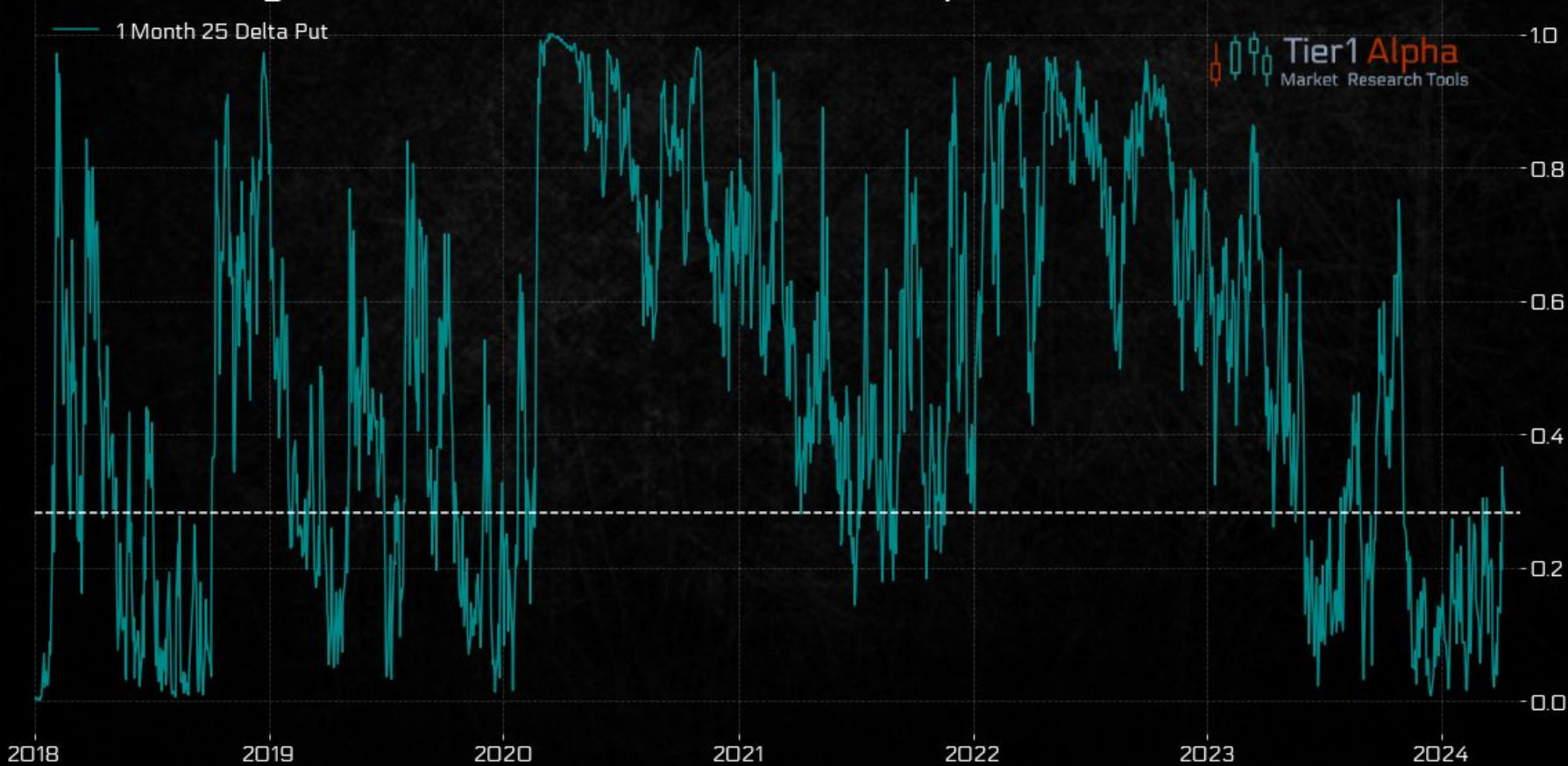


Tier1 Alpha
Market Research Tools

Date: 2024/04/08

Source: Tier1Alpha.com

Rolling Cost of 1 Month 25 Delta Put Options Percentile Rank



Date: 2024/04/08

Source: Tier1Alpha.com

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



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



Date: 2024/04/08

Source: Intrinio/Tier1Alpha.com

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



Date: 2024/04/08

Source: Intrinio/ Tier1Alpha.com

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



Strikes In Play

2040.0
2050.0
2070.0
2080.0
2100.0



Lower PV Band: 2032.0

Upper PV Band: 2113.0

Positive Gamma

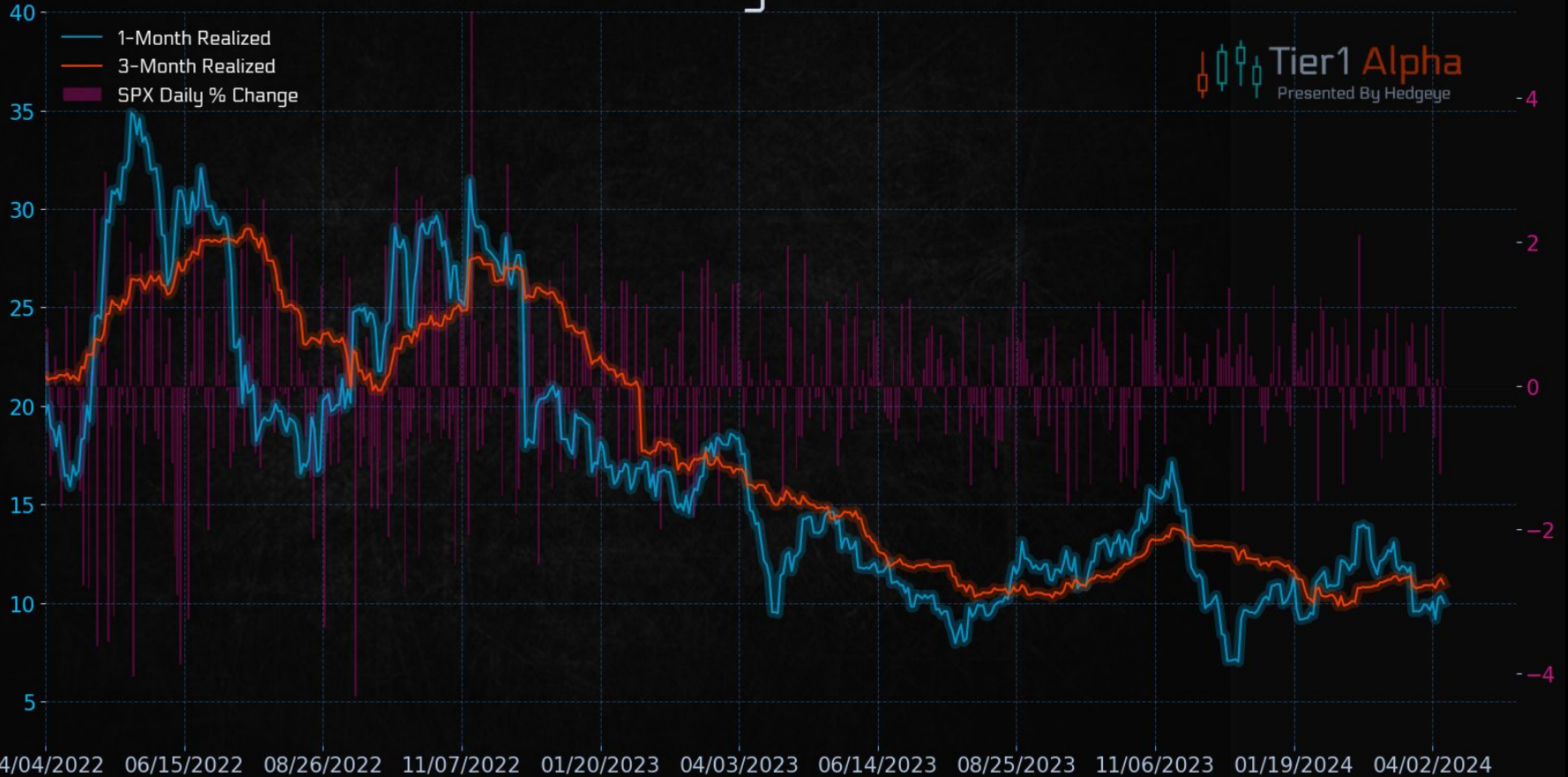
Negative Gamma

Zero Gamma: 2094

Date: 2024/04/08

Source: Intrinio/Tier1Alpha.com

SPX Realized Volatility -- 1 Month vs 3 Month



Tier1 Alpha
Presented By Hedgeye

Date: 2024/04/08

Source: Tier1Alpha.com

Vol Control Implied Notional Flows

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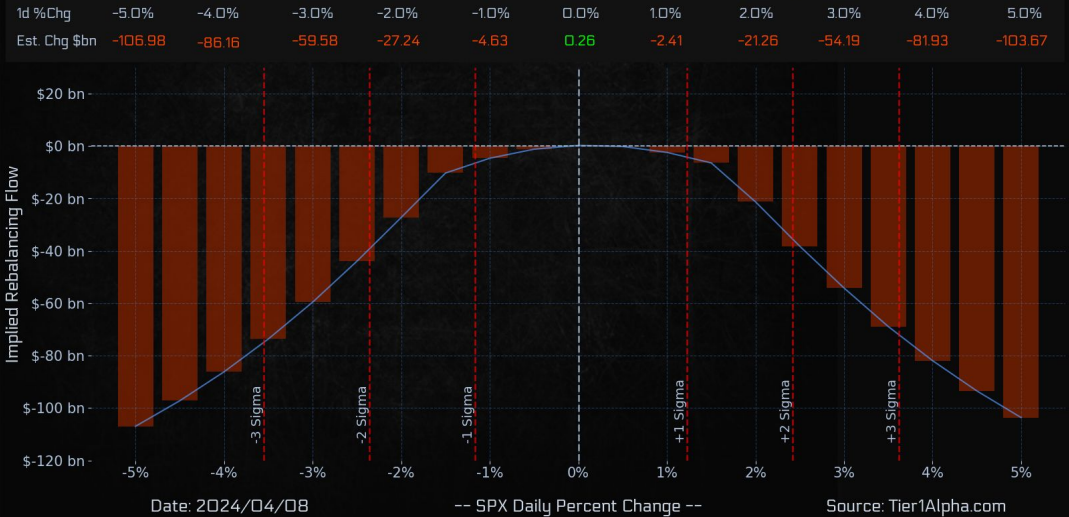
Date: 2024/04/08

Source: Tier1Alpha.com

SPX Realized Vol Data In Sample for 2024-04-09

Dropoff	1m Dates	1m Drop %	3m Dates	3m Drop %
T+1	2024-03-11	-0.1%	2024-01-09	-0.2%
T+2	2024-03-12	1.1%	2024-01-10	0.6%
T+3	2024-03-13	-0.2%	2024-01-11	-0.1%
T+4	2024-03-14	-0.3%	2024-01-12	0.1%
T+5	2024-03-15	-0.6%	2024-01-16	-0.4%
T+6	2024-03-18	0.6%	2024-01-17	-0.6%
T+7	2024-03-19	0.6%	2024-01-18	0.9%
T+8	2024-03-20	0.9%	2024-01-19	1.2%
T+9	2024-03-21	0.3%	2024-01-22	0.2%
T+10	2024-03-22	-0.1%	2024-01-23	0.3%

Vol Control Implied Rebalancing Flow vs SPX Daily %Change

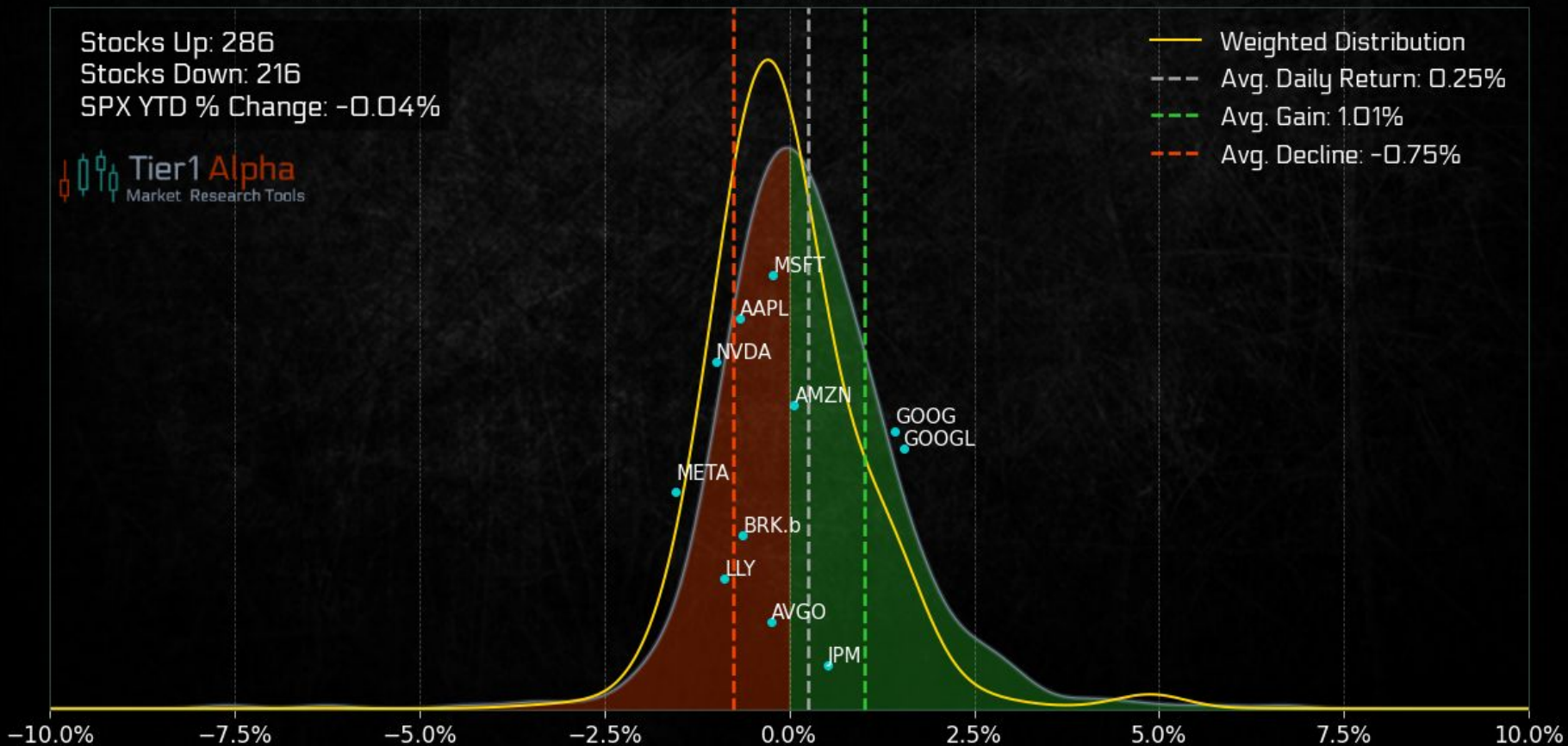


S&P 500 MBAD Indicator for 2024/04/08

Stocks Up: 286
Stocks Down: 216
SPX YTD % Change: -0.04%



- Weighted Distribution
- - - Avg. Daily Return: 0.25%
- - - Avg. Gain: 1.01%
- - - Avg. Decline: -0.75%

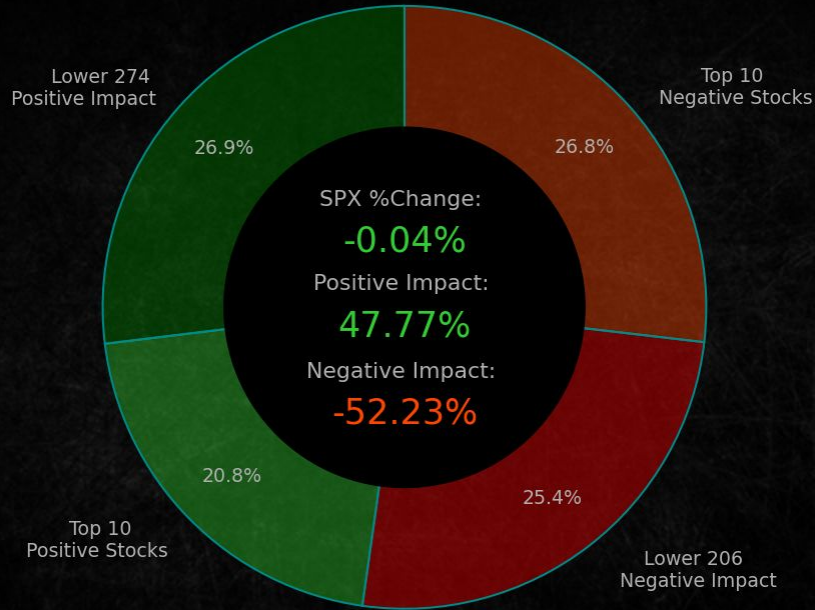


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--10% Return Distribution For SPX, Individual Constituents--

Source: IEX Cloud/ Tier1Alpha.com

SPX Constituents Relative Impact By Market Cap



SPX Constituents Relative Impact By Market Cap

Largest Positive Impact

Largest Negative Impact

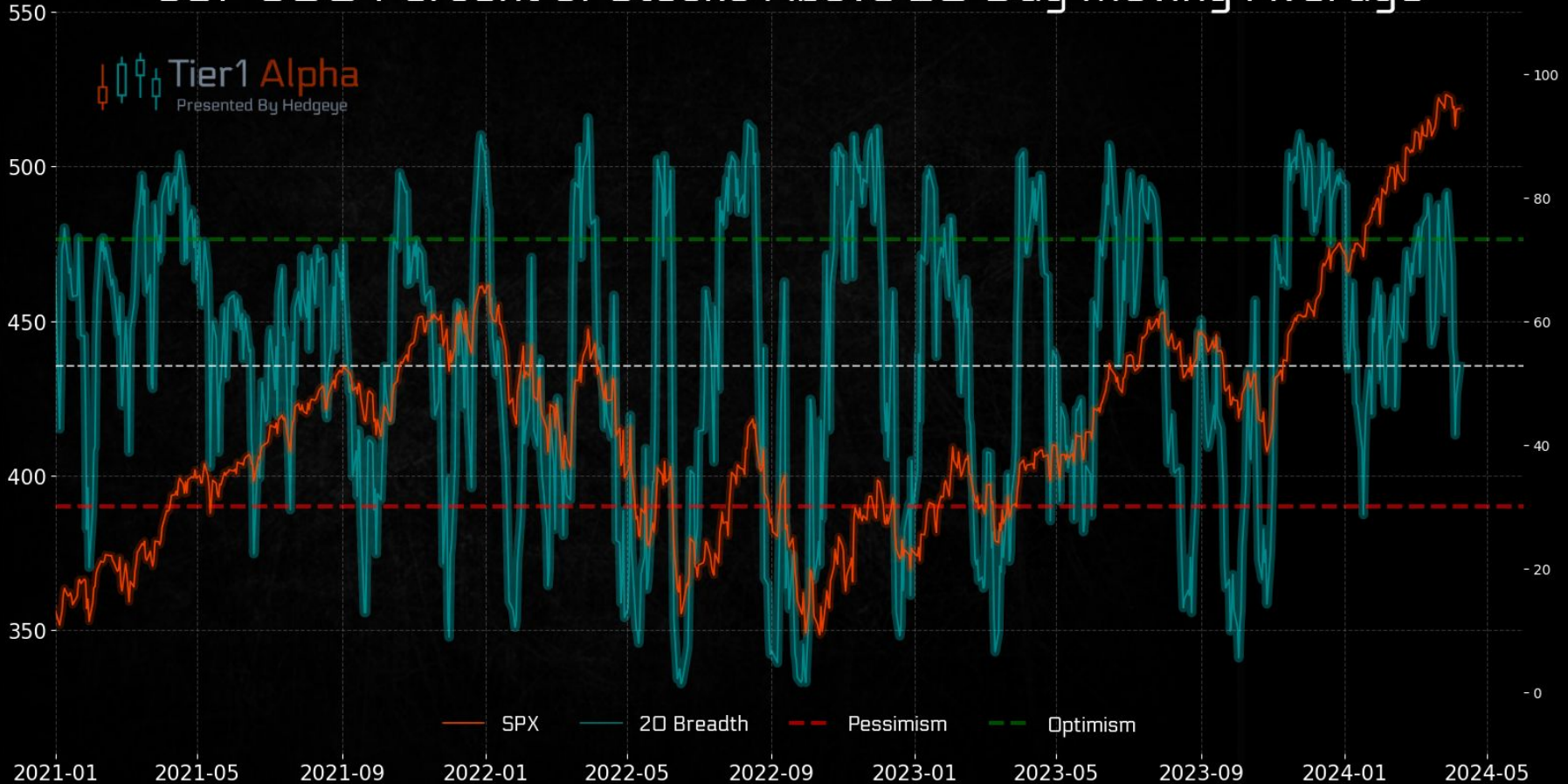
Top Contributor	Daily %Return	Positive Impact	% Weight	Top Detractor	Daily %Return.1	Negative Impact	% Weight.1
TSLA	4.9%	7.3%	1.1%	NVDA	-1.0%	-6.8%	5.07%
GOOGL	1.5%	4.3%	2.08%	META	-1.5%	-5.1%	2.46%
GOOG	1.4%	3.4%	1.75%	AAPL	-0.7%	-5.1%	5.61%
HD	1.2%	1.3%	0.83%	MSFT	-0.2%	-2.1%	7.17%
JPM	0.5%	0.9%	1.31%	LLY	-0.9%	-1.6%	1.38%
BAC	1.1%	0.8%	0.59%	BRK.B	-0.6%	-1.5%	1.74%
INTU	1.5%	0.8%	0.41%	UBER	-2.8%	-1.3%	0.36%
QCOM	1.2%	0.7%	0.43%	MRK	-1.1%	-1.1%	0.75%
LOW	1.4%	0.6%	0.33%	INTC	-1.9%	-1.1%	0.43%
TXN	1.2%	0.6%	0.36%	NFLX	-1.2%	-1.0%	0.6%

Date: 2024/04/08

Source: Tier1Alpha.com

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

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Source: IEX Cloud/ Tier1Alpha.com



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