NBER Research Proposal - Treasury Demand

Kristy Jansen, Wenhao Li, and Lukas Schmid*

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1 Research Questions

Between March 9 and 23, 2020, amidst the onset of the Covid-19 pandemic, the 10-year Treasury yield increased to 60 basis points, while the stock market experienced four trading halts. This sharply contrasts previous financial market turmoils, when stock and bond values moved in opposite directions and Treasury yields declined. At the same time, selling pressure originated from foreign investors, mutual funds, and hedge funds, among others, selling around $600 billion of Treasuries (He, Nagel and Song, 2022), while the U.S. Treasury issued about $240bn net. Much of this supply-demand imbalance was absorbed temporarily by broker-dealers, partly through somewhat higher direct holdings, but also indirectly through a massive provision of $400bn in repo financing to investors through mid-March. However, broker-dealers have limited balance sheet capacity (Du, Hébert and Li (2022)), so the price pressure in Treasury markets only eased when the Federal Reserve began to purchase Treasuries directly in large amounts. This event suggests that Treasury demand from various private investors and the Fed affects Treasury market fragility.

Similarly, in September 2019, overnight repo rates suddenly climbed to about 10%, which is 8% higher than the Fed funds rate. One narrative, as pointed out by a 2021 report by the Group of 30, including central bankers, financiers, regulators, and academics, is that the supply of Treasuries vastly outstripped the capacity of the market, including broker-dealers.[1] With limited capacity, "episodes of market dysfunction are not only likely to continue, but to occur with increasing frequency," the report said.

Notably, such turmoil in Treasury and repo markets occurred during an episode when the U.S. government debt expanded dramatically. Indeed, Treasury supply reached an unprecedented value of 24 trillion dollars, or 100% over GDP, in 2022 (see Figure 1). Moreover, projections of the Congressional Budget Office (CBO) indicate that the debt-to-GDP ratio in the U.S. may well reach critical levels of around 200% as soon as 2050, raising concerns about the sustainability of the government's fiscal position. Indeed, during the U.K. pension crisis in 2022, concerns regarding the U.K. Government's fiscal position were met with a fall in Gilt prices and rising yields. Given these developments, further increases in Treasury supply may

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[1]See https://www.wsj.com/articles/treasury-market-meltdown for more detailed discussions.

potentially lead to further turmoil in financial markets[2] and impede the U.S. Government's functioning, as well as monetary policy transmission.

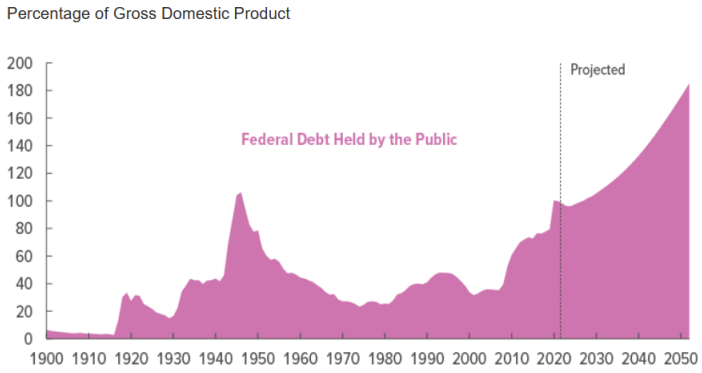


Figure 1: History and Projected Future of of U.S. Government Debt. Data source: CBO.

Against this backdrop, we ask: Who are the investors willing to absorb Treasuries? At what price are they willing to accommodate further Treasury supply? How elastic is investors' demand for Treasuries, and how do such elasticities vary with Treasury supply and across investors? How does investors' Treasury demand constrain the U.S. government's issuance decisions? Indeed, starting from the premise that any further Treasury supply needs to be absorbed by investors willing to hold them at certain prices, we ask: How does investors' Treasury demand affect fiscal capacity?

In this project, we propose to tackle these important questions from the angle of the burgeoning literature on equilibrium demand-based asset pricing, in the spirit of Koijen and Yogo (2019). Demand-based asset pricing entails linking investors' security holdings to observed security characteristics to trace out a set of empirically tractable security demand curves by estimating investors' demand elasticities. Equilibrium prices can be obtained by matching demand with supply. This framework allows us to assess the pricing implications and the price pressure coming from investors' security sales, demand changes and shocks, and security flows through counterfactual analysis from an equilibrium perspective.

To make the demand-based approach operational in our context, we propose to first collect government debt holdings (and other fixed-income security holdings) across a wide range of institutions, such as mutual funds, banks, foreign investors, the Federal Reserve, among others, at the security/maturity level to create a novel dataset on Treasury holdings as comprehensive as available. To trace out demand for government debt, we link our holdings data to key characteristics such as prices and maturity. More specifically, with our approach, we can shed new light on the following questions.

Treasury Market Fragility and Fiscal Capacity

Given the CBO's projections, it is natural to ask how much more government debt investors can absorb and at what prices. Is there a debt level beyond which investors will be willing to

[2]See also the Treasury market distress during SVB bank failure https://www.wsj.com/articles/market-stress-snarls-treasury-trading-a84a5417.

hold Treasuries only at significantly elevated yields? In such an environment, will additional Treasury supply affect collateral values, repo trading, and financial stability? Will market turmoils like in March 2020 be more frequent and more severe? Our demand-based asset pricing approach will allow us to shed light on these questions and refine them both at the security and the investor level, by asking: *What* Treasuries will *which* investors be willing to hold, at *what* prices? Ultimately, our approach allows us to estimate the market-implied U.S. government debt capacity.

Moreover, additional questions that lend themselves easily to a demand-based approach are, for example, if foreign governments (e.g., China and Russia) sell U.S. Treasuries, how large will be the impact on Treasury prices? How much of the long-term Treasury yield spike in March 2020 is due to foreign investors and mutual funds?

Government Debt Convenience

U.S. government debt is valued by more than its fundamental cash flows, thus having lower yields compared to similarly safe assets (e.g. Krishnamurthy and Vissing-Jorgensen, 2012). This is the debt convenience yield and an important source of seigniorage. By estimating demand for Treasuries across investors, we can dissect the determinants of convenience yields at the investor level. Which investors drive convenience yields, or, for example, how does foreign-investor demand affect debt convenience? What is the impact of money market fund reforms on debt convenience?

Allocation of Interest-Rate Risks

The recent Fed interest-rate hikes have prominently led to SVB bank's failure and the whole banking sector into severe distress, mainly due to losses on long-term fixed-income assets such as Treasuries and MBS. On the other hand, the interest-rate hikes have benefited long-term investors, such as pension funds and life insurers, because of a stronger drop in liability values relative to the value of their assets. More generally, how are interest-rate risks allocated across different investors, and how does this risk change over time? And, do different sectors act in different directions when interest rates change? Is there reallocation of Treasury holdings across the maturity spectrum when the short-term interest rate changes? Our demand-system approach allows us to study the dampening or amplifying effects of different investors on U.S. Treasury yields by linking Treasury demand and holdings to U.S. policy rates.

Impact of Unconventional Monetary Policies

Quantitative easing works through exchanging various fixed-income assets. The pricing implications of such exchanges depend on the demand elasticities of the investors involved. Our demand-system approach is thus the exact tool to study the equilibrium impact of unconventional monetary policies. How do the Fed purchases of long-term Treasury securities affect the long-term Treasury yield? Which investors are the Fed's counterparties in these

transactions? What is the difference between an MBS purchase and a Treasury-security purchase?

2 Data & Methodology

We list a summary of various data sources in Table 1. The holdings data from the Federal Reserve, commercial banks, and insurers are publicly available. For other sources, we need financial support to purchase the data. For example, for mutual funds, we need to purchase Morningstar Direct, and for money market mutual funds we need to purchase iMoneyNet. For pension funds, we either have to obtain their holdings from annual reports, or file FIOA requests to obtain Treasury (and other fixed income) holdings. Finally, to obtain foreign holdings, we need TIC data and for broker-dealers we need access to FR2004. Once we obtain access to all these sources, we cover about 86% of total U.S. Treasuries.

Table 1: **Summary of Various Data Sources**: This table gives an overview of the different data sources that we collect for our study, either at the security or maturity bucket level. The fraction over total is based on the financial accounts of the FED in 2020.

Sector	**Start Data**	**Frequency**	**Fraction of total**
Federal Reserve	2003	Weekly	21%
Mutual funds	2001	Monthly	5%
Insurance companies	1999	Quarterly	2%
Pension funds	1999	Quarterly/Annual	13%
Money Market Funds	1975	Monthly	10%
Commercial Banks	1976	Quarterly	4%
Broker Dealers	2001	Weekly	1%
Foreign Investors	1974	Annual	30%
Total			**86%**

To address our research questions using the data at hand, the first key step is to estimate demand for U.S. Treasuries for several investors and sectors. We do this by applying the demand-based asset pricing approach, pioneered recently by Koijen and Yogo (2019). The idea is to model investors' demand in an empirically tractable way and examine the effects of their demand on prices by imposing market clearing conditions. While this approach has been applied to corporate bond pricing (Bretscher et al., 2020), institutional investors' demand shifts and their causal effect on euro-area yields (Jansen, 2023), as well as the effects of Q.E. in the euro-area (Koijen et al., 2021), the literature has not examined U.S. Treasury demand. So far, the literature assumes that supply is fixed. In our work, we also provide a methodological contribution to the existing literature by adopting a flexible approach that relaxes the assumption of fixed supply, precisely because we would like to understand the effect of changes in government debt supply on yields.

To estimate the demand system, we adopt a nested demand structure that first traces

out how investors allocate funds among major fixed-income asset classes, such as Treasuries, mortgage-backed securities (MBS), and corporate bonds, and then zoom in on demand for U.S. Treasuries specifically. Investors will have different demands for U.S. Treasuries depending on: i) yields; ii) maturity; iii) date since issuance (on/off the run); iv) liquidity (measured by the amount outstanding); v) and whether inflation is protected (TIPS). Depending on the granularity of the data available for investors, we apply the demand system to holdings data at the security level, or alternatively, at the maturity bucket level.

Clearly, prices and quantities are determined simultaneously in equilibrium and hence are driven by the same factors. As a result, when estimating the demand system, we need to instrument for yields and supply shocks. To identify price/yield shocks, we propose to use mutual fund flows, as mutual funds tend to sell assets proportionally after investor redemptions (Lou, 2012). For supply side shocks, we propose to use i) monthly/quarterly dummies that capture the strong cyclical variations in T-bill supply (Greenwood, Hanson and Stein, 2015); ii) new Treasury bill issuances (Sunderam, 2015); or iii) Treasury auction variations (Gorodnichenko and Ray, 2017).

In summary, we will assemble a new dataset and design new instruments to estimate the demand system for Treasuries and other fixed-income assets. Compared to aggregate estimations (Krishnamurthy and Li, 2022), our approach handles more granular data in an empirically tractable way.

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Policy Relevance

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Understanding the demand for U.S. Treasuries across securities and investors is relevant for the design and practice of debt management, the conduct of both fiscal and monetary policies, and for assessing Treasury and repo market stability. The recent Treasury market turmoils in March 2020 and repo market turmoils in September 2019 suggest the urgent need to investigate the market demand for Treasuries to better understand market fragility. In equilibrium, it is this demand that shapes the prices at which the U.S. government can sell new Treasury securities, thereby determining the market value of its debt burden. Given the size of a particular issuance, in terms of debt management, by considering the demand for different Treasury securities, the government can choose the portfolio of newly issued securities to accommodate that demand. Understanding investors' willingness to hold Treasuries as collateral, in turn, is critical for the implementation of monetary policy, as well as the functioning of repo markets and money markets more broadly. Guidance regarding when U.S. fiscal capacity may be exhausted in that investors are no longer willing to absorb Treasury supply at prevailing prices thus helps design policies that are consistent with financial stability. The demand-based approach gives us a flexible tool to estimate that demand across investors in an empirically tractable way.

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Conflict of Interest Statement

NBER Research Proposal - Treasury Demand

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Kristy Jansen: I do not have any conflict of interest.

Wenhao Li: I do not have any conflict of interest.

Lukas Schmid: I do not have any conflict of interest.

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RESEARCH INTERESTS

Asset pricing, behavioral finance, institutional investors, and portfolio choice.

ACADEMIC APPOINTMENTS

- **University of Southern California, Marshall School of Business**
  - Assistant Professor in Finance and Business Economics, Fall 2022 - current.

EDUCATION

- **Tilburg University**
  - Ph.D. in Finance, 2016 - 2022.
  - Research Master in Finance (side-inflow), 2015-2016.
  - Master in Quantitative Finance and Actuarial Science, 2013-2015, *Cum Laude*.
  - Bachelor in Econometrics and Operational Research, 2010-2013, *with Distinction*.
- **University of Pennsylvania, The Wharton School**
  - Visiting Ph.D., fall 2017 and fall 2018. *Host*: Jules van Binsbergen.

EMPLOYMENT

- **Bank for International Settlements** (BIS)
  - Technical Advisor, August 2021 - December 2022.
  - Senior Associate, PhD Fellowship Programme, April - July 2021.
- **De Nederlandsche Bank** (DNB)
  - Ph.D. Research Affiliate, 2017 - current.
  - Data Scientist, 2020-2021.
  - Graduate Intern, 2015 - 2016.

MAIN RESEARCH PAPERS

Long-term Investors, Demand Shifts, and Yields *Job Market Paper*
R&R Review of Financial Studies

Presented at: AEA · Chicago Booth Asset Pricing Conference · EFA · Dutch Treasurer · Colorado Finance Summit (job market session) · SoFiE (webinar) · EWMES · FIRS (job market session) · SoFiE (young scholars session) · EEA · Dauphine Finance PhD Workshop · Finance Forum (phd session) · TADC (canceled covid-19) · FMA (doctoral consortium) · FMA (phd session) · Netspar Pension Day · BIS · University of Bonn · Tilburg University · DNB · ECB's Young Economists' Competition (poster) · Day-Ahead Workshop on Financial Regulation (poster) · AFA (poster).

Awarded with: Colorado Finance Summit Best PhD Paper Award 2021 · Inquire Europe Research Prize 2021 · SoFiE Best Paper Award 2021 · Finalist ECB's Young Economists' Competition 2020 · Inquire Europe Research Grant 2020.

Do Teams Alleviate or Exacerbate Behavioral Biases? Evidence from Extrapolation Bias in Mutual Funds with Ricardo Barahona and Stefano Cassella.

Presented at: ECBE Conference Harvard (scheduled) · CFR Research Seminar Cologne · AFA · USC Social Behavioral Finance Conference (scheduled) · Research in Behavioral Finance Conference (scheduled) · SFS Cavalcade North America · Stockholm School of Economics · NBER Behavioral Finance Meeting · Academic Research Colloquium · FMA · Tilburg University (Economics) · Tilburg University (Finance).

Pension Funds and Drivers of Heterogeneous Investment Strategies with Dirk W.G.A. Broeders.

Presented at: EFA · Inquire Europe webinar · 2nd Frontiers of Factor Investing Conference · Women in Finance Workshop · AFBC · FMA · PFMC · World Finance Conference · EFMA (canceled covid-19) · ICPM webinar · Robeco · Maastricht University · De Nederlandsche Bank · Tilburg University.

Awarded with: Inquire Europe Research Grant 2018.

Covered in: SUERF · Top1000funds.com · Fondsnieuws · PensioenPro.

The Shadow Costs of Illiquidity with Bas J.M. Werker, 2022, *Journal of Financial and Quantitative Analysis*, 57(7), 2693-2723.

Covered in: PensioenPro.

Main Work In Progress

Which Exchange Rates Matter to Global Investors? with Hyun Song Shin and Goetz von Peter.

Short summary: We examine how foreign investors react to different types of exchange rates, using security-level holdings of emerging market sovereign bonds. We focus on euro-based investors that allows us to identify the role of currency mismatch on the lender side separately from other channels centered on the US dollar. The study sheds light on the continued challenges emerging market governments face when issuing more local currency bonds to global investors.

Other Papers (peer-reviewed)

A Survey of Institutional Investors' Investment and Management Decisions on Illiquid Assets with Patrick F.A. Tuijp, 2021, *Journal of Portfolio Management*, 47 (3), 135-153.

Covered in: Canadian Investment Review · the Association of Canadian Pension Management (the Observer) · PensioenPro.

Pension Fund's Illiquid Assets Allocation Under Liquidity and Capital Requirements with Broeders, D.W.G.A., and Werker, B.J.M., 2021, *Journal of Pension Economics and Finance*, 20(1), 102-124.

Covered in: Top1000funds.com · PensioenPro.

Awards, Honors, and Scholarships

- Netspar Thesis Award Winner 2022 €3,000.
- Colorado Finance Summit Best PhD Paper Award 2021 $2,000.
- Inquire Europe Research Prize 2021 €4,000.
- Society for Financial Econometrics (SoFiE) Best Paper Award 2021 $500.

- Finalist at the ECB Young Economists' Competition 2020.
- Selected Research Proposal European Insurance and Occupational Pensions Authority (EIOPA) 2021 (with Jac Kragt).
- Inquire Europe Research Grant 2020 €10,000.
- Semi-finalist Best Paper Award FMA 2019.
- Netspar Individual Research Grant 2019 €40,000.
- Inquire Europe Research Grant 2018 €10,000 (with Dirk Broeders).
- AFA Doctoral Student Travel Grant 2018 $775.
- Instituut Gak Research Grant 2016 €200,000.
- Excellence Scholarship Tilburg University 2010 €3,000.

Presentations (including scheduled)

* indicates presentation by coauthor

- **2023**: *Seminars*: ECBE Conference Harvard (scheduled) · University of Cologne
  Conferences: AEA · AFA*

- **2022**: *Seminars*: Stockholm School of Economics* · UNC Kenan-Flagler · Copenhagen Business School · FED Board · Imperial College London · Duke University · UW Foster · McGill Desautels · UTD Jindal · Dartmouth Tuck · OSU Fisher · HEC Paris · Frankfurt School · USC Marshall · BI Oslo · Colorado-Boulder · Purdue · Erasmus School of Economics · Amsterdam Business School · BIS · Bocconi · UBC Sauder · Oxford Saïd
  Conferences: Chicago Booth Asset Pricing Conference · USC Social Behavioral Finance Conference · EFA · Research in Behavioral Finance Conference* · SFS Cavalcade (North America)*
  Discussions: EFA, Swiss Winter Conference

- **2021**: *Seminars*: SoFiE (webinar) · Tilburg University (Finance, 2x) · Tilburg University (Economics) · University of Bonn · BIS · ECB · Inquire Europe webinar
  Conferences: Colorado Finance Summit (job market session) · European Winter Meetings of the Econometric Society (EWMES) · NBER Behavioral Finance Meeting · Academic Research Colloquium (Washington)* · FMA (Denver) · Day-Ahead Workshop on Financial Regulation (poster, Zurich) · SoFiE Pre-Conference (San Diego) · 4th Annual Dauphine Finance PhD Workshop (Paris) · FIRS PhD session (Vancouver) · ODRF (Washington) · 2nd Frontiers of Factor Investing Conference (Lancaster University Management School)
  Discussions: International Pension Workshop (Leiden), 28th Finance Forum (Lisbon)

- **2020**: *Conferences*: ECB's Young Economists' Competition (poster, Sintra) · EEA (Rotterdam) · World Finance Conference (2x, Malta) · EFA (Helsinki) · PhD Mentoring Day Finance Forum (Lisbon) · ICPM webinar (Canada)* · ESSEC-Amundi Annual Workshop (Paris, postponed covid-19) · EFMA (Dublin, canceled covid-19) · Transatlantic Doctoral Conference (TADC, London Business School, canceled covid-19) · Inquire Joint Spring Seminar (Riga, postponed covid-19) · AFA PhD Poster Session

- **2019**: *Seminars*: Robeco · De Nederlandsche Bank (2x) · Tilburg University (Finance, 2x) · Maastricht University · Achmea Investment Management
  Conferences: AFBC (Sydney)* · PFMC (Paris) · Netspar Pension Day · FMA (New

Orleans) ·Doctorial Consortium FMA (New Orleans) · Special PhD Session FMA (New Orleans) · Twelfth Annual SoFiE Conference (Shanghai) · Women in Finance Conference (Goethe University, Frankfurt) · International Pension Workshop
Discussions: PFMC (Paris) · FMA (New Orleans) · International Pension Workshop

- **2018**: *Seminars*: the Wharton School · Tilburg University (Finance) · Ortec Finance (Toronto) · Cardano · Robeco
Conferences: International Pension Workshop · Market Microstructure and High Frequency Data - The University of Chicago* · INPARR (OECD, Paris)
Discussions: International Pension Workshop

- **2017**: *Seminars*: Tilburg University (Finance) · De Nederlandsche Bank · Maastricht University* · Ortec Finance (Rotterdam) · APG Investments
Discussions: International Pension Workshop

Teaching Experience

Lecturer:

- Business Finance (BUAD306), Undergraduate, University of Southern California, Fall 2022 - current.
- Finance 1, Undergraduate, Tilburg University, Spring 2021.

Instructor:

- Fixed Income Analysis, Graduate, Tilburg University, Spring 2017 - Spring 2020.

Professional Service

Referee: Review of Finance, Journal of Banking & Finance, Journal of Pension Economics and Finance.
Organizer: Asset Pricing Reading Group, Tilburg University, 2019-2020.

Other Skills

Software: Matlab (advanced), Python (intermediate), R (advanced), Stata (advanced).
Languages: Dutch (native), English (fluent), German (basic).

Interests

Running: half/full marathons, obstacle runs.

References

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RESEARCH INTEREST

Macro-finance, Financial Intermediation, Asset Pricing

EMPLOYMENT

2019– present	Assistant Professor of Finance and Business Economics, Marshall School of Business, University of Southern California

EDUCATION

2014–2019	**Stanford Graduate School of Business**
	Ph.D. in Finance. Dissertation: Public Liquidity and Financial Crises
2014–2017	**Stanford University**
	M.A. in Economics.
2009–2013	**Tsinghua University**
	B.S. in Industrial Engineering, *with honors*

JOURNAL ARTICLES

1. The Demand for Money, Near-Money, and Treasury Bonds, with Arvind Krishnamurthy, **Review of Financial Studies, 2022**.

Arthur Warga Award for the Best Paper in Fixed Income, SFS Cavalcade, 2022

WORKING PAPERS

2. The Distortionary Effects of Central Bank Direct Lending on Firm Quality Dynamics with Ye Li

R&R at Review of Economic Studies

3. Dissecting Mechanisms of Financial Crises: Intermediation and Sentiment, with Arvind Krishnamurthy

NBER Working Paper No. 27088

R&R at Journal of Political Economy

4. The Passthrough of Treasury Supply to Bank Deposit Funding, with Yiming Ma and Yang Zhao

Arthur Warga Award for the Best Paper in Fixed Income, SFS Cavalcade, 2020

5. Public Liquidity and Financial Crises

R&R at AEJ Macro.

Cubist Systematic Strategies Award for Outstanding Research, WFA

6. The Term Structure of Liquidity Premium, with Scott Joslin and Yang Song

7. Intermediary Balance Sheets and the Treasury Yield Curve, with Wenxin Du and Benjamin Hebert
R&R at Journal of Financial Economics.

AWARDS

2022	Arthur Warga Award for Best Paper in Fixed Income, SFS Cavalcade
2020	Arthur Warga Award for Best Paper in Fixed Income, SFS Cavalcade
2019	Cubist Systematic Strategies Award for Outstanding Research, Western Finance Association
2014–2019	Stanford GSB Fellowship
2013	Outstanding Graduate for Academic Performance, Tsinghua University
2012	Boeing Scholarship

PRESENTATIONS AND DISCUSSIONS

2023	AFA Annual Meeting (×3), FDIC finance seminar, HKU Finance Seminar, MFA Annual Meeting (× 3), Duke Finance Seminar†, CUHK Finance Seminar†, UC Santa Cruz Macroeconomic Seminar†, Chicago Banking Seminar†, OFR Rising Scholar Conference†, SF Fed Reserve Seminar†, UCLA Fink Conference†, SFS Cavalcade (× 3)
2022	MFA Annual meeting (×2), Brown University Macroeconomic Seminar, New York Fed Finance Seminar, Bank of Italy and Bocconi University conference on "Financial stability and Regulation", EFA annual meeting. SFS Cavalcade (×3), UNC Junior Faculty Conference, FIRS, CICF (×2), CICM, NFA, UBC brownbag, Chicago Fed Macroeconomic Seminar, HEC Paris Finance Seminar, Cornell Finance Seminar, JHU Junior Conference, Stanford GSB Alumni Conference, FRA annual meeting*
2021	NBER SI*, IMF Finance Seminar, AFA Annual Meeting, Cornell*, Wharton*, New York Fed*, SFS Cavalcade (×2), WFA, CICF, CICM, IBEFA Summer Meeting, Barcelona Asset Prices and Macroeconomics Workshop, SED, EFA, CESifo, ETH Zrich Macro-finance Conference, Oxford Said–ETH Zurich Macro-finance Conference, Red Rock Finance Conference, Federal Reserve Board*, New York Fed*, Liquidity in Macroeconomics Workshop, RBC-OFR 2021 Financial Stability Conference, FTG Meeting at Yale*, Colorado Finance Summit, Paris Finance Meeting
2020	NBER Asset Pricing, Short-Term Funding Conference by Fed Board, Liquidity in Macroeconomics Workshop, AFA Annual Meeting, SFS Cavalcade, Virtual Finance Workshop*, Asset Prices, Finance and Macroeconomics Workshop, UW Foster*, Stanford SITE Conference, WFA Annual Meeting, Australasian Finance and Banking Conference
2019	Stanford Finance Seminar, Stanford Macro Lunch, MFM summer session, SITE conference, EMCON, Midwest Macro Conference, SFS Cavalcade Asia Pacific, HKUST Finance, USC Marshall FBE, Wharton Finance, Western Financial Association Annual Meeting, UW Foster, Northern Financial Association Annual Meeting.

2018 Federal Reserve Bank of Cleveland*, 2018 Columbia Junior Structural Conference*, Stanford Graduate School of Business, Stanford SITE Summer Workshop, American Financial Association Annual Meeting, UNC Junior Roundtable*, and the 2018 WAPFIN Conference at NYU Stern*

2017 SFS Cavalcade*, AFA Annual Meeting

*Note: * for coauthor presentations, †for scheduled presentations.*

Conference Discussions:

2023 Maxted (2022), Macro-Finance Model with Sentiment, at AFA 2023.

2023 Mattsson, Luedtke, and Takes (2022), Measuring the Velocity of Money, at AEA 2023.

2022 Thomas M. Eisenbach and Gregory Phelan (2022), Fragility of Safe Asset Markets, at Carey Finance Conference 2022.

2022 Li and Xu (2021), Intermediary-Based Equity Term Structure, at CICF 2022.

2022 Faia, Salomao, and Veghazy (2022), Granular Investors and International Bond Prices, at UNC Junior Roundtable 2022.

2022 Gorton, Ross, and Ross (2022), Making Money, at MFA 2022.

2021 Breckenfelder, Grimm, and Hoerova (2021), Do non-banks need access to the lender of last resort? Evidence from fund runs, at Paris Finance Meeting 2021.

2021 Eisenschmidt, Ma, and Zhang (2021), "Monetary Policy Transmission in Segmented Markets", at Swedish House of Finance Conference, Money Markets in a New Era of Central Bank Policies.

2021 Quentin (2021), "Treasury Debt and the Pricing of Short-Term Assets", Oxford Said–ETH Zurich Macro-finance Conference.

2020 Kargar (2019), Heterogeneous Intermediary Asset Pricing, at American Financial Association Annual Meeting 2020.

2020 Cong, Li, and Wang (2019), Tokenomics and Platform Finance, at American Australian Finance and Banking Conference 2020.

2020 Chernov, Song, Augustin, and Schmid (2020), *Benchmark interest rates when the government is risky*, at Western Financial Association Annual Meeting 2020.

PROFESSIONAL SERVICE

Referee for the Journal of Finance, Review of Financial Studies, Journal of Financial Economics, Review of Economic Studies, Management Science, the Journal of Monetary Economics, American Economic Journal: Macroeconomics, Journal of Financial and Quantitative Analysis, Review of Economic Dynamics, and Review of Finance.

Program Committee for SFS Cavalcade North America 2020, 2021, and 2022, Midwest Finance Association Annual Meeting 2023, Financial Intermediation Research Society Meeting 2023.

Organizer for USC Macro-Finance Workshops and Conference.

TEACHING

2019–2023 BUAD 306 Business Finance (Undergraduate), Marshall School of Business

2019–2022 Continuous-Time Methods in Finance and Economics (PhD lecture), UW Foster

2018 FINANCE 377 Chinas Financial System (MBA), Stanford Graduate School of Business. TA lecture on "Shadow Banking in China".

2017 FINANCE 637 Macroeconomics and Financial Markets (PhD), Stanford Graduate School of Business. TA lecture on "Continuous-Time Method".

Lukas Schmid

Date	March 2023
Contact Information	University of Southern California Marshall School of Business lukas@marshall.usc.edu https://sites.google.com/view/lschmidfinanceresearch/
Research Interests	Financial Economics and Macroeconomics, Credit Risk & Fixed Income, Risk Management
Positions	**University of Southern California**, **Marshall School of Business**, Los Angeles, CA Professor of Finance and Business Economics, 2020- **Duke University**, **The Fuqua School of Business**, Durham, NC Associate Professor of Finance, 2012 - 20 (tenured in June 2014) Assistant Professor of Finance, 2008 - 12
Affiliations	**Center for Economic Policy Research**, London, UK Research Fellow, 2016-
Editorial Positions	**Management Science**, Finance Area Department Editor, 2021- Associate Editor, 2014-21 **Journal of Finance** Associate Editor, 2022-
Visits	**Singapore Management University**, Singapore Richard Hu Distinguished Visiting Professor, Finance Department, 2023 **New York University**, **Stern School of Business**, New York, NY Visiting Research Professor, Economics Department, 2016-17 **UCLA**, **Anderson School of Management**, Los Angeles, CA Visiting Assistant Professor of Finance, 2013 - 14 **London Business School**, London, UK Visiting Assistant Professor of Finance, Spring 2012 **University of Pennsylvania**, **The Wharton School**, Philadelphia, PA Visiting Scholar, Finance Department, 2005 - 2008, 2017
Education	**Université de Lausanne & Swiss Finance Institute**, Lausanne, Switzerland Ph.D., Finance, October 2007 **Université de Lausanne**, Lausanne, Switzerland M.Sc., Economics, October 2002

ETH Zürich, Zürich, Switzerland

Diplom (M.Sc.), Mathematics, April 2001

Publications

1. Levered Returns (with João Gomes)
   Journal of Finance, April 2010
   Smith-Breeden First Prize for best paper in the Journal of Finance , 2010
2. The Market Price of Fiscal Uncertainty (with Max Croce and Thien Nguyen)
   Journal of Monetary Economics, July 2012
3. Fiscal Policies and Asset Prices (with Max Croce, Howard Kung and Thien Nguyen)
   Review of Financial Studies, September 2012 (lead article)
4. Investment-Based Corporate Bond Pricing (with Lars-Alexander Kuehn)
   Journal of Finance, December 2014
   Napa Finance 2012 Best Paper Award
5. Innovation, Growth and Asset Prices (with Howard Kung)
   Journal of Finance, June 2015
6. Sticky Leverage (with João Gomes and Urban Jermann)
   American Economic Review, December 2016
7. Interest Rate Risk Management in Uncertain Times (with Lorenzo Bretscher and Andrea Vedolin)
   Review of Financial Studies, August 2018
8. Dynamic Corporate Liquidity (with Boris Nikolov and Roberto Steri)
   Journal of Financial Economics, April 2019
9. Government Debt and the Returns to Innovation (with Max Croce, Thien Nguyen and Steven Raymond)
   Journal of Financial Economics, June 2019
10. A Macrofinance View of US Sovereign CDS Premiums (with Mikhail Chernov and Andres Schneider)
    Journal of Finance, October 2020
    Warga Best Fixed Income Paper Award, SFS Cavalcade 2016
11. Competition, Markups and Predictable Returns (with Alexandre Corhay and Howard Kung)
    Review of Financial Studies, December 2020
12. The Sources of Financing Constraints (with Boris Nikolov and Roberto Steri),
    Journal of Financial Economics, February 2021
13. Equilibrium Asset Pricing with Leverage and Default (with João Gomes)
    Journal of Finance, April 2021
    Jacobs Levy Equity Management Center Research Prize 2016
14. Benchmark Interest Rates when the Government is Risky (with Patrick Augustin, Mikhail Chernov, and Dongho Song),
    Journal of Financial Economics, April 2021
15. Risk-adjusted Capital Allocation and Misallocation (with Joel David and David Zeke)
    Journal of Financial Economics, September 2022 (Editor's Choice Article)
    NASDAQ Award for Best Paper on Asset Pricing, WFA 2018

16. The Term Structure of CIP Violations (with Patrick Augustin, Mikhail Chernov, and Dongho Song)
Journal of Finance, forthcoming

Working Papers

- The Risks of Safe Assets (with Yang Liu and Amir Yaron)
  R&R Review of Economic Studies
- Q: Risk, Rents, or Growth? (with Alexandre Corhay and Howard Kung)
  R&R Journal of Financial Economics
- Institutional Corporate Bond Pricing (with Lorenzo Bretscher, Ishita Sen, and Varun Sharma)
  R&R Review of Financial Studies
- Marking to Market Corporate Debt (with Lorenzo Bretscher, Peter Feldhuetter, and Andrew Kane)
  Rej&R Journal of Finance
- Credit Market Equivalents and the Valuation of Private Firms (with Niklas Huether and Roberto Steri)
- Government Debt and Inflation with Real and Nominal Bonds (with Vytautas Valautis and Alessandro Villa)
- Passive Demand and Active Supply: Evidence from Maturity-mandated Corporate Bond Funds (with Lorenzo Bretscher and Tiange Ye)
- Managerial Beliefs and the Cross-Section of Incentives and Compensation (with Boris Nikolov and Roberto Steri)

Honors and Awards

Smith-Breeden First Prize for best paper in the Journal of Finance, 2010
Napa Finance 2012 Best Paper Award
Warga Best Fixed Income Paper Award, SFS Cavalcade 2016
Jacobs Levy Equity Management Center Research Prize 2016
NASDAQ Award for Best Paper on Asset Pricing, WFA 2018
ASU Sonoran Jacob Gold & Associates Best Paper Prize 2021
American Economic Review Excellence in Refereeing Award 2017
"New Stars in Finance" Conference 2008 (invited speaker)
Fondation Nicolas et François Grandchamp Prize for best PhD Thesis, 2007
Swiss National Science Foundation Research Fellowship, 2005-2007
NCCR Doctoral Fellowship in Finance, 2003-2005
La Suisse Assurances Prize, 2003
FAME Fellowship in Finance, 2002-2003

Teaching

University of Southern California, Marshall School of Business

Advanced Asset Pricing (PhD), 2020-

Investments (BSBA elective), 2021-

Duke University, The Fuqua School of Business

Investments (MBA elective), 2008-2019

Foundations of Capital Markets (MMS), 2009-2011

Financial Economics (PhD), 2012-2019

London Business School

Empirical Finance (PhD), 2012

Financial Economics (PhD), 2014

UCLA, **Anderson School of Management**

Foundations of Finance (MBA), 2013

Chinese University of Hong Kong

Dynamic Models in Finance (PhD), 2020

PhD Advising

Michael Albert (2013, Duke Finance, Co-Chair, placed at Ohio State University); Lorenzo Bretscher (2018, LSE Finance, London Business School); Alexandre Corhay (2015, University of British Columbia, University of Toronto); Howard Kung (2012, Duke Finance, London Business School); Robert Kurtzman (2014, UCLA Economics, Federal Reserve Board of Governors); Zhao Liu (2020, Duke Economics, University of Warwick); Roberto Marfe (2013, Swiss Finance Institute, Collegio Carlo Alberto); Marcelo Ochoa (2013, Duke Economics, Federal Reserve Board of Governors); Ryan Pratt (2012, Duke Finance, Co-Chair, Brigham Young University); Alexandru Rosoiu (2015, Duke Finance, Cornerstone Research); Roberto Steri (2014, Bocconi Finance, Chair, University of Lausanne); Alessandro Villa (2021, Duke economics, Co-Chair, Chicago Fed); Stuart Webb (2013, Duke Finance, University of Texas at Austin); David Zeke (2015, UCLA Economics, University of Southern California)

Conferences (includes co-author presentations)

- **2023:** ITAM Finance Conference, Midwest Finance Association, IDC Herzliya Annual Conference, NBER Long-Term Asset Management, Chicago Fed Workshop on Non-Bank Financial Intermediaries, SFS Cavalcade, Bank of Canada/FRBSF Fixed Income Conference
- **2022:** American Finance Association, Econometric Society Winter Meetings, HEC-McGill Winter Finance Meeting, Finance Down Under Melbourne, Midwest Finance Association, NBER Long-Term Asset Management, AIM Investment Conference Austin, Tepper/LAEF Macrofinance Conference UCSB, SFS Cavalcade (2), Financial Intermediation Research Conference, CEPR - HEC Paris Macrofinance Conference, Western Finance Association Annual Meeting, Society for Economic Dynamics, BI Oslo/CAPR Asset Pricing Workshop, European Finance Association (2), WashU Olin Corporate Finance Conference
- **2021:** American Finance Association, NBER Long-Term Asset Management, ASU Sonoran Finance Conference, Midwest Finance Association, Adam Smith Workshop (2), Short Term Funding Conference, SFS Cavalcade, Financial Intermediation Research Conference (2), Western Finance Association Annual Meeting, China International Conference in Finance (2), Stanford SITE, Vienna Symposium on Foreign Exchange Markets, European Finance Association (2), Red Rock Finance Conference, South Carolina Fixed Income and Financial Institutions Conference, Nova SBE Corporate Bankruptcy and Restructuring Conference, Banque de France CEPR public debt conference
- **2020:** American Finance Association (2), ITAM Finance Conference, UBC Winter Finance Conference, Finance Down Under Melbourne (2), Southern California PE Conference, ANU Asset Pricing Conference Melbourne, Seventh Sovereign Bond Markets Conference London, Brandeis Long Term Asset Management Conference, Duke/UNC Entrepreneurship Conference, NBER Asset Pricing Spring Meeting, NBER Long-Term Asset Management, PERC Research Symposium Oxford, SFS Cavalcade (2), Lausanne workshop on Public Debt and Sovereign Credit Risk, Western Finance Association Annual Meeting (2), NBER Capital Markets, Stanford SITE, European Finance Association Annual Meeting
- **2019:** American Finance Association, SFS Cavalcade (2), ITAM Finance Conference, Michigan Mitsui Finance Symposium, ASU Advances in Macroeconomics: Growth, Misallocation and Factor Shares, Society for Economic Dynamics, LBS Summer Finance Symposium, NBER Capital Markets, NBER SI Micro Data and Macro Models, CEPR Asset Pricing Meeting Gerzensee, Minnesota Workshop in Macroeconomic Theory, SHoF Conference on 'Financial

Markets and Corporate Decisions' (Keynote), European Finance Association Annual Meeting, Stanford SITE, 8th Canadian Derivatives Institute Conference Montreal, Tepper/LAEF Macrofinance Conference Carnegie Mellon, San Francisco Fed Conference on Advances in Financial Research, 7th Bank of Canada/San Francisco Fed Conference on Fixed Income Markets, SFS Cavalcade Asia-Pacific, SHUFE Finance Conference Shanghai

- **2018:** American Finance Association, UCSB/LAEF New Frontiers of Business Cycles, CEPR Third Annual Spring Symposium in Financial Economics, IDC Herzliya Annual Conference, 11th Macro Finance Society Meeting at Imperial, Society for Economic Dynamics, Hanqing Advanced Institute Summer Conference, Barcelona GSE Summer Forum, Western Finance Association Annual Meeting (2), Banque de France Investment Conference, NBER Capital Markets, European Finance Association Annual Meeting, Stanford SITE, CEPR Asset Prices and the Macroeconomy Mannheim, San Francisco Fed Conference on Advances in Financial Research
- **2017:** American Economic Association (2), SFS Cavalcade, Western Finance Association Annual Meeting (2), Econometric Society Summer Meetings, LBS Summer Finance Symposium, Society for Economic Dynamics (3), China International Conference in Finance, NBER SI Asset Pricing, NBER Capital Markets, CEPR Asset Pricing Meeting Gerzensee, European Finance Association Annual Meeting, Tepper/LAEF Macrofinance Conference Carnegie Mellon, Cass Corporate Policies and Asset Prices Conference
- **2016:** American Finance Association, European Winter Finance Summit, CEPR First Annual Spring Symposium in Financial Economics, Third Sovereign Bond Markets Conference NYU, SFS Cavalcade, BI-Swedish House of Finance Asset Pricing Conference, Barcelona GSE Summer Forum, Western Finance Association Annual Meeting (2), CEPR Asset Prices and the Macroeconomy Mannheim (2), Society for Economic Dynamics (2), Econometric Society Summer Meetings, NBER SI Asset Pricing, Stanford SITE (2), RCEF 2016 Waterloo, CEPR/FGN Growth and Business Cycles St.Gallen
- **2015:** ASU Sonoran Winter Finance Conference, PIER-Philadelphia Workshop on Macroeconomics, UCSB LAEF Macroeconomics and Business Cycles, Arne Ryde Finance Workshop, Society for Economic Dynamics (2), NBER SI Asset Pricing, NBER Capital Markets, CEPR Asset Pricing Meeting Gerzensee, Econometric Society World Congress (2), European Finance Association Meeting (2), Red Rock Finance Conference, Cambridge - CERF Corporate Finance Theory symposium, Tepper/LAEF Macrofinance Conference Santa Barbara, ECB Conference on Challenges to the Euro Area, Santiago Finance Workshop
- **2014:** American Finance Association Meeting, Adam Smith Asset Pricing Conference, EABCN-CEPR Conference on Macroeconomic Stabilization Cambridge, Financial Intermediation Research Conference, Society for Economic Dynamics (2), Econometric Society Summer Meeting Minneapolis, NBER Impulse and Propagation Mechanisms, CEPR Asset Pricing Meeting Gerzensee, European Finance Association Meeting, ITAM-PIER Conference on Macroeconomics, Bank of Canada Conference on Monetary Policy and Financial Stability, EuroFIT Workshop at LBS
- **2013:** American Finance Association Meeting, Econometric Society Winter Meeting, American Economic Association Meeting, Chicago BFI Workshop on Ambiguity in Macroeconomics, BI Oslo/CAPR Asset Pricing Workshop, Western Finance Association Annual Meeting, Society for Economic Dynamics, IDC Herzliya Summer Finance Conference, NBER Capital Markets, BU/Boston Fed Conference on Macro-Finance, Chicago BFI Conference on Macro Financial Modeling and Macroeconomic Fragility, Chicago / NYU International Macro Finance Conference
- **2012:** American Finance Association Meeting, American Economic Association Meeting, ECB Debt Growth and Macroeconomic Policies Conference, CEPR Developments in Macro and Finance London, CEPR Corporate Finance Meeting Gerzensee, Society for Economic Dynamics, Michigan Mitsui Finance Symposium, IDC Herzliya Annual Conference, 2012 Napa

Conference on Financial Markets, NBER Asset Pricing Spring Meeting

- **2011:** Texas Finance Festival, Minnesota Macro-Finance Conference, Western Finance Association Annual Meeting (2), Society for Economic Dynamics, NBER Capital Markets, CEPR Asset Pricing Meeting Gerzensee, European Finance Association Meeting, NBER Fall Asset Pricing Meeting, Carnegie-Rochester-NYU Conference on Public Policy, Tel Aviv Finance Conference
- **2010:** American Finance Association Meeting, BU/Boston Fed Conference on Macro-Finance, CMU Conference on Advances in Macro-Finance, European Finance Association Meeting, NBER Capital Markets, Society for Economic Dynamics, Banca d'Italia/EIEF Macro Workshop
- **2009:** NYU 5 Star Conference , CREDIT 2009 Venice, CEPR Macro Meeting Amsterdam, Minnesota Workshop on Macroeconomic Theory, RCEA Asset Pricing Colloquium , Society for Economic Dynamics, Amsterdam Empirical Asset Pricing Retreat, Western Finance Association Annual Meeting, LAEF Conference on Financial Markets and Macro UC Santa Barbara
- **2008:** New Stars in Finance Conference, Society for Economic Dynamics, Econometric Society Summer Meeting
- **2007:** Duke/UNC Asset Pricing Conference, NBER Asset Pricing Meeting, Society for Economic Dynamics, Western Finance Association Annual Meeting, Econometric Society Summer Meeting

Seminars

- **2023:** University of Texas at Dallas, University of Cincinnati, University of Washington, Federal Reserve Board, Cheung Kong Graduate School of Business, Nanyang Technological University Singapore, Singapore Management University, City University of Hong Kong, Chinese University of Hong Kong, Hong Kong University of Science and Technology, University of Hong Kong
- **2022:** University of South Carolina, UC Irvine, US Treasury Office of Financial Research, Federal Reserve Bank of Chicago, ITAM, Stockholm School of Economics, Copenhagen Business School, Tsinghua University, University of Connecticut, Pennsylvania State University, University of Minnesota
- **2021:** Hong Kong University of Science and Technology, Shanghai Advanced Institute of Finance (SAIF), Arizona State University, University of Bonn
- **2020:** Erasmus University Rotterdam, Tilburg University, University of Maastricht, Vienna Graduate School of Finance, EIEF Rome, Banca d'Italia, US Treasury Office of Financial Research, ETH Zürich, Federal Reserve Bank of Atlanta
- **2019:** University of Texas at Austin, University of Southern California, Universita Bocconi, University of St Gallen, University of Zurich, Bank of International Settlements, Frankfurt School of Finance & Management
- **2018:** Chinese University of Hong Kong, City University of Hong Kong, Singapore Management University, Nanyang Technological University, National University of Singapore, Johns Hopkins University, North Carolina State University, University of Virginia, ITAM, University of Toronto, INSEAD, UIUC, BI Oslo, Luxembourg School of Finance
- **2017:** MIT, University of Pennsylvania, Ohio State University, University of Southern California, Indiana University, CSEF Napoli, McGill University
- **2016:** Federal Reserve Board, Federal Reserve Bank of Cleveland, Baruch College, Université de Montréal, University of Zurich, Universita Federico II, Georgia Institute of Technology
- **2015:** University of California at Berkeley, University of North Carolina at Charlotte, Stockholm School of Economics, University of Hong Kong, Hong Kong University of Science and Technology, University of Minnesota, Collegio Carlo Alberto, Copenhagen Business School

- **2014:** University of Texas at Dallas, University of Calgary, Brigham Young University, Cheung Kong Graduate School of Business, Shanghai University of Economics and Finance, University of Frankfurt, Michigan State University, UCLA, University of Oxford, Cass Business School, Vanderbilt University, Tinbergen Institute
- **2013:** University of Texas at Austin, University of Maryland, Universitat Pompeu Fabra, Simon Fraser University, University of Illinois, University of British Columbia, Imperial College, University of Wisconsin
- **2012:** MIT, Federal Reserve Bank of San Francisco, Rice University, University of Warwick, UCLA, London Business School, London School of Economics, Imperial College
- **2011:** Paris School of Economics, EPF/HEC Lausanne, Federal Reserve Bank of Philadelphia, INSEAD, Universitat Pompeu Fabra, Bocconi, BI Oslo, Aalto University Helsinki
- **2010:** University of Southern California, New York University, European Central Bank, University of North Carolina, Boston University, London School of Economics
- **2009:** Bank of England, Duke University, University of Wisconsin
- **2008:** Carnegie Mellon University, Duke University, George Washington University, Imperial College, HEC Montréal, HEC Paris, INSEAD, London Business School, McGill University, NHH Bergen, Ohio State University, Tilburg University, University of North Carolina, University of Rochester
- **2007:** Boston University, University of Pennsylvania

Discussions

- **2023:** 6th Investment Symposium Boston: *Innovation, Industry Equilibrium, and Discount Rates* by Bustamante and Zucchi; Kentucky Bourbon Conference: *Main Street's Pain, Wall Street's Gain* by Xu and You; CEPR Asset Pricing Meeting Gerzensee: *Asset Price Redistribution* by Fagereng, Gomez, Gouin-Bonenfant, Holm, Moll, and Natvik
- **2022:** American Finance Association: *Costly Misallocation: Endogenous Growth and Asset Prices* by Dou, Ji, Tian, and Wang; American Finance Association: *A q Theory of Internal Capital Markets* by Dai, Giroud, Jiang, and Wang; Midwest Finance Association: *Idiosyncratic Income Risk, Precautionary Saving, and Asset Prices* by Meuwis; Midwest Finance Association: *Book-to-Market, Mispricing, and the Cross-Section of Corporate Bond Returns* by Bartram, Grinblatt, and Nozawa; SFS Cavalcade: *Leasing as a Mitigation Channel of Capital Misallocation* by Li and Xu; Financial Intermediation Research Conference: *Do Credit Markets Respond to Macroeconomic Shocks? The Case for Reverse Causality* by Boons, Ottonello, and Valkanov; Shadow Open Market Committee Meeting: *Fiscal Implications of Fed Balance Sheet Policies Revisited* by Lucas; Western Finance Association: *Investor Demand, Financial Market Power, and Capital Misallocation* by Choi, Kargar, Tian, and Wu; Western Finance Association: *Can Monetary Policy Create Fiscal Capacity?* by Elenev, Landvoigt, Shultz, and Van Nieuwerburgh; Western Finance Association: *What Drives Variation in the U.S. Debt/Output Ratio? The Dogs that Didn't Bark* by Jiang, Lustig, Van Nieuwerburgh and Xiaolan; Tel Aviv Finance Conference: *Identifying preference for early resolution from asset prices* by Ai, Bansal, Guo, and Yaron
- **2021:** European Finance Association: *Exposure to Uncertainty and the Accumulation of Capital* by Segal and Shaliastovich; Western Finance Association: *Equilibrium Value and Profitability Premia*, by Ai, Li, and Tong; SFS Cavalcade: *Competition Networks, Distress Propagation, and Asset Prices* by Ao, Dou, Johnson, and Wu; Macro Finance Society Fall Meeting: *Evergreening* by Faria-e-Castro, Paul, and Sanchez; Orange Finance Conference: *Whatever It Takes? Measuring Conditional Fed Promises* by Haddad, Moreira, and Muir
- **2020:** Backus Memorial Conference: *Volatility Expectations and Returns* by Lochstoer and Muir; Midwest Finance Association: *Predation or Self-Defense? Endogenous Competition and Financial Distress* by Chen, Dou, Guo, and Yi; BI-Swedish House of Finance Asset Pricing Conference: *Exchange Rates and Asset Prices in a Global Demand System* by Koijen

and Yogo; Western Finance Association: *Extrapolative Expectations, Corporate Activities and Asset Prices* by Deng; Western Finance Association: *Knowledge Cycles and Corporate Investment* by Bustamante, Cujean, and Fresard; Vienna Symposium on Foreign Exchange Markets: *The U.S. Public Debt Valuation Puzzle* by Jiang, Lustig,Van Nieuwerburgh and Xiaolan

- **2019:** Backus Memorial Conference: *Dollar Safety and the Global Financial Cycle* by Jiang, Krishnamurthy, and Lustig; Finance Scholar Consortium: *Equilibrium Asset Pricing with Price War Risks* by Dou, Ji, and Wu; Investment Symposium New York: *A Unified Model of Distress Risk Puzzles* by Chen, Hackbarth, and Strebulaev; SFS Cavalcade: *Default Risk and the Pricing of U.S. Sovereign Bonds* by Dittmar, Hsu, Roussellet, and Simasek; Financial Intermediation Research Conference, Savannah: *The Maturity Premium* by Chaderina, Weiss, and Zechner; IDC Herzliya 16th Annual Conference in Financial Economics Research: *Dominant Currency Debt* by Eren and Malamud; European Finance Association: *Decomposing Firm Value* by Belo, Gala, Salomao, and Vitorino; *Demand Elasticities, Nominal Rigidities and Asset Prices* by Clara
- **2018:** BI-Swedish House of Finance Asset Pricing Conference: *Payments, Credit, and Asset Prices* by Piazzesi and Schneider; Hanqing Advanced Institute Summer Conference: *The Role of Contingent Capital Structure in Signaling and Information Disclosure* by Yu; Western Finance Association: *Low Inflation: High Default Risk and High Equity Valuations* by Bhamra, Dorion, Jeanneret, and Weber; IDC Herzliya 15th Annual Conference in Financial Economics Research: *Sovereign Credit Risk and Exchange Rates: Evidence from CDS Quanto Spreads* by Augustin, Chernov and Song; Seventh Montreal Conference on Derivatives: *Trends in Credit Market Arbitrage* by Boyarchenko, Gupta, Steele, and Yen; Tel Aviv Finance Conference: *Time-varying Risk Premium and Unemployment Risk Across Age Groups* by Mitra and Xu; Cass Corporate Policies and Asset Prices Conference London: *The Leasing Premium* by Li and Tsou
- **2017:** American Finance Association: *Unemployment and Credit Risk* by Bai; American Finance Association: *Intangible Capital and the Investment-q Relation* by Peters and Taylor; Northeastern Corporate Finance Conference: *Developing and Acquiring Innovation* by Gu and Whited; IDC Herzliya 14th Annual Conference in Financial Economics Research: *Speed Acquisition* by Huang and Yueshen; Bank of Canada/San Francisco Fed Conference on 'Advances in Fixed Income and Macro-Finance Research': *Credit Implied Volatility* by Kelly, Manzo and Palhares; Cass Corporate Policies and Asset Prices Conference London: *Pricing Financing Risk* by Mehdat and Palazzo
- **2016:** American Finance Association: *Firm Financing over the Business Cycle* by Begenau and Salomao; UBC Winter Finance Conference: *Asset Pricing with Endogenously Uninsurable Tail Risks* by Ai and Bhandhari; SFS Cavalcade: *The Elephant in the Room: The Impact of Labor Obligations on Credit Risk* by Favilukis, Lin and Zhao; INSEAD Capital Markets Conference: *Fertility, Longevity, and Capital Flows* by Barany, Coeurdacier and Guibaud; European Finance Association: *The Market Price of Capital Misallocation* by Ehouarne, Kuehn, and Schreindorfer
- **2015:** European Finance Association: *Bank Lending and Relationship Capital* by Boualam; Western Finance Association: *Financial Intermediation and Capital Reallocation* by Ai, Li and Yang; IDC 12th Rothschild Caeserea Conference: *Liquidity, Innovation, and Endogenous Growth* by Malamud and Zucchi; NBER Asset Pricing Meeting: *Adverse Selection, Slow Moving Capital, and Misallocation* by Fuchs, Green and Papanikolaou; American Finance Association: *External Equity Financing Costs, Financial Flows, and Asset Prices* by Belo, Lin and Yang
- **2014:** Western Finance Association: *The Agency Spread* by Aranda, Gamba and Saretto; Western Finance Association: *Empirical Policy Function Benchmarks for Evaluation and Estimation of Dynamic Models* by Bazdresch, Kahn and Whited; CAPR Workshop on Investment-Based and Production-Based Asset Pricing, Oslo: *Sovereign Credit Spreads and*

the Real Economy by Bhamra, Kung and Romero

- **2013:** American Finance Association: *Endogenous Dividend Dynamics and the Term Structure of Dividend Strips* by Belo, Collin-Dufresne and Goldstein; Western Finance Association: *Can Idiosyncratic Cash Flow Shocks Explain Asset Pricing Anomalies?* by Babenko, Boguth and Tserlukevich; CEPR Corporate Finance Meeting Gerzensee: *Estimating the Effects of Contractual Frictions* by Li and Whited; CEPR Asset Pricing Meeting Gerzensee: *Asset Pricing with Entry and Imperfect Competition* by Loualiche; Tepper/LAEF Macro-Finance Conference: *Good and Bad Uncertainties and the Macroeconomy* by Segal, Shaliastovich and Yaron
- **2012:** American Finance Association: *Innovations, Rational Exuberance and Investment* by Kumar and Langberg; American Economic Association: *Stochastic Volatility, Bond Yields, and the Q-Theory of Investment* by Gourio and Michaux; European Finance Association: *Infrequent Renegotiation of Wages: A Solution to Several Assset Pricing Puzzles* by Favilukis and Lin; Tel Aviv Finance Conference: *Volatility, the Macroeconomy and Asset Prices* by Bansal, Kiku, Shaliastovich and Yaron
- **2011:** Minnesota Macro-Finance Conference: *Equity Yields* by van Binsbergen, Hueskes, Koijen and Vrugt; Western Finance Association: *Inferring Reporting-Related Biases in Hedge Fund Databases from hedge fund equity holdings* by Agarwal, Fos and Jiang; European Finance Association: *Uncertainty about Government Policy and Stock Prices* by Pastor and Veronesi, *Asset Prices and Institutional Investors* by Pavlova and Basak; Tepper/LAEF Macro-Finance Conference: *Overborrowing, Financial Crises and Macro-prudential Policy* by Bianchi and Mendoza
- **2010:** Tel Aviv Finance Conference: *Capital Supply Uncertainty, Cash and Investment* by Hugonnier, Malamud and Morellec; European Finance Association: *Is There a Distress Anomaly? Corporate Bond Spread as Proxy for Default Risk* by Anginer and Yildizhan; Western Finance Association: *Is the Volatility of the Market Price of Risk due to Intermittent Portfolio Rebalancing* by Chien, Cole and Lustig; Duke/UNC Asset Pricing Conference: *The Cross-Section and Time-Series of Stock and Bond Returns* by Koijen, Lustig and Van Nieuwerbergh; American Economic Association: *Long-Run Risks, Credit Markets and Financial Structure* by Bhamra, Kuehn and Strebulaev
- **2009:** European Finance Association: *Consumption Volatility Risk* by Boguth and Kuehn
- **2008:** Duke/UNC Corporate Finance Conference: *A Bayesian Approach to Real Options* by Grenadier and Malenko; Western Finance Association: *Endogenous Technological Progress and the Cross-Section of Returns* by Lin

Referee

American Economic Journal: Macroeconomics, American Economic Review, American Economic Review: Insights, Econometrica, Economic Inquiry, Economic Journal, Economic Theory, European Economic Review, ERC, Finance Research Letters, Hong Kong Research Grants Council, International Economic Review, Israel National Science Foundation, Journal of Applied Mathematics and Decision Sciences, Journal of Banking and Finance, Journal of Corporate Finance, Journal of Economic Dynamics and Control, Journal of Economic Theory, Journal of Empirical Finance, Journal of the European Economic Association, Journal of Finance, Journal of Financial Economics, Journal of Financial and Quantitative Analysis, Journal of Financial Intermediation, Journal of Monetary Economics, Journal of Money, Credit, and Banking, Journal of Political Economy, Management Science, Mathematical Finance, National Science Foundation (NSF), Oxford Research Encyclopedia of Economics and Finance, Quarterly Journal of Economics, Research Grants Council Hong Kong, Review of Asset Pricing Studies, Review of Economic Dynamics, Review of Economic Studies, Review of Finance, Review of Financial Studies, Swiss National Science Foundation

Service

University of Southern California, **Marshall School of Business**, Los Angeles, CA

Recruiting Committee, 2020-
Finance PhD Committee, 2020-

Duke University, **The Fuqua School of Business**, Durham, NC

Co-organizer, Fuqua Finance Seminar, 2008/2009, 2009/2010, 2017/18
Organizer, Fuqua Finance Lunch, 2010/2011, 2012/13
Recruiting Committee, 2010/2011, 2011/2012, 2012/2013, 2014/2015, 2019/2020
Co-organizer, Duke-UNC Asset Pricing Conference, 2012, 2014, 2016, 2018, 2020
Co-Chair, Fuqua Finance PhD Program, 2016-2019

Conference Program Committees

Western Finance Association Annual Meeting 2010-
European Finance Association Annual Meeting 2011-
Tel Aviv Finance Conference 2013-
SFS Finance Cavalcade, 2015-
Financial Intermediation Research Society Conference, 2016-
HEC-McGill Winter Finance Workshop, 2017-
Cass Corporate Policies and Asset Prices Conference, 2018-
IDC Herzliya Annual Conference, 2018-
Mitsui Finance Symposium 2019

Conference Session Chair

Western Finance Association Annual Meeting 2013, 2022
ASU Sonoran Finance Conference 2013
Tel Aviv Finance Conference 2014
European Finance Association 2015, 2016, 2019, 2020
LAEF UCSB OTC Markets Conference 2016, 2017
SFS Cavalcade 2018, 2019, 2020
Midwest Finance Association 2022
FIRS 2022

Conference Track Chair

Midwest Finance Association Annual Meeting 2016, 2020
European Finance Association Annual Meeting 2021, 2022, 2023

Associate Program Chair

Western Finance Association Annual Meeting 2013

Invited Member

Finance Theory Group, 2010-2016
Macro Finance Society, 2012-

INFORMATION Swiss citizen, US permanent resident