SU ZIYU

PhD Student
NUS Business School, Faculty of Finance

Email: su.ziyu@u.nus.edu
Mobile: (+65)80392306
Research interests: Empirical Macro-Finance, Asset Pricing

Education

- **National University of Singapore** — Singapore
  Department of Finance, School of Business — *August 2023 - present*
  - PhD. in Finance
- **National University of Singapore** — Singapore
  Department of Statistics and Applied Probability, Faculty of Science, GPA: 4.7/5 — *August 2020 - June 2022*
  - M.S. in Statistics
  - **Relevant Modules**: Applied Data Mining, Advanced Topics in Applied Statistics, Nonparametric Regression, Statistical Analysis of Networks, Analysis of Time Series Data, Applied Regression Analysis.
- **Southwestern University of Finance and Economics (SWUFE)** — China
  Department of Financial Engineering, School of Finance, GPA: 87/100 — *August 2016 - June 2020*
  - B.S. in Financial Engineering
  - **Relevant Modules**: Computational Statistics, Stochastic Processes, Applied Time Series Analysis, Advanced Algebra, Mathematical Analysis, Mathematical Statistics (Science).

Research Experience

- **Full-time Research Assistant** — Global Credit Database
  NUS Business School — *July 2022 - Jun 2023*
  - Supervisor: Prof. Karsten Müller
  - Constructed estimates of the sectoral distribution of credit for several countries based on dozens of sources, including newly digitized data and information from national central banks.
  - Successfully developed a "real-time database" on credit to the private sector for 200+ countries based on APIs for pulling data from the IMF, ECB, and BIS using Python. Implemented automated storage of the original data and "delta files" tracking updates over time. Built functions to algorithmically check data quality, merge together and chain-link various time series for each variable, interpolate randomly missing data, and produce an automatically generated PDF report highlighting potential problems.
  - Set up models predicting crashes in industrial production and equity returns with sectoral credit data in a monthly cross-country panel using panel quantile regressions, logistic regression, and partial least squares regression.
  - Estimated conditional distributions of "growth-at-risk" as a function of credit market developments. Implemented "smooth local projections" to estimate the predictive relation between sectoral credit measures and future output and equity returns.
- **Full-time Research Assistant** — Effect of Immigration Enforcement on Financial Misconduct
  NUS Business School — *July 2022 - Jun 2023*
  - Supervisor: Prof. Ben Charoenwong
  - Data collection and data cleaning for the county-month and county-year panel of economics measurement in U.S.
  - Summarized the U.S. Immigration Enforcement Program, mainly about the training, cost and timeline of 287(g) and Secure Community Program.
  - Analyzed the treatment effect of the immigration enforcement on financial misconduct of financial advisors in the U.S., using staggered diff-in-diff referenced to Sun and Abraham (2021) (based on R).
- **Part-Time Research Assistant** — Singapore Money Lenders Analysis
  NUS Business School — *April 2022 - June 2022*
  - Supervisor: Prof. Ruan Tianyue
  - Developed a script based on Python to collect all reviews (on Google Maps) of the 165 locations of 155 money lenders in Singapore.

- Analyzed Google review data to assess the sample representativeness. Digged useful information about the distribution of the data sample in the population.

- **Part-time Research Assistant** Construct Mutual Fund Network in Chinese Market
  SWUFE *April 2021 - June 2021*
  - Supervisor: Prof. Hu Xiao
  - Constructed a dataset of mutual funds in China. Built network graphs of stock and fund network in R.
  - Computed 6 types of centrality of each fund for each season, including coreness, closeness, Betweeness, eigenvector centrality, constraint, node density.

Other Project Experience

- **Crypto assets backtest**
  Database development/Indicator development/Factor reproduction/Strategy backtest *July 2021 - April 2022*
  - Developed a database for all crypto asset in Binance exchange based on the MongoDB framework on Win10 platform (200 million documents in total). Using 4000+ free proxies to avoid the asking limits (1200 times per minute) of the Binance-Public-API.
  - Developed indicators/factors (including momentum, cash increment, relative strength of resistance and support, etc.) based on backtrader platform in python.
  - Backtest strategies (strategy with cross-sectional selection and time selection), generated the backtest report.

- **Improvement of Conditional Autoencoder Asset Pricing Model** Team Project: NUS ST5227
  Team Leader *March 2022 - April 2022*
  - Supervisor/Module Lecturer: Prof. Li Jialiang
  - Contributed to the improvement of the factor network in the Conditional Autoencoder Asset Pricing model. Introduced a penalty to the redundancy of the input layer and the factor layer of the factor network. The reducing of the redundancy may improve the interpretability of the training result (the resulting factor may be more orthogonal to each other in some sense).
  - The finally team report provided 5 potential improvement direction of the conditional autoencoder asset pricing model, including the adjustment of beta network and factor network and the experimental design to check the robustness of the unbalanced data processing method.

Skills

- **Software/Programming skills**
  - Python/R: considerable experience on algorithm implementation and data cleaning. Numpy/Pandas/tidyverse
  - Matlab/lingo/Julia: experience
  - MongoDB: developing, querying
  - Document Edit: LaTeX, LyX
- **Language skills**
  - Mandarin (Native), English (Fluently)
  - Standard Test: IELTS: 6.5. GRE: 319 (quantitative 170 + verbal 149 + writing 3)
- **Econometrics and Statistics Skills**
  - Staggered DiD methods: Bacon Decomposition, Sun and Abraham (2021), Callaway and Sant'Anna (2021).
  - Machine learning methods: Logistic Regression, Back Propagation Neural Network, Kmeans, etc.
  - Non-parametric methods: Kernel Density Estimation, Kernel Regression.
  - Time Series Analysis methods: Time series decomposition, ARIMA model, GARCH-family model.
  - Statistical Network Analysis methods: Network construction, Centrality computation, Depth-First-Search, Breadth-First Search.
- **Awards/Prizes**
  - Tri-Excellent Student of SWUFE
  - Second-class Scholarship (twice)
  - Third-class Scholarship (four times)