Changlei Lyu

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RESEARCH INTERESTS

Empirical Asset Pricing; Machine learning & Statistical Learning; High Frequency Data; Empirical Corporate Finance with FinTech Methodology; NLP; ESG

EDUCATION

HKUST, PhD in FinTech, supervised by Prof. Yu Jialin and Prof. Li Yingying   **Sep.2020-**

Courses: Theoretical/Empirical Asset Pricing, Theoretical/Empirical Corporate Finance, Statistical Machine Learning, Continuous Time Finance, Econometrics, Advanced Deep Learning Architectures.

The Chinese University of Hong Kong, Shenzhen, MSc in Financial Engineering   **09/2016 - 11/2017**

Hong Kong University, HKU, MSc in IELM, Financial Engineering Track   **09/2015 - 11/2016**

Zhejiang University (ZJU), Department of Control Science and Engineering   **09/2011 - 06/2015**

-Bachelor of Engineering in Automation (Control Science).

PUBLICATION and WORKING PAPER

- **"How to Dominate the Historical Average",** with Kai Li, Yingying Li and Jialin Yu, ***Review of Financial Studies, forthcoming.***

  Abstract: We present a novel methodology for the out-of-sample forecast of the equity premium. Our predictive slope coefficient is a conservative constant, which has a lower bias than but the same variance as the zero slope employed by the historical average. We demonstrate that, theoretically and empirically, our method dominates the historical average in forecast performance. Our methodology establishes a simple yet powerful paradigm for exploiting the real-time equity premium predictability derived from a predictor. Applications of our method reveal that many predictors can forecast the equity premium, and that parameter estimates in previous studies add value to out-of-sample forecasts.

- **"Stock Co-jump Networks with Mixed Membership",** with Guoli Liu, Xinghua Zheng and Yingying Li

  Abstract: We build the stock co-jump networks based on the high-frequency data to study the linkage between stocks. We propose a new model to involve the stock's mixed membership structure and develop an unsupervised machine learning algorithm, Mixed-SCORE-DMP. We show that our machine learning algorithm is asymptotically consistent in estimating the mixed membership structures. Empirically, we find a statistically significant co-movement in the fundamentals of mixed membership firms. The purity of individual stocks has a strictly monotonic relationship with both volatility and the Sharpe ratio, and the peer momentum defined by the mixed membership has a stronger network momentum effect.

WORK IN PROGRESS

- **"Jumps, Overnight returns, Intraday Momentum, and Future Stock Returns".**
- **"Pay for Environment",** with Arthur Morris and Ruichao Zhu.
- **"Non-financial Incentives, Production Efficiency, and Pricing Firm's Green Actions".**

PRESENTATIONS

- The 2024 Inaugural Meeting of the Greater Bay Econometrics Study Group (Nov 2024, coauthor presented)
- The 8th National Financial Doctoral Academic Forum (Nov 2024, Participant)
- 2024 Asian Finance Association (AsianFA) Annual Conference (June 2024, Participant)
- 16th Annual SoFiE Conference, Rio de Janeiro, Brazil (June 2024)
- HKUST IAS-SBM Joint Workshop on Financial Econometrics in the Big Data Era (May 2024, coauthor presented)
- China International Conference in Finance (July 2023, Participant)

PROFESSIONAL EXPERIENCE

- **FinStaR Lab, HKUST, RA,** 04/2018～08/2020

  -Factor Modeling for Volatility, co-supervised by Prof. Yingying Li, Prof. Xinghua Zheng, Prof. Yi Ding

  Confirmed the common idiosyncratic volatility (CiV) factor in idiosyncratic volatility and stock volatility. Used the identified factor model in volatility forecasting and obtained more accurate predictions.

  -High-Frequency Trading (HFT) for Futures and Stocks, co-supervised by Prof. Xinghua Zheng

  Built HFT predictors by the consolidated intraday trade and level-1 quote data. Used various statistical machine learning methods to predict 5-second trade returns and directions: Ridge, Lasso, Random Forest Tree, Boosting, etc., and investigated which predictors are more effective in predicting returns.

- **China Southern Fund, Quantitative Trader,** 12/2017～03/2018

  -Developed a statistical arbitrage strategy.

  -Constructed a strategy back test platform and its designed GUI.

- **China International Capital Corporation, the CICC Global Institute (CGI), Intern,**

  05/2021～08/2022

  -New drivers of China's economic growth research with FinTech methodologies.

  -The influence of China's digital economy.

TEACHING

PG - Professional Development in Innovation, Technology, and Social Responsibility - Teaching Assistant,	2020 - 2021
MSc - Empirical Methods in Finance - Teaching Assistant,	2022 - 2023
MSc - Empirical Methods in Finance - Teaching Assistant,	2024 - 2025

AWARDS AND EXTRACURRICULAR ACTIVITIES

Founder of Zhejiang University Neo-Voice Voluntary Youth Camp 07/2013 - 08/2015
Morningside Cultural China Scholar Program, Zhejiang University 09/2012 - 06/2015

REFERENCES

Yingying Li
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Department of ISOM and Department of Finance,
Hong Kong University of Science and Technology,
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Jialin Yu
Associate Professor
Department of Finance
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Kai Li
Professor of Finance
Peking University HSBC Business School (PHBS)
and Sargent Institute of Quantitative Economics and Finance (SIQEF)

E-mail: kaili@phbs.pku.edu.cn

SKILLS & LANGUAGE

IT Skills: MATLAB, Python, R, SAS, STATA, LATEX
Languages: Cantonese (Native), English (Fluent)