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Study on Stock Index Futures' Mean Reversion Effect and Arbitrage in China Based on High-Frequency Data

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ABSTRACT

Based on 1 minute high frequency data, this paper constructs no-arbitrage band for CSI300 index futures, and empirically studies the futures-spot arbitrage. Furthermore, the mean reversion and its time effect are analyzed by ADF model for the first time in Chinese index futures market and a logit model is used to investigate the related factors of arbitrage opportunities. We find that CSI300 index futures have cash-and-carry arbitrage opportunities; the existence of mean reversion effect of index futures when arbitrage is absent; cash-and-carry arbitrage has a significant impact for mean reversion of the mispricing, while the reverse has insignificant effect. As for the time effect of mean reversion, it indicates that the time which arbitrage effect reversion most is mispricing shows 14 minutes later. The probability of arbitrage opportunities is positive correlated to first-order lagged of volume, and negative correlated to the volume; the time to expiration, the highest price and lowest price differences are also positive related to arbitrage opportunities.

KEYWORDS

CSI 300 Index Future; High-Frequency Data; Futures-Spot Arbitrage; Mean Reversion Effect; Mispricing Ratio

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