

Pairs Trading with Bollinger Bands

A Quantitative Strategy for Mean Reversion

What is Pairs Trading?

Pairs trading is a market-neutral strategy that profits from the relationship between two historically correlated assets.

- The Idea: Find two stocks that tend to move together.
- The Bet: When they temporarily diverge, bet on them reverting to their historical average relationship.
- The Goal: Profit regardless of the overall market direction.

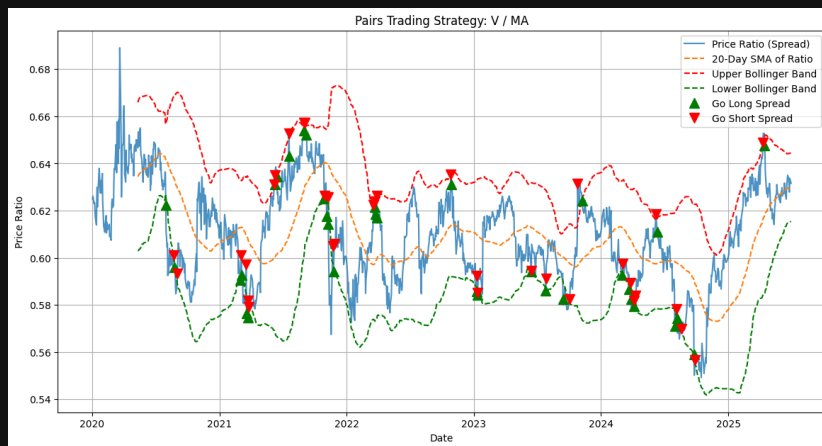
We go long on the underperforming stock and short the outperforming one.

Our Strategy: Ratio & Bollinger Bands

We use Bollinger Bands to identify when the pair's price ratio has significantly diverged.

The two stocks I chose were Visa (V) & Mastercard (MA).

1. Calculate the Spread: We compute the price ratio: $\text{Ratio} = V / MA$.
2. Generate Signals:
 - When the ratio crosses above the upper Bollinger Band, we short the spread (Sell V, Buy MA).
 - When the ratio crosses below the lower Bollinger Band, we long the spread (Buy V, Sell MA).



Backtest Results

I backtested this strategy on V/MA from Jan 2020 to Jul 2025.

- Initial Capital: \$100,000.00
- Final Portfolio Value: \$119,813.00
- Total Return: 19.81%
- Sharpe Ratio: 0.35

