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.

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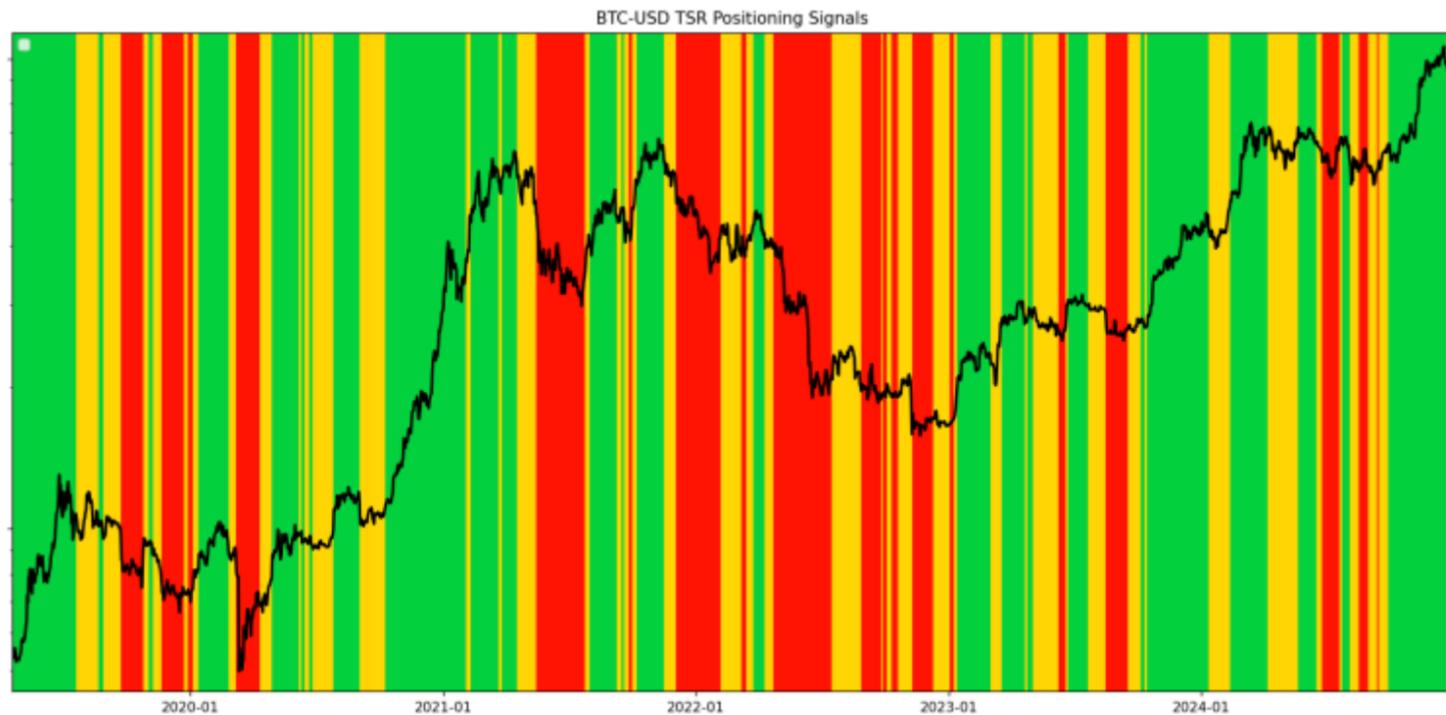
- **Green:** Bullish
- **Red:** Bearish
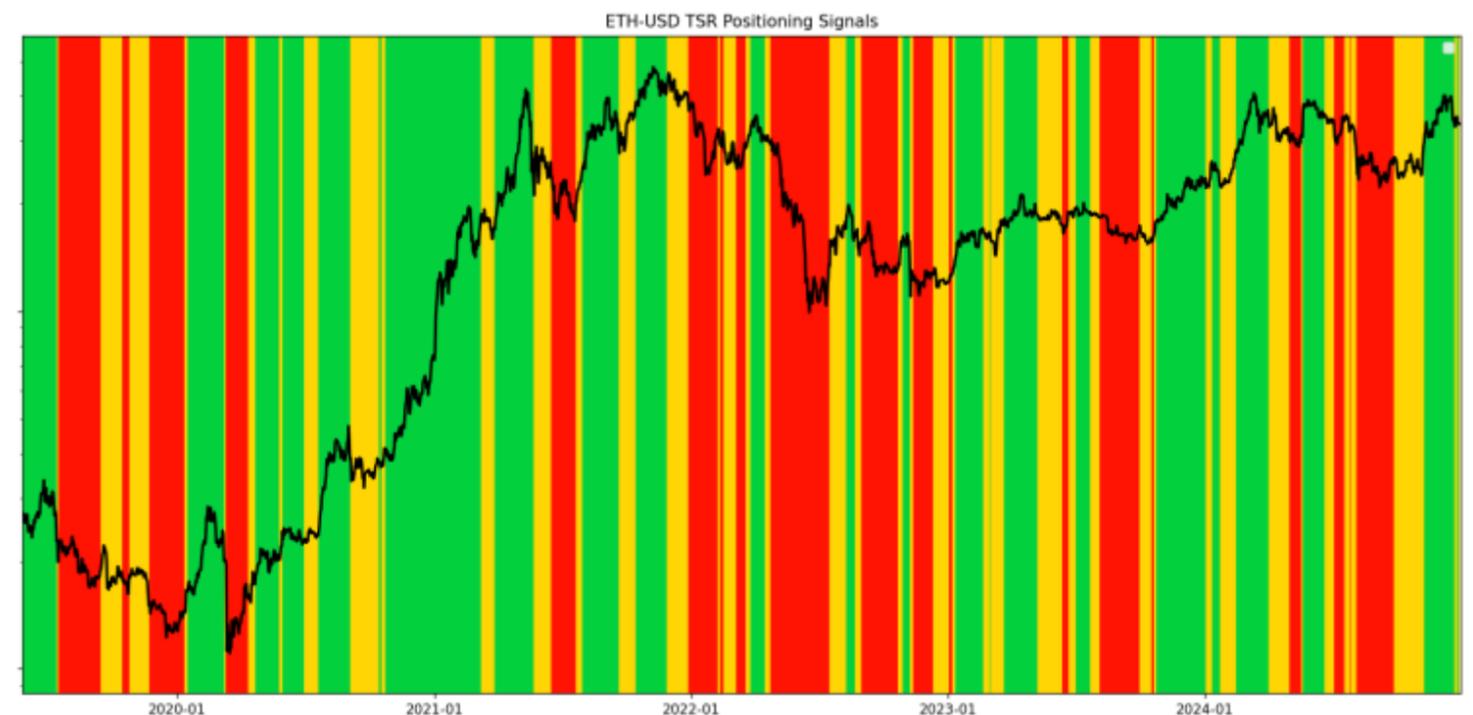- **Yellow:** Neutral

Quantitative Positioning Signals

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

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Bitcoin

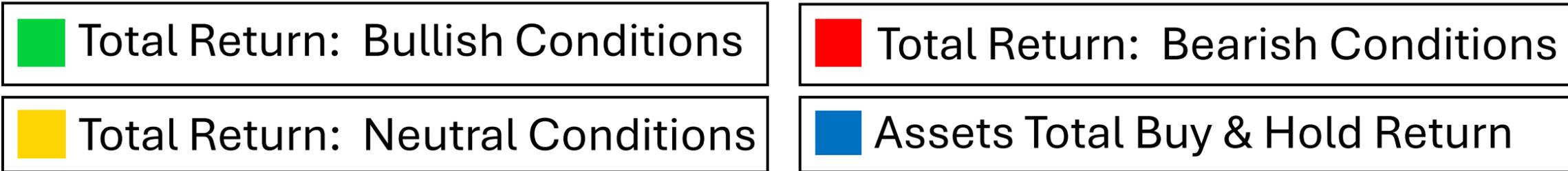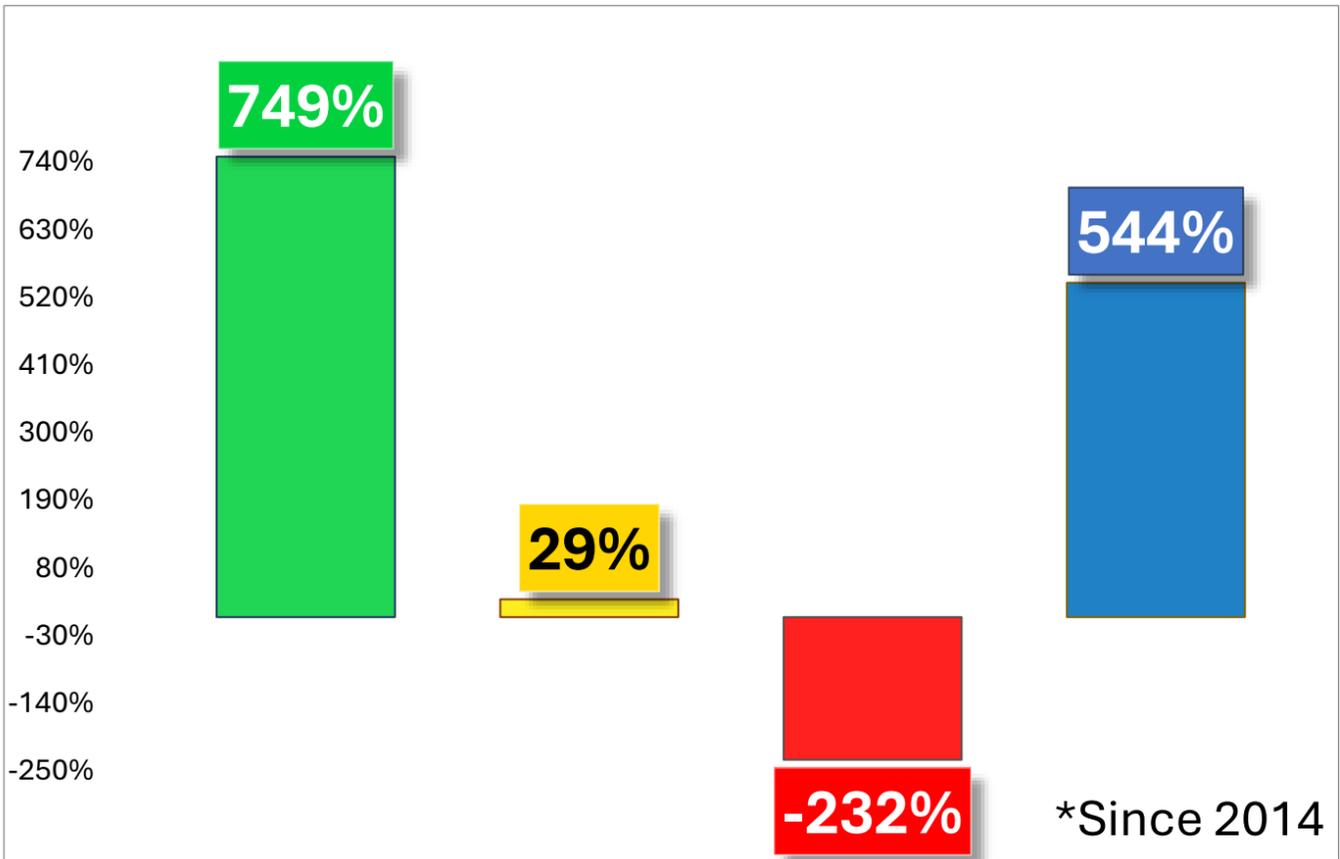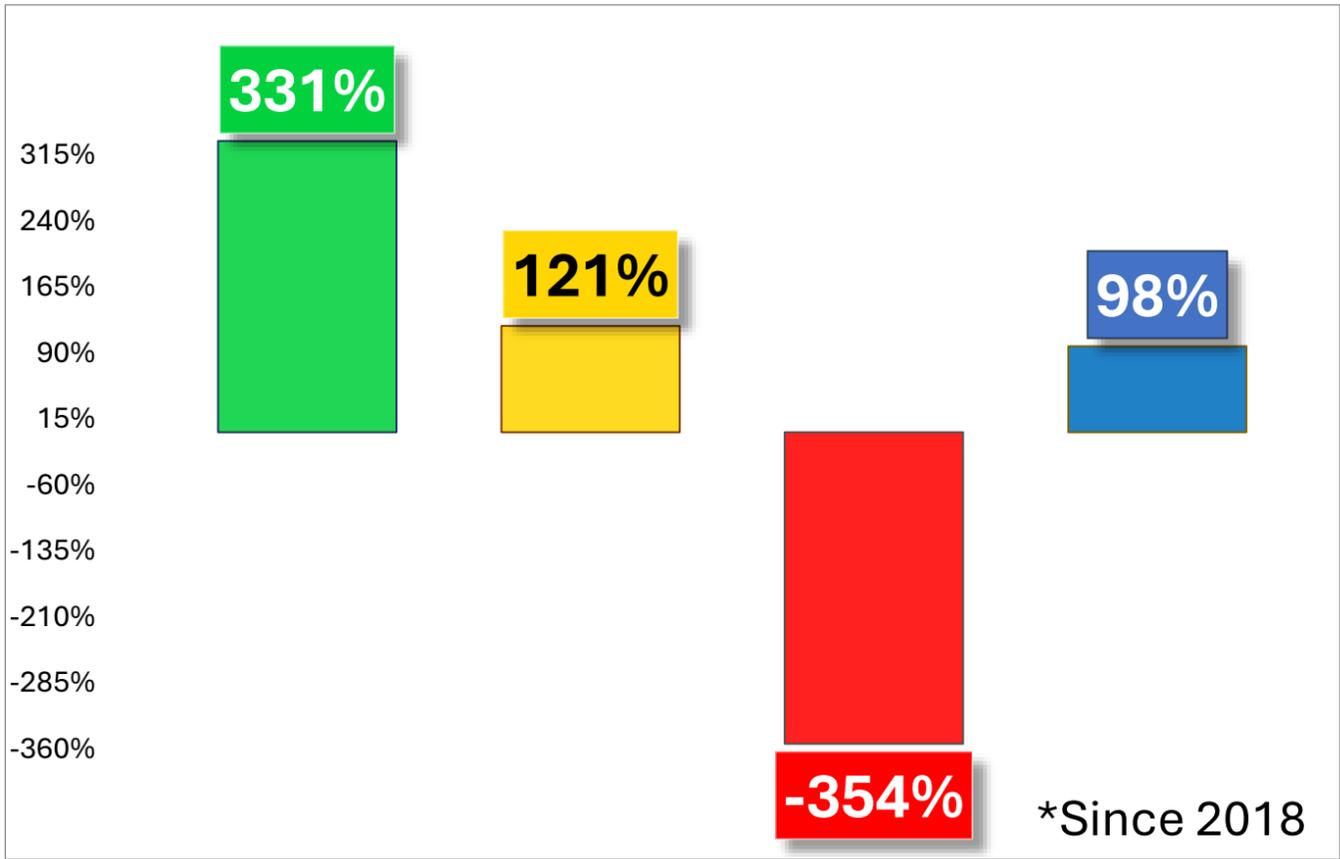**Ethereum**

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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Legend:
- Total Return: Bullish Conditions (green)
- Total Return: Bearish Conditions (red)
- Total Return: Neutral Conditions (yellow)
- Assets Total Buy & Hold Return (blue)

Bitcoin

- 749%
- 29%
- -232%
- 544%

*Since 2014

Ethereum

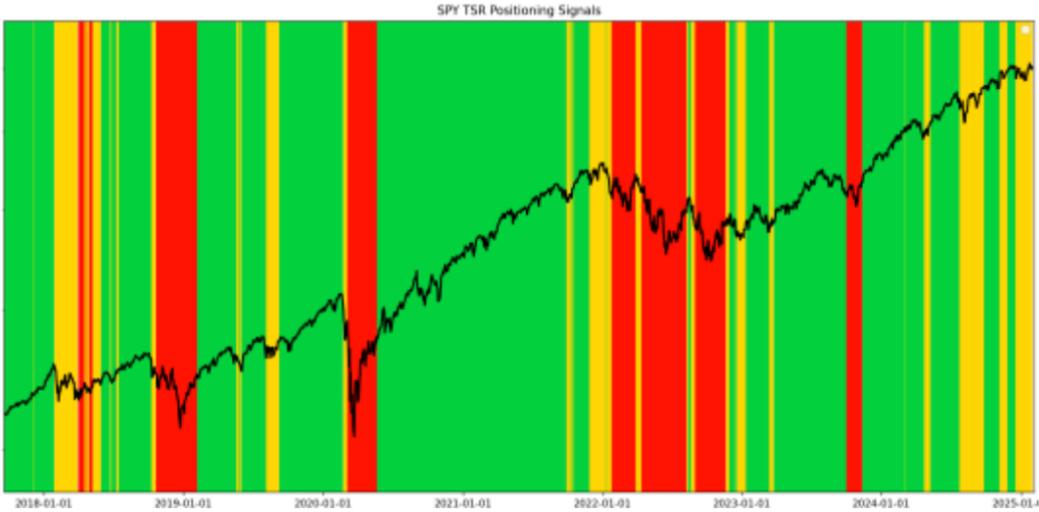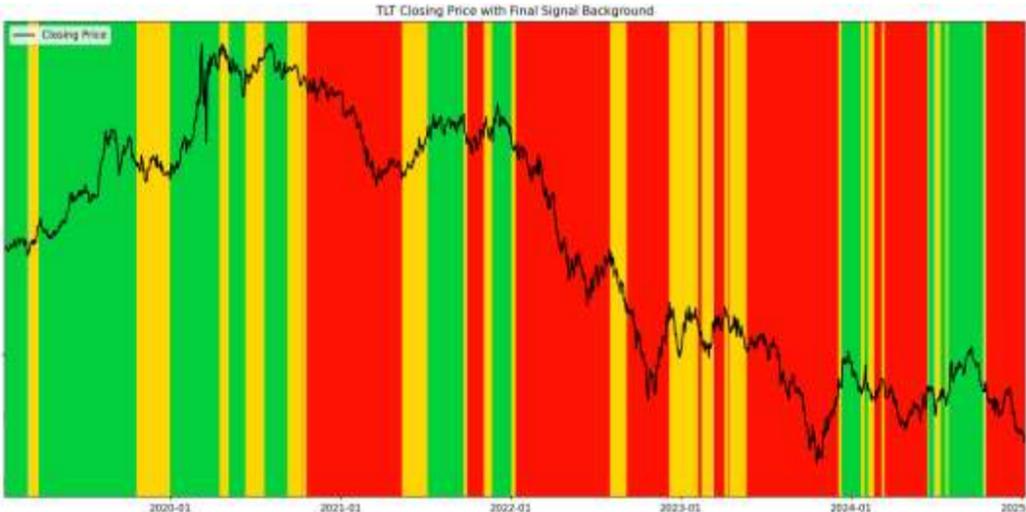- 331%
- 121%
- -354%
- 98%

*Since 2018

Quantitative Positioning Signals

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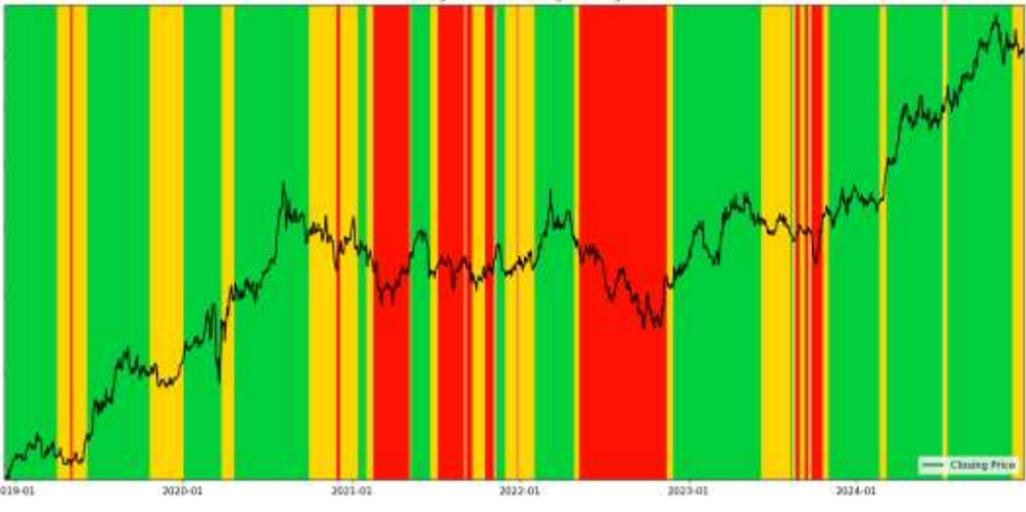major asset classes: stocks, bonds, commodities, currencies.

Bullish **Neutral** **Bearish**
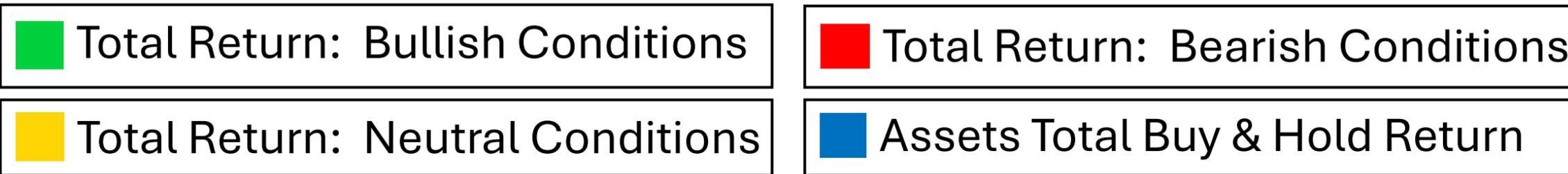
S&P 500

Bonds
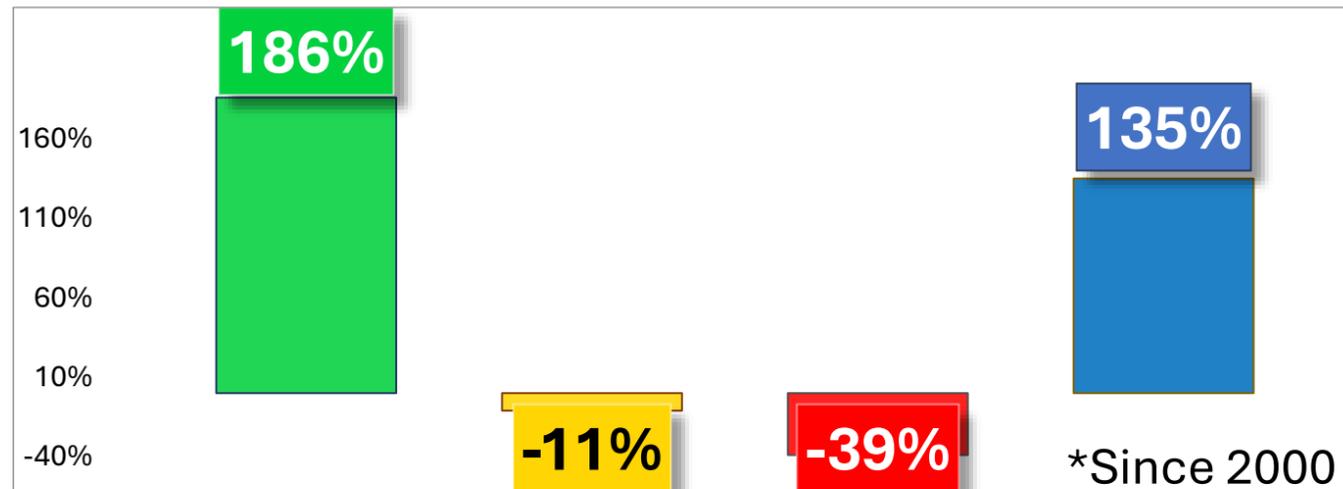
USD Strength Index

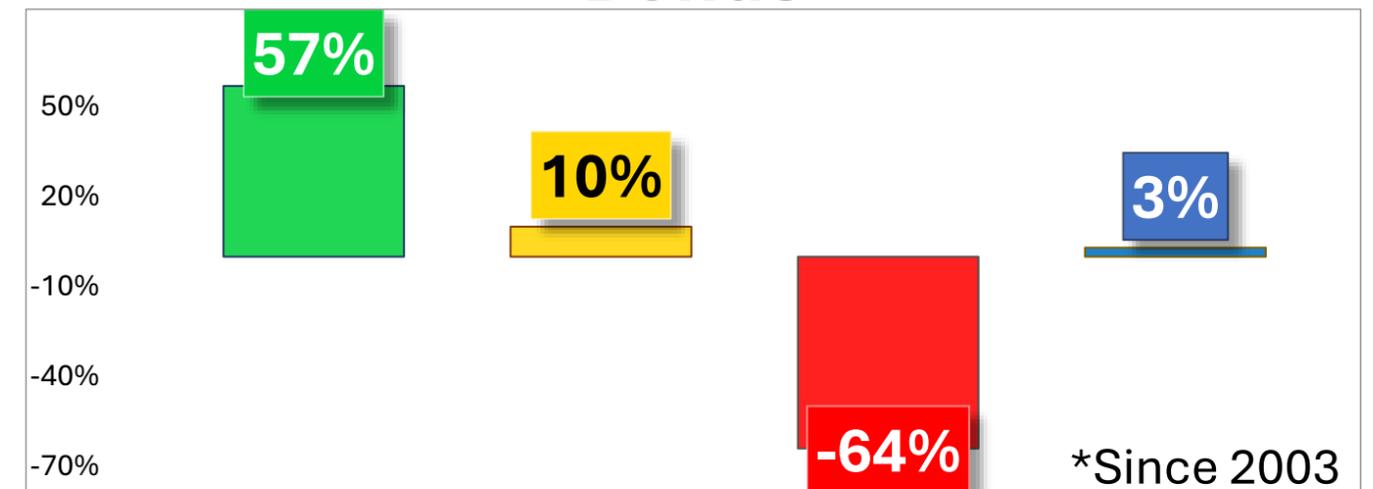**Gold**

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.

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- ■ Total Return: Bullish Conditions (green)
- ■ Total Return: Bearish Conditions (red)
- ■ Total Return: Neutral Conditions (yellow)
- ■ Assets Total Buy & Hold Return (blue)

S&P 500

- Bullish: 186%
- Neutral: -11%
- Bearish: -39%
- Buy & Hold: 135%

*Since 2000

Bonds

- Bullish: 57%
- Neutral: 10%
- Bearish: -64%
- Buy & Hold: 3%

*Since 2003

USD Strength Index

- Bullish: 72%
- Neutral: -15%
- Bearish: -53%
- Buy & Hold: 3%

*Since 2000

Gold

- Bullish: 120%
- Neutral: 32%
- Bearish: -30%
- Buy & Hold: 122%

*Since 2008

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.

TSR Economic Regime Tracker (Last 12 Months)
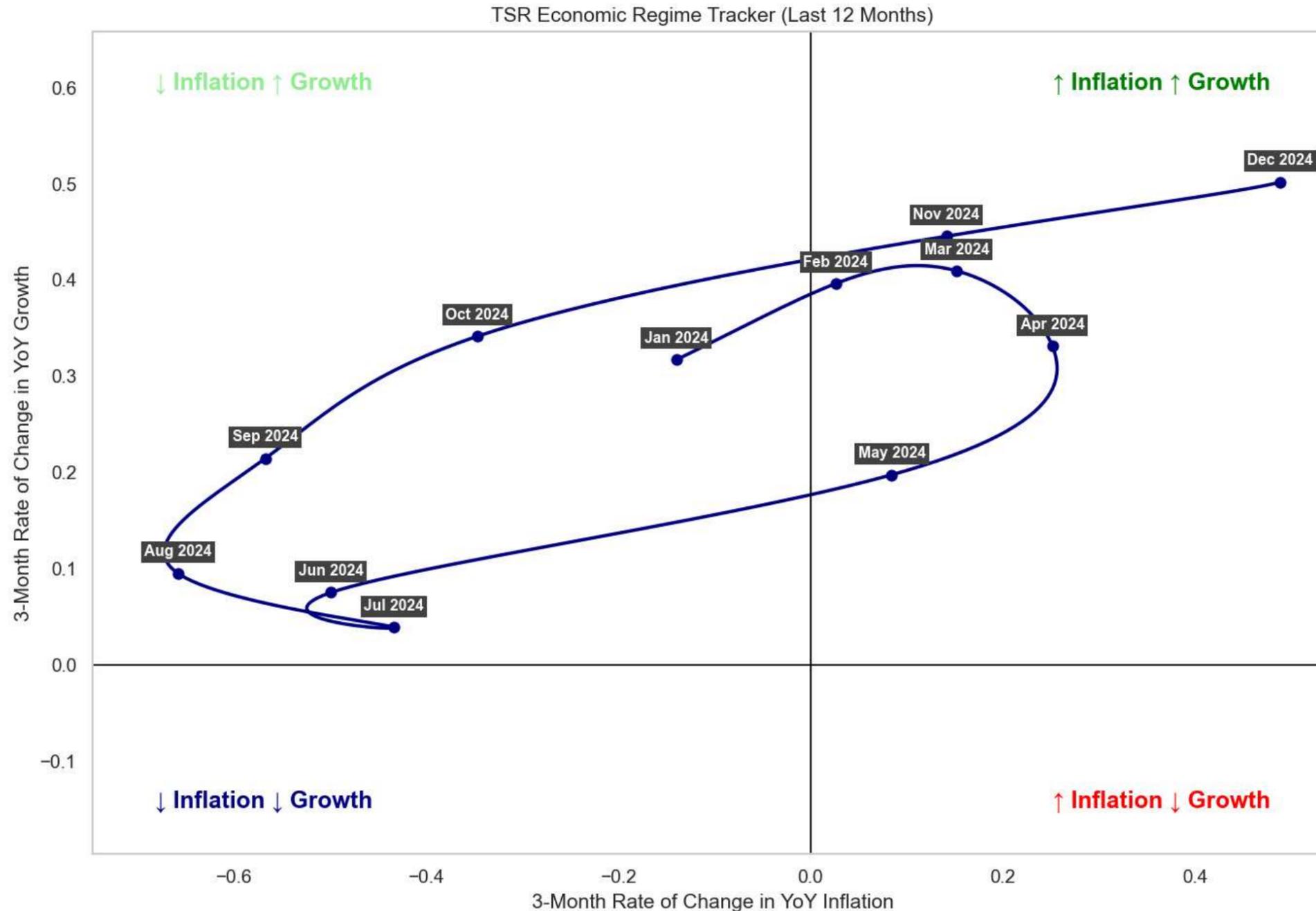
Economic Regime Model part 2

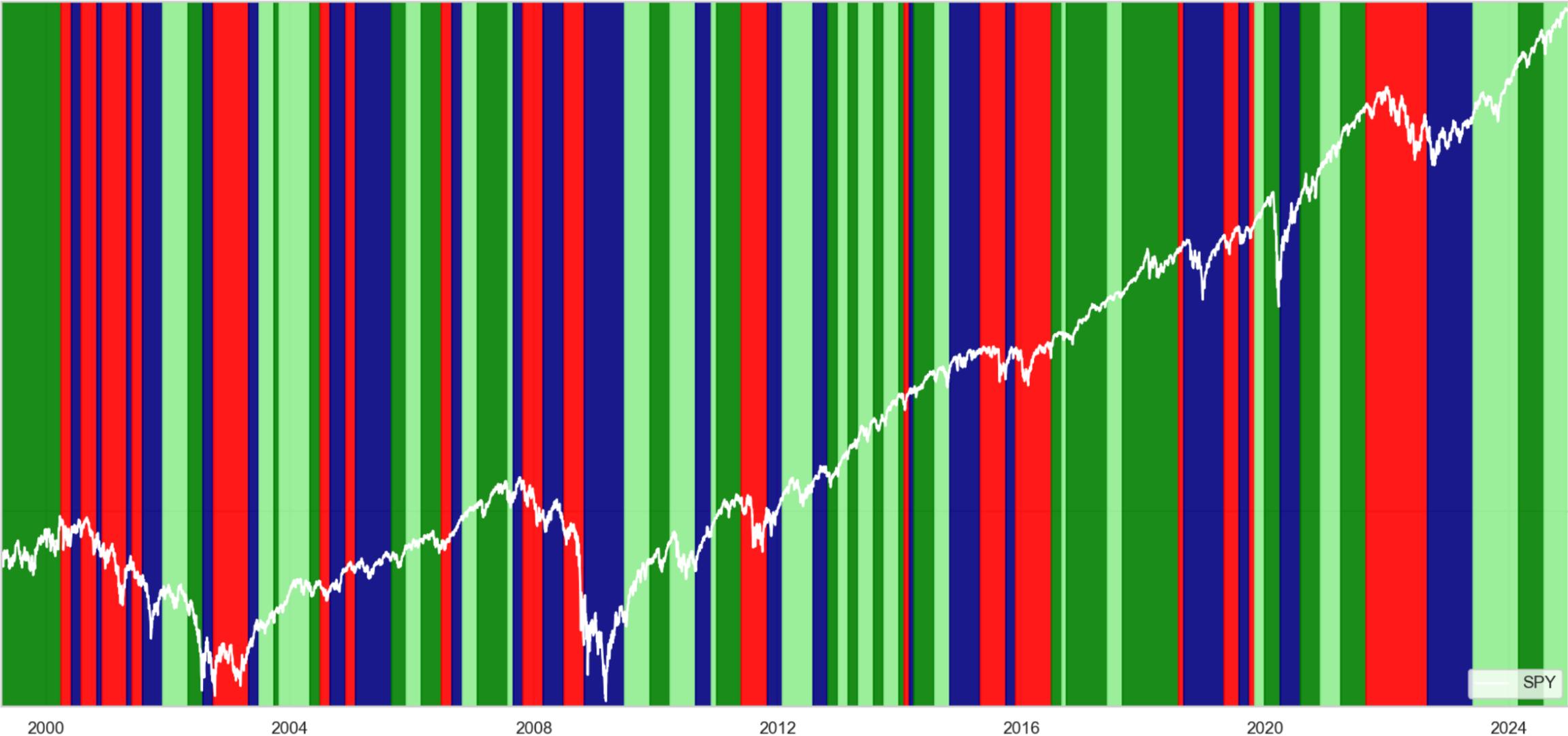Below are the economic regimes plotted as background colors on the S&P 500.

SPY with Economic Regimes

Legend:
- 🟥 ↑ Inflation ↓ Growth
- 🟦 ↓ Inflation ↓ Growth
- 🟩 (light green) ↓ Inflation ↑ Growth
- 🟩 (dark green) ↑ Inflation ↑ Growth

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
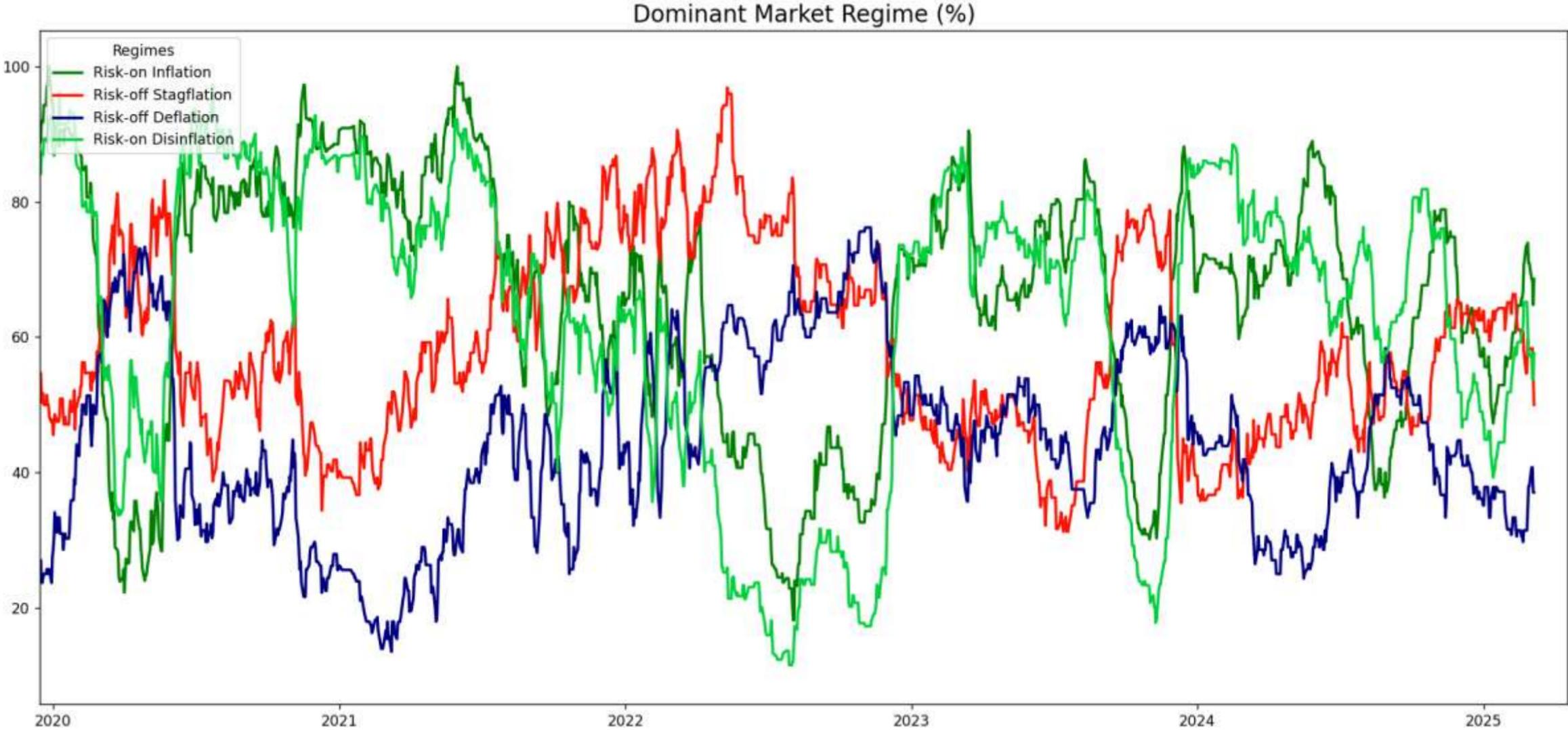
Market Regime Model part 1

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

Dominant Market Regime (%)

Regimes
- Risk-on Inflation
- Risk-off Stagflation
- 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

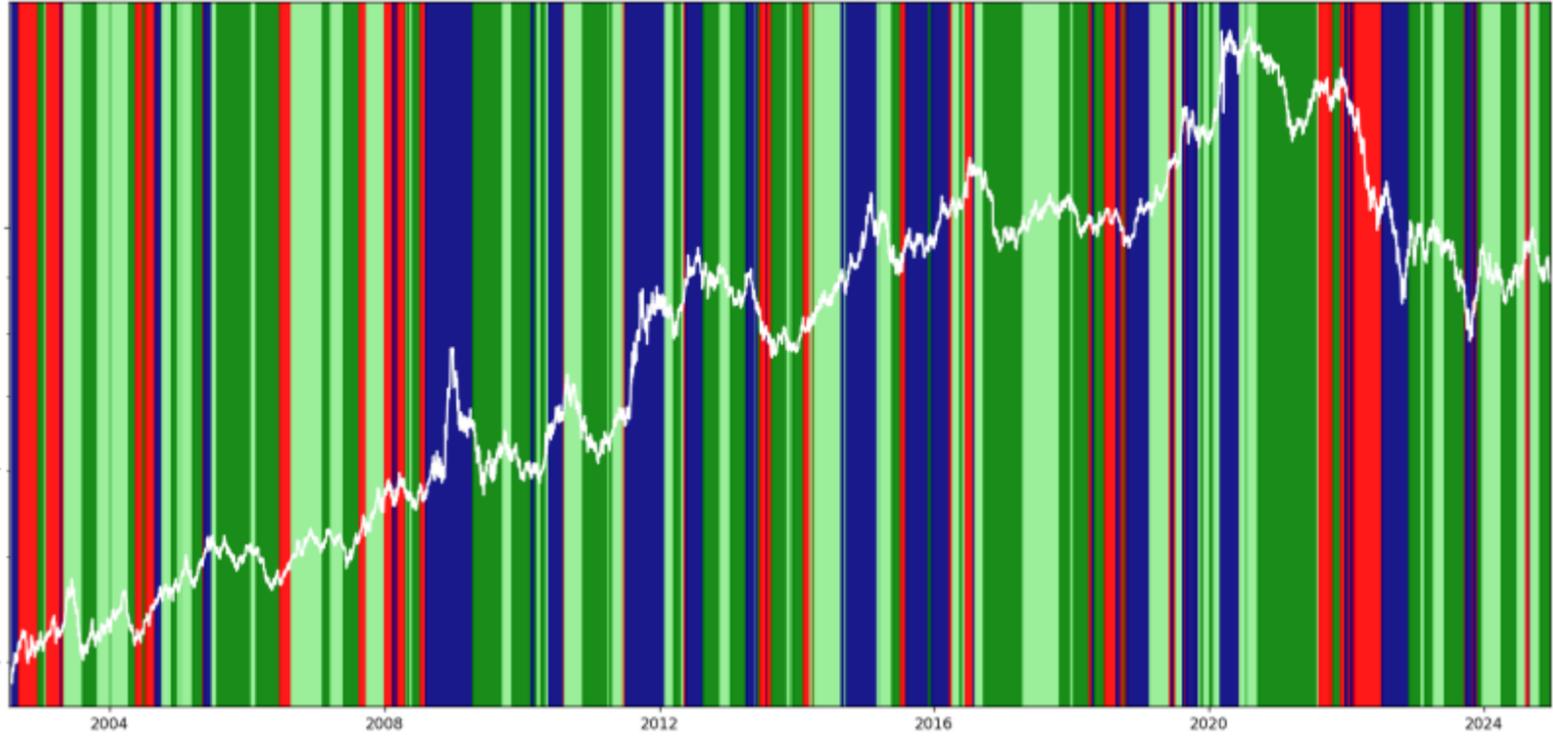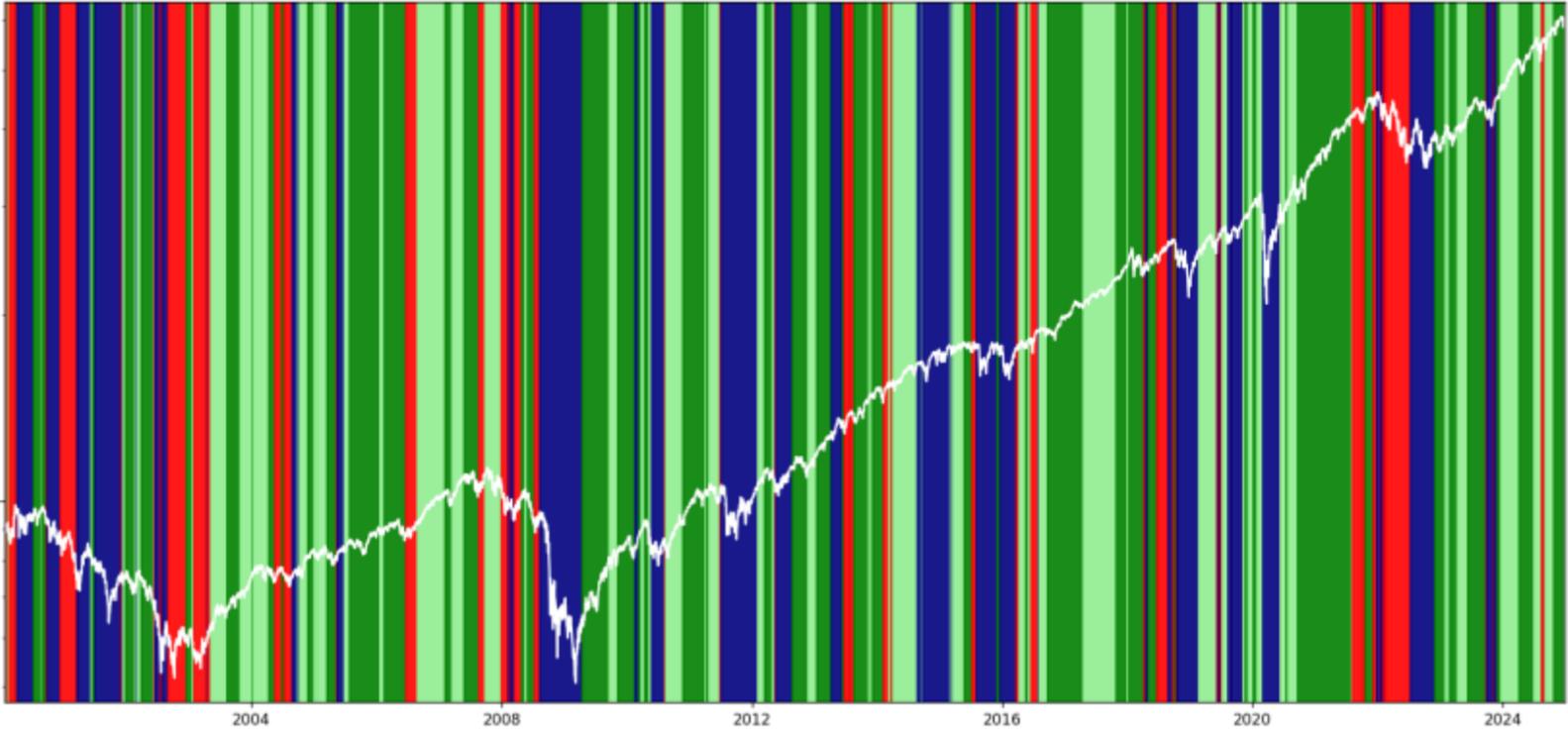THE SHIFT

- 🟥 Risk-off Stagflation
- 🟦 Risk-off Deflation
- 🟩 Risk-on Inflation
- 🟩 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

TSR Macro Risk-On/Risk-Off Monitor

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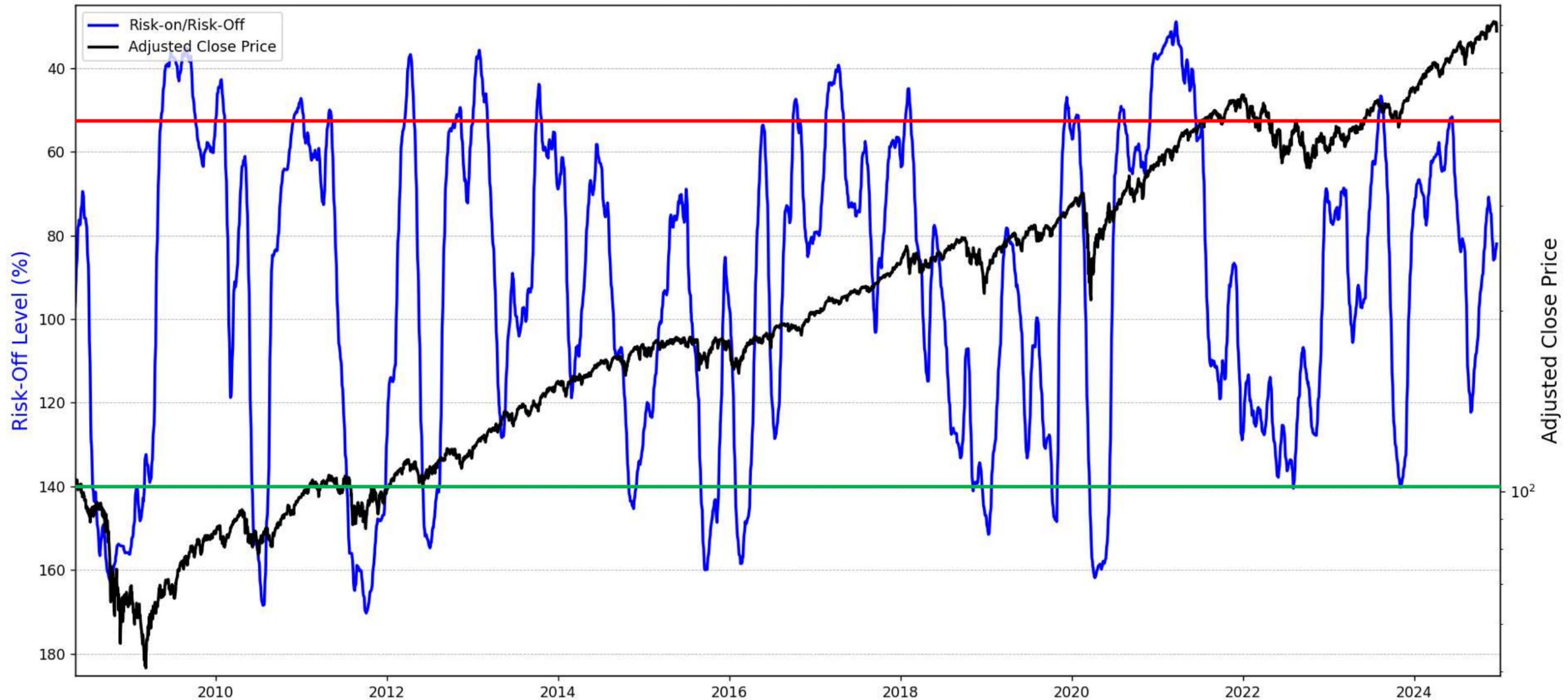
The TSR Crypto Market Strength Index

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.
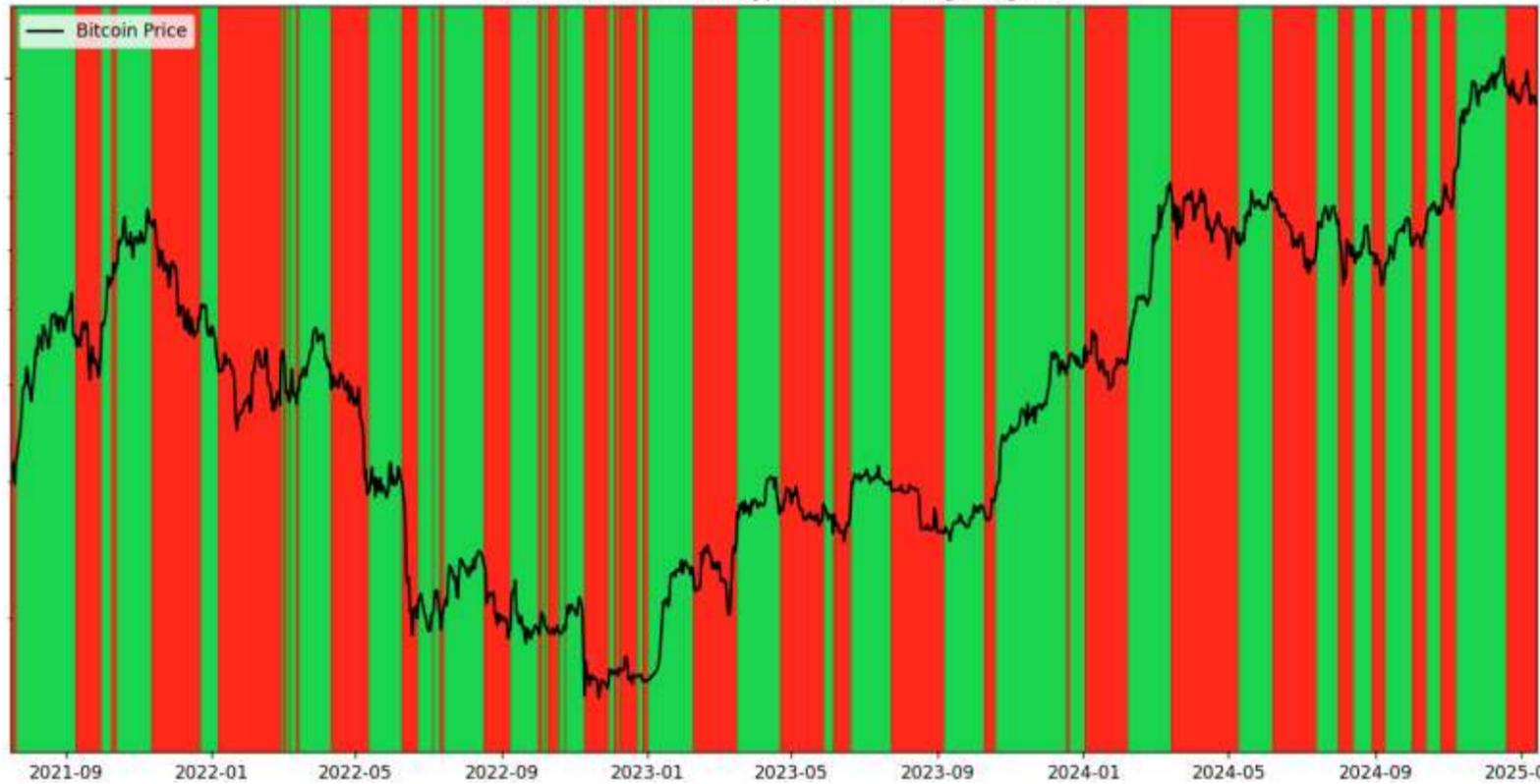
Market Strength Index

The right chart displays the market strength index with the left chart displaying the index signals.
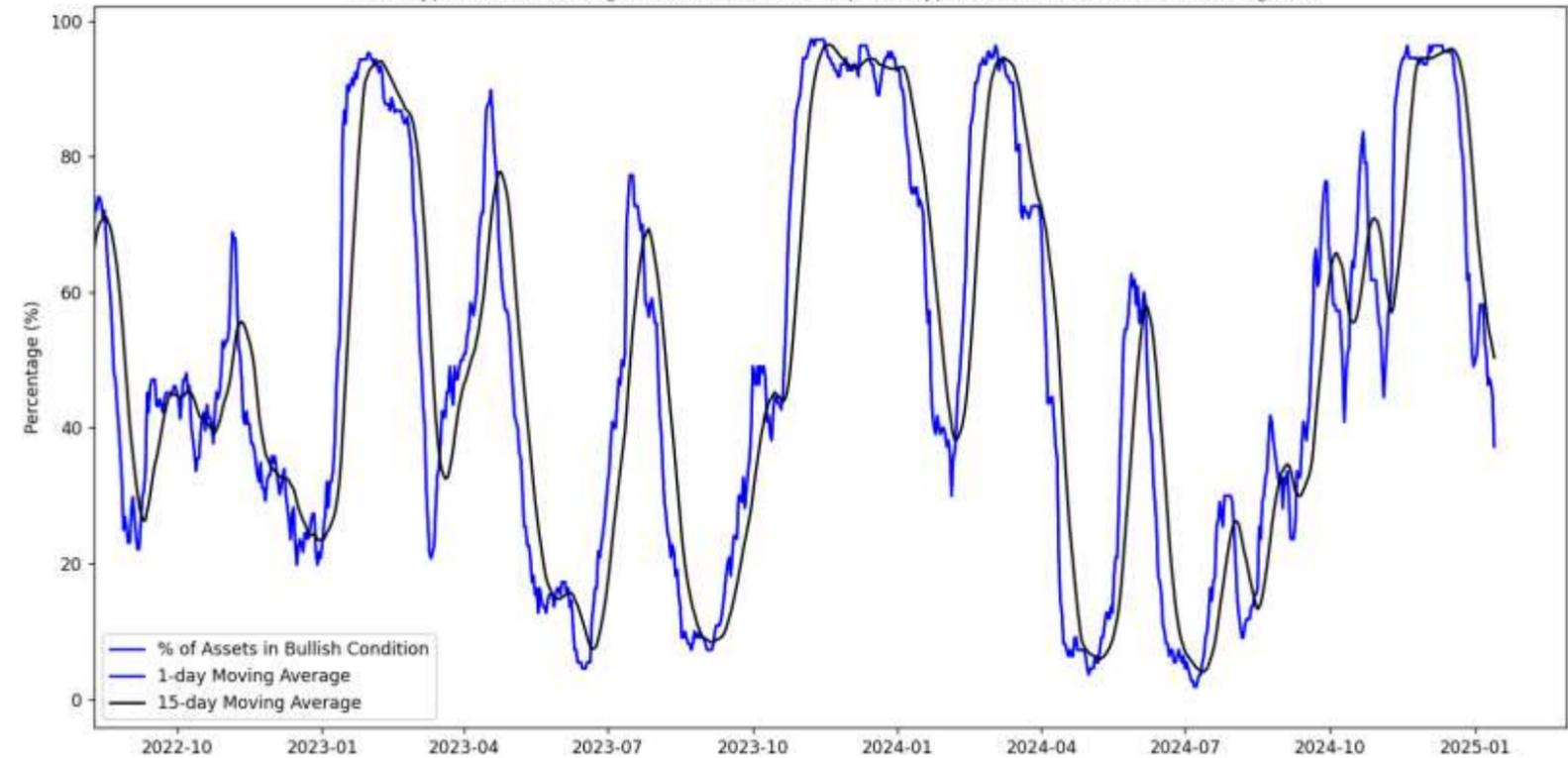
Bitcoin Price With TSR Crypto Market Strength Signals

TSR Crypto Market Strength Index: Percent of Top 50 Crypto Assets With Bullish TSRP Signals

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)

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.

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.

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
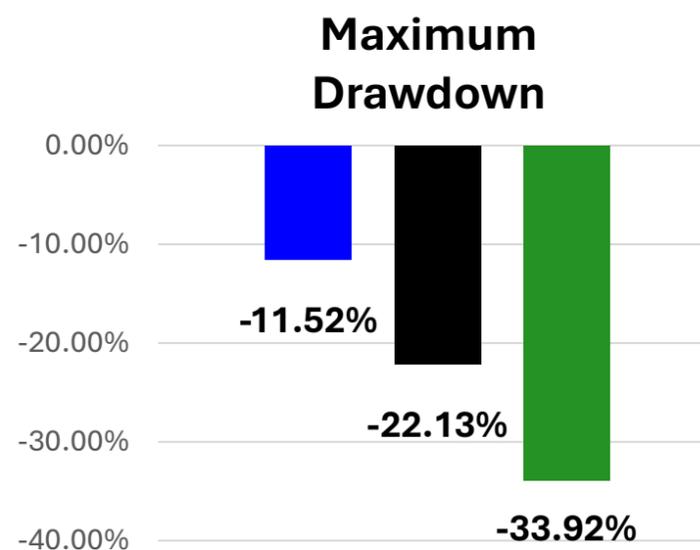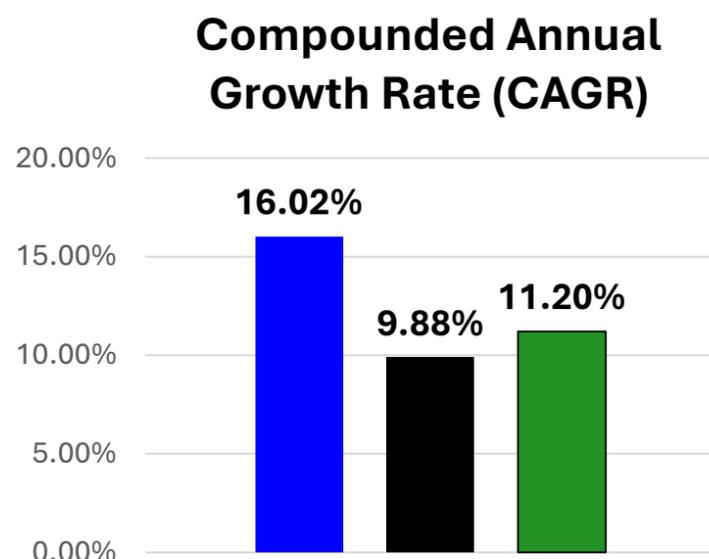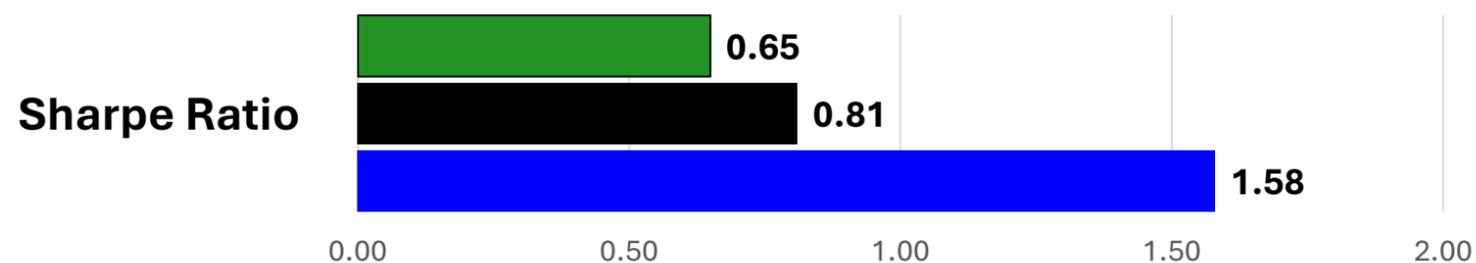
Theoretical Systematic Portfolio Backtest

Achieve superior returns and lower risk through
a systematically managed portfolio

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*We substitute our 3 Month T-Bill ETF with TLT in Deflation Market Regimes

■ Systematic Portfolio	■ Benchmark Portfolio	■ S&P 500

Target Asset Allocation
S&P 500 (SPY): 60%
Gold (GLD): 30%
Bitcoin (BTC): 10%
*Bonds (TLT): 35%

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

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

Sharpe Ratio
- 0.65
- 0.81
- 1.58

Compounded Annual Growth Rate (CAGR)
- 16.02%
- 9.88%
- 11.20%

Maximum Drawdown
- -11.52%
- -22.13%
- -33.92%

Systematic Risk Management Backtest

Legend:
- Managed Portfolio
- Benchmark
- Second Benchmark

Theoretical Systematic Portfolio Backtest

Achieve superior returns and lower risk through
a systematically managed portfolio
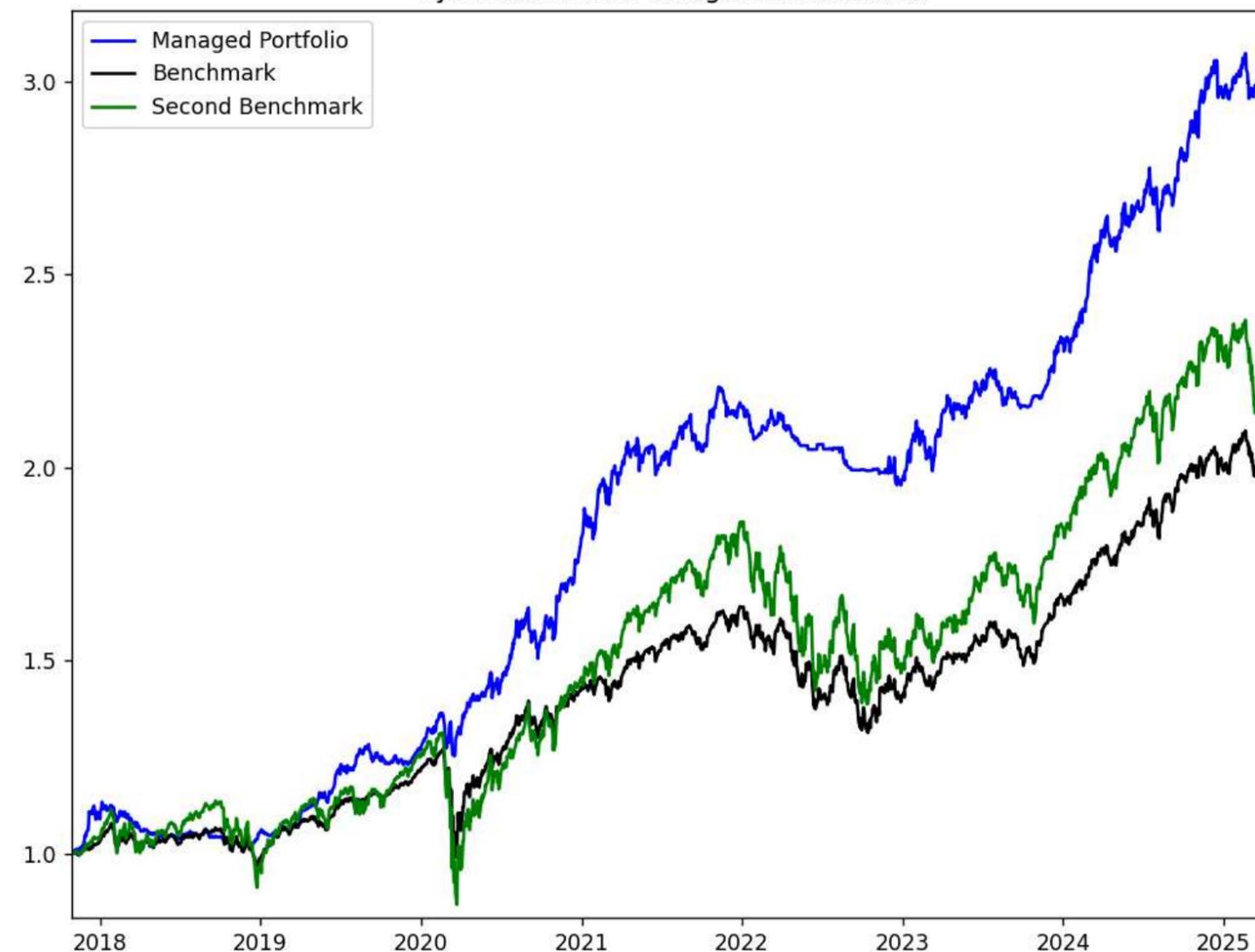
THE SHIFT

*We substitute our 3 Month T-Bill ETF with TLT in Deflation Market Regimes

Systematic Portfolio	Benchmark Portfolio	S&P 500

Target Asset Allocation
Nasdaq (QQQ): 60%
Gold (GLD): 30%
Bitcoin (BTC): 10%
*Bonds (TLT): 35%

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

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

Sharpe Ratio
- S&P 500: 0.65
- Benchmark: 0.81
- Systematic: 1.70

Compounded Annual Growth Rate (CAGR)
- 20.34%
- 9.88%
- 11.20%

Maximum Drawdown
- -9.97%
- -22.13%
- -33.92%

Systematic Risk Management Backtest

- Managed Portfolio
- Benchmark
- Second Benchmark
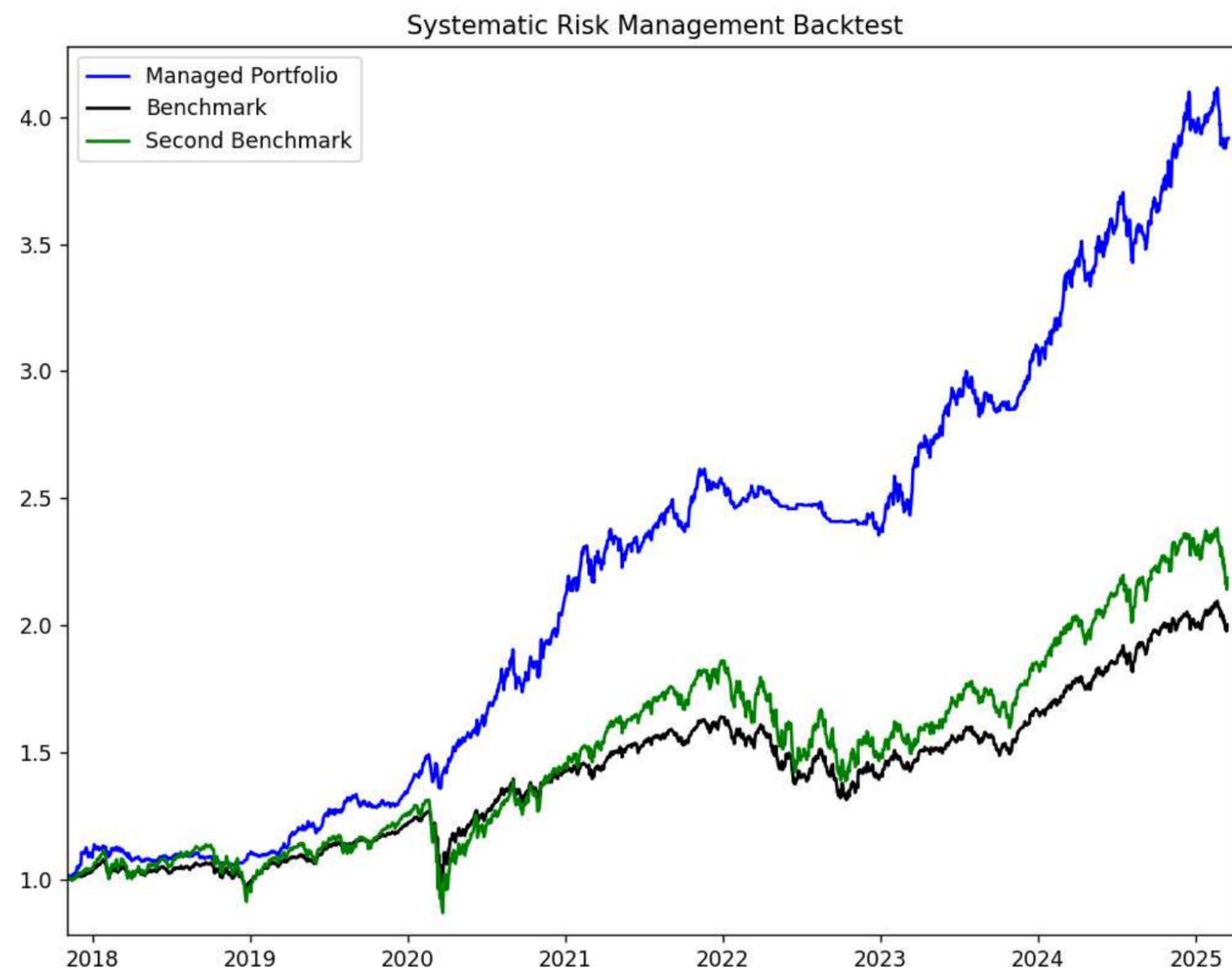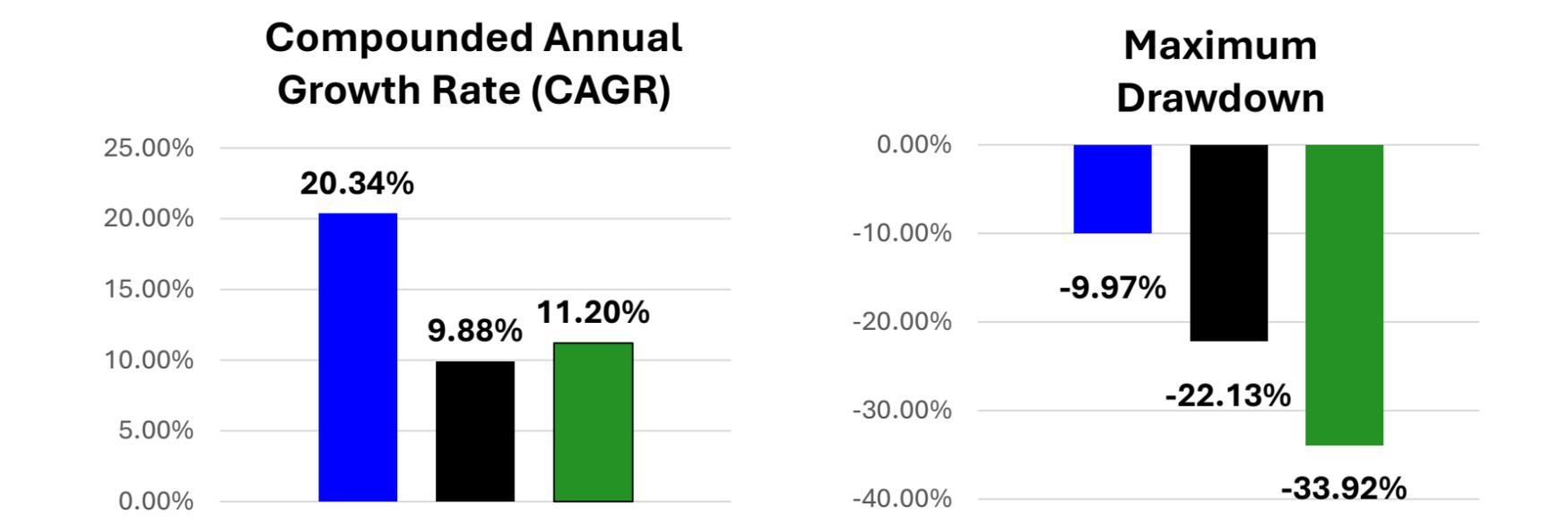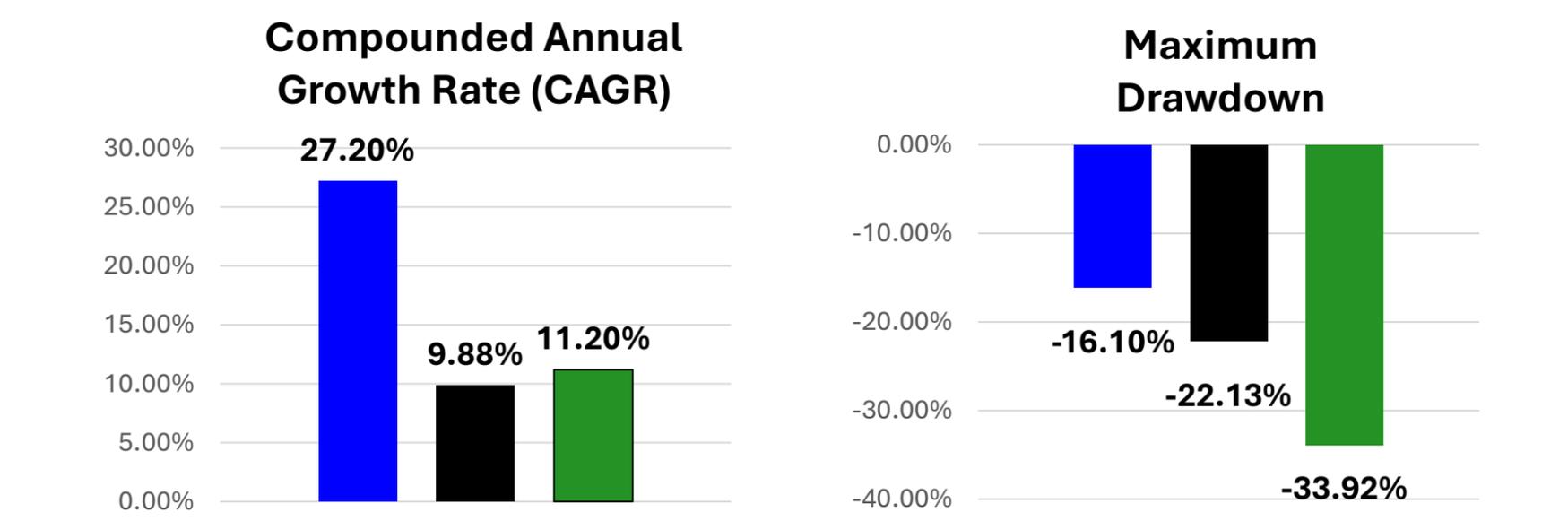
Theoretical Systematic Portfolio Backtest

Achieve superior returns and lower risk through a systematically managed portfolio

THE SHIFT

*We substitute our 3 Month T-Bill ETF with TLT in Deflation Market Regimes

Systematic Portfolio	Benchmark Portfolio	S&P 500

Target Asset Allocation
Nasdaq (QQQ): 60%
Gold (GLD): 30%
Bitcoin (BTC): 10%
*Bonds (TLT): 35%

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

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

Sharpe Ratio
- 0.65
- 0.81
- 1.40

(scale: 0.00, 0.20, 0.40, 0.60, 0.80, 1.00, 1.20, 1.40, 1.60)

Compounded Annual Growth Rate (CAGR)
- 27.20%
- 9.88%
- 11.20%

(scale: 0.00% to 30.00%)

Maximum Drawdown
- -16.10%
- -22.13%
- -33.92%

(scale: 0.00% to -40.00%)

Systematic Risk Management Backtest

Legend:
- Managed Portfolio (blue)
- Benchmark (black)
- Second Benchmark (green)

(x-axis: 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025; y-axis: 1 to 6)

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:
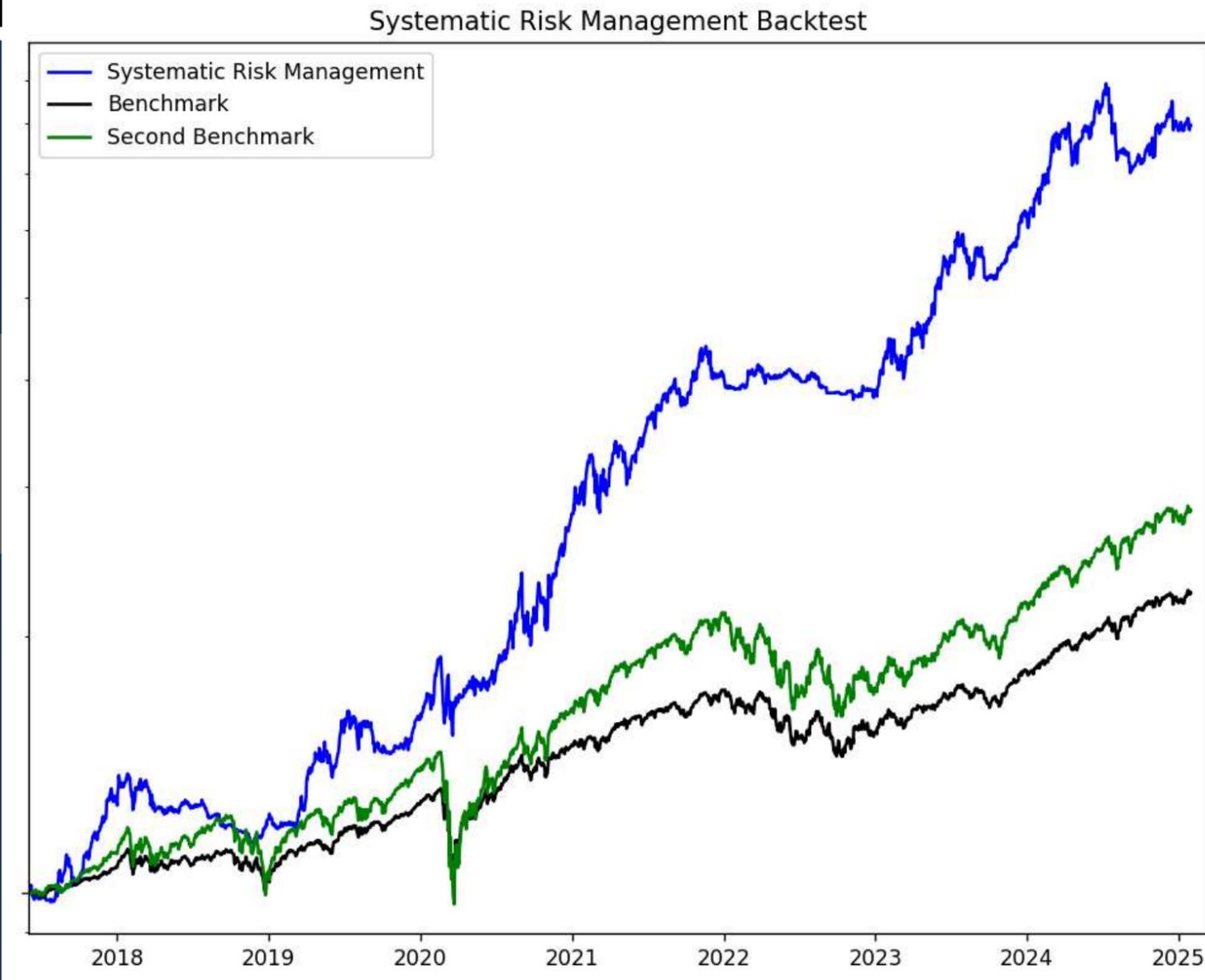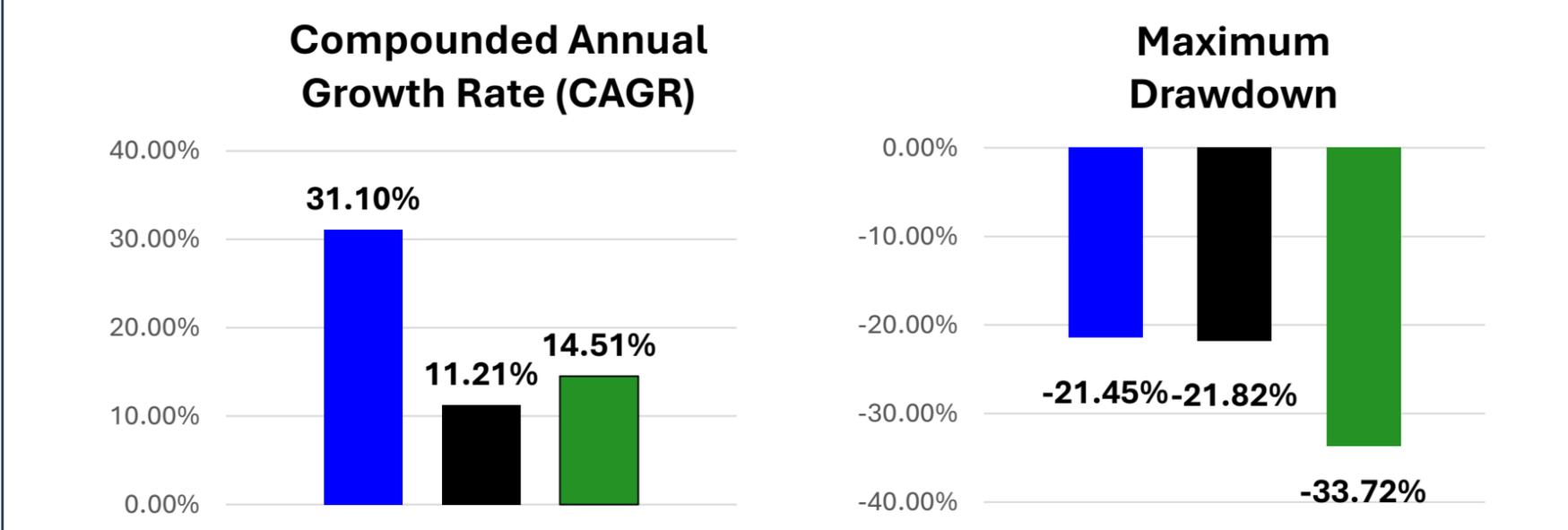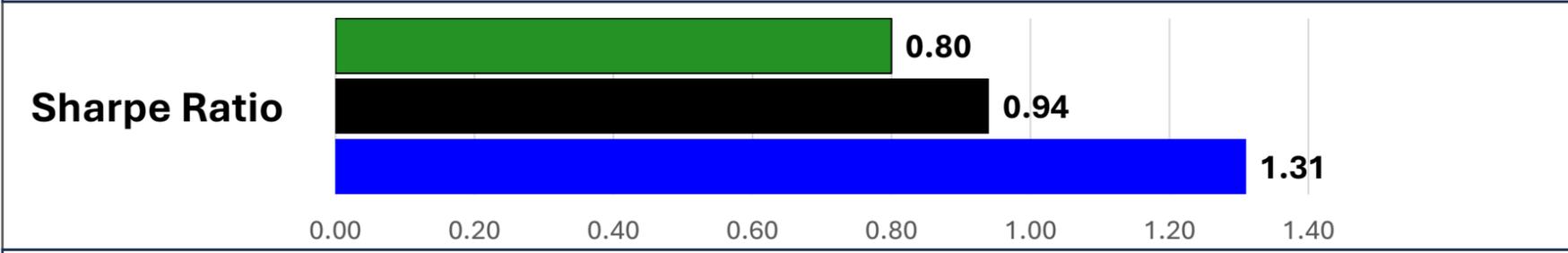TQQQ 15%, GLD 25%, GSG 25%, TTT 15%, BTC 20% .

Systematic Ultra Portfolio Backtest

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

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*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%

Sharpe Ratio

- 0.80
- 0.94
- 1.31

Compounded Annual Growth Rate (CAGR)

- 31.10%
- 11.21%
- 14.51%

Maximum Drawdown

- -21.45%
- -21.82%
- -33.72%

Systematic Risk Management Backtest

- Systematic Risk Management
- Benchmark
- Second Benchmark

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 Bitcoins positioning signals to determine the crypto market environment and the market regime to determine the macro environment. It then combines those signals to adjust positioning between Bitcoin, Altcoins, and Gold.

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

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| Systematic Portfolio | Benchmark Portfolio | Bitcoin |

Target Asset Allocation
Bitcoin (BTC): 60%
Ethereum (ETH): 20%
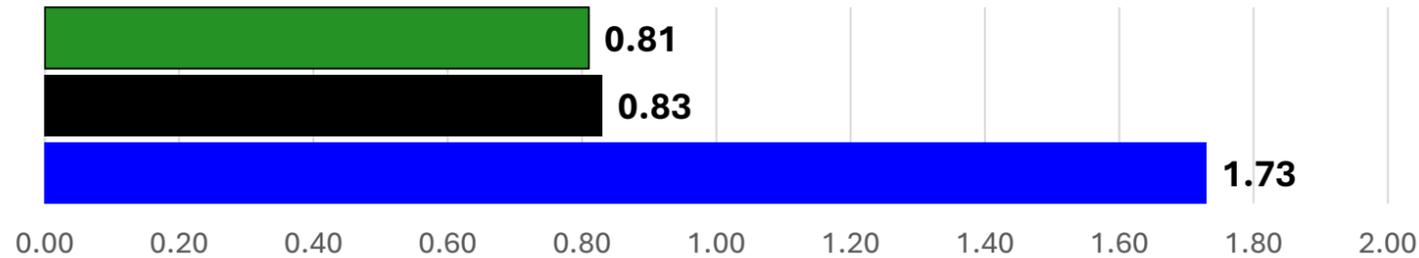Cardano (ADA): 20%
Gold: up to 100%

Target Asset Allocation
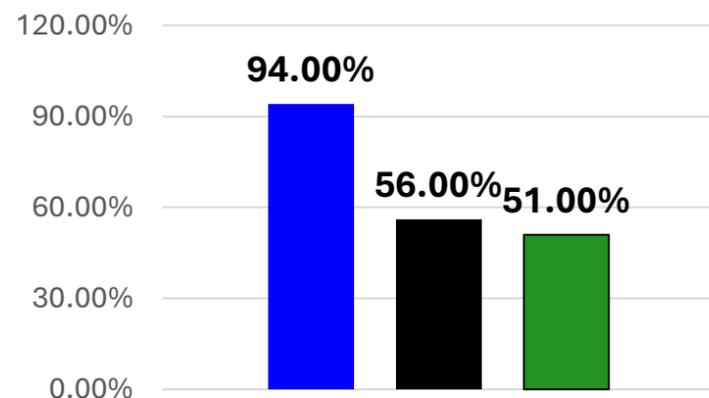Bitcoin (BTC): 60%
Ethereum (ETH): 20%
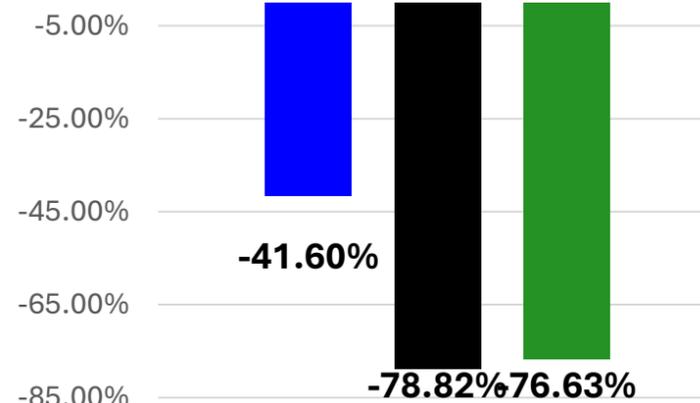Cardano (ADA): 20%

Target Asset Allocation
Bitcoin (BTC): 100%

Sharpe Ratio
- 0.81
- 0.83
- 1.73

Compounded Annual Growth Rate (CAGR)
- 94.00%
- 56.00%
- 51.00%

Maximum Drawdown
- -41.60%
- -78.82%
- -76.63%

Systematic Risk Management Backtest

- Managed Portfolio
- Benchmark
- Second Benchmark