

Abstract

A statistical arbitrage is a trading strategy to profit from inefficiencies in financial markets.

A deterministic arbitrage results in a definite profit from the executed trade. However, such opportunities are extremely rare, if not inexistent. A statistical arbitrage is an extension of the deterministic arbitrage approach. It considers the first order moments and deals with producing a positive expected profit on an average, should the same trade be repeated infinite number of times, although there may be cases where an individual trade as produced an actual loss.

This paper considers two such approaches to statistical arbitrage, namely, Rotational Strategies and Merging Strategies.

A rotational strategy is one where the portfolio composition is rebalanced at the end of a pre-specified discrete interval. A bias free portfolio is used to measure risk adjusted return from the strategies and Monte Carlo Permutation test and White's Reality Check are used to validate the statistical significance of the realized test statistic.

A merging strategy uses replicating portfolios to neutralize market inefficiency assumptions, thus profiting from the random variations in the underlying stochastic processes. By using pre-specified set of rules to shift from one process to another, the mathematical and practical validity of the rules are tested.