



THE UNIVERSITY OF
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Estimating Value at Risk under Different Innovation Distributions

FRIDAY, January 27, 2017, at 8:30 AM
Jones 304, 5747 S. Ellis Avenue

ABSTRACT

Financial asset returns are usually non-normal distributed, with heavy-tailed and skewed features. To get a more accurate VaR prediction, this paper incorporates these features into the innovations distribution assumptions. Six distributions are under consideration: normal, skew-normal, student-t, skew-t, generalized error distribution (GED), and skew-GED. This paper also compares the performance of univariate and multivariate GARCH models when estimating the conditional volatility. To evaluate the prediction performance, UC and CC tests are conducted for the back-testing period. Results from back-testing show that the skew-t distribution outperforms all other distributions under both 1% and 5% levels. The results also show that allowing for skewness and kurtosis (heavy left tails) generally produce more accurate VaR, and their effects are compensating. There is no evidence indicating that multivariate GARCH is better than its univariate version.

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