THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

MASTER'S THESIS PRESENTATION

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Machine Learning for Stock Volatility Prediction

WEDNESDAY, April 26, 2023, at 2:45 PM
Zoom Meeting

ABSTRACT

Based on previous literature, which develops an automated risk forecas7ng system for a large panel data of S&P 100 stocks using 118 features and five machine learning algorithms, we aim to improve the performance of these five machine learning algorithms before combining them into the automated system. We define a more precise and comprehensive method for retrieving and cleaning the stock data. Then, we adjust those 118 features and fit the same five ML algorithms by keeping similar parameters as the original paper does but adding valida7on-step into the model selec7on for stock vola7lity predic7on. Given data with different 7me intervals, day, week, month, and quarter, we record the out-of-sample R^2 respec7vely and compare them to that of a benchmark VAR model. The result shows we improve the machine learning models performance given the out-of-sample R^2 explains more propor7on of the volality.