Chen(Belinda) Chen

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Education

- **University of Illinois at Urbana-Champaign** — Champaign, Illinois
  Ph.D. student - Finance — *Sep. 2020 - Present*
- **University of Chicago** — Chicago, Illinois
  M.S. - Computational and Applied Mathematics — *Oct. 2019 - June 2020*
- **University of Chinese Academy of Sciences** — Beijing, China
  B.S. - Mathematics — *Aug. 2015 - June 2019*
- **Carnegie Mellon University** — Pittsburgh, Pennsylvania
  Visiting Student — *Jan. 2018 - June 2018*

Working Paper

- **Network Factors for Idiosyncratic Volatility Spillover (solo)**:

  This paper examines changes in the network structure of idiosyncratic volatility spillover among sectors, as captured by two asset pricing factors: the Concentration factor and the Magnitude factor. These factors determine the distribution of node sizes and linkage thicknesses in an idiosyncratic volatility spillover network, and contain distinct sources of systematic risk. The Concentration factor measures the extent to which contamination capacity is dominated by a few large sectors, while the Magnitude factor measures the average probability of idiosyncratic volatility spillover. The Concentration factor is associated with a positive price of risk, while the Magnitude factor is associated with a negative price of risk. Cross-sectional tests show that stocks with greater exposure to the Concentration factor are riskier, with an annual return spread of +5%, while those with greater exposure to the Magnitude factor are hedges, with an annual return spread of -4%. These return gaps cannot be explained by standard asset pricing models, and the idiosyncratic volatility spillover network factors outperform the production-based network factors. Finally, I present a multisector model to shed light on how changes in the idiosyncratic volatility network affect aggregate volatility. Specifically, a higher Concentration factor and lower Magnitude factor can increase the cross-sectional decay rate, or "diversification speed," of aggregate volatility as the number of sectors (n) $\to \infty$.

  - LBS AQR Asset Management Institute Prize

Research Interests

- Asset pricing, network and contagion risk, machine learning in asset pricing, ETF markets

Working Projects

- **Pre-Trade Transparency and Price Efficiency: Evidence from Corporate Bond ETFs (with Mahyar Kargar and Sebastien Plante)**:

  Using a high-frequency corporate bond benchmark prices, we develop intraday benchmark NAV for corporate bond ETF. Comparing ETF traded price to our benchmark, we derive a benchmark implied measure of mispricing. Our mispricing measure forecasts prices and quantities: underpriced funds exhibit higher future returns as well as stronger redemption from authorized participants, and vice versa. Building analogous high-frequency benchmarks for Israeli corporate bond ETFs and US stock ETFs, two products where portfolio holdings trade in highly transparent markets, we find no evidence of mispricing. Our findings suggest that the lack of pre-trade transparency in the secondary US corporate bond market hinders price discovery. This pushes for policies regarding market fairness and pre-trading transparency.

  Gies Grants for the Research Proposal, Gies College of Business, 2023 to present

Presentations

- **2023**: AFA PhD poster session; Inter-Finance PhD Seminar; Transatlantic Doctoral Conference at LBS; The 7th PKU-NUS Annual International Conference on Quantitative Finance and Economics, NFA(scheduled), FMA(scheduled)
- **2022**: UIUC Friday Seminar; UChicago MFR Young Scholar Poster Session

Teaching Experience

- **Corporate Finance**: 2022 fall and 2023 spring

Research Experience

- **Electronic Bond Trading** — June. 2021 - Oct. 2021
  Research assistant, University of Illinois at Urbana-Champaign — *Advisor: Prof. Mahyar Kargar*
- **Intermediary Asset Pricing Factors** — Aug. 2020 - Dec. 2020
  Research assistant, University of Illinois at Urbana-Champaign — *Advisor: Prof. Mahyar Kargar*
- **Covid-19 Prediction Model** — May. 2020 - Aug. 2020
  Research assistant, Chicago Booth — *Advisor: Prof. Dacheng Xiu*
- **Barra Factor Characteristics and Return Prediction** — Aug. 2019 - Aug. 2020
  Research assistant, Chicago Booth — *Advisor: Prof. Dacheng Xiu*
- **Image Analysis for Price Trend** — Oct. 2019 - Dec. 2019
  Research assistant, Chicago Booth — *Advisor: Prof. Dacheng Xiu*

Other publications in Applied Math/Biostatistics

- **A Novel High-order Approximate Scheme for Two-dimensional Time-fractional Diffusion Equations with Variable Coefficients**: Fenling Wang, Yamin Zhao, Chen Chen, Yabing Wei, Yifa Tang; **Computers and Mathematics with Applications Journal**; Sep. 1st 2019
- **Single-Cell RNA-Seq Unveils Critical Regulators of Human FOXP3+ Regulatory T Cell Stability**: coauthor with Gang Yi et al; **Science Bulletin**; Accepted
- **Introduction to the 2018 Nobel Prize in Physiology or Medicine—Cancer Therapy by Inhibition of Negative Immune Regulation**: Chen Chen, Bin Li; Popular Science Article; **Science 0368-6396 (Chinese version**; Jan 1st 2019

Other Research Experience in Applied Math/Biostatistics

- **Undergrad Thesis in Survival Analysis** — Sep. 2018 - April. 2019
  University of Chinese Academy of Sciences — *Advisor: Prof. Yifa Tang*
- **Seminar on Machine Learning** — Sep. 2018 - April. 2019
  Academy of Mathematics and Systems Science, Chinese Academy of Sciences — *Prof. Xiaodong Hu*
- **Seminar on Probability and Monte Carlo Strategy** — Jan. 2018 - Jun. 2018
  Academy of Mathematics and Systems Science, Chinese Academy of Sciences — *Prof. Fuzhou Gong*
- **High Dimensional Visualization and Image Classification in Genomic Data** — Jan. 2018 - Jun. 2018
  Research assistant, University of Pittsburgh — *Advisor: Prof. Binfeng Lu*
- **Mathematical Modeling of genes** — Jul. 2016 - Sep. 2016
  Research assistant, Institute Pasteur of Shanghai — *Prof. Bin Li*

Skills

- **Languages**: Python, R, MATLAB, Mathematica, Maple
- **Soft Skills**: Leadership
- **Hobbies**: Jazz and Urban Dance

Honors and Awards

- Gies College of Business, Robert Ferber Award - 2023
- Graduate Fellowship - 2020 till now
- Undergrad Fellowship, 2017&2018
- Minister of the Organization Department of Youth League Committee, 2016-2018
- Excellent Youth League Member of Chinese Academy of Sciences (top 0.05%), 2017
- Excellent School Cadre of Chinese Academy of Sciences (top 1%), 2017