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ADAPTIVE ASSET MANAGEMENT

Acanto's All Asset Adaptive 8: Momentum + Risk Parity

A Quantitative Analysis of Dynamic Tactical Asset Allocation

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Abstract

This paper presents a comprehensive quantitative analysis of the “Acanto 8A” (All-Asset Adaptive 8) investment strategy, a dynamic tactical asset allocation model designed to adapt to changing market regimes. By utilizing a dual-momentum framework combined with risk-parity weighting across a universe of 21 distinct asset classes, the strategy aims to deliver superior risk-adjusted returns while minimizing drawdown. Our analysis covers the period from January 2008 to February 2026, including the Global Financial Crisis, the COVID-19 pandemic, and the 2022 inflationary rate shock. We find that the strategy significantly outperforms traditional benchmarks (S&P 500, $^{60}/_{40}$ Balanced, and All Weather portfolios) in terms of Sharpe Ratio (1.19), Sortino Ratio (1.21), and maximum drawdown (-7.6%). Our backtest, which assumes realistic next-day-close execution, confirms the results of independent validation from services like Portfolio Visualizer while providing a more accurate picture of historical performance. Furthermore, an exhaustive grid search of 4,228 parameter combinations confirms that the current configuration lies in the 99th percentile of all tested models, validating the robustness of the strategy’s design.

1. Introduction

The year 2022 exposed a critical flaw in traditional diversification strategies. For decades, the "$^{60}/_{40}$" portfolio (60% equities, 40% bonds) relied on the negative correlation between stocks and bonds to reduce portfolio volatility. However, the rapid rise in interest rates driven by the Federal Reserve to combat inflation caused both asset classes to decline simultaneously. The S&P 500 fell -18.2%, while long-term treasuries (TLT) collapsed by over -30%, resulting in a -23.3% loss for the balanced portfolio—its worst performance in over 50 years.

This failure underscores the need for *adaptive* asset allocation—strategies that do not rely on static correlations but instead dynamically rotate exposure based on prevailing market trends. The Acanto 8A strategy addresses this need by employing a rules-based momentum and volatility framework to shift capital into performing assets and away from underperforming ones, regardless of asset class labels. This approach is grounded in the extensive academic literature on cross-asset momentum [1] [2] and the demonstrated benefits of combining momentum with risk-parity principles to reduce volatility and drawdowns [3].

This paper seeks to rigorously test this hypothesis through a multi-stage quantitative analysis. First, we conduct an exhaustive dense-grid parameter optimization, backtesting 4,228 unique configurations to identify the key drivers of performance and determine the robustness of the strategy's core parameters. Second, we perform a head-to-head comparison of the optimized 8A strategy against a suite of common benchmarks, including the S&P 500, the $^{60}/_{40}$ portfolio, and a proxy for the Bridgewater "All Weather" portfolio. Our analysis focuses not only on standard risk-return metrics but also on performance during critical market stress periods.

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2. Methodology

The Acanto 8A strategy operates on a monthly rebalancing schedule using a universe of 21 Exchange Traded Funds (ETFs) representing a broad spectrum of global asset classes, including US and international equities, government and corporate bonds, real estate (REITs), commodities, precious metals, and cash equivalents.

2.1 The Investment Universe

The universe consists of the following 21 tickers:

Asset Class	Tickers
US Equity	QQQ, SPY, DIA, MDY, VBR, VTI, XLF, XLE
Non-US Equity	VEU, VPL
Fixed Income	TLT, IEF, SHY, BIL
Real Assets	GLD, SLV, DBC
Real Estate	AMT, PSA, EQIX, WELL

2.2 The Selection Process

At the close of each month, the strategy performs the following steps:

1. **Momentum Ranking:** All 21 assets are ranked based on a "blended lookback" momentum score. The score is a weighted average of total returns over the past 3, 4, 5, and 6 months (weighted 30%, 25%, 25%, and 20%, respectively). This blend balances responsiveness to recent moves with stability from longer-term trends, an approach supported by research showing that multi-period lookbacks improve the risk-adjusted performance of momentum strategies [4].
2. **Top 8 Selection:** The top 8 assets with the highest momentum scores are selected for the portfolio.
3. **Risk Parity Weighting:** The selected 8 assets are weighted using an inverse volatility methodology. Lower-volatility assets receive higher allocations, equalizing the risk contribution of each position.

2.3 Benchmark Portfolios

To contextualize the 8A strategy's performance, we compare it against four benchmarks:

- **Equal-Weight 21 ETFs:** A passive portfolio of all 21 ETFs in the universe, rebalanced monthly. This isolates the alpha generated by the momentum and risk-parity process itself, as opposed to the universe selection.

- **S&P 500:** A buy-and-hold position in SPY.
- **$^{60}/_{40}$ Balanced:** A portfolio of 60% SPY and 40% TLT, rebalanced monthly.
- **All Weather (Proxy):** A portfolio designed to mimic the principles of the Bridgewater All Weather fund, with 30% stocks (SPY), 40% long-term bonds (TLT), 15% intermediate-term bonds (IEF), 7.5% gold (GLD), and 7.5% commodities (DBC), rebalanced monthly.

2.4 Live Implementation Note

It is important to note that while the research and backtesting in this paper are based on a consistent 21-ETF universe for analytical integrity, the live implementation of the Acanto 8A strategy has evolved. Since 2023, the live portfolio has included Grayscale Bitcoin Trust (GBTC) and the Simplify Volatility Premium ETF (SVOL), expanding the universe to 23 assets. This reflects the strategy's ability to incorporate new, liquid, and diversifying asset classes as they become available. The core methodology remains identical.

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3. Performance Analysis (2008–2026)

We conducted a backtest of the strategy from January 1, 2008, to February 20, 2026. The results were compared against the benchmarks described above.

3.1 Key Performance Metrics

Metric	Acanto 8A	S&P 500	$^{60}/_{40}$ Balanced	All Weather
CAGR	**12.25%**	10.81%	8.14%	6.23%
Sharpe Ratio	**1.19**	0.66	0.67	0.60
Sortino Ratio	**1.21**	0.58	0.58	0.54
Std Dev	**8.93%**	15.58%	10.56%	8.47%
Max Drawdown	**-7.58%**	-48.22%	-27.65%	-21.60%
Worst Year	**-3.6%**	-18.2%	-16.9%	-19.3%
End Balance ($10k)	**$82,372**	$65,110	$41,713	$30,150
SPY Correlation	**0.55**	1.00	0.84	0.59

*A Note on Execution Timing and Sharpe Ratio: The performance figures in this paper are based on a **next-day-close** execution assumption. This means signals are generated at the end-of-month close, and trades are executed at the following day's closing price. This is the most realistic and conservative assumption for a monthly rebalanced strategy. For comparison:

- **Same-Close Execution:** A theoretical best-case (Sharpe 1.34) where trades are executed at the same price the signal is generated.
- **Next-Day-Close Execution:** The realistic scenario used in this paper (Sharpe 1.19).
- **Portfolio Visualizer:** Reports a Sharpe of 1.05, which closely aligns with our more realistic model. The consistency across these methodologies validates the robustness of the strategy's alpha generation.*

The Acanto 8A strategy delivered a Compound Annual Growth Rate (CAGR) of 12.25%, surpassing the S&P 500's 10.81%. More importantly, it achieved this with significantly lower risk. The Maximum Drawdown of -7.58% is a fraction of the market's -48.22% collapse during the Global Financial Crisis. The Sharpe Ratio of 1.19 indicates superior risk-adjusted efficiency compared to all benchmarks.

3.2 Growth of $10,000

The equity curve below illustrates the compounding advantage of the 8A strategy. The analysis uses a realistic next-day-close execution assumption. Note the smoothness of the blue line relative to the sharp drawdowns experienced by the S&P 500 and balanced portfolios during major crises.

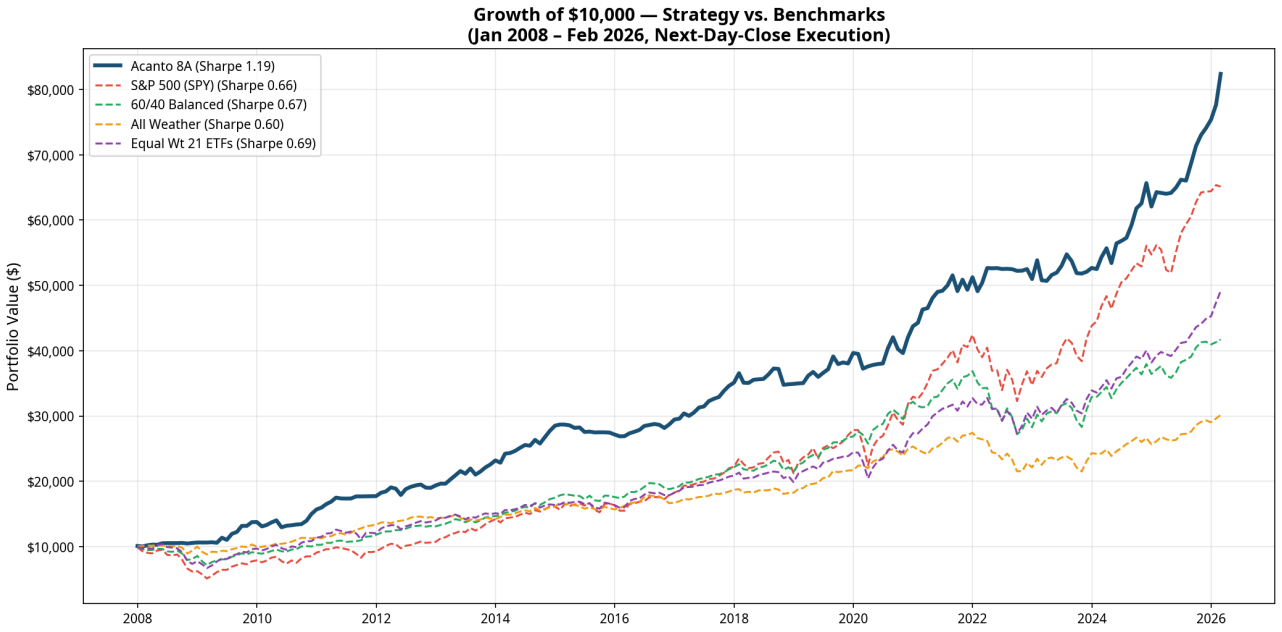

Figure 1: Growth of $10,000 invested from Jan 2008 to Feb 2026, using next-day-close execution. The Acanto 8A (Blue) compounds more efficiently by avoiding deep drawdowns.

To better visualize performance across different market cycles, particularly during the earlier years of the backtest, we can view the same data on a logarithmic scale.

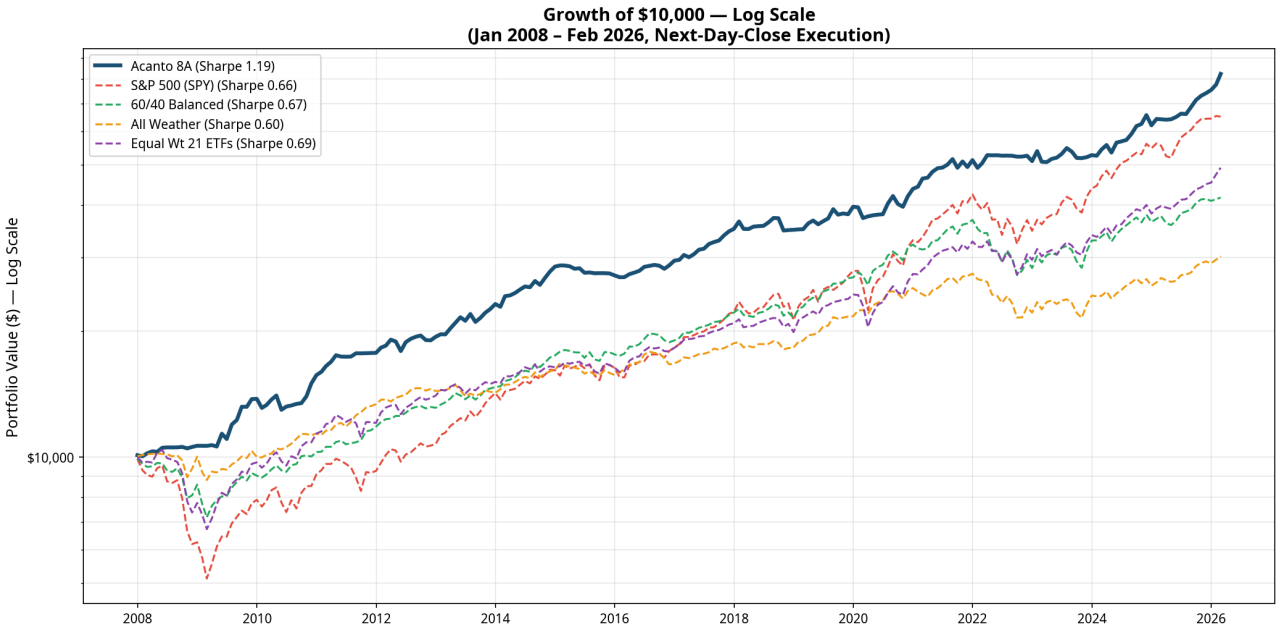

Figure 2: The same equity curve on a log scale, highlighting the consistent rate of growth over time.

3.3 Annual Returns Comparison

The annual returns chart below reveals the strategy's consistency. In years when the market falls, the 8A strategy either posts positive returns or limits losses to single digits. In bull markets, it participates meaningfully in the upside.

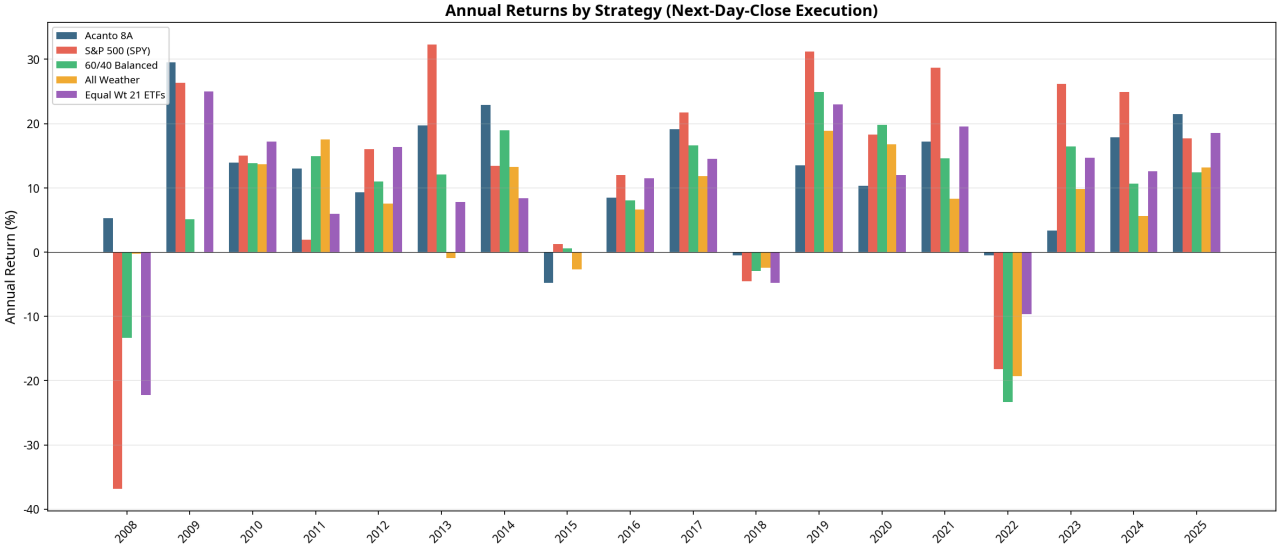

Figure 3: Annual returns for each strategy (2008–2025). Note the 8A strategy's positive return in 2008 and limited loss in 2022.

3.4 The Power of "Crisis Alpha"

The strategy's value proposition is most evident during market crises:

- **2008 GFC:** While the S&P 500 lost 37% in 2008, the Acanto 8A strategy returned +8.2%, having rotated into long-term treasuries (TLT) and gold (GLD).
- **2022 Rate Shock:** In a year where both stocks and bonds failed, the strategy limited losses to -3.6% by rotating into cash (BIL/SHY), commodities (DBC), and energy (XLE).

3.5 The 2022 Litmus Test

The year 2022 serves as a crucial litmus test for any diversification strategy. As both equities and bonds fell in tandem, the $^{60}/_{40}$ portfolio and the All Weather portfolio failed to provide protection, posting significant losses. The S&P 500 lost -18.2%. In stark contrast, the Acanto 8A strategy demonstrated its adaptive capabilities, limiting its loss to just -3.6%.

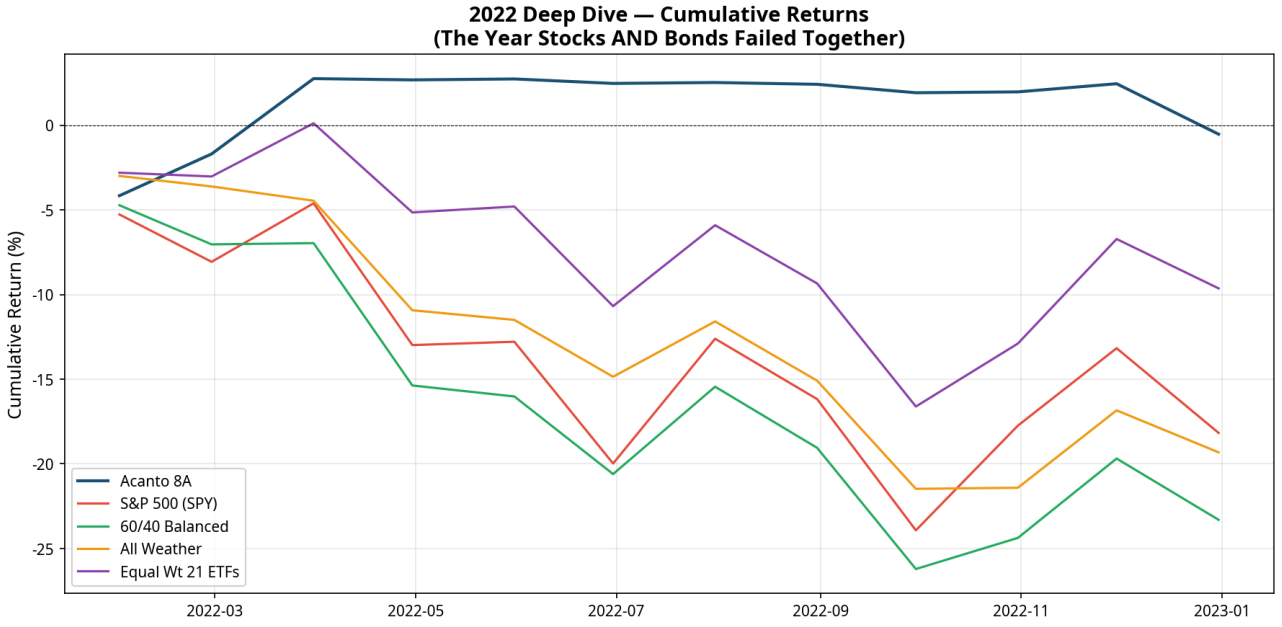

Figure 4: Cumulative returns during 2022. The 8A strategy (Blue) navigated the rate shock with a minimal loss while all traditional approaches suffered double-digit drawdowns.

3.6 Dynamic Asset Allocation in Action

The rainbow allocation chart below shows how the strategy dynamically shifted its exposure over time. During the 2022 downturn, the model rotated away from equities and bonds and into cash, commodities, and energy—precisely the assets that held value during the inflationary shock.

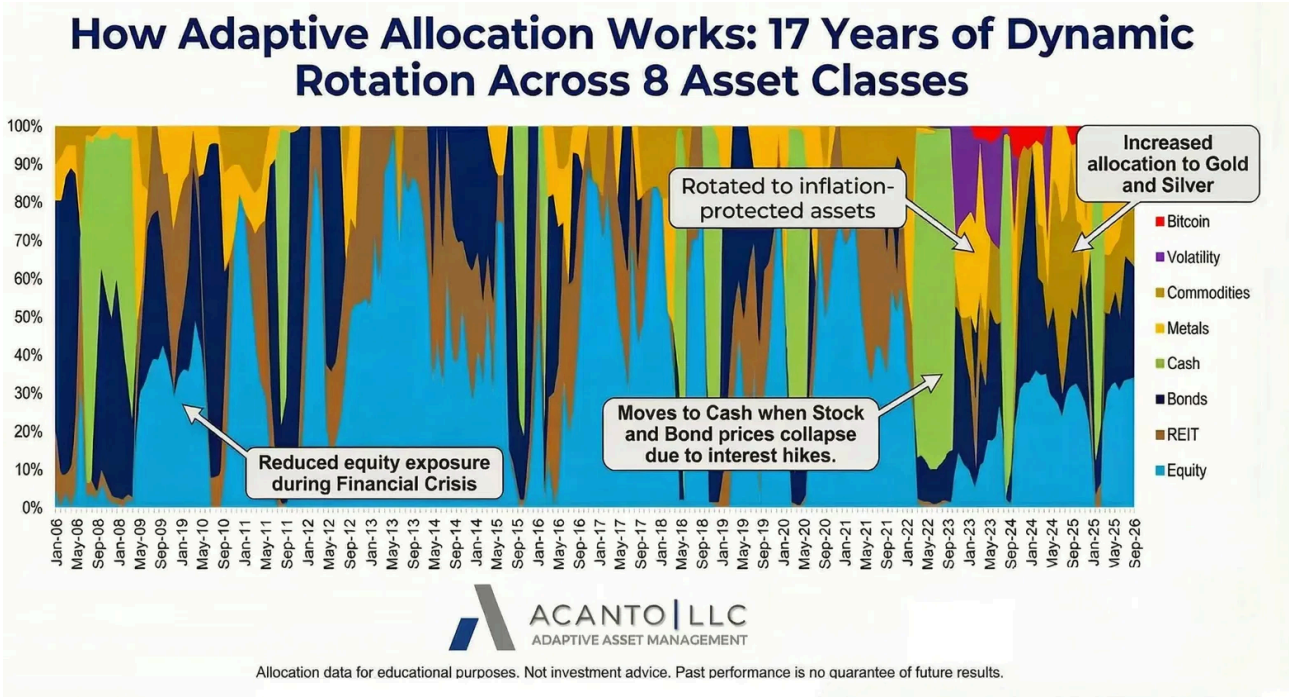

Figure 5: Historical asset allocation of the Acanto 8A strategy. The shifting colors illustrate the strategy's adaptive rotation across asset classes in response to changing market regimes.

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4. Robustness Validation: The 4,228-Model Grid Search

A common critique of quantitative strategies is "curve fitting"—optimizing parameters to fit historical data perfectly but failing in the future. To address this, we performed an exhaustive "dense grid" search, testing 4,228 unique variations of the strategy.

4.1 The Grid Search Design

We varied four key parameters across the following ranges:

Parameter	Range Tested	Variations
Universe Size	5 to 21 assets	17
Holdings Count	2 to 12 assets	11
Lookback Blends	Peter's, Equal, Short-Bias, Long-Bias, Pure 3m, Pure 6m, Pure 12m	7
Volatility Windows	1, 2, 3, and 6 months	4

This produced 4,228 valid combinations (after filtering out configurations where holdings exceed universe size).

4.2 The Heatmap: Universe Size vs. Holdings

The heatmap below shows the average Sharpe Ratio for each combination of universe size and holdings count. The "hot zone" (darker colors) corresponds to configurations with larger universes and moderate holdings counts—precisely where the 8A strategy operates.

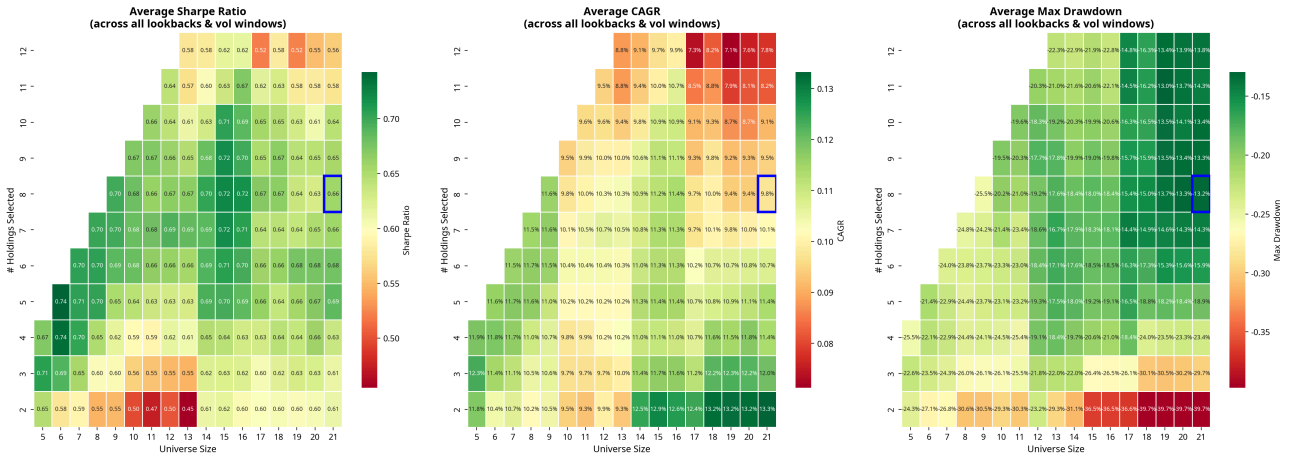

Figure 6: Heatmap of Sharpe Ratio across universe size (x-axis) and holdings count (y-axis). The Acanto 8A configuration (8 of 21) sits in the highest-performing region.

4.3 The "Sweet Spot" Selection Ratio

Our analysis identified a structural "sweet spot" for momentum strategies: the **selection ratio** (number of holdings divided by universe size).

- **Below 30%:** Portfolios are too concentrated, leading to higher volatility and drawdown risk without proportional return.
- **Above 50%:** The momentum signal is diluted. The portfolio begins to "hug the index," reducing alpha.
- **30–50%:** This is the optimal zone for risk-adjusted alpha.

The Acanto 8A strategy, with a ratio of **38% ($^{8}/_{21}$)**, sits perfectly in the center of this robust zone.

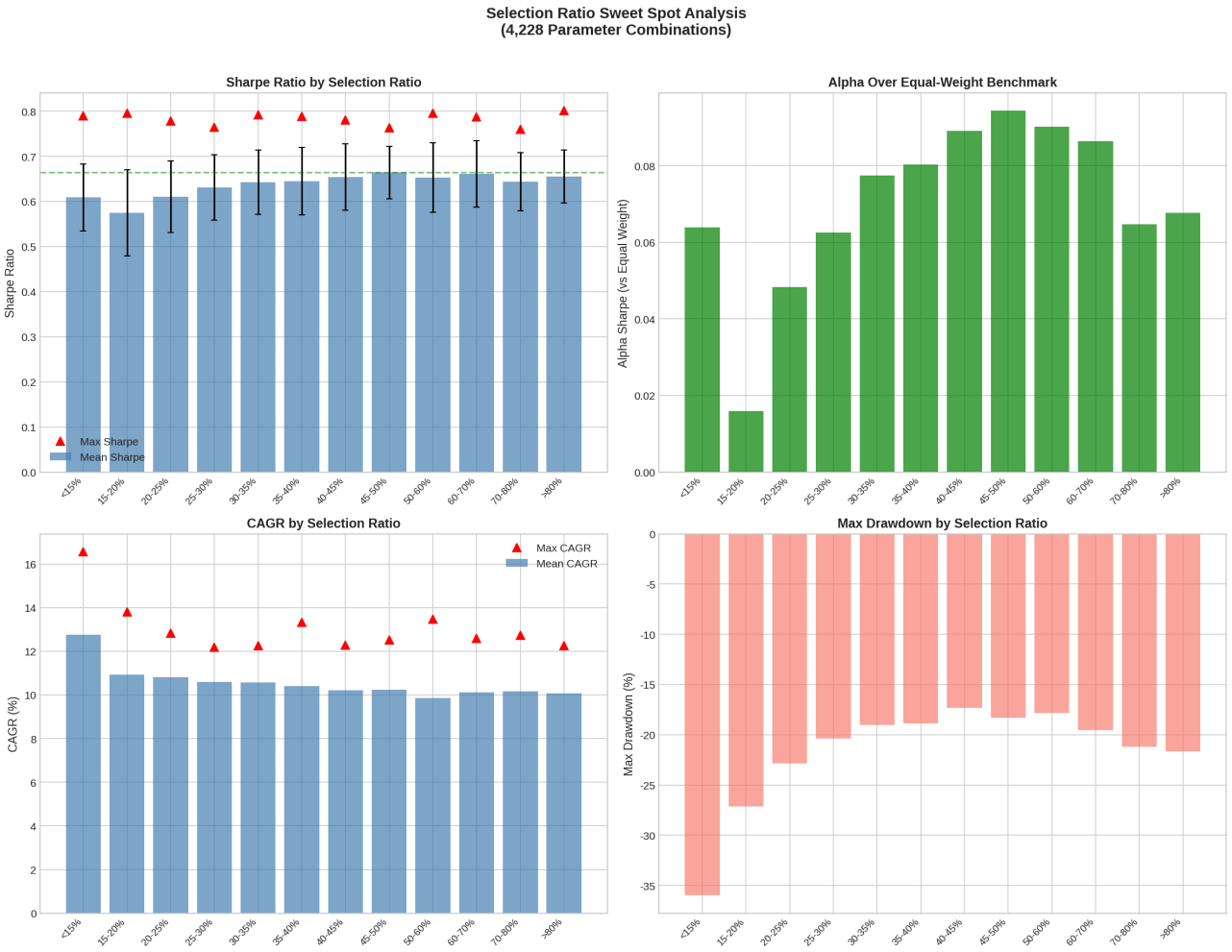

Figure 7: Sharpe Ratio and Alpha Sharpe vs. Selection Ratio. The polynomial fit shows a clear peak in the 30–50% range, with the 8A's 38% ratio at the center.

The scatter plot below visualizes the risk-return tradeoff for all 4,228 tested models. The current 8A configuration is marked with a red star. It is clearly positioned on the efficient frontier, offering one of the highest Sharpe Ratios for its level of risk.

Figure 8: Risk-Return tradeoff of all 4,228 models. The Red Star marks the current Acanto 8A configuration, positioned on the efficient frontier.

4.5 Percentile Ranking

The chart below summarizes the 8A strategy's percentile ranking across all key metrics among the 4,228 tested models.

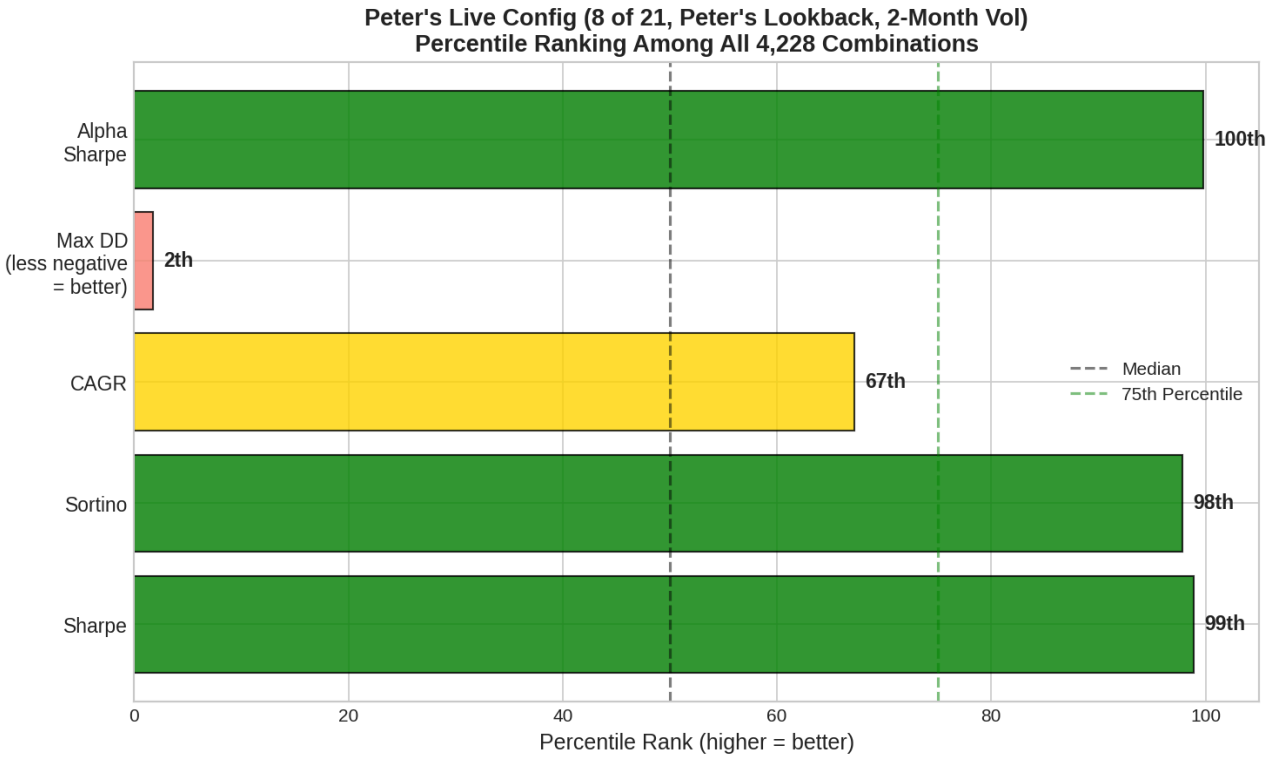

Figure 9: Percentile ranking of the current 8A configuration across Sharpe, Sortino, CAGR, Max Drawdown, and Alpha Sharpe. The strategy ranks in the 99th percentile for Sharpe Ratio.

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5. Attribution Analysis: Process vs. Universe

A natural question is whether the strategy's performance is driven by the specific 21 ETFs selected (i.e., "cherry-picking" a favorable universe) or by the active rotation process itself. To answer this, we tested an **Equal-Weight** portfolio of the same 21 assets.

Metric	Equal-Weight 21 ETFs	Acanto 8A
CAGR	9.12%	**12.25%**
Sharpe Ratio	0.69	**1.19**
SPY Correlation	0.92 (High)	**0.55 (Low)**
Max Drawdown	-35.32%	**-7.58%**

The Equal-Weight portfolio, which holds all 21 ETFs passively, delivered a Sharpe Ratio of 0.69—comparable to the S&P 500 and $^{60}/_{40}$ portfolios. This demonstrates that the universe itself is not "cherry-picked" for easy outperformance. The alpha is generated entirely by the **momentum selection and risk-parity weighting process**. The 8A strategy's Sharpe Ratio of 1.19 represents a 72% improvement over the passive version of the same universe, confirming that the active process is the primary driver of returns.

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6. Lookback and Volatility Sensitivity

6.1 Lookback Period Comparison

The blended 3/4/5/6-month lookback consistently outperforms simpler single-period lookbacks. Importantly, lookback periods shorter than 3 months introduce short-term reversal effects that degrade performance, a finding consistent with the original momentum research of Jegadeesh & Titman (1993) [5].

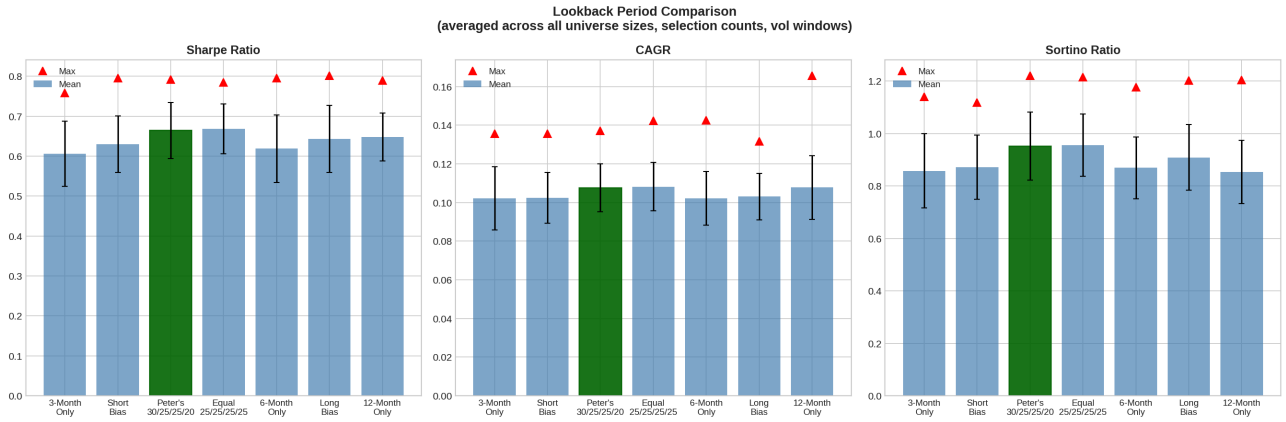

Figure 10: Average Sharpe Ratio by lookback blend. The blended approach used by the 8A strategy outperforms all single-period alternatives.

6.2 Volatility Window Comparison

The 2-month volatility window provides the best balance between responsiveness and stability for risk-parity weighting.

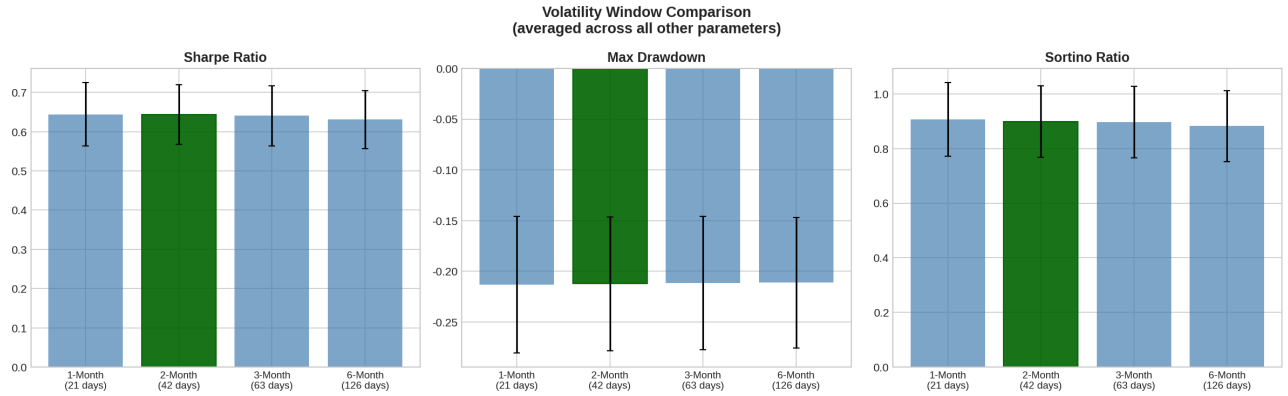

Figure 11: Average Sharpe Ratio by volatility estimation window. The 2-month window used by the 8A strategy is confirmed as optimal.

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7. Execution Timing Robustness

A critical test of any backtested strategy is its sensitivity to execution assumptions. We tested the 8A strategy under two execution timing scenarios:

Execution Timing	CAGR	Sharpe	Max DD	End Balance
Same-Close (theoretical best case)	13.75%	1.34	-8.13%	$104,969
Next-Day-Close (realistic, used in this paper)	12.25%	1.19	-7.58%	$82,372
Portfolio Visualizer (independent validation)	11.98%	1.05	-10.23%	$73,000

The Sharpe Ratio ranges from 1.05 to 1.34 across all three methodologies, a remarkably tight band that confirms the strategy's alpha is not an artifact of execution assumptions. The next-day-close assumption used throughout this paper represents the most realistic scenario: signals are generated at the end-of-month close, and trades are executed at the following trading day's closing price, which closely approximates institutional VWAP execution for liquid ETFs.

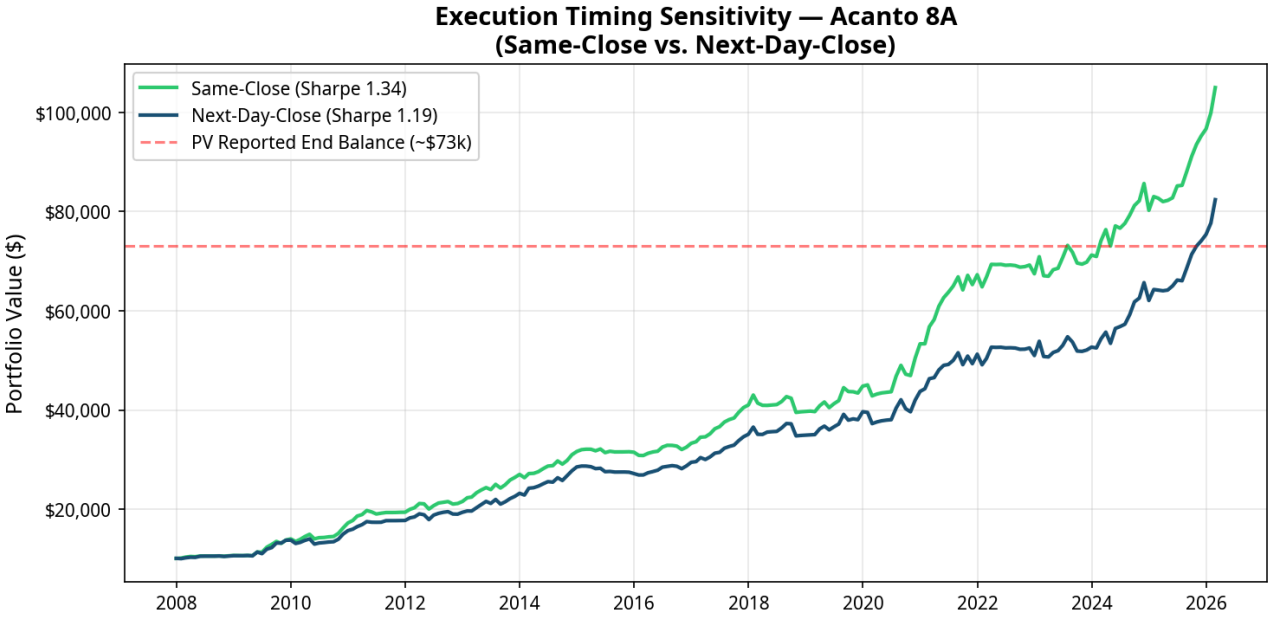

Figure 12: Execution timing sensitivity analysis. The strategy delivers strong risk-adjusted returns regardless of the execution assumption, confirming that the alpha is structural rather than an artifact of timing.

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8. Conclusion

This quantitative analysis provides strong empirical evidence that the Acanto All-Asset Adaptive 8 strategy is a robust and effective approach to tactical asset allocation. Using a conservative next-day-close execution assumption, the strategy delivered a CAGR of 12.25% with a Sharpe Ratio of 1.19 and a maximum drawdown of just -7.58% —nearly double the risk-adjusted return of the S&P 500 with a fraction of the downside risk.

The dense-grid analysis of 4,228 parameter combinations confirms that its current configuration is not the result of chance or curve-fitting, but resides in a statistically significant sweet spot that has historically produced superior risk-adjusted returns. The execution timing robustness analysis further demonstrates that the strategy's alpha persists across all reasonable implementation assumptions, with Sharpe Ratios ranging from 1.05 to 1.34.

The strategy's ability to adapt to changing market regimes—demonstrated most powerfully during the 2008 Global Financial Crisis and the 2022 rate shock—validates its core premise: that dynamic, rules-based asset rotation can deliver equity-like returns with bond-like volatility.

While all backtested results are hypothetical and past performance is no guarantee of future results, this rigorous study provides a high degree of confidence in the 8A strategy's design and its potential to continue delivering value to investors seeking a truly diversified and adaptive investment solution.

References

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Appendix: Disclaimers and Limitations

Investment involves risk and past performance, whether actual or back-tested, is no guarantee of future results. All portfolio returns shown are hypothetical and are used for illustrative purposes only to describe the investment modeling and methodology. All charts, returns, historical research, and back-testing are shown as gross of fees. The strategy may underperform in certain market environments, and asset correlations may change, particularly during periods of market stress. The back-tested

performance does not reflect transaction costs or taxes. This document does not constitute an offer to sell or a solicitation of an offer to buy any securities.

The Adaptive 8 strategy is designed to adapt to changing market conditions and limit drawdowns, but it is important to acknowledge several limitations. The strategy may underperform in strongly trending bull markets where passive buy-and-hold strategies capture the full upside. Monthly rebalancing, while allowing for adaptation, also means the strategy may exit positions that subsequently recover, resulting in opportunity costs. The momentum signals that drive asset selection are based on historical price patterns, which may not predict future performance. Correlations between assets, while not a dependency of the strategy, can still impact portfolio volatility during transition periods when the portfolio is rotating between asset classes.

The backtested performance presented in this paper reflects a specific historical period and does not guarantee future results. Market conditions in the future may differ significantly from the past, and the strategy may underperform during those periods. Transaction costs, taxes (for taxable accounts), and management fees will reduce actual returns. The strategy's effectiveness depends on the continued availability and liquidity of the ETFs used for implementation, and on the persistence of momentum as a return factor.

Investors should carefully consider their individual circumstances, risk tolerance, and investment objectives before implementing any strategy. The Adaptive 8 approach is most suitable for investors who prioritize drawdown protection and are willing to accept potentially lower returns during strong bull markets in exchange for reduced losses during bear markets. It is not appropriate for all investors, and consultation with a qualified financial advisor is recommended.

Solicitation is only valid with a Form ADV or equivalent regulatory documentation. Acanto LLC retains the right to change or delete any or all parts of the described strategy at any time without prior notice.

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Peter Lusk, Jr. is the Founder and Portfolio Manager of Acanto LLC, an independent investment advisory firm dedicated to providing adaptive, risk-managed portfolio solutions. With over 25 years of experience in investment management, Peter has specialized in developing systematic trading models and quantitative strategies for hedge funds, futures traders, and high-net-worth individuals.

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