



THE UNIVERSITY OF
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Department of Statistics

MASTER'S THESIS PRESENTATION

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Testing Asymptotical Variance Estimators in High Frequency
Financial Data Within One Trading Day

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ABSTRACT

Due to impact of market microstructure error, realized volatility fails when stock returns are sampled with high frequency. It's very important to estimate the variance of integrated volatility estimator. Variance provides us the access to the uncertainty and precision of our volatility estimator. It provides assistance in constructing confidence and testing hypothesis. The purpose of this paper is to investigate the asymptotic variance prediction and two scale variance estimator of volatility under the assumption of a continuous stochastic model (stochastic volatility model of Heston). In order to approach my purpose, I simulate $M=1000$ samples of a data generating process to estimate theoretical asymptotic variance and two scale asymptotic variance. I apply two time scales approach to estimate integrated volatility with noisy high-frequency data. At final step, I fit regression to seek for linear relationship between different asymptotic variance estimators after pre-averaging procedure, since local average actually reduce the noise by averaging over differences using a moving window.

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