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Education

University of Utah Expected 2023
Ph.D., Finance

Northeastern University 2014 - 2017
M.B.A. & M.S. in Finance

University of Shanghai for Science and Technology 2010 - 2014
B.S. in Economics

Research Interests

Empirical Asset Pricing, Market Microstructure, Passive Investing, Real Estate Finance, FinTech

Working Papers

Passive Investing and Mutual Fund Skills, Survival, and Risk-Taking
Job market paper

Passive Investing and Mutual Fund Skills, Survival, and Risk-Taking
with Jonathan Brogaard and Davidson Heath
Revise & Resubmit, Journal of Financial and Quantitative Analysis

Cybersecurity Risk in Crypto Securities
with Jeffrey Yang

Household Asymmetric Risk of Foreclosure From Tax Assessment Limits
with Sebastien Bradley and Nathan Seegert

Withdrawal of High-Frequency Traders and Intraday ETF Volatility during the Covid-19 Crisis
with Rajesh Aggarwal

Non-Standard Errors
Crowd-sourced project led by Albert J. Menkveld and other coordinators
Revise & Resubmit, Journal of Finance

Work in Progress

Illiquidity-Driven Option Return Predictability
with Jonathan Brogaard and Neil D. Pearson

Pricing Property Tax Risk
with Sebastien Bradley and Nathan Seegert

Teaching

FINAN 3050 — Introduction to Investments
Undergraduate level, hybrid format, as instructor Spring 2021

FINAN 7850 — Empirical Research in Finance
Ph.D. level, hybrid, as teaching assistant Fall 2020/2021/2021

Computer Skills

Stata, SAS, Python, R, LaTeX

Conference Presentations

FMA European (2022), AFA Annual Meeting (2021), FMA Annual Meeting (2020), IEX Avademic Conference (2019)

Awards and Fellowships

Marriner S. Eccles Political Economy Fellowship 2022
Monty and Christine Botosan Bridge to Practice Doctoral Award 2021

Service

Referee: Journal of Behavioral and Experimental Finance

Discussant: FMA Annual Meeting (2020)

Organizer: Ph.D. Brown Bag at University of Utah (2022, 2021), Ph.D. Pre-seminar Reading Group at University of Utah (2022, 2021)

References

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Abstracts — Working Papers

Passive Investing and Mutual Fund Skills, Survival, and Risk-Taking
This paper examines how the rise of passive investing affects active management. I develop a parsimonious model of passive and active investment in which greater passive investment accelerates investors' learning about active managers' skill. The model provides a rational explanation, namely the rise of passive investing, for several empirical observations: A more skilled active mutual fund industry, more closet indexing by active funds, and compression of the performance distribution of active investing. I test the model's predictions using a novel shift-share instrumental variable design and show they are borne out in the data. I also find that high levels of passive investing improve market efficiency, consistent with a more skilled active mutual fund industry.

The Heterogeneous Effects of Passive Investing on Asset Markets
This paper shows that passive funds systematically underweight or omit illiquid index assets. As a result, their trading activity consumes liquidity and reduces market quality for liquid assets, but has no effect on illiquid assets. Focusing on the unconditional average effects and ignoring funds' index deviations underestimates the local treatment effect by up to 58%. Overall, the effects of passive investing on underlying asset markets depend on how intermediaries replicate their target index.

Cybersecurity Risk in Crypto Securities
This paper examines how cybersecurity risk in crypto securities affects asset returns. Hackers steal cryptocurrencies by exploiting bugs in the code. We develop a novel measure of ex ante cybersecurity risk by counting bug reports from GitHub, which houses the source code that produces crypto assets. A high cybersecurity risk predicts a lower return: a one standard-deviation increase in cybersecurity risk is associated with a 17 basis point decline in daily return. We interpret cybersecurity as a shock to the production technology of crypto assets. The return predictability from our measure is unique because it does not rely on the assumption of crypto assets' fundamental value, but rather stems from the canonical investment-based asset pricing theory.

Household Asymmetric Risk of Foreclosure From Tax Assessment Limits
Homeowners face risk due to variation in annual property tax liabilities which may result in financial distress and eventual mortgage foreclosure. We show that an unintended consequence of a common property tax feature, assessment limitations, exposes households to more systematic risk despite decreasing the variance of property tax payments. Using a state border discontinuity design for the universe of U.S. residential properties, we show that this increase in risk translates to homeowners facing relatively larger increases in property tax obligations during market downturns. As a result, short-tenured homeowners in assessment limitation states experienced a significantly higher probability of mortgage distress at the height of the Great Recession. The magnitude of this unintended effect is comparable to the increase in probability of mortgage distress associated with owning a home in disrepair and is approximately one tenth as large as the effect of moving between the first and fourth quartiles of the loan-to-value distribution.

Withdrawal of High-Frequency Traders and Intraday ETF Volatility during the Covid-19 Crisis

Does high-frequency trade increase or decrease volatility in financial markets during crises? We introduce a novel intraday volatility measure for ETFs, and find that during the Covid-19 crisis period, the withdrawal of high-frequency trade from large stock ETFs increases intraday ETF volatility *net of the fundamental shock from Covid itself* by over 30%. The speed of arbitrage activities slows down during the Covid-19 period as high-frequency traders reduce the intensity of their trading. While high frequency traders may serve as de facto market makers during normal times, they withdraw from the market during a crisis, precisely when they are needed most.

Non-Standard Errors

In statistics, samples are drawn from a population in a data-generating process (DGP). Standard errors measure the uncertainty in sample estimates of population parameters. In science, evidence is generated to test hypotheses in an evidence-generating process (EGP). We claim that EGP variation across researchers adds uncertainty: non-standard errors. To study them, we let 164 teams test six hypotheses on the same sample. We find that non-standard errors are sizeable, on par with standard errors. Their size (i) co-varies only weakly with team merits, reproducibility, or peer rating, (ii) declines significantly after peer-feedback, and (iii) is underestimated by participants.

Abstracts — Work in Progress

Illiquidity-Driven Option Return Predictability

Empirical asset pricing literature views illiquid assets as a "bug" because they add noise and bias to analyses of return predictability. In this paper, we show that illiquidity is a feature rather than a bug for option return predictability. Previously well-documented trading strategies with high Sharpe ratio become unprofitable once we purge illiquid options from the analyses. Illiquidity is the source of return predictability. Our results are robust to varies microstructure bias corrections, suggesting thinly-traded and heavily-traded options are fundamentally different. Our results have important implications for future empirical research in option markets.

Pricing Property Tax Risk

We develop a method of pricing tax risk using a Arrow-Debreu model combined with a detailed tax model. To demonstrate this method, we build a tax simulation model for property taxes in the United States that captures key features that differ across states and change the risk associated with the property tax. In this context, we conceptualize property tax payments as the payouts of a complex asset that differ across states of the world. We then simply price these payouts using an Arrow-Debreu pricing model. Pricing tax risk in this way has several important applications and is easily implemented.