



The University of Chicago
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Master's Thesis Presentation

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**Semiparametric Inference of Discretely Sampled
Stable Lévy Processes**

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ABSTRACT

Many empirical studies have found that stochastic models driven by Gaussian processes have shortcomings in capturing financial time series data. In this study, we replace Gaussian processes with symmetric stable Lévy processes to conduct semiparametric inference. For the Lévy process stable index parameter, we apply maximum likelihood estimation, which gives us an asymptotically efficient estimator. For the volatility function in stochastic models, we use median-quantile estimation. The performance of the inference is tested in a simulation study and the inference result is applied to crude oil spot prices.