The Shift Research (TSR) Quantitative Tools

We use these systems and process to manage risk and outperform in the markets

The Shift Research Process

Our trend-following process for managing risk while also maximizing returns.

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The hardest thing to do as an investor is to manage risk well.

Most investors - even some financial “professionals” - attempt to manage risk based on their whims and predictions. This is even more rampant among retail investors.

Our process adopts a data driven approach that helps us observe and position based on what the economy and markets are doing instead of trying to predict the future.

Our Quantitative Tools Include:

- Positioning Signals
- Economic Regime
- Market Regime
- Market Risk Monitor
- Crypto Market Strength Index

The goal of this process is to capture the upside of aggressive growth portfolio strategies while also prioritizing risk management and avoiding large drawdowns.

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The TSR Quantitative Positioning Signals

The TSR Quantitative Positioning Signals is a statistical model that scores momentum and volatility to identify breakouts and breakdowns in an assets trend.

The system produces Bullish, Bearish, and Neutral signals which are represented by the following corresponding colors on the chart:

- **Green:** Bullish
- **Red:** Bearish
- **Yellow:** Neutral

Quantitative Positioning Signals

Below is our Quantitative Positioning Signals plotted on the top two crypto assets: Bitcoin and Ethereum

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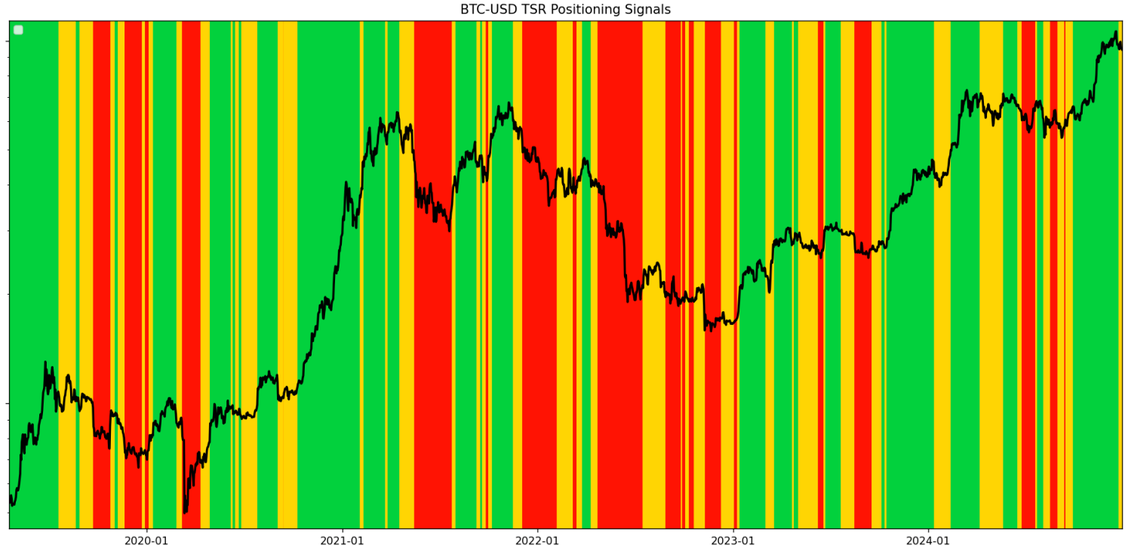
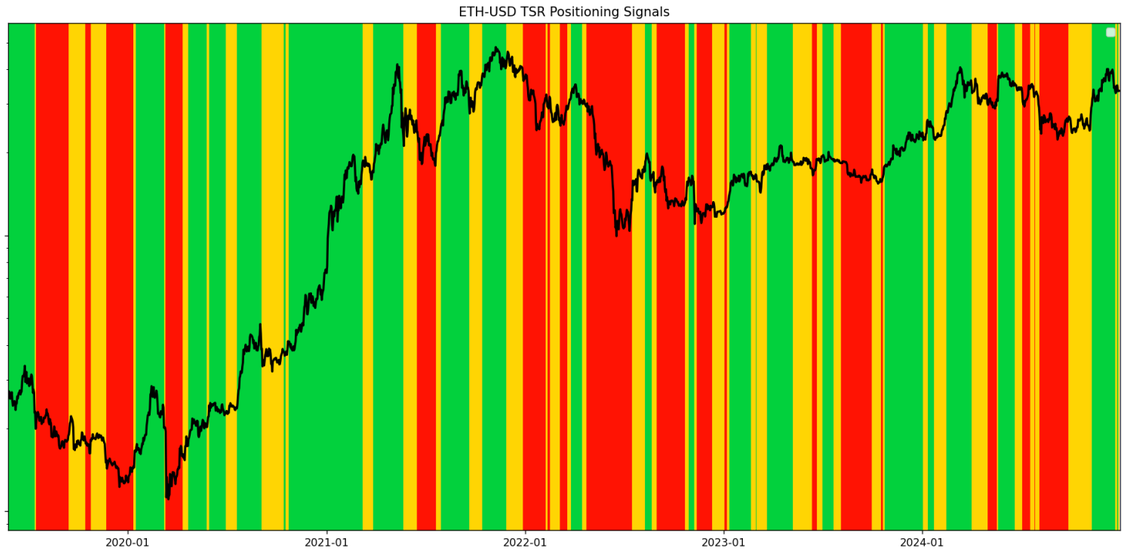
Bullish | Neutral | Bearish

Bitcoin



Ethereum



Positioning Signals Backtests: Crypto

This backtest illustrates the sum of daily log returns for each asset compared to its returns in each positioning signals condition: Bitcoin and Ethereum.

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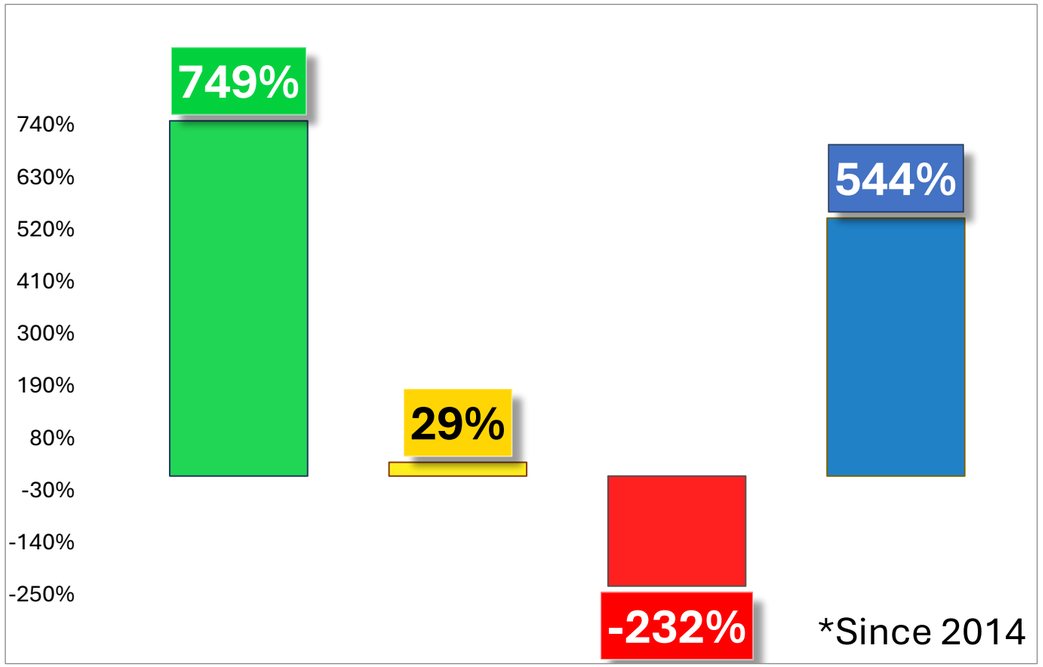
Total Return: Bullish Conditions

Total Return: Bearish Conditions

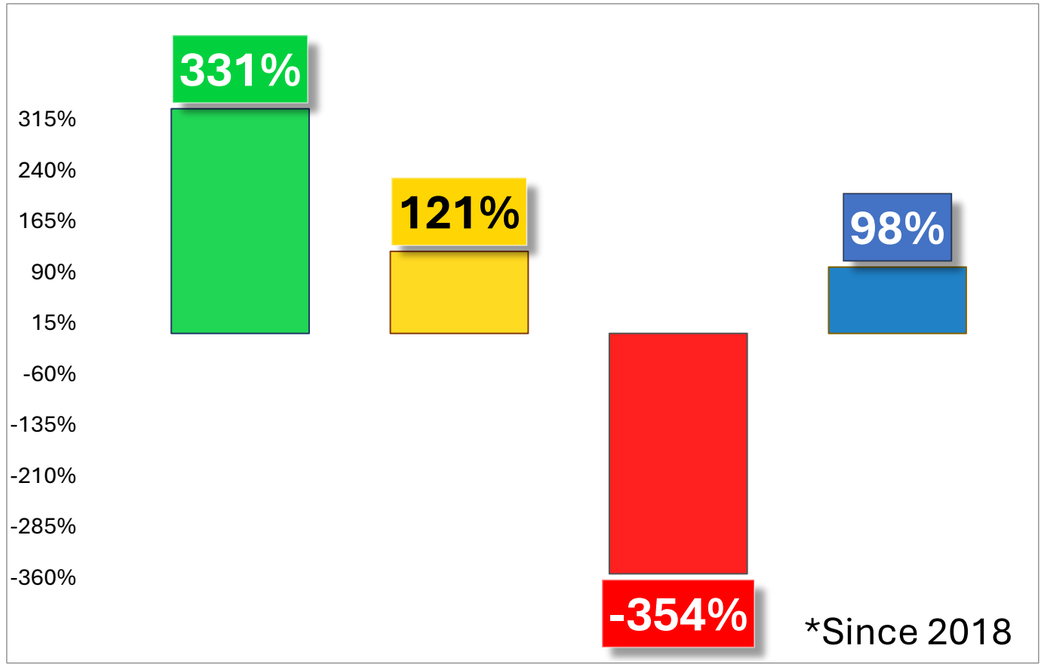
Total Return: Neutral Conditions

Assets Total Buy & Hold Return

Bitcoin



Ethereum



Quantitative Positioning Signals

Below is our Quantitative Positioning Signals across the four major asset classes: stocks, bonds, commodities, currencies.

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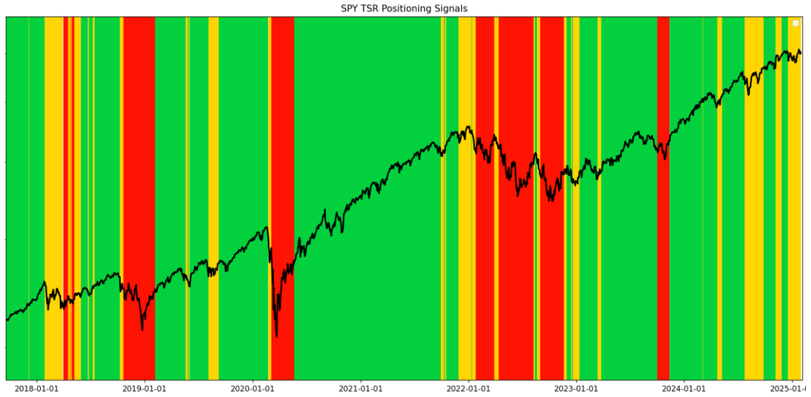
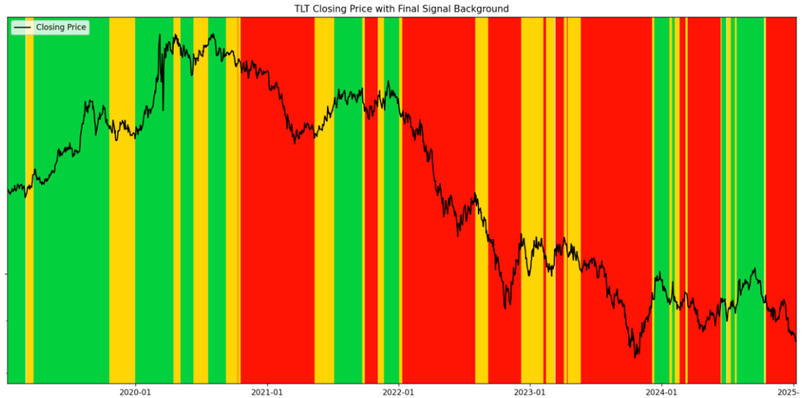
Bullish | Neutral | Bearish

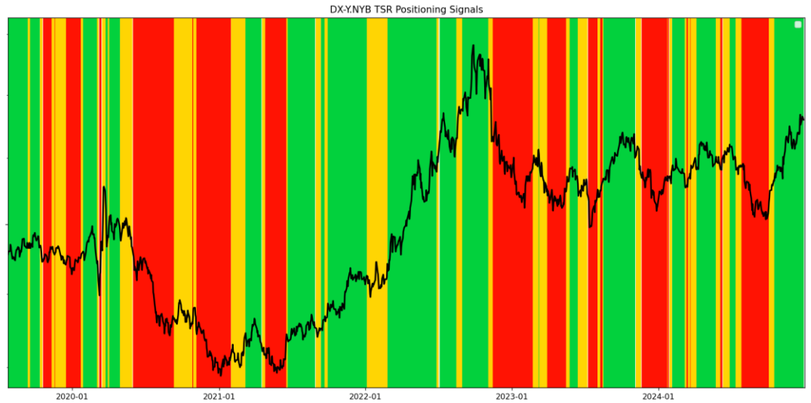
S&P 500



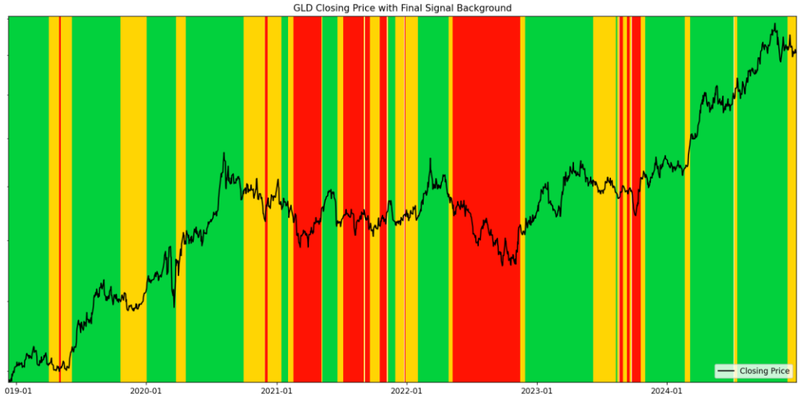
Bonds



USD Strength Index



Gold



Positioning Signals Backtests

This backtest illustrates the sum of daily log returns for each asset compared to its returns in each positioning signals condition: stocks, bonds, commodities, currencies.

THE SHIFT

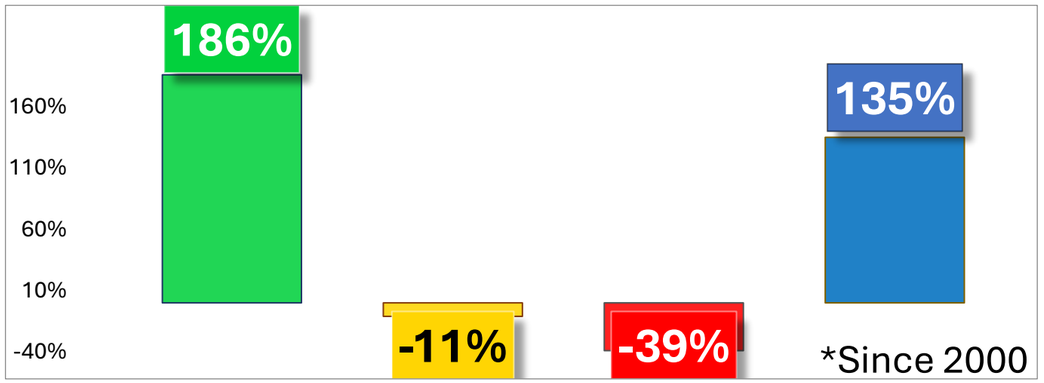
Total Return: Bullish Conditions

Total Return: Bearish Conditions

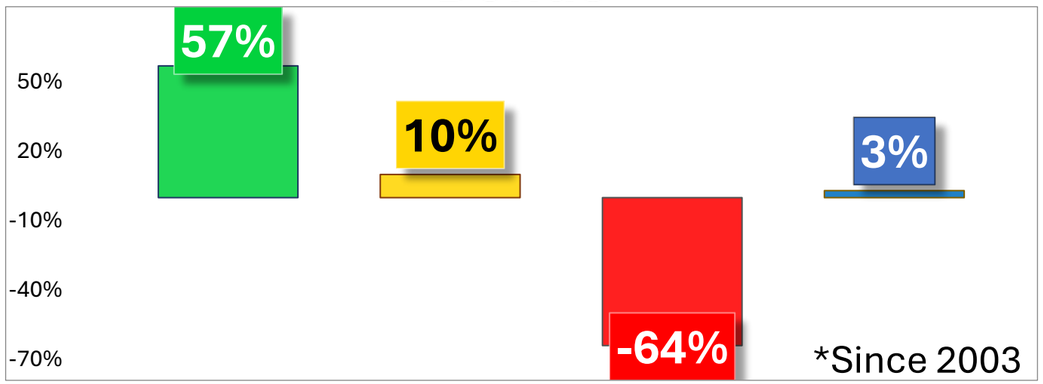
Total Return: Neutral Conditions

Assets Total Buy & Hold Return

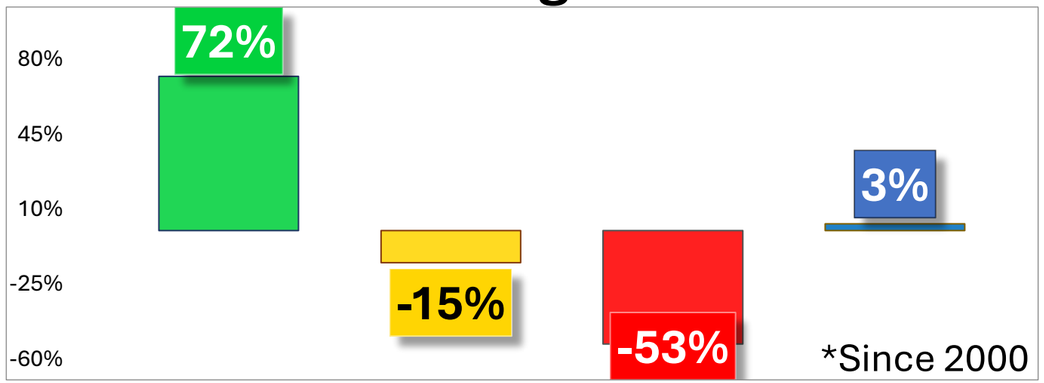
S&P 500



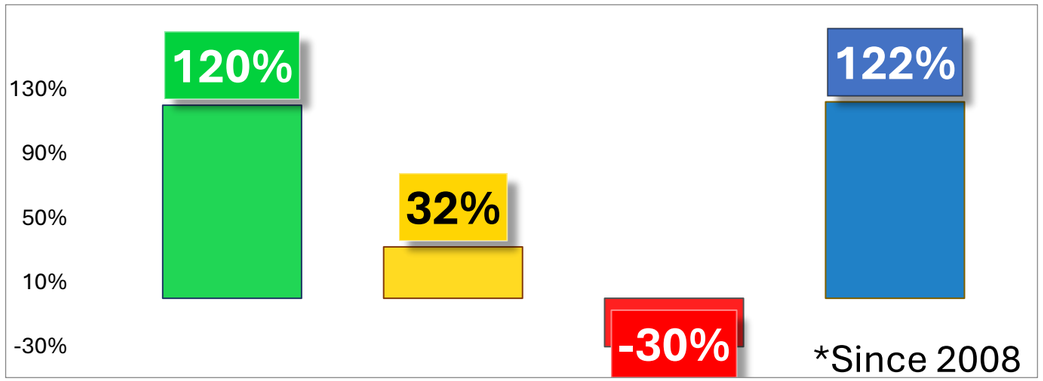
Bonds



USD Strength Index



Gold



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The TSR Economic Regime Model

The TSR economic regime model tracks the rate of change for growth and inflation on a month-to-month basis.

This model helps us to track the changes in economic environments so we can systematically ensure that our portfolio is positioned properly according to the environment.

Inflation is the X axis and Growth is the Y axis, the graph is divided into 4 quadrants which are listed below:

- **Risk-On**
  - Rising Growth Declining inflation
  - Rising Growth, Rising Inflation
- **Risk-Off**
  - Declining Growth, Rising Inflation
  - Declining Growth, Declining Inflation

Economic Regime Model part 1

Below is the 4 Quadrant graph of the economic regime model with dates marking where growth and inflation are on 3-month rate-of-change basis.

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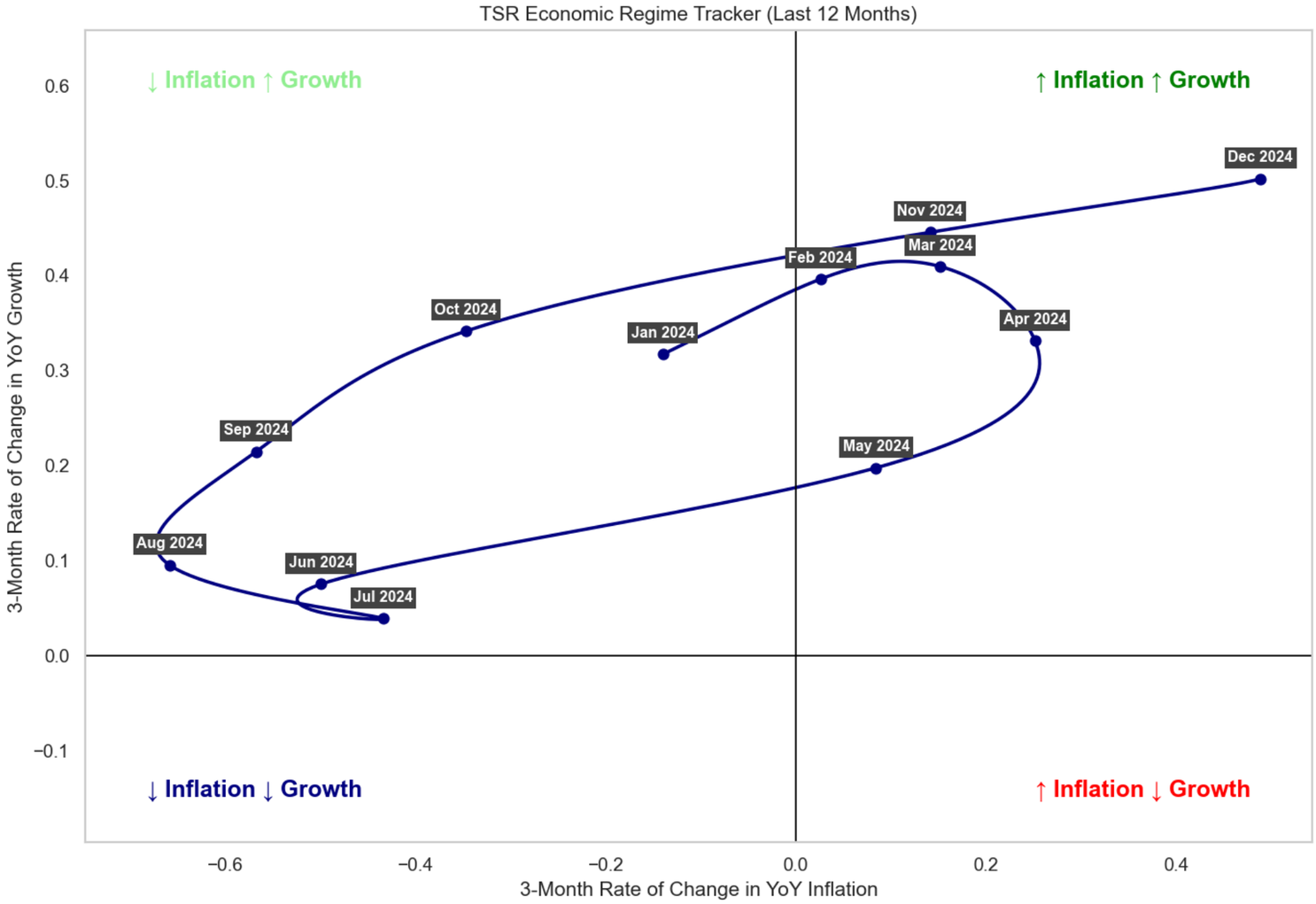

Economic Regime Model part 2

Below are the economic regimes plotted as background colors on the S&P 500.

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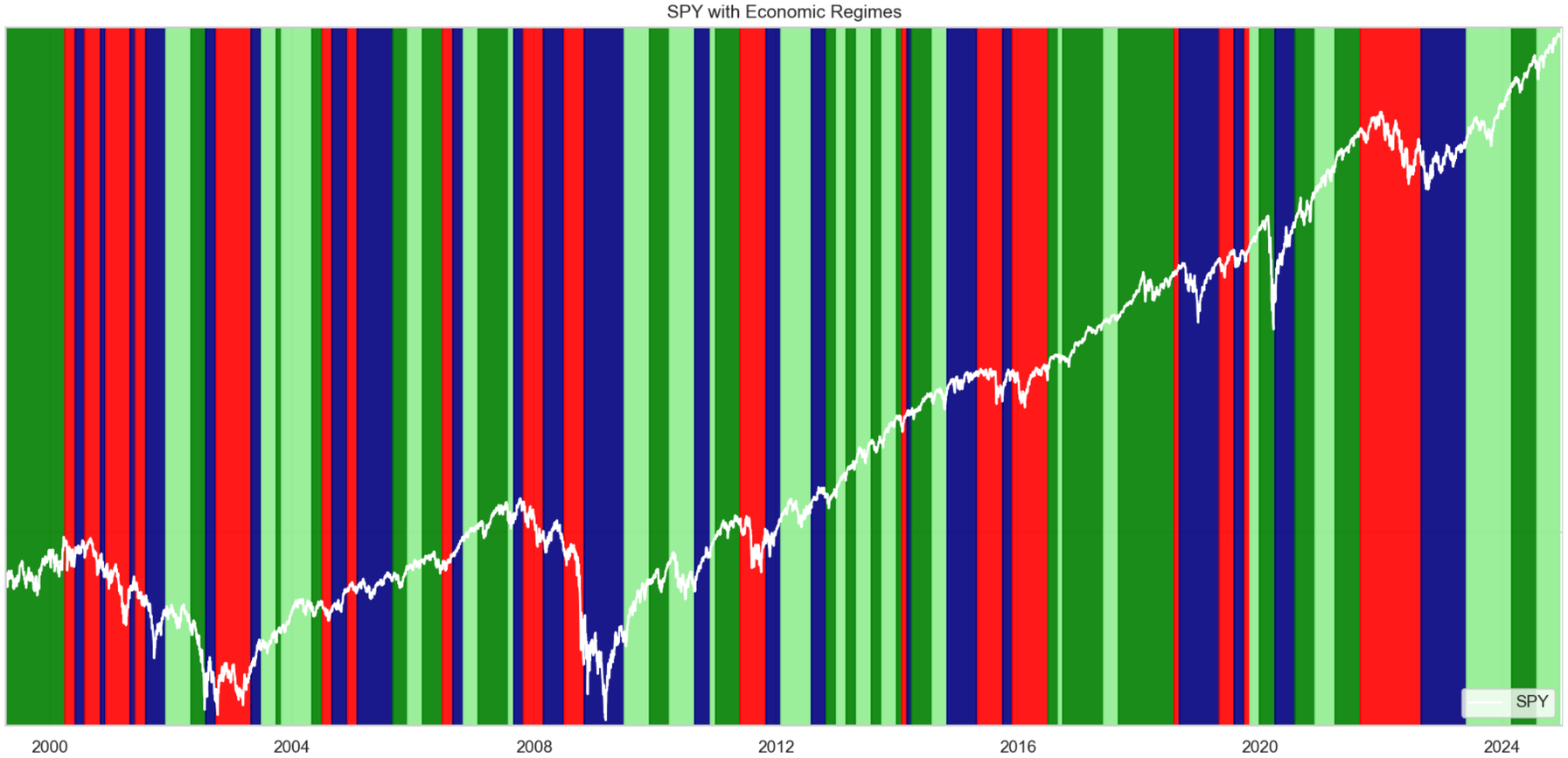
↑ Inflation ↓ Growth

↓ Inflation ↑ Growth

↓ Inflation ↓ Growth

↑ Inflation ↑ Growth



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The TSR Market Regime Model

We’ve built the Market Regime Model by backtesting many different global assets such as: Stocks, bonds, commodities, currencies, crypto, and volatility Indices across different economic regimes to identify their behavior in various regimes, and then we use that information to score each regime based on the positioning signals across all of the assets we track.

This tool helps us understand what regime global assets are trying to price in, which helps us stay on the right side of broad market trends:

- **Risk-on** with inflationary characteristics
- **Risk-on** with disinflationary characteristics
- **Risk-off** with inflationary characteristics
- **Risk-off** with deflationary characteristics

Market Regime Model part 1

This graph displays the share of market regimes whichever regime has the highest score is the dominant regime.

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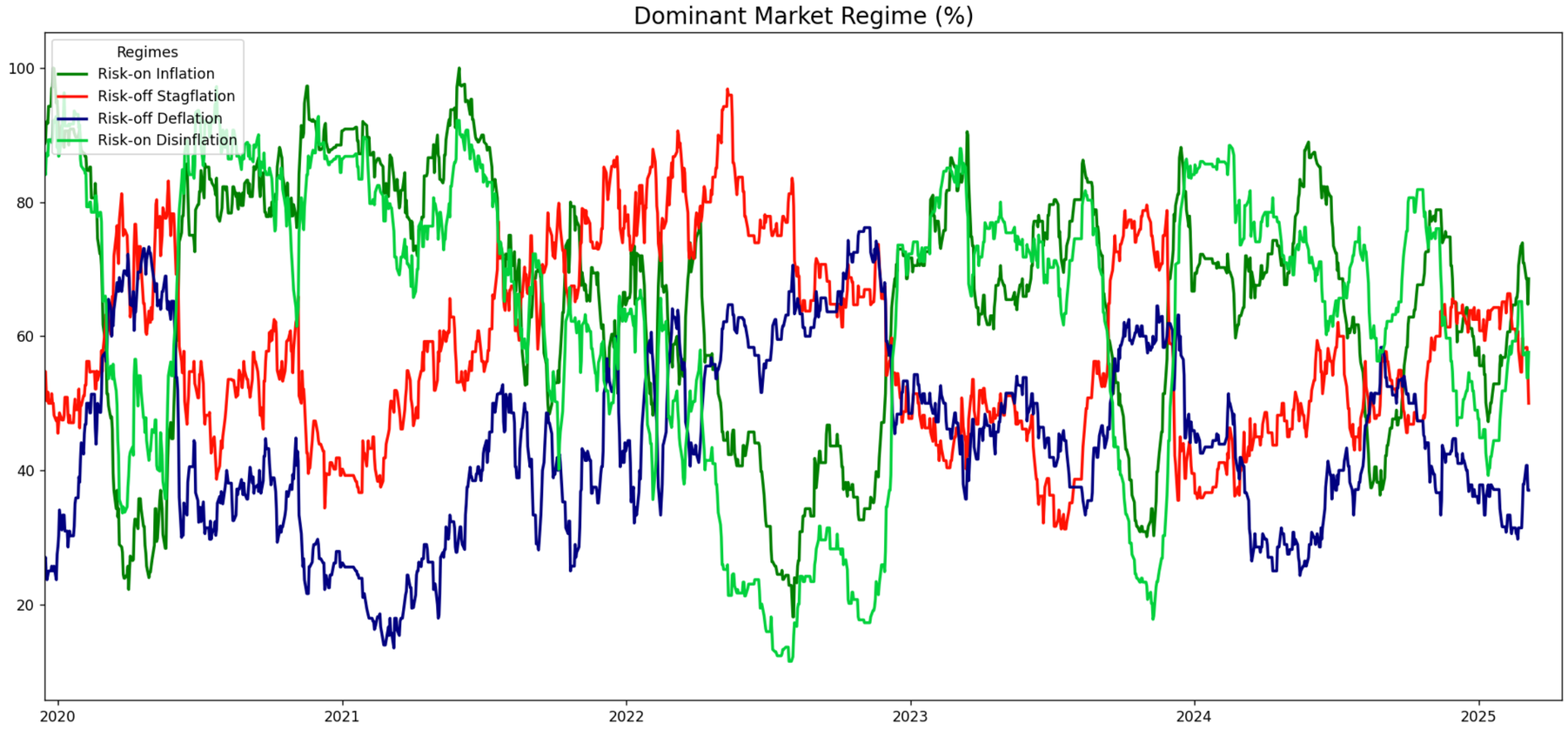
Risk-off Stagflation

Risk-on Inflation

Risk-off Deflation

Risk-on Disinflation



Market Regime Model part 2

Below are the market regimes plotted on the S&P 500 as well as on US Treasury bonds to illustrate how the asset classes perform across regimes

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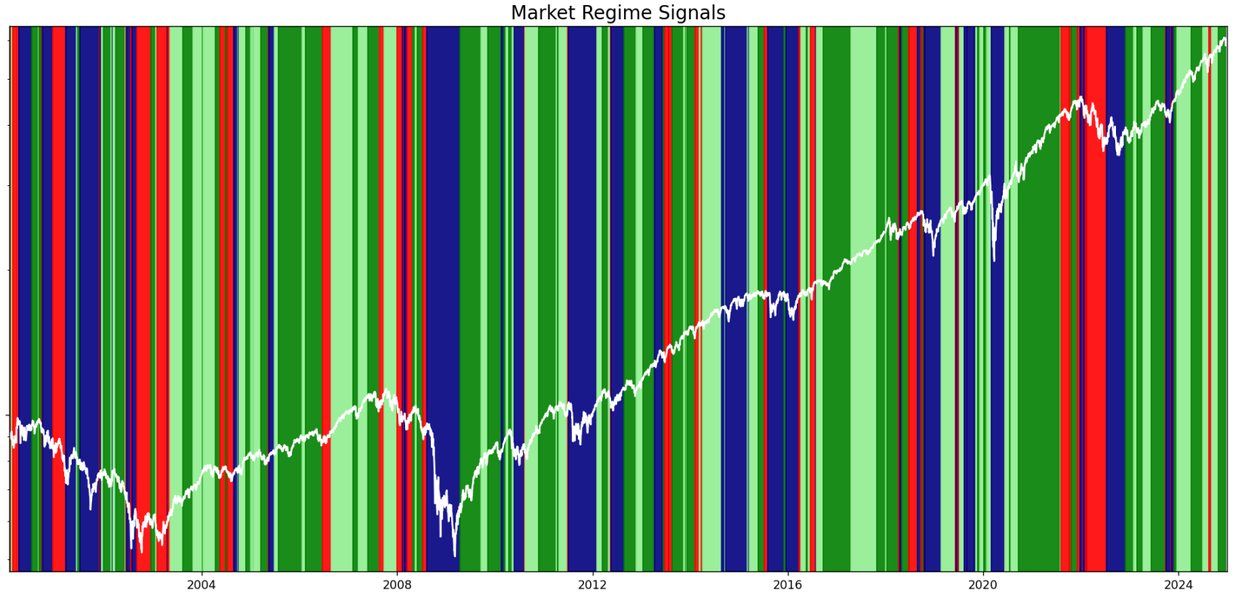
Risk-off Stagflation

Risk-on Inflation

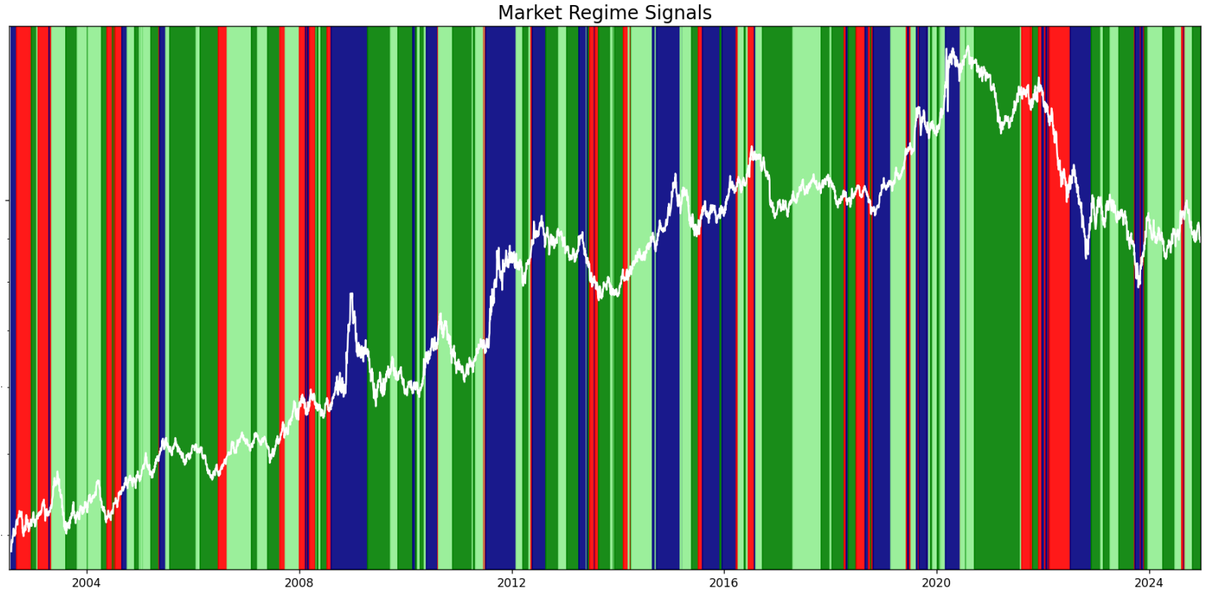
Risk-off Deflation

Risk-on Disinflation

S&P 500



Treasury Bonds



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The TSR Market Risk Monitor

The Market Risk-On/Risk-Off monitor tracks the breadth of risk-on and risk-off assets to identify extreme risk-on or risk-off levels.

We use this model to gain added insight into potential RORO (Risk-On Risk-Off) phase transitions as well as helping us identify optimal times to deploy capital or be more defensive.

Market Risk Monitor

The blue line represents the breadth of risk-on assets minus risk-off assets, above the red line is high risk-on breadth and below is high risk-off breadth

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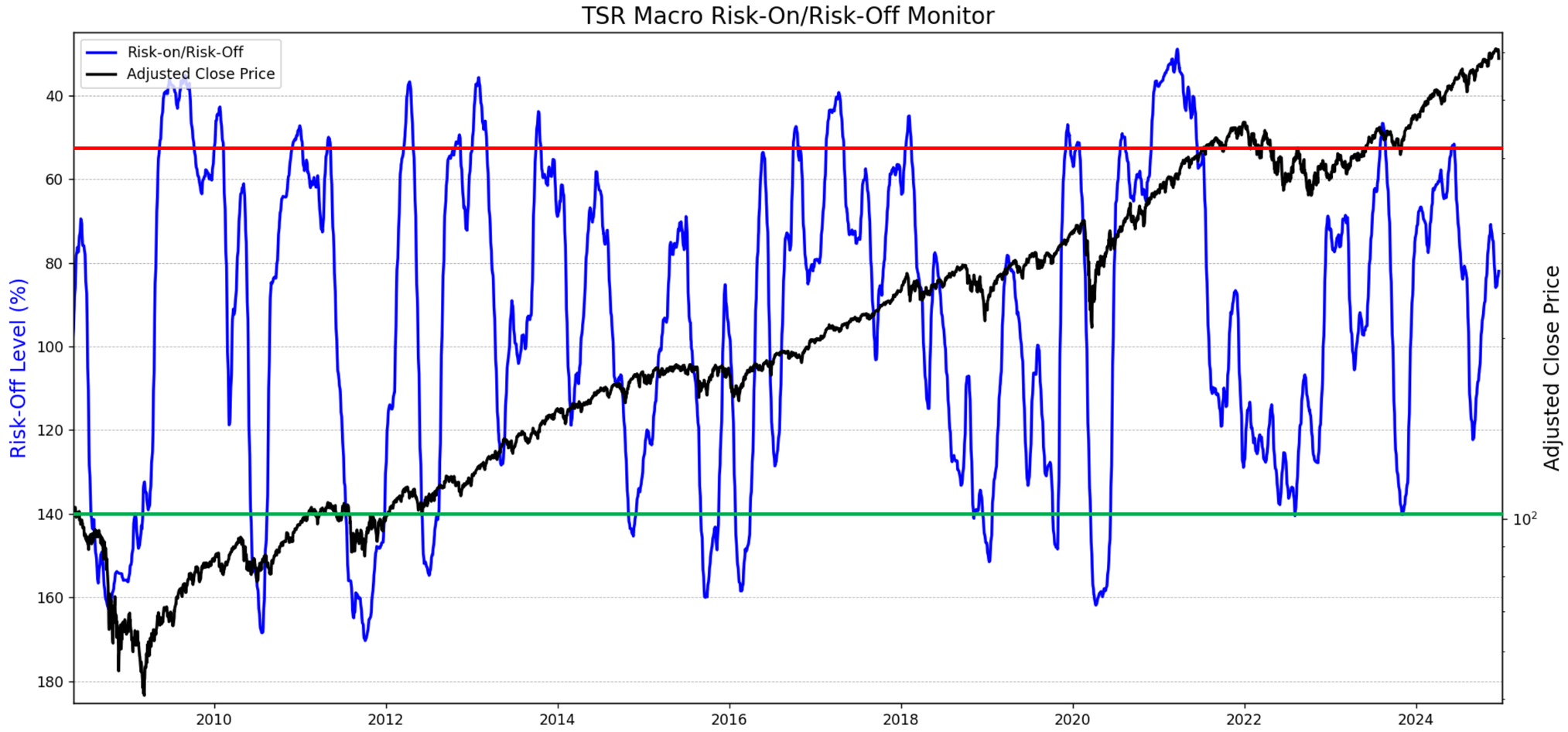
Higher Risk | Lower Risk



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The TSR Crypto Market Strength Index

Our ‘TSR Crypto Market Strength Index’ uses our quantitative positioning signals across the top 50 assets in crypto.

This model helps us gauge market strength and weakness from the middle out and stay on top of short-term shifts in momentum across the crypto market.

Market Strength Index

The right chart displays the market strength index with the left chart displaying the index signals.

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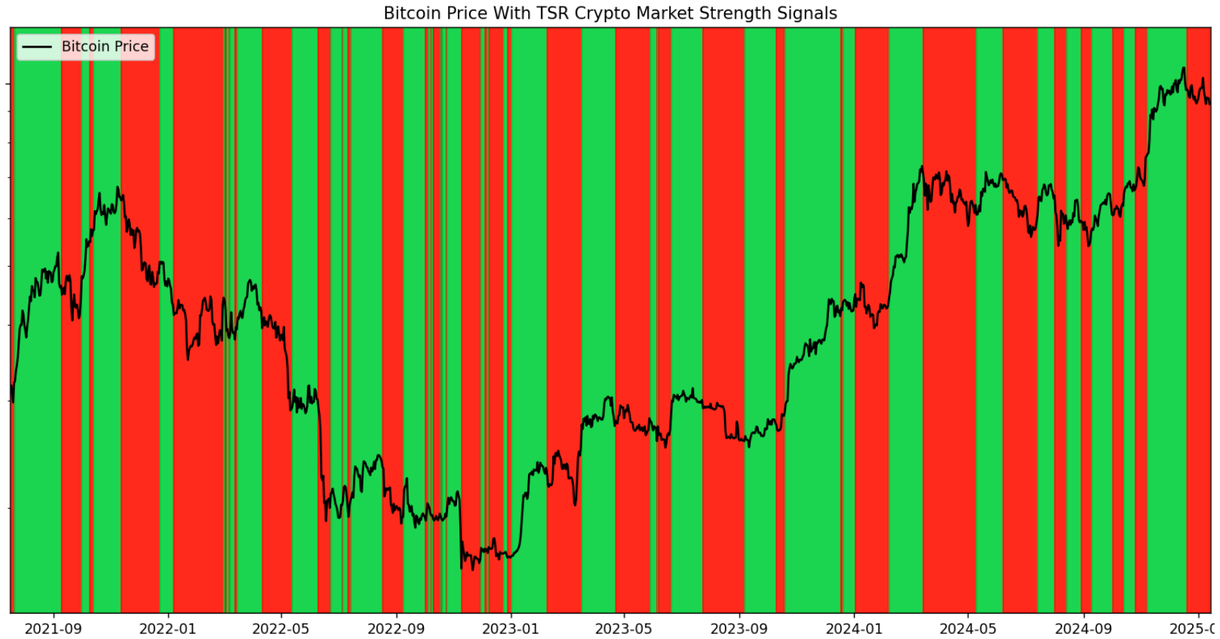
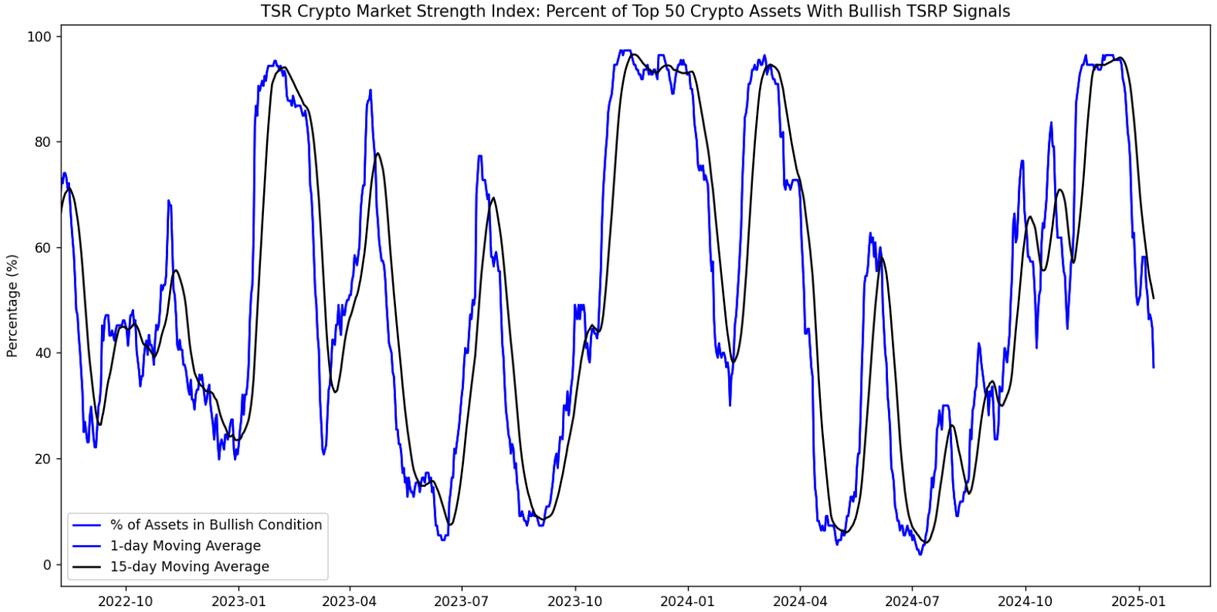
Bullish

Bearish





How To Use These Tools Part 1

Positioning Signals

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Using the positioning signals tool

We use these signals to position within the context of the economic and market regimes.

Bullish Regime:

- Bullish Signal: Max long position.
- Neutral Signal: Half long position.
- Bearish Signal: No position.

Bearish Regime:

- Bullish Signal: No position (long only strategy: Half long position).
- Neutral Signal: Half short position (long only strategy: Quarter to half long position).
- Bearish Signal: Max short position. (long only strategy: No position)

How To Use These Tools Part 2

Economic and Market Regimes (Long only)

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Positioning for the economic regimes and/or market regimes (long Only)

- Risk-on Inflation:
  - Max long position: stocks, crypto, commodities,
  - Half long position: N/A
  - No position: fixed income.
- Risk-on Disinflation:
  - Max long position: stocks, crypto, fixed income.
  - Half long position: N/A
  - No Position: commodities.
- Risk-off Stagflation:
  - Max long position: commodities.
  - Half long position: stocks, crypto.
  - No position: Fixed Income.
- Risk-off Deflation:
  - Max long position: fixed income.
  - Half long position : stocks, crypto.
  - No position: commodities.

How To Use These Tools Part 3

Economic and Market Regimes (Long/Short)

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Positioning for the economic regime and/or market regimes (long/Short)

Risk-on Inflation:

- Long: stocks, crypto, commodities.
- Short: fixed income.

- Risk-on Disinflation:
  - Long: stocks, crypto, fixed income.
  - Short: commodities.
- Risk-off Stagflation:
  - Long: commodities.
  - Short: stocks, crypto, Fixed Income.
- Risk-off Deflation:
  - Long: fixed income.
  - Short: stocks, crypto, commodities.

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Theoretical Systematic Portfolio Backtest Using Our Tools

To illustrate the effectiveness of this process, we have constructed a backtest of a high-risk growth portfolio managed by our systematic process and compared it to a benchmark asset allocation as well as the S&P 500.

The systematic process uses our Market Regime Tool along with our Positioning Signals tool to actively dial up our risk exposure in risk-on market environments and dial down our risk exposure during risk-off market environments.

The goal is to take advantage of higher risk exposures to capture more upside, but systematically manage those positions in-order to achieve overall superior Risk-Adjusted Returns

Theoretical Systematic Portfolio Backtest

Achieve superior returns and lower risk through
a systematically managed portfolio

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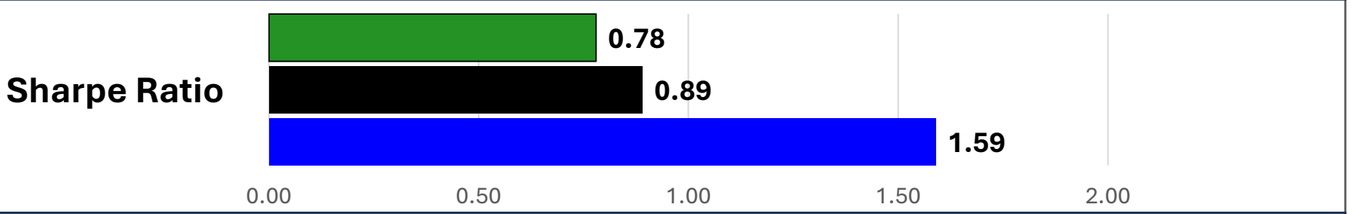
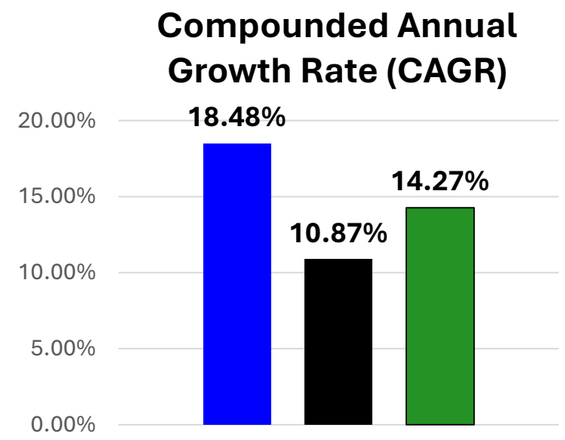
Systematic Portfolio | Benchmark Portfolio | S&P 500

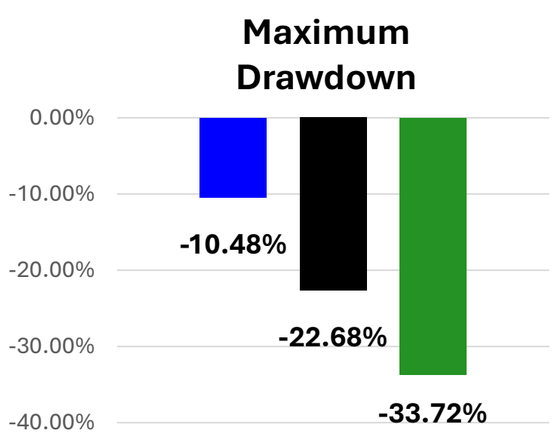
Target Asset Allocation
Nasdaq (QQQ): 60%
Gold (GLD): 30%
Bitcoin (BTC): 10%

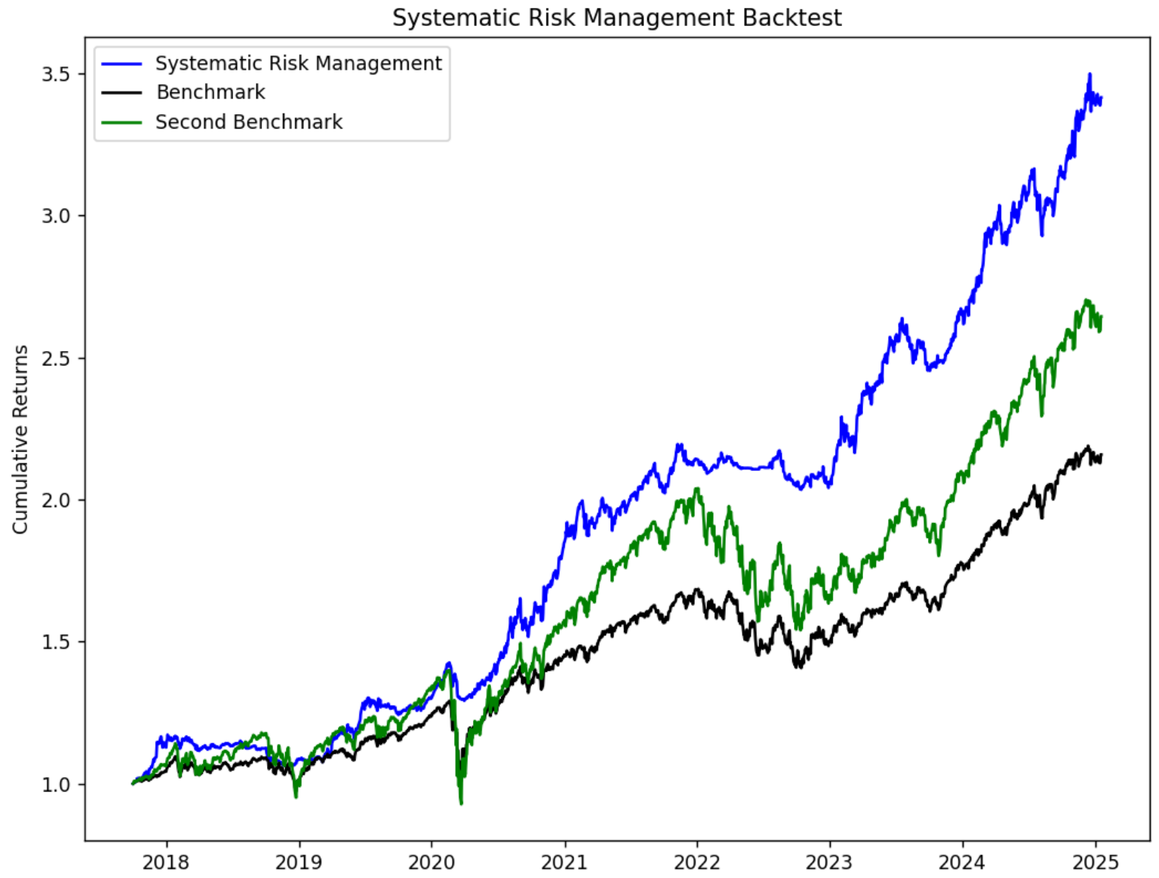
Target Asset Allocation
S&P 500 (SPY): 60%
Gold (GLD): 20%
Treasury Bonds (TLT): 20%

Target Asset Allocation
S&P 500 (SPY): 100%









Leveraged Systematic Portfolio Backtest

Achieve superior returns and lower risk through
a systematically managed portfolio

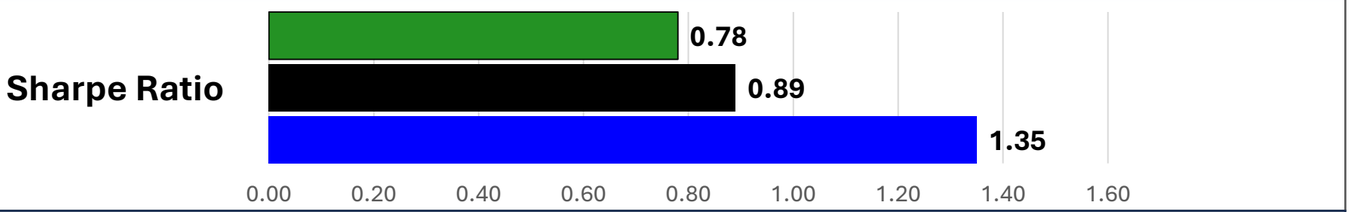
THE SHIFT

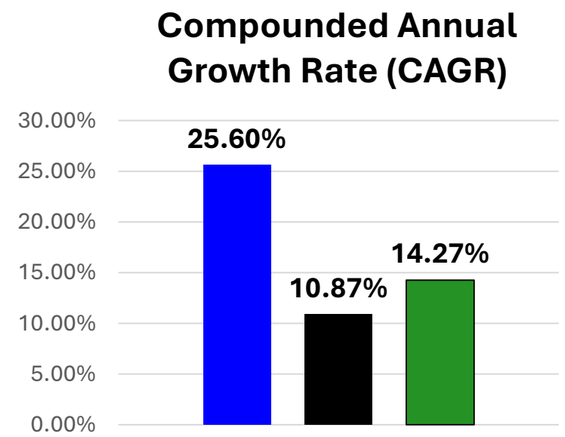
Systematic Portfolio | Benchmark Portfolio | S&P 500

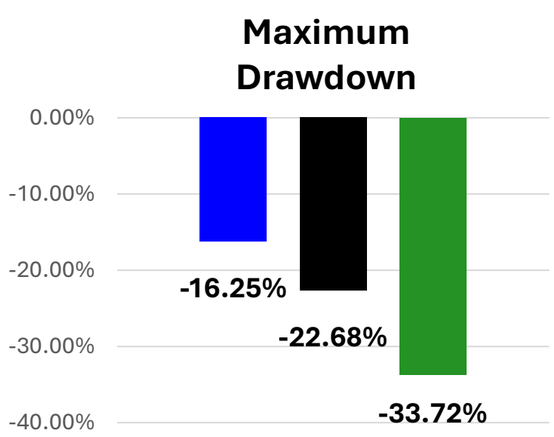
Target Asset Allocation
2X Nasdaq (QLD): 60%
Gold (GLD): 30%
Bitcoin (BTC): 10%

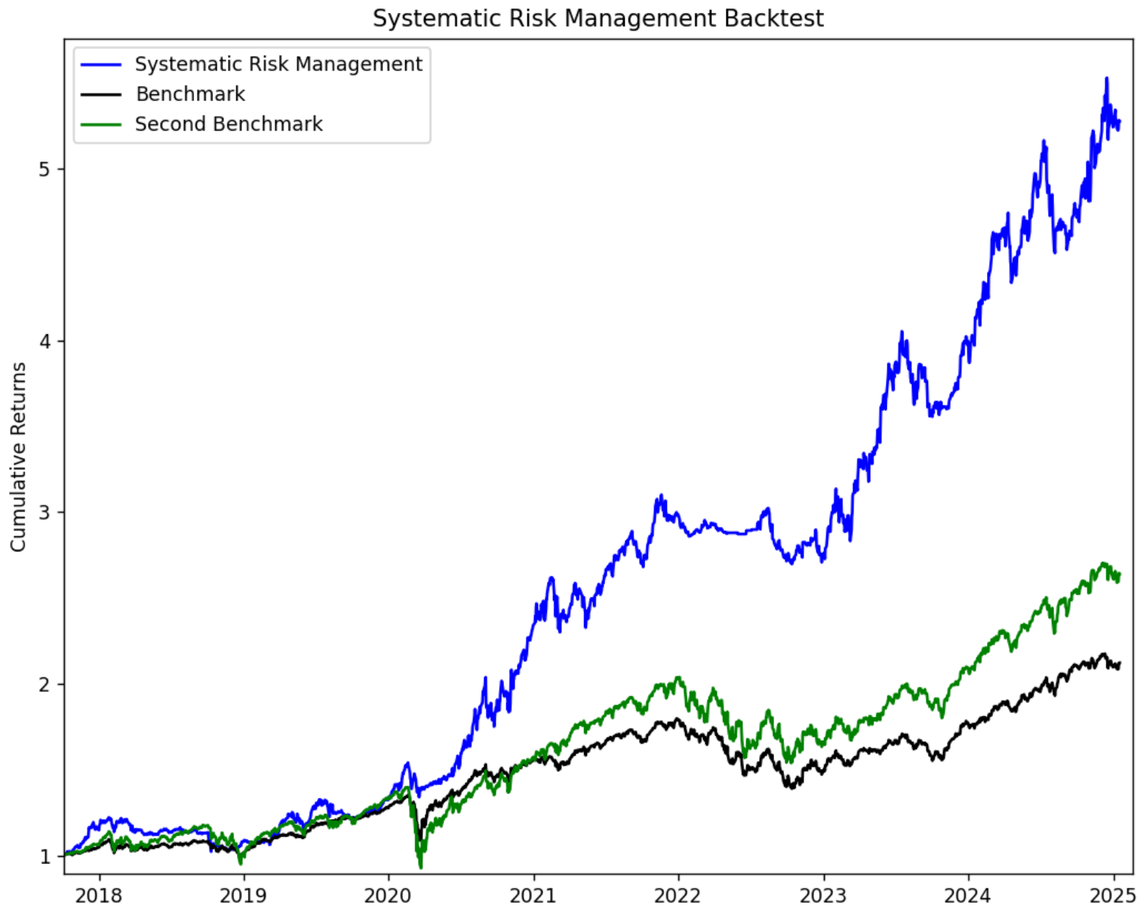
Target Asset Allocation
S&P 500 (SPY): 60%
Gold (GLD): 20%
Treasury Bonds (TLT): 20%

Target Asset Allocation
S&P 500 (SPY): 100%









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Systematic Ultra Portfolio Backtest

The Systematic Ultra portfolio is an extremely aggressive systematic growth strategy.

The goal of this portfolio is to achieve a high growth rate while using our systematic process to manage risk.

The strategy includes 3X leverage Nasdaq ETF, 2x leverage bond ETF, 2x leveraged short bond ETF, Gold, a Commodities ETF, and Bitcoin.

The strategy adjusts the target weighting of these exposures according to the Market Regime and then we use our positioning signals tool to manage risk in each individual position.

Target Exposures By Regime:

Risk-on Disinflation regime target exposure:
TQQQ 50%, GLD 30%, BTC 20%.

Risk-on Inflation regime target exposure:
TQQQ 50%, GLD 20%, GSG 20%, BTC 10%.

Risk-off Deflation regime target exposure:
TQQQ 15%, GLD 20%, BTC 20%, UBT 45%.

Risk-off Stagflation regime target exposure:
TQQQ 15%, GLD 25%, GSG 25%, TTT 15%, BTC 20% .

Systematic Ultra Portfolio Backtest

Chase extreme growth and manage risk with a systematic portfolio management strategy

THE SHIFT

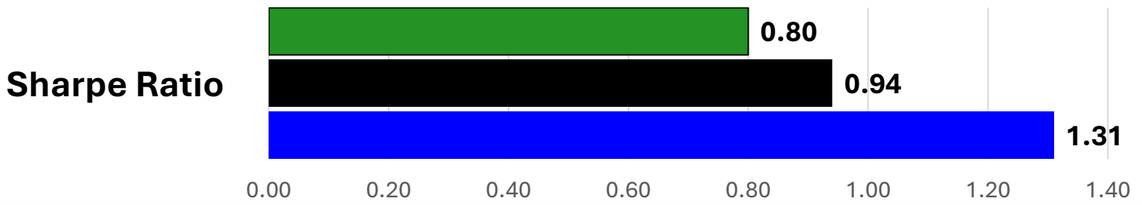
*The Listed Asset Allocations are the maximum target exposures for each asset, these exposures are adjusted based on the regime (refer to previous slide)

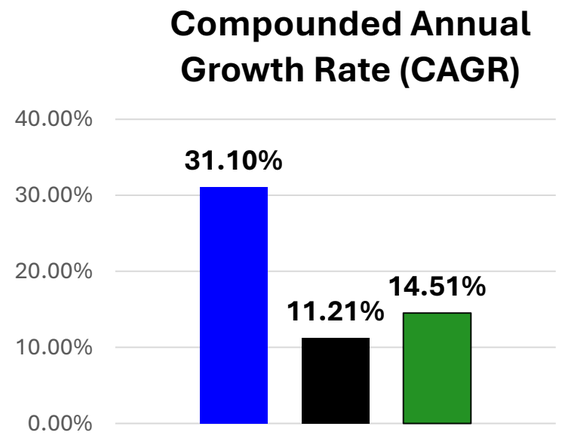
Systematic Portfolio	Benchmark Portfolio	S&P 500

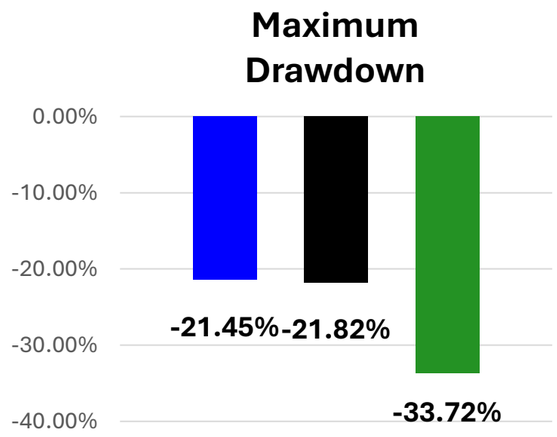
***Target Asset Allocation**
3X Nasdaq (TQQQ): 50%
Bitcoin (BTC): 20%
Gold (GLD): 30%
Commodities (GSG): 25%
Bonds (UBT): 45%

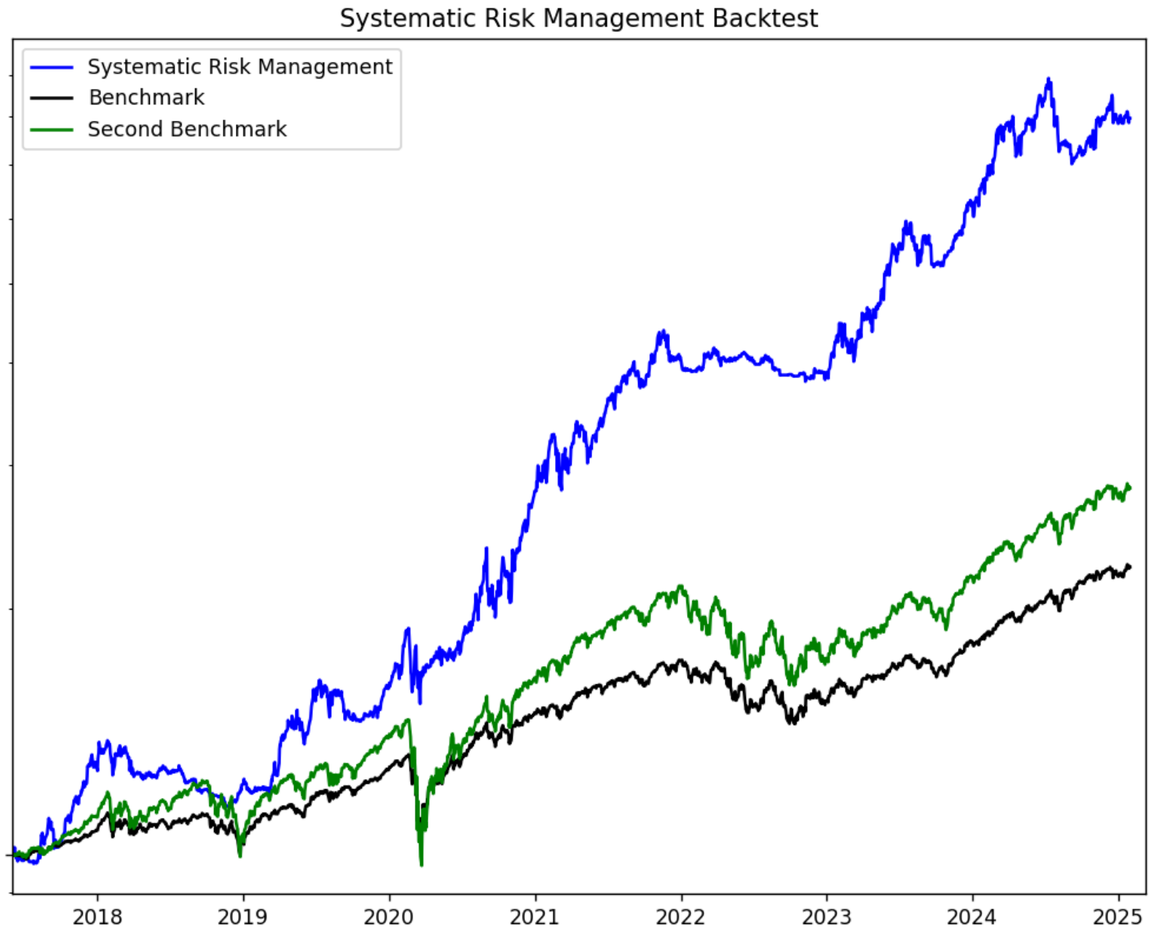
Target Asset Allocation
S&P 500 (SPY): 60%
Gold (GLD): 20%
Treasury Bonds (TLT): 20%

Target Asset Allocation
S&P 500: 100%









THE SHIFT

Theoretical Systematic Crypto Portfolio Backtest Using Our Tools

To illustrate the effectiveness of this process in the crypto market, we have constructed a backtest of a crypto portfolio managed by our systematic process and compared it to a benchmark allocation as well as Bitcoin.

The systematic process uses our Market Regime Tool to dynamically adjust the portfolio weighting based on the regime, increasing our “altcoin” weighting in risk-on market environments and increasing our Bitcoin weighting during risk-off market environments

And then we use our positioning signals tool to actively manage each individual position.

The goal is to take advantage of cryptos high-beta and momentum to capture the upside, while systematically managing our drawdowns.

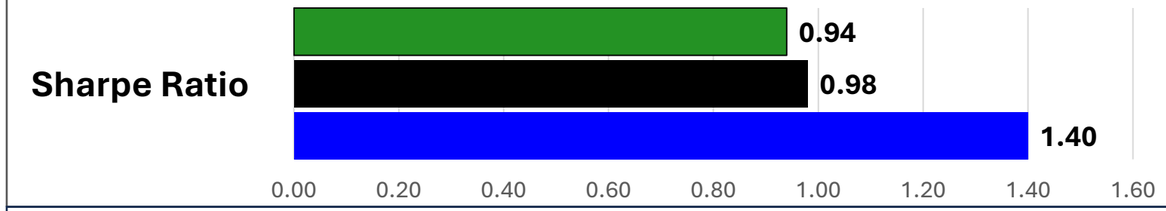
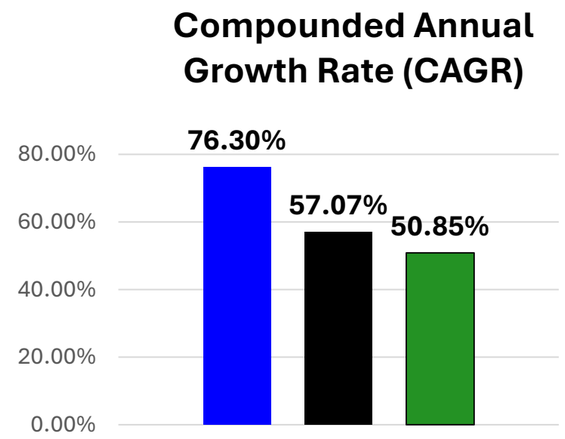
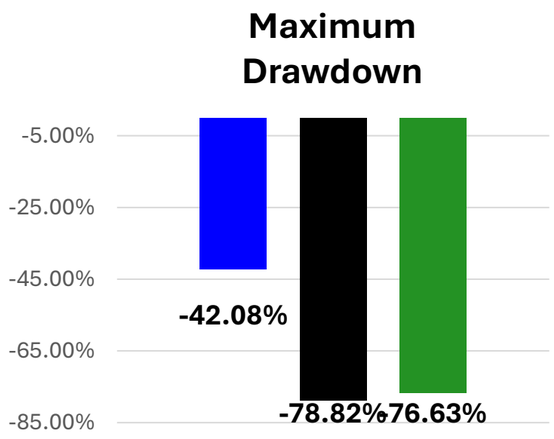
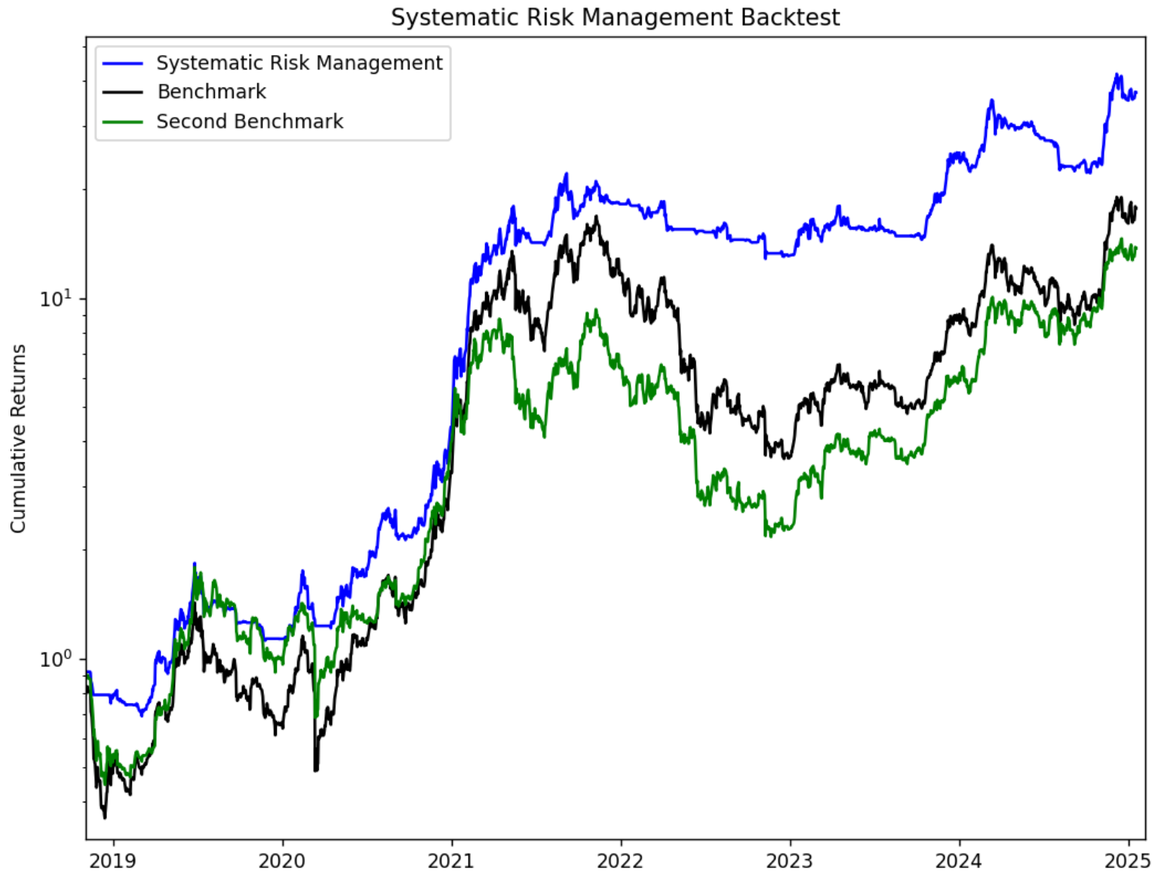
Systematic Crypto Portfolio Backtest

Achieve superior returns and lower risk through
a systematically managed portfolio

THE SHIFT

Systematic Portfolio | Benchmark Portfolio | Bitcoin

Target Asset Allocation
Bitcoin (BTC): 40%
Ethereum (ETH): 30%
Cardano (ADA): 30%

Target Asset Allocation
Bitcoin (BTC): 50%
Ethereum (ETH): 25%
Cardano (ADA): 25%

Target Asset Allocation
Bitcoin (BTC): 100%