CORE · MONTHLY QUANTITATIVE MARKET REVIEW

September 2026 issue

Cross-section of 482 U.S. large-cap equities and liquid ETFs · Data through 2026-08-31 · Factor library v0.1

Summary of the month

Realized 21-day volatility of the S&P 500 ETF ended the month at 10.3% (annualized), in the 35th percentile of observations since 2016, a regime classified as **normal**. Implied volatility (VIX) closed at 14.9 against a three-month reading of 20.5, a term slope of +5.6 points; implied exceeded realized by 4.6 points.

Cross-sectional dispersion of monthly stock returns was 11.5% (95th percentile since 2016; median 7.3%), a wide-dispersion month in which stock selection outcomes differed materially across the universe.

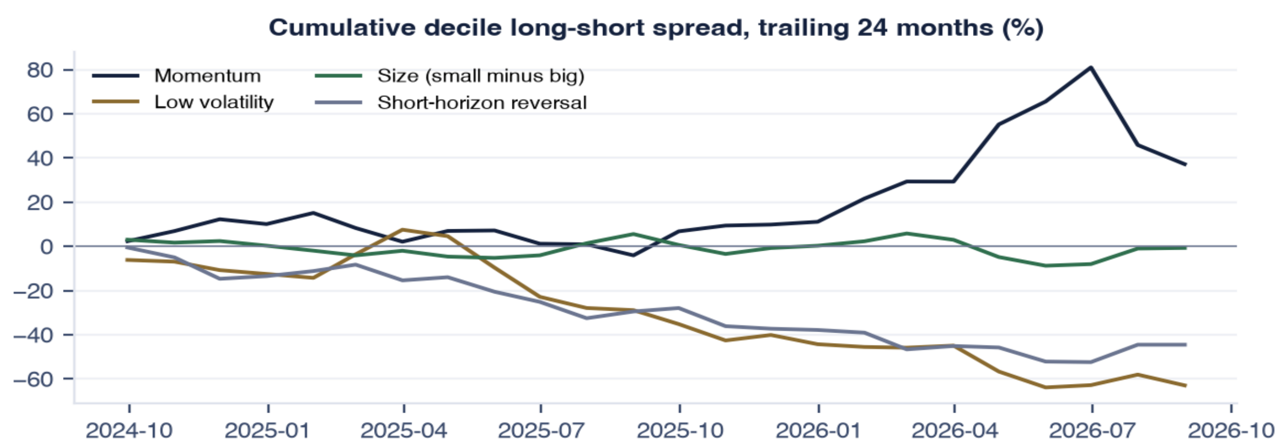
Average pairwise correlation across the eleven sector ETFs over the trailing 63 trading days was 0.13, against 0.32 in the prior window; average pairwise correlation among constituent stocks was 0.10 against 0.14.

Decile long-short spreads (top decile minus bottom decile, equal-weighted, one-month holding period): Momentum -5.9% for the month, -17.1% over three months and +43.0% over twelve; Low volatility -11.6% for the month, +2.6% over three months and -47.9% over twelve; Size (small minus big) +0.3% for the month, +8.8% over three months and -5.9% over twelve; Short-horizon reversal -0.0% for the month, +16.0% over three months and -21.3% over twelve. The widest positive spread for the month was size (small minus big) and the widest negative spread was low volatility. Top-decile momentum constituents are concentrated in Information Technology (24), Industrials (6), Health Care (5).

Demo build. Data: Yahoo Finance via yfinance; universe = current S&P 500 constituents; market capitalization approximated as current shares outstanding x historical price. The production engine uses licensed point-in-time data with survivorship-free index membership and as-reported share counts. Results in this build are therefore subject to survivorship bias and are presented to demonstrate methodology and format, not as validated production output.

1. Factor performance

Factor (decile long-short)	1M	3M	12M	36M ann.
Momentum	-5.9%	-17.1%	+43.0%	+17.5%
Low volatility	-11.6%	+2.6%	-47.9%	-31.2%
Size (small minus big)	+0.3%	+8.8%	-5.9%	+3.9%
Short-horizon reversal	-0.0%	+16.0%	-21.3%	-19.2%



Decile long-short spreads (top decile minus bottom decile, equal-weighted, one-month holding period): Momentum -5.9% for the month, -17.1% over three months and +43.0% over twelve; Low volatility -11.6% for the month, +2.6% over three months and -47.9% over twelve; Size (small minus big) +0.3% for the month, +8.8% over three months and -5.9% over twelve; Short-horizon reversal -0.0% for the month, +16.0% over three months and -21.3% over twelve. The widest positive spread for the month was size (small minus big) and the widest negative spread was low volatility. Top-decile momentum constituents are concentrated in Information Technology (24), Industrials (6), Health Care (5).

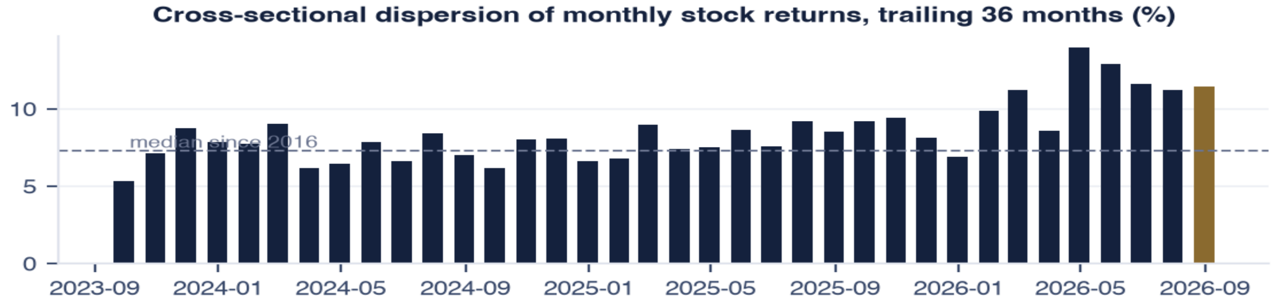
Spreads are gross of transaction costs. A negative twelve-month low-volatility spread indicates that the lowest-volatility decile underperformed the highest-volatility decile over the period; it is a description of the cross-section, not an evaluation of the factor.

Style and index ETF returns

Index / style ETF	1M	3M	YTD	12M
S&P 500 (SPY)	+2.7%	+1.7%	+13.1%	+20.2%
Nasdaq 100 (QQQ)	+4.2%	-2.8%	+17.0%	+26.3%
Russell 2000 (IWM)	+0.9%	+1.4%	+19.9%	+26.3%
Russell 1000 Value (IWD)	+2.0%	+8.3%	+23.0%	+29.5%
Russell 1000 Growth (IWF)	+3.7%	-3.9%	+3.9%	+10.6%
MSCI USA Momentum (MTUM)	+0.3%	-4.8%	+20.2%	+24.1%
MSCI USA Min Vol (USMV)	+3.7%	+5.4%	+8.6%	+9.4%
MSCI USA Quality (QUAL)	+1.5%	+3.5%	+12.5%	+18.9%
MSCI USA Value (VLUE)	+5.4%	+2.1%	+48.6%	+71.7%
MSCI USA Size (SIZE)	+2.4%	+4.2%	+13.8%	+16.1%
20+Y Treasury (TLT)	+0.7%	-2.7%	-2.8%	-0.3%
Gold (GLD)	+9.9%	-2.1%	+3.1%	+28.4%

2. Cross-sectional dispersion

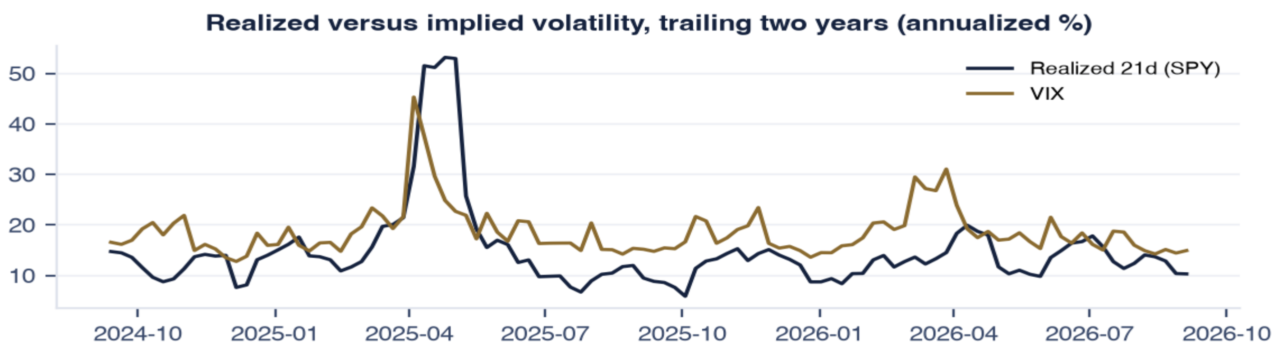
Cross-sectional dispersion of monthly stock returns was 11.5% (95th percentile since 2016; median 7.3%), a wide-dispersion month in which stock selection outcomes differed materially across the universe.



Dispersion measures how differently individual stocks moved within the month. High dispersion months are those in which security selection, whether deliberate or incidental, produced widely differing outcomes; low dispersion months are those in which most constituents moved together with the index.

3. Volatility regime

Realized 21-day volatility of the S&P 500 ETF ended the month at 10.3% (annualized), in the 35th percentile of observations since 2016, a regime classified as **normal**. Implied volatility (VIX) closed at 14.9 against a three-month reading of 20.5, a term slope of +5.6 points; implied exceeded realized by 4.6 points.



Measure	Value	Percentile since 2016
Realized 21-day volatility (SPY, ann.)	10.3%	35th
Realized 63-day volatility (SPY, ann.)	13.7%	—
VIX (close)	14.9	34th
VIX 3M (close)	20.5	—
Term slope (VIX3M – VIX)	+5.6	—
Implied minus realized	+4.6	—
Regime classification	Normal	quartile-based

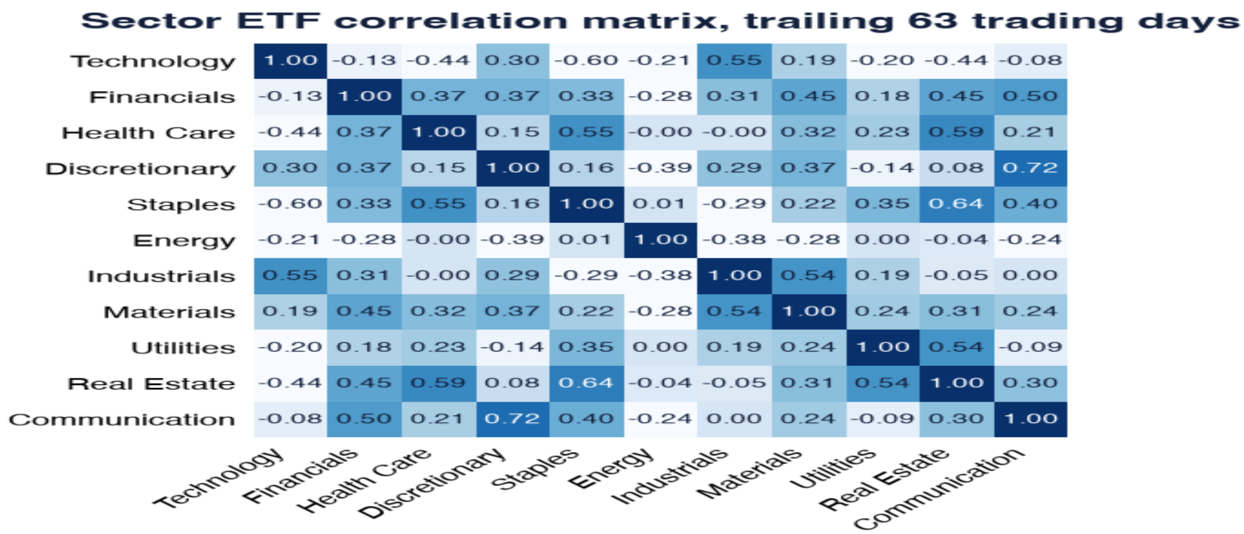
Historical analogues

Month-ends since 2016 whose realized-volatility and dispersion percentiles were closest to the current month. The subsequent index return is shown as a historical record; five observations do not support inference about the coming quarter.

Analogue month (similar realized-vol and dispersion percentiles)	S&P 500 ETF return over following 3 months
May 2026	+1.7%
Jan 2026	+4.1%
Nov 2016	+7.9%
Apr 2026	+3.5%
Jun 2023	-3.2%

4. Correlation structure

Average pairwise correlation across the eleven sector ETFs over the trailing 63 trading days was 0.13, against 0.32 in the prior window; average pairwise correlation among constituent stocks was 0.10 against 0.14.



Cross-asset correlations

Pair (63d daily)	Current	Prior window	Change
SPY / TLT	0.32	0.55	-0.23
SPY / LQD	0.51	0.72	-0.21
SPY / HYG	0.81	0.86	-0.05
SPY / GLD	0.48	0.53	-0.05
SPY / IWM	0.79	0.90	-0.11
TLT / GLD	0.17	0.33	-0.16

Sector returns

Sector ETF	1M	3M	12M
Energy (XLE)	+7.4%	+14.4%	+45.9%
Technology (XLK)	+6.4%	-2.2%	+42.9%
Health Care (XLV)	+4.9%	+14.6%	+26.3%
Materials (XLB)	+4.5%	+3.4%	+16.3%
Communication (XLC)	+3.0%	-3.4%	+1.3%
Financials (XLF)	+1.4%	+12.3%	+8.5%
Cons. Discretionary (XLY)	+0.4%	-3.3%	+1.4%
Cons. Staples (XLP)	-0.1%	+3.2%	+8.1%
Real Estate (XLRE)	-2.1%	+1.2%	+7.8%
Industrials (XLI)	-2.6%	+1.4%	+16.7%
Utilities (XLU)	-4.8%	-4.3%	+3.0%

5. Screening output

Constituents in the top and bottom deciles of each factor as of 2026-08-31, with the underlying metric. This is a listing of where securities sit in the cross-section on each measure; it expresses no view on any security. Full decile membership is available in the accompanying data file.

Momentum — screening output (48 names per decile; 15 shown)

Top decile (highest score)	Sector	12-1M return	z	Bottom decile (lowest score)	Sector	12-1M return	z
LITE · Lumentum	Information Te	+458.9%	+5.24	BSX · Boston Scientific	Health Care	-55.6%	-1.48
WDC · Western Digital	Information Te	+527.7%	+5.24	BLDR · Builders FirstSource	Industrials	-52.3%	-1.48
CIEN · Ciena	Information Te	+288.8%	+5.24	CSGP · CoStar Group	Real Estate	-66.4%	-1.48
MU · Micron Technology	Information Te	+480.7%	+5.24	TTD · Trade Desk (The)	Communication	-66.7%	-1.48
STX · Seagate Technology	Information Te	+395.5%	+5.24	FISV · Fiserv	Financials	-60.1%	-1.48
INTC · Intel	Information Te	+259.4%	+5.13	PODD · Insulet Corporation	Health Care	-51.0%	-1.47
DELL · Dell Technologies	Information Te	+225.2%	+4.40	INTU · Intuit	Information Te	-49.6%	-1.44
AMAT · Applied Materials	Information Te	+201.4%	+3.89	ZTS · Zoetis	Health Care	-48.9%	-1.43
COHR · Coherent Corp.	Information Te	+187.7%	+3.60	TSCO · Tractor Supply	Consumer Discr	-46.2%	-1.37
TER · Teradyne	Information Te	+187.2%	+3.59	CHTR · Charter Communicatio	Communication	-45.0%	-1.35
MRVL · Marvell Technology	Information Te	+181.8%	+3.48	NKE · Nike, Inc.	Consumer Discr	-44.9%	-1.35
LRCX · Lam Research	Information Te	+178.4%	+3.40	PSKY · Paramount Skydance C	Communication	-44.5%	-1.34
AMD · Advanced Micro Devic	Information Te	+171.6%	+3.26	TYL · Tyler Technologies	Information Te	-43.9%	-1.32
FIX · Comfort Systems USA	Industrials	+139.1%	+2.57	GDDY · GoDaddy	Information Te	-43.3%	-1.31
MRNA · Moderna	Health Care	+126.8%	+2.31	ORCL · Oracle Corporation	Information Te	-42.2%	-1.29

Low volatility — screening output (48 names per decile; 15 shown)

Top decile (highest score)	Sector	Realized vol (ann.)	z	Bottom decile (lowest score)	Sector	Realized vol (ann.)	z
BRK-B · Berkshire Hathaway	Financials	+14.6%	+1.38	SMCI · Supermicro	Information Te	+91.4%	-3.59
REG · Regency Centers	Real Estate	+15.9%	+1.38	MRNA · Moderna	Health Care	+192.6%	-3.59
DUK · Duke Energy	Utilities	+16.0%	+1.38	WDC · Western Digital	Information Te	+80.0%	-3.59

Top decile (highest score)	Sector	Realized vol (ann.)	z	Bottom decile (lowest score)	Sector	Realized vol (ann.)	z
ATO · Atmos Energy	Utilities	+15.7%	+1.38	COHR · Coherent Corp.	Information Te	+84.5%	-3.59
FE · FirstEnergy	Utilities	+16.0%	+1.38	LITE · Lumentum	Information Te	+96.8%	-3.59
WEC · WEC Energy Group	Utilities	+16.1%	+1.38	MU · Micron Technology	Information Te	+79.5%	-3.59
EVRG · Evergy	Utilities	+16.2%	+1.38	INTC · Intel	Information Te	+79.0%	-3.55
O · Realty Income	Real Estate	+16.3%	+1.37	MRVL · Marvell Technology	Information Te	+78.7%	-3.52
L · Loews Corporation	Financials	+16.4%	+1.36	TER · Teradyne	Information Te	+75.6%	-3.28
LNT · Alliant Energy	Utilities	+16.4%	+1.36	STX · Seagate Technology	Information Te	+74.4%	-3.19
FRT · Federal Realty Inves	Real Estate	+16.5%	+1.35	CIEN · Ciena	Information Te	+74.2%	-3.17
PNW · Pinnacle West Capita	Utilities	+16.7%	+1.34	DELL · Dell Technologies	Information Te	+71.8%	-2.98
DTE · DTE Energy	Utilities	+17.1%	+1.31	AMD · Advanced Micro Devic	Information Te	+71.5%	-2.96
ED · Consolidated Edison	Utilities	+17.1%	+1.31	GLW · Corning Inc.	Information Te	+70.4%	-2.87
CMS · CMS Energy	Utilities	+17.2%	+1.30	FLEX · Flex Ltd.	Information Te	+68.0%	-2.68

Size (small minus big) — screening output (48 names per decile; 15 shown)

Top decile (highest score)	Sector	Market cap	z	Bottom decile (lowest score)	Sector	Market cap	z
TAP · Molson Coors Beverag	Consumer Stapl	$7.4B	+1.64	GOOG · Alphabet Inc. (Class	Communication	$4,099.4B	-3.51
MOS · Mosaic Company (The)	Materials	$7.7B	+1.64	NVDA · Nvidia	Information Te	$5,331.2B	-3.51
NCLH · Norwegian Cruise Lin	Consumer Discr	$7.4B	+1.64	MSFT · Microsoft	Information Te	$3,766.9B	-3.51
BLDR · Builders FirstSource	Industrials	$7.1B	+1.64	GOOGL · Alphabet Inc. (Class	Communication	$4,147.6B	-3.51
TTD · Trade Desk (The)	Communication	$6.4B	+1.64	AAPL · Apple Inc.	Information Te	$4,624.2B	-3.51
AOS · A. O. Smith	Industrials	$8.0B	+1.63	AMZN · Amazon	Consumer Discr	$2,802.0B	-3.46
ARE · Alexandria Real Esta	Real Estate	$8.8B	+1.55	AVGO · Broadcom	Information Te	$1,761.9B	-3.06
APTV · Aptiv	Consumer Discr	$9.3B	+1.50	META · Meta Platforms	Communication	$1,458.0B	-2.89
WYNN · Wynn Resorts	Consumer Discr	$9.4B	+1.49	TSLA · Tesla, Inc.	Consumer Discr	$1,453.2B	-2.89

Top decile (highest score)	Sector	Market cap	z	Bottom decile (lowest score)	Sector	Market cap	z
PNR · Pentair	Industrials	$9.8B	+1.46	MU · Micron Technology	Information Te	$1,082.8B	-2.63
FRT · Federal Realty Inves	Real Estate	$10.0B	+1.44	BRK-B · Berkshire Hathaway	Financials	$1,079.0B	-2.63
UHS · Universal Health Ser	Health Care	$10.0B	+1.44	LLY · Lilly (Eli)	Health Care	$1,031.5B	-2.59
SWKS · Skyworks Solutions	Information Te	$10.1B	+1.43	JPM · JPMorgan Chase	Financials	$946.4B	-2.52
HSIC · Henry Schein	Health Care	$10.2B	+1.42	WMT · Walmart	Consumer Stapl	$832.0B	-2.40
PODD · Insulet Corporation	Health Care	$10.3B	+1.41	AMD · Advanced Micro Devic	Information Te	$768.4B	-2.34

Short-horizon reversal — screening output (48 names per decile; 15 shown)

Top decile (highest score)	Sector	1M return	z	Bottom decile (lowest score)	Sector	1M return	z
EIX · Edison International	Utilities	-26.4%	+2.38	MRNA · Moderna	Health Care	+156.0%	-3.57
APTV · Aptiv	Consumer Discr	-20.7%	+2.38	VEEV · Veeva Systems	Health Care	+40.2%	-3.57
TTD · Trade Desk (The)	Communication	-23.9%	+2.38	NEM · Newmont	Materials	+34.5%	-3.57
DVA · DaVita	Health Care	-26.7%	+2.38	CRM · Salesforce	Information Te	+40.0%	-3.57
PCG · PG&E Corporation	Utilities	-23.6%	+2.38	PSKY · Paramount Skydance C	Communication	+37.1%	-3.57
TPR · Tapestry, Inc.	Consumer Discr	-19.0%	+2.34	NOW · ServiceNow	Information Te	+33.0%	-3.53
NRG · NRG Energy	Utilities	-17.7%	+2.19	SMCI · Supermicro	Information Te	+31.3%	-3.33
WDC · Western Digital	Information Te	-17.3%	+2.15	IT · Gartner	Information Te	+31.2%	-3.32
RCL · Royal Caribbean Grou	Consumer Discr	-15.6%	+1.95	LITE · Lumentum	Information Te	+28.1%	-2.98
TJX · TJX Companies	Consumer Discr	-14.6%	+1.84	CRL · Charles River Labora	Health Care	+24.0%	-2.51
LUV · Southwest Airlines	Industrials	-14.3%	+1.81	WDAY · Workday, Inc.	Information Te	+23.1%	-2.42
CCL · Carnival Corporation	Consumer Discr	-13.6%	+1.73	EL · Estée Lauder Compani	Consumer Stapl	+22.3%	-2.33
CASY · Casey's	Consumer Stapl	-13.6%	+1.73	LDOS · Leidos	Industrials	+21.3%	-2.21
HWM · Howmet Aerospace	Industrials	-13.2%	+1.68	SLB · Schlumberger	Energy	+21.2%	-2.20
NCLH · Norwegian Cruise Lin	Consumer Discr	-12.9%	+1.65	CRWD · CrowdStrike	Information Te	+21.0%	-2.18

Appendix A. Methodology

Factor	Definition (library v0.1)	Lookback
Momentum	Total return from month-end t-12 to month-end t-1 (skips the most recent month)	252d
Low volatility	Negative of annualized standard deviation of daily returns over trailing 252 trading days	252d
Size (small minus big)	Negative log market capitalization (current shares x month-end price; demo approximation)	spot
Short-horizon reversal	Negative of trailing 21-trading-day total return	21d

Construction. Scores are computed at each month-end using only data available on that date, winsorized at the 1st/99th percentile and z-scored within the universe. Missing data are excluded, never imputed. Decile portfolios are equal-weighted, formed on month-end scores and held one month. The long-short spread is the top decile minus the bottom decile. Dispersion is the cross-sectional standard deviation of constituent monthly returns. Realized volatility is the annualized standard deviation of daily S&P 500 ETF returns over 21 and 63 trading days. Correlations are Pearson correlations of daily returns over 63 trading days.

Validation summary (full record available to Professional and Enterprise subscribers)

Factor	Fama-MacBeth t (univariate)	IR full sample	IR holdout	Net of 20 bps	Status
Momentum	0.50	-0.02	0.61	-3.0%	Reported as risk descriptor
Low volatility	-3.11	-1.01	-1.19	-27.6%	Reported as risk descriptor
Size (small minus big)	3.03	1.27	0.44	+15.4%	Published (return factor)
Short-horizon reversal	-0.12	-0.09	-0.79	-9.5%	Reported as risk descriptor

Factors that do not meet the publication rule (t > 2, positive holdout IR, positive net-of-cost spread) are still computed and reported above as descriptive characteristics of the cross-section; they are not presented as sources of return.

Benchmark cross-validation. The in-house momentum decile spread has a monthly correlation of 0.90 with the UMD series published in the Kenneth R. French Data Library over 126 months (2016-02 to 2026-07); the size spread correlates at 0.60 with SMB. Any reader can reproduce the comparison from the public series.

Demo build. Data: Yahoo Finance via yfinance; universe = current S&P 500 constituents; market capitalization approximated as current shares outstanding x historical price. The production engine uses licensed point-in-time data with survivorship-free index membership and as-reported share counts. Results in this build are therefore subject to survivorship bias and are presented to demonstrate methodology and format, not as validated production output.

Data source: Yahoo Finance via yfinance (demo build). Prices as of 2026-09-04. Build 2026-09-08 15:23; rendered 2026-09-13 14:17.

Appendix B. Governance record

Item	Value
Product	Core — Monthly Quantitative Market Review
Issue	September 2026
Data through	2026-08-31
Library version	0.1 (demo build)
Prepared by	Marnello LLC — pre-launch prototype, produced under the direction of the Manager
Reviewed and approved for release	Jingchang Song, Manager · 2026-09-10