ESTIMATING THE VOLATILITY OF DISCRETE STOCK PRICES

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ABSTRACT

This paper introduces an estimator of stock price volatility which eliminates, at least asymptotically, the biases that are caused by the discreteness of observed stock prices. Assuming that the observed stock prices are continuously monitored, an estimator is constructed using the notion of how quickly the price changes rather than how much the price changes. It is shown that this estimator has desirable asymptotic properties, including consistency and asymptotic normality. Also, through a simulation study, we show that it outperforms natural estimators for the low and middle priced stocks. Further, the simulation study demonstrates that the proposed estimator is robust to certain misspecifications in measuring the time between price changes.