



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics

## MASTER'S THESIS PRESENTATION

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### Financial Time Series Analysis Using Quantile Curve Estimation and Cointegration Method

MONDAY, April 6, 2020, at 10:30:00 AM  
ZOOM MEETING, 5747 S. Ellis Avenue

#### ABSTRACT

This paper demonstrates two methods of investigating the financial time series data, specifically the stock market data. To enumerate, firstly, we use the quantile curve estimation method to visualize the change of price and price forecasts of the two indices in graphs. Additionally, we introduce the Johansen test for detecting a cointegrating relationship between two different stock indices. Prior to introducing these two methods, we study the underlying theorems and definitions such as Value at Risk, Quantile Regression, Vector autoregression and Vector Error Correction Model. For the empirical analysis, we analyze two individual stocks that are the two constituents of an Exchange-traded fund. Then using the introduced methodologies, we verify the assertion that for a risk-averse investor, investing in Exchange-trade fund is superior to investing in individual stocks in terms of risk and uncertainty.