



THE UNIVERSITY OF
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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**Empirical Evidence of Linear Link Function Between
Risk Levels of Value-at-Risk and Tail Value-at-Risk**

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ABSTRACT

Value-at-Risk (VaR) and Tail Value-at-Risk (TVaR) have become widespread risk measures used for risk control strategies both in academic literature and industries. This paper compares these two popular measures of risk and links them with two options focusing on the latter approach. Especially, based on Gouriéroux and Liu (2012), we try to find more empirical evidences of linearity between two risk levels $g(p) = p^*$ such that $\text{TVaR}(p) = \text{VaR}(p^*)$. We adapt unconditional VaR and TVaR in a historical approach and apply theoretical results to various settings of fourteen stock portfolios sorted by size, book-to-market ratio, and industry. By hypothesis testing, we observe again that this linearity relationship between the TVaR and VaR is a surprisingly common phenomenon for the stock return portfolios.

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