

Crypto Statistical Arbitrage Project Summary

Overview

This report documents the implementation and backtest results of a statistical arbitrage strategy applied to major cryptocurrencies. It uses a regime-dependent framework to isolate momentum and reversal opportunities based on volume z-scores and lagged market features. The implementation avoids look-ahead bias by lagging all indicators, computing thresholds using only training data, and enforcing sequential trade execution.

Performance Summary

Strategy: BTCUSDT_momentum

Total Return: -23.11%

Sharpe Ratio: -1.46

Max Drawdown: -40.72%

Strategy: BTCUSDT_reversal

Total Return: 53.52%

Sharpe Ratio: 7.47

Max Drawdown: -23.49%

Strategy: ETHUSDT_momentum

Total Return: -73.66%

Sharpe Ratio: -3.87

Max Drawdown: -92.08%

Strategy: ETHUSDT_reversal

Crypto Statistical Arbitrage Project Summary

Total Return: 182.94%

Sharpe Ratio: 6.75

Max Drawdown: -24.78%

Strategy: SOLUSDT_momentum

Total Return: -62.71%

Sharpe Ratio: -3.27

Max Drawdown: -78.46%

Strategy: SOLUSDT_reversal

Total Return: 353.01%

Sharpe Ratio: 11.22

Max Drawdown: -47.99%

Strategy: DOGEUSDT_momentum

Total Return: -67.74%

Sharpe Ratio: -2.3

Max Drawdown: -105.73%

Strategy: DOGEUSDT_reversal

Total Return: 300.99%

Sharpe Ratio: 7.03

Max Drawdown: -148.11%

Equity Curves

Crypto Statistical Arbitrage Project Summary

