



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics

MASTER'S THESIS PRESENTATION

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GARCH Analysis Based on Generalized Methods of Moments

THURSDAY, May 12, 2016, at 9:30 AM  
Jones 304, 5747 S. Ellis Avenue

ABSTRACT

GARCH Model is used to fix clustering variance time process. Traditionally, the inference and estimator for GARCH are based on MLE or QMLE methods, which rely on the presumptions for the residual distribution. However, in this project, I propose the methodology of GMM. I will give the naïve moment conditions and efficient moment conditions under the GMM framework for GARCH. Then, I will make comparisons with the MLE via Monte Carlo Simulation. Further, as a display of the power for GMM in GARCH process, I compare the GARCH-M model with additive outliers, under the framework of GMM and MLE, and show that, with the transformed moment conditions for GMM (called RGMM), the GMM for GARCH is partially more accurate. The extension of this topic will also go to the empirical analysis of securities in the US financial market. I will choose several representatives of stocks from the NYSE and make straightforward analysis with the introduced methodologies.

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