Quantitative Finance ›

Volume 13, 2013 - Issue 9

Research Papers

Pairs trading based on statistical variability of the spread process

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Pages 1411-1430 | Received 22 Sep 2011, Accepted 07 Nov 2012, Published online: 21 Feb 2013

Cite this article https://doi.org/10.1080/14697688.2012.748934

Abstract

This research proposes a new non-parametric approach to pairs trading based on renko and kagi constructions which originated from Japanese charting indicators and were introduced to academic studies by Pastukhov. The method exploits statistical information about the variability of the tradable process. The approach does not find a long-run mean of the process and trade towards it like other methods of pairs trading. The only assumption we need is that the statistical properties of the spread process volatility remain reasonably constant. The theoretical profitability of the method has been demonstrated for the Ornstein–Uhlenbeck process. Tests on the daily market data of American and Australian stock exchanges show statistically significant average excess returns ranging from 1.4 to 3.6% per month and annualized Sharpe ratio from 1.5 to 3.4.

Keywords:

Applied mathematical finance Quantitative trading strategies Arbitrage relationship Statistical methods

Trading strategies

JEL Classifications:

C1 C14

Acknowledgements

I would like to thank John van der Hoek and Petko Kalev for their support and invaluable comments during my work on this research. I am also very grateful to the referees for their comments and suggestions.