



The University of Chicago
Department of Statistics
Master's Seminar

YONGNING WANG
Department of Statistics
The University of Chicago

Joint Dynamics of Volatility and Liquidity

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ABSTRACT

This thesis focuses on the joint dynamics of the realized volatility and liquidity in the high-frequency financial markets. Full-information transaction cost(FITC) and bid-ask spread are used as measures of liquidity. Regression is used to provide evidence of correlation between these measures. Furthermore, we use Granger hypothesis test to investigate Granger-causality of the bivariate Vector Autoregressive models composed of realized volatility and liquidity measures, for several stocks from year 2002 to 2004. Our empirical results show that for those active stocks in our sample, the joint dynamics of volatility and different liquidity measures agree well. Unidirectional Granger causality from liquidity to volatility exists, and the predictive power of volatility on liquidity is insignificant. In the sense of Granger causality, subsequent volatility increases as former liquidity decreases.