



THE UNIVERSITY OF  
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Kernel Estimation of Conditional Value-at-Risk

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Jones 111, 5747 S. Ellis Avenue

#### ABSTRACT

Conditional Value-at-Risk (CVaR) is a risk measure used in finance to evaluate the market risk associated with an asset or a portfolio. Without parametric assumptions on a dependent process, nonparametric procedure provides an efficient way to estimate conditional value-at-risk. In this paper, we present an asymptotic theory for kernel estimation of conditional value-at-risk, followed by bandwidth selection and bias correction. Then a simulation study is carried out in the widely used ARCH and GARCH models to illustrate the finite sample performance of the kernel estimates. Finally, the methodology is assessed through real data applications to daily returns of S&P 500 index and some stocks from Yahoo! Finance.