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Norman (Xuxi) Guo

Research Interests

- FinTech: AI, Machine Learning, Neural Networks
- Investments: Hedge Funds, Mutual Funds, Portfolio Management
- Corporate Finance: Financial Analysts

Teaching Interests

- FinTech: Blockchain, Machine Learning, Big Data Analytics
- Investments, Corporate Finance

Education

2016-Present **Ph.D. in Finance**, *Georgia State University*, Atlanta, GA.
2013–2015 **M.S. in Finance**, *Bentley University, MA.*
2009–2013 **B.S. in Finance**, *South China Normal University*, China.

Publication

- **Hedging Performance of Multiscale Hedge Ratios**, *with Jahangir Sultan, Antonios Alexandridis, and Mohammad Hasan*, *Journal of Futures Markets*, 2019, 39(12):1613–32.

Working Papers

*Summaries available at the end

- **Decoding Mutual Fund Performance: Dynamic Return Patterns via Deep Learning (Job market Paper)**.
- **Can Machines Understand Human Decisions? Dissecting Stock Forecasting Skill**, *with Sean Cao, Houping Xiao, and Baozhong Yang.*
  Semi-finalist of the FMA 2021 Best Paper in FinTech
  Presentations: Hawaii Accounting Research Conference 2022 (scheduled), Renmin University (scheduled), Baruch College (scheduled), FMA 2021 (scheduled), Southern Finance Association meeting 2021 (scheduled), Nankai University, Fudan University, University of Arizona, Georgia State University, University of Georgia, Iowa State University, Xiamen University, Huazhong University of Science and Technology, Beijing University, Atlanta PhD Consortium, Shanghai Jiaotong Univeristy, CHUK-Shenzhen, University of Minnesota
- **The Impact of AI Adoption on Hedge Fund Performance**, *with Zhen Shi.*
  Presentations: Global Finance Association meeting 2021, FMA 2021 (scheduled), Southern Finance Association meeting 2021 (scheduled)
- **Why do actively managed mutual funds hold ETFs? Evidence on liquidity management**.
  Presentation: FMA 2019, Georgia State University

Selected Work in Progress

- **What do Buy Side Analysts Say? Evidence from Hedge Funds**.

Teaching Experience

2021-Present **Instructor of Blockchain and Business Disruption**, *Georgia State University*.

- Blockchain Technologies, Cryptocurrencies, Ethereum and Programming

2019-Present **Instructor of Corporate Finance**, *Georgia State University*.

2018–2019 **Teaching Assistant**, *Georgia State University*.

- Blockchain and Business Disruption(Fall 2018)

Fellowships and Awards

2021 **FMA Semi-finalist of the Best Paper in FinTech**.

2021 **Charles A. William Scholarship**, *J. Mack Robinson College of Business, GSU*.

2021 **GTA Teaching Excellence Award**, *J. Mack Robinson College of Business, GSU*.

2020 **Planas Family Ph.D. Scholarship**, *J. Mack Robinson College of Business, GSU*.

2018 **GSU Doctoral Student Travel Grant**.

2018-Present **CEAR Scholarship**, *GSU*.

2013 **National Scholarship of China**.

Conference and Seminar Presentations

2022 Hawaii Accounting Research Conference (scheduled)

2021 FMA (scheduled), Southern Finance Association meeting (scheduled), Global Finance Association meeting, Atlanta PhD Consortium

2020 Georgia State University

2019 FMA

2018 Georgia State University

Professional Services

Chair FMA 2019, FMA 2020

Discussant Research Conference on Financial Economics in Honor of Jayant Kale 2020, FMA 2021, FMA 2020, FMA 2019

Reviewer FMA 2019, FMA 2020

Professional Affiliations

- American Finance Association
- Financial Management Association

Credentials & Skills

Business CFA Level III Candidate, SAS (Certified)

Computer TensorFlow, PyTorch, Python, SAS, Stata, LATEX, Matlab, Eviews

Work Experience

2015 **Curriculum Lead and Lecturer of CFA Exam**, *Utoollearning Inc.*, Waltham, MA.

2014–2015 **Financial Analyst**, *CHB Skyline*, Weston, MA.

References

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Summaries of Research Papers

- **Decoding Mutual Fund Performance: Dynamic Return Patterns via Deep Learning (Job market Paper)**.
  In this paper, we apply a state-of-the-art deep learning model to understand and predict dynamic patterns in mutual fund returns. The model predicts sequences of future returns and offers interpretable insights. A long-short portfolio based on the model's prediction generates a 2.8% annualized Carhart 4-factor alpha. This abnormal performance is persistent for up to four years. The model improves the prediction of future fund alphas substantially by increasing the R-squared by more than 25% in a predictive regression that includes other fund skill measures as well as fund and time fixed effects. By decomposing the model's power into time-series and cross-sectional components, we find that time-series patterns contribute to more than half of the model's performance. Furthermore, the model predicts far more accurately for a group of funds that are smaller, more liquid, and less volatile, suggesting that such funds adopt more stable strategies. Finally, we find that the model captures dynamic features of mutual fund strategies related to company fundamentals and macroeconomic states. Fund returns are most informative when they happen after earnings announcements for stocks held by the funds. Historical performance and macroeconomic variables are the most important determinants of future fund return patterns and performance.

- **Can Machines Understand Human Decisions? Dissecting Stock Forecasting Skill**, *with Sean Cao, Houping Xiao, and Baozhong Yang.*
  Human decisions are important but difficult to understand or predict. This paper uses machine learning models, which are adept at capturing nonlinear and complex relations, to analyze analysts' forecasting decisions and determine their skill. Machine-identified skilled analysts persistently outperform human expert-picked star analysts. Machines rely on non-linear interactions of analyst characteristics, such as past skill and efforts, to identify analyst skill, in contrast with human experts, who lean more on relation-based information such as brokerage size. The puzzle of post-analyst revision drifts can be explained by our model in that such drifts are concentrated in machine-picked skilled analysts. Our approach also allows the formation of a "smart" analyst consensus that aggregates the forecasts of machine-picked skilled analysts. Investment strategies based on revisions of machine-identified skilled analysts and the smart analyst consensus both generate significant abnormal returns. Overall, we propose an interpretable machine learning framework that can be used to analyze and evaluate human opinions in general settings such as online discussions, political forecasts,and macroeconomic outlooks.

- **The Impact of AI Adoption on Hedge Fund Performance**, *with Zhen Shi.*
  We examine the impact of AI adoption on hedge fund performance. We find that AI adoption improves hedge fund performance by 2.64% annually. The increase in performance is more pronounced for funds that employ a greater number of AI employees or AI employees with a Ph.D. degree. AI use also reduces fund risk and increases shape ratio and information ratio. The adoption of AI is associated with a greater number of holdings in the portfolio and less concentration in the local stocks. The findings improve our understanding of the determinants of hedge fund performance in the era of technology.

- **Why do actively managed mutual funds hold ETFs? Evidence on liquidity management**.
  We uncover a particular type of trading strategy of exchange traded funds (ETFs) undertaken by investment managers — equity fund managers use index ETFs for liquidity management. Our results show that funds that do not use index ETFs exhibit lower returns when they experience fund flow. The performance of funds that use index ETFs, however, is independent of investor's liquidity demands. We also find that index ETFs can help attenuate cash sensitivity on both fund inflow and outflow. However, this effect of relief on cash disappear during market downturn.

- **Hedging Performance of Multiscale Hedge Ratios**, *with Jahangir Sultan, Antonios Alexandridis, and Mohammad Hasan*, Journal of Futures Markets 39(12):1613–32.
  In this study, we combine the wavelet multiscale model to improve the hedging performance of multiple classes of assets. The wavelet transformation decomposes time-series data into orthogonal components with different frequencies (scales) to accommodate structural changes, discontinuity, and regime shifts. The hedging performance is further improved after combining neural network. Based on the in-sample and out-of-sample portfolio variances, the wavelet network model produces the lowest variances. Overall, the wavelet multiscale model and neural network offer improvements over traditional hedging models.