



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics  
**MASTER'S THESIS PRESENTATION**

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The University of Chicago

**Operational Risk Quantification Using Extreme Value  
Theory and Ruin Theory**

**TUESDAY, February 19, 2013, at 9:30 AM**  
110 Eckhart Hall, 5734 S. University Avenue

**ABSTRACT**

Risk management gained importance in the last decade due to the increase uncertainty in the market. Especially, large losses deserve special concern. Extreme value theory can play a major role in analysing such data. In the first part, Historical data is used to fit loss distributions. I choose the generalized Pareto distribution to fit the tail of loss distribution above the threshold and the truncated lognormal distribution to fit the body. Based on Monte Carlo Simulation, I calculate the mean and VaR for the aggregate loss and do sensitive analysis. The methods from the field of insurance can also play a fundamental role in quantitative analysis of risk. In the second part, I use three algorithms to simulate the probability of ultimate ruin and investigate their asymptotic efficiency.

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