Dual Risk Premia: Proving Alpha Leakage in Equity Portfolios and Showing How to Reduce It

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Example: A Macro-Enhanced, Regime-Aware Equity Strategy for the S&P 500

I. Overview

Introduction: Evolving Beyond Traditional Risk Models

Equity markets are dynamic systems where the primary drivers of risk and return shift decisively over time. Traditional multi-factor models—built on style factors like value, size, and momentum—have been useful in explaining cross-sectional stock returns. However, they often treat macroeconomic risk as a secondary concern or a residual, potentially missing the critical regime shifts where macro forces become the dominant source of market volatility and premia.

Our research introduces a paradigm that places the *macro-to-idiosyncratic risk spectrum* at the center of investment strategy. We argue that identifying whether the market is driven by systemic macroeconomic fear or company-specific fundamentals is the key to harvesting consistent premia. The Qi **Macro Factor Equity Risk Model (MFERM)** quantifies this spectrum for every stock, enabling the construction of a dynamic strategy that adapts to the prevailing regime, systematically tilting towards the most relevant source of risk premia.

In summary, we show using extensive data and a rigorous test that:

- Equity markets have two main engines driving returns

- Most equity investors focus on only one of these engines

- The result is that portfolio returns are misattributed regularly and "alpha wastage" from leaving the macro engine unused is commonplace

- Portfolio construction is an important source of alpha when both engines are used

Objective & Method

The objective is to consistently outperform the S&P 500 by delivering active, systematic alpha that adapts to the market's dominant risk regime. We target strong excess returns and a superior information ratio through a transparent, rules-based process.

Our method is twofold:

1. **Measure:** We calculate the **Macro Share of Risk (MSR)** for each S&P 500 constituent—the percentage of a stock's forecasted volatility attributable to macroeconomic factors.

2. **Adapt:** We use the aggregate market MSR signal to define two distinct portfolios: a **"Macro" portfolio** (high and rising MSR stocks) and an **"Idio" portfolio** (low and falling MSR stocks). The strategy allocates dynamically between these premia streams, guided by their own relative performance, which serves as a real-time, endogenous regime indicator.

Results & Conclusion: Consistent Outperformance Through Adaptation

From January 2015 through November 2025, the strategy has demonstrated a compelling ability to capitalize on shifting market regimes, yielding the following results:

*   **Persistent Alpha:** Achieved average annualized excess returns exceeding **2%** across the full period and all rolling horizons (1, 3, and 5 years).
*   **Exceptional Consistency:** Generated positive excess returns in **11 consecutive calendar years** (2015-2025) and delivered a positive 12-month trailing excess return in **81%** of all months since inception.
*   **Superior Risk-Adjusted Returns:** Consistently achieved a higher Sharpe Ratio than the benchmark and maintained an average 1-year rolling Information Ratio of **0.71**.

The conclusion is clear: by explicitly identifying and tilting towards the dominant source of risk premia—macro or idiosyncratic—the strategy delivers market-beating returns with high consistency and effective risk control.

II. The Dual Risk Premia Framework

Hypothesis: The Central Dichotomy of Market Regimes

We posit that equity markets oscillate between two primary engines, or regimes, that power returns:

1. **Macro-Dominant Regimes:** Characterized by high systemic fear, where stock returns are primarily driven by shared exposures to macroeconomic variables (e.g., interest rates, inflation, growth). In these periods, stocks with high macro sensitivity carry a priced risk premium.

2. **Idio-Dominant Regimes:** Characterized by high dispersion and low correlation, where stock-specific fundamentals (e.g., earnings, balance sheets, management) are the key differentiators. Here, the ability to isolate company-specific premia is rewarded.

Our **Macro Share of Risk (MSR)** metric directly measures each stock's position on this spectrum, providing the foundational signal for regime-aware investing.

A central innovation of this framework is the realization that the MSR acts as a real-time proxy for the embedded macro component of the expected equity return (risk-free rate + equity risk premium). We posit that the premium investors are paid to hold stocks is not a monolith, but a 'Dual Premium' consisting of a macro component and an idiosyncratic component.

When the MSR is well above its medium-term trend, the macro component embedded in expected returns is high; investors are effectively being paid a 'fear premium' to navigate systemic uncertainty. Conversely, when the MSR is below trend, the market is rewarding stock-picking skill in a dispersion-friendly backdrop.

Regime Identification: Letting the Market Speak

Instead of relying on external, often lagging, macroeconomic indicators, our framework infers the regime endogenously. We construct two pure-play portfolios:

- The **Macro Premia Portfolio**, long stocks with high and rising MSR.
- The **Idio Premia Portfolio**, long stocks with low and falling MSR.

The relative performance of these two streams provides a clean, real-time signal of which force is in the ascendancy. When the Macro Portfolio outperforms, the market is in a macro regime; when the Idio Portfolio outperforms, the market is in an idio regime. This self-referential approach ensures the strategy is responsive and data-driven.

Why a Tri-State Framework: The Importance of a Buffer

Transitions between regimes are rarely instantaneous and can be volatile. To avoid whipsaw and premature commitment—especially into idiosyncratic premia, which require stronger conviction—we introduce a third, **Buffer State**.

When the relative strength signal between the two premia portfolios is weak or ambiguous, the strategy defaults to a "safety" position: a conservative, large-cap-tilted version of the S&P 500. This buffer provides stability, preserves capital, and waits for a clearer signal, enhancing the overall robustness of the process.

Methodology in Brief

1. **Calculation of Macro Share of Risk (MSR)**

MSR is derived from our proprietary Macro Factor Equity Risk Model (MFERM). The model attributes a stock's forecasted total risk (variance) to several sources: a comprehensive set of macroeconomic factors and an idiosyncratic residual.

MSR = (Macro Factor Risk) / (Total Forecast Risk)

The MSR is derived by combining a stock's individual macro exposures with the realized volatility of those macro factors and a dynamic covariance matrix that captures the shifting relationships between

systemic drivers. This allows for a precise '2-way split' of risk, revealing exactly what percentage of a stock's forecasted volatility is driven by the 'environment' (Macro) versus the 'entity' (Idio).

A stock with an MSR of 0.70 has 70% of its risk profile explained by its sensitivity to macro factors like rate expectations, inflation surprises, and credit conditions.

2. Construction of Macro and Idio Premia Portfolios

Each month, we rank the eligible S&P 500 universe by:

- **Level of MSR** (absolute macro sensitivity relative to historical mean)
- **Change in MSR** (3-month trend in macro sensitivity)
  The **Macro Portfolio** is formed by overweighting S&P 500 stocks in the top quintiles for both level and change. The **Idio Portfolio** is formed by overweighting S&P 500 stocks in the bottom quintiles for both. Portfolios are subject to constraints (e.g., maximum single-stock weight of 10%), and are always fully invested.

3. Quantitative Rules for Regime Classification & Switching

The regime each month is determined by the **relative strength spread** between the cumulative returns of the Macro and Idio Portfolios.

- **Macro Regime:** Signal > +X bps (Macro Premia dominant)
- **Idio Regime:** Signal < -Y bps (Idio Premia dominant)
- **Buffer Regime:** Signal between -Y and +X bps (uncertain)
  Portfolios are rebalanced monthly, with the strategy allocating 100% to the active portfolio of the identified regime, or to the safety portfolio in the Buffer state.

III. Performance & Results

Operational Summary: A Simple, Cyclical Process

Each month, the strategy executes a clear, cyclical process:

1. **Calculate** MSR for all stocks and construct the two premia portfolios.
2. **Measure** their relative strength to classify the regime (Macro, Idio, or Buffer).
3. **Allocate** fully to the corresponding portfolio.
   This creates a disciplined, repeatable framework that exploits macro fear when it dominates, harvests stock-specific opportunity when dispersion is high, and conserves capital when the signal is unclear.

Figure 1: Historical Regime Classification (2015-2025)
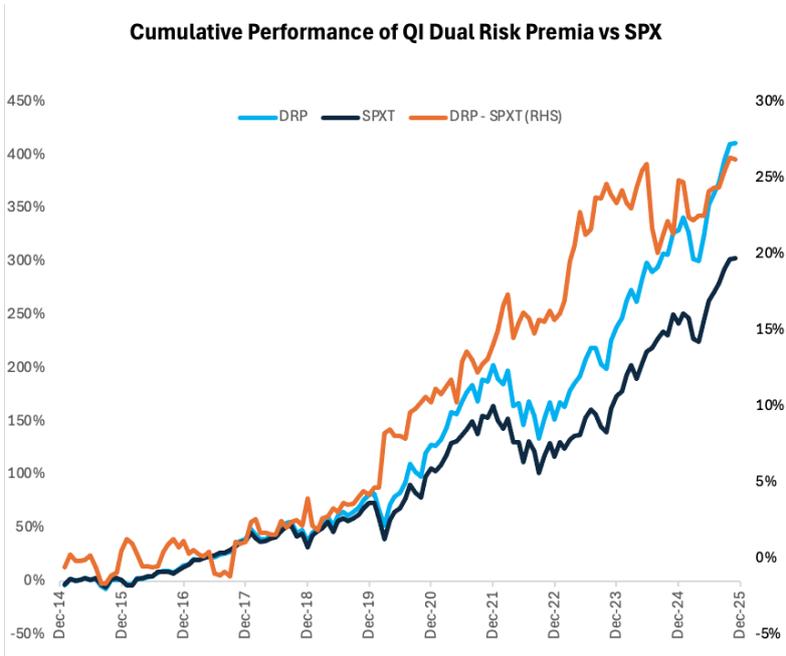

Macro / Alpha (Idio) Risk Premia Regimes
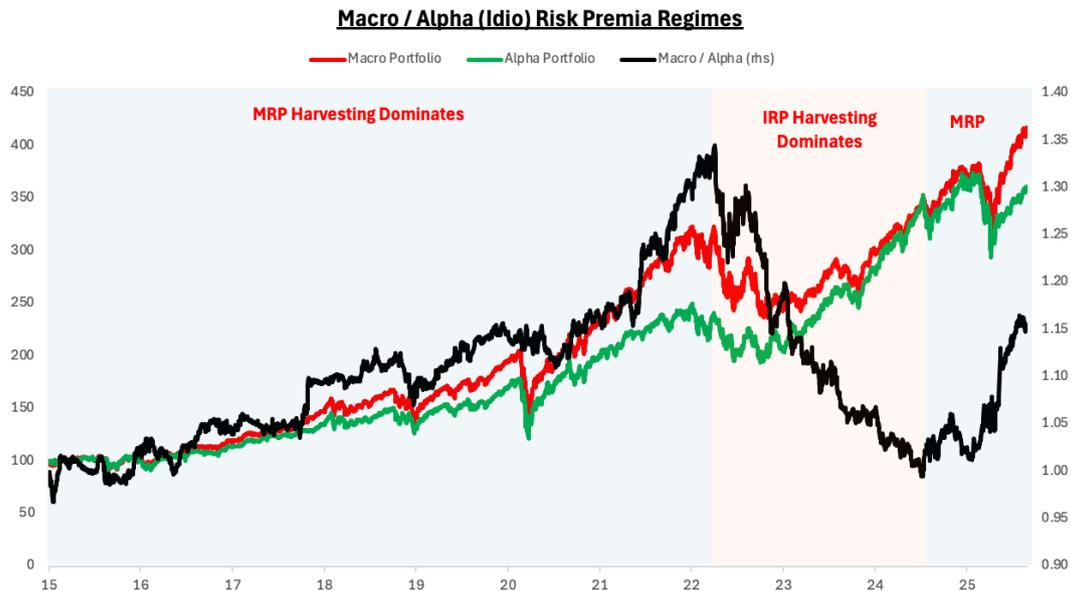
Performance Charts & Commentary

Each month, the strategy executes a clear, cyclical process:

The strategy's dynamic adaptation translates into consistent alpha generation across diverse market environments.

Figure 2: Growth of $1 vs. S&P 500 (2015-2025)

Cumulative Performance of QI Dual Risk Premia vs SPX

Figure 3: Rolling 12-Month Excess Return

DRP vs. SPXT Relative Performance
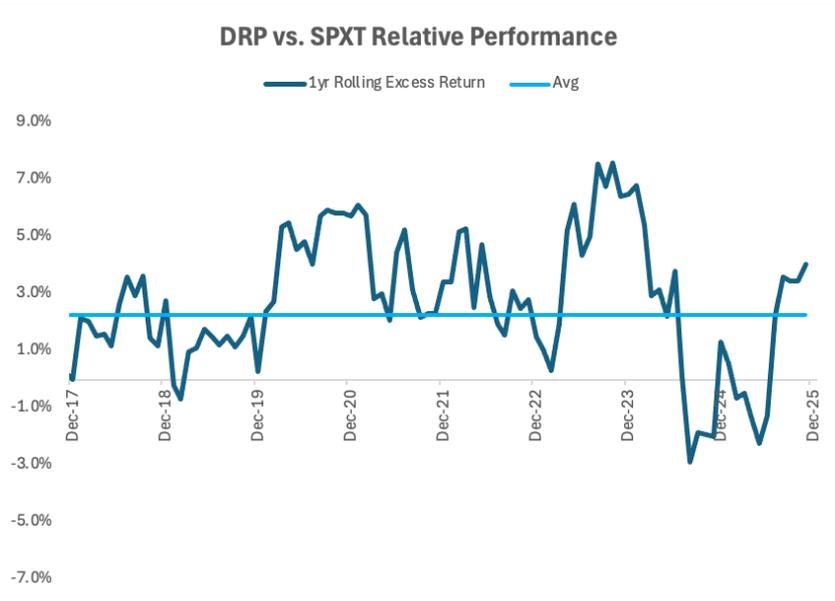
Exceptional Consistency & Persistent Alpha:

- **Virtually 11 Consecutive Winning Years (2015-2025):** Positive annual excess returns in every full calendar year except a flat 2017.

- **High Trailing Win Rate (81%):** 81% of all monthly-ending 12-month trailing periods showed positive excess returns.

Risk Statistics & Analysis: Quality of Outperformance

The strategy is engineered not just for return, but for high-quality, risk-efficient alpha.

Figure 4: Monthly Return Scatterplot – DRP Strategy vs. S&P 500
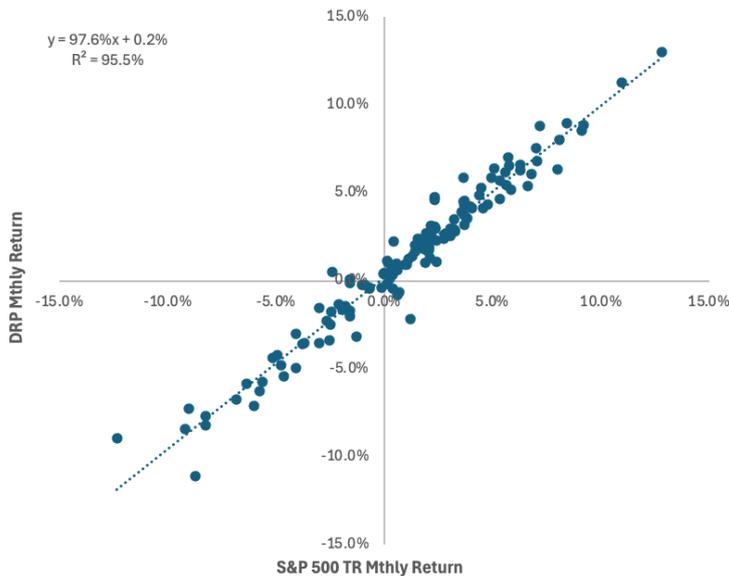
Figure 5: Monthly Excess Return Distribution

Strong Risk-Adjusted Returns:

- **Superior Sharpe Ratio:** Outperforms the S&P 500 on a risk-adjusted basis **across all measured periods**
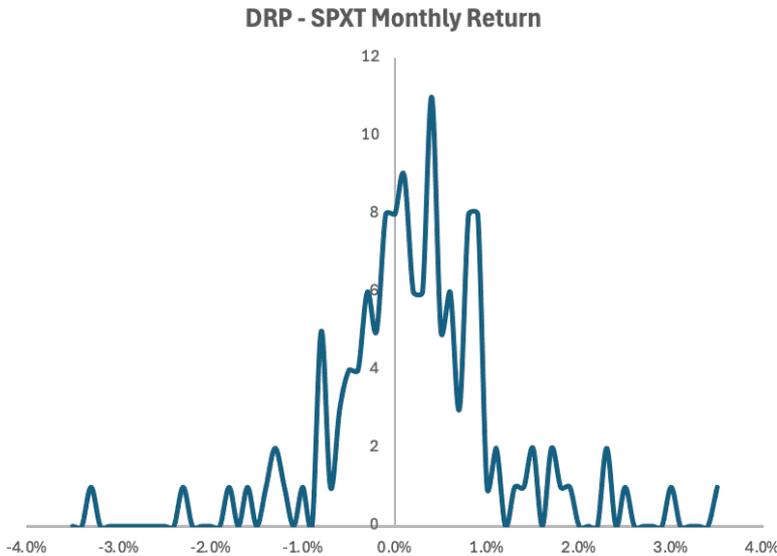- **Alpha not beta:** Since 2015, beta is 0.98 and annualised alpha 2.6%
- **High Information Ratio:** Average 5-year Rolling IR of **0.88** and 1-year Rolling IR of **0.71**, confirming skill in active management.

Effective Risk Control:

- **Low Tracking Error:** Full-period Tracking Error of **3.2%**.
- **Controlled Drawdowns:** Maximum Relative Drawdown (vs. S&P 500) of only **4.7%**, indicating effective mitigation of sustained underperformance and left-tail risk.

Monthly Performance Grid (2015-2025)

DRP - SPXT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	FY
2015	-0.5%	0.8%	-0.4%	0.0%	0.1%	0.3%	-0.8%	-1.1%	0.0%	0.5%	0.2%	1.5%	0.6%
2016	0.7%	-0.3%	-0.7%	-0.8%	0.0%	0.0%	0.0%	1.0%	0.4%	0.4%	-0.5%	0.4%	0.7%
2017	-0.9%	0.2%	-0.3%	-0.1%	0.3%	-1.4%	-0.1%	0.2%	-0.3%	2.3%	-0.1%	0.2%	0.0%
2018	1.3%	0.2%	-0.8%	0.0%	-0.1%	0.0%	0.9%	-0.4%	0.4%	0.1%	-0.4%	1.8%	2.8%
2019	-1.7%	-0.3%	0.8%	0.1%	0.5%	-0.2%	0.6%	-0.1%	0.0%	0.5%	0.3%	-0.2%	0.3%
2020	0.4%	0.0%	3.4%	0.2%	-0.4%	0.0%	-0.2%	1.6%	0.2%	0.4%	0.3%	-0.3%	5.7%
2021	0.8%	-0.3%	0.5%	0.4%	-1.4%	2.4%	0.6%	-0.5%	-0.8%	0.5%	0.3%	0.8%	3.4%
2022	0.8%	1.4%	0.6%	-2.4%	0.9%	0.6%	-0.3%	-0.9%	0.8%	-0.1%	0.6%	-0.5%	1.5%
2023	0.3%	0.7%	2.2%	0.9%	1.8%	-1.2%	0.3%	1.7%	0.0%	0.8%	-0.6%	-0.4%	6.5%
2024	0.6%	-0.7%	-0.3%	1.1%	0.9%	0.4%	-3.4%	-1.3%	1.0%	0.7%	-0.7%	2.9%	1.3%
2025	-0.1%	-1.9%	-0.1%	0.2%	0.0%	1.3%	0.2%	0.0%	0.9%	0.7%	-0.1%		1.1%

The strategy's historical success is rooted in its ability to adapt to three distinct historical phases:

- **2017–2022 (The 'Fed Put' World):** A backdrop where exploiting High Macro Risk Premia was consistently rewarded.
- **2022–Summer 2024 (The AI/Soft Landing Era):** As inflation fell and AI dominated, macro took a back seat, allowing the 'Idio' engine to drive outperformance.
- **Summer 2024–Present (The Policy Shift):** Anticipation of fiscal shifts and geopolitical spikes has brought 'Macro Fear' back to the forefront, making the MRP engine the primary driver of alpha once again.

	Last 1yr	Last 3yrs	Last 5yrs	Jan15-Nov25
Alpha	**3.78%**	**3.83%**	**2.80%**	**2.55%**
Beta	**1.02**	**0.95**	**1.00**	**0.98**
R-Squared	0.90	0.90	0.94	0.96
Annualised Period Return*	18.71%	22.45%	18.15%	16.16%
Benchmark Period Return*	14.68%	19.63%	15.43%	13.97%
Annualised Period Volatility	12.44%	12.71%	15.54%	15.01%
Benchmark Volatility	11.58%	12.69%	15.14%	15.03%
Max Drawdown	-9.1%	-17.0%	-22.8%	-22.8%
Benchmark Max Drawdown	-7.5%	-18.1%	-23.9%	-23.9%
Sharpe	**1.50**	**1.77**	**1.17**	**1.08**
Benchmark Sharpe	1.27	1.55	1.02	0.93
Excess Return*	4.03%	2.81%	2.71%	2.19%
Tracking Error	**3.86%**	**4.00%**	**3.73%**	**3.20%**
Information Ratio (IR)	**1.04**	**0.70**	**0.73**	**0.68**
	Avg 1yr Rolling	*Avg 3yr Rolling*	*Avg 5yr Rolling*	*Full Period*
Excess Return*	2.27%	2.61%	2.79%	2.19%
Tracking Error	**3.21%**	**3.17%**	**3.17%**	**3.20%**
Information Ratio (IR)	**0.71**	**0.81**	**0.88**	**0.68**

*Annualisation of period average monthly return (or difference, in the case of excess return)

IV. Implications For Active Equity Management

The consistent success of this regime-aware strategy carries significant implications for modern portfolio management. It moves beyond merely identifying a new factor, to demonstrating a fundamental evolution in how systematic alpha can be captured.

1. **Portfolio Construction as a Primary Alpha Source.** Traditional models often treat security selection and portfolio construction as separate stages: first pick "good stocks," then build an efficient portfolio. Our results argue that **the dynamic process of *regime-aware allocation* between macro and idiosyncratic risk premia is itself a potent, independent source of alpha.** The alpha is generated not just by *which* stocks are selected, but by the strategic decision of *when* to expose the portfolio to which type of risk. This elevates tactical portfolio construction from a risk-control exercise to a central alpha-generation engine.

2. **The Critical Cost of Ignoring Macro Regimes.** In an era of heightened macroeconomic volatility, relying solely on traditional, micro-factor-based models leaves substantial alpha on the table. Such models may perform well in "idio" regimes but can systematically underperform when macro forces dominate, as their signals are overwhelmed by systemic risk. Traditional models often hide the fact that a fund "doesn't really know what's in there" regarding invisible macro risk. Our framework proves that **failing to explicitly model and adapt to the macro risk environment creates a predictable and exploitable alpha leakage.** An integrated macro-micro lens is no longer optional for consistent outperformance.

3. **The Macro Risk Model as an Essential Tool for the New Volatility Regime.** The post-GFC, post-pandemic financial landscape is characterized by more frequent and severe macroeconomic shocks. In this environment, a sophisticated macro risk model is not a supplementary diagnostic but a **core, essential component of the investment process.** It acts as both a radar—detecting the prevailing risk regime—and a filter, ensuring the portfolio is always tilted toward the most relevant and rewarding source of premia. This is key to stopping alpha leakage and protecting against regime-specific underperformance.

In summary, this research validates a paradigm shift: enduring alpha generation requires a framework that dynamically answers the question, "What is driving the market today?" The Dual Risk Premia framework for the S&P 500 provides transparency, adaptability and consistency. By making the macro-idio regime axis the central decision variable, portfolio managers can systematically navigate market cycles, turning volatility and regime shifts from sources of risk into reliable sources of return.

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