

TIEZHENG SONG

6400 Las Colinas Blvd Irving TX 75039 | +1 (919) 601-8320 | tiezheng.song.econ@gmail.com | [LinkedIn](#) | [Website](#)

SUMMARY

Economist and quantitative researcher with a PhD in Economics specializing in macroeconomics and financial economics. Expertise in generating macroeconomic forecasts, building quantitative predictive models, and econometrics and statistical testing. Proven track record of leading and collaborating on research and business projects and effectively communicating results to diverse audiences.

SKILLS

- **Expertise:** Macroeconomic and Financial Research and Quantitative Modeling, Scenario Forecasting, Time Series, DSGE
- **Programming:** Python, MATLAB, R, SAS, EViews; Document processing in LaTeX
- **Languages:** English (Fluent), Chinese (Native), French (Basic)
- **Certification:** CFA Level 2 candidate

EDUCATION

Doctor of Philosophy, Economics North Carolina State University	2013 – 2019 Raleigh, NC
Master of Science, Applied Economics East China University of Science and Technology	2009 – 2012 Shanghai, China
Master of Science, International Business ESDES Business School	2010 – 2011 Lyon, France
Bachelor of Arts, Public Administration East China University of Science and Technology	2005 – 2009 Shanghai, China

EXPERIENCE

VP, Economist Citigroup	July 2022 – present Dallas, TX
• Led redevelopment of predictive models for a plethora of macroeconomic and finance variable families and productions utilizing clustering and other Machine Learning (ML) methods in Python with scikit-learn etc. for model specification and streamlined model development process in a systematic approach for the entire macroeconomic scenario expansion team. • Improved production efficiency with automations in quarterly macroeconomic forecasting and scenario expansions using Python, VS Code, Git, Copilot, etc. in a forecasting system with 1500+ domestic and international macroeconomic variables; defended and communicated efficiently the team's forecast results given quarterly economic narratives and rationale with downstream users and stakeholders. • Solely supported and enhanced efficiencies of economic scenario probability model assigning weights to key macroeconomic scenarios impacting major decisions in bank portfolio allocation and loss provision. • Took initiative and self-directed in several projects including forecast overlay automation, statistical seasonality test, offline variable review plots; communicated closely with managers in the meantime to confirm the projects are with desired requirements, significantly lowered the team's risk of related aspects by standardizing judgements and increasing efficiencies. • Communicated efficiently across teams, including new IT platform implementation, model revalidation and limitation closures; supported parallel teams' efforts including model development in finance team when needed and took core roles in commodity price model redevelopment given higher management's instructions. • Participated actively and presented self-motivated peer-reviewed research projects in macroeconomics and finance during weekly team meetings on global macro data/news/outlook updates to about 50 team members including senior managers.	
Senior Quantitative Analyst Fifth Third Bank	September 2019 – June 2022 Cincinnati, OH
• Supported Dual Risk Rating Module by working on Exposure-At-Default (EAD) and Probability of Default (PD) projects with statistical and ML models; Facilitated modeling process by pulling and cleaning large commercial loan datasets with complex structure with SAS and SQL; received company-wide recognition for outstanding performance. • Teamed as one of the three main developers selected intensively working on redeveloping the bank's predictive PD model with enterprise level panel data and macroeconomic variables to improve the forecast performance with SAS, SQL, and Python. • Led on tasks in the EAD model's entire life cycle regarding development, validation, production, monitoring, documentation, ad hoc analyses as the sole assistant to the senior manager; effectively presented and communicated work with model validators. • Performed comparison between ML (random forest) and traditional logistic regression models on bank's car loan delinquency dataset and present results to the entire modeling team (30 people) in quantitative analyst workshop.	

Researcher, Instructor and Teaching Assistant

August 2014 – May 2019

North Carolina State University

Raleigh, NC

- Conducted in-depth research projects on macroeconomic and financial sector frictions by utilizing medium-to-large scale Dynamic Stochastic General Equilibrium (DSGE) and Time-Varying Parameter Stochastic Volatility Vector Autoregressive (TV-P-SV-VAR) models and contributed theoretical and empirical innovations to literature and awarded research fellowship.
- Selected by faculty as one of the two independent instructors (selected out of 40 candidates based on performance in program) for the first PhD Econ Math Camp in summer 2015 and lectured graduate-level mathematics material to new PhD students.
- Independently assisted senior faculty members (Dr. Douglas Pearce and Dr. Lee Craig) on Money and Banking and Intermediate Macroeconomics and received strong positive feedback; Self-planned and lectured for Principles of Macroeconomics (500+ students in total) with outstanding student ratings.

Economics Instructor

July 2012 – June 2013

Shanghai Guanghua Cambridge International School

Shanghai, China

- Mentored a class of 30 students and communicated with their parents throughout the academic year with a diverse faculty.
- Individually prepared and taught Principles of Economics in the Cambridge IGCSE curriculum to 120 students.
- Achieved highest ranked results in Shanghai region regarding students enrolled in economics major in prestigious universities.

RESEARCH

Publication

Regime Dependent Dynamics of Parallel and Official Exchange Markets in China: Evidence from Cryptocurrency
(with Dr. Huachen Li), Applied Economics (2024)

PhD Dissertation North Carolina State University

2016 – 2019

Three Essays on Macroeconomics and Financial Frictions

Raleigh, NC

- Obtained new time-varying patterns of monetary policy transmission and extended findings in related literature.
- Cleaned and merged large bank-level dataset (Call Report, H8, Z1) to facilitate econometric research of the U.S. banking sector.
- Implemented a new sampling algorithm to improve the efficiency of prior selection by 80% in MATLAB.
- Estimated the general equilibrium model (with 100+ macroeconomic variables) for unconventional monetary policy analysis.
- Presented research to audience (80+) including PhD students from different fields.

AWARDS

- Horizon Award (for outstanding work performance), Fifth Third Bank 2021
- Jenkins Fellowship (one fellow in the department per academic year awarding research), NC State University 2018 – 2019
- Economics PhD Assistantship, North Carolina State University 2014 – 2018