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The profitability of pairs trading strategies: distance, cointegration and copula methods

Hossein Rad, Rand Kwong Yew Low & Robert Faff

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after accounting for various risk-factors. We also find that in addition to all strategies performing better during periods of significant volatility, the cointegration method is the superior strategy during turbulent market conditions.

Keywords: Pairs trading Copula Cointegration Quantitative strategies Statistical arbitrage

JEL Classifications: G11 G12 G14

Notes

No potential conflict of interest was reported by the authors.

1 In the last year of our study, 2014, there are an average of 2,377 stocks () per day, resulting in a total of 2,823,876 () unique stock pairs to be analysed for selection into the strategy. When restricted to a single core processor, the average computation time for selecting the best copula model and fit for each stock pair is 0.44 seconds. Thus, analysing all unique stock pairs on a single day requires a total of 345 h for a single core processor. Performing such an analysis within 5 h requires a minimum of 70 core processors using parallel computing techniques. Our analysis is performed on Matlab 2014b with the Parallel Computing toolbox on a compute server with dual Intel Xeon Processors and 128

GBs of R

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8 The formation and trading periods are kept at 12 and 6 months, respectively, to be consistent with the distance and cointegration methods.

9 See Do and Faff ([2012](#)) section 3 for full details on commissions and market impact estimations.

10 Do and Faff ([2010](#)) report a similar monthly excess return of 0.90% before transaction costs.

11 The threshold value is also known as the minimum acceptable return where we use 0%.

12 For detailed explanation and calculation of lower partial moment measures, refer to Eling and Schuhmacher ([2007](#)).

13 For detailed explanation and calculation of drawdown measures, refer to Schuhmacher and Eling ([2011](#)).

14 Opening threshold refers to the cumulative mispriced indices and , formulated in section [4.3.2](#). These indices are calculated by accumulating the pairs' daily conditional probability, and .

15 This is a total of 11 out of 53 years consisting of 1969, 1972, 1973, 1977, 1981, 1983, 19

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