YAOHAN CHEN

Anhui University, Hefei, China

http://yaohanchen.com

yaohan.chen@ahu.edu.cn

Contact Information

School of Big Data and Statistics
Anhui University
111 Jiulong Road, Hefei, 230093
Handphone/Cell: (+65) 9162 8969
Wechat (微信): Chenyhgzs

Personal Information

1992/03/07, Male, Citizen of the People's Republic of China

Work Experience

- 2023-now School of Big Data and Statistics, Anhui University, Assistant Professor

Education

- Ph.D. in Economics, Singapore Management University, 2022
- M.A. in Economics, Wuhan University, 2017
- B.Sc. in Mathematics, Central China Normal University, 2014

Teaching and Research Fields

Primary fields: Bayesian Econometrics, Empirical Asset Pricing
Secondary fields: Machine Learning, Computational Economics

Teaching Experience

- TA for STAT151 *Introduction to Statistical Theory*, Instructor: Professor Chow Hwee Kwan. Term: Academic Year 2018-19 Term 2, Singapore Management University.
- TA for ECON206 *Undergraduate Game Theory*, Instructor: Assistant Professor Jiangtao Li. Term: Academic Year 2019-20 Term 1, Singapore Management University.
- TA for DSA201 *Statistical Inference for Data Science*, Instructor: Associate Professor (Education) Daniel P. A. Preve. Term: Academic Year 2019-20 Term 2, Singapore Management University
- TA for ECON 681 Microeconomics Analysis (Master), Instructor: Professor Shurojit Chatterji. Term: Academic Year 2020-21 Term 1, Singapore Management University.
- TA for ECON 601 Microeconomics (Ph.D.), Instructor: Professor Takashi Kunimoto. Term: Academic Year 2020-21 Term 1, Singapore Management University.
- TA for ECON 670 and ECON 671 Financial Econometrics I & II (Master of Financial Economics), Instructor: Professor Jun Yu. Term: Academic Year 2020-2021 Term 2, Singapore Management University.
- TA for ECON 601 Microeconomics (Ph.D.), Instructor: Professor Takashi Kunimoto. Term: Academic Year 2021-22 Term 1, Singapore Management University.
- TA for ECON 696 Mathematical Methods for Economic Dynamics (Master & Ph.D.), Instructor: Professor Takashi Kunimoto. Term: Academic Year 2021-22 Term 1, Singapore Management University.
- Instructor for Time Series Analysis (Undergraduate). Term: Academic Year 2023-24 Term 1, Academic Year 2024-25 Term 1, Anhui University.
- Instructor for Introductory Econometrics (Undergraduate). Term: Academic Year 2023-24 Term 2, Anhui University.

- Instructor for Bayesian Statistics (Undergraduate). Term: Academic Year 2024-25 Term 1, Anhui University.

Research Experience

- Research Assistant for Professor Danyang Xie (Master Supervisor, HKUST), 2015-2016.
- Research Assistant for Assistant Professor Tao Zeng (Associate Professor, Zhejiang University), 2016-2017.

Professional Activities

- Referee for *Journal of Econometrics*.
- Member of *the Econometric Society*.

Conference and Seminar Presentations

- The 8th Young Econometricians of Asia-Pacific Annual Conference, (Re-scheduled) June 11, 2023, Fudan University, Shanghai, China.
- 2022 China Forum of Bayesian Econometrics, December 3, 2022, Hunan University, Changsha, China.
- The 7th QILU Youth Forum, November 13, 2022, Shandong University, Jinan, China.
- Singapore Management University Weekly Econometrics workshop.
- The 2019 Financial Econometrics and New Finance Conference, June 10, 2019, Zhejiang University, Hangzhou, China.

Honors, Scholarships, and Fellowships

SMU Interdisciplinary Doctoral Fellowship, 2017-2021.

Research Papers

"**Alternative Parametric Models for Spot Volatility in High Frequency: A Bayesian Approach**" (2024, Jointly in cooperation with **Professor Jun Yu** and **Professor Jia Li**. Job Market Paper)

Abstract:
This paper proposes several alternative parametric models for spot volatility in high frequency, depending on whether or not jumps, seasonality, and announcement effects are included. Together with these alternative parametric models, nonlinear non-Gaussian state-space models are introduced based on the fixed-k estimator of spot volatility of Bollerslev, Li, and Liao (2021). According to Bollerslev, Li, and Liao (2021), the log fixed-k estimator of spot volatility equals the true log spot volatility plus a non-Gaussian random variable. Bayesian methods are introduced to estimate and compare these alternative models and to extract volatility from the estimated models. Simulation studies suggest that the Bayesian methods can accurately estimate the parameters, select the true model, and extract volatility. Empirical studies using high-frequency market indexes and individual stock prices reveal several important results. As an application of extracting volatility, we quantify the strategic value of information.

"**Sparse Structure of Stochastic Discount Factor in the Chinese Stock Market: A Bayesian Interpretable Machine-learning Approach**" (2022)

Abstract:
This paper reviews a Bayesian interpretable machine-learning method proposed by Kozak, Nagel, and Santosh (2020). We show how the method can link two strands of literature, namely the literature on empirical asset pricing and the literature on statistical learning. Based on a recently developed data-cleaning technique, we obtain 123 financial and accounting cross-sectional equity characteristics in the Chinese stock market. When applying the method of Kozak, Nagel, and Santosh (2020) to the Chinese stock market, we find that it is futile to summarize the stochastic discount factor (SDF) in the Chinese stock market as the exposure of several dominant cross-sectional equity characteristics in-sample. A

cross-validated out-of-sample analysis further supports this finding.

"Do Volatility-Managed Portfolios Work? Empirical Evidence from the Chinese Stock Market" (2021)

Abstract:
Using data from the Chinese stock market, we have found that the main empirical findings in Moreira and Muir (2017) break down. Based on the new empirical findings, we exploit a comprehensive set of 99 equity strategies in the Chinese stock market to analyze the economic value of managed portfolios. Based on these 99 equity trading strategies, we find that there exists no systematic gain from scaling the original portfolios using volatility. Our empirical results suggest that one should be careful to use volatility-managed portfolios in practice as the expected performance gains are rather limited.

"**How is Fund Investment Exposed to Stock-level Characteristics? Evidence from U.S. Equity Market**" (2021, Jointly in cooperation with **Assistant Professor Xiaobin Liu** and **Associate Professor Tao Zeng**. In progress)

Abstract:
This paper documents how the Instrumented Principal Component Analysis (IPCA) is applied in uncovering the driving factors associated with firm-level characteristics to which fund managers holding these stocks are exposed. IPCA is a specific statistical learning methodology featuring both latent factor structure and dynamic factor loading which accordingly can simultaneously handle dimensionality and time-varying parameter concerns for financial econometric modeling. Linear structure is retained and therefore the corresponding statistical hypothesis testing is possible to be implemented. In this paper, we first construct fund-level indices as the measure of exposure of each fund to firm-level characteristics (commonly referred to as ``anomalies" in accounting or finance literature) and document the empirically stylized facts revealed from the constructed dataset. With the constructed fund-level index, we apply the novel IPCA methodology along with our proposed regularized IPCA to discuss how the mutual fund returns are exposed to characteristics of managed assets (specifically those firm-level characteristics of assets held by a fund).

"Estimating Expected Return Function Nonparametrically: Based on BART" (2020)
(This is perhaps a permanent working paper)

Abstract:
This paper documents the empirical Implementation of estimating the expected return function nonparametrically using the Bayesian Additive Regression Tree (BART) method. Within this newly introduced nonparametric framework, general non-linearity is allowed for the specification of the model when the dimension of covariates used for prediction is large and the underlying non-linear relationship is hard to detect. By applying BART, we document which firm-level characteristics should be adopted as the most influential predictors for estimating expected return and the out-of-sample performance of BART for prediction as well. I have also extended the whole framework to the China stock market and the global financial market for empirical comparison. Our finding suggests that (i) the performance of BART approximates the results obtained from neural-network, which is a specific machine-learning method documented with dominating out-of-sample prediction performance; (ii) The machine-learning-based method (specifically BART) surely outperforms the benchmark linear model, but in terms of investment strategy constructed from prediction, there is not much significant difference between machine-learning methods and linear benchmark; (iii) China stock market is relatively more predictable in comparison to the U.S. stock market in terms of out-of-sample prediction-accuracy measure.

Computer Skills

R, MATLAB, C / C++ (Basic), Python, SAS

Languages

Mandarin Chinese (Native), English (Fluent)