

Abstract

Pairs trading is a trading strategy which tries to exploit mean-reversion among prices of certain securities. It is market-neutral and self-financing, and has been shown to produce high excess returns in historical backtests.

We employ the most common distance and cointegration approaches on cryptocurrency data from an exchange called Binance spanning the year 2018. The strategy is mostly unprofitable under transaction costs, but certain combinations of hyperparameters can perform well. Overall, the distance method performs far better, being able to achieve 3% monthly profit even in our baseline real-life conditions while the cointegration method always achieves only a slight loss. We also found that increasing the sampling frequency of the data from daily to hourly brings mixed results.

Moreover, since we have to reuse estimates of real-life considerations from equity markets, it is unclear if our results are truly representative of the cryptocurrency market. The strategy is found to be very sensitive to execution difficulties and transaction costs, making their determination crucially important. It is somewhat easy to get returns in excess of 5% monthly under ideal conditions, but whether this could be achieved in real trading conditions is still unclear.

Keywords

pairs trading, cointegration, statistical arbitrage, intra-day trading, cryptocurrencies, distance method