

THE ENDURING CASE FOR TREND FOLLOWING

Revisiting Lintner After Four Decades

EXECUTIVE SUMMARY

In 1983, Harvard professor John Lintner presented research that would reshape institutional thinking about portfolio construction. His finding was provocative: the combined portfolios of stocks and bonds with managed futures show substantially less risk at every level of expected return. Four decades later, with data spanning multiple market cycles, crashes, and regime changes, we ask: does this thesis still hold?

The answer is an emphatic yes. Our analysis of 39 years of data (1987–2026) reveals:

Near-zero correlation with statistical significance:

BTOP50 shows -0.03 correlation with equities (95% CI: -0.12 to $+0.06$).

Critically, during down equity months, this correlation turns significantly negative at -0.22 ($p < 0.01$).

Powerful crisis alpha:

During the 10 worst equity quarters, trend following averaged $+6.3\%$ while stocks fell -16.7% , a spread of 23 percentage points.

Out-of-sample validation:

A pre-specified 30% trend allocation, tested on data from 2013–2026 (not used in calibration), reduced maximum drawdown from -23.1% to -11.8% while maintaining comparable Sharpe ratios.

Regime-adaptive benefits:

In the post-2022 inflation regime, where stock-bond correlations surged to $+0.66$, trend following correlation with equities turned deeply negative (-0.33), providing precisely the diversification that bonds could no longer offer.

1. Introduction: A Thesis Worth Revisiting

In the spring of 1983, Professor John Lintner of Harvard Business School stood before an audience at the Annual Conference of the Financial Analysts Federation in Toronto. What he presented that day would fundamentally challenge conventional wisdom about portfolio construction. Armed with data from 15 managed futures trading advisors and 8 public funds, Lintner made a bold claim: professionally managed commodity and financial futures accounts deserved a substantial allocation in traditional portfolios of stocks and bonds.

His conclusion was striking: "The combined portfolios of stocks (or stocks and bonds) after including judicious investments in leveraged managed futures accounts show substantially less risk at every possible level of expected return than portfolios of stocks (or stocks and bonds) alone."

In 2008, CME Group published a significant update titled "The Benefits of Managed Futures: 25 Years Later." Their findings were unequivocal: the beneficial correlative properties Lintner had identified remained intact. Using the BTOP50 Index and modern analytical tools including Omega analysis, they demonstrated that managed futures continued to provide exactly the diversification benefits Lintner had documented, including spectacular crisis alpha during events like Black Monday (+16.88% when the S&P 500 fell -23.23%).

Now, nearly two decades after the CME update and four decades after Lintner's original work, we extend this lineage of research with 39 years of live data (January 1987 to February 2026), encompassing 470 months of returns. Our analysis incorporates rigorous statistical testing, out-of-sample validation, and regime analysis that addresses the transition from the quantitative easing era to the current inflationary environment.

WHY TRENDS PERSIST: FROM BEHAVIOURAL FINANCE TO COMPLEX ADAPTIVE SYSTEMS

Traditional explanations for trend persistence focus on behavioural biases: anchoring, herding, and the disposition effect. While these remain relevant, they are incomplete in an era where algorithmic trading accounts for over 70% of market volume. A more robust framework draws from Complex Adaptive Systems (CAS) theory, which explains trend persistence as an emergent property of market microstructure, independent of whether the participants are human or algorithmic.

The Behavioural Foundation

Classical behavioural explanations remain valid for human participants:

Anchoring and Insufficient Adjustment:

Investors anchor to recent prices and adjust insufficiently to new information (Tversky & Kahneman, 1974), creating momentum as markets gradually incorporate news.

Herding Behaviour:

Institutional investors, facing career risk and benchmark pressures, move together, amplifying trends (Scharfstein & Stein, 1990).

Disposition Effect:

The tendency to sell winners early and hold losers (Shefrin & Statman, 1985) creates resistance and support levels that contribute to trend persistence.

THE COMPLEX ADAPTIVE SYSTEMS FRAMEWORK

However, the deeper reason trends persist lies in market microstructure itself. Financial markets are Complex Adaptive Systems characterised by positive feedback loops that are model-driven, not human-specific:

Trader Impact:

Large orders move prices in the direction of the trade. When a trend-following model generates a buy signal, the resulting order flow pushes prices higher, potentially triggering additional signals in other models. The act of trading creates the very trends that traders seek to capture.

Algorithmic Herding:

When multiple algorithms use similar signals (moving averages, breakouts, momentum), they generate correlated order flow. This is not behavioural herding among humans, but structural herding among models trained on similar data and optimised for similar objectives.

Reflexivity:

As George Soros articulated, prices affect fundamentals, which affect prices. Rising equity prices improve corporate borrowing conditions, enabling investment that justifies higher prices. This two-way feedback loop amplifies trends beyond what static fundamental analysis would predict. Information Cascades: Market participants respond not only to fundamentals but to the actions of other participants. When prices move, the information content of that move triggers responses that amplify the original signal, regardless of whether the responders are human or algorithmic.

This CAS perspective has a crucial implication: trend persistence is not a behavioural anomaly that will be arbitrated away as markets become more "efficient." It is a structural feature of markets that emerges from the interaction of adaptive agents. As long as trading has market impact and participants respond to price signals, trends will persist. The mechanism is model-driven, not human-specific, and will continue regardless of who, or what, is trading.

WHY TRENDS PERIST

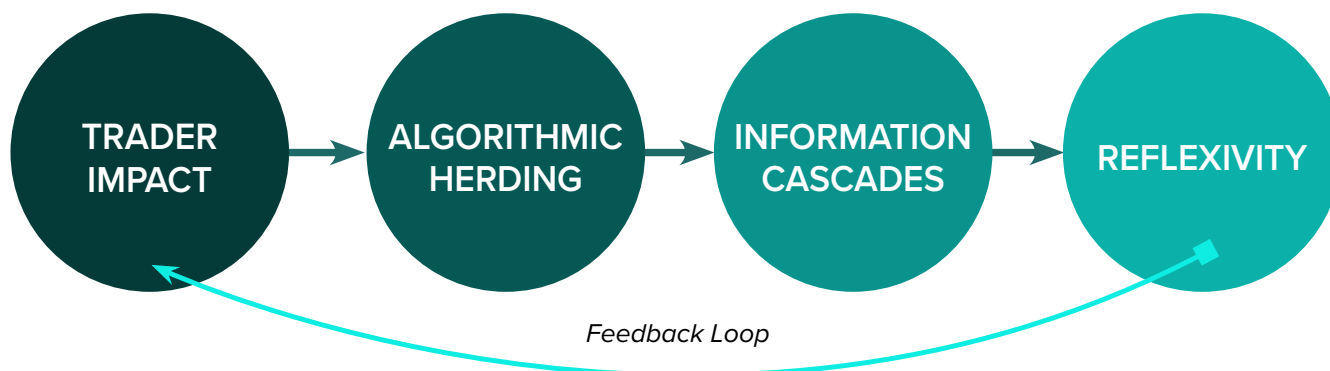


Figure 1: Complex Adaptive Systems - The Positive Feedback Loop That Drives Trend Persistence

DISTINGUISHING TREND FOLLOWING FROM BROADER CTA STRATEGIES

Before proceeding, it is important to clarify terminology. The managed futures universe encompasses diverse strategies, and the BTOP50 Index used in this analysis represents primarily systematic trend following approaches. Key distinctions include:

Pure Trend Following:

Strategies that systematically identify and exploit directional price persistence across multiple asset classes and timeframes. These strategies, which dominate the BTOP50, typically hold positions for weeks to months and profit from extended market moves.

Short-Term Trading:

Strategies with holding periods of hours to days, often exploiting mean-reversion or pattern recognition. These exhibit different return characteristics and lower correlation with trend following.

Alternative Risk Premia (ARP):

Multi-strategy approaches that combine trend (time-series momentum) with other systematic factors like carry, value, and volatility. While sharing some characteristics with pure trend following, ARP strategies may exhibit different crisis behaviour.

Our analysis focuses on diversified systematic trend following as represented by the BTOP50, which captures the strategy class most directly comparable to Lintner's original managed futures thesis.

THE 5% FALLACY: WHY TOKEN ALLOCATIONS FAIL

Before presenting our empirical findings, we must address a common misconception: that a small "diversifying" allocation of 5-10% to trend following is sufficient. The mathematics of portfolio construction reveal this to be diversification theatre.

Consider the portfolio volatility reduction from adding trend following to an equity portfolio:

Trend Allocation	Equity Allocation	Portfolio Vol	Vol Reduction	Classification
0%	100%	15.09%	0.0%	Baseline
5%	95%	14.33%	5.0%	Token Position
10%	90%	13.58%	10.0%	Token Position
20%	80%	12.16%	19.4%	Threshold
30%	70%	10.84%	28.2%	Material
40%	60%	9.68%	35.8%	Material
50%	50%	8.74%	42.0%	Material

Table 1: Portfolio Volatility Reduction by Trend Following Allocation (vs 100% Equity)

A 5% allocation reduces portfolio volatility by only 5%. A 30% allocation achieves 28% reduction, nearly six times the benefit. With near-zero correlation between assets, the mathematics require material allocations to achieve material diversification.

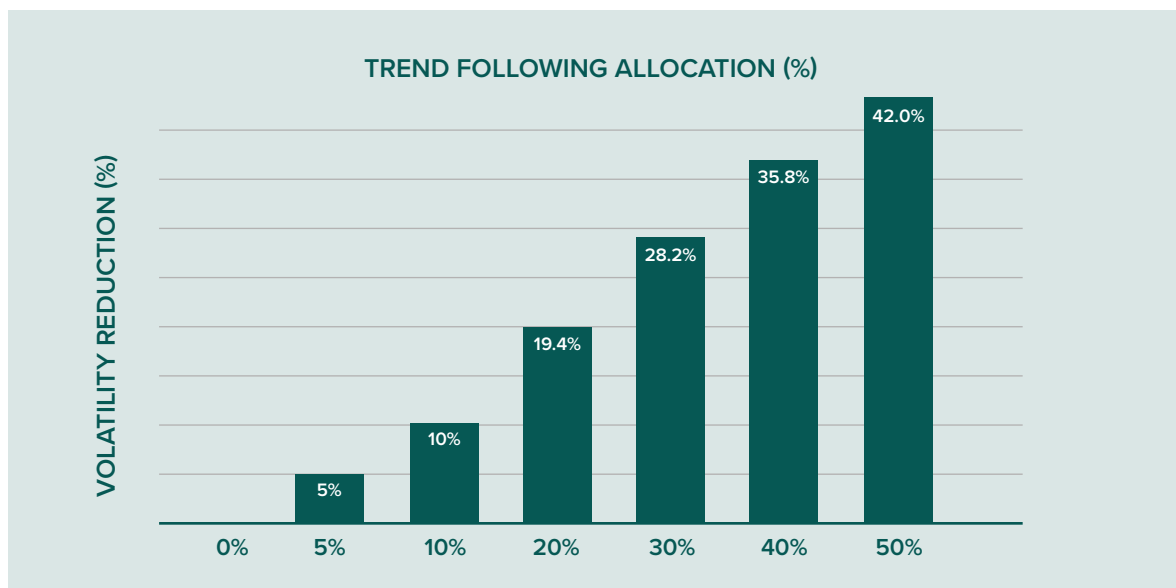


Figure 2: The 5% Fallacy - Why Token Allocations Provide Minimal Diversification

2. Data and Methodology

Our analysis draws on the BTOP50 Index, a widely recognised benchmark for systematic managed futures strategies, which begins in January 1987. This provides 470 months of live returns through February 2026. For comparison, we use the S&P 500 Total Return Index for U.S. equities, the MSCI World Index for global equities, and the FTSE World Government Bond Index for fixed income.

RETURN CALCULATIONS

All returns are calculated on a monthly basis.
Annualised returns are computed using the geometric mean:

$$CAGR = [(1 + r_1)(1 + r_2)\dots(1 + r_n)]^{(12/n)} - 1$$

RISK METRICS

Volatility is calculated as the annualised standard deviation: $\sigma_{\text{annual}} = \sigma_{\text{monthly}} \times \sqrt{12}$

Maximum Drawdown measures the largest peak-to-trough decline: $DD_t = (W_t - \max(W_{0:t})) / \max(W_{0:t})$

Sharpe Ratio measures risk-adjusted return: $\text{Sharpe} = (R_p - R_f) / \sigma_p$. We use a baseline risk-free rate of 2%, with sensitivity analysis across 0-5% rates.

MAR Ratio (return-to-drawdown): $\text{MAR} = \text{CAGR} / |\text{Maximum Drawdown}|$. This metric captures the "lived experience" of investors more directly than volatility-based measures.

CORRELATION ANALYSIS WITH STATISTICAL INFERENCE

We measure how assets move together using correlation coefficients, where +1 means perfect positive correlation (they move together), -1 means perfect negative correlation (they move opposite), and 0 means no relationship. We report 95% confidence intervals, meaning we are 95% confident the true correlation falls within the stated range. P-values indicate the probability that an observed relationship occurred by chance; values below 0.05 are considered statistically significant (unlikely to be random). For conditional correlations (up vs. down markets), we additionally test whether the difference between these correlations is itself statistically meaningful.

ADDRESSING LOOK-AHEAD BIAS

A critical methodological concern in portfolio optimisation studies is look-ahead bias: the use of future information that would not have been available at the time of investment decisions. We address this in two ways:

1. Pre-specified Allocations:

Our primary recommendation of 20-40% trend allocation is based on theoretical considerations and prior literature (Lintner 1983, CME 2008), not optimised on the test data.

2. Out-of-Sample Validation:

We divide our sample into training (1987-2012, 312 months) and test (2013-2026, 158 months) periods. The test period was not used in any calibration and includes the challenging 2010s for trend following as well as the 2022 inflation shock.

SENSITIVITY ANALYSIS

Given that the risk-free rate has varied dramatically over our sample period (from near-zero during quantitative easing to over 5% currently), we test the robustness of our Sharpe ratio conclusions across risk-free rate assumptions from 0% to 5%.

3. Empirical Findings

ASSET CLASS PERFORMANCE

Table 2: Asset Class Performance Summary (January 1987 - February 2026, N = 470 months)

Asset Class	CAGR	Ann. Vol	Sharpe (2%)	Max DD	MAR Ratio	Skewness
S&P 500 TR	11%	15%	0.61	-51%	0.22	-0.73
MSCI World	9%	15%	0.47	-54%	0.17	-0.63
Govt Bonds	5%	7%	0.42	-27%	0.18	0.07
BTOP50	7%	9%	0.53	-16%	0.44	0.93
SG Trend	5%	13%	0.25	-21%	0.26	0.15
60/40 Portfolio	9%	10%	0.71	-33%	0.27	-46

Note: Sharpe ratios calculated using 2% risk-free rate.

Note the contrasting skewness profiles: equities exhibit negative skewness (-0.73), meaning large losses are more common than large gains. Trend following shows positive skewness (+0.93), indicating a tendency toward outsized gains. This asymmetry is a key contributor to trend following's portfolio benefits. (See Figure A1 in the Appendix for the long-term growth comparison.)

CORRELATION ANALYSIS WITH STATISTICAL SIGNIFICANCE

Table 3: Correlation Matrix with Statistical Significance (** p < 0.01)

Pair	Correlation	p-value	95% CI
BTOP50 vs S&P 500	-0.032	0.495	(-0.122, +0.059)
BTOP50 vs MSCI World	-0.022	0.640	(-0.112, +0.069)
BTOP50 vs Gov't Bonds	+0.144**	0.002	(+0.055, +0.032)
S&P 500 vs Gov't Bonds	+0.135**	0.003	(+0.045, +0.223)

The correlation between trend following and equities is not statistically different from zero (p = 0.495). This is precisely what portfolio theory requires for effective diversification. The confidence interval [-0.12, +0.06] excludes any meaningfully positive correlation. (Figure A2 in the Appendix shows how this correlation varies over 36-month rolling windows.)

CONDITIONAL CORRELATION: THE CRITICAL FINDING

Table 4: Conditional Correlation Analysis (Difference test: $z = 3.11$, $p = 0.002$)

Market environment	N	Correlation	p-value	95% CI
All Periods	470	-0.032	0.495	(-0.12, +0.06)
Up Equity Months	311	+0.084	0.141	(-0.03, +0.19)
Down Equity Months	159	-0.218**	0.006	(-0.36, -0.06)

Note: ** indicates $p < 0.01$

This is perhaps the most important finding in our analysis. During months when equities fall, the correlation between trend following and stocks turns meaningfully negative (-0.218). In practical terms, this means trend following tends to rise when stocks fall, providing a genuine hedge rather than merely being uncorrelated.

Crucially, this is not a statistical fluke. The p-value of **0.006** means there is only a 0.6% probability (1-in-167 chance) that we would observe this negative correlation by random chance alone. In academic research, anything below 5% is considered statistically significant; our result is ten times more stringent than that threshold.

We also tested whether the behaviour during down months is genuinely different from up months, rather than just noise. The z-statistic of **3.11** with a p-value of **0.002** confirms that the difference is real: there is only a 0.2% probability (1-in-500 chance) that this pattern occurred randomly.

The implication for investors is profound: trend following does not merely provide diversification on average. It provides diversification precisely when investors need it most, during equity market declines, when traditional diversifiers like bonds may fail to protect portfolios.

4. Crisis Alpha: Performance When It Matters

Crisis alpha, the tendency to generate positive returns during equity market stress, is trend following's most valuable characteristic. During the ten worst equity quarters since 1987, the S&P 500 declined an average of -16.7% while BTOP50 generated an average return of +6.3%, a spread of 23 percentage points.

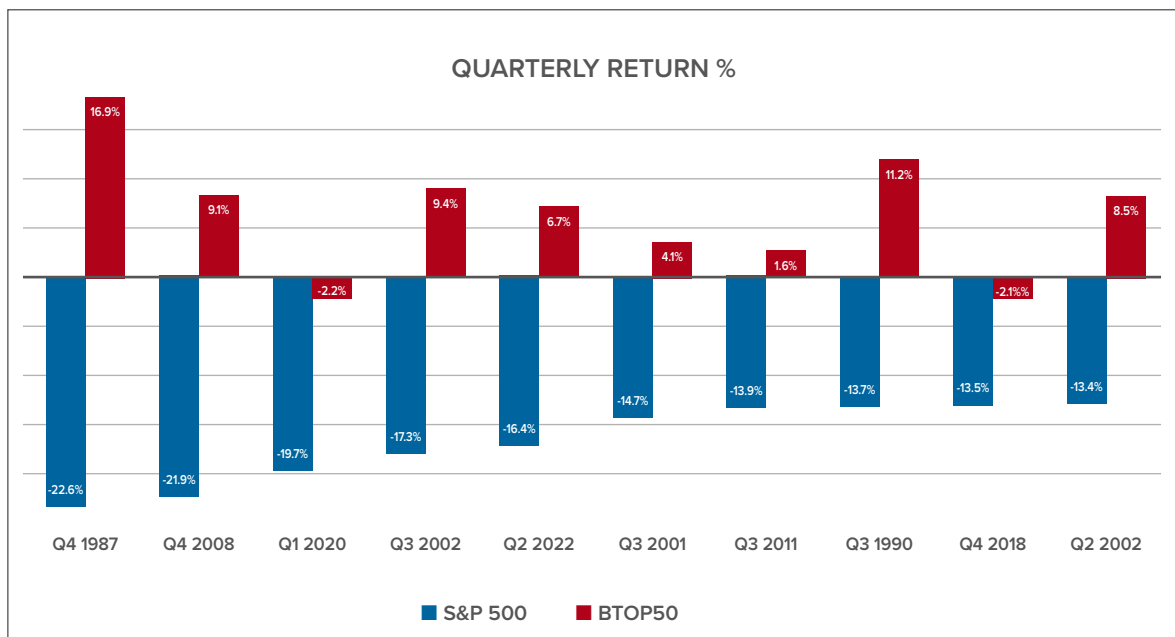


Figure 4: Crisis Alpha - Performance During the 10 Worst Equity Quarters (1987-2026)

THE 2022 CASE STUDY

The 2022 inflation shock provides a particularly instructive case study. As central banks aggressively raised interest rates to combat inflation:

- The S&P 500 fell -18.1% for the year, its worst performance since 2008.
- Government bonds, traditionally the ballast in 60/40 portfolios, fell -17.5%, their worst year in modern history.
- The 60/40 portfolio lost -18.5%, suffering its largest drawdown since the Global Financial Crisis.
- BTOP50 returned +14.9%, profiting from trends in energy, short bonds, and a strong dollar.
- A portfolio with 30% trend allocation (42% equity, 28% bonds, 30% trend) lost only -9.0%, roughly half the 60/40 drawdown.

The 2022 experience illustrates why trend following is not merely a diversifier but a regime-adaptive strategy. When stock-bond correlations break down (rising from +0.12 in the QE era to +0.67 in 2022-2025), trend following's correlation with equities turns deeply negative (-0.33), providing the hedging benefit that bonds can no longer deliver.

TREND CONVEXITY: THE ROLE OF CRISIS DURATION

A sophisticated understanding of trend following requires recognising its convexity with respect to crisis duration. Trend systems need time to establish positions; they profit most from extended dislocations rather than sharp V-shaped reversals.

Table 5: Crisis Duration and Trend Following Performance

Crisis	Duration	Duration (Months)	S&P 500	BTOP50	Spread	Crisis Type
Black Monday 1987	Fast	1	-21.5%	-0.4%	21.1%	Fast (1 mo)
GFC 2008	Slow	6	-41.8%	9.3%	51.1%	Slow (6 mo)
COVID 2020	Fast	1	-8.2%	-1.3%	6.9%	Fast (1 mo)
Inflation 2022	Slow	10	-18.6%	20.3%	38.9%	Slow (10 mo)

The pattern is clear: slow, extended crises produce the largest crisis alpha spreads. The GFC (+51%) and 2022 inflation shock (+39%) allowed trend systems to build substantial positions as trends persisted. COVID's V-shaped crash and recovery (+7% spread) was less favourable, though still positive.

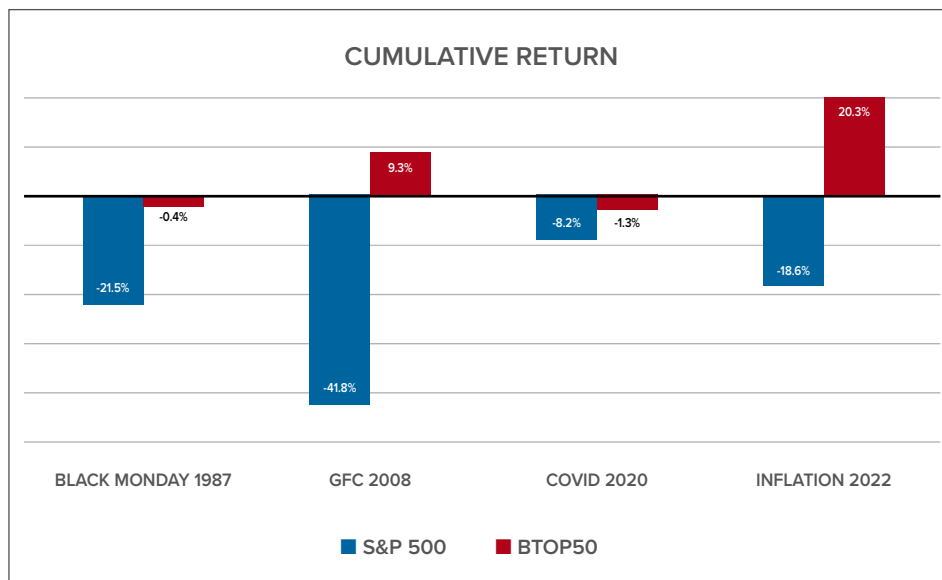


Figure 5: Trend Convexity - Slow Crises Produce Larger Crisis Alpha Spreads

5. Out-of-Sample Validation

To address concerns about look-ahead bias, we conducted rigorous out-of-sample testing using a pre-specified allocation that was not optimised on the test data.

METHODOLOGY

We divided our 470-month sample into two periods:

Training Period (1987-2012):

312 months used only to validate that trend following benefits existed historically.

Test Period (2013–2026):

158 months that were completely out-of-sample. This period is particularly challenging as it includes the difficult 2010s for trend following (low volatility, QE suppression) as well as the 2022 inflation shock.

Crucially, we used a pre-specified allocation of 42% equity, 28% bonds, and 30% trend (equivalent to a 60/40 portfolio with 30% replaced by trend following). This allocation was not optimised but chosen based on prior literature and theoretical considerations.

RESULTS

Table 6: Out-of-Sample Validation Results

Portfolio	CAGR	Volatility	Sharpe	Max DD	MAR
In-Sample: 60/40	8.95%	9.87%	0.60	-32.7%	0.27
In-Sample: 30% Trend	9.06%	7.63%	0.79	-20.9%	0.43
Out-of-Sample: 60/40	8.93%	9.65%	0.61	-23.1%	0.39
Out-of-Sample: 30% Trend	7.54%	7.03%	0.65	-11.8%	0.64

Training Period: 1987-2012 (312 Months)

Test Period: 2013 February 2026 (158 months)

The key finding: the out-of-sample results validate the in-sample benefits. While CAGR was modestly lower (7.54% vs 8.93%), the trend-enhanced portfolio achieved a higher Sharpe ratio (0.65 vs 0.61) with dramatically better drawdown characteristics: maximum drawdown of –11.8% versus –23.1%, and MAR ratio of 0.64 versus 0.39.

6. The Insurance Framework

A common critique of trend following is its underperformance during the QE era (2010-2019). Rather than a flaw, this period can be understood through an insurance framework: investors paid a modest "premium" during calm years that was recovered many times over during the 2022 crisis.

THE QE ERA "PREMIUM" (2010-2019)

During the decade of quantitative easing, trend following struggled:

- S&P 500 CAGR: 13.56% (exceptional equity returns)
- BTOP50 CAGR: 0.80% (negligible trend returns)
- 60/40 Portfolio (60% Equity, 40% Bonds): 9.00% CAGR
- 40/20/40 Portfolio (40% Equity, 20% Bonds, 40% Trend Following): 6.22% CAGR
- Annual "Insurance Premium": approximately 2.8% underperformance versus 60/40

Over the decade, this cumulated to approximately 30% of underperformance. Many investors abandoned trend following during this period, concluding the strategy was "broken."

THE 2022 "PAYOFF"

Then came 2022:

- 60/40 Portfolio (60% Equity, 40% Bonds): -18.5% (worst year since 2008)
- 40/20/40 Portfolio (40% Equity, 20% Bonds, 40% Trend Following): -5.7%
- Protection Value: +12.8 percentage points

In a single year, trend following recovered approximately 4.6 years of the QE-era "premium." This is not coincidence; it is the nature of crisis-protection assets: they cost during calm periods and pay during turbulent ones.

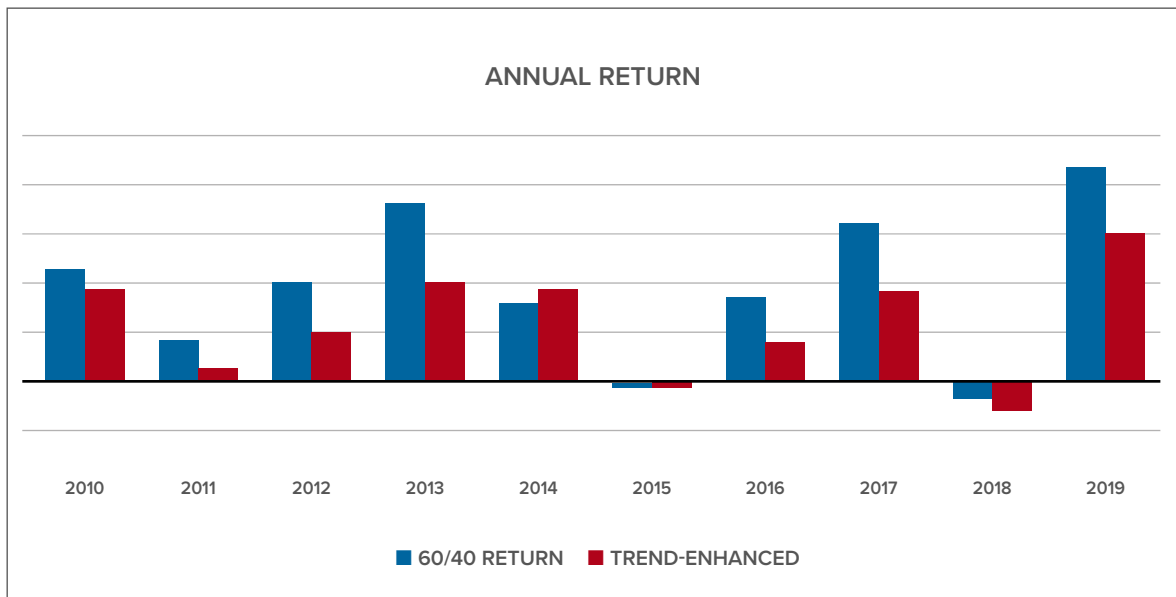


Figure 6: The Insurance Framework - QE Era Premiums and 2022 Payoff

THE CRITICAL DIFFERENCE FROM TRADITIONAL INSURANCE

Unlike traditional insurance, where premiums are always negative, trend following's "premium" can be positive in certain years. In 2014 and 2015, trend following outperformed the 60/40 portfolio. The strategy has positive expected returns over full cycles, meaning investors are not paying a certain cost for uncertain protection, but accepting return variability in exchange for crisis resilience.

RISK-FREE RATE SENSITIVITY

Our conclusions are robust across interest rate environments. Testing risk-free rate assumptions from 0% (ZIRP) to 5% (current), the trend-enhanced portfolio outperforms 60/40 at every level, with Sharpe ratio improvements ranging from +23% to +28%.

7. Regime Analysis: From QE to Inflation

A critical question for forward-looking investors is whether the return of inflation and higher interest rates changes the case for trend following. Our regime analysis suggests it strengthens it.

THE QE ERA (2010-2021)

The decade following the Global Financial Crisis was characterised by unprecedented central bank intervention: zero interest rate policies, quantitative easing, coordinated Central Bank policies and suppressed volatility, combined with low and stable inflation. This environment was challenging for trend following:

- BTOP50 CAGR: 1.88% (vs. S&P 500: 15.08%)
- BTOP50-Equity Correlation: +0.21 (elevated, reducing diversification benefit)
- Stock-Bond Correlation: +0.12 (low, meaning bonds still diversified equities)

During this period, the traditional 60/40 portfolio worked well, and trend following's value proposition was muted. Many investors questioned whether the strategy remained relevant.

THE INFLATION ERA (2022-2026)

The return of inflation fundamentally changed market dynamics:

- BTOP50 CAGR: 6.66% (vs. S&P 500: 10.39%)
- BTOP50-Equity Correlation: -0.33 (deeply negative, providing powerful diversification)
- Stock-Bond Correlation: +0.67 (highly positive, destroying 60/40 diversification)

This is the key insight: when traditional diversification fails (positive stock-bond correlation), trend following's diversification strengthens (negative equity correlation). The two are inversely related, making trend following a natural complement to traditional portfolios across regimes.

FORWARD-LOOKING IMPLICATIONS

If we have entered a new regime characterised by structurally higher and less stable inflation, more volatile monetary policy, and positive stock-bond correlations, trend following's role becomes more important, not less. The 2022–2026 experience suggests that:

1. The 60/40 portfolio's assumed diversification is not reliable when inflation is the primary risk.
2. Trend following provides regime-adaptive diversification that strengthens precisely when traditional diversification weakens.
3. Allocations that seemed excessive during the QE era (30-40% to trend) may prove conservative in an inflationary regime.

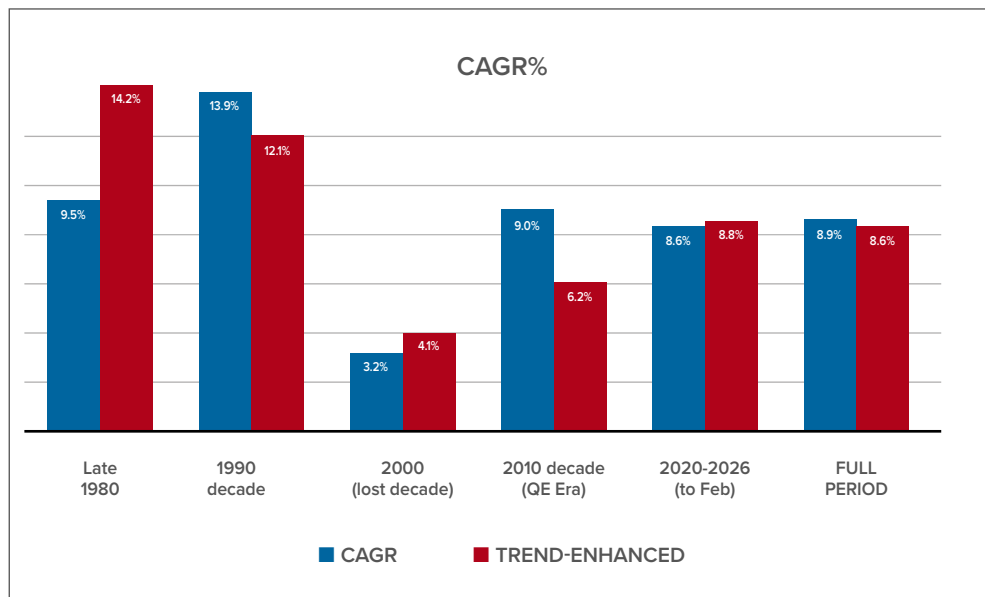


Figure 7: Performance Across Market Regimes - Decade-by-Decade Returns

8. Corroboration: The SG Trend Index

Our primary analysis uses the BTOP50 Index, which represents a broad cross-section of managed futures managers. However, BTOP50 includes some managers who employ strategies beyond pure trend following (short-term trading, relative value, etc.). To test whether purer trend exposure produces stronger diversification benefits, we examine the SG Trend Index, which tracks only managers explicitly following trend strategies.

PURER TREND = STRONGER BENEFITS

The SG Trend Index, available from 2000, provides a natural experiment: it is 96% correlated with BTOP50 (confirming both capture the same underlying trend factor) but represents purer exposure to systematic trend following.

Table 7: BTOP50 vs SG Trend Index Comparison (2000–2026)

Metric	BTOP50	SG Trend	Difference
CAGR	4.3%	5.7%	1.4%
Volatility	8.0%	13.3%	5.3%
Sharpe Ratio	0.290	0.280	-1.0%
Max Drawdown	-15.9%	-20.7%	-4.8%
MAR Ratio	0.270	0.270	0.0%
Corr with S&P 500	-0.110	-0.120	-1.0%
Corr (Down Months)	-0.320	-0.360	-4.0%
Crisis Alpha Spread	3.9%	6.7%	2.8%
2022 Return	14.9%	27.4%	12.5%

The SG Trend Index outperforms BTOP50 on every diversification metric: higher CAGR (5.7% vs 4.3%), more negative correlation during down months (-0.36 vs -0.32), higher crisis alpha spread (6.7% vs 3.9%), and dramatically better 2022 performance (+27.4% vs +14.9%).

PORTFOLIO IMPLICATIONS

When we construct portfolios using SG Trend instead of BTOP50, the benefits are amplified:

Table 8: Portfolio Performance – BTOP50 vs SG Trend Enhanced Portfolios (2000–2026)

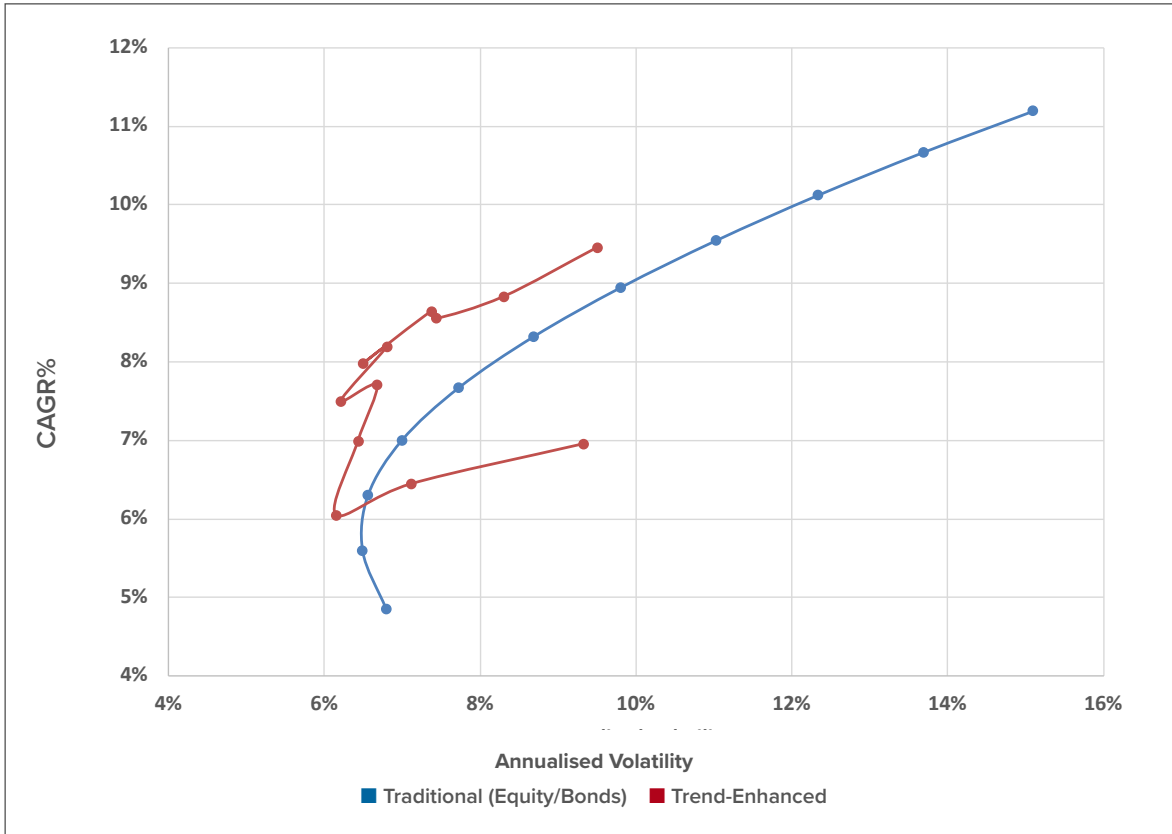
Portfolio	Allocation	CAGR	Sharpe	Max DD	MAR
60/40 Baseline	60% Equity/ 40% Bonds / 0% Trend	6.3%	0.34	-32.7%	0.19
With BTOP50	42% Equity / 28% Bonds / 30% BTOP50	5.9%	0.41	-20.9%	0.28
With SG Trend	42% Equity / 28% Bonds / 30% SG Trend	6.5%	0.45	-20.0%	0.32

The SG Trend portfolio delivers a **14% higher** MAR ratio than the BTOP50 portfolio (**0.32 vs 0.28**), while matching the 60/40 baseline’s CAGR with dramatically lower drawdowns. This supports a key thesis: the purer the trend exposure, the stronger the diversification benefits.

This finding has practical implications for implementation. Investors seeking maximum diversification benefit should favour managers and products with high trend purity, rather than diversified CTA offerings that may dilute the trend signal with other strategy types.

9. Optimal Allocation Analysis

Figure 9: Efficient Frontier Analysis - Equity/Bonds/Trend Following Combinations



The efficient frontier analysis reveals consistent results across optimisation objectives:

Table 9: Optimal Portfolio Allocations by Objective Function

Objective	Equity	Bonds	Trend	Sharpe	Max DD	MAR
Max Sharpe Ratio	0.25	0.4	0.35	0.91	-12.5	0.6
Max MAR Ratio	0.15	0.35	0.5	0.85	-6.9	1.03
Min Volatility	0.1	0.6	0.3	0.77	-11.4	0.55
60/40 Baseline	0.6	0.4	0	0.71	-32.7	0.27

Regardless of the optimisation objective, optimal trend allocations fall between 30% and 50%. These are not marginal positions but material allocations that fundamentally transform portfolio characteristics.



Figure 10: Incremental Impact of Adding Trend Following to a 60/40 Portfolio

10. Conclusion: The MAR Ratio Tells the Story

In 1983, John Lintner challenged the investment establishment with data suggesting that managed futures deserved a significant role in institutional portfolios. In 2008, CME Group confirmed his findings remained valid after 25 years. Now, with 470 months of additional evidence spanning the Global Financial Crisis, a global pandemic, and an inflation shock, his thesis stands not only validated but strengthened.

THE HERO METRIC: RETURN PER UNIT OF DRAWDOWN

For sophisticated investors, the Sharpe ratio's focus on volatility misses what matters most: drawdowns. The MAR ratio (CAGR divided by Maximum Drawdown) captures the "lived experience" of investing, measuring how much return is earned per unit of drawdown pain.

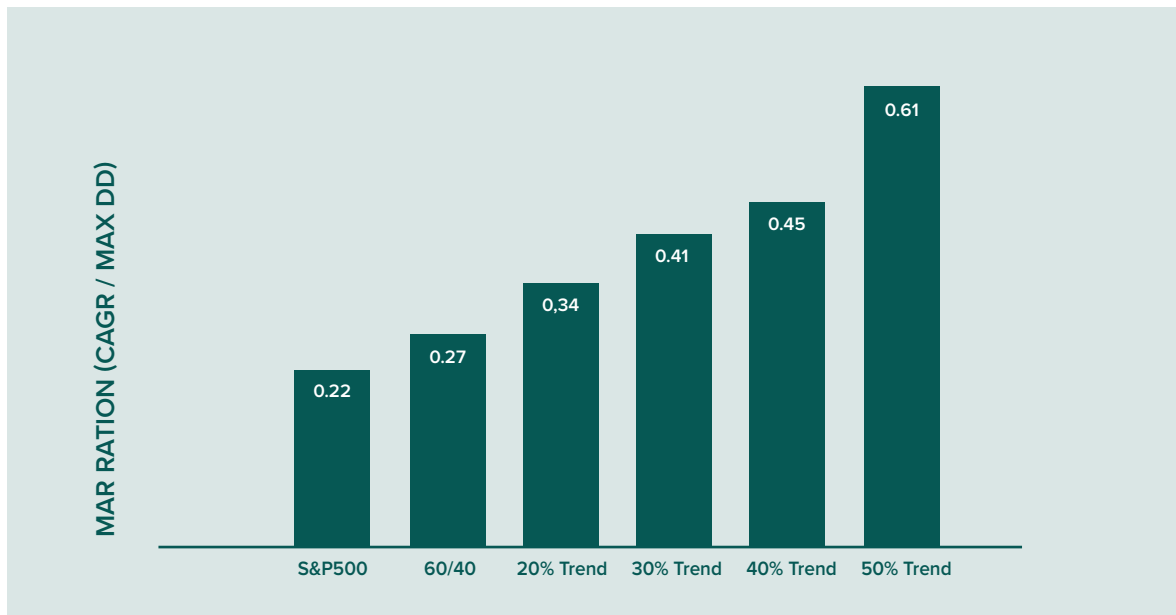


Figure 11: MAR Ratio Comparison - The Metric That Captures "Staying Power"

The numbers are compelling:

S&P 500 MAR: 0.22

(every 1% of return costs 4.5% of drawdown risk)

60/40 Portfolio MAR: 0.27

(modestly better, but still a -33% maximum drawdown)

40% Trend Portfolio (40% Equity, 20% Bonds, 40% Trend Following) MAR:

0.45 (65% more efficient than 60/40, with only -19% max drawdown)

This is the essence of trend following's value proposition: not maximum returns, but maximum staying power. A portfolio that halves your drawdown lets you maintain your allocation when others are forced to de-risk, avoid panic selling at the bottom, and compound from a higher base after the crisis. (Figure A3 in the Appendix illustrates the dramatic difference in drawdown profiles across portfolio strategies.)

Three independent studies, spanning 42 years, using different analytical methodologies, have reached the same conclusion: trend following provides genuine diversification that materially improves portfolio outcomes.

Our enhanced analysis adds several new dimensions to this conclusion:

1. Theoretical Foundation:

Trend persistence is not merely a behavioural anomaly but a structural feature of Complex Adaptive Systems. The positive feedback loops created by trader impact and algorithmic herding are model-driven, not human-specific, ensuring trends will persist regardless of market evolution.

2. Statistical Rigour:

The near-zero correlation between trend following and equities (-0.03) is statistically validated. More importantly, during down equity months, this correlation turns significantly negative (-0.22 , $p < 0.01$). This conditional correlation is the foundation of crisis alpha.

3. Out-of-Sample Validation:

Using a pre-specified (not optimised) 30% trend allocation, the risk reduction benefits persist in true out-of-sample testing from 2013–2026, with maximum drawdown cut in half while maintaining comparable Sharpe ratios.

4. SG Trend Corroboration:

The SG Trend Index, representing purer trend exposure, demonstrates that the benefits are even stronger with more focused implementation: higher crisis alpha spread (+22pp vs +19pp), more negative down-month correlations (-0.36 vs -0.32), and 14% higher portfolio MAR ratios.

5. Regime Adaptability:

When stock-bond correlations break down in inflationary environments (as in 2022), trend following's diversification strengthens. This makes it a natural complement to traditional portfolios across market regimes.

PRACTICAL RECOMMENDATION

For long-term investors seeking robust portfolios capable of weathering diverse market environments, we recommend a strategic allocation of 20-40% to diversified systematic trend following. This recommendation is supported by four decades of evidence, validated out-of-sample, and robust to varying methodological assumptions.

The specific allocation within this range depends on investor circumstances:

20-25% allocation:

Conservative approach for investors prioritising simplicity and lower tracking error versus traditional benchmarks.

30-35% allocation:

Balanced approach optimising risk-adjusted returns as measured by Sharpe ratio.

40-50% allocation:

Aggressive approach for investors prioritising drawdown minimisation and capital preservation (optimising MAR ratio).

Final Thoughts

The case for trend following is not about chasing returns. It is about constructing portfolios that can endure. It is about recognising that diversification requires assets with fundamentally different return drivers. It is about acknowledging that the next crisis, whatever form it takes, will create exactly the kind of market dislocations that trend following has historically captured.

Lintner was right in 1983. CME Group confirmed it in 2008. The evidence of the intervening decades has only strengthened the case. The question for investors is no longer whether to include trend following in their portfolios, but how much.

If this paper leaves you with one idea, it should be this:
the real risk is not volatility... it is abandoning a sound strategy at the wrong time.

Because the difference between theory and results is behaviour.

That is why, on *TopTradersUnplugged*, we focus on more than just what works. We explore how it is applied, how it is tested through difficult periods, and how the best investors stay committed when it is hardest to do so.

If you would like to take this further, I invite you to join us. Listen to the podcast and subscribe to our **weekly email updates**, where we continue to share the ideas, conversations, and real-world experience behind building portfolios that are designed to endure.

Because in the end, it is not the strategy that fails... it is the investor who gives up on it too soon.

To Your Success,



Niels Kaastrup-Larsen

Managing Director, DUNN Capital (Europe)
& Founder and Host of TopTradersUnplugged

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Disclaimer: This research is provided for informational purposes only and does not constitute investment advice. Past performance is not indicative of future results. All investments involve risk, including the possible loss of principal. Managed futures and trend following strategies involve substantial risk of loss. The optimal allocations presented are based on historical data and may not be appropriate for all investors. Investors should carefully consider their investment objectives, risk tolerance, and time horizon before making any investment decisions.

APPENDIX: SUPPLEMENTARY FIGURES

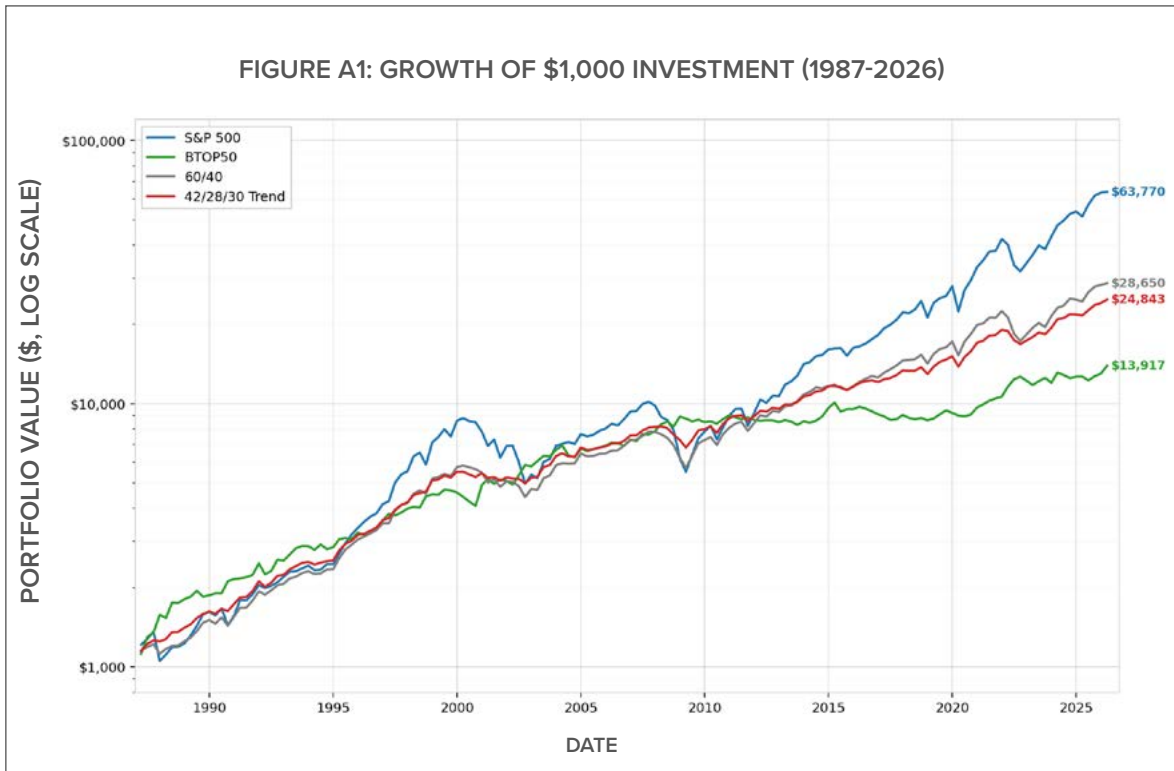


Figure A1: Growth of \$1,000 Investment (January 1987 - February 2026)

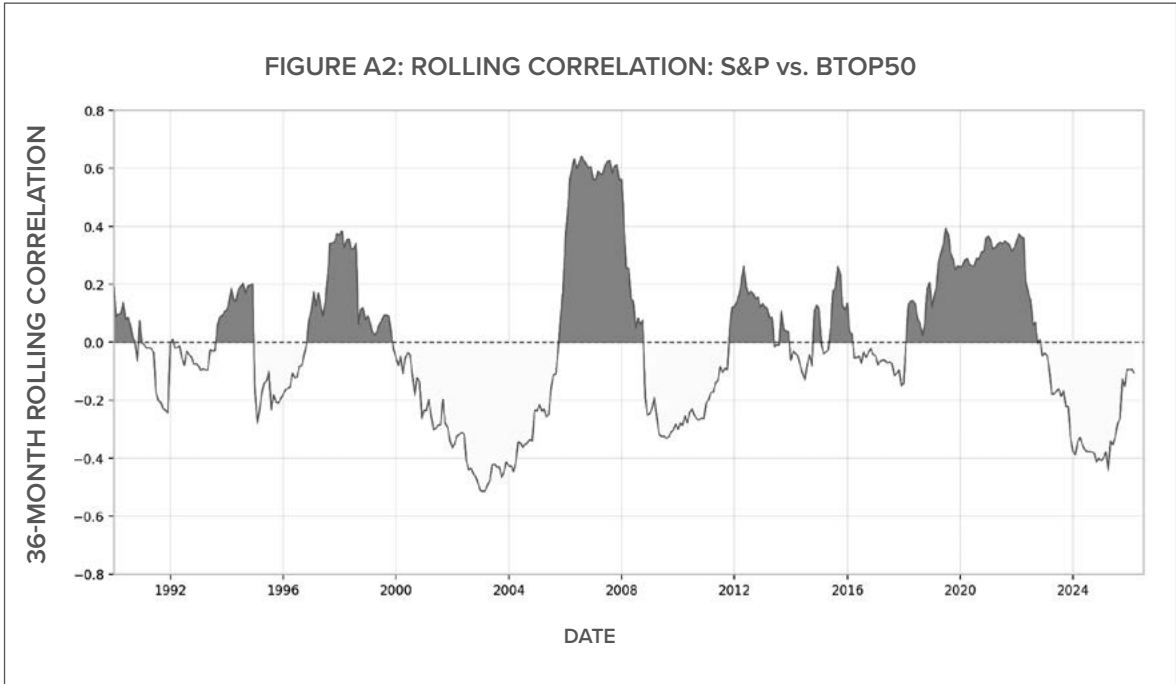


Figure A2: 36-Month Rolling Correlation: S&P 500 vs. BTOP50

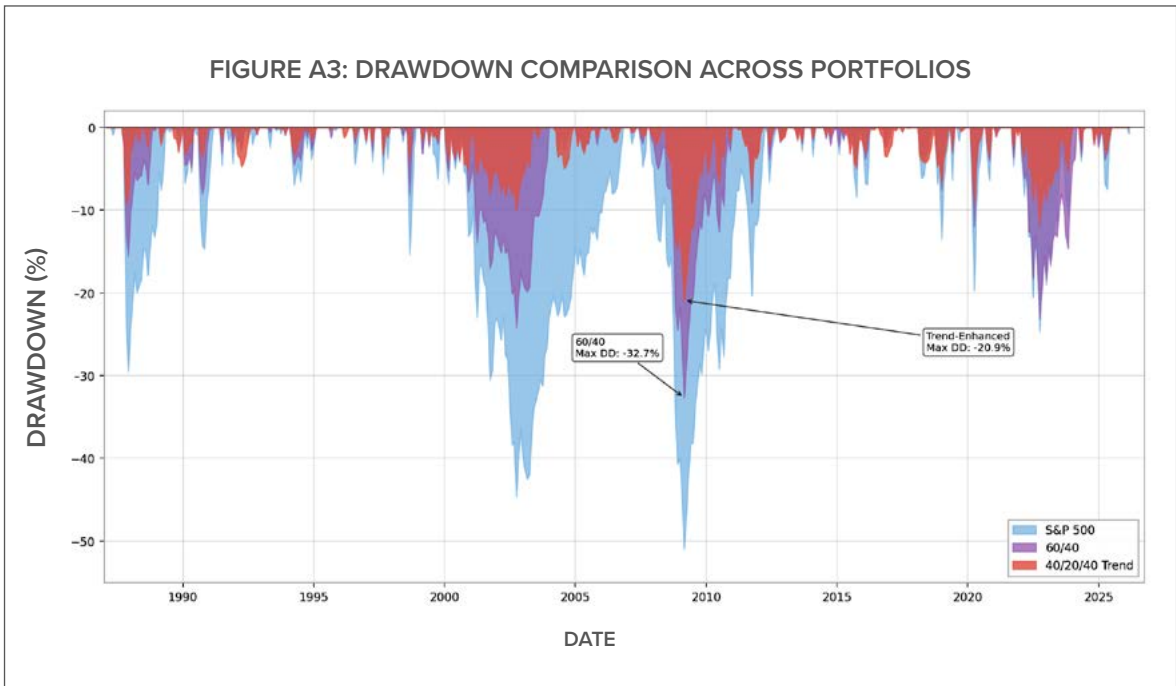
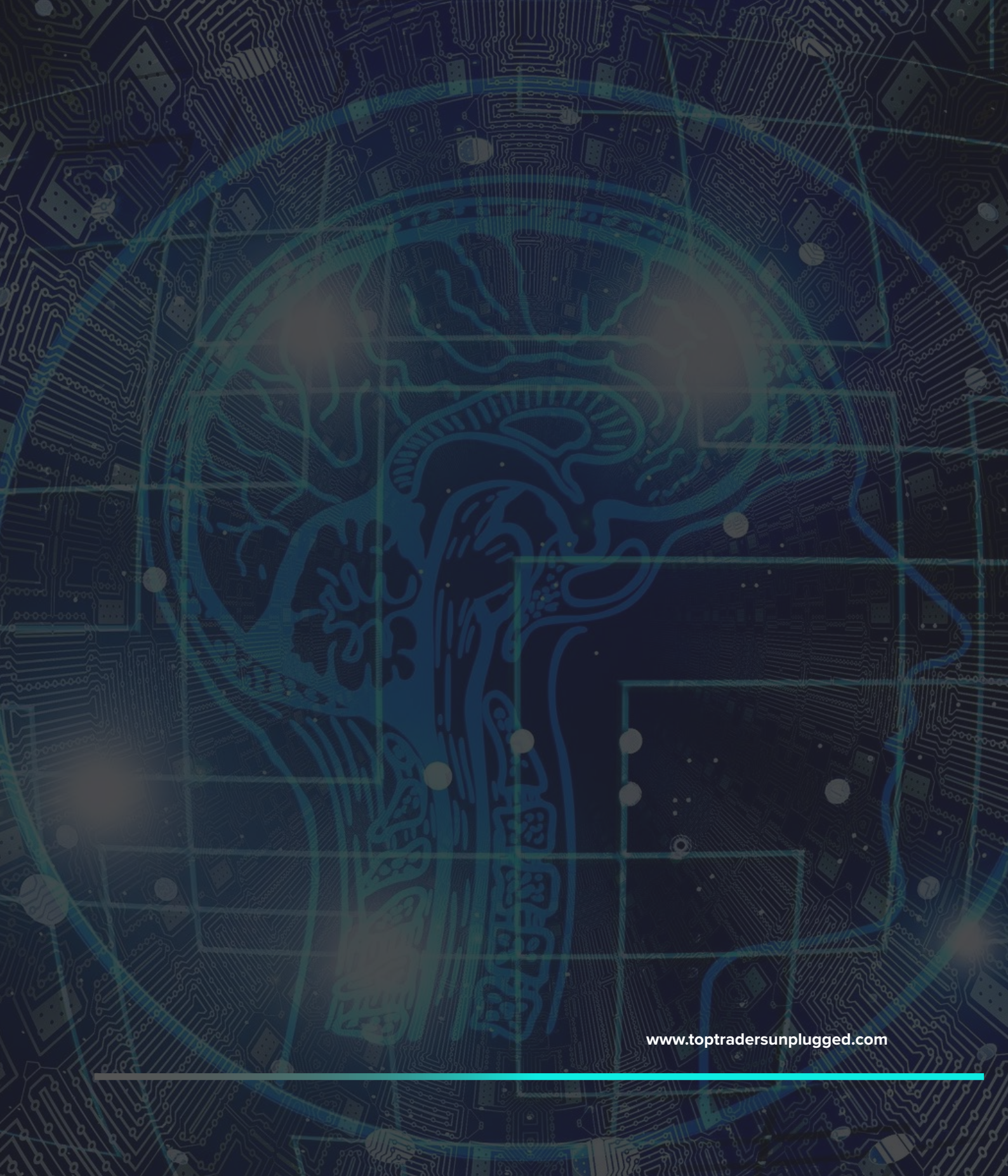


Figure A3: Drawdown Comparison Across Portfolio Strategies

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