The Hidden Risk of Diversification

Liquidity, Risk Regimes and Portfolio Construction

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Abstract

Understanding how investments respond to different risk environments provides a practical foundation for building more balanced portfolios. Full-sample returns, correlations and strategy labels can conceal shared dependence on favorable risk appetite and liquidity. Regime-conditioned analysis reveals these vulnerabilities and identifies complementary return sources, allowing allocations to be assessed for their behavior across environments as well as their overall return, volatility and drawdown. This paper applies that framework using the Conquest Risk Aversion Index, conditional return comparisons, correlations and separate measures of market liquidity and funding stress. Twenty-six of 49 monthly return records meet a 5% Holm familywise threshold for regime mean differences. Twenty-five have weaker risk-averse returns; Short Bias has the opposing profile. Equity- and credit-oriented hedge-fund groups exhibit substantial common exposure in both states, and liquidity deterioration is associated with more widespread losses among long-risk investments. Conquest QM, examined as a descriptive portfolio-construction case, combines positive average returns in both risk environments with more negative equity correlation during equity-loss months. Over January 2007-September 2026, a fixed equal-capital combination of equities and Conquest QM has lower observed volatility and drawdown than either component, with compound growth between the two component results. This illustrates the value of evaluating investments by the role they play together, rather than in isolation. The framework supports deliberate balancing of economic exposures and makes the tradeoffs involved in seeking more consistent performance across risk environments explicit.

Keywords: risk appetite; liquidity; market regimes; hedge funds; portfolio construction

1 Introduction

The central portfolio risk is that apparently different allocations depend on the same favorable financing and trading conditions. Public equity, equity-linked hedge funds and credit strategies hold different instruments, but a withdrawal of risk-bearing capacity can impair several of them together. Shared exposure may already be substantial in benign conditions and become more consequential when losses, funding constraints and forced sales interact. Counting asset-class or manager labels does not measure that vulnerability.

We examine three related questions. Which strategies have different contemporaneous returns across risk-averse and risk-seeking environments? Where do correlations reveal common or complementary exposures? How do returns differ when market liquidity or funding conditions deteriorate? These questions use distinct statistical tests: a regime-return difference, a change in co-movement and a liquidity-conditioned return comparison are not interchangeable evidence.

The paper uses public equity as the principal investor reference, alongside fixed income, commodities and a broad hedge-fund and managed-futures inventory. The main monthly performance discussion selects only records meeting a stated familywise test. The appendices form part of this paper: Appendix A contains the complete correlation comparisons, Appendix B the full monthly test universe and supplementary portfolio results, and Appendix C both complete quarterly test families. The main text presents the central evidence and interpretation. Private-market evidence is considered at the frequency and investment level actually measured. Conquest QM supplies a separately identified portfolio-construction case, with its design evolution and fixed equity combination assessed on consistent dates.

The liquidity mechanism

Market liquidity is the ability to trade without a large price concession. Funding liquidity is the ability to finance positions and meet collateral demands. Brunnermeier and Pedersen (2009) show how the two can reinforce each other: a funding constraint can reduce intermediaries' capacity to absorb sales, while less liquid markets can increase financing pressure. The resulting feedback can transmit stress across positions that share financiers or balance-sheet capacity.[1]

The mechanism has empirical support in several investment settings. Boyson, Stahel and Stulz (2010) associate large adverse liquidity shocks with clustered worst returns across hedge-fund styles. Franzoni, Nowak and Phalippou (2012) find private-equity exposure to common liquidity risk and evidence of a funding channel. These studies motivate looking beneath strategy labels; their estimates are not imported as results for the present sample.[2]

Private-asset reporting adds a measurement problem. Ang, Chen, Goetzmann and Phalippou (2018) find that cash-flow-inferred private-equity and venture-capital returns are more volatile and less serially dependent than industry indexes, consistent with partial adjustment in reported valuations. Reported co-movement may therefore understate contemporaneous economic exposure. This is a reason to distinguish observed NAV returns, estimated economic returns and public-market proxies, rather than to assume that every private asset has the same liquidity sensitivity.[3]

The empirical design tests associations consistent with this mechanism. It does not require liquidity stress to occur before price declines, and it does not presume that correlations were low before stress. The portfolio question is whether shared losses and financing sensitivity make an allocation less diversifying than its label suggests, and whether a different return source improves the resulting exposure profile.

2 Data and methods

2.1 The risk environment index

The economic starting point is the compensation investors demand for bearing uncertainty, default exposure and less liquid positions. Market prices contain information about those conditions, but they do not identify investor risk preferences in isolation. Expected losses, funding constraints, policy and the supply of securities can also move spreads and option prices.[4]

The Conquest framework combines several observable prices rather than relying on the return of a single asset. This reduces dependence on one market, while preserving the need to understand what each input measures.

[1] Brunnermeier and Pedersen (2009), Market Liquidity and Funding Liquidity, Review of Financial Studies 22, 2201-2238. https://doi.org/10.1093/rfs/hhn098

[2] Boyson, Stahel and Stulz (2010), Hedge Fund Contagion and Liquidity Shocks, Journal of Finance 65, 1789-1816. Franzoni, Nowak and Phalippou (2012), Private Equity Performance and Liquidity Risk, Journal of Finance 67, 2341-2373.

[3] Ang, Chen, Goetzmann and Phalippou (2018), Estimating Private Equity Returns from Limited Partner Cash Flows, Journal of Finance 73, 1751-1783. https://doi.org/10.1111/jofi.12688

[4] Federal Reserve, Financial Stability Report, May 2021, Asset Valuations: risk premiums are not directly observed, and asset prices reflect expected payoffs, interest rates and premiums. https://www.federalreserve.gov/publications/may-2021-asset-valuations.htm

Table 1 Published input groups and economic interpretation

Input group	Information represented	Other market influences
Swap spreads	Relative pricing of swaps and government bonds; funding and liquidity conditions	Balance-sheet capacity, collateral demand and Treasury supply also matter
Corporate credit spreads	Compensation for corporate credit exposure	Expected default losses and risk premiums are intertwined
Emerging-market bond spreads	Compensation for sovereign or regional credit and event exposure	Country mix and currency conventions affect interpretation
FX implied volatility	Market price of exchange-rate uncertainty	Option supply, hedging demand and expected volatility all contribute
Equity implied volatility	Market price of equity uncertainty	A contemporaneous relationship with equity returns is partly expected

Construction

The published methodology uses five groups of indicators: swap spreads, corporate credit spreads, emerging-market bond spreads, FX implied volatility and equity implied volatility. Each indicator is assessed relative to its own recent history. Under the published aggregation rule, at least two risk-averse components produce a risk-averse daily classification; otherwise the state is risk-seeking.[5]

Conquest uses the daily risk index for portfolio-management regime switching. The monthly classifications used in this paper aggregate those daily states to match the monthly return histories available for the cross-strategy analysis, including the HFR indices. The main S&P 500 comparison also uses monthly observations for consistency across investments.

The binary construction provides a common state variable across markets and strategies. A month is risk-averse when at least half of its stored daily classifications are risk-averse; exact ties are assigned risk-averse. Monthly return comparisons use those supplied labels directly, matched by calendar month.[6]

Swap spreads require particular care over a long sample. Their behavior reflects intermediary balance-sheet capacity and Treasury financing as well as liquidity and credit conditions. The economic interpretation of a spread therefore cannot be held fixed merely because its market label is unchanged.[7]

The index is binary. A risk-averse observation classifies the market environment; it does not quantify the size of an asset return or potential loss. Risk-seeking observations can include substantial negative asset returns.

2.2 Samples and return measures

The main state sample contains 357 completed months from January 1997 through September 2026. All comparisons use the same classification dataset. Same-month return panels measure conditional exposures across the two risk environments. Each comparison retains its stated complete window, and the provisional October 2026 state is excluded.[8]

[5] Conquest Risk Aversion Paper, September 2013 Update, page 8, describes the five-input architecture.

[6] Current upstream daily_risk_index.xlsm, Simple!S2:X358, verifies the aggregation rule and exactly reproduces all 357 completed monthly calculator labels. Its column V is the negative share of risk-averse days, not a continuous risk-level composite.

[7] Federal Reserve Bank of New York, Understanding the Inconvenience of US Treasury Bonds, February 6, 2023. https://libertystreeteconomics.newyorkfed.org/2023/02/understanding-the-inconvenience-of-u-s-treasury-bonds/

[8] Risk_Aversion_Calculator .xlsm: monthly!R2:S358 contains completed dates and classifications. Stored coding is -1 risk-averse and +1 risk-seeking. The supplied labels are applied directly, with completed months matched by calendar date.

Table 2 Analytical samples

Analysis	Frequency and sample	Interpretation
Index dynamics	Jan 1997-Sep 2026; 357 months	Stored monthly states; daily frequency sensitivity
Monthly performance screen	49 records; each native complete window	26 meet Holm 5%; full windows and counts in Appendix B
Conquest QM focal case	May 1999-Sep 2026; 329 months	Descriptive full-history case outside the selected benchmark set
Fixed portfolio comparison	Jan 2007-Sep 2026; 237 months	Unoptimized equal-capital equity-Conquest QM blend; other blends in appendix
Monthly sign-conditioned correlations	56 comparisons; row-specific Conquest QM overlap	Positive and negative comparator months; complete Appendix A
Liquidity and loss concentration	PS through 2025; OFR through Sep 2026; panel-specific starts	Matched same-month comparisons; onset and breadth windows stated separately
Private direct lending	2004 Q4-2026 Q2; 87 quarters	Native quarterly CDLI; separate exposure tests and Conquest QM correlation

Measurement conventions

RA means risk-averse, RS risk-seeking, TR total return and pp percentage points. CAGR is compounded annual growth rate. Differences are calculated before rounding.

The conditional mean is the arithmetic average of returns assigned to a regime. Conditional volatility is the population standard deviation of those observations, matching the calculator. A difference is reported as the risk-averse mean minus the risk-seeking mean, in percentage points. A positive difference means that the historical average was higher in risk-averse months; it does not mean that every such month was profitable.

Where shown, the annualized mean-to-volatility ratio equals the monthly mean divided by monthly volatility, multiplied by the square root of 12. It has no risk-free or benchmark deduction and is not a conventional Sharpe ratio or benchmark-relative Information Ratio. Annualization is a reporting convention; serial dependence can make simple square-root scaling a poor description of annual investment risk.

Arithmetic averages and sums do not describe compounded wealth. Missing values and stale padding are excluded rather than turned into zero returns. Different currencies, fee bases, leverage, collateral treatment and index composition can change a comparison and are retained in the source notes.

Portfolio comparisons

Fixed portfolio combinations show how different exposures change a portfolio’s historical return profile. The illustrative blends use unoptimized 50/50 capital weights and monthly rebalancing. Their conditional returns, compounded growth, volatility and drawdown describe the tradeoffs of combining the supplied return streams. Source overlap and statistical uncertainty are addressed in the methods section.

Conquest QM and RC are compared using their supplied net return series, with no historical volatility rescaling. Both are net of 2% management and 20% incentive fees. Conquest QM targeted 15% annual volatility before 2022 and 10% thereafter; RC targeted 10% throughout.[9]

[9] The Conquest QM and Conquest RC return histories follow the performance conventions described in Conquest’s September 2026 strategy materials.

2.3 Statistical inference and portfolio measures

Index construction and dynamics

The analysis uses the supplied binary classifications and published five-input architecture. Proprietary input normalization and thresholds are not reproduced. The risk-averse indicator is coded 1 and risk-seeking 0; this affine recoding preserves correlations relative to the stored -1/+1 values.

Lag-h estimates are pairwise Pearson correlations of states h completed months apart. Global-mean sample autocorrelations provide a sensitivity: the lag-1 estimate is 0.399 under that convention, compared with the reported 0.401. Inference uses influence-function Newey-West heteroskedasticity and autocorrelation consistent (HAC) standard errors with Bartlett weights. The monthly bandwidth is max(12,h), with max(24,h) sensitivity; intervals are pointwise 95% normal approximations. Only two lags survive Holm adjustment across the eight specified horizons. A stationary block-bootstrap check also supports short-lag persistence.

Transition frequencies divide each state-to-state count by its starting-state count with an observed successor; their intervals use ratio-estimator influence functions. Spell durations exclude the first and last spells. The 2009 comparison regresses the monthly indicator on a post-2008 indicator, with 12- and 24-month HAC bandwidths. Failure to reject a difference does not establish a constant mean or structural stability.

Daily frequency sensitivity

The daily lookup contains 7,739 observations from January 2, 1997 through September 30, 2026. Successive-state correlation is 0.780 daily versus 0.401 monthly. The daily series follows the stored observation calendar; a lag is not assumed to equal an exchange trading day. These frequencies characterize state persistence, without making daily return-performance claims.

Matched daily and monthly equity price returns

A separate S&P 500 frequency supplement holds the return source and sample period constant. Simple daily price returns exclude dividends; monthly price returns compound those same daily observations. Same-date daily labels and the supplied monthly majority labels provide contemporaneous groupings. Prior-dated labels provide timing sensitivities, with no assumption of verified intraday availability. This supplement uses sample standard deviations and paired chronological block inference, as detailed in Appendix D; it is separate from the primary 49-record monthly performance screen.

Return panels and source controls

Mean-return differences are estimated by chronological OLS of return on an intercept and a same-month risk-averse indicator, with a 12-month Bartlett Newey-West bandwidth, n/(n-2) covariance scaling and a Student-t reference with n-2 degrees of freedom. The main performance results require a two-sided Holm-adjusted p-value below 0.05 across all 49 distinct primitive return records: 47 benchmarks, Conquest QM and RC. The family and threshold were fixed before the new eligibility calculations. Failed tests remain in the adjustment family and in Appendix B.

The screen applies to the risk-averse minus risk-seeking arithmetic mean return. It does not screen correlations, volatility, investment quality or fixed portfolio illustrations. Each test uses its series' longest complete eligible history; the means, interval and p-value shown together always refer to exactly that window. Five alternate commodity archives and three synthetic blends are excluded from the primary family. Alternate archives remain separate source comparisons in Appendix A; blends are portfolio illustrations rather than independent strategy tests.

Unadjusted 95% HAC intervals describe effect precision; the Holm-adjusted p-value determines inclusion in the main performance tables. Secondary checks use Benjamini-Hochberg adjustment and 10,000 paired chronological circular-block draws with six- and 12-month block lengths. Neither replaces the primary threshold. All primary estimates retain the eligible stress-period observations. Omitting calendar 2008-2009 and 2020 provides a

separate descriptive sensitivity to assess their influence; it does not replace the full-sample result. Failing the screen does not establish equality between regimes. Inference does not incorporate classification-estimation or reporting-selection uncertainty.

Matched multi-series comparisons use identical complete calendar windows; individual eligibility tests retain their stated native histories. Missing or stale observations are not filled with zeros. HFRI and HFRX remain separate; commodity price, excess-return and total-return measures retain their identities. Fund reporting selection, backfill, valuation smoothing and changing constituents affect comparisons. Both Conquest strategies use the index internally, so their profiles are not independent validation of the classifier.

Fixed portfolio measures

Illustrative portfolios rebalance monthly to 50/50 capital weights. Portfolio return is the weighted sum of component simple returns. CAGR compounds and annualizes that path; annual volatility is monthly population SD multiplied by the square root of 12. Drawdown includes initial wealth and is measured at month ends. Source strategy fees are embedded; no extra portfolio trading costs, taxes or fee waterfall are deducted.

No volatility rescaling is imposed. RC expressly includes cash interest and assumes full funding; that convention is not separately asserted for Conquest QM. Public indexes exclude investor wrapper expenses. Conquest QM-RC blends partly reweight overlapping models. The portfolios are unoptimized illustrations of the supplied histories.

2.4 Conditional correlations

For each comparator B, Pearson correlation with Conquest QM is computed over all matched months, months with $B > 0$ and months with $B < 0$. Both series are recentered within each subset. Zero-return months enter the full sample only. Correlations are reported with Conquest QM conditional means because co-movement and return levels measure different aspects of diversification. Sign conditioning restricts the benchmark range and changes its variance; a difference in correlation alone does not identify a change in structural beta or an option-like payoff.

Sign-conditioned intervals use 10,000 paired chronological circular moving-block resamples of Conquest QM and comparator returns, with 12-month blocks and six-month sensitivity. Sign membership is recomputed in each draw. Intervals are pointwise 95% percentiles. Exploratory centered-bootstrap tests compare the absolute resampled difference minus its estimate with the absolute observed difference, using an add-one correction. Benjamini-Hochberg and Holm adjustments cover all 56 comparisons separately for each block length. These approximate tests and their dependence assumptions warrant restraint in interpreting adjusted significance.

Crisis sensitivity excludes calendar 2008-2009 and 2020, separately and jointly, and reports point estimates. The separate RA/RS correlation analysis keeps paired returns and regime labels together in 6,000 circular-block draws, using the same six- and 12-month block lengths. Its intervals are exploratory and unadjusted. No missing returns are filled and no source histories are spliced.

2.5 Liquidity and common exposure tests

Market liquidity uses the non-traded Pástor-Stambaugh level and innovation, not the traded liquidity-factor portfolio. Funding conditions use only the Funding contribution to the OFR Financial Stress Index, aggregated to the mean of observed daily readings in each completed month. Higher PS values mean better liquidity; higher OFR contributions mean more funding stress. Neither measure is a return percentage or a pure independent instrument for the risk environment.[10]

The same-month liquidity comparisons distinguish worsening changes, extreme changes and adverse levels. Quantile thresholds are calculated over each full matched sample and remain fixed when stress years are excluded. The conditions are descriptive sample groupings. HAC inference uses the complete chronological grid,

[10] Pástor and Stambaugh (2003), Liquidity Risk and Expected Stock Returns, Journal of Political Economy 111, 642-685; author data through December 2025. OFR Financial Stress Index Funding category through September 2026. OFR replaced seven LIBOR/EONIA-based inputs in 2023. Official sources and methodology are listed in the references.

12 Bartlett lags and the same finite-sample conventions as above. The separate liquidity study retains 420 primary mean-and-slope tests for BH adjustment, with Benjamini-Yekutieli adjustment as a dependence-sensitive check. No adjustment is recomputed only on the displayed rows. This family is distinct from the 49-test regime-return screen.

Correlation-change tests retain paired returns and regime labels in chronological circular blocks. The complete primitive inventory contains 1,176 pairs. Pairwise multiplicity adjustments are applied separately to signed and absolute-strength changes and to each block length. Group uncertainty resamples each entire multivariate panel, recomputes its correlations and then averages them. The supplementary within-class comparison uses a separate six-group adjustment. A sign change, stronger absolute association and shared losses answer different economic questions.

2.6 Native quarterly private credit analysis

The quarterly analysis preserves all three monthly returns when compounding public and Conquest QM series, and uses the fraction of RA-labeled months as a continuous exposure. The primary six-series fractional-exposure family and secondary six-series majority-state family are adjusted separately with Holm. Both use four-quarter Bartlett HAC, n/(n-2) scaling and Student-t reference. Paired circular resampling uses two- and four-quarter blocks with 10,000 draws; majority resamples without any RA quarter are excluded rather than filled. Pure-state comparisons have only three all-RA quarters and remain descriptive. Calendar-quarter economic dates are not assumed to be publication dates; valuation-lag checks do not remove smoothing or establish causal order.

2.7 Event ordering and loss concentration

Event definitions and tests were fixed before these calculations within exploratory research. A monthly RA onset follows three RS months, with retained onsets at least seven months apart. The sequence window is one month on either side; sparse onset counts remain descriptive. The separate loss-breadth study uses adverse shocks above an expanding 75th percentile calculated only from earlier observations, requiring 60 prior readings. These shock flags differ from the full-sample deciles used in Section 3.12.

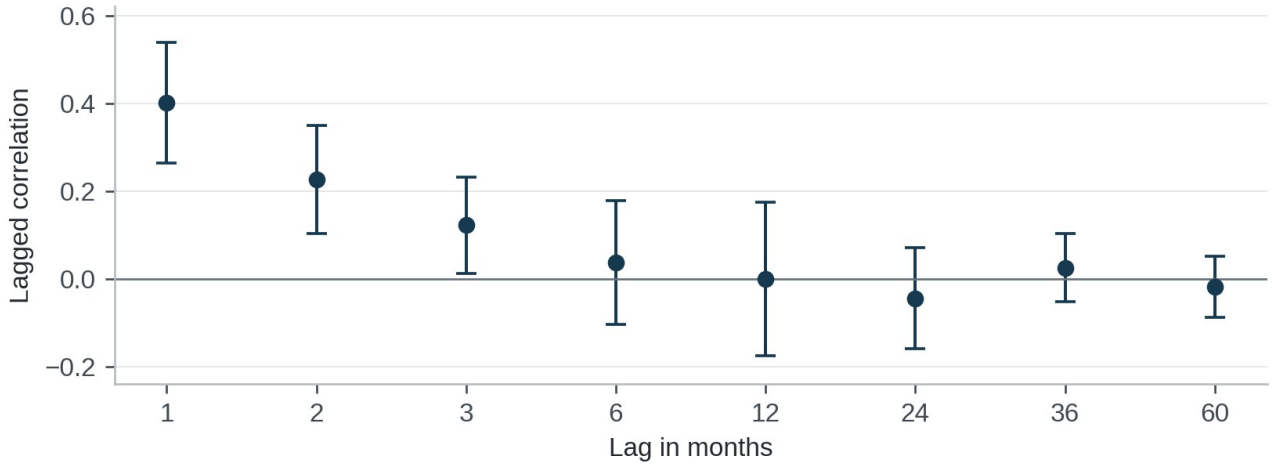
For loss breadth, all-negative frequency and at-least-75%-negative frequency, 20,000 joint circular moving-block draws preserve monthly returns, states and shock flags together. Twelve-month blocks are primary, with six-month sensitivity. The 18-contrast Holm family comprises two panels, three outcomes and three comparisons: RA versus RS, PS shock versus nonshock, and OFR shock versus nonshock. Intervals are pointwise percentiles and centered-bootstrap tests are approximate. Calendar-year exclusions are descriptive and do not concatenate gaps for new inference. Monthly timestamps, proxy construction and reporting delays limit causal sequencing; OFR observations are released with a two-business-day lag.

3 Results

3.1 Short horizon persistence

Risk-averse months occur in clusters. Over January 1997-September 2026, 70 of 357 months are classified as risk-averse, a share of 19.6%. The one-month lagged correlation is 0.401 and the two-month correlation is 0.227. Their dependence-aware 95% intervals are 0.264-0.538 and 0.103-0.350, respectively.

Figure 1 Monthly state correlation at selected lags



January 1997-September 2026. Points are pairwise lagged correlations; bars are pointwise 95% Newey-West HAC intervals. Correlation is unchanged by recoding the two states. Only lags 1 and 2 remain significant at 5% after Holm adjustment across the eight specified lags. The plotted lags are selected horizons, not equally spaced calendar intervals.

Table 3 Classification frequencies in adjacent months

First month state	Adjacent pairs	Following month risk-averse	Following month risk-seeking
Risk-averse	70	36 | 51.4%	34 | 48.6%
Risk-seeking	286	33 | 11.5%	253 | 88.5%

The conditional risk-averse frequencies differ by 39.9 percentage points, with a dependence-aware 95% interval of 26.2-53.6 points. Regimes cluster, but transitions remain common: 34 of the 70 observed risk-averse starting months are followed by a risk-seeking month.

Completed risk-averse spells have a median length of one month and a mean of two months. Completed risk-seeking spells have a median of six months. Endpoint spells are excluded from these duration summaries because their full lengths are not observed.

Inference uses pairwise Pearson correlations and influence-function Newey-West standard errors with Bartlett weights. Primary monthly bandwidth is max(12, lag), with max(24, lag) sensitivity checks. The tested lag family is 1, 2, 3, 6, 12, 24, 36 and 60 months. Transition intervals use ratio-estimator influence functions. See Section 2.3.[11]

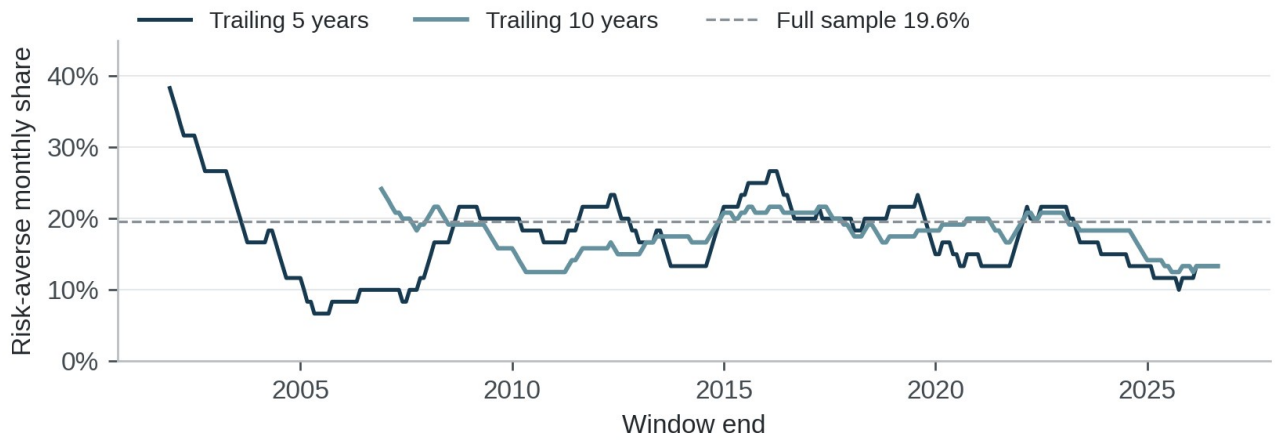
3.2 Long horizon behavior

Persistence and mean reversion describe different statistical properties. Persistence measures the association between classifications at nearby dates. For a binary index, longer-horizon convergence concerns whether state probabilities depend less on the starting state as the separation increases. This differs from a continuously measured price of risk returning to a fixed equilibrium; the empirical series analyzed here consists of binary classifications.

In the full monthly sample, lagged correlation declines to 0.037 at six months, approximately zero at twelve months and -0.045 at twenty-four months. The corresponding intervals include zero. These observations support limited state dependence at those horizons; they neither establish independence at all horizons nor demonstrate a stable long-run equilibrium.

[11] Recomputed from the current monthly classification series, January 1997-September 2026. There are 356 adjacent pairs; the final September observation has no next month in the completed sample. The first and final regime spells are censored; 33 completed interior spells remain for each state.

Figure 2 The frequency of risk aversion over rolling windows



Shares of completed monthly classifications. Each plotted window overlaps the next, so the points are not independent observations. The horizontal line is the full-sample share, a descriptive reference rather than an estimated equilibrium.

Table 4 Regime frequency and one month persistence by period

Period	Months	Risk-averse share	Lag 1 correlation
Jan 1997-Dec 2008	144	38 | 26.4%	0.512
Jan 2009-Sep 2026	213	32 | 15.0%	0.264
Jan 1997-Sep 2026	357	70 | 19.6%	0.401

The risk-averse share is 11.4 percentage points lower in the period beginning in 2009. A serial-dependence-adjusted test yields a 95% interval of -25.5 to +2.8 points for that change ($p = 0.115$); a wider bandwidth gives $p = 0.172$. This is a descriptive split around the global financial crisis, without a causal attribution.

The main statistical feature is short-run persistence: adjacent and two-month-separated states are positively associated, while estimated state correlation is small at six, twelve and twenty-four months. These results characterize the observed clustering of risk environments. They do not identify a fixed long-run equilibrium; that stronger mean-reversion hypothesis would require stable state probabilities or an appropriate continuous risk measure.

3.3 Performance differences meeting the primary screen

Twenty-six of the 49 distinct return records meet the two-sided 5% Holm familywise threshold. Twenty-five have lower mean returns in risk-averse months; the HFRX Short Bias index has a higher mean. The following tables contain the qualifying records only. Appendix B reports all 49 tests, including the 23 that do not meet the threshold, so the selected findings are not presented as a property of the entire investment universe.

The 23 records outside the screen include the US Aggregate bond index, broad commodities and the other commodity sectors, REITs, the managed-futures indexes and several hedge-fund categories. Conquest QM and RC also fail the familywise threshold. These results limit the breadth of the finding: the selected pattern is not a conclusion about every major asset class, and a failed test does not establish identical returns across environments.

All 26 qualifying effects also retain their direction with percentile intervals excluding zero under both six- and 12-month block resampling. This stability check supports the reported associations within the supplied histories. It does not make categories with shared holdings or sources independent observations.

Public equities and industrial metals

Table 5 Qualifying public market return differences

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Holm adjusted p
S&P 500 TR 1997-01 to 2026-09	70 / 287	-1.20%	+1.42%	-2.62 [-4.01, -1.22]	0.008
Russell 2000 TR 1997-01 to 2021-12	64 / 236	-2.43%	+1.79%	-4.23 [-5.93, -2.52]	<0.001
Industrial Metals TR 1997-01 to 2019-03	59 / 208	-2.47%	+1.33%	-3.80 [-6.14, -1.46]	0.039

Monthly arithmetic means in percent; difference is RA minus RS in percentage points. Brackets give unadjusted 95% HAC intervals. Inclusion is determined by Holm-adjusted $p < 0.05$ across the complete 49-record family. Each row's means, counts and test use the same dates.

US large-cap and small-cap equities have materially lower returns in risk-averse months. For the S&P 500, the difference is -2.62 percentage points per month; for the Russell 2000, it is -4.23 points. The industrial-metals futures basket has a -3.80-point difference. These results identify shared sensitivity to the withdrawal of risk appetite across different traded exposures.

Sources: Conquest returns.xlsx for S&P 500 total returns; Conquest monthly market archives for Russell 2000 and Bloomberg Industrial Metals total returns. The latter is a fully collateralized futures total-return series, including collateral and roll effects. No investor-level fund fees are deducted from these security indexes.[12]

3.3A Daily and monthly equity price returns

To examine whether the findings depend on observation frequency, we compare daily and monthly S&P 500 price returns over the same period, February 2000–September 2026. Both series exclude dividends, and monthly returns are compounded from the same daily observations.

Table 5A Matched daily and monthly S&P 500 price returns

Return frequency and state grouping	Regime	N	Mean return	Sample SD	Positive returns
Daily / same-date state	Risk-averse	1,210	-0.2601%	1.8462%	43.80%
Daily / same-date state	Risk-seeking	5,496	+0.0972%	1.0056%	55.84%
Monthly / monthly state	Risk-averse	51	-2.1612%	4.7038%	29.41%
Monthly / monthly state	Risk-seeking	269	+1.1585%	4.0985%	68.40%

February 2000-September 2026. Price returns exclude dividends. Means and standard deviations are percentages per stated return period; SD uses n-1. Positive means strictly greater than zero. Monthly states aggregate all stored daily classifications within each month, with ties risk-averse. Source and alignment checks are in Appendix D. The prior-trading-date mean-gap sensitivity is not statistically significant (HAC $p = 0.307$); timing is discussed below.

Both frequencies show statistically significant differences in average returns across contemporaneous risk environments. Daily observations reveal a stronger volatility contrast: volatility is approximately 1.84 times as high in risk-averse conditions, compared with 1.15 times at monthly frequency. Daily and monthly return magnitudes represent different holding periods and should not be compared directly.

Using the previous trading day's risk classification, the difference in next-day average S&P 500 returns is not statistically significant, while the volatility ratio remains approximately 1.79. This distinction is relevant to

[12] S&P 500 SPTR; Russell 2000 RU20INTR; Bloomberg Industrial Metals BCOMINTR. Commodity pre-July 1998 history is backtested. Each series uses its complete native history with the supplied monthly classifications; the Russell 2000 window is therefore longer than the earlier crisis-inclusive multi-market panel.

portfolio construction: the index identifies materially different risk conditions even when the prior-day classification does not distinguish the next day's average equity return.

Conquest's use of the index concerns allocation among models and substrategies with different sensitivities to the risk environment. The findings are relevant to that allocation framework; the S&P 500 comparison alone does not measure the incremental return contribution of Conquest's dynamic allocation process.

These price-return comparisons supplement the paper's existing monthly total-return analysis. The appendix documents the timing assumptions, confidence intervals and robustness checks, including that historical signal availability at the time of a trading decision has not been verified.

3.4 Qualifying hedge fund categories

Nine established HFRI categories meet the screen over January 1997-December 2021. Each has 300 months, including 64 risk-averse and 236 risk-seeking observations. The shared pattern is negative mean returns in risk-averse months and positive means in risk-seeking months.

Table 6 Established HFRI categories meeting the screen

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Holm adjusted p
Fund Weighted Composite 1997-01 to 2021-12	64 / 236	-0.81%	+0.96%	-1.77 [-2.57, -0.98]	<0.001
Equity Hedge Total 1997-01 to 2021-12	64 / 236	-0.99%	+1.16%	-2.15 [-3.22, -1.08]	0.003
Event-Driven Total 1997-01 to 2021-12	64 / 236	-0.94%	+1.08%	-2.01 [-2.88, -1.15]	<0.001
Relative Value Total 1997-01 to 2021-12	64 / 236	-0.43%	+0.82%	-1.25 [-1.97, -0.53]	0.018
Fund of Funds Composite 1997-01 to 2021-12	64 / 236	-0.77%	+0.72%	-1.49 [-2.28, -0.69]	0.008
Quantitative Directional 1997-01 to 2021-12	64 / 236	-1.27%	+1.19%	-2.46 [-3.45, -1.47]	<0.001
Distressed and Restructuring 1997-01 to 2021-12	64 / 236	-0.93%	+1.05%	-1.98 [-2.84, -1.13]	<0.001
Fixed Income Corporate 1997-01 to 2021-12	64 / 236	-0.93%	+0.82%	-1.75 [-2.59, -0.91]	0.002
Emerging Markets Total 1997-01 to 2021-12	64 / 236	-2.20%	+1.41%	-3.61 [-5.19, -2.02]	<0.001

Monthly percentage returns; unadjusted 95% HAC intervals and Holm-adjusted p-values. HFRI returns are in USD and net of underlying fund fees. Strategy names are shortened from provider labels; constituents and category definitions can change over time.[13]

The composite, equity, event-driven and relative-value results show why a collection of hedge-fund labels need not provide independent exposure to market stress. The credit-oriented and emerging-market rows identify the same broad vulnerability through different instruments. Overlap among underlying funds means these results should be read as related manifestations of exposure rather than nine independent confirmations.

[13] hfri_historical_MONTHLY.xlsx, source sheet hfrx_historical_monthly, filtered by exact HFRI ticker and calendar month. The observations are HFRI records despite the worksheet name. No later HFRX observations are substituted into an HFRI history.

3.5 Qualifying hedge fund subcategories

Twelve more granular HFRI categories meet the screen over January 2008-December 2021, with 32 risk-averse and 136 risk-seeking months each. Their shorter window is kept explicit; the magnitudes should not be ranked against the longer established-category table as if strategy choice were the only difference.

Table 7 HFRI subcategories meeting the screen

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Holm adjusted p
EH Fundamental Growth 2008-01 to 2021-12	32 / 136	-2.97%	+1.16%	-4.14 [-5.81, -2.46]	<0.001
EH Fundamental Value 2008-01 to 2021-12	32 / 136	-2.20%	+1.13%	-3.33 [-4.76, -1.90]	<0.001
EH Long Short Directional 2008-01 to 2021-12	32 / 136	-2.38%	+1.12%	-3.50 [-4.99, -2.01]	<0.001
Macro Discretionary Directional 2008-01 to 2021-12	32 / 136	-0.65%	+0.34%	-0.99 [-1.49, -0.49]	0.005
Macro Discretionary Thematic 2008-01 to 2021-12	32 / 136	-0.87%	+0.39%	-1.26 [-1.88, -0.65]	0.003
Credit 2008-01 to 2021-12	32 / 136	-1.31%	+0.83%	-2.14 [-3.21, -1.06]	0.004
ED Credit Arbitrage 2008-01 to 2021-12	32 / 136	-1.36%	+0.87%	-2.23 [-3.61, -0.85]	0.040
ED Activist 2008-01 to 2021-12	32 / 136	-2.64%	+1.17%	-3.80 [-6.04, -1.56]	0.026
ED Multi-Strategy 2008-01 to 2021-12	32 / 136	-1.77%	+0.84%	-2.61 [-3.95, -1.28]	0.005
ED Special Situations 2008-01 to 2021-12	32 / 136	-1.84%	+1.03%	-2.87 [-4.13, -1.62]	<0.001
RV Volatility 2008-01 to 2021-12	32 / 136	-0.60%	+0.44%	-1.04 [-1.58, -0.50]	0.006
RV Fixed Income Directional 2008-01 to 2021-12	32 / 136	-1.26%	+0.85%	-2.12 [-3.27, -0.97]	0.010

Monthly percentages. EH = Equity Hedge; ED = Event Driven; RV = Relative Value. These are HFRI source series, net of underlying fund fees, in USD. The reported p-values retain all 49 hypotheses in their adjustment family.[14]

Directional equity, discretionary macro, credit, event-driven and selected relative-value categories all have lower means in risk-averse months. The RV Volatility result is particularly relevant to portfolio construction: a volatility mandate does not by itself imply the return profile of a continuously long-volatility position. The observed strategy return, rather than its label, determines its role alongside other holdings.

3.6 Opposing equity style exposures

The HFRX family provides a direct contrast between Equity Hedge and Short Bias. Both meet the same screen, but their effects have opposite signs. Their native source windows differ and are shown explicitly.

[14] Same HFRI historical workbook, exact subcategory tickers and monthly classifications as the established-category analysis. January 2008 is the first complete eligible month for these supplied subcategory histories.

Table 8 HFRX equity styles meeting the screen

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Holm adjusted p
HFRX Equity Hedge 1998-01 to 2021-12	55 / 233	-1.18%	+0.82%	-2.01 [-3.00, -1.02]	0.003
HFRX Equity Short Bias 2005-01 to 2021-12	38 / 166	+2.73%	-1.51%	+4.24 [+2.30, +6.18]	<0.001

HFRX is a separate index family and is not used as an extension of HFRI. Means and tests refer to the exact dates shown. The Short Bias result represents its provider-defined historical strategy basket, rather than guaranteed gains during every market decline.[15]

Equity Hedge has a negative risk-averse mean and a positive risk-seeking mean. Short Bias has the reverse profile, with a +4.24-point RA-minus-RS difference. This demonstrates the economic tradeoff in adding a defensive exposure: its contribution during adverse risk environments must be weighed against its return profile when risk appetite is stronger.

3.7 Conquest QM as a focal portfolio construction case

Conquest QM is examined separately as the focal strategy whose design motivates the portfolio-construction application. Its inclusion in this descriptive case is distinct from eligibility in the screened benchmark survey. Over May 1999-September 2026, its RA-minus-RS monthly mean difference is +2.41 percentage points. The raw HAC p-value is 0.0079, but the Holm-adjusted p-value across all 49 records is 0.150; Conquest QM therefore does not meet the primary familywise screen.

Table 9 Descriptive Conquest QM performance across both regimes

Regime	Months	Mean monthly return	Median monthly return	Positive months	Worst month
Risk averse	55	+3.11%	+1.245%	37 | 67.3%	-5.28%
Risk seeking	274	+0.70%	+0.972%	161 | 58.8%	-10.70%

May 1999-September 2026. Arithmetic monthly means and medians. Positive means strictly greater than zero. This descriptive case is not a qualifying main-screen result; the complete test is reported in Appendix B.

The observed profile combines a +3.11% risk-averse mean with a +0.70% risk-seeking mean. Among the 274 risk-seeking months, 161, or 58.8%, are positive and the median is +0.97%. Positive aggregate performance does not mean an absence of losses: 113 risk-seeking months are negative, with a worst month of -10.70%. These observations describe the economic role of the strategy without treating its stronger risk-averse average as a familywise-significant finding.

3.8 A fixed equity Conquest QM portfolio illustration

A fixed equity-Conquest QM combination translates complementary exposure into a whole-portfolio example. The illustration uses January 2007-September 2026, the established 237-month portfolio-comparison window, and rebalances monthly to equal capital weights. The weights are unoptimized; this is a descriptive portfolio case rather than another primitive strategy in the performance screen.

[15] hfrx_historical_MONTHLY.xlsx, records filtered by HFRXEH and HFRXSB. HFRX and HFRI differ in construction, constituents and reporting conventions; current provider rules are not assumed to describe every historical observation.

Table 10 Fixed equity Conquest QM portfolio comparison

Series or portfolio	CAGR	Annual volatility	Month end drawdown
S&P 500 TR	11.00%	15.37%	-50.95%
Conquest QM	13.68%	14.70%	-22.72%
50% equity / 50% Conquest QM	13.13%	8.96%	-16.76%

Same calendar months for every row. Volatility uses monthly population SD × square root of 12; drawdown is maximum peak-to-trough loss at month ends. Embedded strategy fees are retained; no additional portfolio trading costs or taxes. Other earlier fixed blends remain in Appendix B.

The 50/50 portfolio has annualized volatility of 8.96%, versus 15.37% for equities and 14.70% for Conquest QM. Its month-end maximum drawdown is -16.76%, compared with -50.95% and -22.72%, respectively. Its 13.13% CAGR falls between the two component CAGRs. The example makes a diversification tradeoff visible without claiming optimal weights or dominance on every measure.

Appendix B also retains the matched RC and alternative-blend results. RC has positive mean returns in both regimes but does not meet the primary regime-difference screen. The fixed Conquest QM-RC blend has lower observed risk than Conquest QM alone, yet RC alone has a higher CAGR, lower volatility and a smaller drawdown than that blend in the same sample. Their overlapping models and different risk targets matter; the supplementary combinations do not establish a universally superior portfolio.

3.9 Conquest QM correlation in benchmark positive and negative months

A single full-period correlation can conceal materially different co-movement during a comparator's gains and losses. We calculate Conquest QM's correlation with every benchmark and return series in the research inventory, first over all matched months and then separately when that comparator's own monthly return is positive or negative. The main table highlights comparators that meet the performance screen; Appendix A retains all 56 correlation comparisons, whether or not their regime mean differences qualify. This is distinct from conditioning on the risk index: a benchmark can lose money in either risk environment.

Table 11 Selected Conquest QM correlations and conditional returns

Comparator and sample	Months + / −	Corr All	Corr B > 0	Corr B < 0	Conquest QM mean B > 0	Conquest QM mean B < 0
S&P 500 TR 1999-05 to 2026-09	211 / 118	-0.226	-0.050	-0.399	+0.67%	+1.87%
Russell 2000 TR 1999-05 to 2021-12	169 / 103	-0.216	+0.031	-0.344	+0.44%	+2.04%
Industrial Metals TR 1999-05 to 2019-03	130 / 109	-0.010	+0.030	-0.152	+1.02%	+0.78%
Fund Weighted Composite 1999-05 to 2021-12	183 / 89	-0.195	+0.031	-0.417	+0.65%	+1.85%
Equity Hedge Total 1999-05 to 2021-12	177 / 94	-0.196	-0.005	-0.454	+0.74%	+1.67%
HFRX Equity Short Bias 2005-01 to 2021-12	76 / 127	+0.289	+0.467	+0.048	+2.13%	+0.37%

B is the comparator's monthly return. Correlations are Pearson coefficients; Conquest QM means are arithmetic monthly percentages. Each row uses its longest clean paired history, so windows can differ from the native-window regime tests. Positive and negative counts exclude zero-return months; zero months remain in total correlation. Appendix A gives all 56 rows, exact counts and pointwise intervals for the correlation difference.

Against the S&P 500, Conquest QM's correlation is -0.226 overall, -0.050 in the 211 equity-positive months and -0.399 in the 118 equity-negative months. Conquest QM's corresponding monthly mean is +0.67% and +1.87%.

The down-minus-up correlation difference is -0.348, with an exploratory 12-month block-bootstrap 95% interval of -0.581 to -0.103.

Several equity-linked hedge-fund comparisons show the same descriptive pattern. Against the HFRI Fund Weighted Composite, Conquest QM's correlation is +0.031 in benchmark-positive months and -0.417 in negative months; against Equity Hedge it is -0.005 and -0.454. Event Driven and Relative Value also have more negative down-month estimates, though the Relative Value difference is less precisely estimated. These profiles help distinguish Conquest QM's relationship with conventional equity and credit exposures from its relationship with other trading strategies.

The level of return and the correlation answer different questions. For industrial metals, Conquest QM has a more negative correlation in benchmark-negative months, but its average return is lower in those months than in the positive-month subset. For Short Bias, Conquest QM's correlation remains positive in both groups. There is no universal negative-correlation claim across the investment universe.

The full inventory also identifies limits to diversification. Against SG CTA, Conquest QM's correlation is +0.280 overall, +0.192 in CTA-positive months and +0.123 in CTA-negative months; its average return in the latter months is -0.05%. Barclay CTA and SG Short-Term Traders likewise have positive correlations in both sign groups. These trading-strategy comparisons differ from the more negative equity-loss relationships and remain visible in Appendix A.

The strength of the sign-asymmetry evidence also depends on the inference convention. The S&P 500 and HFRI composite differences pass the 5% BH screen with 12-month blocks but not with six-month blocks. Only the crisis-inclusive broad commodity comparison meets the approximate 56-test Holm screen. The main descriptive correlation patterns should therefore not be read as a uniformly established asymmetry across benchmarks.

The differences are sensitive to the economic sample. Excluding calendar 2008-2009 and 2020 together reduces the S&P down-minus-up correlation difference from -0.348 to -0.244 and the HFRI composite difference from -0.448 to -0.209. The main performance screen concerns mean returns; it does not confer significance on these correlation differences. The full correlation appendix and Section 2.4 retain the separate uncertainty and multiple-comparison framework.

3.10 Co movement within risk environments

The risk-regime classification provides a separate view of the equity-Conquest QM relationship. Over the matched January 2007-September 2026 sample, the correlation is -0.290 overall, -0.483 in the 41 risk-averse months and -0.118 in the 196 risk-seeking months. The RA-minus-RS correlation difference is -0.365, with an exploratory pointwise 12-month block-bootstrap 95% interval of -0.748 to -0.025. This analysis concerns co-movement and remains distinct from the primary mean-return screen.

A negative conditional correlation describes co-movement around the two series' subgroup means. It does not imply that Conquest QM gains in every comparator-loss month. Conditional return levels and realized losses therefore remain relevant to assessing an allocation.

3.11 Shared correlation exposure across strategies

The relevant concentration can be visible even before stress. Among 19 equity, event-driven and credit hedge-fund indexes on a common January 2008-December 2021 sample, average pairwise correlation is 0.769 in risk-seeking months and 0.885 in risk-averse months. The risk-seeking state is therefore already characterized by substantial shared exposure. The +0.116 change has a 95% paired 12-month block-bootstrap interval of -0.007 to +0.180 and an exploratory six-group Holm-adjusted p-value of 0.178.

Table 12 Matched equity linked exposure and Conquest QM co movement

Comparison	Pairs	RS correlation	RA correlation	RA minus RS [95% interval]
Within equity linked group	10	+0.795	+0.874	+0.079 [-0.049, +0.153]
Equity linked group with Conquest QM	5	-0.084	-0.515	-0.431 [-0.772, +0.023]

January 2007-December 2021; 180 months, including 35 RA and 145 RS. Equity-linked group: S&P 500, Russell 2000, HFRI Equity Hedge, Event Driven and Relative Value. Statistics average pairwise Pearson correlations. Intervals resample the entire matched multivariate panel and are pointwise. Pairs are not treated as independent observations.

On this separate matched sample, the group's internal mean correlation is high in both states, while Conquest QM's average correlation with that group is negative and more negative in risk-averse months. The interval for the Conquest QM signed change spans zero. The economically relevant observation is the different direction of association, not a statistically established shift for every pair.

The full inventory contains 1,176 primitive-series pairs. Signed correlations increase in 56.3% of them, while approximately equal shares have increases and decreases of at least 0.15. No pairwise correlation-change test meets 5% BH or Holm adjustment across that family under either block length. This broad check rules out presenting a universal rise in correlations as an established result. The 19-index class analysis was a supplementary comparison added after inspection and retains its own six-group adjustment.

Excluding calendar 2008-2009 and 2020 reduces the 19-index class shift from +0.116 to +0.068. These are descriptive sensitivity estimates. Common adverse exposure remains an important portfolio issue even where the incremental change in correlation is not precisely identified.

3.12 Liquidity sensitivity and shared losses

The liquidity analysis gives the common-exposure mechanism a separate empirical test. Pástor-Stambaugh (PS) innovations measure changes in US equity-market trading liquidity; the OFR Funding contribution measures a broader dimension of financing stress. They remain separate throughout. The conditions below use the same month as the return and are defined from each complete matched sample.

Table 13 Conquest QM and equity returns across three liquidity conditions

Measure and condition	Event n	Conquest QM means event / other	Conquest QM difference pp [95% HAC interval]	Conquest QM q BH / BY	Equity means event / other
PS Worsening	151	+1.10 / +1.01	+0.09 [-1.28, +1.47]	0.920 / 1.000	+0.06 / +1.39
PS Extreme shock	32	+2.00 / +0.95	+1.06 [-0.84, +2.95]	0.386 / 1.000	-1.99 / +1.07
PS Adverse level	80	+2.20 / +0.67	+1.52 [+0.15, +2.90]	0.073 / 0.483	-0.98 / +1.34
OFR Worsening	152	+1.62 / +0.68	+0.95 [+0.06, +1.83]	0.082 / 0.541	+0.37 / +1.16
OFR Extreme shock	32	+3.66 / +0.84	+2.82 [+0.68, +4.96]	0.032 / 0.211	-2.04 / +1.10
OFR Adverse level	80	+0.98 / +1.17	-0.19 [-1.48, +1.09]	0.811 / 1.000	+0.27 / +0.95

PS: May 1999-December 2025, 320 months. OFR: February 2000-September 2026, 320 months. Every equity comparison uses exactly the same dates as Conquest QM. Means are monthly percentages. PS worsening = negative innovation; extreme = worst innovation decile; adverse level = bottom liquidity-level quartile. OFR worsening = rising monthly-average funding stress; extreme = largest increase decile; adverse level = highest funding-stress quartile. Other n = 320 minus event n.

Conquest QM's distinction is between the deterioration in conditions and their prevailing level. It averages +3.66% during the largest funding-stress increases and +0.84% in the other months. The +2.82-point difference has a 95% HAC interval of +0.68 to +4.96 points and BH q = 0.032, but BY q = 0.211 under the more conservative dependence adjustment. Its PS extreme-shock means are +2.00% and +0.95%, with a difference interval spanning zero. The entire six-row comparison is retained so the shock result is not mistaken for a uniform benefit from every adverse liquidity condition.

Equities have weaker means during extreme deterioration in either measure: -1.99% versus +1.07% for PS, and -2.04% versus +1.10% for OFR. The corresponding mean differences are -3.06 and -3.14 points. PS retains a BY q-value of 0.034; OFR's is 0.187. The direction is consistent across the two concepts, while the strength of adjusted evidence differs.

Hedge fund exposure on common samples

The same comparisons are repeated for equity-linked hedge-fund categories, always including Conquest QM and equities on identical dates. These are selected economically relevant categories from the complete liquidity analysis, not a new statistical family. The reported adjustments retain all 420 primary mean-difference and continuous-slope tests from that study.

Table 14 Extreme liquidity shocks and equity linked hedge funds

Measure and series	Mean returns % shock / other	Difference pp [95% HAC interval]	BH q / BY q
PS Conquest QM	+1.25 / +1.02	+0.22 [-1.96, +2.41]	0.869 / 1.000
PS S&P 500 TR	-2.14 / +1.05	-3.19 [-4.82, -1.56]	0.002 / 0.013
PS HFRI Equity Hedge	-0.88 / +0.76	-1.64 [-2.93, -0.35]	0.040 / 0.262
PS HFRI Event Driven	-0.62 / +0.74	-1.37 [-2.43, -0.31]	0.037 / 0.243
PS HFRI Relative Value	-0.07 / +0.59	-0.66 [-1.54, +0.21]	0.221 / 1.000
OFR Conquest QM	+3.18 / +0.83	+2.35 [+0.20, +4.50]	0.077 / 0.508
OFR S&P 500 TR	-1.99 / +1.03	-3.03 [-5.91, -0.14]	0.089 / 0.590
OFR HFRI Equity Hedge	-1.37 / +0.73	-2.10 [-3.68, -0.52]	0.030 / 0.199
OFR HFRI Event Driven	-1.22 / +0.77	-1.99 [-3.24, -0.74]	0.009 / 0.063
OFR HFRI Relative Value	-0.71 / +0.64	-1.35 [-2.48, -0.21]	0.056 / 0.369

PS: May 1999-December 2021, 28 shock / 244 other months. OFR: February 2000-December 2021, 27 shock / 236 other months. Within each measure, all rows share the dates and threshold. Quantiles are formed independently for each complete panel; they are not transferred from the longer Conquest QM sample.

Equity Hedge, Event Driven and Relative Value have negative shock-month means under both measures and positive other-month means. The effect is most precisely estimated for Equity Hedge and Event Driven under BH adjustment; these selected category effects do not retain the 5% BY threshold. The common pattern is consistent with shared liquidity vulnerability, but the table does not show that liquidity is their only common driver.

Full sample results and stress year robustness

The primary results above include calendar 2008 and 2020. Both crises are economically relevant observations and remain in every full-sample liquidity estimate in this section. The separate check below asks how much the measured difference depends on those two major stress years; it does not discard them from the main analysis.

For this robustness check only, omitting calendar 2008 and 2020 leaves 26 PS and 24 OFR extreme-shock months in the full Conquest QM samples, using the original thresholds. Conquest QM's shock-minus-other difference falls to +0.28 points for PS and +1.53 points for OFR; both 95% HAC intervals then span zero. The reduced-sample estimates show that the full-sample advantage is less precisely established without those two years. Paired block-bootstrap checks support the same uncertainty distinction. These omissions do not remove every crisis episode: August 2007 and January 2009, for example, remain in the analysis.

Positive conditional averages also coexist with losses. Conquest QM loses money in 10 of the 32 full-history PS shock months and nine of the 32 OFR shock months. Its observed contribution is therefore a differentiated return profile rather than guaranteed protection whenever liquidity deteriorates.

3.13 Liquidity sequence and simultaneous losses

The stronger claims that liquidity always deteriorates first and that all strategies lose together can be checked directly. An onset is selected when a risk-averse month follows three risk-seeking months, retaining events at least seven months apart. Liquidity and returns play no part in selecting the onset. The common 2000-2025 sample contains 21 eligible events with complete one-month-before and one-month-after windows.

Table 15 First liquidity deterioration around risk aversion onset

Measure	Prior month	Same month	Following month	None in window
PS adverse innovation	8 / 21	6 / 21	4 / 21	3 / 21
OFR funding increase	11 / 21	4 / 21	2 / 21	4 / 21

Earliest adverse observation within the three-month window. PS deterioration is a negative innovation; OFR deterioration is an increase in monthly-average Funding contribution. Counts describe observation-month ordering, not within-month sequencing or causal identification.

Neither measure consistently precedes the change in risk state. The ordering relative to actual equity losses is also mixed. Fifteen windows contain both deterioration and an equity loss for each measure: PS deterioration precedes the first equity loss in two, coincides in six and follows in seven; the OFR counts are four, seven and four. A window can begin after an economic stress episode has already started.

In the March 2020 window, the first negative equity month is February, while the first adverse PS innovation and OFR monthly change occur in March. June 2015 has an RA onset and an equity loss without deterioration in either proxy in the three-month window. These examples refute invariant precedence under the stated definitions, while leaving within-month movements and unmeasured liquidity channels unresolved. A daily OFR check finds an increase somewhere in the prior five stored daily observations at all 42 selected daily onsets, but that same condition occurs on 96.5% of eligible days generally; the longer window is nearly ubiquitous. Daily onsets require an RA observation after 20 consecutive RS observations, with at least 63 observations between retained onsets.

Concentration of losses

A balanced long-risk panel contains S&P 500, Bloomberg Commodity total return, HFRI Event Driven and HFRI Relative Value. A second panel adds HFRI Macro, SG CTA, Conquest QM and US Aggregate bonds. Both use

the same January 2000-March 2019 dates, with 40 risk-averse and 191 risk-seeking months. The commodity history determines the cutoff.

Table 16 Loss breadth and simultaneous losses on identical months

Panel	Mean loss breadth RA	Mean loss breadth RS	All series lose RA	All series lose RS
Four long-risk series	73.1%	25.5%	18 / 40 (45.0%)	11 / 191 (5.8%)
Eight-series expanded panel	58.4%	32.7%	1 / 40 (2.5%)	3 / 191 (1.6%)

Loss breadth is the fraction of component series with a strictly negative monthly return, averaged over months. All-loss frequency is a different statistic: every component is negative. Adding series mechanically makes an all-loss intersection harder to satisfy, so its reduction is not itself proof of lower portfolio drawdown.

The long-risk panel's average loss breadth rises by 47.6 percentage points in RA, with a 95% block-bootstrap interval of 35.9 to 58.6; the expanded-panel increase is 25.7 points, with an interval of 18.5 to 34.2. Both meet the 18-contrast Holm screen. The expanded panel's all-loss increase is only 0.9 points, with an interval of -3.1 to +7.0. These results support greater shared loss exposure, while demonstrating that universal simultaneous losses are not the observed pattern.

The liquidity measures again differ. Under adverse shocks defined from strictly earlier data, the long-risk panel loses jointly in 11 of 61 PS-shock months and 13 of 41 OFR-shock months. The OFR associations with loss breadth and simultaneous losses survive the primary 18-contrast adjustment; the PS contrasts do not. The interpretation therefore cannot depend on treating both proxies as equally strong evidence.

An availability-motivated sensitivity drops commodities and extends coverage through December 2021. The remaining three long-risk series all lose in 26 of 45 RA months, versus 17 of 219 RS months; the seven-series expanded panel loses jointly in two RA and three RS months. This changes both composition and period and is not a pure time-window test. Excluding 2008-2009 and 2020 leaves higher mean loss breadth in RA for both panels. The original commodity-balanced sample contains no 2020 observations, so it supplies no COVID-exclusion test.

Conquest QM contributes concrete counterexamples to all-strategy co-loss, alongside its own losses. In July 2007, equities lose 3.10% and SG CTA loses 2.59%, while Conquest QM gains 11.55%. In March 2020, equities lose 12.35% and Conquest QM gains 26.20%; this latter month belongs to the extended sample. Conquest QM also loses in June 2011, when all eight primary-panel series are negative. The portfolio case rests on these differentiated exposures and the fixed-blend results, rather than on an assumption that Conquest QM must gain in every stress episode.

3.14 Private direct lending at quarterly frequency

Private credit adds a distinct investor exposure. The Cliffwater Direct Lending Index (CDLI) measures underlying middle-market private loans in eligible business development companies; it is not the listed share performance of those companies. We recover 87 quarterly returns from the official public growth-of-one chart, covering the fourth quarter of 2004 through the second quarter of 2026. The asset-weighted series is unlevered and gross of management and administrative fees. Its pre-2015 history is reconstructed, and the chart's rounded levels make the derived returns approximate.[16]

The primary quarterly specification regresses return on the fraction of that quarter's three months classified risk-averse. The coefficient is a fitted change from zero to full risk-averse exposure under a linear model. It is not the observed difference between majority-RA and majority-RS quarter means. Monthly public and Conquest QM returns are compounded over the same three months before comparison.

[16] Cliffwater Direct Lending Index, public cumulative-return chart and methodology: https://www.cliffwaterdirectlendingindex.com/ and https://www.cliffwaterdirectlendingindex.com/methodology. The 88 levels are rounded to four decimals; the largest conservative one-sided return error bound is approximately 0.0101 percentage points per quarter. No private-credit fund net return or artificial monthly history is inferred.

Table 17 Qualifying quarterly risk exposure associations

Quarterly series	Fitted effect pp zero to full RA exposure	95% HAC interval	Holm adjusted p
Private direct lending CDLI	-2.64	[-4.15, -1.14]	0.005
Conquest QM	+12.33	[+4.99, +19.66]	0.006
S&P 500 TR	-11.14	[-17.76, -4.52]	0.006

2004 Q4-2026 Q2; 87 matched quarters. Separate six-series exploratory family: CDLI, Conquest QM, equities, US Aggregate, SG CTA and RC, with RC's shorter eligible window. Four-quarter Bartlett HAC, finite-sample scaling and Student-t reference. Intervals are pointwise; adjusted p-values use all six primary tests. This quarterly family does not alter the 49-series monthly screen or Conquest QM's monthly eligibility.

The CDLI coefficient is -2.64 percentage points, with a 95% interval of -4.15 to -1.14 and Holm-adjusted p = 0.0046. Two- and four-quarter block-bootstrap intervals retain the negative direction. Conquest QM and equities have opposite-signed qualifying coefficients on the same quarterly exposure specification. This supplies direct evidence of an association between the risk environment and a private-loan return measure, while retaining the difference between asset-level gross performance and investor-level net fund experience.

Quarterly classification is consequential. Twenty-eight quarters contain both monthly states; only ten are majority-RA and only three are entirely RA. The actual CDLI means are +1.18% in majority-RA quarters and +2.44% in majority-RS quarters, but this secondary mean comparison fails its separate Holm screen (p = 0.075). Moreover, 2008 Q4 and 2020 Q1 are majority-RS under the monthly labels. None of the six majority-quarter tests meets its Holm threshold. In the fractional-exposure family, US Aggregate, SG CTA and RC do not qualify. Appendix C retains every test under both definitions. These examples prevent treating a quarter's majority state as a comprehensive crisis classification.

Across the 87 matched quarters, CDLI's correlation is +0.661 with equities and -0.440 with Conquest QM. The Conquest QM correlations conditional on positive and negative CDLI quarters are -0.412 and -0.351, respectively; the latter uses only six observations. Table A6 gives counts, conditional Conquest QM means and the sparse-sample sensitivity. Reported loan marks, coupon income and valuation adjustment affect these observations. The series has only six negative quarters, so its low observed loss frequency and the behavior of another strategy during those six quarters cannot establish general crisis protection. Excluding calendar 2008-2009 and 2020 leaves a negative fitted CDLI exposure effect of -1.62 points; this is a descriptive sensitivity rather than a new adjusted test.

Private equity and venture capital coverage

Monthly private-market benchmarks exist for narrower universes, including MSCI unlisted evergreen private-equity and private-credit funds. An eligible full history was not obtained for this study. Broad institutional closed-end PE and VC fund benchmarks are generally reported quarterly, and their cash-flow or NAV return definitions must be preserved. Enterprise-value indexes, public listed-company proxies and daily model-based estimates are not substituted for realized fund returns here. The PE and VC discussion therefore rests on the cited economic and valuation literature, rather than new return estimates from this dataset.

4 Discussion

4.1 The evolution of Conquest QM

Conquest QM began with a crisis alpha plus objective: superior returns in risk-averse conditions while seeking to avoid a persistent cost in risk-seeking conditions. This was a broader objective than a strategy designed solely to deliver a payoff during an equity-market crash. Its success depends on what the portfolio earns between stressed episodes as well as during them.

The move from static model allocations to risk-environment-sensitive internal allocation in March 2005 changed how the strategy combined its return sources. The subsequent addition of Risk Capture as a fourth substrategy

broadened the intended design into an all-weather program while retaining a crisis-alpha component. These are changes to Conquest QM's internal portfolio architecture.[17]

Risk Capture was designed to perform in risk-seeking conditions while seeking genuine alpha in risk-averse conditions. Its role within Conquest QM should therefore be distinguished from the crisis-response components. The reported absolute regime means do not estimate benchmark-adjusted alpha; that objective requires a separately specified factor and benchmark test.

These results support the economic purpose of an all-weather design: positive aggregate returns across both broad states. They do not isolate the causal effect of dynamic allocation or the RC addition. Market composition, model changes, volatility targets and performance-record construction changed over the same history.

4.2 Portfolio construction implications

The risk environment gives the allocator a common basis for comparing strategies with different instruments and mandates. The qualifying results identify a shared vulnerability among public equities, industrial metals and a range of equity- and credit-oriented hedge-fund strategies. Adding several labels with the same conditional return pattern can leave a portfolio exposed to the same adverse environment.

The opposing Short Bias profile shows how a defensive exposure changes the portfolio's economic balance. Its stronger risk-averse average is accompanied by a negative risk-seeking average. A useful allocation analysis therefore considers both environments, the costs of carrying an exposure and the behavior of the combined portfolio.

Conquest QM's descriptive case adds a different portfolio-construction perspective. Its positive aggregate means in both regimes, conditional correlations with equities and equity-linked hedge funds, and fixed equity-blend path characterize its observed contribution. The stronger RA mean remains outside the strict selected-results set. Statistical selection and practical portfolio diagnosis answer related but distinct questions.

Capital weights, volatility targets, fees, liquidity requirements and overlapping models affect the resulting portfolio. The fixed equity-Conquest QM example demonstrates lower observed volatility and drawdown than either component over the same dates, at a CAGR between the component values. It is an unoptimized illustration of the supplied histories. Portfolio construction still requires comparing the candidate mix with the investor's actual objectives and constraints.

5 Conclusion

A common risk-environment classification makes shared strategy exposures and contrasting return profiles explicit. Under a 5% familywise screen, 26 of the 49 tested return records have qualifying mean differences. Most of those selected records have weaker risk-averse performance, while Short Bias has the opposing profile. The complete appendix preserves the rest of the tested universe and separates absence of sufficient evidence from evidence of equal returns.

The liquidity and co-loss evidence strengthens the economic interpretation of these shared exposures. Funding and market-liquidity channels offer plausible amplification mechanisms, while observed timing and heterogeneous strategy results reject a universal liquidity-first sequence or an all-strategy loss rule. Reported private-asset valuations also require frequency-appropriate comparisons. The central portfolio lesson is to evaluate the economic role of an allocation through its conditional return levels, co-movement and whole-portfolio effects. Conquest QM's design evolution and descriptive portfolio case illustrate that application. The resulting framework helps identify concentration hidden by strategy labels and assess the tradeoffs involved in combining complementary return sources.

[17] Design history: Conquest Investment Proposal, Evolution of the Program slide, and the July-September 2010 FX Trader interview support the March 2005 dynamic-allocation transition. The addition of RC is described without an exact deployment date; a source return-history start is not used as a causal implementation boundary. Crisis alpha plus and all-weather describe the stated investment objectives, not guarantees.

Data sources and availability

The upstream daily classifications and completed monthly aggregation in daily_risk_index.xlsm, Simple!B:C and S:X, exactly match the calculator. The long-horizon analysis uses binary classifications; no official continuous aggregate history was verified for a continuous-index mean-reversion test.

Current classifications come from Risk_Aversion_Calculator .xlsm: monthly dates and states in R:S, daily dates and states in P:Q. Conquest QM uses Conquest_QM_One_Pager_September_2026.xlsm, Inputs C120:C448 and E120:E448; RC uses the corresponding September workbook, Inputs C212:C448 and E212:E448.

Current market and CTA returns come from Conquest returns.xlsx, returns1: dates A, US Aggregate C, S&P total return D, SG CTA G, Barclay CTA J, SG Short-Term Traders L and SG Trend AM. Longer commodity and Russell 2000 histories use INPUTS for MONTHLY UPDATES.xls. The later panel uses Conquest_bberg.xlsx month-end levels for REIT and commodity returns; its other rows retain the sources above. HFRI and HFRX use their separately named historical monthly workbooks saved in January 2022, filtered by exact ticker rather than worksheet title.

The separate daily-monthly equity supplement uses bloomberg_data.xlsb, Risk-SPX!A14:B6974, for daily S&P 500 price levels. Compounded monthly price returns reconcile to the SPX series in monthly_bberg_data.xlsx, indices!A:E. Risk labels use the calculator and upstream histories identified above. These price returns exclude dividends. A verified full-window daily total-return history was not obtained, so no daily total-return history is spliced or inferred. Appendix D gives the matched dates and validation checks.

Returns are extracted as supplied, without refreshing external links or altering the source histories. Complete calendars, duplicates, stale tails, genuine zeros, source overlap and ticker/return definitions are checked before a panel is formed.

Third party data use

Provider definitions and attribution do not establish redistribution rights. External circulation of the derived tables and charts requires confirmation of the applicable data and index-use permissions. No raw third-party return histories are reproduced in this paper.

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SG CTA Index Methodology — Manager selection, fees and base-currency treatment

SG Trend Index Methodology — Trend-manager universe and rule changes

SG Short Term Traders Index Methodology — Holding-period criterion and volatility weighting

Barclay CTA Index — Provider definition and equal weighting

Interpretation and status

All analyses use the same classification dataset and the stated complete return samples. The comparisons characterize contemporaneous sensitivities and portfolio profiles within those samples. Results do not establish causation, universally superior portfolio weights or guaranteed protection during market declines. Statistical intervals do not incorporate uncertainty from index construction, reporting selection or source-methodology changes.

Past performance is not necessarily indicative of future results. This material is for research discussion and is neither investment advice nor an offer to buy or sell an interest in a fund. No Conquest fund is open to investment. Marc H. Malek owns the Conquest intellectual property.

Appendix A Complete Conquest QM correlation comparisons

This appendix preserves all 52 benchmark and source-window series, RC and the three fixed portfolio blends in the complete research inventory. The performance-difference screen applies to the main regime-return results; it does not remove comparisons from this correlation appendix. Every row is paired with Conquest QM on the stated complete dates. Commodity archives remain separate and are not spliced. Primitive series use the longest clean Conquest QM overlap; fixed blends retain the January 2007-September 2026 illustration window.

N reports all / positive / negative / zero comparator-return months. Positive is strictly above zero; negative is strictly below zero. Zero months enter the total correlation only. Mean + / − reports Conquest QM's arithmetic monthly return in the comparator-positive and comparator-negative subsets. The correlation difference is negative-month minus positive-month correlation; brackets show the pointwise 95% paired 12-month block-bootstrap interval. These intervals are not multiplicity-adjusted.

Table A1 Public markets and commodity source histories

Comparator and dates	N all / + − / zero	Corr All	Corr B > 0	Corr B < 0	Difference [95% interval]	Conquest QM mean + / −
S&P 500 TR 1999-05 to 2026-09	329 / 211 118 / 0	-0.226	-0.050	-0.399	-0.348 [-0.581, -0.103]	+0.67% +1.87%
Bloomberg US Aggregate TR 1999-05 to 2026-09	329 / 206 123 / 0	-0.032	+0.130	-0.161	-0.291 [-0.515, -0.067]	+0.94% +1.37%
Russell 2000 TR 1999-05 to 2021-12	272 / 169 103 / 0	-0.216	+0.031	-0.344	-0.375 [-0.632, -0.051]	+0.44% +2.04%
Bloomberg Commodity TR 1999-05 to 2019-03	239 / 130 109 / 0	+0.095	+0.275	-0.157	-0.432 [-0.604, -0.189]	+1.21% +0.55%
Bloomberg Commodity TR archive 2009-02 to 2021-12	155 / 80 75 / 0	-0.136	+0.054	-0.288	-0.342 [-0.643, +0.070]	+0.63% +1.06%
Agriculture TR 1999-05 to 2019-03	239 / 112 127 / 0	+0.035	+0.129	+0.000	-0.129 [-0.352, +0.109]	+0.83% +0.98%
Agriculture TR archive 2009-02 to 2021-12	155 / 76 79 / 0	-0.068	+0.076	+0.047	-0.028 [-0.234, +0.206]	+0.21% +1.45%
Energy TR 1999-05 to 2019-03	239 / 119 120 / 0	+0.112	+0.247	+0.011	-0.235 [-0.504, +0.088]	+1.09% +0.73%
Energy TR archive 2009-02 to 2021-12	155 / 79 76 / 0	-0.208	+0.017	-0.403	-0.420 [-0.673, +0.105]	+0.63% +1.06%
Industrial Metals TR 1999-05 to 2019-03	239 / 130 109 / 0	-0.010	+0.030	-0.152	-0.182 [-0.436, +0.068]	+1.02% +0.78%
Industrial Metals TR archive 2009-02 to 2021-12	155 / 88 67 / 0	-0.081	-0.062	-0.165	-0.102 [-0.421, +0.169]	+0.76% +0.94%
Precious Metals TR 1999-05 to 2019-03	239 / 122 117 / 0	+0.109	+0.137	-0.094	-0.231 [-0.500, +0.027]	+1.41% +0.38%
Precious Metals TR archive 2009-02 to 2021-12	155 / 78 77 / 0	+0.069	+0.062	-0.003	-0.064 [-0.392, +0.225]	+1.11% +0.56%
Dow Jones Composite All REIT TR 2009-02 to 2021-12	155 / 99 56 / 0	-0.234	-0.147	-0.467	-0.320 [-0.806, +0.222]	+0.71% +1.08%

Table A2 HFRI established categories

Comparator and dates	N all / + − / zero	Corr All	Corr B > 0	Corr B < 0	Difference [95% interval]	Conquest QM mean + / −
Fund Weighted Composite 1999-05 to 2021-12	272 / 183 89 / 0	-0.195	+0.031	-0.417	-0.448 [-0.711, -0.096]	+0.65% +1.85%
Equity Hedge Total 1999-05 to 2021-12	272 / 177 94 / 1	-0.196	-0.005	-0.454	-0.449 [-0.701, -0.116]	+0.74% +1.67%
Event-Driven Total 1999-05 to 2021-12	272 / 189 80 / 3	-0.240	-0.019	-0.467	-0.448 [-0.716, -0.054]	+0.69% +1.88%
Macro Total 1999-05 to 2021-12	272 / 157 115 / 0	+0.170	+0.209	-0.028	-0.237 [-0.443, -0.038]	+1.52% +0.40%
Relative Value Total 1999-05 to 2021-12	272 / 213 58 / 1	-0.288	-0.023	-0.490	-0.467 [-0.794, +0.016]	+0.61% +2.62%
Fund of Funds Composite 1999-05 to 2021-12	272 / 179 92 / 1	-0.177	+0.025	-0.425	-0.450 [-0.720, -0.111]	+0.84% +1.56%
Macro Systematic Diversified 1999-05 to 2021-12	272 / 152 119 / 1	+0.121	+0.111	+0.004	-0.108 [-0.355, +0.156]	+1.44% +0.51%
Equity Market Neutral 1999-05 to 2021-12	272 / 193 79 / 0	-0.055	+0.043	-0.195	-0.238 [-0.557, +0.157]	+0.93% +1.33%
Quantitative Directional 1999-05 to 2021-12	272 / 172 100 / 0	-0.163	-0.009	-0.307	-0.298 [-0.543, -0.061]	+0.70% +1.64%
Distressed and Restructuring 1999-05 to 2021-12	272 / 191 81 / 0	-0.272	-0.034	-0.343	-0.309 [-0.635, +0.083]	+0.42% +2.52%
Merger Arbitrage 1999-05 to 2021-12	272 / 200 72 / 0	-0.251	-0.032	-0.563	-0.531 [-0.807, -0.020]	+0.83% +1.65%
Convertible Arbitrage 1999-05 to 2021-12	272 / 206 65 / 1	-0.199	-0.031	-0.270	-0.239 [-0.613, +0.154]	+0.66% +2.22%
Fixed Income Corporate 1999-05 to 2021-12	272 / 194 78 / 0	-0.281	-0.044	-0.411	-0.367 [-0.730, +0.065]	+0.55% +2.27%
Emerging Markets Total 1999-05 to 2021-12	272 / 173 98 / 1	-0.175	+0.067	-0.396	-0.463 [-0.757, -0.114]	+0.64% +1.86%

Table A3 HFRI subcategories

Comparator and dates	N all / + − / zero	Corr All	Corr B > 0	Corr B < 0	Difference [95% interval]	Conquest QM mean + / −
EH Fundamental Growth 2008-01 to 2021-12	168 / 99 68 / 1	-0.306	+0.021	-0.440	-0.462 [-0.790, -0.053]	+0.34% +1.99%
EH Fundamental Value 2008-01 to 2021-12	168 / 107 61 / 0	-0.338	-0.066	-0.556	-0.490 [-0.801, -0.024]	+0.51% +1.99%
EH Long Short Directional 2008-01 to 2021-12	168 / 107 61 / 0	-0.318	-0.054	-0.496	-0.442 [-0.780, +0.003]	+0.49% +2.03%
Macro Commodity 2008-01 to 2021-12	168 / 89 78 / 1	+0.051	+0.125	+0.032	-0.092 [-0.361, +0.111]	+0.96% +1.15%
Macro Currency 2008-01 to 2021-12	168 / 87 81 / 0	+0.223	+0.234	-0.117	-0.351 [-0.656, +0.000]	+2.02% +0.00%
Macro Discretionary Directional 2008-01 to 2021-12	168 / 95 71 / 2	-0.031	-0.141	-0.183	-0.042 [-0.416, +0.276]	+1.44% +0.56%
Macro Discretionary Thematic 2008-01 to 2021-12	168 / 87 77 / 4	-0.052	-0.122	-0.060	+0.062 [-0.345, +0.420]	+1.18% +1.10%
Macro Multi-Strategy 2008-01 to 2021-12	168 / 101 65 / 2	-0.142	+0.196	-0.347	-0.543 [-0.930, +0.015]	+0.58% +1.77%
Macro Systematic Directional 2008-01 to 2021-12	168 / 84 84 / 0	+0.173	+0.023	+0.068	+0.045 [-0.284, +0.379]	+1.87% +0.22%
Trend Following Directional 2008-01 to 2021-12	168 / 86 82 / 0	+0.120	+0.070	+0.022	-0.048 [-0.347, +0.267]	+1.56% +0.52%
Credit 2008-01 to 2021-12	168 / 124 43 / 1	-0.371	-0.072	-0.505	-0.434 [-0.775, +0.050]	+0.54% +2.60%
ED Credit Arbitrage 2008-01 to 2021-12	168 / 128 40 / 0	-0.426	-0.160	-0.545	-0.384 [-0.734, +0.146]	+0.54% +2.69%
ED Activist 2008-01 to 2021-12	168 / 97 70 / 1	-0.328	+0.071	-0.485	-0.557 [-0.852, -0.088]	+0.25% +2.18%
ED Multi-Strategy 2008-01 to 2021-12	168 / 106 62 / 0	-0.214	+0.056	-0.223	-0.279 [-0.670, +0.170]	+0.32% +2.30%
ED Special Situations 2008-01 to 2021-12	168 / 107 61 / 0	-0.363	-0.044	-0.494	-0.450 [-0.771, +0.082]	+0.36% +2.26%
RV Volatility 2008-01 to 2021-12	168 / 121 46 / 1	-0.294	-0.056	-0.327	-0.271 [-0.642, +0.071]	+0.39% +2.45%
RV Fixed Income Directional 2008-01 to 2021-12	168 / 131 37 / 0	-0.389	-0.066	-0.541	-0.476 [-0.817, +0.059]	+0.56% +2.79%

Table A4 Managed futures and HFRX equity styles

Comparator and dates	N all / + − / zero	Corr All	Corr B > 0	Corr B < 0	Difference [95% interval]	Conquest QM mean + / −
SG CTA 2000-01 to 2026-09	321 / 181 140 / 0	+0.280	+0.192	+0.123	-0.069 [-0.363, +0.242]	+2.05% -0.05%
Barclay CTA 1999-05 to 2026-09	329 / 184 145 / 0	+0.338	+0.295	+0.178	-0.118 [-0.391, +0.165]	+2.04% -0.09%
SG Trend 2000-01 to 2023-11	287 / 159 128 / 0	+0.301	+0.234	+0.143	-0.091 [-0.379, +0.224]	+2.12% -0.06%
SG Short-Term Traders 2008-01 to 2026-07	223 / 107 116 / 0	+0.353	+0.197	+0.221	+0.024 [-0.213, +0.240]	+2.37% -0.11%
HFRX Equity Hedge 1999-05 to 2021-12	272 / 166 106 / 0	-0.157	+0.006	-0.397	-0.403 [-0.655, -0.071]	+0.92% +1.24%
HFRX Equity Market Neutral 1999-05 to 2021-12	272 / 154 116 / 2	-0.087	+0.022	-0.369	-0.391 [-0.719, +0.004]	+1.25% +0.78%
HFRX Equity Short Bias 2005-01 to 2021-12	204 / 76 127 / 1	+0.289	+0.467	+0.048	-0.419 [-0.740, +0.100]	+2.13% +0.37%

Table A5 Conquest RC and illustrative blends

Comparator and dates	N all / + − / zero	Corr All	Corr B > 0	Corr B < 0	Difference [95% interval]	Conquest QM mean + / −
Conquest RC 2007-01 to 2026-09	237 / 173 64 / 0	+0.148	+0.137	+0.046	-0.092 [-0.377, +0.152]	+1.40% +0.52%
50% equity / 50% Conquest QM 2007-01 to 2026-09	237 / 156 81 / 0	+0.572	+0.554	+0.317	-0.237 [-0.421, +0.007]	+2.28% -1.00%
50% equity / 50% RC 2007-01 to 2026-09	237 / 159 78 / 0	-0.177	+0.042	-0.354	-0.396 [-0.627, -0.161]	+0.75% +2.00%
50% Conquest QM / 50% RC 2007-01 to 2026-09	237 / 165 72 / 0	+0.903	+0.874	+0.765	-0.109 [-0.224, +0.000]	+2.80% -2.60%

The equity-Conquest QM and Conquest QM-RC blends contain Conquest QM directly, so their correlations with Conquest QM are partly mechanical. Equity-RC is also an illustrative composite rather than an independent manager. Self-correlation of Conquest QM is an identity and is not reported as an investment comparison.

Table A6 Conquest QM and private direct lending at quarterly frequency

Comparator and dates	N all / + − / zero	Corr All	Corr B > 0	Corr B < 0	Difference	Conquest QM mean + / −
CDLI private loans 2004 Q4 to 2026 Q2	87 / 81 6 / 0	-0.440	-0.412	-0.351	+0.061	+2.70% +11.00%

Quarterly returns and Conquest QM means. This separate row does not enter the 56 monthly correlation-test family. There are only six negative-CDLI quarters. The illustrative middle-95% four-quarter bootstrap range for the difference is -0.723 to +0.941 among 9,553 valid draws out of 10,000; invalid draws lack enough distinct negative observations. It is not a reliable population-coverage interval. Leaving out one loss quarter changes the negative-quarter correlation from -0.807 to -0.063. No stable sign-asymmetry claim follows.

Appendix B Complete regime performance screen

All 49 distinct primitive records remain in the family used for the main performance screen. The test is a two-sided mean-return difference with 12-month Bartlett HAC inference. Holm-adjusted $p < 0.05$ defines inclusion. Bracketed 95% HAC intervals are pointwise and unadjusted; an interval can exclude zero even when the adjusted test does not meet the screen. An asterisk marks a qualifying row. BH q-values are secondary and do not replace the Holm screen. A failed screen does not establish equal regime returns.

Every row reports its own complete test window, risk-averse and risk-seeking month counts, arithmetic monthly means and RA-minus-RS difference. This appendix is separate from the 56-row correlation inventory, which also retains alternate commodity source windows and synthetic portfolio combinations. The complete tested universe, rather than the selected main-table subset, is the basis for the multiplicity adjustment.

Table B1 Public markets

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Raw p / Holm p BH q
* S&P 500 TR 1997-01 to 2026-09	70 / 287	-1.20%	+1.42%	-2.62 [-4.01, -1.22]	<0.001 / 0.008 <0.001
Bloomberg US Aggregate TR 1997-01 to 2026-09	70 / 287	+0.36%	+0.33%	+0.02 [-0.29, +0.34]	0.879 / 1.000 0.897
* Russell 2000 TR 1997-01 to 2021-12	64 / 236	-2.43%	+1.79%	-4.23 [-5.93, -2.52]	<0.001 / <0.001 <0.001
Bloomberg Commodity TR 1997-01 to 2019-03	59 / 208	-1.84%	+0.68%	-2.52 [-4.40, -0.64]	0.009 / 0.155 0.013
Agriculture TR 1997-01 to 2019-03	59 / 208	-1.25%	+0.27%	-1.51 [-3.45, +0.43]	0.127 / 1.000 0.163
Energy TR 1997-01 to 2019-03	59 / 208	-2.39%	+0.71%	-3.09 [-6.13, -0.05]	0.046 / 0.694 0.065
* Industrial Metals TR 1997-01 to 2019-03	59 / 208	-2.47%	+1.33%	-3.80 [-6.14, -1.46]	0.002 / 0.039 0.003
Precious Metals TR 1997-01 to 2019-03	59 / 208	-1.60%	+1.22%	-2.82 [-4.72, -0.92]	0.004 / 0.085 0.007
Dow Jones Composite All REIT TR 2009-02 to 2021-12	26 / 129	-0.98%	+1.82%	-2.80 [-5.62, +0.03]	0.052 / 0.731 0.071

Table B2 HFRI established categories

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Raw p / Holm p BH q
* Fund Weighted Composite 1997-01 to 2021-12	64 / 236	-0.81%	+0.96%	-1.77 [-2.57, -0.98]	<0.001 / <0.001 <0.001
* Equity Hedge Total 1997-01 to 2021-12	64 / 236	-0.99%	+1.16%	-2.15 [-3.22, -1.08]	<0.001 / 0.003 <0.001
* Event-Driven Total 1997-01 to 2021-12	64 / 236	-0.94%	+1.08%	-2.01 [-2.88, -1.15]	<0.001 / <0.001 <0.001
Macro Total 1997-01 to 2021-12	64 / 236	-0.01%	+0.60%	-0.61 [-1.16, -0.06]	0.030 / 0.485 0.044
* Relative Value Total 1997-01 to 2021-12	64 / 236	-0.43%	+0.82%	-1.25 [-1.97, -0.53]	<0.001 / 0.018 0.001
* Fund of Funds Composite 1997-01 to 2021-12	64 / 236	-0.77%	+0.72%	-1.49 [-2.28, -0.69]	<0.001 / 0.008 <0.001
Macro Systematic Diversified 1997-01 to 2021-12	64 / 236	+0.48%	+0.60%	-0.12 [-0.83, +0.59]	0.737 / 1.000 0.802
Equity Market Neutral 1997-01 to 2021-12	64 / 236	+0.10%	+0.40%	-0.30 [-0.75, +0.15]	0.190 / 1.000 0.233
* Quantitative Directional 1997-01 to 2021-12	64 / 236	-1.27%	+1.19%	-2.46 [-3.45, -1.47]	<0.001 / <0.001 <0.001
* Distressed and Restructuring 1997-01 to 2021-12	64 / 236	-0.93%	+1.05%	-1.98 [-2.84, -1.13]	<0.001 / <0.001 <0.001
Merger Arbitrage 1997-01 to 2021-12	64 / 236	-0.08%	+0.66%	-0.74 [-1.29, -0.19]	0.009 / 0.155 0.013
Convertible Arbitrage 1997-01 to 2021-12	64 / 236	-0.71%	+0.92%	-1.64 [-2.82, -0.45]	0.007 / 0.140 0.011
* Fixed Income Corporate 1997-01 to 2021-12	64 / 236	-0.93%	+0.82%	-1.75 [-2.59, -0.91]	<0.001 / 0.002 <0.001
* Emerging Markets Total 1997-01 to 2021-12	64 / 236	-2.20%	+1.41%	-3.61 [-5.19, -2.02]	<0.001 / <0.001 <0.001

Table B3 HFRI subcategories

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Raw p / Holm p BH q
* EH Fundamental Growth 2008-01 to 2021-12	32 / 136	-2.97%	+1.16%	-4.14 [-5.81, -2.46]	<0.001 / <0.001 <0.001
* EH Fundamental Value 2008-01 to 2021-12	32 / 136	-2.20%	+1.13%	-3.33 [-4.76, -1.90]	<0.001 / <0.001 <0.001
* EH Long Short Directional 2008-01 to 2021-12	32 / 136	-2.38%	+1.12%	-3.50 [-4.99, -2.01]	<0.001 / <0.001 <0.001
Macro Commodity 2008-01 to 2021-12	32 / 136	-0.10%	+0.39%	-0.49 [-1.21, +0.22]	0.176 / 1.000 0.221
Macro Currency 2008-01 to 2021-12	32 / 136	-0.04%	+0.09%	-0.13 [-0.53, +0.27]	0.529 / 1.000 0.590
* Macro Discretionary Directional 2008-01 to 2021-12	32 / 136	-0.65%	+0.34%	-0.99 [-1.49, -0.49]	<0.001 / 0.005 <0.001
* Macro Discretionary Thematic 2008-01 to 2021-12	32 / 136	-0.87%	+0.39%	-1.26 [-1.88, -0.65]	<0.001 / 0.003 <0.001
Macro Multi-Strategy 2008-01 to 2021-12	32 / 136	-0.57%	+0.46%	-1.03 [-1.72, -0.34]	0.004 / 0.085 0.007
Macro Systematic Directional 2008-01 to 2021-12	32 / 136	+0.52%	+0.13%	+0.38 [-0.61, +1.38]	0.448 / 1.000 0.522
Trend Following Directional 2008-01 to 2021-12	32 / 136	+0.26%	+0.22%	+0.04 [-0.80, +0.89]	0.919 / 1.000 0.919
* Credit 2008-01 to 2021-12	32 / 136	-1.31%	+0.83%	-2.14 [-3.21, -1.06]	<0.001 / 0.004 <0.001
* ED Credit Arbitrage 2008-01 to 2021-12	32 / 136	-1.36%	+0.87%	-2.23 [-3.61, -0.85]	0.002 / 0.040 0.003
* ED Activist 2008-01 to 2021-12	32 / 136	-2.64%	+1.17%	-3.80 [-6.04, -1.56]	0.001 / 0.026 0.002
* ED Multi-Strategy 2008-01 to 2021-12	32 / 136	-1.77%	+0.84%	-2.61 [-3.95, -1.28]	<0.001 / 0.005 <0.001
* ED Special Situations 2008-01 to 2021-12	32 / 136	-1.84%	+1.03%	-2.87 [-4.13, -1.62]	<0.001 / <0.001 <0.001
* RV Volatility 2008-01 to 2021-12	32 / 136	-0.60%	+0.44%	-1.04 [-1.58, -0.50]	<0.001 / 0.006 <0.001
* RV Fixed Income Directional 2008-01 to 2021-12	32 / 136	-1.26%	+0.85%	-2.12 [-3.27, -0.97]	<0.001 / 0.010 <0.001

Table B4 Managed futures HFRX and Conquest

Series and test dates	Months RA / RS	RA mean	RS mean	Difference pp [95% HAC interval]	Raw p / Holm p BH q
SG CTA 2000-01 to 2026-09	51 / 270	+0.33%	+0.42%	-0.09 [-0.98, +0.79]	0.837 / 1.000 0.872
Barclay CTA 1997-01 to 2026-09	70 / 287	+0.48%	+0.29%	+0.19 [-0.34, +0.71]	0.478 / 1.000 0.545
SG Trend 2000-01 to 2023-11	49 / 238	+0.38%	+0.57%	-0.19 [-1.70, +1.32]	0.806 / 1.000 0.858
SG Short-Term Traders 2008-01 to 2026-07	38 / 185	+0.62%	-0.05%	+0.67 [+0.20, +1.15]	0.006 / 0.116 0.009
* HFRX Equity Hedge 1998-01 to 2021-12	55 / 233	-1.18%	+0.82%	-2.01 [-3.00, -1.02]	<0.001 / 0.003 <0.001
HFRX Equity Market Neutral 1998-01 to 2021-12	55 / 233	-0.24%	+0.12%	-0.36 [-0.76, +0.03]	0.072 / 0.937 0.095
* HFRX Equity Short Bias 2005-01 to 2021-12	38 / 166	+2.73%	-1.51%	+4.24 [+2.30, +6.18]	<0.001 / <0.001 <0.001
Conquest QM 1999-05 to 2026-09	55 / 274	+3.11%	+0.70%	+2.41 [+0.64, +4.18]	0.008 / 0.150 0.012
Conquest RC 2007-01 to 2026-09	41 / 196	+0.87%	+1.34%	-0.47 [-1.34, +0.39]	0.281 / 1.000 0.336

Supplementary strategy and fixed portfolio comparisons

The following descriptive comparisons preserve the earlier common-sample analysis. They are not members of the selected main performance set. RC does not meet the primary regime mean-difference screen, and synthetic blends are not treated as independent primitive return records.

Table B5 Common sample strategy comparison

Series	RA mean	RS mean	RA volatility	RS volatility	RA ratio	RS ratio
Conquest QM	+3.75%	+0.62%	6.13%	3.50%	2.12	0.61
Conquest RC	+0.87%	+1.34%	2.29%	2.17%	1.31	2.15
S&P 500 TR	-2.08%	+1.61%	4.69%	4.10%	-1.53	1.36

January 2007-September 2026; 237 months, including 41 RA and 196 RS. Means and population volatilities are monthly; ratio = mean / volatility × square root of 12 with no risk-free deduction. These matched-window means are not the native-window estimates used for the primary screen.

Table B6 Fixed portfolio combinations

Monthly rebalanced portfolio	RA mean	RS mean	CAGR	Annual volatility	Month end drawdown
50% equity / 50% Conquest QM	+0.84%	+1.11%	13.13%	8.96%	-16.76%
50% equity / 50% RC	-0.60%	+1.48%	13.75%	9.42%	-22.84%
50% Conquest QM / 50% RC	+2.31%	+0.98%	15.11%	8.76%	-10.98%

Same common sample; fixed 50/50 capital weights, unoptimized. Embedded strategy fees are retained; no additional portfolio costs or taxes. The Conquest QM-RC combination partly reweights overlapping models. Its lower volatility and drawdown than Conquest QM alone do not establish dominance: RC alone has CAGR 15.89%, volatility 7.60% and month-end drawdown -6.78%.

Appendix C Complete quarterly exposure tests

These six series form two separate exploratory families. Fraction uses the share of each quarter's months classified RA and reports the fitted zero-to-full exposure coefficient. Majority reports the observed mean difference between quarters with at least two RA months and the remaining quarters. Each family has its own six-test Holm adjustment. All effects and intervals are percentage points per quarter. These tests do not change the monthly 49-record family.

Table C1 Fractional risk exposure

Series and sample	Quarters	Effect pp	95% HAC interval	Raw p	Holm p
CDLI private loans 2004Q4 to 2026Q2	87	-2.64	[-4.15, -1.14]	<0.001	0.005
Conquest QM 2004Q4 to 2026Q2	87	+12.33	[+4.99, +19.66]	0.001	0.006
S&P 500 TR 2004Q4 to 2026Q2	87	-11.14	[-17.76, -4.52]	0.001	0.006
US Aggregate TR 2004Q4 to 2026Q2	87	-0.33	[-2.66, +2.01]	0.782	0.825
SG CTA 2004Q4 to 2026Q2	87	+3.47	[+0.03, +6.92]	0.048	0.145
Conquest RC 2007Q1 to 2026Q2	78	+0.83	[-1.17, +2.82]	0.412	0.825

Table C2 Majority quarter classification

Series and sample	Quarters	Effect pp	95% HAC interval	Raw p	Holm p
CDLI private loans 2004Q4 to 2026Q2	87	-1.27	[-2.25, -0.28]	0.013	0.075
Conquest QM 2004Q4 to 2026Q2	87	+4.99	[-1.32, +11.30]	0.120	0.599
S&P 500 TR 2004Q4 to 2026Q2	87	-3.88	[-8.93, +1.17]	0.130	0.599
US Aggregate TR 2004Q4 to 2026Q2	87	-0.21	[-1.93, +1.51]	0.809	0.812
SG CTA 2004Q4 to 2026Q2	87	+1.22	[-1.63, +4.07]	0.396	0.812
Conquest RC 2007Q1 to 2026Q2	78	+0.93	[-0.74, +2.61]	0.271	0.812

Pointwise four-quarter Bartlett HAC intervals; n/(n-2) scaling and Student-t reference. Only three full-window quarters are entirely RA. None of the six majority-quarter tests meets the 5% Holm threshold. RC's native quarterly window is shorter; it is not used in the liquidity or loss-breadth analysis.

Appendix D Daily and monthly equity frequency sensitivity

This appendix documents the S&P 500 price-return supplement in Table 5A. It excludes dividends and remains separate from the paper's monthly total-return tests, quarterly private-credit comparisons and 49-record performance screen. No daily Conquest QM correlation or daily liquidity result is estimated.

Data alignment and units

The daily price source contains 6,707 numeric closes from January 31, 2000 through September 30, 2026, matching the NYSE session calendar without missing or extra sessions. These produce 6,706 close-to-close returns from February 1, 2000. Compounding the same daily returns within each calendar month produces 320 monthly returns, agreeing with the supplied monthly SPX returns to a maximum absolute error of 1.1×10^{-15} in decimal units. Two genuine unchanged-close returns are retained; missing holiday prices are not converted to zeros.

The upstream daily labels exactly reproduce all 7,739 calculator states through September 2026. Majority aggregation reproduces all 357 monthly labels, including one tie assigned RA. Of these months, 166 contain both daily states. On the matched return sample, 724 of 6,706 daily labels (10.80%) differ from their full-month label. Holding daily returns fixed while replacing each daily state with its full-month state reduces the daily mean gap from -0.3573 to -0.1508 percentage points. The latter grouping uses later observations within the month and is descriptive.

Table D1 Daily price returns under alternative label alignments

Label attached to each daily return	RA / RS observations	RA mean return	RS mean return	RA / RS SD ratio
Same-date daily state	1,210 / 5,496	-0.2601%	+0.0972%	1.836
Prior US trading-date state	1,209 / 5,497	+0.0739%	+0.0236%	1.792
Latest strictly earlier-dated state	1,206 / 5,500	+0.0731%	+0.0239%	1.796
Full-month majority state	1,072 / 5,634	-0.0940%	+0.0568%	1.633

Same 6,706 daily price returns in every row. Means are daily percentages; ratios use sample standard deviations. All groupings are observational, and the full-month state incorporates information from later in the month.

The prior-US-trading-date label is dated on the close that starts the return interval. The latest strictly earlier risk observation can instead be dated on a US market holiday after that starting close. Seven return labels differ between these conventions. Neither a calendar date nor this alignment verifies that the state was published and available before a trading decision, or that its historical vintage was unrevised. Both prior-dated mean gaps are statistically indistinguishable from zero.

Inference and interpretation

Circular moving-block inference jointly resamples returns and labels in chronological blocks, with 10,000 draws and pointwise percentile 95% intervals. Primary blocks contain 20 trading observations or six months. Newey-West/Bartlett regressions of return on a constant and the RA indicator use the matching lag count, finite-sample covariance scaling and normal-reference p-values. These exploratory tests are not added to, or adjusted as part of, the paper's primary 49-record family.

Table D2 Primary dependence-aware mean-gap estimates

Return frequency and label alignment	Block / HAC lags	RA minus RS mean gap pp	95% block interval pp	HAC p-value
Daily / same-date state	20 days	-0.3573	[-0.4499, -0.2690]	<0.001
Monthly / monthly state	6 months	-3.3198	[-4.8821, -1.8909]	<0.001
Daily / prior US trading date	20 days	+0.0503	[-0.0432, +0.1509]	0.307
Daily / latest earlier risk date	20 days	+0.0492	[-0.0449, +0.1507]	0.319
Daily / full-month state	20 days	-0.1508	[-0.2357, -0.0713]	<0.001

All results use February 2000-September 2026. Mean gaps and intervals are percentage points per return period, so daily and monthly magnitudes are not directly comparable. The block interval and HAC p-value use distinct inference methods.

Five- and 63-day block sensitivities retain negative same-date daily mean gaps and intervals spanning zero for both prior-dated alignments. Three- and 12-month blocks retain a negative monthly mean gap. The primary block interval for the daily same-date SD ratio is 1.505-2.184; for the prior-US-trading-date ratio it is 1.486-2.112. The monthly SD-ratio interval, 0.855-1.404, includes one. Thus the daily volatility contrast persists under prior-date alignment, while the monthly volatility contrast is less precisely established.

For a dividend and period check, the supplied monthly total-return series over this same shorter window has means of -2.0046% RA and +1.3113% RS, versus the price-return means of -2.1612% and +1.1585%. The original full-window Table 5 total-return result remains -1.20% RA and +1.42% RS. Different return definitions and sample periods are kept separate.

No conditional CAGR, trading profit, Sharpe ratio or improvement in Conquest portfolio returns is inferred. Conditional groups are non-contiguous; their average returns are not an investable switching path. Dependence-aware inference does not resolve intraday timing, historical revisions, classification endogeneity or implementation costs. Testing dynamic allocation requires the actual model return streams, a fixed-allocation comparator and decision-time information.