2025

McG-Coin PairGate Strategy (JPM-BAC)

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STRATEGY

Identify and exploit short-term mispricings between two historically related stocks using a hybrid of statistical and technical methods

Cointegration (Pairs Trading)

Run Engle–Granger / ADF to find a **stable long-run relationship** between two stocks.

Build the *spread* (hedge ratio) and track its deviation from the mean (Z-score).

McGinley Dynamic Filter

Adaptive moving average that adjusts to market speed.

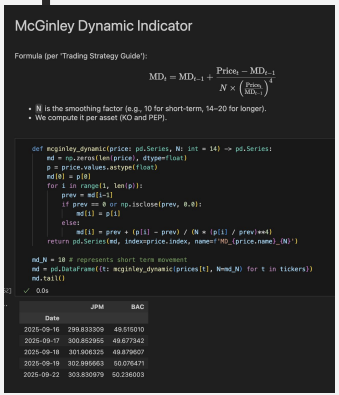
Only trade when **both stocks' prices are within ±1 % of their McGinley line**, signalling a sideways/non-trending regime.

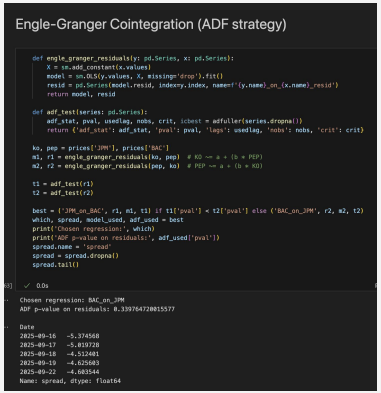
Machine-Learning Gatekeeper

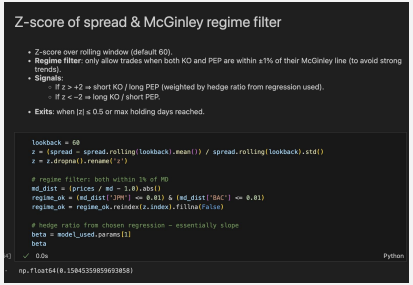
Logistic regression (or XGBoost) uses features such as current & lagged Z-score, spread volatility, and McGinley slopes.

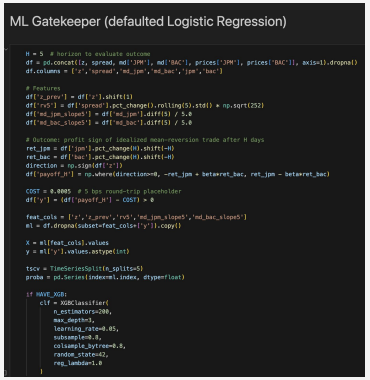
Opens a trade only when predicted **success probability > 60 %**.

SOLUTION STEPS









This strategy combines **cointegration analysis** with a **McGinley Dynamic filter** to spot when the JPM-BAC price spread strays from its long-term equilibrium but the market isn't trending. A **Z-score of the spread** flags potential entries, and a lightweight **machine-learning gate** approves only those trades with a high probability of mean reversion.

Together these layers turn **raw price data** into a **disciplined, high-conviction pairs-trading signal.**

ANALYSIS

Performance Metrics

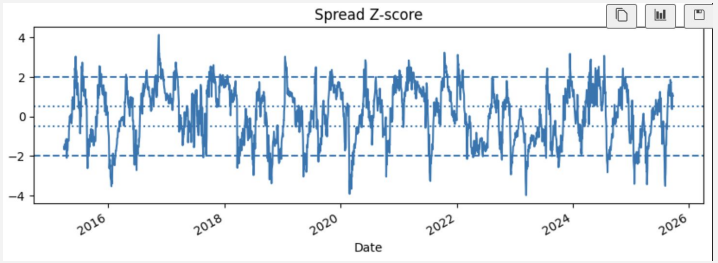
Equity final: 1.102 – Portfolio grew about 10 % over the test period.

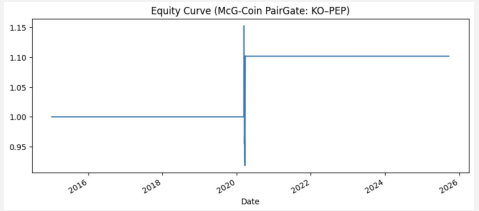
Annualized return: 1.22 % – Roughly a slow, bond-like yearly return.

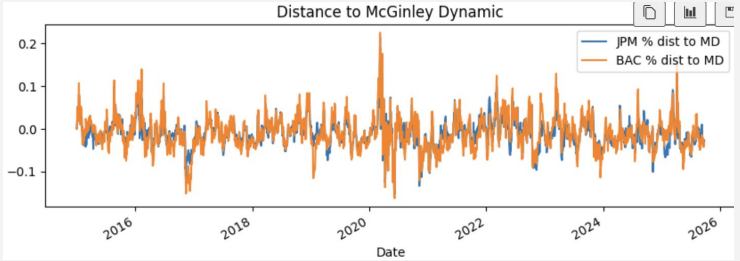
Sharpe ratio: 0.15 – Only slightly positive risk-adjusted performance.

Max drawdown: –20.36 % – At one point the strategy fell over 20 % from its peak.

Trades taken: 1 – Only a single round-trip trade triggered.







Key Insights:

The strategy **worked mechanically**: waiting for a statistically significant spread move and filtering with the McGinley line. However, **opportunity was scarce** and the lone trade came with **meaningful interim drawdown**.

Future work: **widen Z-score thresholds** or test other sector pairs to increase trade frequency and risk-adjusted returns.