

Short-Term Technical Indicators Across Asset Classes & Implications for Allocation Decisions

A Multi-Asset Analysis (2000 to 2025)

STUDY GROUP 13

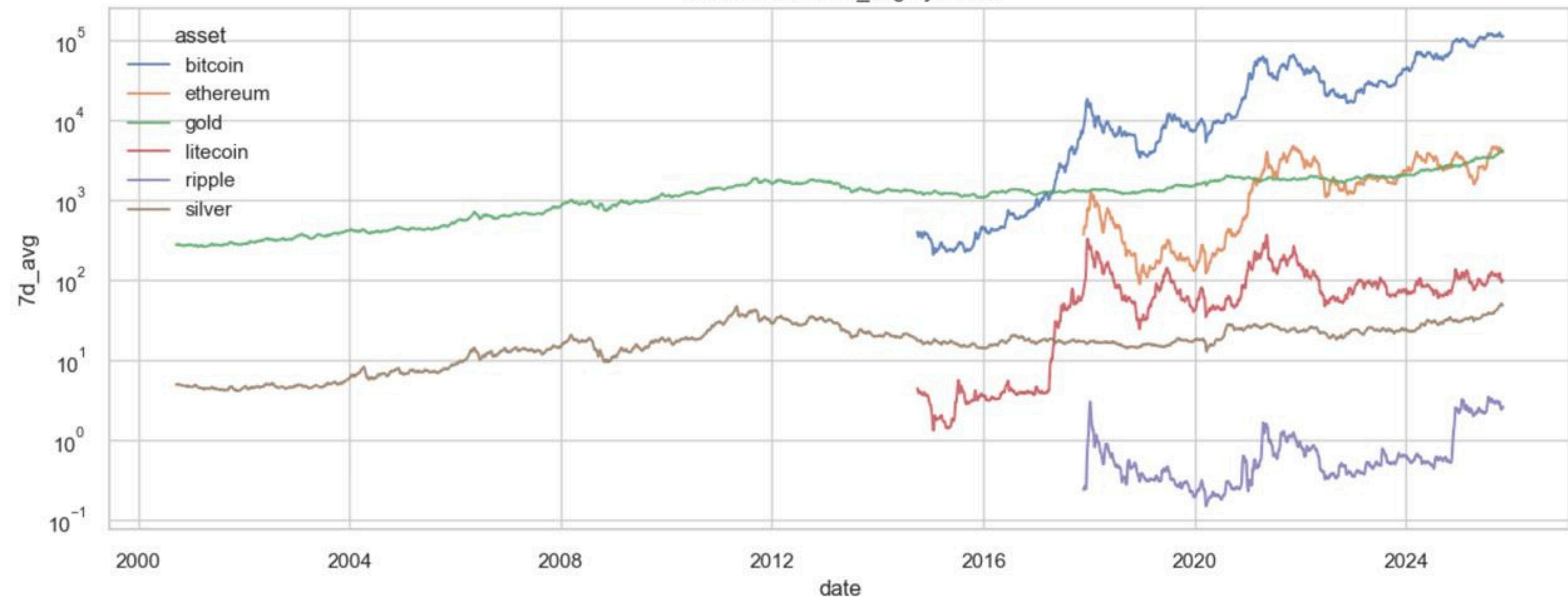


Research Motivation & The Dataset

- **Objective:** Whether short term technical indicators carry information that can inform cross-asset allocation decisions.
- **Motivation :** Different assets have very different behaviours, which matters for any allocation decision based on signals.
- **Dataset:** Multi Asset Market Data 2000 to 2025, 50,000 observations across crypto, commodities, currencies, indices (Bitcoin, Ethereum, Litecoin, Ripple, Gold, Silver).
Variables include: 7d avg, 30d avg, volatility, momentum, z score

date	final_price	asset	7d_avg	30d_avg	daily_pct_change	volatility_7d	momentum_14d	trend_signal	price_zscore
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Time Series of 7d_avg by Asset

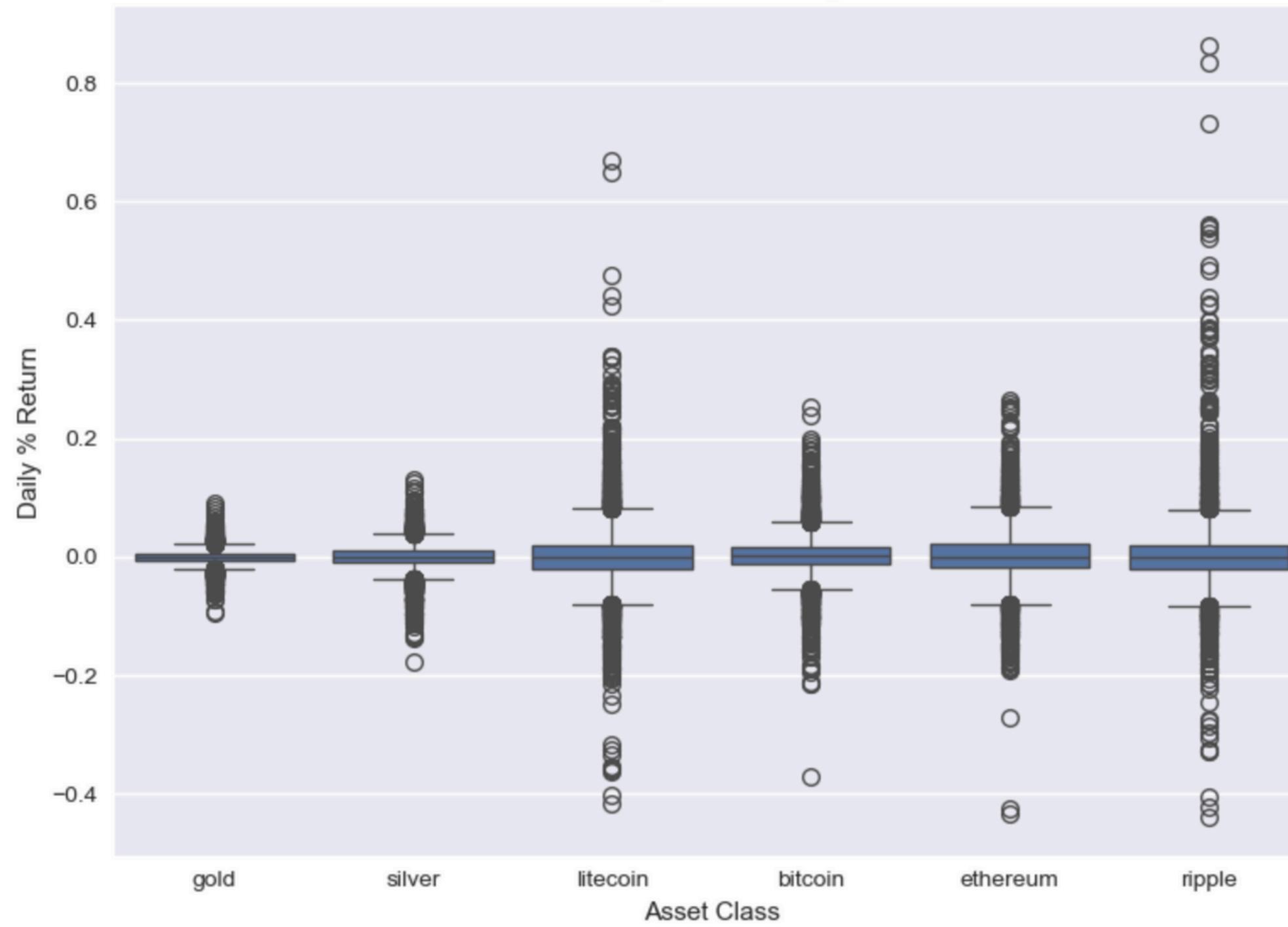


Insight: Long-Term Trends Differ Sharply Across Assets

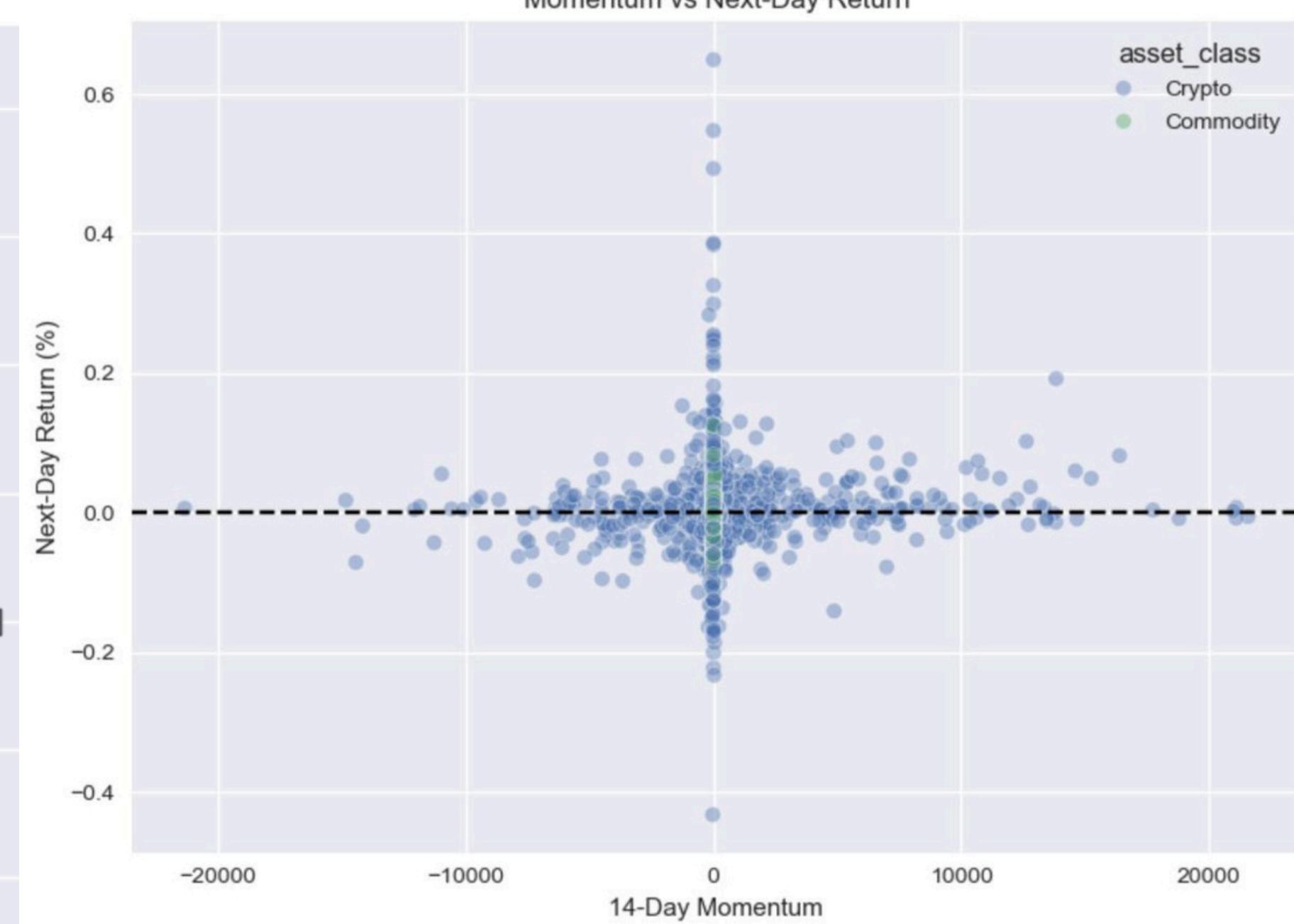
Insight: Long-term trends differ sharply across assets, with commodities remaining stable and crypto showing explosive volatility.
Cause: Crypto markets undergo regime shifts driven by speculation and structural instability.
Effect: Prediction models struggle more on crypto, while commodities offer more consistent signal behavior.

Insight: Asset Volatility Drives How Well Signals Work

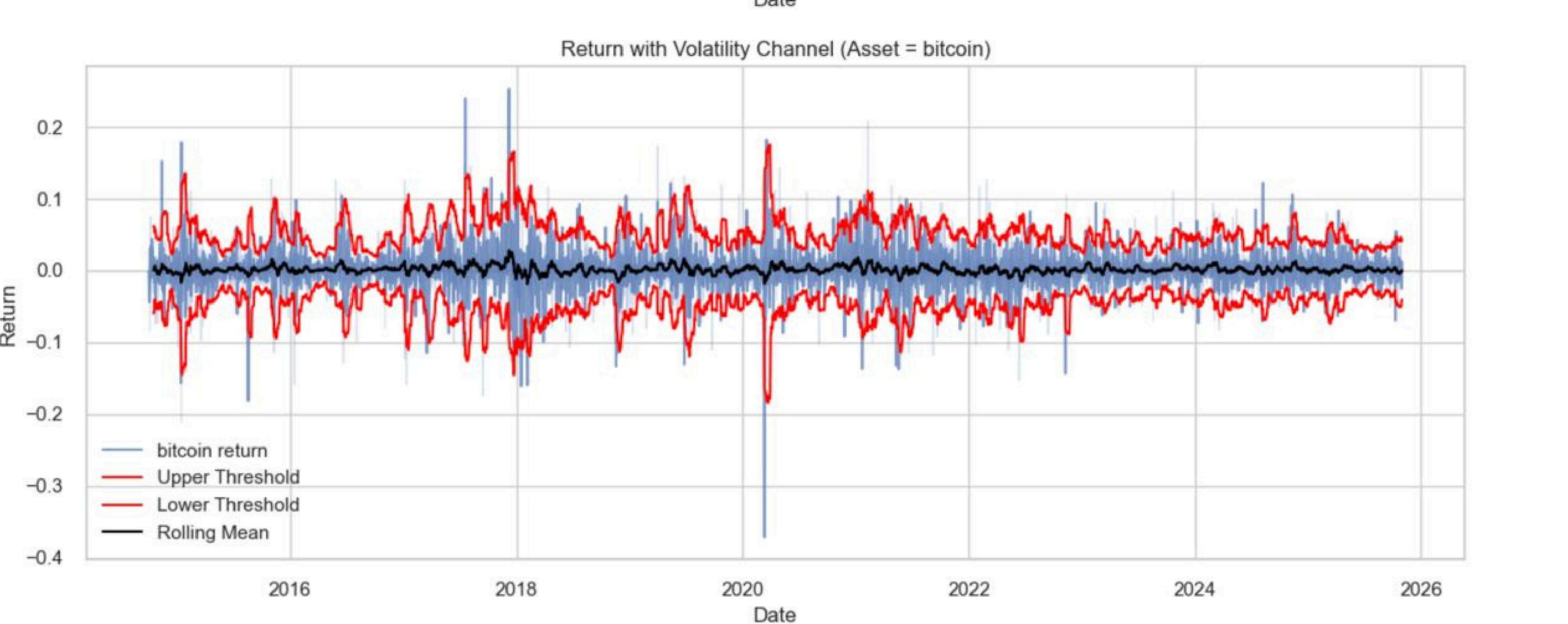
Distribution of Daily % Returns by Asset Class



Momentum vs Next-Day Return



Insight: Different assets show very different return distributions, with crypto far more volatile than commodities.
Cause: Crypto markets are driven by speculative flows and retail participation, creating extreme outliers and noise.
Effect: Predictive signals like momentum show no clear relationship with next-day returns, especially in crypto-heavy regimes.



Insight : Bitcoin
Returns Are Dominated
by Shifting Volatility
Regimes

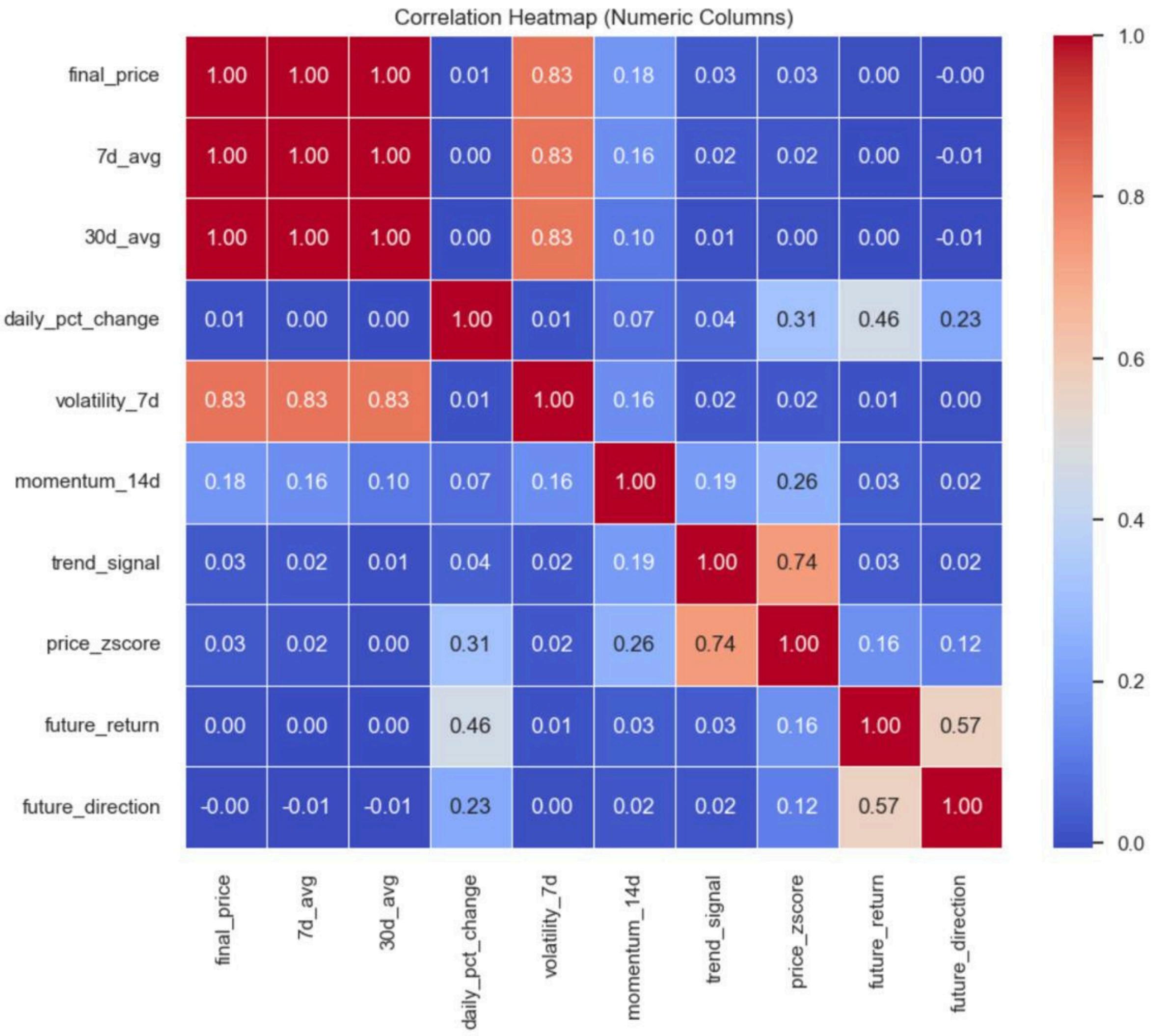
Insight: Bitcoin returns frequently spike outside the volatility channel, showing unstable and shifting regimes.

Cause: Large sentiment-driven flows and leverage cycles cause sudden jumps beyond expected thresholds.

Effect: Traditional signals become unreliable during these volatility bursts, reducing next-day predictability.

Which Signals Matter?

Technical indicators have very low correlation with next-day returns.

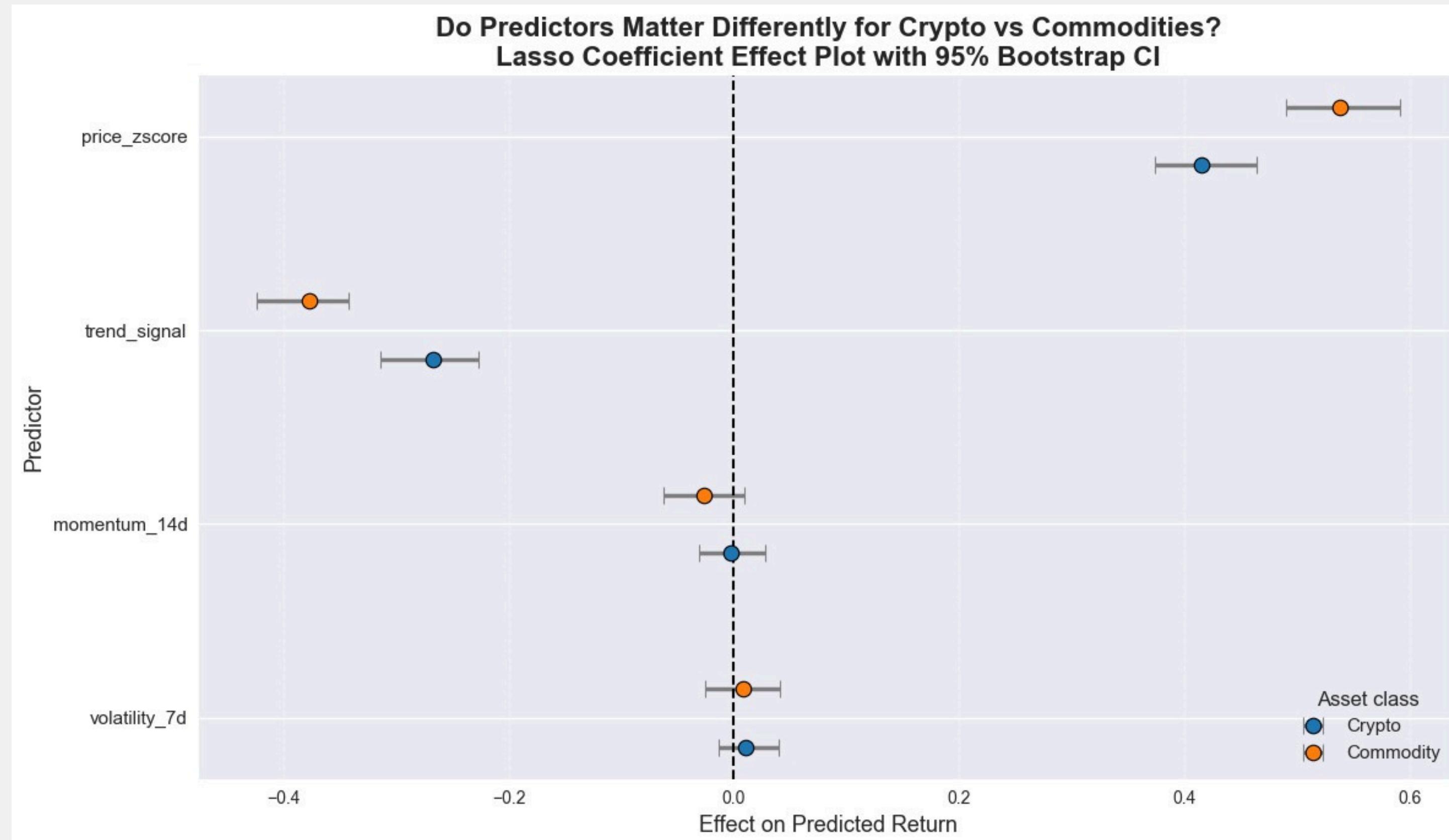


Short-term indicators provide weak but non-random predictive power

Asset Class	Accuracy	ROC AUC
Crypto	0.561743	0.585748
Commodity	0.563878	0.586161

Takeaway: Short-term indicators carry limited predictive information, evenly across asset classes, suggesting they are insufficient to guide allocation alone but may complement other long-term factors.

How Much Do Signals Influence Returns?



LASSO coefficients remain small for all indicators, meaning short term signals have limited influence on predicted returns.

To Conclude

Short-term signals are weak and noisy, so they cannot reliably predict future returns and asset allocation.

This makes allocation difficult because small errors quickly lead to poor decisions.

Main challenges:

- signals change quickly and are unstable
- crypto and commodities behave very differently
- models struggle to generalise across time

Next steps:

- combine short-term signals with long-term factors (analyse further macro trends)
- test signals in specific market conditions (high volatility periods, bull vs bear markets)
- explore more advanced models