



THE UNIVERSITY OF
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Department of Statistics

MASTER'S THESIS PRESENTATION

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Department of Statistics
The University of Chicago

Different Approaches to Value-at-Risk

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Jones 111, 5747 S. Ellis Avenue

ABSTRACT

Referring to previous related work, we implement several different approaches for computing VaR of a univariate asset. First the concepts and techniques involved with this study is interpreted. Then there is a discussion about the details about Var-Cov, Historical Simulation, GARCH type models (GARCH(1, 1) and GARCH(1, 1)-t), and GPD method with their advantages and drawbacks pointed out. After that, those approaches are applied on the Hang Seng Index(HSI) and repeated on Dow Jones Industrial Average(DJIA). Then we compared each method based on the results of backtesting and violation rates. The GARCH type models (GARCH(1, 1) and GARCH(1, 1)-t) provides highly volatile quantile forecasting compared to other models. GPD model, which focus on the behavior of tail, is preferable especially at higher quantiles.

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