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EDUCATION

PBC School of Finance, Tsinghua University *2019.08 - Now*
Ph.D. in Finance, Expected 2025 *Advisor: Xiaoyan Zhang*
GPA Ranking: 1/35

Olin Business School, Washington University in St. Louis *2024.01 - 2024.05*
Visiting Scholar *Advisor: Guofu Zhou*

School of Finance, Shanghai University of Finance and Economics *2015.09 - 2019.06*
B.S. in Finance (Recommended Entrance and Graduated with Honors)
GPA Ranking: 1/154

Business School, University of New South Wales *2017.07 - 2017.11*
Exchange Student

RESEARCH INTERESTS

Empirical Asset Pricing, FinTech, Investor Behavior, Macro-Finance

JOB MARKET PAPER

Large Language Models and Return Prediction in China

- Coauthored with Huihang Wu and Xiaoyan Zhang.
- Presented at ABFER-JFDS Annual Conference on AI and FinTech 2024, China Fintech Research Conference (CFTRC) 2024, Summer Institute in Finance (SIF) Annual Conference 2024, Seminar Series at Sun Yat-Sen University, Tsinghua University and Summer Institute in Digital Finance (SIDF) 2024. (To be presented at ABFER Webinar Series.)

Abstract: We examine whether large language models (LLMs) can extract contextualized representation of Chinese public news articles to predict stock returns. Based on representativeness and influences, we consider seven LLMs: BERT, RoBERTa, FinBERT, Baichuan, ChatGLM, InternLM, and their ensemble model. We show that news tones and return forecasts extracted by LLMs from Chinese news significantly predict future returns. The value-weighted long-minus-short portfolios yield annualized returns between 35% and 67%, depending on the model. Building on the return predictive power of LLM signals, we further investigate its implications for information efficiency. The LLM signals contain firm fundamental information, and it takes two days for LLM signals to be incorporated into stock prices. The predictive power of the LLM signals is stronger for firms with more information frictions, more retail holdings and for more complex news. Interestingly, many investors trade in opposite directions of LLM signals upon news releases, and can benefit from the LLM signals. These findings suggest LLMs can be helpful in processing public news, and thus contribute to overall market efficiency.

PUBLICATION AND REVISING PAPERS

Retail and Institutional Investor Trading Behaviors: Evidence from China
Annual Review of Financial Economics *Forthcoming*

- Coauthored with Xiaoyan Zhang and Xinran Zhang.

Abstract: We study two important questions regarding trading dynamics in China: how do retail and institutional investors trade, and what are the underlying factors for these behaviors? Different from the U.S., China's stock market has two prominent features: dominance of retail investors, and active participation by the government. After reviewing nearly 100 previous studies, we reach three conclusions. First, there are substantial heterogeneity in retail investors. Small retail investors have low financial literacy, exhibit behavioral biases, and not surprisingly, negatively predict future returns; whereas large retail investors and institutions are capable of processing information, and they positively predict future returns. Second, the macro- and firm-level information environment in China is slowly but gradually improving, which greatly affects trading behaviors of different investors, especially the more sophisticated institutional investors and large retail investors. Finally, the Chinese government actively adjusts their regulations on the stock market to serve the dual goals of growth and stability. Many regulations are effective, while some may generate unintended consequences.

When Price Discovery and Market Quality Are Most Needed: The Role of Retail Investors During Pandemic

Management Science *R&R*

- Coauthored with Charles M. Jones, Xiaoyan Zhang and Xinran Zhang.
- Presented at 2022 Plato Market Innovator (MI3) Conference, 2022 Transparency and Market Structure Conference, Tsinghua Finance Seminar Series.

Abstract: Using the Boehmer, Jones, Zhang, and Zhang (2021) algorithm, we identify a broad swath of marketable retail investor orders in the U.S. market during the pandemic. The marketable retail trading volumes rapidly rise from $325 billion in 2019 to $852 billion at mid-2020, and stay high for the next two years. The retail order flows positively predict cross-sectional returns over various horizons, and are associated with wider future effective spreads and higher future volatilities, as well as less market participations by high frequency traders and short-sellers. We find supportive evidence for informed and uninformed retail hypotheses.

WORKING PAPERS

Anomaly Returns and FOMC

- Coauthored with Xiaoyan Zhang and Guofu Zhou.
- Paper presented at China International Conference in Finance (CICF) 2023, Tsinghua SEM Seminar Series, Renmin University Seminar Series, Tongji University Seminar Series, Nanjing University Seminar Series.

Abstract: We examine how anomalies respond to Federal Open Market Committee (FOMC) announcements. Using a comprehensive set of 179 anomalies, we find anomaly returns significantly decrease on FOMC days. Alphas adjusted for market betas show continued decreases even after the FOMC announcement's intraday interval, suggesting unaccounted forms of systematic risk exposures compensated in anomaly returns beyond FOMC risk. Enhancing the estimation for market betas by estimating FOMC-specific jump betas, we find that market sensitivities vary between announcement and non-announcement periods. Re-estimated alphas using differential market betas become insignificant during normal periods, and show clear dip-and-reverse pattern over the FOMC intraday interval, indicating that anomaly returns largely reflect rational compensation for bearing announcement-varying systematic market risks together with the FOMC risk. Moreover, the changes in anomaly returns are associated with decreased retail trading activity and asymmetric institutional trading across long and short legs, with short-legs exhibiting more institutional buying pressure. Our results suggest that both systematic risk exposure and investor behavior play important roles in anomaly returns around FOMC monetary policy news.

Macro Announcements and Heterogeneous Investor Trading in the Chinese Stock Market

- Coauthored with Dun Jia, Xiaoyan Zhang and Xinran Zhang.
- Presented at CFRC 2024, CIFFP 2023, Seminar Series at Tsinghua University.

Abstract: Using private account-level trading data, this study investigates the differential trading behaviors of heterogeneous investors around Chinese macroeconomic monetary policy announcements. We reveal three key findings. First, institutional investors significantly increase net selling during announcement windows, while retail investors, particularly small retail traders, demonstrate increased net buying. Second, while all investor types show trading persistence, institutional investors and large retail traders act as liquidity providers, whereas small retail traders are more prone to bearing systematic risk during announcement windows. Institutional and large retail investors display information advantages pre-announcement, contrasting with small retail investors' information disadvantage. Third, using portfolio tracking methodology, we find that institutional investors exhibit superior short-term profitability that diminishes over longer holding periods, while small retail investors demonstrate negative trading performance. These findings provide important insights into market efficiency and policy implications regarding heterogeneous investor roles during significant monetary policy announcements.

How Can Robot Investment Assistant Help: Collecting Information or Providing Advice? Evidence from China

- Coauthored with Huimin Ge, Huihang Wu and Xiaoyan Zhang.
- Paper presented at China International Conference in Finance (CICF) 2022, Joint Conference on Statistics and Data Science (JCSDS) 2023, FinTech Seminar Series at Peking University.

Abstract: Robot investment assistants (RIAs) are designed to help individual investors with investment decisions by providing information and advice services. Using account level data between 2020 and 2021 from the largest mutual fund investment platform in China, we examine the values of different RIA services. Higher usage of RIAs is associated with higher future raw and risk-adjusted returns, higher diversification, risk-taking, and turnover for individual investors. We further find advice services, rather than information services, are playing a more important role in investors' future returns and trading activities. We find no definite evidence that existing RIA services alleviate behavioral biases.

WORK IN PROGRESS

Retail Investors and Technical Analysis

- Joint with Huihang Wu, Xiaoyan Zhang and Guofu Zhou.

Timely Site Visit Reporting and Heterogeneous Investors in China

- Joint with Xiumin Martin and Xiaoyan Zhang.

Large Vision Models and Return Prediction

- Joint with Huihang Wu.

TEACHING EXPERIENCE

Teaching Assistant

Frontier Asset Pricing Studies, Spring, 2023 and 2022.

Advanced Asset Pricing Theories, Fall, 2021.

Advanced Macroeconomics, Spring, 2021.

HONORS AND AWARDS

Hongru Liu Academic Scholarship of PBC School of Finance, Tsinghua University 2024

Dean Scholarship of PBC School of Finance, Tsinghua University 2023

National Scholarship (3 times) 2021, 2017, and 2016

First Tier Scholarship of Tsinghua University (2 times) 2022 and 2020

JOURNAL REFEREES

Journal of Financial Markets

REFERENCES

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