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PRICING OF SINGLE STOCK FUTURES OPTIONS IN SOUTH AFRICA

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ABSTRACT

"JSE tops all single stock futures markets" (Business Report, July 13, 2007). The Johannesburg Securities Exchange's (JSE) single stock futures market is the largest in the world. This research investigates the forecasting abilities of implied volatility models for South African single stock future options and warrants. Furthermore, the pricing premiums between the two derivative instruments are investigated, as this presents a potential arbitrage opportunity for the market makers of the warrants.

Historical volatility is used as a comparative forecast method to the implied models. The calculated historical and implied volatilities are compared retrospectively to the realised volatility to ascertain which forecasting methodology is superior. Inter-bank implied volatility for single stock futures options is compared to implied volatility for warrants with the same underlying shares to determine pricing premiums.

The simple historical volatility model is shown to be a better forecast of realised volatility for both derivatives. Warrants are charged at a significantly higher premium than what the market makers, amongst themselves, are willing to pay for the same underlying shares with single stock futures options.