Master’s Thesis Presentation

Yifang Zhang
Department of Statistics
The University of Chicago

“Volatility Forecasting and VaR Performance: Insights from Emerging Markets”

May 1, 2024, at 10:30 AM
Jones 111, 5747 S. Ellis Avenue

Abstract

This thesis extends the analysis of Bams et al. (2017), which compared implied volatility (IV) and historical volatility (HV) models in estimating Value-at-Risk (VaR) across major indices, by applying these methodologies to the CSMAR Trading Data - Daily Stock Price & Returns dataset. Utilizing GJR-GARCH and adjusted IV models, this study assesses VaR performance on the Chinese stock market and incorporates a detailed analysis of parameter sensitivity to enhance the reliability of the forecasts. Over the dataset's available period, the models are evaluated using likelihood ratios, dynamic quantile tests, and statistical loss functions. Preliminary results are consistent with the original study, with the GJR-GARCH model providing more precise VaR forecasts than the adjusted IV model. This research not only confirms the significant role of model selection in financial risk management but also deepens our understanding of how parameter stability impacts volatility forecasting in emerging markets.