



THE UNIVERSITY OF
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Estimating Conditional Value-at-Risk Using Kernel Conditional
Quantile
Estimation

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ABSTRACT

Value-at-Risk (VaR) is a measure of the risk of loss for investments. And conditional Value-at-Risk (CVaR) is becoming more and more popular, since its measurement is conditioning on the information variables, such as the prices (or returns) of securities. In this article, we estimate the CVaR using the kernel conditional quantile estimation method, which has been demonstrated to be applicable to short-range and long-range-dependent processes. To evaluate the performance of this estimator, simulation studies are carried out for nonlinear TAR, ARCH and SV models, which generates weakly dependent data that are widely used in modeling financial time series. Also, the simulated ARCH and SV models have a heavier tail that is a common aspect of financial data. In the end, it is also examined by real data analysis implemented on the daily and monthly returns of several stocks and indices.