

Pairs Trading and Markov Regime Switching in Energy Futures Market

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ABSTRACT

Pairs trading is considered as one of the most well-known trading strategies among many large mutual funds, hedge funds and also individual investors for a long time. This paper aims at investigating the profitability of applying pairs trading with energy futures market. However, energy commodities have been argued that they are normally subjected to high level of volatility and may be exposed to a structural break or regime shift when time passes. Consequently a standard pairs trading strategy, which relies on the reversion of the price spread to the initial equilibrium after the deviation, could lead to a loss since the equilibrium level of the spread has been adjusted permanently to the new level. It becomes questionable whether employing pairs trading with 2-state first order “Markov Regime Switching” model to identify if the mean and variance of the spread have a tendency to permanently switch to a different level can outperform the standard pairs trading strategy. The result suggests that the strategy with Markov regime switching cannot be used to produce continuously positive return and there is no clear evidence that this strategy would outperform the standard strategy without Markov regime switching.

Keywords: Pairs trading; Markov regime switching; Statistical arbitrage