

Myong Jong (MJ) Shin

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Summary

I am a Ph.D. candidate in Economics with main research areas in time-series forecasting and evaluating models' predictive ability with statistical tests. I am an expert in time-series econometrics theory, machine learning, hypothesis testing, and programming in different languages. I seek to apply my background and intellectual curiosity to solve challenging problems in the industry and collaborate with others.

Skills Summary

- Economics: Financial econometrics, Macroeconometrics.
- Statistics: Supervised Machine Learning methods (Dimension reduction, Regularization, Ensemble Methods, Neural Net), Model evaluation, Hypothesis testing, Predictive modeling, Regressions (linear, non-linear, nonparametric).
- Programming: Python (NumPy, scikit-learn, matplotlib, pandas, TensorFlow), STATA, R, MATLAB, C/C++, MS Excel, MS word, High-performance computing (Linux), LaTeX.
- Data experience: Bloomberg, DataStream, Wharton Research Data Services.
- Language: Fluent in English (latest TOEFL 117/120) and Korean.

Selected research papers

Title: Empirical investigation on supervised machine learning models predicting equity risk premium

Started in January 2020 and ongoing ([Job market paper](#))

- Examined the predictive performance of ML (Machine Learning) models for forecasting firm-level equity risk premiums in the US stock market using data from CRSP, January 1960 to December 2019.
- Forecasted excess returns with Principal component regression, Partial least squares, LASSO, Ridge, Elastic net, and Random Forest ML models by using python libraries and MATLAB.
- Evaluated models for their predictive ability using two tests novel to machine learning and empirical finance research.
 - (1) Testing the null hypothesis of a model's mean squared error (MSE) being the smallest among all other models' MSEs.
 - (2) Testing the null hypothesis of a model's *conditional* MSE being the smallest among all other models' conditional MSEs, given the state of the economy, such as recession periods, to consider the changing nature of a model's predictive ability across time.
- Found models with good predictability for different US industry sectors. E.g., the random forest has a good out-of-sample fit for firms in *Finance, Insurance, and Real Estate* sector, but a bad fit for *Public Administration and Nonclassifiable* sector.

Title: Test of equal predictive ability with HAR standard error for forecasting US industrial production growth and inflation

Started in September 2021 and ongoing

- Examined the predictive performance of autoregressive distributed lag (ADL) models for forecasting economic growth and inflation with different predictors.
- Used heteroscedasticity and autocorrelation robust (HAR) standard error to test the models' predictive ability; the HAR standard error is used to improve the size and power of the test when the sample size is small.
- Using US monthly FRED-MD data, we see more conservative test results compared to results in previous research papers, with fewer ADL models having better predictability than the benchmark autoregressive model.

Education

Indiana University Bloomington (Indiana University Graduate Assistantship, H. Crawford Graduate Top-up Fellowship)

Ph.D. Candidate in Economics (F1-visa, STEM certified 3-year OPT)
Master of Arts in Economics

September 2016 – expected June 2023
September 2016 – March 2019

Soongsil University

Bachelor of Arts in Economics (received Soongsil Scholarship)

March 2010 – December 2015

Experience

Teaching experience at Indiana University Bloomington

September 2018 – May 2022

- Associate Instructor: Taught undergraduate business statistics courses and a graduate financial econometrics course which include giving lectures, designing tests and assignments, and grading.
- Teaching Assistant: Provided recitations for an advanced econometrics course for Ph.D. students.

Leadership experience at ROK army

August 2011 – May 2013

- Participated in various field training exercises responsible for leading squads and handling radio communications.
- Sergeant, the 30th Armored Brigade, Republic of Korea (ROK) Army.