TONIGHT'S BRIEFING

- **A small index decline masked violent rotation.** SPX fell just 0.23%, but Nvidia cost it 17.2 bp. Amazon, Broadcom and AMD together added 31.5 bp; UnitedHealth fell 10.2%. The near-flat index obscures substantial stock-level risk. p. 1
- **Skew flattened, but megacap and semi readings remain high.** SMH 3M skew eased to 1.207× (86.1 percentile), while Mag7 fell to 1.153× (88.5). Both remain elevated in their 252-session lookbacks after the recent steepening. p. 8
- **Volatility eased without returning to normal.** VIX slipped 0.90 to 24.56, while 1M SPX realized vol remains at the 99.6 percentile. Ten-day realized volatility of VVIX fell 112 points to 165.1%; the short window is highly sensitive to outgoing observations. p. 6
- **ETF netting hid two-way mechanical demand.** Today's provisional ETF reset was only +$10m net, against $2.03bn buying and $2.02bn selling. Simultaneous +1σ underlying shocks imply $11.72bn buying, including $4.34bn in semis (p. 13). p. 12

S&P 500 Daily Seasonality

Nov 18 ACTUAL: -0.23%

Historical average return · hit rate = share of prior years up

MON	TUE	WED	THU	FRI
		Nov 18 **-0.14%** UP 49% · n=70	Nov 19 **-0.22%** UP 47% · n=70	Nov 20 **-0.09%** UP 57% · n=69
Nov 23 **+0.02%** UP 55% · n=56	Nov 24 **+0.34%** UP 71% · n=55	Nov 25 **-0.01%** UP 54% · n=56	Nov 26 MARKET CLOSED	Nov 27 **+0.11%** UP 64% · n=58
Nov 30 **+0.09%** UP 49% · n=68	Dec 01 **+0.11%** UP 55% · n=69	Dec 02 **-0.00%** UP 51% · n=70	Dec 03 **+0.01%** UP 53% · n=70	Dec 04 **+0.13%** UP 59% · n=70
Dec 07 **+0.12%** UP 54% · n=69	Dec 08 **-0.07%** UP 48% · n=69	Dec 09 **-0.02%** UP 49% · n=70	Dec 10 **-0.03%** UP 51% · n=70	Dec 11 **-0.13%** UP 47% · n=70
Dec 14 **-0.15%** UP 43% · n=69	Dec 15 **-0.07%** UP 48% · n=69	Dec 16 **+0.21%** UP 59% · n=70	Dec 17 **-0.04%** UP 47% · n=70	Dec 18 **+0.20%** UP 53% · n=70
Dec 21 **+0.16%** UP 57% · n=69	Dec 22 **+0.10%** UP 59% · n=69	Dec 23 **+0.05%** UP 54% · n=70	Dec 24 **+0.20%** UP 66% · n=58	Dec 25 MARKET CLOSED
Dec 28 **+0.00%** UP 54% · n=68	Dec 29 **+0.26%** UP 54% · n=69	Dec 30 **+0.38%** UP 61% · n=70	Dec 31 **+0.21%** UP 66% · n=70	Jan 01 MARKET CLOSED
Jan 04 **+0.13%** UP 53% · n=70				

Prior-year samples only. Historical tendencies, not forecasts.

WHO MOVED THE S&P 500?

Ten largest company impacts · signed basis points

SPX -0.23% 7,323.63

Nvidia NVDA		**-17.2**
Amazon AMZN		**+15.3**
Broadcom AVGO		**+9.3**
AMD AMD		**+6.9**
UnitedHealth UNH		**-5.6**
Exxon Mobil XOM		**-4.3**
Eli Lilly LLY		**-4.1**
Palo Alto Networks PANW		**+3.9**
Berkshire Hathaway BRK.B		**-3.6**
Alphabet GOOGL + GOOG		**+3.3**

Estimated SPX contribution using prior-close SPY equity weights and stock price returns. Alphabet combined; ranked by absolute impact. 1 bp = 0.01 percentage point.

Heisenberg Report calculations

SEASONALITY

Daily Nasdaq 100 tendencies, alongside the day’s actual move

Nasdaq 100 Daily Seasonality

Nov 18 ACTUAL: +0.42%

Historical average return · hit rate = share of prior years up

MON	TUE	WED	THU	FRI
		Nov 18 +0.18% UP 59% · n=29	Nov 19 -0.25% UP 57% · n=28	Nov 20 -0.40% UP 48% · n=29
Nov 23 +0.21% UP 50% · n=22	Nov 24 +1.44% UP 74% · n=23	Nov 25 +0.17% UP 71% · n=24	Nov 26 MARKET CLOSED	Nov 27 +0.14% UP 48% · n=23
Nov 30 -0.33% UP 43% · n=28	Dec 01 +0.32% UP 66% · n=29	Dec 02 +0.49% UP 69% · n=29	Dec 03 -0.22% UP 50% · n=28	Dec 04 +0.18% UP 55% · n=29
Dec 07 -0.06% UP 39% · n=28	Dec 08 +0.41% UP 55% · n=29	Dec 09 -0.32% UP 48% · n=29	Dec 10 -0.06% UP 54% · n=28	Dec 11 -0.08% UP 52% · n=29
Dec 14 -0.52% UP 36% · n=28	Dec 15 -0.06% UP 52% · n=29	Dec 16 +0.54% UP 69% · n=29	Dec 17 -0.18% UP 39% · n=28	Dec 18 +0.31% UP 62% · n=29
Dec 21 +0.76% UP 71% · n=28	Dec 22 +0.36% UP 69% · n=29	Dec 23 +0.46% UP 69% · n=29	Dec 24 +0.03% UP 57% · n=23	Dec 25 MARKET CLOSED
Dec 28 -0.19% UP 43% · n=28	Dec 29 +0.33% UP 59% · n=29	Dec 30 -0.01% UP 34% · n=29	Dec 31 -0.16% UP 43% · n=28	Jan 01 MARKET CLOSED
Jan 04 -0.23% UP 54% · n=28				

Prior-year samples only. Historical tendencies, not forecasts.

How to read the checkerboard

Each cell shows the historical mean return for that calendar date and the percentage of eligible prior years in which the index rose. Green indicates a positive mean; red indicates a negative mean.

Actual versus seasonal

The large callout is the latest actual Nasdaq 100 return. Cell values describe history; they are not daily return forecasts or probabilities that the next observation must follow the average.

Calendar treatment

The window includes today and the next 30 trading sessions. Exchange holidays are marked closed. Only historical trading observations on the same calendar date enter that date’s statistics.

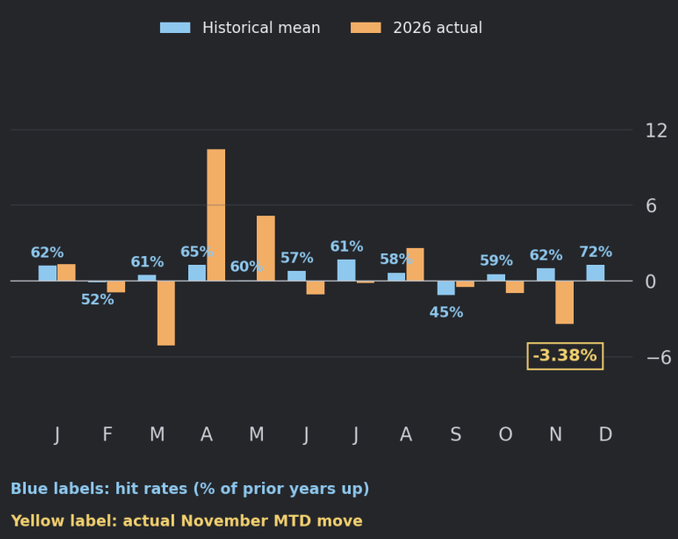
Nasdaq index history begins in 1986. Historical samples end with the last completed calendar year; the new year rolls into history after year-end.

SEASONALITY

Monthly history and this year’s progress

S&P 500 Monthly Seasonality

Historical average vs 2026 actuals | Nov 18 close

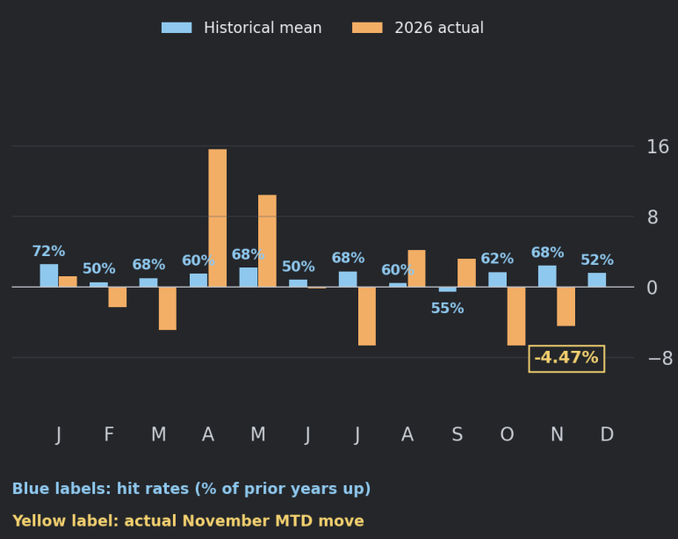


Blue labels: hit rates (% of prior years up)

Yellow label: actual November MTD move

Nasdaq 100 Monthly Seasonality

Historical average vs 2026 actuals | Nov 18 close

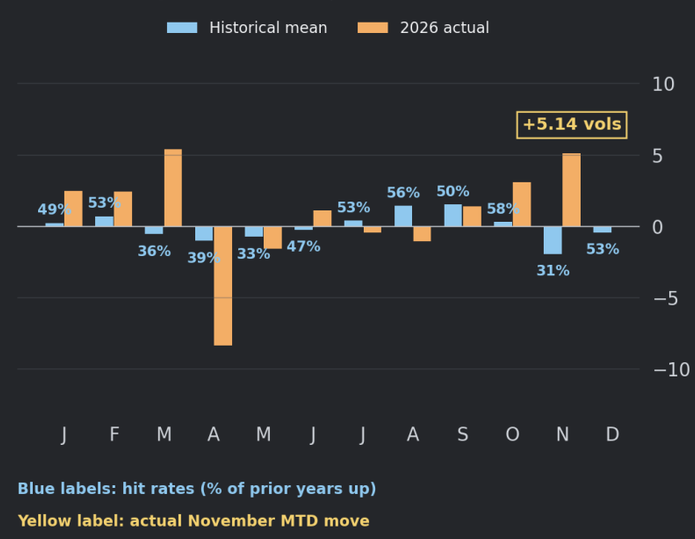


Blue labels: hit rates (% of prior years up)

Yellow label: actual November MTD move

VIX Monthly Seasonality

Historical average vs 2026 actuals | Nov 18 close



Blue labels: hit rates (% of prior years up)

Yellow label: actual November MTD move

S&P 500

Blue bars show the average monthly percentage return since 1928; orange bars show 2026 actual returns. Blue labels are historical hit rates. The yellow label is the actual November MTD return.

Nasdaq 100

The same comparison for Nasdaq 100 history since 1986. The current month is incomplete and updates each session; future months have no actual-return bar.

VIX

VIX bars show changes in index points (vols), rather than percentage returns. Here a blue hit-rate label means the share of prior years in which VIX rose that month.

Compare like with like

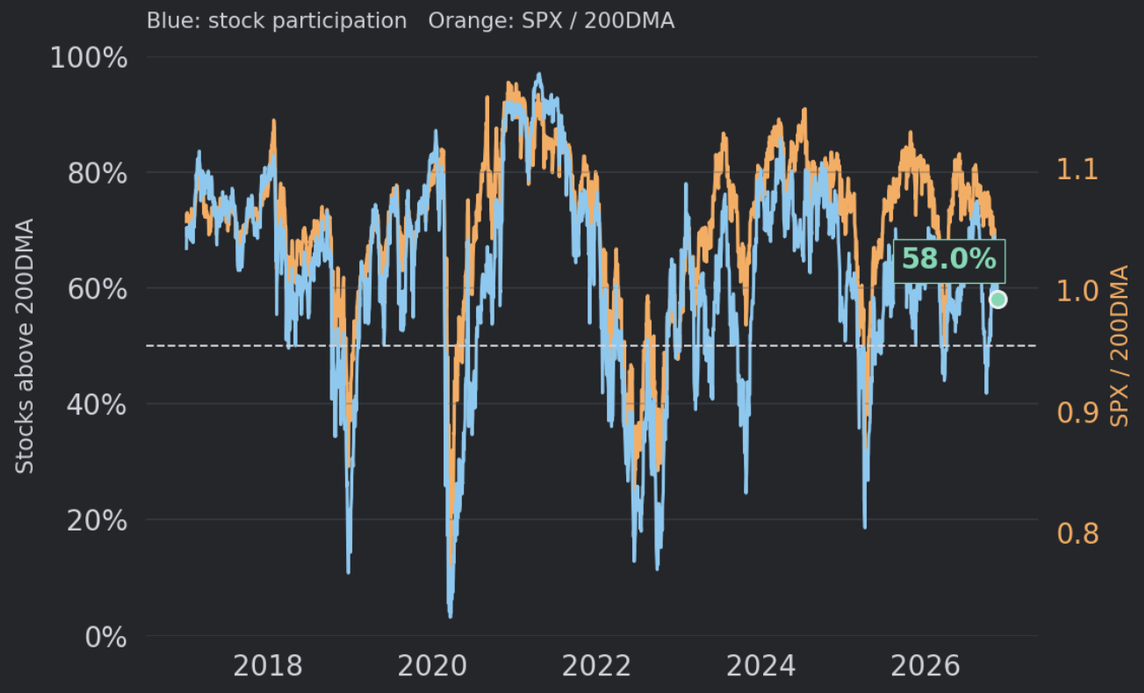
The historical bar is a full-month average, while the current November actual is month-to-date. Hit rates describe frequency, not the size or profitability of an outcome. Historical samples differ across the three indexes.

MARKET BREADTH

Two complementary ways to measure participation

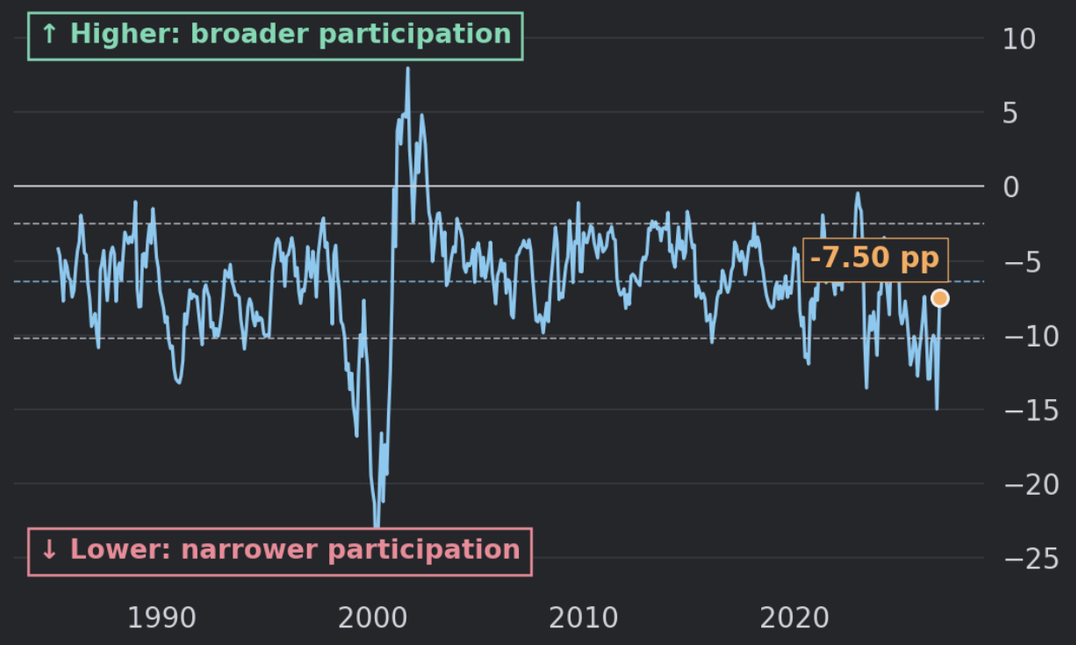
S&P 500: Stocks Above 200-Day Average

Share of index constituents | Nov 18, 2026



S&P 500: 52-Week Breadth Gap

Median stock drawdown less SPX drawdown | pp



Participation above trend

Blue shows the share of S&P 500 stocks above their own 200-day average (left axis); orange shows SPX divided by its 200-day average (right axis). Wednesday: participation 58.0%, down 0.4 pp, while SPX stood 0.31% below its average.

The typical stock versus the index

The right panel subtracts the SPX's drawdown from its 252-session closing high from the median constituent's drawdown. More negative readings indicate narrower participation. Wednesday: -7.50 pp; the median stock was 13.83% below its high, versus 6.33% for SPX.

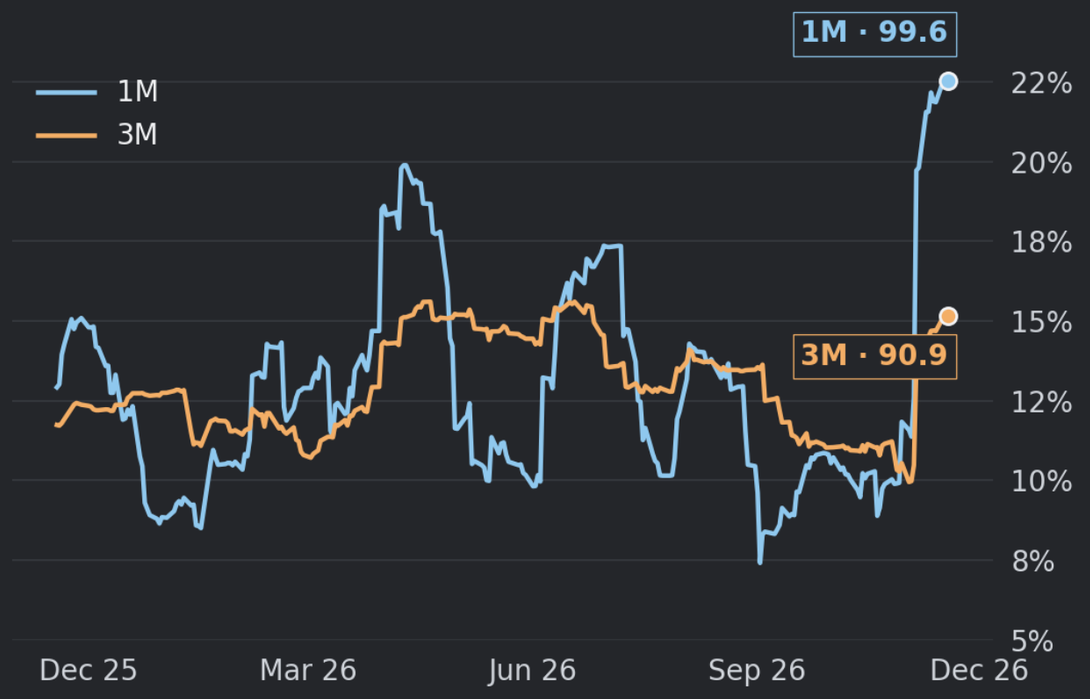
The 52-week gap widened 0.04 pp as participation deteriorated further. Month-end history is shown, plus the current month; dashed lines show the mean and ±1 standard deviation.

VOLATILITY

What stocks have delivered, and what SPX options imply

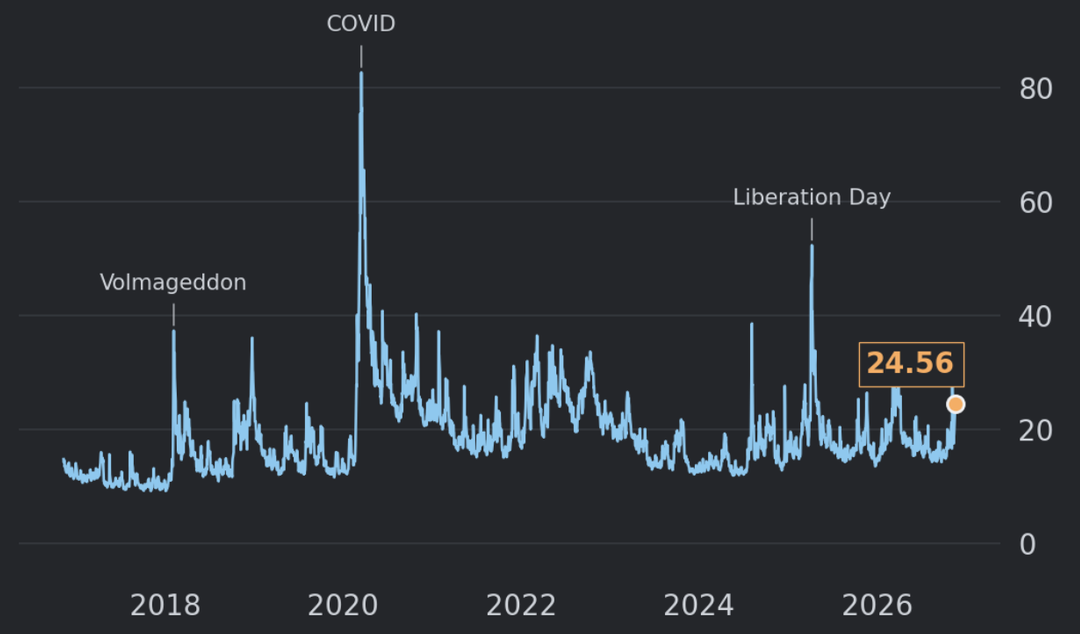
S&P 500 Trailing Realized Volatility

Annualized | Nov 18, 2026



VIX Index

Daily closing level | Nov 18, 2026



Trailing realized volatility

The one-month and three-month lines are annualized sample standard deviations of 21 and 63 daily SPX log returns. Colored endpoint labels show each series' percentile within its own latest 252-session window, without a percent sign.

VIX

VIX summarizes option-implied near-term SPX volatility. It is an index level, not a forecast of the next daily return. The chart uses daily closing levels and identifies major volatility episodes.

Keep the horizons distinct

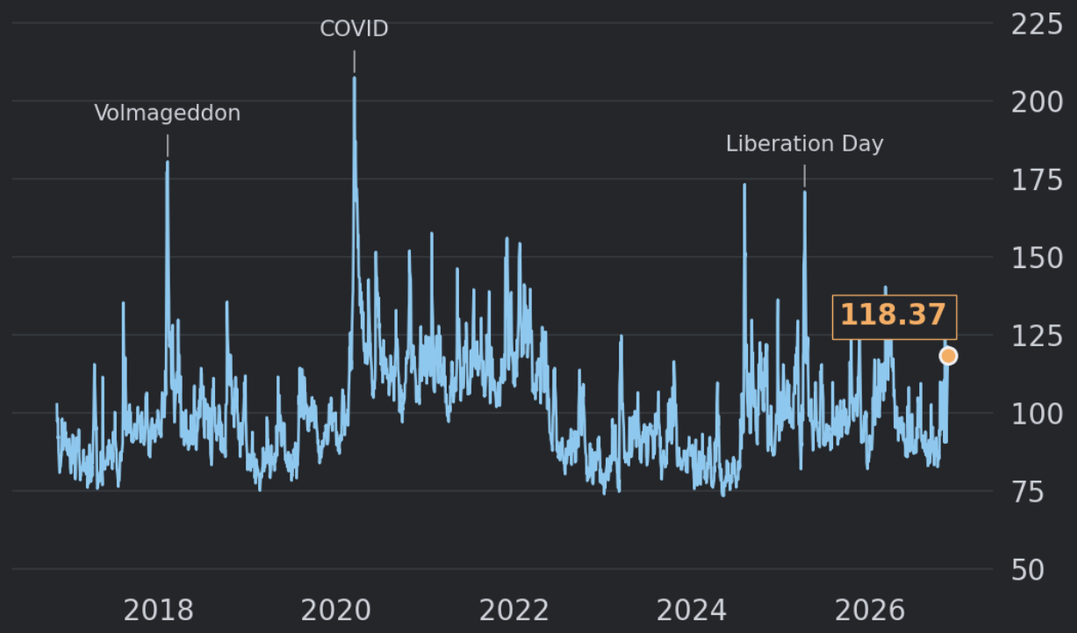
Realized volatility looks backward; VIX looks forward over roughly 30 days. Their relative levels offer context, but they do not by themselves identify a profitable volatility trade.

VOLATILITY

The volatility of volatility, and its own instability

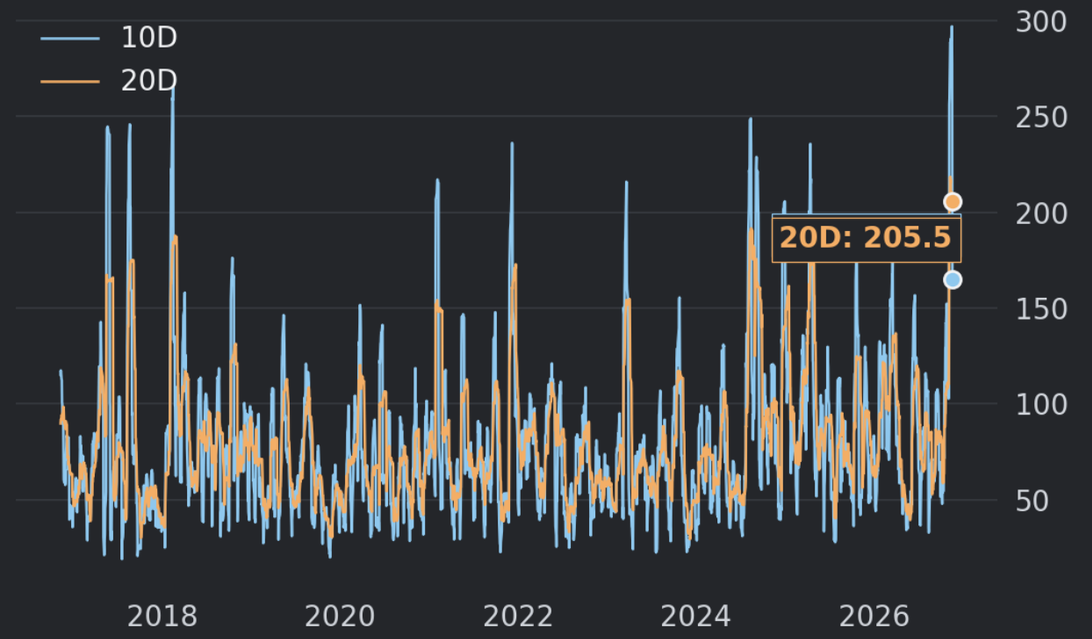
VVIX Index

Daily closing level | Nov 18, 2026



Realized Volatility of VVIX

10-day and 20-day measures, annualized | Nov 18



VVIX

VVIX reflects option-implied volatility of VIX. A higher level means the VIX options market prices a wider range of potential VIX outcomes. It is distinct from spot VIX and from VIX futures returns.

Realized volatility of VVIX

The second panel measures how sharply VVIX itself has moved. The established 10-day and 20-day convention uses 10 and 20 closing observations (9 and 19 log returns), sample standard deviation and √260 annualization.

Why this belongs in the package

The level of VIX and the instability of VIX-related pricing can move differently. These panels help distinguish the level of equity volatility from the instability of the volatility market itself.

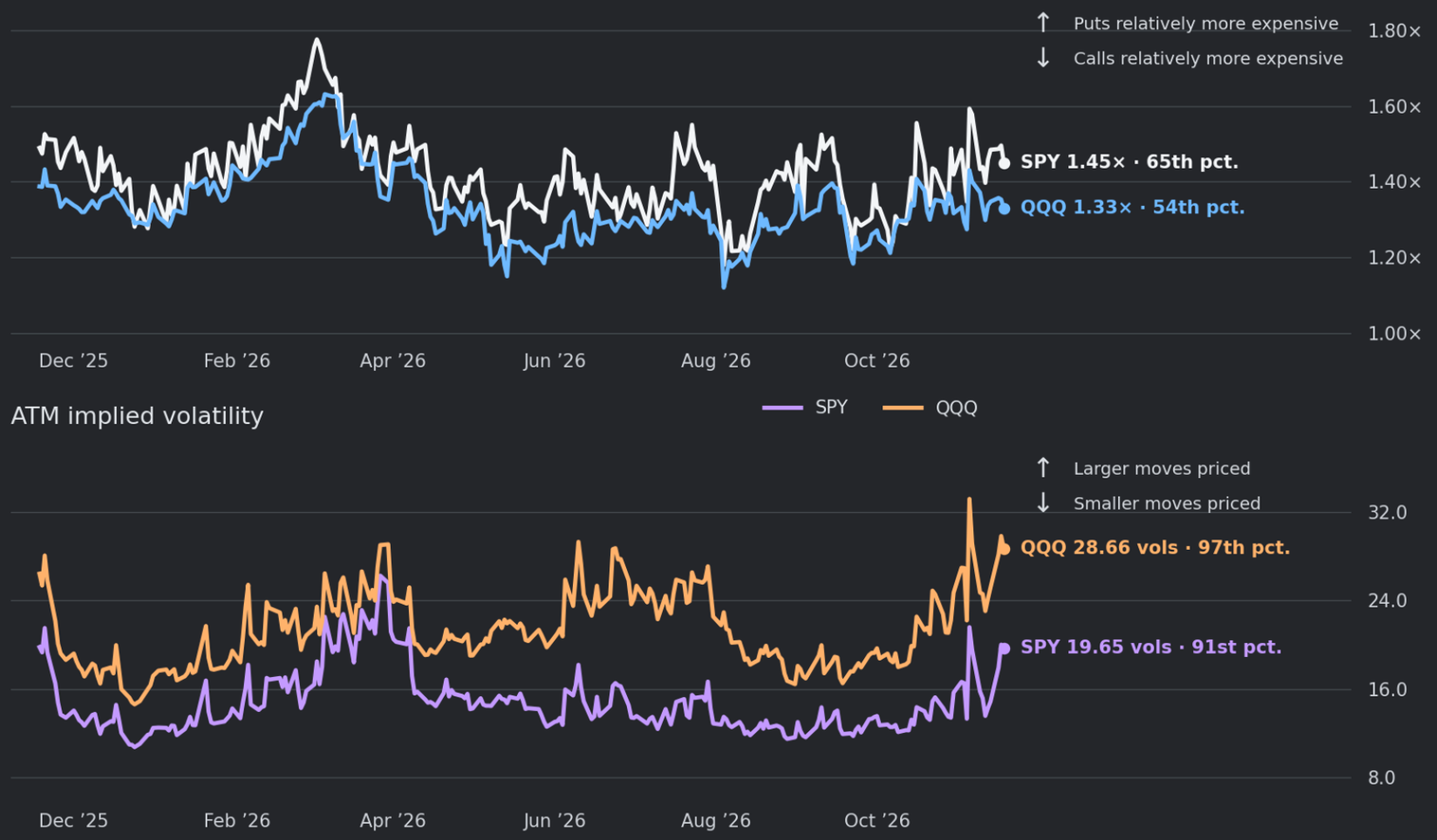
OPTIONS SKEW

One-month SPY / QQQ dashboard

SPY & QQQ 1M Skew and ATM Volatility

November 18, 2026 close · Constant 30-calendar-day maturity

25-delta put / 25-delta call IV



252 trading sessions · Markers show percentile at or below latest, including latest

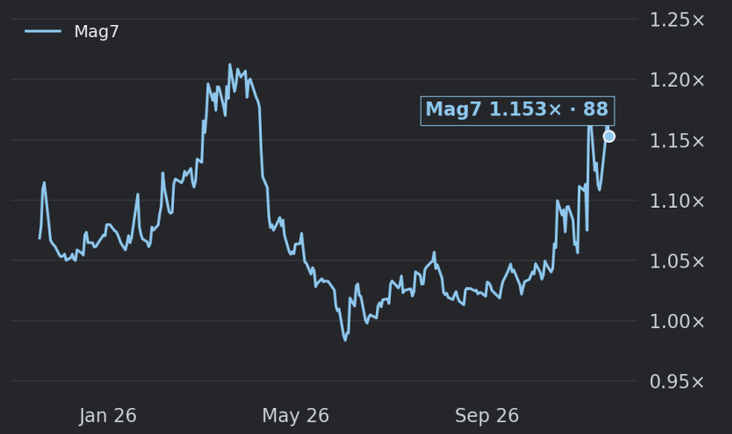
Top: 25-delta put IV divided by 25-delta call IV at constant 30-calendar-day maturity. Higher means puts are relatively more expensive than calls. **Bottom:** ATM implied volatility, using the mean of 50-delta call and put IV. Higher means larger moves are priced. Endpoint labels include historical percentile ranks.

OPTIONS SKEW

Three-month comparisons across broad indexes, semis and megacaps

Mag7 3M Skew

25-delta put IV / 25-delta call IV



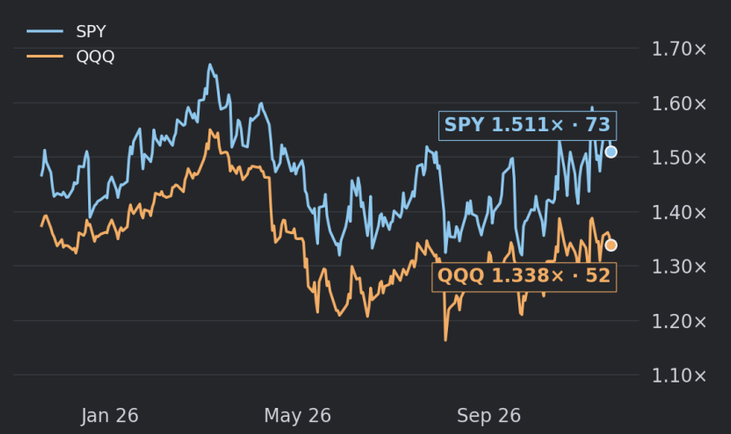
SMH 3M Skew

25-delta put IV / 25-delta call IV



SPY & QQQ 3M Skew

25-delta put IV / 25-delta call IV



Mag7

Equal-weight average of the seven individual 3M 25-delta put/call IV ratios. This is a stock-level composite, not a capitalization-weighted index option.

Semiconductors

SMH uses its own option surface at constant 90-calendar-day maturity. A higher ratio indicates puts becoming relatively more expensive than calls.

SPY versus QQQ

Shown together to compare broad-market and technology-heavy downside pricing. Ratios are comparable measures, but distinct underlyings need not share a common normal level.

Reading the endpoints

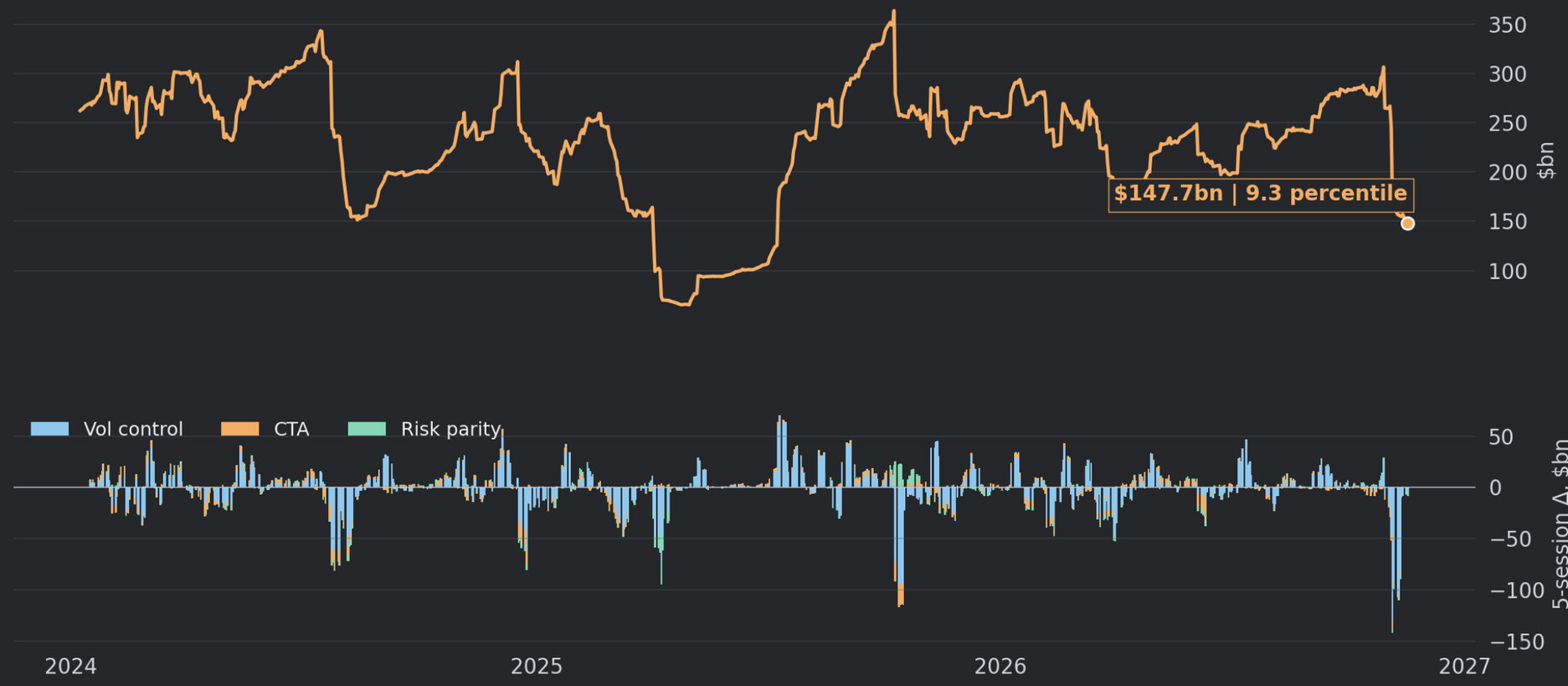
Endpoint numbers combine the latest ratio with its percentile in the chart’s 252-session window. Standalone put-skew and call-skew panels are reserved for editions in which they add a material story.

SYSTEMATIC STRATEGIES

Overall modeled U.S. equity exposure

Modeled Systematic U.S. Equity Exposure

Vol control + CTA + risk parity | Source session: Nov 17, 2026 | One-session lag



Top: Estimated equity exposure from the representative vol-control, CTA and risk-parity models. **Bottom:** signed contributions to the rolling five-session change in target exposure. Positive and negative components stack separately; their signed sum equals the aggregate change. These are target-exposure changes, not observed executed trades.

Fixed capital anchors: vol control $250bn; systematic CTA $325.81bn (BarclayHedge / ION, Q2 2026); risk parity $250bn (Sullivan & Wey, 2025). Allocation frameworks reference S&P DJI and Man AHL. Capital anchors are held fixed through history. This settlement-based panel carries a one-session lag in evening editions; its actual source date is shown.

SYSTEMATIC STRATEGIES

Vol control: current allocation, next-session sensitivity and return roll-offs

Vol-control equity exposure rises $370mn

Next-session change in equity exposure ($bn)

Flat SPX +$2.0bn

SPX move	0.5%	1%	1.5%	2%	3%	4%	5%	6%	8%	10%
Down	+1.7	+0.6	−1.1	−3.3	−9.1	−16.0	−23.1	−30.0	−42.4	−52.5
Up	+1.7	+0.7	−1.0	−3.1	−8.6	−14.9	−21.4	−27.7	−39.0	−48.2

Estimated equity allocation ($ billions)



Heisenberg Report estimates | Nov 18, 2026

RETURN DROP-OUT SCHEDULE

Existing input returns leaving the 20- and 62-session rVol windows.

Step	20D: date	20D: return	62D: date	62D: return
T+1	10/22	-1.21%	08/24	-0.28%
T+2	10/23	-0.52%	08/25	+0.32%
T+3	10/26	+0.70%	08/26	-0.02%
T+4	10/27	+0.60%	08/27	+0.72%
T+5	10/28	+0.28%	08/28	-0.25%
T+6	10/29	-0.30%	08/31	-0.33%
T+7	10/30	-1.82%	09/01	-0.71%
T+8	11/02	-0.51%	09/02	+0.46%
T+9	11/03	+0.36%	09/03	+1.06%
T+10	11/04	+1.58%	09/04	-0.38%
T+11	11/05	-4.36%	09/08	-0.58%
T+12	11/06	+0.31%	09/09	-0.48%
T+13	11/09	+2.35%	09/10	-0.58%
T+14	11/10	-0.38%	09/11	+0.86%
T+15	11/11	+1.31%	09/14	-0.48%
T+16	11/12	-0.35%	09/15	-0.45%
T+17	11/13	-0.40%	09/16	-0.45%
T+18	11/16	-1.92%	09/17	+1.14%
T+19	11/17	-1.03%	09/18	+0.17%
T+20	11/18	-0.23%	09/21	+1.49%

T+ counts trading sessions. Large moves dropping out can ease measured volatility; incoming returns can offset that effect. This schedule is not a forecast of future vol or flows.

The model targets 10% annualized volatility on a $250bn strategy base, using the higher of its 20- and 62-session volatility estimates (250-session annualization). The inset shocks the next SPX close and replaces the oldest observation in both windows. Positive numbers imply buying; negative numbers imply selling.

The return schedule identifies the historical daily observations that roll out of the two realized-volatility inputs. New prices and calendar progression both matter, so equal up/down shocks need not produce exactly symmetric demand. Current target-vol inputs are refreshed for the report session.

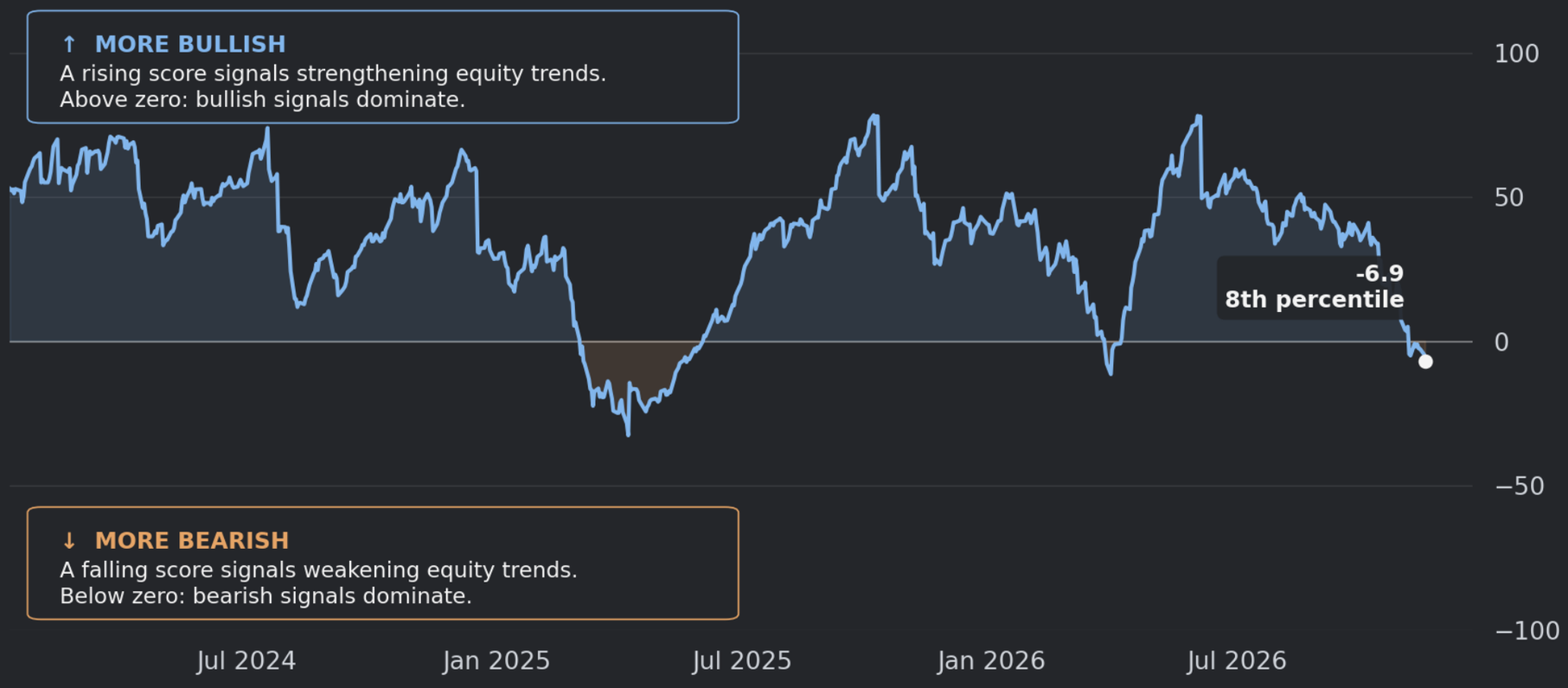
SYSTEMATIC STRATEGIES

CTA: the strength and direction of equity trend signals

CTA U.S. Equity Trend Positioning

S&P 500, Nasdaq 100 and Russell 2000 futures

As of November 17, 2026 · One-session lag · Research model



−100 bearish · 0 neutral · +100 bullish | History and percentile since January 2024

The score combines trend signals across S&P 500, Nasdaq 100 and Russell 2000 futures. A rising reading means strengthening equity trends; a falling reading means weakening trends. Above zero, bullish signals dominate; below zero, bearish signals dominate. The score is a model measure, not the percentage of CTA assets invested in stocks.

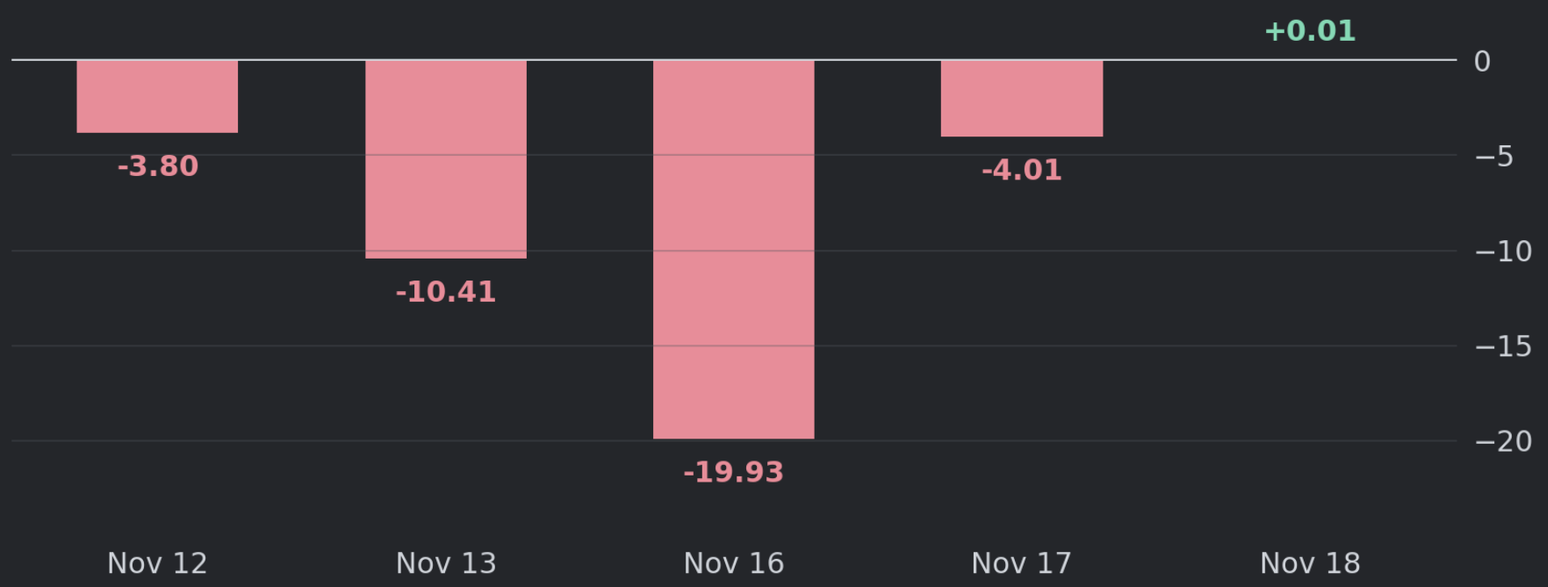
The representative model uses documented momentum/trend and risk-sizing rules; it is not a survey of actual CTA holdings. Official CME settlement returns remove artificial contract-roll price jumps in the forward chain. Evening editions deliberately use a one-session lag, with the input date shown. Historical roll verification remains a documented model limitation.

LEVERAGED ETFS

Completed-session mechanical rebalancing: the preceding five sessions

Leveraged ETF: Estimated EOD Rebalance

Five completed sessions | Underlying-equivalent delta, $bn



What the bars estimate

For each supported daily-reset fund: preceding-close assets × L × (L − 1) × that day’s underlying return, where L is the signed daily leverage target. The bars sum this price-driven reset across supported funds. Positive means modeled buying; negative means modeled selling.

Coverage and revisions matter

All five observations are provisional. Wednesday’s estimate is +$10.35m across 541 supported funds, using $129.88bn of priced opening assets. All 14 material products reviewed are included. Unknown balances remain outside the denominator. Late issuer reports may revise prior sessions; no percentile, record claim or complete-market coverage is asserted.

LEVERAGED ETFS

Theme / index view | Hypothetical next-session scenarios

VOLATILITY-SCALED REBALANCE SCENARIOS

Balances: Nov 17 / 18 (mainly Nov 17) | Volatility: Nov 18 | 541 funds | $129.82bn assets

Theme / index	Assets, $bn	Effective 1σ	−2σ	−1σ	+1σ	+2σ
Semiconductors	24.45	3.46%	-8.68	-4.34	+4.34	+8.68
Technology / Nasdaq	48.83	1.54%	-7.74	-3.87	+3.87	+7.74
Other themes	14.72	2.18%	-2.70	-1.35	+1.35	+2.70
S&P 500	20.04	0.95%	-1.75	-0.87	+0.87	+1.75
Magnificent 7	9.18	2.67%	-1.03	-0.52	+0.52	+1.03
Financials	3.19	1.06%	-0.35	-0.17	+0.17	+0.35
Small caps	2.03	1.13%	-0.28	-0.14	+0.14	+0.28
Gold	1.97	2.49%	-0.24	-0.12	+0.12	+0.24
Bitcoin	1.30	2.54%	-0.17	-0.08	+0.08	+0.17
Dow	1.57	0.93%	-0.15	-0.07	+0.07	+0.15
SpaceX	0.79	3.56%	-0.14	-0.07	+0.07	+0.14
Other crypto	0.78	2.88%	-0.10	-0.05	+0.05	+0.10
Silver	0.89	2.53%	-0.10	-0.05	+0.05	+0.10
Unassigned theme	0.07	4.18%	-0.01	-0.01	+0.01	+0.01
SUPPORTED TOTAL	**129.82**		**-23.44**	**-11.72**	**+11.72**	**+23.44**

Each column moves **every included fund's underlying** by the indicated multiple of its own 63-session daily-return standard deviation, centered on zero. Values are underlying-equivalent modeled reset in USD billions. These are simultaneous standardized shocks, not isolated-sector forecasts or joint-event probabilities.

The effective 1σ column is a sensitivity-weighted average underlying move for that row. Both views regroup exactly the same fund-level shocks and totals. The sector view retains the established Mag7-first overlap policy; large SPY/QQQ/DIA sleeves use sponsor holdings, while unresolved sleeves remain in Other. Reported balance dates: November 17 and 18, predominantly November 17; broad holdings proxies are dated November 17. Funds lacking a complete volatility window or usable reference are excluded.

LEVERAGED ETFS

Constituent-allocated sector / group view | Hypothetical next-session scenarios

VOLATILITY-SCALED REBALANCE SCENARIOS

Balances: Nov 17 / 18 (mainly Nov 17) | Volatility: Nov 18 | 541 funds | $129.82bn assets

Sector / group	Assets, $bn	Effective 1σ	−2σ	−1σ	+1σ	+2σ
Semis	35.22	2.85%	-10.22	-5.11	+5.11	+10.22
Magnificent 7	32.79	1.54%	-4.22	-2.11	+2.11	+4.22
Other	13.69	1.75%	-2.30	-1.15	+1.15	+2.30
Information Technology	12.43	1.76%	-2.09	-1.05	+1.05	+2.09
Health Care	5.69	1.35%	-0.75	-0.38	+0.38	+0.75
Financials	6.67	1.10%	-0.70	-0.35	+0.35	+0.70
Consumer Staples	4.33	1.36%	-0.59	-0.29	+0.29	+0.59
Energy	3.07	2.04%	-0.53	-0.27	+0.27	+0.53
Industrials	3.64	1.33%	-0.45	-0.22	+0.22	+0.45
Consumer Discretionary	2.71	1.45%	-0.40	-0.20	+0.20	+0.40
Metals	2.86	2.50%	-0.34	-0.17	+0.17	+0.34
Communication Services	2.07	1.49%	-0.29	-0.14	+0.14	+0.29
Crypto	2.08	2.66%	-0.27	-0.13	+0.13	+0.27
Utilities	1.10	1.27%	-0.13	-0.07	+0.07	+0.13
Materials	0.95	1.26%	-0.11	-0.06	+0.06	+0.11
Real Estate	0.52	0.95%	-0.05	-0.02	+0.02	+0.05
SUPPORTED TOTAL	**129.82**		**-23.44**	**-11.72**	**+11.72**	**+23.44**

Each column moves **every included fund's underlying** by the indicated multiple of its own 63-session daily-return standard deviation, centered on zero. Values are underlying-equivalent modeled reset in USD billions. These are simultaneous standardized shocks, not isolated-sector forecasts or joint-event probabilities.

The effective 1σ column is a sensitivity-weighted average underlying move for that row. Both views regroup exactly the same fund-level shocks and totals. The sector view retains the established Mag7-first overlap policy; large SPY/QQQ/DIA sleeves use sponsor holdings, while unresolved sleeves remain in Other. Reported balance dates: November 17 and 18, predominantly November 17; broad holdings proxies are dated November 17. Funds lacking a complete volatility window or usable reference are excluded.

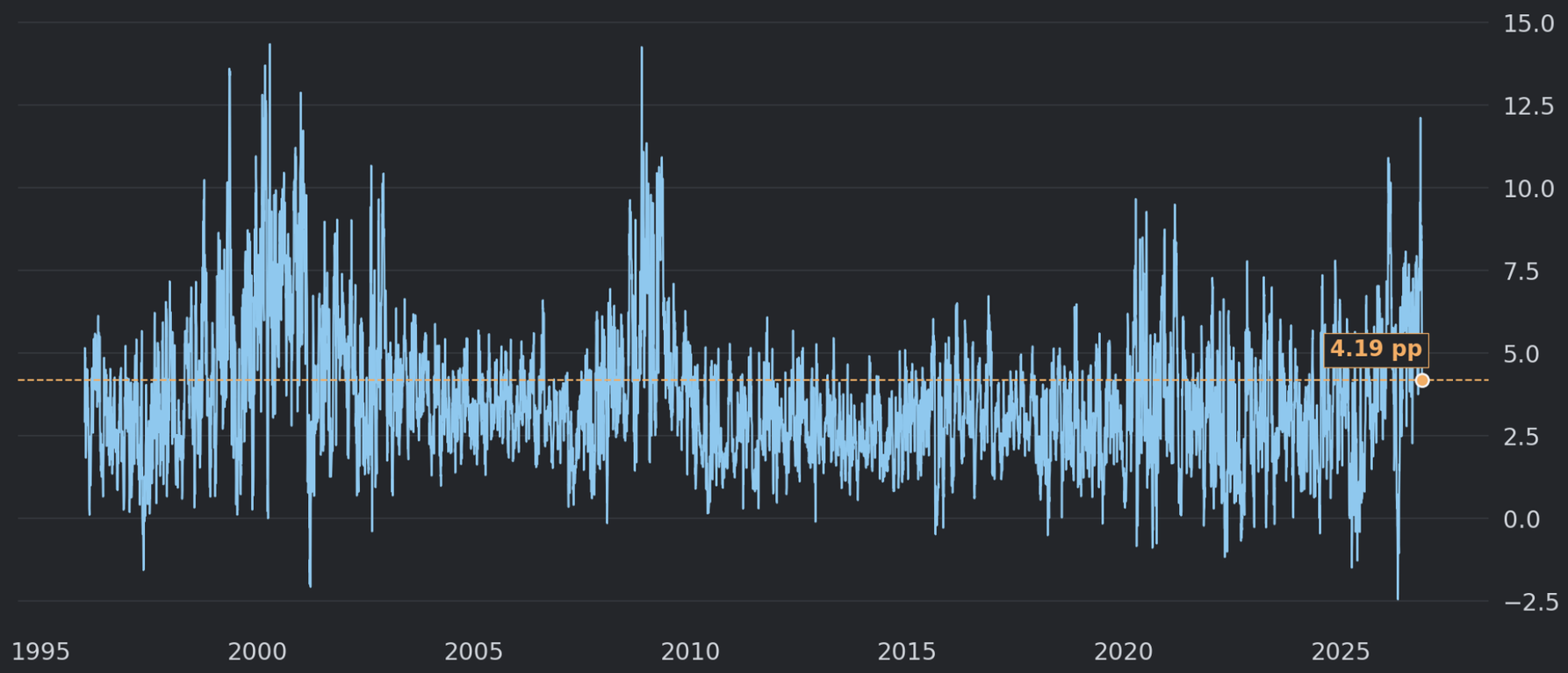
DISPERSION

How much stock-level movement is hidden beneath the index

S&P 500 Absolute Return Dispersion

Trailing 30 calendar days | Nov 18, 2026 | Historical percentile 69.2

Stocks: 8.96% | SPX: 4.77%



The indicator is the equal-weight average of the absolute trailing 30-calendar-day returns of S&P 500 constituents, minus the absolute SPX return over the same dates. A high reading means substantial individual-stock movement can cancel out in the index. It is an absolute-return dispersion proxy, not a variance-swap or implied-correlation measure.

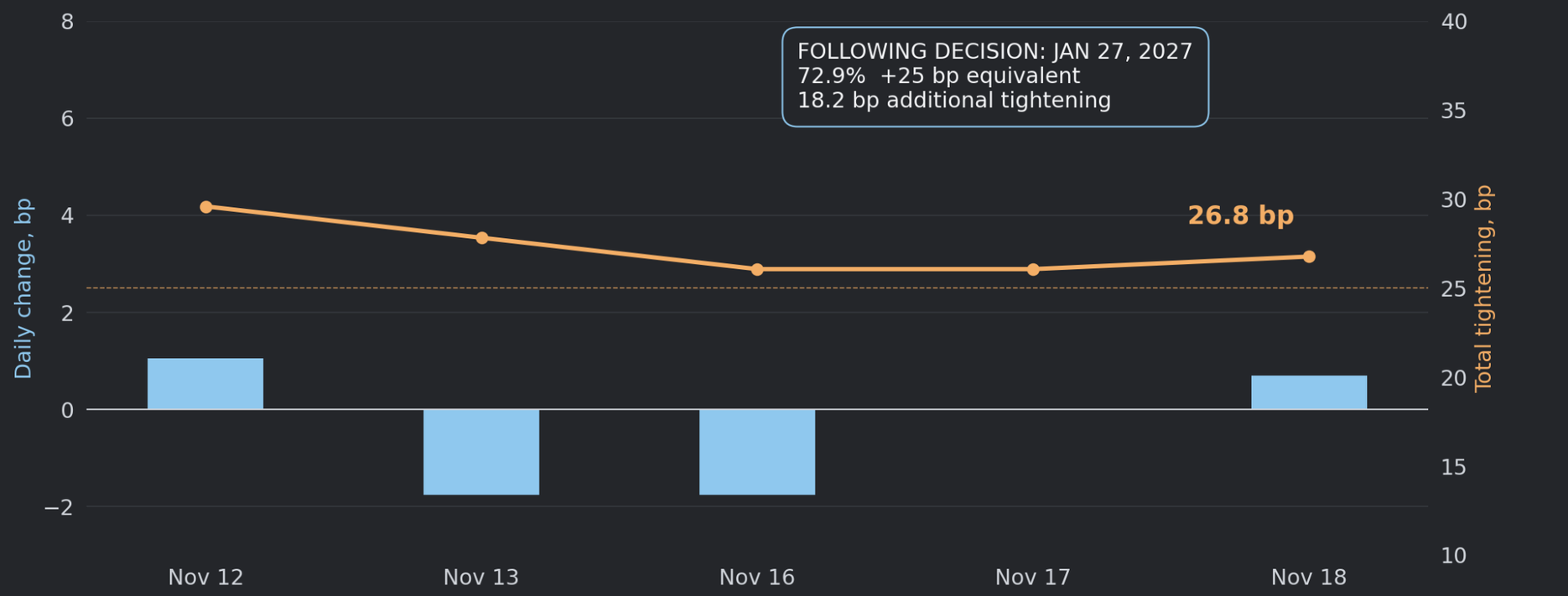
Latest: average absolute stock move 8.96%; absolute index move 4.77%; difference 4.19 percentage points. The 69.2 percentile uses the trailing 30-year observation window. Current calculation covers all 503 share classes using date-specific membership and direct adjusted-price histories; historical membership is retained in the archived reconstruction.

FED TRACKER

The next two policy-setting decisions, rolled forward automatically

Next Fed Decision: December 9, 2026

Daily repricing (left) and total tightening priced (right) | CME Federal Funds futures closing references



Main chart: total tightening/easing priced for the next policy-setting meeting (right axis), with the daily change over the latest five futures sessions (left). **Inset:** additional pricing at the following policy-setting meeting after subtracting the rate path already priced for the nearer meeting. The percentage shown assumes hold / +25 bp for that additional step.

December's expected step is 26.8 bp. The following January meeting adds 18.2 bp, or a 72.9% hold / +25 bp equivalent after subtracting the post-December rate path. Current closing references were recovered from CME next-session last prices minus reported net changes, checked across two snapshots. This does not identify a conditional probability for any particular December outcome.

READING THE PACKAGE

Publication timing and data conventions

Publication clock

Production follows the evening input checks after U.S. equity sessions. Current-session inputs must pass date checks. CTA and combined systematic exposure deliberately run one session behind in evening editions; current target vol remains separate. The actual input date is shown for each panel.

Comparable dates

Every panel’s input date controls its interpretation. A refreshed filename or newly generated PDF does not establish fresh underlying data. Holidays, shortened sessions, exchange settlements and issuer valuation clocks may differ. No missing trading observation is silently treated as zero.

Historical versus live observations

Some long histories use archived numerical constituent prices and date-specific membership. Current observations are calculated from direct inputs. Historical conventions, distributions, corporate actions, coverage and data revisions can differ from current delivery. Descriptive historical ranks are not success probabilities.

IMPORTANT DISCLOSURES

General terms and metric-specific limitations · 1 of 3

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Historical calculations may depend on archived membership, surviving records, corporate-action adjustments, reconstructed prices, available observation windows and publication vintages. Despite efforts to retain date-specific membership, missing or revised observations can affect the results. Sampling, survivorship, look-ahead, endpoint, specification and selection effects may remain. Visual similarity to an external chart is not proof of identical methodology, data or outcomes.

IMPORTANT DISCLOSURES

General terms and metric-specific limitations · 2 of 3

Model risk and changing assumptions

Models simplify reality. Their outputs depend on assumptions, parameter choices, definitions, proxy mappings, estimation windows, capital scales and data quality. Different defensible methods can produce different results. Relationships can change, and a model may fail when the regime changes. Models may be amended, replaced or discontinued. Revisions may alter historical values; the absence of an announced revision does not make a value final.

Automation and quality controls

Some calculations, chart production and editorial selection use automated processes. Checks can reduce but cannot eliminate errors, stale inputs, mislabeled observations, mapping mistakes or failures. A scheduled refresh is an attempt to update supported inputs, not a promise of service availability, timely delivery or successful source publication. The report is not a real-time market-data service, surveillance system or trading alert service.

Systematic strategies and capital scaling

Vol-control, CTA, risk-parity and aggregate exposure figures are independent representative-model estimates, not observed industry holdings, audited assets, dealer inventories, orders or executed flows. Published capital anchors are dated, uncertain and may cover a broader universe than the modeled strategy. Fixed anchors applied through history do not reconstruct historical industry AUM. Notional exposure, capital invested, risk allocation and model NAV are different concepts and must not be interchanged.

Demand scenarios and timing

A modeled change in target exposure need not translate into a trade of the same size, direction or timing. Actual managers may use different signals, instruments, constraints, execution schedules, leverage, capital and overrides. Fund creations, redemptions, financing, internal netting and discretionary decisions can dominate a price-driven estimate. Overnight gaps and changing inputs can invalidate a scenario before the next close.

Leveraged and inverse products

Daily-reset leveraged and inverse funds seek stated daily objectives subject to their documents, fees and practical constraints. Multi-day returns can differ materially from a simple multiple of an underlying’s cumulative return because of compounding and path dependence. Reset estimates do not establish that a fund met its objective, identify the instruments used to rebalance, or measure the trading ultimately borne by the cash market. ETFs, ETNs and products with different reset periods are not interchangeable.

Coverage, balances and revisions

Fund estimates may exclude products with unknown balances, unavailable returns, unresolved mandates, insufficient histories or uncertain corporate actions. Coverage percentages, when shown, apply only to their stated denominator. Unknown balances are not zero, and static sensitivity coverage is not a bound on omitted actual flow. Provisional session estimates can be revised when dated original reports arrive. A late receipt does not prove that the source itself published late.

Standardized shocks and grouping

A ±1σ or ±2σ scenario uses each underlying’s own estimated daily-return standard deviation, with no assumed drift unless stated. A simultaneous same-sign shock across all modeled references is a standardized stress, not an estimate of a joint-event probability or a forecast that all assets will move together. Volatility is backward-looking and unstable; a “two-sigma” label does not imply a fixed Gaussian probability. Theme and sector tables may show the same dollars regrouped and must not be added together.

Holdings proxies and overlap

Broad-index exposure may be allocated with ETF holdings proxies whose valuation dates differ from the report date. Sector, theme and security memberships can overlap, change or remain unresolved. The stated priority rule assigns each modeled dollar once; it does not eliminate economic overlap among issuers, products or underlying risks. Undecomposed sleeves remain in an explicit residual category. Company-level attribution estimates may differ from official index attribution.

Volatility, options and skew limitations

Implied volatility is derived from options and a pricing convention; it is not an objective physical probability or a guaranteed future realized volatility. Interpolation, delta conventions, dividends, interest rates, exercise features, quote quality, spreads and maturity selection affect IV and skew. Ratios can change because either numerator or denominator moves. Realized volatility depends on the lookback, return definition and annualization. VIX, VVIX, volatility of VVIX and fund returns are distinct quantities.

IMPORTANT DISCLOSURES

General terms and metric-specific limitations · 3 of 3

Seasonality, breadth, dispersion and ranks

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