HAN ZHANG

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EDUCATION

Ph.D. Econometrics and Quantitative Economics — May 2024 (Expected)
University at Buffalo — Buffalo, NY

M.S. Finance — 2018
Tongji University — Shanghai, China

B.Eng. Software Engineering — 2016
Tianjin University — Tianjin, China

RESEARCH

How much do managers learn from the financial market? A Quantitative Analysis of Market Learning
presented at Midwest Economics Association 87^{th} Annual Meeting

Abstract: This paper develops a model of managers' learning in the context of investment decisions to dissect the factors contributing to investment-price sensitivity. In a model of a noisy expectation framework, managers and informed traders make optimal decisions based on the information signals they observe. I decompose the investment-price sensitivity into two sources of covariance: internal learning (already known to managers) and market learning (new to managers). This paper quantifies investment-price sensitivity decomposition using calibrated parameters matching U.S. firm's data. The findings are that roughly 54% of the investment-price sensitivity is attributed to managers' pre-existing internal information, while the remaining 46% arises from their learning in the stock market. The increase in investment-price sensitivity does not necessarily indicate more market learning. Furthermore, the analysis of the full disclosure scenario has implications for corporate disclosure policies, suggesting that an increase in disclosure could potentially hinder managers' learning from the financial market.

What Moves Sovereign Default Risk? The Role of Information in the Sovereign Credit Default Swaps Market ***with Monica Tran-Xuan***

- Developed a return variance decomposition model to investigate the dynamics of sovereign default risk in response to different sources of information and noise
- Disentangle four components: noise, private country-specific information, country-specific information revealed through and global-wide information using data on sovereign credit default swaps(CDS)
- Provided policymakers with new evidence on the measure of the market efficiency in the sovereign CDS market and examined variations in variance components during high default risk events, enhancing understanding of risk dynamics

The Real Effect of the Analysts' Forecast Quality

- Built a linear regression model to identify the causal effect of analysts' characteristics on forecast price efficiency and revelatory price efficiency using up to 5 million analyst forecast records
- Used instrumental variables estimation to validate the causal effect of analysts' forecast quality on efficiency measures
- Provided policymakers with new evidence that high quality of analysts' forecast is associated with higher forecast price efficiency but lower revelatory price efficiency

Professional Experience

Data Scientist Intern June 2023 – August 2023
Chewy Inc. Bellevue, WA

- Developed and refined advanced models for long-range demand forecasts of Chewy products by identifying key macroeconomic drivers specific to different product categories, resulting in improved forecast precision and reliability
- Constructed a causal engine to attribute variations in model output and accuracy to various input factors to empower end-users with a deeper understanding of the driving forces behind forecast changes
- Designed and implemented a backtesting framework to assess forecast performance, successfully pinpointing accuracy deviations to either macroeconomic scenarios or model adjustments, providing insights for model enhancement
- Completed the technical documentation and wrote a white paper, presented to a broader audience

Teaching Experience

Instructor, University at Buffalo
ECO 182: Introduction to Microeconomics Winter 2023

Teaching Assistant, University at Buffalo
ECO 610: Macroeconomics Theory I (Ph.D.) Fall 2020, 2021
ECO 181: Introduction to Microeconomics Fall 2021, Spring 2022
ECO 182: Introduction to Macroeconomics Fall 2022, Spring 2023

Conferences and Presentations

Midwest Economics Association 87^{th} Annual Meeting March 2023
AEA-CSWEP Ph.D. Mentoring Workshop September 2022
PhD Seminar Series, Department of Economics,University at Buffalo 2019-2023

Honors and Awards

Graduate Tuition Scholarship, University at Buffalo, SUNY 2018 - 2023
Outstanding Student Cadres Awards, Tianjin University 2015
Merit Students Awards,Tianjin University 2014
Weichai Power Scholarship,Tianjin University 2013

Skills

Languages: English (Fluent), Chinese (Native)

Programming: Python (NumPy, SciPy, Matplotlib, Pandas), R, SQL, Stata, SAS, MATLAB, C++, Java

Causal Inference: difference-in-difference, synthetic control, propensity score matching, 2SLS, regression discontinuity, instrumental variables, double machine learning

Forecasting: ARIMA, exponential smoothing, VAR, state space model, prophet model

Document Creation: Microsoft Office Suite, LaTex, Markdown

References

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