SANGMIN SIMON OH

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Research Interests

Asset Pricing, Insurance, Climate Finance

Education

The University of Chicago Expected June 2024
Ph.D. Joint Program in Financial Economics
Booth School of Business & Kenneth C. Griffin Department of Economics

University of Pennsylvania (GPA: 3.97/4.00) May 2018
Jerome Fisher Program in Management and Technology (M&T)
M.S. & B.S. in Electrical Engineering, School of Engineering and Applied Science
B.S. in Economics, Wharton School

References

Ralph Koijen (Chair)
AQR Capital Management Distinguished Service Professor of Finance and Fama Faculty Fellow
University of Chicago, Booth School of Business
ralph.koijen@chicagobooth.edu

Niels Gormsen
Neubauer Family Associate Professor of Finance and Fama Faculty Fellow
University of Chicago, Booth School of Business
niels.gormsen@chicagobooth.edu

Lars Peter Hansen
David Rockefeller Distinguished Service Professor
University of Chicago, Dept. of Economics, Statistics, and Booth School of Business
lhansen@uchicago.edu

Stefan Nagel
Fama Family Distinguished Service Professor of Finance
University of Chicago, Booth School of Business
stefan.nagel@chicagobooth.edu

Job Market Paper

1. Social Inflation

- **Abstract**: I study the pricing of a novel source of aggregate risk for the insurance sector: shifts in insurers' loss distribution due to extreme jury verdicts and settlements, widely referred to as social inflation by insurers and regulators. A hedonic model shows that jury verdicts for accidents with identical characteristics have increased persistently since 2015, which insurers attribute to evolving social norms and legal tactics. Insurers face not only higher expected losses but also heightened uncertainty, due to both higher loss variability and uncertainty about loss distribution parameters. I then study the insurers' price response to social inflation, focusing on the auto insurance market. Leveraging within insurer-year variation across product lines and across geography, I find that social inflation accounts for nearly 70% of the annual price increase since 2018. A model shows that this large price response includes a risk premium due to the interaction of financial frictions with uncertainty in their capital. Consistent with risk premium in insurers' price response, I find (i) bigger hikes for more constrained insurers, (ii) higher insurer profitability, and (iii) increased risk margin in loss reserves. Overall, my findings highlight how changing social norms and legal developments translate into a source of aggregate risk for the insurance sector. Uncertainty induced by the shifting loss distribution is priced by insurers, a finding that is relevant to emerging risks such as climate and cyber.
- **Select Awards**: WFA PhD Award For Outstanding Research, Stigler Center PhD Dissertation Award
- **Select Presentations**: NBER Insurance 2022, SGF 2022, WFA 2021, EFA 2021

Working Papers (See end of CV for abstracts)

2. Pricing of Climate Risk Insurance: Regulation and Cross-Subsidies
(with Ishita Sen, Ana-Maria Tenekedjieva) Revise & Resubmit, Journal of Finance

- **Summary:** Insurers overcome regulatory frictions by cross-subsidizing insurance across states, leading to a decoupling of rates from the underlying risk.
- **Select Presentations:** AFA 2024 (*scheduled*), NBER SI CF 2022, NBER Insurance, SITE 2021
- **Media:** HBS Working Knowledge, Financial Times

3. Asset Demand of U.S. Households
(with Xavier Gabaix, Ralph Koijen, Federico Mainardi, Motohiro Yogo)

- **Summary:** We study the asset demand of U.S. households, including ultra-high-net-worth (UHNW) households, across a wide range of asset classes.
- **Select Presentations:** AFA 2024 (*scheduled*), WFA 2023, SFS Cavalcade 2023, NBER AP 2022

4. Unpacking the Demand for Sustainable Equity Investing
(with Don Noh, Jihong Song)

- **Summary:** We investigate the heterogeneity in investor demand for sustainable equity investing and study its implications.
- **Select Presentations:** AFA 2024 (*scheduled*), MFA 2024 (*scheduled*), SoFiE 2023 / **Media:** World Bank

5. Climate Capitalists
(with Niels Gormsen, Kilian Huber)

- **Summary:** Green firms report lower perceived cost of capital and discount rates in recent years, concurrent with the rise of "green investing."

6. High-Frequency Expectations from Asset Prices: A Machine Learning Approach
(with Aditya Chaudhry)

- **Summary:** We construct a daily measure of GDP expectations that can be used to test many empirical anomalies observed in the asset market.
- **Select Presentations:** Bank of England, SoFiE 2021

Publications (See end of CV for abstracts)

7. Cross-sectional Skewness (with Jessica Wachter)
Review of Asset Pricing Studies, 12(1), March 2022, p.155–198

- **Summary:** We evaluate the skewness in the cross-section of returns in light of predictions from a well-known class of models.

Works in Progress

8. The Hidden Costs of Medicaid Mortality Gap
(with Ralph Koijen and Stijn Van Nieuwerburgh)

Awards, Scholarships, and Grants

Best Paper Prize in Responsible Finance: European Finance Association (EFA) 2022
—- for "Pricing of Climate Risk Insurance: Regulatory Frictions and Cross-Subsidies"
Becker Friedman Institute Bradley Fellowship Award 2022
Stigler PhD Dissertation Award 2022

Liew Fama-Miller Fellowship (Top 3rd Year Finance Paper) 2021
—- for "Inside the Minds of Modern-Day Central Banks: The Role of Financial Markets"
WFA PhD Candidate Award for Outstanding Research 2021
—- for "Social Inflation"
Yiran Fan Memorial Prize (Inaugural Recipient) 2021
Fama-Miller Research Professional Development Fellowship 2021
2nd Place in PhD Category: UChicago Three-Minute Thesis Competition 2021

Arnold Zellner Doctoral Prize (Best Student Paper on Bayesian Methods) 2020
—- for "High-Frequency Expectations from Asset Prices: A Machine Learning Approach"
Best PhD Paper Award: Conference on Asia-Pacific Financial Markets 2020
—- for "Unpacking the Demand for Sustainable Equity Investing"
Drumheller Family Foundation PhD Fellowship 2020

Drumheller Family Foundation PhD Fellowship 2019

John and Serena Liew Fama-Miller PhD Fellowship 2018

Seminars, Conferences, and Workshops

Presentations (* Indicates presentation by co-author)

- **2024**: AFA Annual Meeeting $\times$ 3 (scheduled)
- **2023**: SFS Cavalcade*, WFA Annual Meeting, SoFiE Annual Conference, Yiran Fan Memorial Conference, FHFA*, Booth Finance Brownbag
- **2022**: NBER Insurance Fall Meeting, NBER Asset Pricing Fall Meeting*, NBER SI Corporate Finance*, NBER Innovative Data in Household Finance*, Swiss Society for Financial Market Research Conference, UC Boulder Leeds*, UW-Madison Business School*, NY Fed*, Tilburg*, U of Amsterdam*, U of Illinois Chicago*, Columbia GSB*, Stanford GSB*, Booth Finance Brownbag
- **2021**: AFA Meeting PhD Poster Session (×2), SoFiE Machine Learning Conference*, EFA Annual Meeting, SoFiE Annual Conference*, WFA Annual Meeting, NBER Insurance*, SITE 2021*, NY Fed/ NYU Financial Inter- mediation Conference*, ABFER 2021*, FRB Philadelphia Consumer Finance Round Robin 2021*, World Risk and Insurance Economics Congress 2021*, European Economic Association 2021*, Booth Finance Brownbag
- **2020**: Chicago Booth, SFS Cavalcade, MFA Annual Meeting, International Risk Management Conference, Bergen Fintech Conference, Bank of England Modelling with Big Data & Machine Learning Conference
- **2019**: Johns Hopkins University Carey Conference*, Wharton*, Booth Finance Brownbag

Invited Workshops

- **2021**: Mitsui Center Summer School on Structural Estimation in Corporate Finance, Machine Learning and Eco- nomics Summer Institute

- **2020**: SoFiE Summer School, BFI MFR Summer Session, Stanford Big Data Initiative in International Macro- Finance, NBER Economics of AI
- **2019**: Princeton Insurance Workshop

Discussions

- **2021**: E(astern) FA Annual Meeting
- **2020**: Bank of England Modelling with Big Data & Machine Learning

Teaching Experience

The University of Chicago, Booth School of Business

Quantitative Portfolio Management (MBA)	TA for Ralph Koijen	2023
Blockchain, Cryptocurrencies, and Web3 (MBA)	TA for Anup Malani & Anthony Zhang	2023
Portfolio Choice & Asset Pricing (PhD)	TA for Stefan Nagel	2022
Quantitative Portfolio Management(MBA)	TA for Ralph Koijen	2022
Portfolio Choice & Asset Pricing (PhD)	TA for Stefan Nagel	2021
Quantitative Portfolio Management(MBA)	TA for Ralph Koijen	2021
Corporate Finance Theory (PhD)	TA for Douglas Diamond & Zhiguo He	2021
International Macro Policy (EMBA)	TA for Brent Neiman	2021
International Macro Policy (MBA)	TA for Brent Neiman	2020
Big Data (MBA)	TA for Veronika Rockova	2020

University of Pennsylvania, The Wharton School

Wharton Investment Trading Group, Quant Team	Student Instructor	2018
Investment Management (MBA, UG)	TA for Robert Stambaugh	2017
International Financial Markets (MBA, UG)	TA for Amir Yaron	2017
Behavioral Finance (MBA, UG)	TA for Nikolai Roussanov	2017
Investment Management (MBA, UG)	TA for Robert Stambaugh	2016

Work and Industry Experience

AQR Capital Management, Greenwich, CT — 2016
Research Analyst, Global Stock Selection

Forefront Capital Management, Mumbai, India — 2015
Research Analyst, Special Situations Group

Republic of Korea Army, Seoul, South Korea — 2012–2014
Discharged a Platoon Sergeant, 5th Armor Brigade

Professional Experience

Organizer

- Organizer for Econ Dynamics Working Group (with Lars Hansen) — 2021–22, 2022–23
- Co-Organizer for Chicago Booth Asset Pricing Working Group — 2021–22, 2022–23
- Founder of Chicago Booth ML in Finance Reading Group — 2020–21, 2021–22, 2022–23

- Co-Organizer for Chicago Booth Finance Brownbag 2020–21

Leadership

- Certified Mental Health First Aider 2021
- Graduate Student Liaison (GSL), Economics Department 2021
- Co-President of Political Economy Club (PEC), Economics Department 2020–21
- Chicago Booth Standing Committee on PhD Climate 2020–21

Referee

- Review of Finance, American Economic Review: Insights

Program Review

- Empirics and Methods in Economics Conference (2020)

Additional Information

Citizenship

South Korea. Born 1992.

Computer Skills

Python (advanced), Stata (intermediate), Matlab (intermediate), R (intermediate)

Interests

Classical piano, Wildlife photography (mostly squirrels), Competitive soccer (positions: LB, DM), Soccer refereeing (Certified Level 5, Korea Football Association)

I run a daily listserv called Plausibly Exogenous, which has 600+ subscribers.

I created the PhD Consensus Survey, a PhD counterpart to the survey of economists conducted by the Initiative on Global Markets (IGM).

Languages

English (fluent), Korean (native), Japanese (intermediate), Spanish (intermediate)

Addendum: Paper Abstracts

2. Pricing of Climate Risk Insurance: Regulatory Frictions and Cross-Subsidies
(with Ishita Sen, Ana-Maria Tenekedjieva) Revise & Resubmit, Journal of Finance

We study the consequences of state-level price (rate) regulation for U.S. homeowners' insurance, a $15 trillion market that provides households protection against climate losses. Using two distinct identification strategies and novel data on regulatory filings and ZIP code level rates, we find that insurers in more regulated states adjust rates less frequently and by a lower magnitude after experiencing losses. Importantly, they overcome these rate-setting frictions by adjusting rates in less regulated states, consistent with insurers cross-subsidizing across states. In the long-run, these behaviors lead to a decoupling of rates from risks, implying distortions in risk sharing across states.

3. Asset Demand of U.S. Households
(with Xavier Gabaix, Ralph Koijen, Federico Mainardi, Motohiro Yogo)

We use novel monthly security-level data on U.S. household portfolio holdings, flows, and returns to analyze asset demand across an extensive range of asset classes, including both public and private assets. Our dataset covers a diverse spectrum of households across the wealth distribution, notably

including 372 portfolios exceeding $1 billion in assets. This ensures representation of ultra-high-net-worth (UHNW) households that are typically not well covered in survey data. With these unique data, we study the portfolio rebalancing behavior of households and ask whether (and, if so, which) households play an important stabilizing role in financial markets. Our findings reveal a stark contrast: less affluent households sell U.S. equities amid market downturns, while UHNW households take the opposite side. This behavior is more pronounced among households who rebalance their portfolios more frequently. However, the sensitivity of flows to returns is generally quite small and as the trades of dierent wealth groups partly oset each other, the aggregate household sector plays a limited role to absorb financial fluctuations. To understand the contrasting trading behavior across households, we show that flows to U.S. equities are negatively correlated with "active returns" (the dierence between an investor's return and the market return) for all wealth groups. However, the flows to U.S. equities of less auent households are also positively correlated with broad market returns – perhaps due to shifts in risk aversion, sentiment, or perceived macroeconomic risk – leading this group of households to act pro-cyclically. Across all asset classes, three factors with intuitive economic interpretations explain 75% of all variation in portfolio rebalancing. Those factors bet on the long-term equity premium, the credit premium, and the premium on municipal bonds. In sum, our framework and data paint a coherent picture of U.S. households' rebalancing behavior across the wealth distribution and across broad asset classes.

4. Unpacking the Demand for Sustainable Equity Investing
(with Don Noh, Jihong Song)

We investigate the heterogeneity in investor demand for sustainable equity investing and study its implications. We measure firm-level sustainability across three dimensions: third-party environment scores, emissions, and green patents. Separately estimated institutional investor demands are sensitive to scores and emissions, but not to green patents. We then aggregate these heterogeneous demands in an equilibrium framework to draw implications for the effectiveness of sustainable investing: (i) price-elastic investors do not "undo" effects of sustainable investors, (ii) investor pressure for sustainability only weakly predicts future improvements in firm sustainability, and (iii) incorporating green patents into ESG ratings can be a valuable adjustment.

5. Climate Capitalists
(with Niels Gormsen, Kilian Huber)

Climate capitalists invest in green firms in order to lower these firms' cost of capital and thereby stimulate green investments. This "green investing" channel only works if green firms actually reduce their perceived cost of capital and discount rates in response to green investing. Using data from Gormsen and Huber (2022), we find that the average difference in the perceived cost of capital between the greenest and the brownest firms was close to zero before 2016 but has fallen to -2.6 percentage points in the years since 2016, concurrent with the rise of green investing. Similarly, the difference in discount rates was small before 2016 and has fallen to -5.8 percentage points since 2016. In a simple stylized model, the observed differences in discount rates are large enough to reduce firm-level emissions by 20 percent. We survey corporate managers to study how firms incorporate greenness into their discount rates. Overall, the results are consistent with an important role for climate capitalists in stimulating climate-friendly production.

6. High-Frequency Expectations from Asset Prices: A Machine Learning Approach
(with Aditya Chaudhry)

We propose a novel reinforcement learning approach to extract high-frequency aggregate growth expectations from asset prices. While much expectations-based research in macroeconomics and finance relies on low-frequency surveys, the multitude of events that pass between survey dates renders iden-

tification of causal effects on expectations difficult. Our method allows us to construct a daily time-series of the cross-sectional mean of a panel of GDP growth forecasts. The high-frequency nature of our series enables clean identification in event studies. In particular, we use our estimated daily growth expectations series to test the "Fed information effect." Extensions of our framework can obtain daily expectations series of any macroeconomic variable for which a low-frequency panel of forecasts is available. In this way, our method provides a sharp empirical tool to advance understanding of how expectations are formed.

7. Cross-sectional Skewness (with Jessica Wachter)
Review of Asset Pricing Studies, 12(1), March 2022, p.155–198

What distribution best characterizes the time series and cross-section of individual stock returns? To answer this question, we estimate the degree of cross-sectional return skewness relative to a benchmark that nests many models considered in the literature. We find that cross-sectional skewness in monthly returns far exceeds what this benchmark model predicts. However, cross-sectional skewness in long-run returns in the data is substantially below what the model predicts. We show that fat-tailed idiosyncratic events appear to be necessary to explain skewness in the data.