



THE UNIVERSITY OF
CHICAGO

Department of Statistics
MASTER'S THESIS PRESENTATION

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Distortion Risk Measure on Weakly Dependent Data

THURSDAY, February 20, 2014, at 9:30 AM
110 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Distortion risk measure is a risk measure that is related to the cumulative distortion function of return of some financial portfolio/position. The performance and property of its natural estimator in i.i.d. case has been studied widely. In this article, we demonstrate large sample properties of the natural estimator of distortion risk measures based on weakly dependent data. Then we apply the properties on the natural estimator which is a linear combination of order statistics. We derived the asymptotic statistical properties of the estimator of the distortion risk measure; we also gave out the consistent estimator for its asymptotic variance. To examine the behavior of the estimator, simulation was performed by GARCH sequence and AR-type stochastic volatility models that generating weakly dependent data are widely used in modeling financial time series. Furthermore, the performance of the estimator is also checked by bringing in real data analysis on some selected stocks and index downloaded from Yahoo Finance.

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