

Zequan Li

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EDUCATION

Stevens Institute of Technology

Doctor of Philosophy in Financial Engineering

Hoboken, NJ

Aug. 2019 – Expected May 2025

New York University Tandon School of Engineering

Master of Science in Financial Engineering

Brooklyn, NY

Aug. 2016 – May 2018

University of Rhode Island

Bachelor of Science in Finance & Applied Math

Kingston, RI

Sept. 2014 – Dec 2015

Zhongnan University of Economics and Laws

Bachelor of Science in International Finance

Wuhan, China

Sept. 2012 – June 2016

RESEARCH INTEREST

Interpretable Machine Learning Method in Finance, Empirical Asset Pricing, Portfolio Management, Algorithmic Trading

WORKING PAPERS

Interpreting Cross-Section Returns of Machine Learning Models: Firm Characteristics and Moderation Effect through LIME

Co-author(s): Zequan Li, Xiaoxia Lou, Ying Wu, Steve Yang

Abstract: This study introduces a novel framework to interpret machine learning asset pricing models through the Local Interpretable Model-agnostic Explanations (LIME) method. This methodology illuminates how the inclusion of LIME local coefficients, representing the interaction among characteristics within ML models, modifies the relationship between a firm characteristic and stock returns. The empirical results underscore the significance of incorporating moderation effects into portfolio analysis. Our results present that certain firm characteristics exhibit varying long-short portfolio performance across LIME groups, suggesting their predictive power is specific to certain asset segments. These findings deepen our understanding of the complexities in cross-sectional stock returns, uncovering the detailed dynamics between firm characteristics and their return effects, and distinguishing our research from existing studies.

Scheduled Presentations: FMA(October 2024), SFA(November 2024), AFA Poster Session(January 2025)

Interpreting Firm Characteristic Behaviors In Empirical Asset Pricing

Author: Zequan Li

Abstract: This study introduces an innovative framework to interpret the behaviors of firm characteristics in predicting expected returns through machine learning models, directly addressing the challenges of transparency and interpretability. Our approach utilizes the Local Interpretable Model-Agnostic Explanations (LIME) to evaluate firm characteristics based on their statistical significance and behaviors—linearity, independence, insignificance, and interaction—offering a novel perspective on their predictive roles. Empirical findings demonstrate a complex interplay among these behaviors, with interaction effects playing a pivotal role, thus challenging the traditional emphasis on linear and independent influences in asset pricing models. Our research provides new insights into the mechanisms of machine learning predictions in asset pricing, paving the way for further exploration into the economic rationale behind data-driven findings and enhancing understanding of complex asset pricing dynamics.

PUBLICATIONS

Li, Z., & Tourin, A. (2022). A finite difference scheme for pairs trading with transaction costs. *Computational Economics*, 60(2), 601–632.

WORK IN PROGRESS

Attention Network Based Asset pricing Model

CONFERENCES

2025 AFA Annual Meeting PhD Student Poster Session, AFA Travel Grant Award	San Francisco, CA <i>January 2025</i>
2024 SFA Annual Meeting Session: Corporate Innovation and Machine Learning	Palm Beach Gardens, FL <i>November 2024</i>
2024 FMA Annual Meeting Session: Machine Learning Application in Asset Pricing	Grapevine, TX <i>October 2024</i>
Global Graduate Student Summer Forum Outstanding Performance Award	Beijing, China <i>July 2024</i>
AI Era in Finance Paper Presenter	New York, NY <i>June 2024</i>
INFORMS Annual Meeting Poster Presenter	Phoenix, AZ <i>October 2023</i>
AMS 2023 Fall Eastern Sectional Meeting Presented by co-author	Buffalo, NY <i>September 2023</i>
LMDE Doctoral Consortium Paper Presenter	Syros, Greece <i>June 2023</i>

TEACHING EXPERIENCE

Instructor at Stevens Institute of Technology

QF104 Data Management in R	Undergraduate Course
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Recitation Leader at Stevens Institute of Technology

QF343R Intro to Stochastic Calculus Recitation	Undergraduate Course
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Teaching Assistant at Stevens Institute of Technology

QF112 Statistics Quantitative Finance	Undergraduate Course
FE621 Computational Methods in Finance	Graduate Course
FA590 Statistical Machine Learning	Graduate Course
FE630 Portfolio Theory and Applications	Graduate Course
FE610 Stochastic Calculus for Financial Engineering	Graduate Course
FE543 Introduction to Stochastic Calculus for Finance	Graduate Course

Teaching Assistant at New York University Tandon School of Engineering

FRE6233 Option Pricing and Stochastic Calculus	Graduate Course
FRE6083 Quantitative Method in Finance	Graduate Course
FRE6091 Financial Econometrics	Graduate Course

PROFESSIONAL SERVICES

Referee: Emerging Market Review, ACM Computing Surveys

Conference Discussant: SFA2024 Annual Meeting

Professional Memberships: American Finance Association, INFORMS, Financial Management Association, European Financial Association, Southern Finance Association

INDUSTRY EXPERIENCE

Acadian Asset Management

Boston, MA

Quantitative Research Summer Intern, Global Equity Research

June. 2023 – Aug. 2023

Jennison Associate

New York, NY

Quantitative Research Summer Intern, Custom Solution Group

June. 2022 – Aug. 2022

PGIM Quantitative Solutions(QMA)

Newark, NJ

Quantitative Research Summer Intern, Global Multi-Asset Solutions

June. 2021 – Aug. 2021

REFERENCES

Steve Yang (co-chair)

Associate Professor

School of Business

Stevens Institute of Technology

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Ying Wu (co-chair)

Associate Professor

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Xiaoxia Lou

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University of Delaware

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Thomas Lonon

Teaching Associate Professor

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