KANGYING ZHOU

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EDUCATION

- Ph.D. in Financial Economics, Yale University, 2019–2025 (Expectd), Advisor: Professor Bryan Kelly
- M.S. in Financial Mathematics, The University of Chicago, 2016–2017, Advisor: Professor Dacheng Xiu
- B.S. in Economics, Huazhong University of Science and Technology, 2012–2016

PROFESSIONAL WORK EXPERIENCE

- Bloomberg LP
  Data Scientist in Chief Technology Office, 2019
- Sheffield Asset Management, L.L.C.
  Quantitative Analyst, 2018
- The University of Chicago Booth School of Business
  Research Assistant for Professor Dacheng Xiu, 2017-2019

AWARDS AND FELLOWSHIPS

- CIRF Lindner College of Business Research Excellence Award (2022)
- Hong Kong Conference for Fintech, AI, and Big Data in Business the Best Paper Award (2022)
- Stanford Institute for Theoretical Economics (SITE) Travel Grant (2022)
- Wolfe Annual Global Quantitative and Macro Investment Conference Travel Grant (2022)
- Adam Smith Workshop Travel Grant (2022)
- Yale Graduate Fellowship (Aug 2019– Jul 2024)

PUBLICATION

- "The Virtue of Complexity in Return Prediction" (with Bryan Kelly and Semyon Malamud), 2023
  Journal of Finance

  Much of the extant literature predicts market returns with "simple" models that use only a few parameters. Contrary to conventional wisdom, we theoretically prove that simple models severely understate return predictability compared to "complex" models in which the number of parameters *exceeds* the number of observations. We empirically document the virtue of complexity in US equity market return prediction. Our findings establish the rationale for modeling expected returns through machine learning.

WORKING PAPER

- "The Virtue of Complexity Everywhere" (with Bryan Kelly and Semyon Malamud), 2023

  We investigate the performance of *non-linear* return prediction models in the high complexity regime, i.e., when the number of model parameters exceeds the number of observations. We document a "virtue of complexity": Return prediction R^2 and optimal portfolio Sharpe ratio generally increase with model parameterization in all asset classes that we study (US equities, international equities, bonds, commodities, currencies, and interest rates). The virtue of complexity is present even in extremely data-scarce environments, e.g., for predictive models with less than twenty observations and tens of thousands of predictors. The empirical association between model complexity and out-of-sample model performance exhibits a striking consistency with theoretical predictions.

- "Robust Prediction after Structural Breaks", 2023

  This study proposes a new modeling approach for time series prediction after structural breaks. The method incorporates a time trend variable into non-linear predictive models to effectively handle coefficient variations over time. By optimizing bias-variance tradeoff, this approach significantly improves prediction accuracy and optimal portfolio Sharpe ratio compared to both linear and non-linear standard models. Results of Monte Carlo simulations are presented to examine the finite sample performances of the proposed procedures. Empirically, the paper demonstrates improved prediction performance in U.S. equity market return. These findings establish the rationale for the robustness of machine learning predictions with structural breaks.

WORK IN PROGRESS

- "Vector Autoregressions with Virtue of Complexity", 2023
- "Monetary Policy Transmission Channel via News", 2023

TEACHING EXPERIENCE

Yale School of Management, *Teaching Assistant*

- Empirical Asset Pricing: Professor Bryan Kelly (Ph.D., Fall 2021)
- Financial Econometrics and Machine Learning: Professor Bryan Kelly (MBA, Fall 2022, Fall 2023)

PRESENTATION

2023 *Conference*: AEA Annual Meeting at New Orleans, Deep Learning for Solving and Estimating Dynamic Models (DSE) at Lausanne
Seminar: Yale University, Hong Kong University of Technology

2022 *Conference*: Stanford Institute for Theoretical Economics (SITE) on "New Frontiers in Asset Pricing", SFS Cavalcade at University of North Carolina, WOLFE Annual Global Quantitative and Macro Investment Conference, China International Risk Forum (CIRF), Hong Kong Conference for Fintech, AI, and Big Data in Business, XXI Symposium at Paderborn University, Research Symposium on Finance and Economics (RSFE)

Seminar: The cole polytechnique fdrale de Lausanne (EPFL), Yale University(×2)

2021 *Seminar*: Yale University, National Academy of Economic Strategy

SERVICE

Discussion

2022 "Does the Mad Money Show cause investors to go madly attentive?" (Kryzanowski and Rouhghalandari) at Research Symposium on Finance and Economics (RSFE)

"E-commerce Livestream, Social Interaction, and Equity Returns" (Chang and Cong) at China International Risk Forum (CIRF)

Referee

- U.S. National Science Foundation (NSF)
- Journal of Banking and Finance
- Emerging Markets Review

PARTICIPATION

2023 Deep Learning for Solving and Estimating Dynamic Models (DSE) Summer School

Ken Singleton Celebration at Stanford Graduate School of Business

2022 Adam Smith Asset Pricing Conference at INSEAD

Macro Finance Society Virtual Summer School

2021 NBER Entrepreneurship Research Boot Camp

NBER Economics of Artificial Intelligence (AI) Conference

2020 Princeton Financial Economics of Insurance Workshop

REFERENCES

- Prof. Bryan Kelly, Professor of Finance at the Yale School of Management, NBER Research Fellow, Associate Director of SOMs International Center for Finance, Head of Machine Learning at AQR Capital Management. bryan.kelly@yale.edu, 203-432-2221
- Prof. Dacheng Xiu, Professor of Econometrics and Statistics, Booth School of Business, University of Chicago. dacheng.xiu@chicagobooth.edu, 773-834-7191
- Prof. Semyon Malamud, Swiss Finance Institute Associate Professor at EPFL, CEPR Research Fellow. semyon.malamud@epfl.ch, +41 21 693 0137
- Prof. Stefano Giglio, Professor of Finance at the Yale School of Management, NBER Research Associate, CEPR Research Affiliate. stefano.giglio@yale.edu, 203-432-3373
- Prof. Tobias J. Moskowitz, Dean Takahashi 80 B.A., 83 M.P.P.M. Professor of Finance at the Yale School of Management, NBER Research Associate, Consultant and Principal at AQR Capital Management. tobias.moskowitz@yale.edu, 203-436-5361