



The University of Chicago
Department of Statistics

Seminars for Fourth Year Ph.D. Students

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Estimation of Leverage Effect with High Frequency Data

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ABSTRACT

Leverage effect is the name for the (usually negative) correlation between returns and volatility. Empirical evidence of this effect has been found in stock markets, where volatility tends to rise in response to bad news but fall in response to good news. This quantitative measure has important applications in option pricing and risk management. Although there is some work studying leverage effect in stochastic volatility models, no estimation of this effect has ever been studied with high frequency data. We propose an estimation of contemporaneous leverage effect under semi-martingale assumptions on the price processes. The asymptotic properties of the estimator are studied and simulation results are shown as well. Furthermore, we tested the accuracy of the estimation, which leads to the potential further study of this topic.