



Emerging
Markets

Systematic Regime-Based Asset Allocation

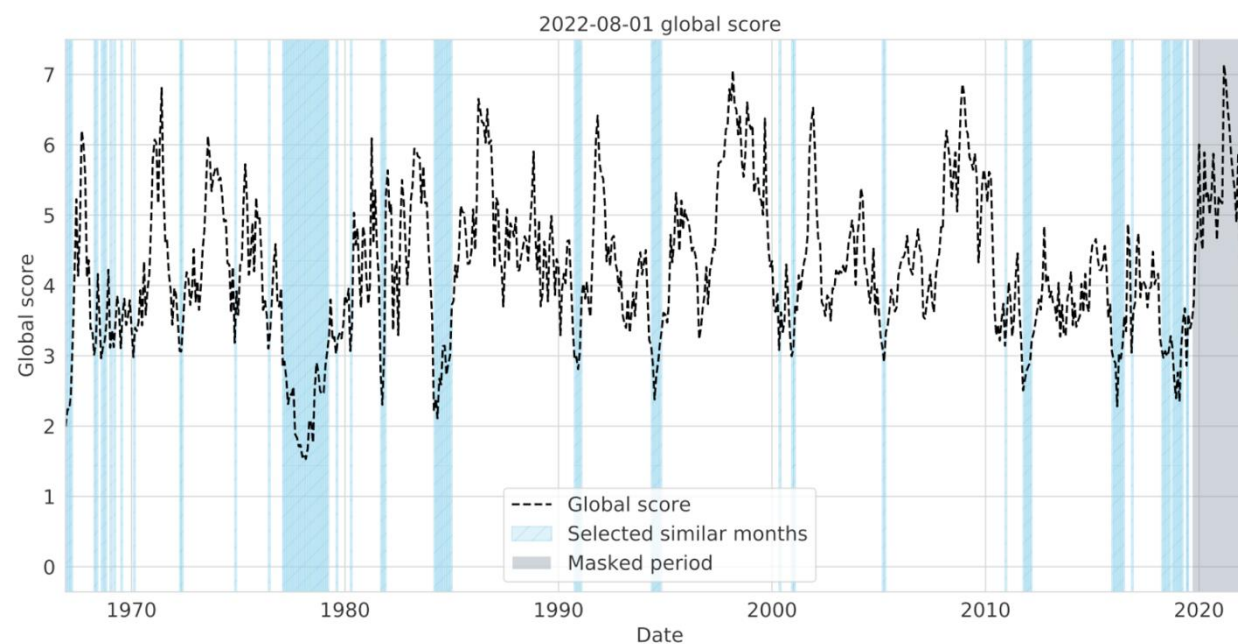
December 15th, 2025

Systematic Regime-Based Asset Allocation

- Systematic, non-parametric approach to timing Emerging Markets
- Model assumes that asset returns are conditional on the prevailing economic environment
- Strategy identifies periods in the past that statistically resemble the current economic data—and forecasts returns based on how assets performed immediately following those similar periods
- Based on the methodology proposed by Mulliner et al. (2025)

Exhibit 9. Historical similarity to August 2022 during the inflation surge.

Most similar months to August 2022, during the inflation surge. Using 15% of the most similar months, we see our model home in on the Iranian revolution of 1977-1980, a few months from the 1966-1970 inflation period associated with the ending of the Bretton Woods, the OPEC oil embargo inflation period of 1972-1974 and Reagan's boom between 1987-1990.



Methodology

Macro state variables are transformed (12-month change) and normalized (rolling Z-scores winsorized at ± 3)

$$\Delta x_t = x_t - x_{t-12}$$
$$z_t = \max\left(-3, \min\left(3, \frac{\Delta x_t - \mu_{t-w:t}}{\sigma_{t-w:t}}\right)\right) \text{ where } w_t = \min(t, 120) \text{ with } t \geq 36$$

At any investment date T , we calculate the similarity to every historical month i ($i < T$) using the Euclidean distance across our V macro state variables.

$$d_{Ti} = \sqrt{\sum_{v=1}^V (z_{T,v} - z_{i,v})^2}$$

We select the months that fall into quintile 1 of similarity. The set of these “nearest neighbors” is denoted by K . The expected return ($E[R]$) for asset j is the average return observed in the month following these neighbor dates.

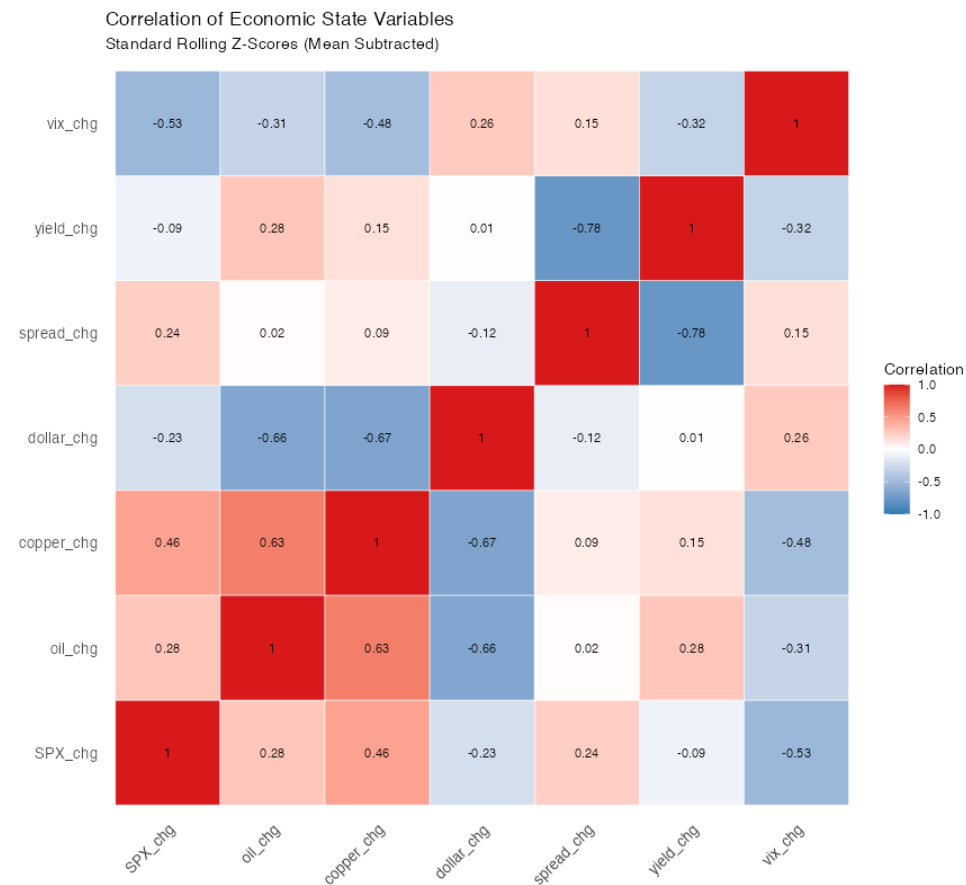
$$E[R_{j,T+1}] = \frac{1}{K} \sum_{k \in K} R_{j,k+1} \text{ with } K > 6$$

Macro data

Table 1: Persistence of Economic State Variables (EM Universe)

Variable	Autocorrelations					Mean	Std	Freq
	1m	3m	12m	3y	10y			
S&P 500	0.91	0.73	-0.13	0.15	0.04	-0.02	1.13	monthly
WTI Crude Oil futures price	0.90	0.65	-0.20	0.06	-0.03	0.03	1.07	monthly
Copper futures price	0.92	0.78	0.03	0.05	-0.11	0.15	1.06	monthly
Broad Effective Exchange Rate for United States	0.94	0.74	0.01	0.27	-0.01	-0.08	1.08	monthly
US 10-year yield minus US 3-month	0.94	0.81	0.04	-0.20	-0.12	-0.14	1.05	monthly
US 3-month yield	0.98	0.89	0.26	-0.45	-0.09	0.27	1.20	monthly
VIX Index	0.73	0.43	-0.29	-0.10	-0.01	0.02	1.06	monthly

Note: Computed using rolling z-scores of the 12-month changes in economic state variables.



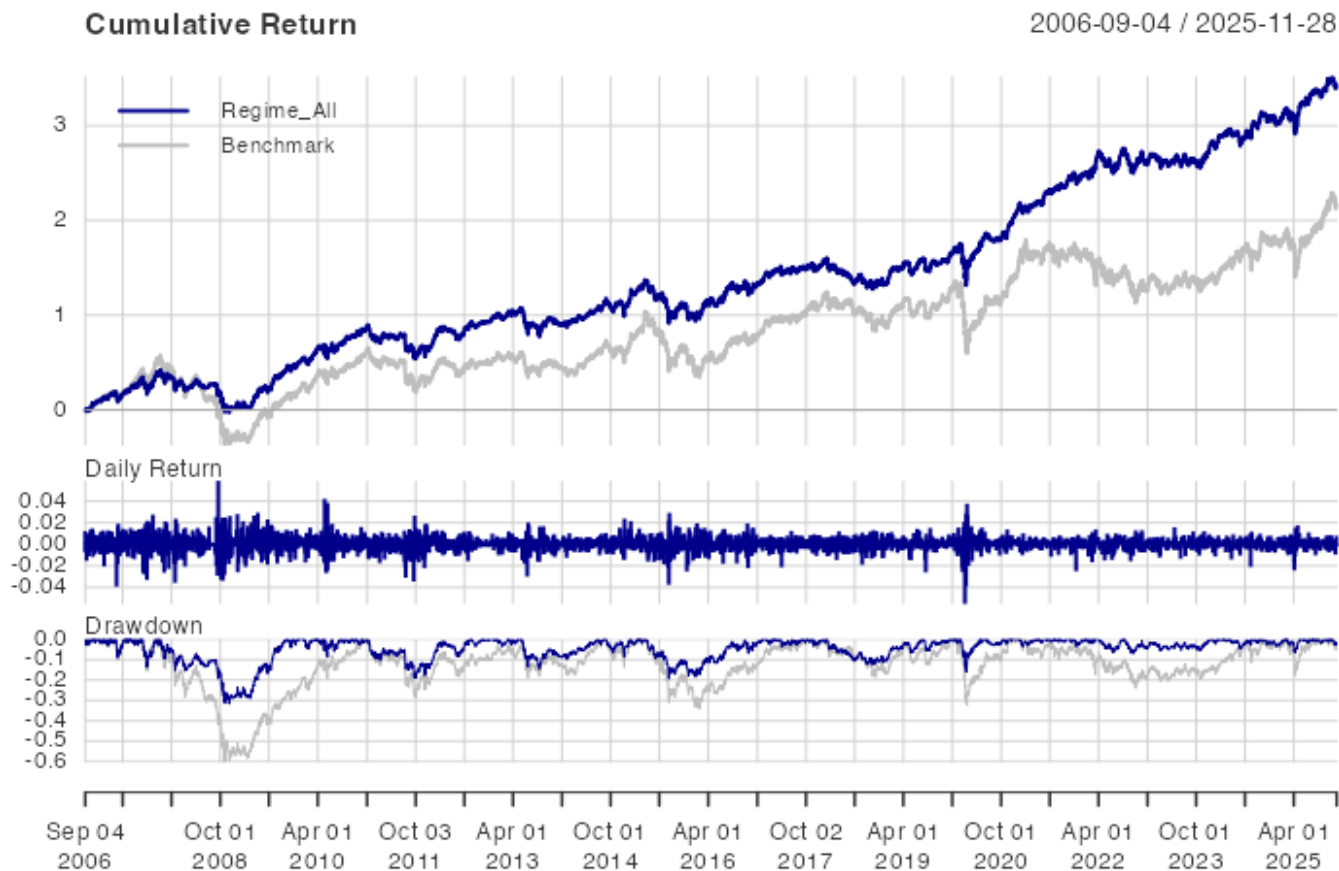
Asset universe

Table 2: Asset Universe: Emerging Markets Equities and Fixed Income

Type	ETF Name	Bloomberg Ticker
Equity	iShares Core MSCI Emerging Markets IMI UCITS ETF	IS3N GY Equity
Equity	iShares MSCI China UCITS ETF USD (Acc)	ICGA GY Equity
Equity	iShares MSCI India UCITS ETF USD (Acc)	QDV5 GY Equity
Equity	iShares MSCI Korea UCITS ETF (Acc)	CEBJ GR Equity
Equity	Xtrackers MSCI Taiwan UCITS ETF	XMTW GY Equity
Equity	HSBC MSCI Indonesia UCITS ETF USD	H4ZT GY Equity
Equity	Xtrackers MSCI Malaysia UCITS ETF	XCS3 GT Equity
Equity	Xtrackers MSCI Thailand UCITS ETF	XCS4 GY Equity
Equity	Xtrackers MSCI Philippines UCITS ETF	XPQP GY Equity
Equity	Xtrackers MSCI Brazil UCITS ETF	XMBR GY Equity
Equity	Xtrackers MSCI Mexico UCITS ETF	D5BI GY Equity
Equity	Xtrackers MSCI EM Latin America ESG Swap UCITS ETF	XMLA GT Equity
Equity	iShares MSCI South Africa UCITS ETF	IBC4 GY Equity
Equity	Amundi MSCI Turkey UCITS ETF	LTUR GY Equity
Equity	Amundi MSCI Greece UCITS ETF	LYXGRE GY Equity
Equity	iShares MSCI Poland UCITS ETF	IBCJ GY Equity
Equity	iShares MSCI Saudi Arabia Capped UCITS ETF	IUSS GY Equity
Fixed Income	iShares J.P. Morgan USD Emerging Markets Bond UCITS ETF	IUS7 GY Equity
Fixed Income	iShares J.P. Morgan EM Local Government Bond UCITS ETF	IUSP GY Equity
Fixed Income	iShares Euro Government Bond 1-3yr UCITS ETF (Dist)	IBCA GY Equity
Fixed Income	iShares Euro Government Bond 7-10yr UCITS ETF EUR (Dist)	IBCM GY Equity
Fixed Income	iShares USD Treasury Bond 7-10yr UCITS ETF (Dist)	IUSM GY Equity
Fixed Income	iShares Euro Inflation Linked Government Bond UCITS ETF	IBCI GY Equity
Fixed Income	iShares Core Euro Corporate Bond UCITS ETF (Dist)	EUN5 GY Equity
Fixed Income	iShares EUR High Yield Corporate Bond UCITS ETF	EUNW GY Equity

Backtest (Equal weight all positive signals)

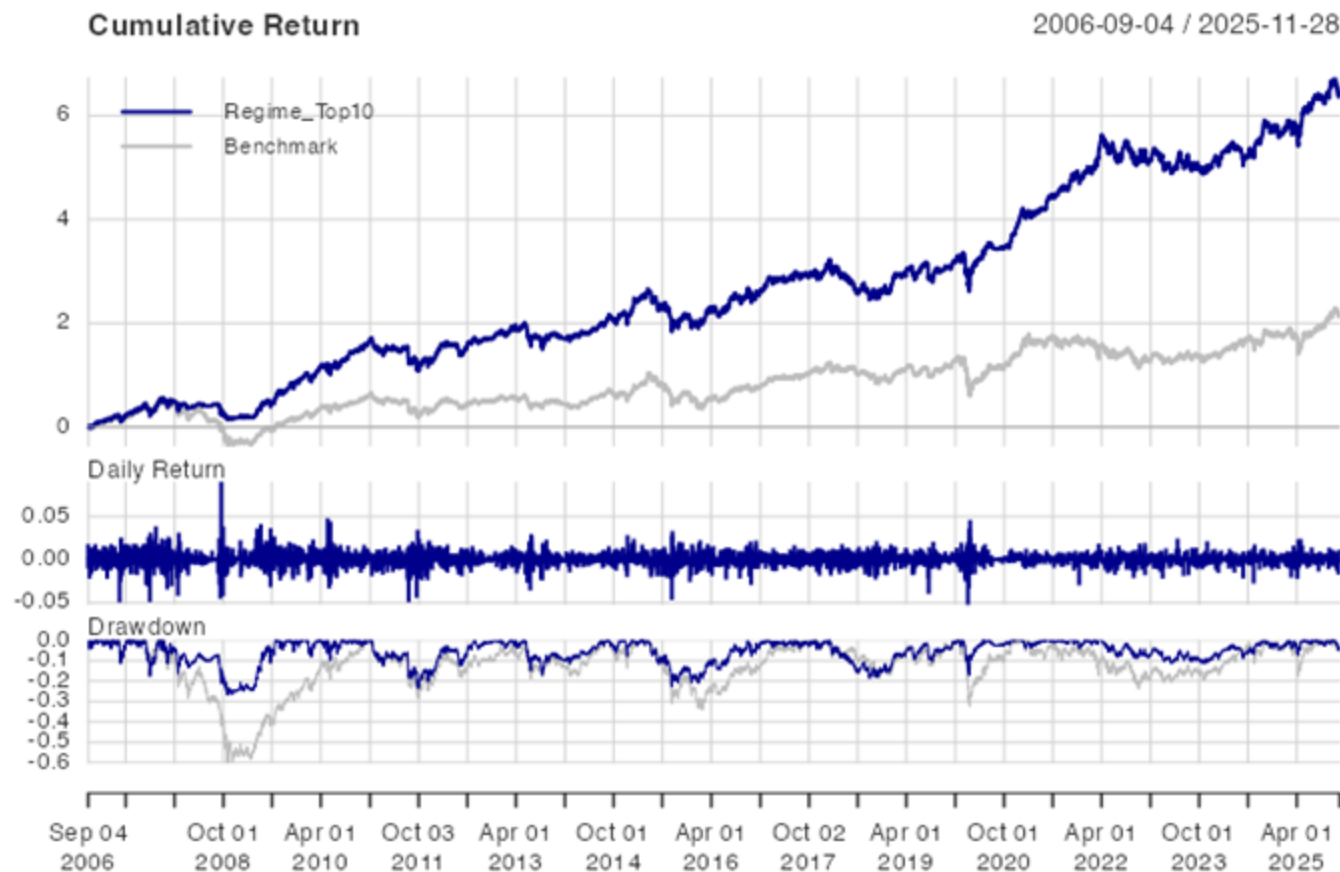
Regime All-Assets vs Benchmark



	Strategy	Benchmark
Annualized Return	0.0727	0.0562
Annualized Std Dev	0.1016	0.1736
Annualized Sharpe ($R_f = 0\%$)	0.7150	0.3237
Worst Drawdown	0.3158	0.6035

Backtest (Equal weight top 10 signals)

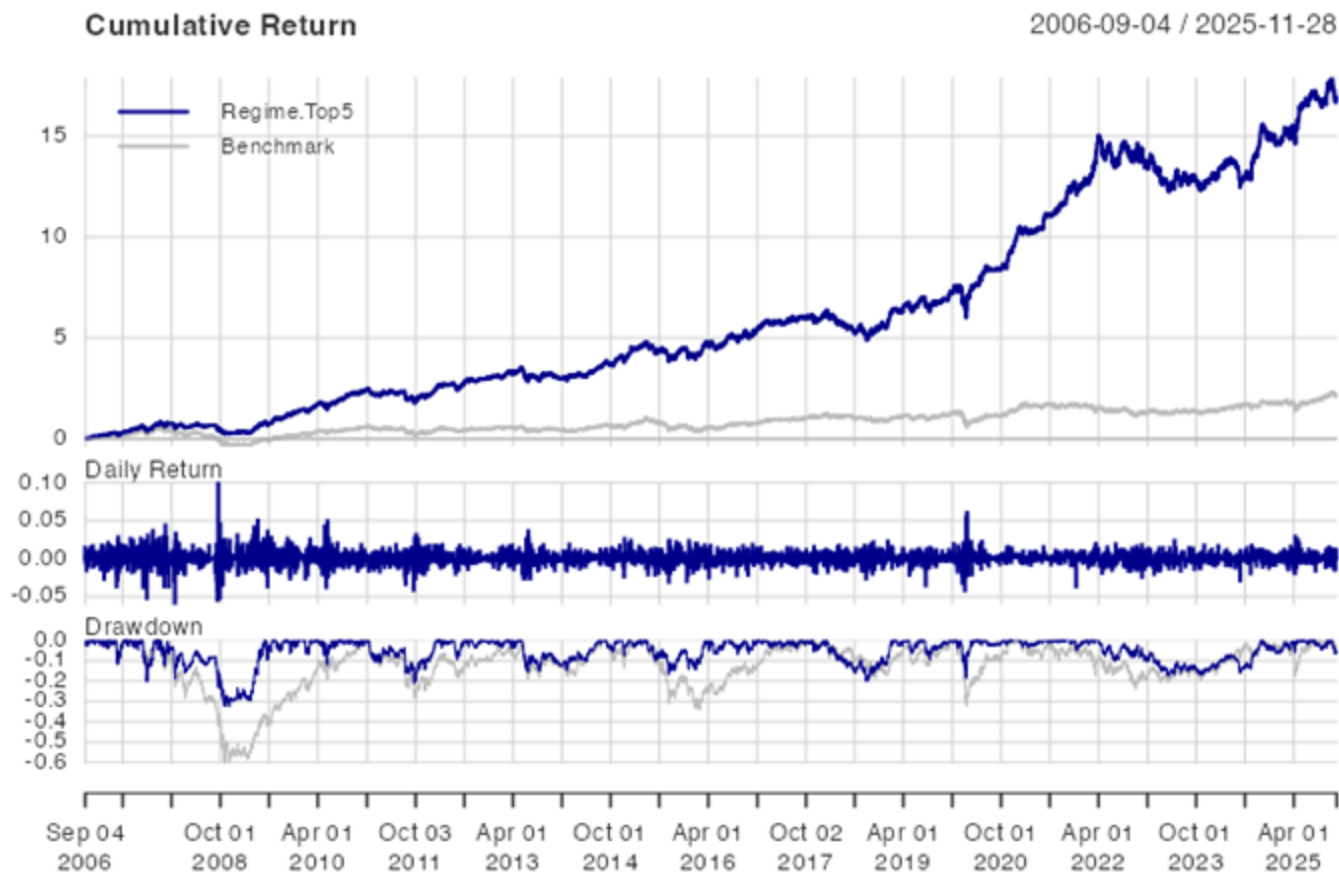
Regime Top10 vs Benchmark



	Strategy	Benchmark
Annualized Return	0.0991	0.0562
Annualized Std Dev	0.1251	0.1736
Annualized Sharpe ($R_f = 0\%$)	0.7924	0.3237
Worst Drawdown	0.2681	0.6035

Backtest (Equal weight top 5 signals)

Regime Top 5 vs Benchmark

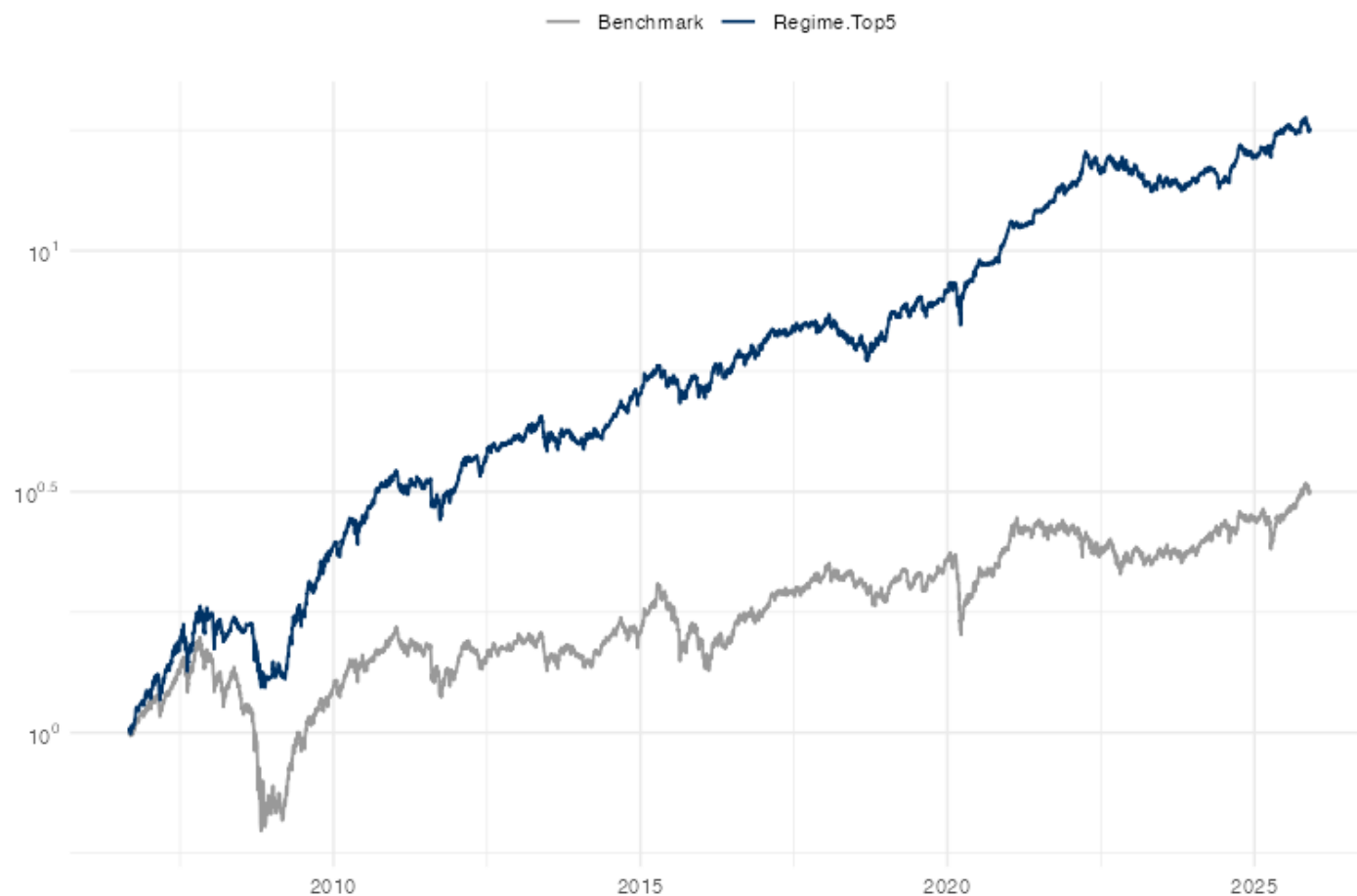


	Strategy	Benchmark
Annualized Return	0.1457	0.0562
Annualized Std Dev	0.1446	0.1736
Annualized Sharpe ($R_f = 0\%$)	1.0073	0.3237
Worst Drawdown	0.3237	0.6035

Backtest (Equal weight top 5 signals)

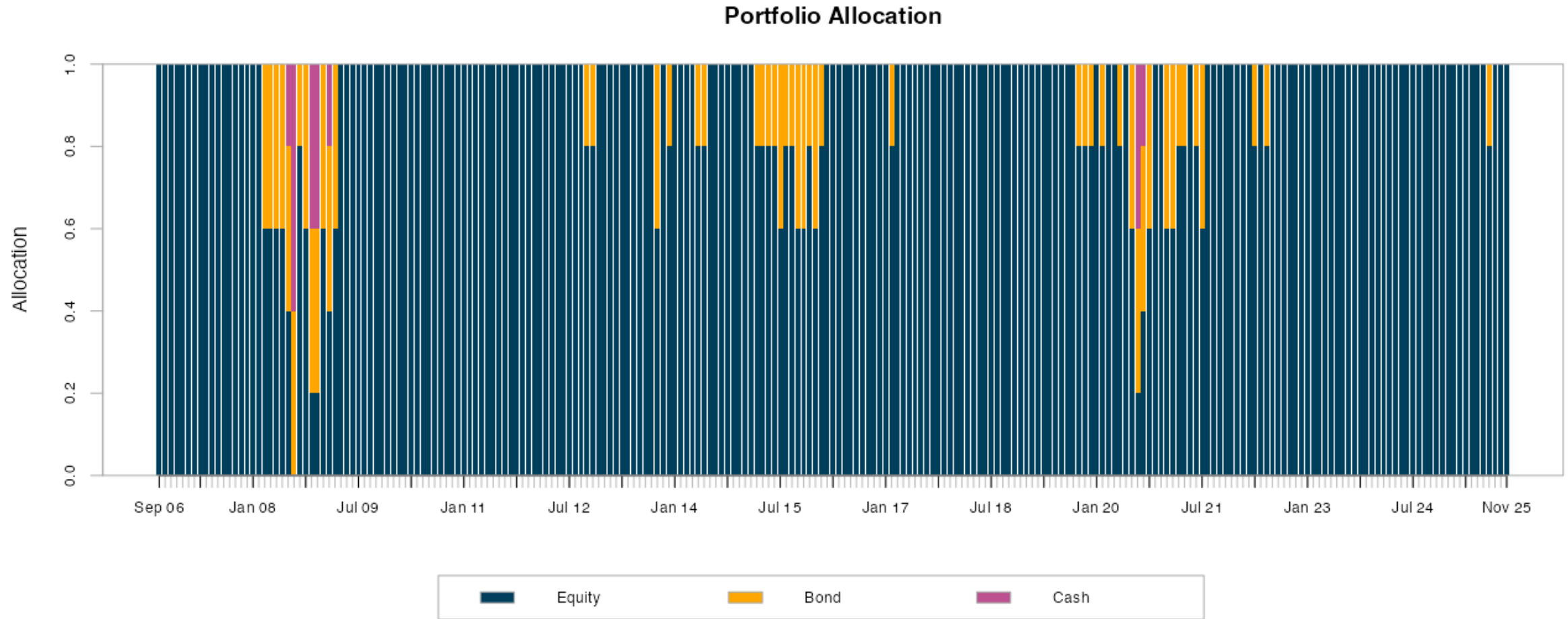
Regime Strategy vs Benchmark (Log Scale)

Actual Trading Start: 2006-09-04

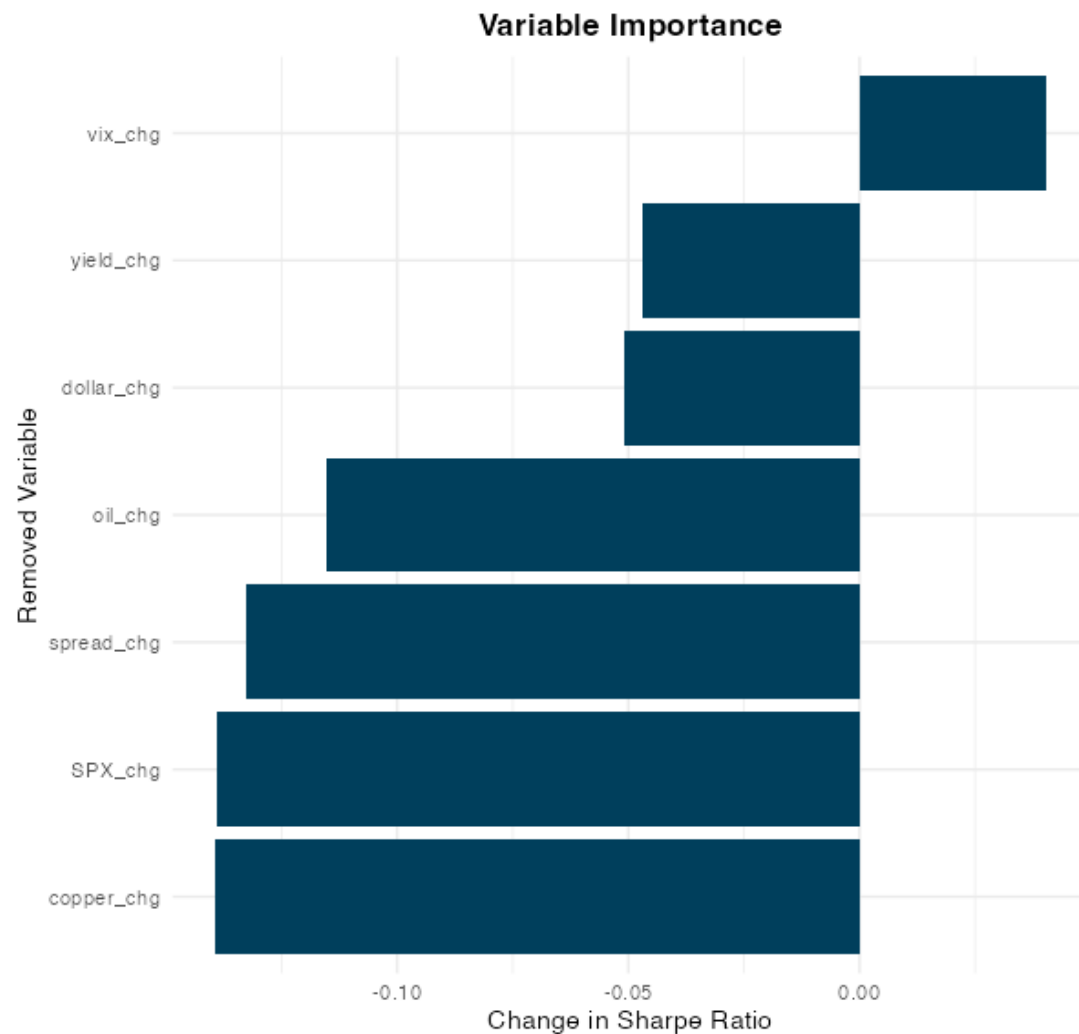
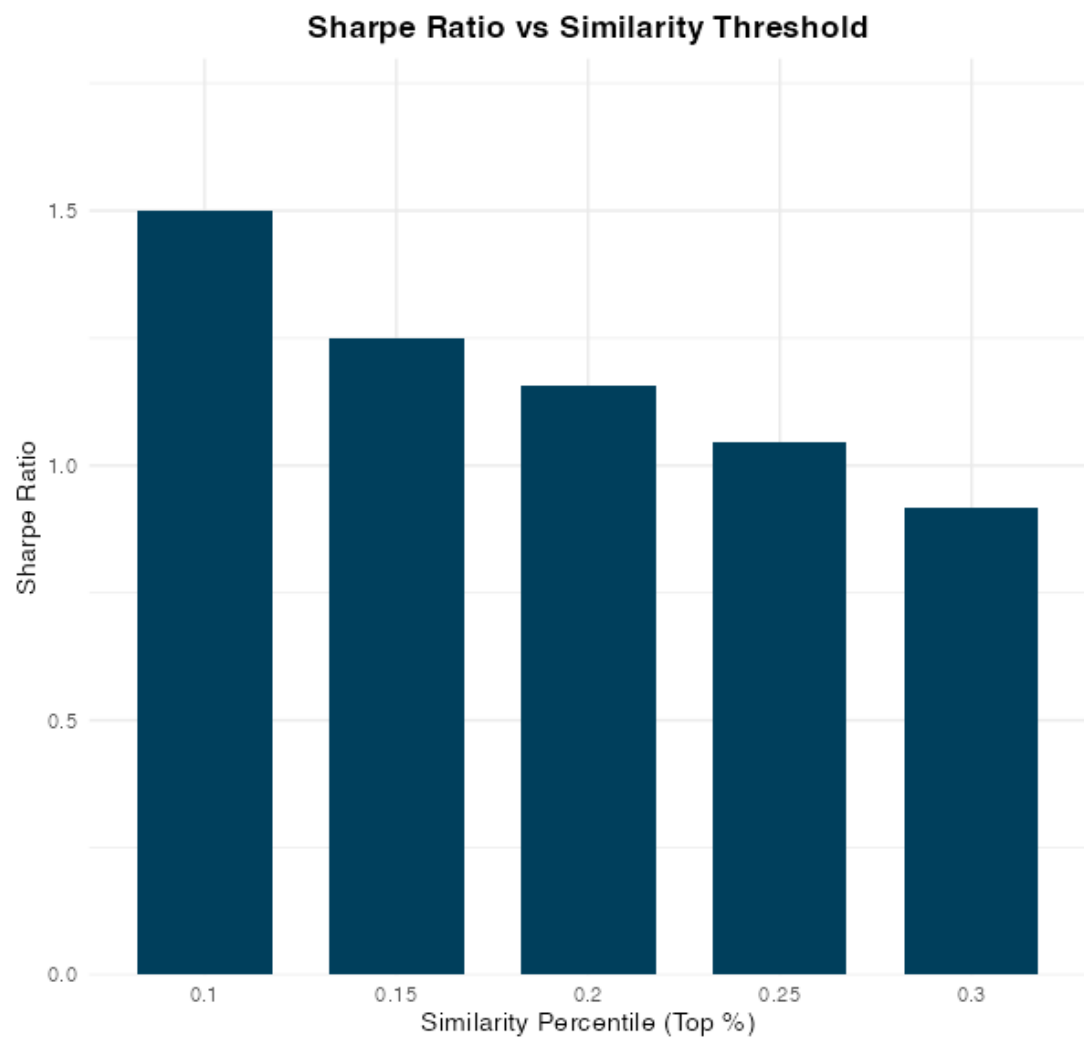


Year	Regime.Top5	Benchmark
2006	21.7	15.0
2007	44.7	26.5
2008	-25.8	-51.7
2009	86.6	77.6
2010	40.8	28.6
2011	-5.7	-17.0
2012	27.0	16.5
2013	-3.1	-6.4
2014	27.2	11.9
2015	2.5	-4.1
2016	23.4	13.2
2017	9.2	20.0
2018	-6.4	-10.8
2019	25.4	20.0
2020	36.0	8.7
2021	22.0	7.1
2022	6.7	-14.8
2023	-2.9	8.1
2024	10.5	14.5
2025	14.3	14.4

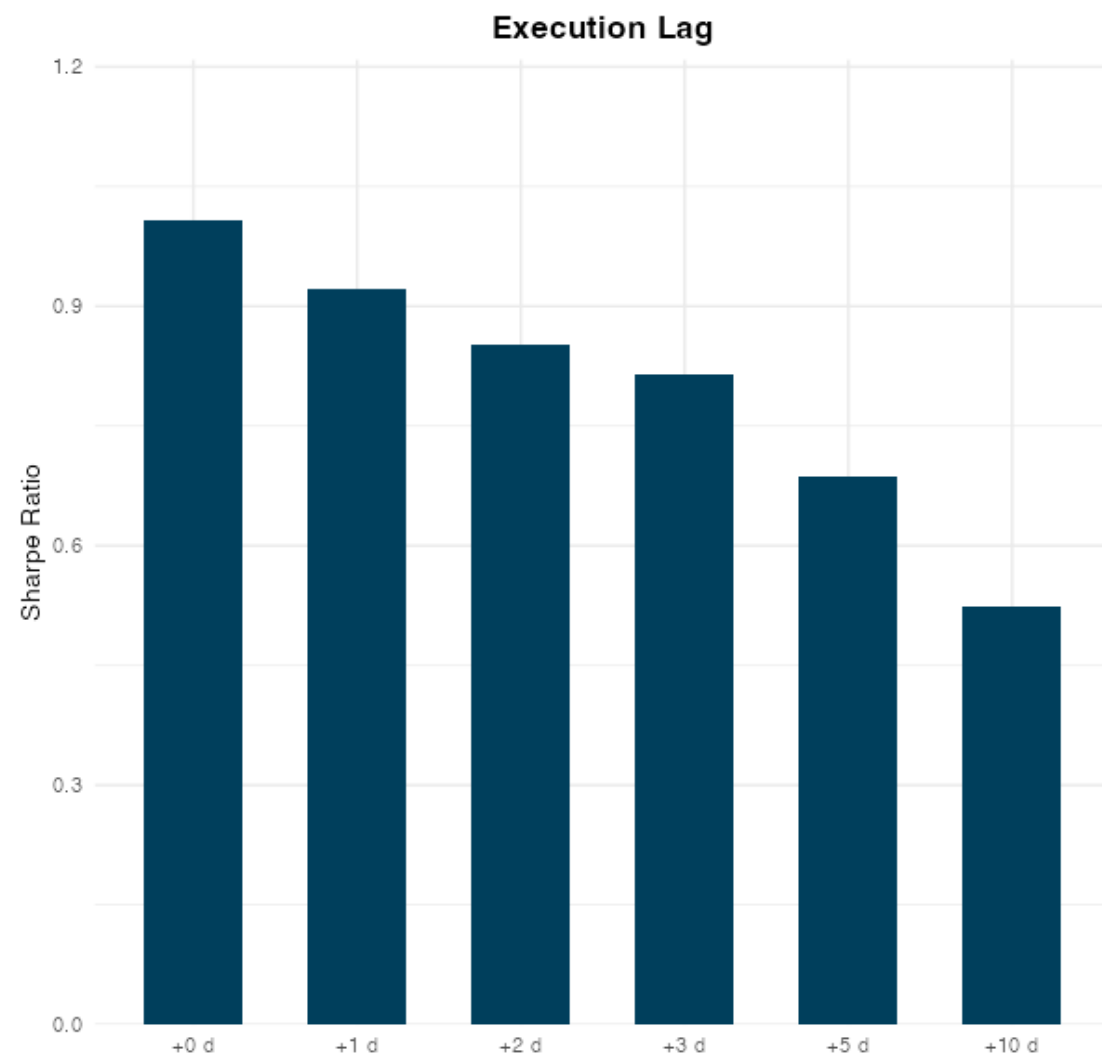
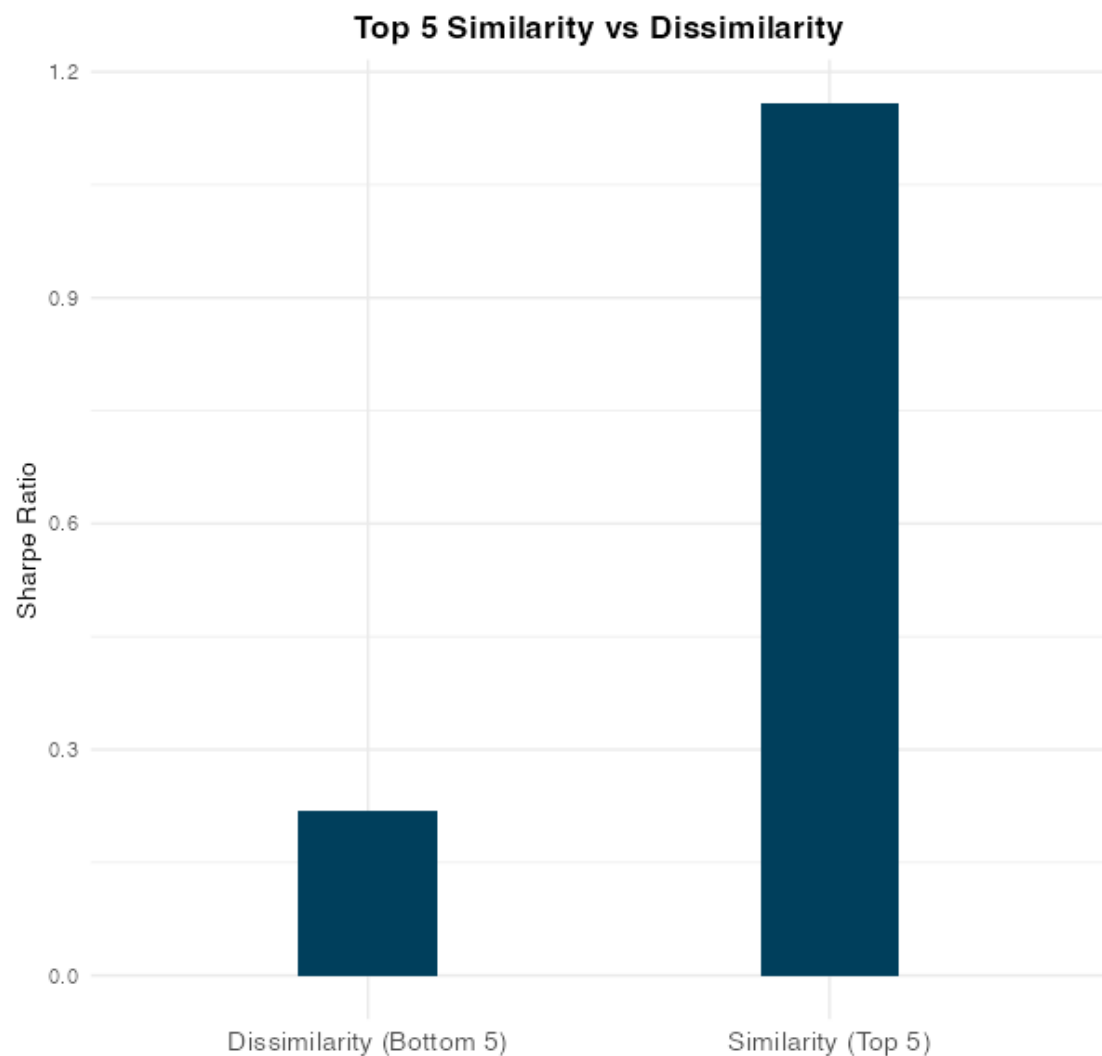
Asset allocation



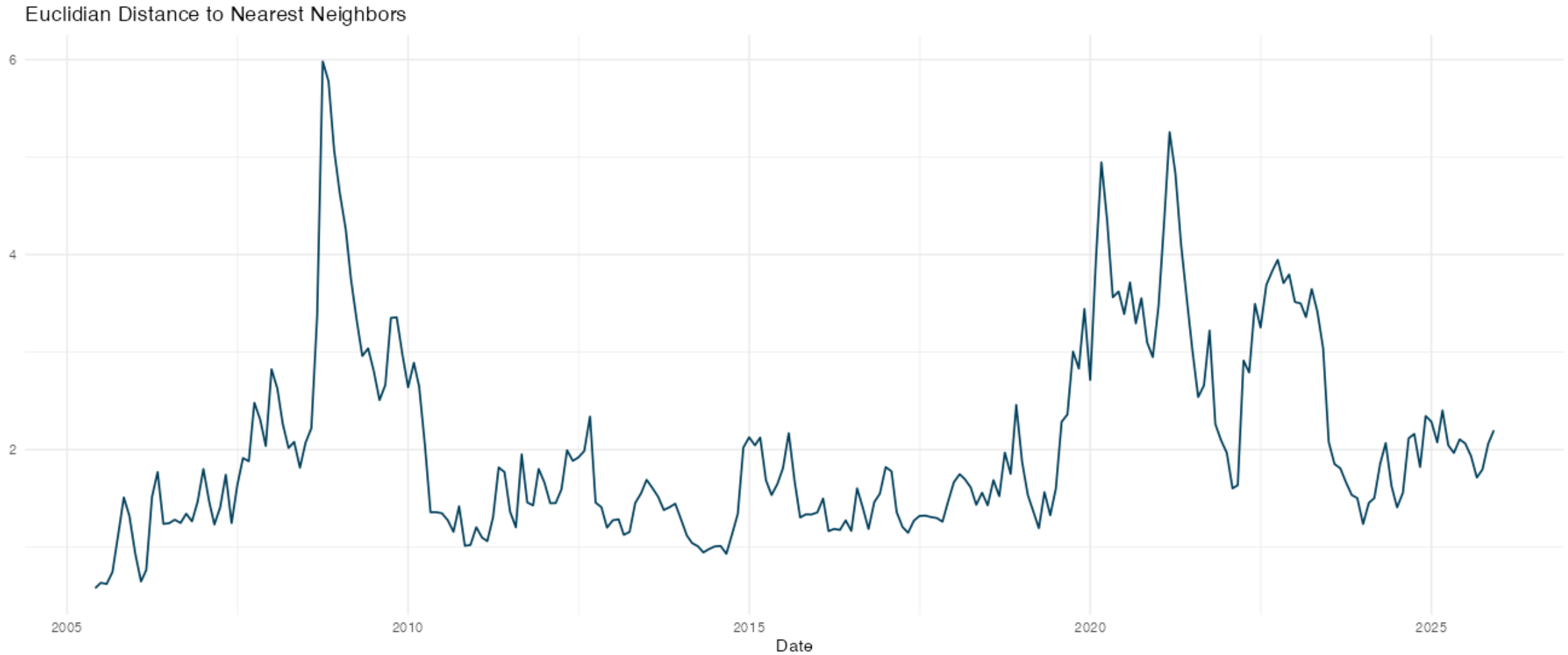
Robustness checks



Robustness checks



Robustness checks



Latest output

Regime Similarity for: Dec 2025

Dashed Line = Euclidean Distance. Blue Bands = Top 20 % Nearest Neighbors.

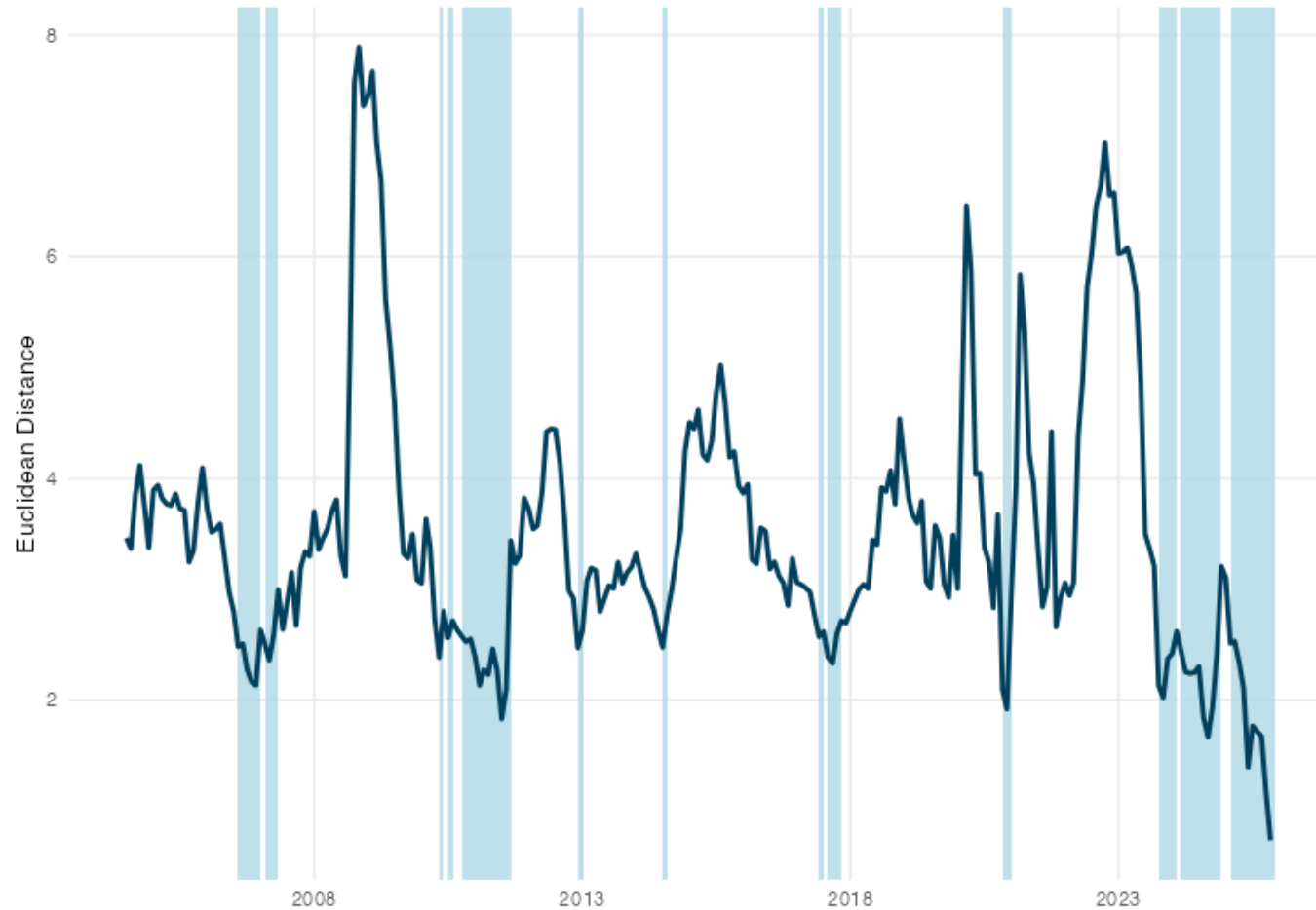


Table 3: Top 5 Assets

Asset	Exp. Return
iShares MSCI China UCITS ETF USD (Acc)	1.97%
Xtrackers MSCI Taiwan UCITS ETF	1.89%
HSBC MSCI Indonesia UCITS ETF USD	1.80%
iShares MSCI Korea UCITS ETF (Acc)	1.63%
Xtrackers MSCI Philippines UCITS ETF	1.60%