

## DOCTORAL THESIS

### **A study of the impact of migration to electronic trading on the competitiveness and relative pricing efficiency of index futures and options markets**

Cheng, Hon Kit Kevin

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**A Study of the Impact of Migration to Electronic Trading  
on the Competitiveness and Relative Pricing Efficiency  
of Index Futures and Options Markets**

**CHENG Hon Kit, Kevin**

**A thesis submitted in partial fulfillment of the requirements**

**for the degree of**

**Doctor of Philosophy**

**Principal Supervisor: Prof. Joseph K.W. FUNG**

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## **ABSTRACT**

This thesis examines empirically how and to what extent simultaneous migration to electronic trading of index futures and options affect: (i) their bid/ask spreads; (ii) arbitrage efficiency between the index futures and options; and (iii) the parity (which is also referred to as substitutability) between index options and index futures prices (positions). The results of the study show that with screen trading, the bid/ask spreads of the futures and options are generally reduced. Second, the arbitrage efficiency between futures and options is enhanced greatly after migration to electronic trading, with reductions in the arbitrage profits and the standard deviations of these profits under both ex-post and ex-ante analyses. In addition, the test results on the parity-price relationship between futures and options positions reveal the put and call options combination strategy mimics more closely the equivalent actual futures position under electronic trading.

The thesis contributes to the literature in providing empirical test evidence on the impacts of the simultaneous migration of Hang Seng Index futures and options on 5 June 2000 from floor trading to screen-based trading on the Hong Kong Futures Exchange on the options and futures prices. The results of the study provide incremental evidence that electronic trading enhances arbitrage and pricing efficiency of options and futures. The test findings bear reference for those exchanges that are considering to switch from floor-based to screen-based trading.

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