

Zequn 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

Zhongnan University of Economics and Laws

Bachelor of Science in International Finance

Wuhan, China

Sept. 2012 – June 2016

University of Rhode Island

Bachelor of Science in Finance

Kingston, RI

Sept. 2014 – Dec 2015

University of Rhode Island

Bachelor of Science in Applied Mathematics

Kingston, RI

Sept. 2014 – June 2016

RESEARCH INTEREST

- Empirical Asset Pricing
- Interpretable Machine Learning Method in Finance

WORKING PAPERS

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

Co-author(s): Zequn 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.

Interpreting Firm Characteristic Behaviors In Empirical Asset Pricing

Co-author(s): Zequn Li, Ying Wu, Steve Yang

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.

CONFERENCES

AI Era in Finance	New York, NY
<i>Paper Presenter</i>	<i>June 2024</i>
INFORMS Annual Meeting	Phoenix, AZ
<i>Poster Presenter</i>	<i>October 2023</i>
LMDE Doctoral Consortium	Syros, Greece
<i>Paper Presenter</i>	<i>June 2023</i>

PROFESSIONAL ASSOCIATIONS

American Finance Association	<i>Member</i>
INFORMS	<i>Member</i>
Financial Management Association	<i>Member</i>
European Financial Association	<i>Member</i>

TEACHING EXPERIENCE

Instructor at Stevens Institute of Technology

QF104 Data Management in R	<i>1 Credit Undergraduate Course</i>
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Recitation Leader at Stevens Institute of Technology

QF343R Intro to Stochastic Calculus Recitation	<i>1 Credit Undergraduate Course</i>
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Teaching Assistant at Stevens Institute of Technology

FE621 Computational Methods in Finance	<i>3 Credit Graduate Course</i>
QF112 Statistics Quantitative Finance	<i>3 Credit Undergraduate Course</i>
FA590 Statistical Machine Learning	<i>3 Credit Graduate Course</i>
FE630 Portfolio Theory and Applications	<i>3 Credit Graduate Course</i>
FE610 Stochastic Calculus for Financial Engineering	<i>3 Credit Graduate Course</i>
FE543 Introduction to Stochastic Calculus for Finance	<i>3 Credit Graduate Course</i>

Teaching Assistant at New York University Tandon School of Engineering

FRE6233 Option Pricing and Stochastic Calculus	<i>3 Credit Graduate Course</i>
FRE6083 Quantitative Method in Finance	<i>3 Credit Graduate Course</i>
FRE6091 Financial Econometrics	<i>3 Credit Graduate Course</i>

INDUSTRY EXPERIENCE

Acadian Asset Management	Boston, MA
<i>Quantitative Research Summer Intern, Global Equity Research</i>	<i>June. 2023 – Aug. 2023</i>
<ul style="list-style-type: none">• Conducted in-depth quantitative research on alpha signals, focusing on the Return Earnings Gap and the predictive nature of the term structure for stock returns, to enhance the understanding of market dynamics.• Implemented rigorous back-testing and utilized financial analysis methods such as Decile Sort Portfolios and Fama-Macbeth Regressions to verify the models' robustness and investigate complex financial phenomena.	

- Articulated intricate data insights effectively through comprehensive reports and presentations, facilitating understanding of research findings.

Jennison Associate

New York, NY

Quantitative Research Summer Intern, Custom Solution Group

June. 2022 – Aug. 2022

- Conducted research on the response of Small/Large Cap and Value/Growth stocks and Barra risk factor returns to changes in macroeconomic variables.
- Analyzed the statistical properties and time-series patterns of macroeconomic variables (Term Spread, Inflation, Default Spread, and VIX), and their correlations with the Russell Index and Barra risk factor returns.
- Conducted historical comparisons of current macroeconomic conditions, assessing potential impacts on equity market performance.

PGIM Quantitative Solutions(QMA)

Newark, NJ

Quantitative Research Summer Intern, Global Multi-Asset Solutions

June. 2021 – Aug. 2021

- Investigated the impact of Central Bank communications (statements and speeches) encoded with growth/inflation signals on FX and Fixed Income relative value long/short investment strategies.
- Analyzed the statistical properties and time-series patterns of Central Bank communication signals and evaluated their correlations with existing factors and composites.
- Implemented Central Bank communication signals in FX and Fixed Income long/short models, testing different standardization methods and signal combinations.