

ABSTRACT

This study investigates the joint pricing efficiency of Hong Kong Mini-Hang Seng Index (Mini-HSI) futures and options markets based on put-call-futures parity condition. The tick-by-tick time-stamped transaction data from December 2002 to February 2004 are employed. This is the first attempt to test the joint pricing efficiency of a particular sub-market in Hong Kong, although Hong Kong Hang Seng Index (HSI) futures and options markets have been proved to be mature and jointly efficient in a number of previous studies.

The valid observations involve put, call, and futures contracts traded within 1-minute interval. Ordinary Least Square (OLS) regression models are run to examine the validity of the put-call-futures parity in Mini-HSI futures and options markets. Both ex-post and ex-ante simulation tests are also conducted to investigate the frequency and magnitude of profitable arbitrage opportunities. The regression results show that the put-call-futures parity does not hold in Mini-HSI futures and options markets and two markets are not jointly efficient in the sample period. At the same time, it is found that a long-arbitrage trade results in better arbitrage profitability than a short-arbitrage trade; non-members with high arbitrage cost earn larger arbitrage profits than members with lower arbitrage cost. As a comparison, OLS regression analysis is conducted on HSI futures and options markets in the same sample period to test whether the put-call-futures parity still holds as in past researches. The results show different arguments that the

parity relationship does not hold and HSI futures and options markets are not jointly efficient in 2003.

It is found that existing profitable arbitrage opportunities in Mini-HSI futures and options markets appear only in some special periods (such as SARS period, the fourth quarter in 2003, and January 2004) according to the results of put-call-futures parity tests and ex-post tests. In addition, no ex-ante arbitrage profits can be earned by both members and non-members after considering the total cost of arbitrage. For HSI futures and options markets, the profitable arbitrage opportunities exist only in April and November in 2003 after adjusting for the costs. Therefore, Hong Kong Mini-HSI futures and options markets, as well as HSI futures and options markets are practically efficient in the sample periods.