



THE UNIVERSITY OF
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Estimating Return Behaviors Using Extreme Value Theory

WEDNESDAY, May 11, 2016, at 8:30 AM
Jones 226, 5747 S. Ellis Avenue

ABSTRACT

Value at Risk is an ubiquitous and common measure of risk used in many financial application. This paper discusses the advantages and disadvantages of estimating Value at Risk using conventional approach, and introduces a new method, Extreme Value Theory, that proves to be superior than conventional methods. Using a real data set for illustration, we examines SP500 index to show how each method (both parametric and non-parametric) is appropriate or inappropriate to estimate the tail behaviors. Furthermore, we uses Amazon, Jet Blue, and Starbucks stocks to compare the performance of conventional methods and extreme value theory directly. A natural extension to test the extreme value theory threshold is conducted as well.

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