Synopsis

This dissertation consists of three essays that examine the impact of electronic screen trading in futures markets. The research provides empirical evidence on increasingly significant issues given the rapid global advances in technology used in securities markets. Each essay addresses the scarcity of conclusive research in order to aid researchers, regulators, exchange policy makers and systems builders as they confront issues related to electronic trading systems.

The first essay evaluates the liquidity of electronically traded futures markets by examining the transition from floor to electronic trading for stock index futures traded on the London International Financial Futures and Options Exchange (LIFFE), Sydney Futures Exchange (SFE) and Hong Kong Futures Exchange (HKFE). These three changes in trading systems provide unique natural experiments to assess the relative liquidity of open outcry and electronic markets. After controlling for price volatility and trading volume, bid-ask spreads are found to be narrower under the electronic trading regimes implemented by all three exchanges. This provides evidence that electronic trading can facilitate higher levels of liquidity relative to floor traded markets. However, bid-ask spreads appear to become wider in response to higher price volatility under electronic trading. This indicates that the relative performance of electronic trading systems deteriorates during periods of higher price volatility.

As electronic screen trading can facilitate different levels of transparency through the electronic limit order book, the second essay analyses the impact of electronic limit
order book transparency on market depth. The study exploits a unique institutional difference offered by the trading systems adopted by the SFE and New Zealand Futures and Options Exchange (NZFOE) in order to provide the first empirical evidence on this issue. The SFE’s electronic trading system disclosed limit order depth at the highest bid price and the lowest ask price only, while the NZFOE disclosed limit order depth at the three highest bid and three lowest ask prices. The proportion of the limit order book placed at the second and third best prices on the NZFOE is found to be thicker relative to the SFE. This result is robust to differences in trading volume, price volatility and the size of bid-ask spreads across the two exchanges. It is concluded that lower transparency on the SFE imparts additional execution risks and costs on limit order traders, which may discourage traders from placing limit orders at the second and third best prices.

Electronic trading systems have also facilitated the introduction of extended trading hours or overnight trading sessions on many exchanges. Hence the final essay in this dissertation examines overnight or ‘intranight’ trading behaviour. This is the first study to document intranight trading behaviour and, consistent with intraday research, provides evidence that there are at least three significant determinants of intranight trading behaviour: (i) information drawn from price behaviour in overseas markets (contagion effects); (ii) overseas information releases; and (iii) strategic behaviour by informed and liquidity traders. This implies that in order to facilitate price discovery and liquidity, it is important for markets to be open overnight when related markets are open or when overseas macroeconomic information is released. This study also documents a gradual widening in the quoted bid-ask spread during the overnight trading session, which is contrary to existing theory and prior research.