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## Employment

From 2013 **Assistant Professor of Finance**, W.P. Carey School of Business, Arizona State University
Honors Faculty; Barrett the Honors College (from 2015)

## Education

2013 **Ph.D.**, *Economics*, Stanford University
Dissertation committee: Nicholas Bloom (chair), Ran Abramitzky, Caroline Hoxby

2002 **A.B. *magna cum laude***, *Applied Mathematics with citation in Japanese Language*, Harvard University

## Research

### Refereed publications

**The "visible hand": Race and online market outcomes**, *The Economic Journal*, 123 (572), Nov. 2013 (with Jennifer L. Doleac)
Do prospective customers behave differently based on sellers' race or signals about sellers' socioeconomic class? Does this depend on whether a customer lives somewhere racially segregated or plagued by property crime? We investigate these questions in a year-long experiment in which we sold iPods through local online classified advertisements throughout the U.S., each featuring a photograph of the product held by a hand that is dark-skinned ("black"), light-skinned ("white"), or with a wrist tattoo (associated with lower social class). We find that black sellers do worse than white sellers on a variety of metrics: they receive 13% fewer responses and 17% fewer offers, effects similar in magnitude to those associated with the display of a tattoo. Conditional on receiving at least one offer, black sellers receive offers that are lower by 2 to 4%, despite the self-selected—and presumably less biased—pool of buyers. Buyers corresponding with a black seller also behave in ways suggesting they trust the seller less: they are 17% less likely to include their name, 44% less likely to accept delivery by mail, and 56% more likely to express concern about long-distance payments. Black sellers suffer particularly poor outcomes in thin markets; it appears that discrimination may not "survive" in the presence of significant competition among buyers. Furthermore, black sellers do worst in markets that are racially segregated and have high property crime rates, suggesting that at least part of the explanation is statistical discrimination—that is, buyers' concerns about the time and potential danger involved in the transaction, or that the iPod is stolen goods.

### Working Papers

**The effect of uncertainty on investment, hiring, and R&D: Causal evidence from equity options** (with Elizabeth C. Stone)
There is wide debate over the impact of uncertainty on firm behavior, due to the difficulty both of measuring uncertainty and of identifying causality. This paper takes three steps that attempt to address these challenges. First, we develop an instrumental variables strategy that exploits firms' differential exposure to energy and currency prices and volatility. For example, airlines are negatively affected by high oil prices while oil refiners benefit from them, but both are sensitive to oil price volatility; retailers, in comparison, are not particularly sensitive to either the level or volatility of oil prices. Second, we use the expected volatility of stock prices as implied by equity options to obtain forward-looking measures of uncertainty over firms' business conditions. Finally, we examine how uncertainty affects a range of outcomes: capital investment, hiring, research and development, and advertising. We find that uncertainty depresses capital investment, hiring, and advertising, but encourages R&D spending. This perhaps-surprising result for R&D is consistent with a theoretical literature emphasizing that long investment lags create valuable real put options which offset the effects of call options lost when projects are started. Aggregating across our panel of Compustat firms, we find that rising uncertainty accounts for roughly a third of the fall in capital investment and hiring that occurred in 2008–10.

**Economic uncertainty and earnings manipulation** (with Charles C.Y. Wang)
In the presence of managerial short-termism and asymmetric information about skill and effort provision, firms may opportunistically shift earnings from uncertain to more certain times. We document empirically that when financial markets are less certain about a firm's future value, the firm reports more negative discretionary accruals. Stock-price responses to earnings surprises are moderated when firm-level uncertainty is high, consistent with performance being attributed more to luck rather than skill and effort, which can create incentives to shift earnings toward lower-uncertainty periods. We document that the resulting opportunistic earnings management is concentrated in CEOs, firms, and periods where such incentives are likely to be strongest: (1) where CEO wealth is sensitive to change in the share price, (2) where announced earnings are particularly likely to be an important source of information about managerial ability and effort, and (3) before implementation of Sarbanes-Oxley made opportunistic earnings management more challenging. Our evidence highlights a novel channel through which uncertainty affects managerial decision making in the presence of agency conflicts.

**Distracted directors: Evidence from directors' outside employment** (with Hong Zhao)
When members of a board of directors are distracted by outside obligations, they may be less effective in their advisory and monitoring roles. We consider time-varying attention shocks to independent directors who are primarily employed at outside firms. Using newly constructed data that links directors to their employers, we identify periods when poor performance at a director's employing firm may distract her from board service. We find that firms with distracted directors have lower performance and value, higher CEO compensation, reduced CEO turnover-performance sensitivity, lower earnings quality, and lower M&A performance. These effects are driven by distracted directors who sit on relevant committees, and are stronger for small boards, where each individual director may be more important. Taken together, our evidence suggests that independent executive directors play an important governance role, but their effectiveness suffers when they are distracted by events at their employing firm. This complements prior research on the adverse effects of director distraction—largely focused on directors who sit on multiple boards—which offers mixed evidence, presumably because these "busy" board members may also be particularly effective ones.

**Angels, entrepreneurship, and employment dynamics: Evidence from investor accreditation rules** (with Laura Lindsey)
This paper examines the effects of a shock to angel finance on entrepreneurial activity and employment. Using public micro data from the U.S. Census, we construct a state-level estimate of the fraction of accredited investors likely affected by Dodd-Frank's elimination of housing wealth in the determination of accreditation status. We demonstrate that a larger reduction in the pool of potential angels negatively affects firm entry and reduces employment levels at small entrants. Employment increases at small and young incumbents as workers are absorbed, and wages for the startup sector decline. Angel finance appears to be a complement to organized venture capital and is more important in lower startup-capital-intensive and less concentrated industries. Our paper quantifies the impact of angel finance at the margin and offers insight on the geographies and sectors where it matters most.

**Tax-timing options and the demand for idiosyncratic volatility** (with Oliver Boguth)
Investors have a choice over when to incur taxes on individual investments, and typically benefit from delaying the realization of capital gains while harvesting losses. This option implies that the effective tax rate on capital losses exceeds the one on capital gains, resulting in a convex after-tax payoff. Convexity creates a demand for idiosyncratic volatility (IVOL) within a well-diversified portfolio, and can therefore explain the puzzling negative relation between IVOL and expected stock returns. A simple model with tax-timing options predicts that the demand for idiosyncratic volatility increases with the tax rate, the nominal interest rate, and unrealized capital gains, and we show that all three measures predict the IVOL premium in the time-series. In the cross-section, we show that the magnitude of the IVOL premium increases with investors' average tax exposure.

**Race, skin color, and economic outcomes in early twentieth-century America** (with Roy Mill)
We study the effect of race on economic outcomes using unique data from the first half of the twentieth century, a period in which skin color was explicitly coded in U.S. censuses as "White," "Black," or "Mulatto." We construct a panel of siblings by digitizing and matching records across the 1910 and 1940 censuses, identifying all 12,000 African-American families in which enumerators classified some children as light-skinned ("Mulatto") and others as dark-skinned ("Black"). Siblings coded "Mulatto" when they were children (in 1910) earned similar wages as adults (in 1940) as their Black siblings. This within-family earnings difference is substantially lower than the Black-Mulatto earnings difference in the general population, suggesting that skin color *in itself* played only a small role in the earnings gap. In the second half of the paper, we focus on individuals who "passed for White," an important social phenomenon at the time. To do so, we identify individuals coded "Mulatto" as children but "White" as adults. Passing meant that individuals changed their racial affiliation by changing their social presentation while skin color remained unchanged. Comparing passers to their siblings who did not pass, we find that passing was associated with substantially higher earnings, suggesting that social presentations of race could have significant consequences for economic outcomes.

## Research in progress

**African Americans' access to finance after the Civil War: The rise and fall of the Freedman's Savings Bank** (with Constantine Yannelis)

**Strategic underpricing of collectible sneaker IPOs**

## Research presentations

2018 Cambridge Univ.[†]; UNC Kenan Institute Frontiers of Entrepreneurship Conf.[*†]; European Winter Finance Summit[*†]

2017 Johns Hopkins (brown bag); Goethe University Frankfurt[*]; European Finance Association Annual Meeting (2×); Melbourne Business School Financial Institutions, Regulation, and Corporate Governance Conf.; Midwest Finance Association Annual Meeting; Stevens Institute of Technology Emerging Trends in Entrepreneurial Finance Conf.; Stanford Institute for Theoretical Economics Labor and Finance Conf.; Univ. of Oregon Summer Finance Conf.; Univ. of Wisconsin Junior Finance Conf.; Arizona Junior Finance Conf.[*]; CalTech/USC/UCSD Southern California Private Equity Conf.[*]; Christmas Meeting of the German Economists Abroad[*†]; Columbia-NYU Junior Finance Conf.[*]; European Financial Management Association Annual Meeting[*]

2016 Univ. of Texas at Austin (brown bag); Arizona Junior Finance Conf.; Financial Management Association Annual Meeting; Northern Finance Association Conf.[*]

2015 Univ. of Hong Kong; Hong Kong Polytechnic Univ.; Econometric Society World Congress; MIT Asia Conf. in Accounting; Chinese Accounting Academic Conf.[*]

2014 Univ. of Arizona; Federal Reserve Bank of Chicago; American Economics Association Annual Meeting; Midwest Finance Association Annual Meeting

2013 Arizona State Univ.; Cambridge-INET Institute; Dartmouth; Federal Reserve Board of Governors; Univ. of Utah; Univ. of Michigan (Ford); Univ. of Minnesota; Univ. of San Francisco (economics); Univ. of Wisconsin; Stanford Institute for Theoretical Economics Macroeconomics of Uncertainty and Volatility Conf.; APPAM Annual Fall Research Conf.; CES/Ifo Macroeconomics and Survey Data Conf.

2012 Becker Friedman Institute Policy Uncertainty and Its Economic Implications Conf.; Northwestern (economics)[*]; Association for the Study of Religion, Economics, and Culture Annual Meeting[*]; All-U.C. Economic History Graduate Student Conf.[*]

2011 Economic History Association Annual Meeting (poster); International Industrial Organization Conf.

2010 Univ. of Chicago (brown bag); Federal Reserve Bank of San Francisco Applied Microeconomics Summer Conf.; U.C. Santa Barbara All-California Labor Economics Conf. (poster)

[*]Coauthor presentation. [†]Scheduled.

## Invited discussions

2017 **Roadblock to Innovation: The Role of Patent Litigation in Corporate R&D**
Mezzanotti (European Finance Association)

**Uncertainty and Consumer Credit Decisions**
DiMaggio, Kermani, Ramcharan, and Yu (Financial Intermediation Research Society)

**Investor Behavior in Crowdinvesting**
Wallmeroth (Stevens Institute of Technology Emerging Trends in Entrepreneurial Finance Conference)

**What Is Revealed When Firms Disagree With Short Sellers?**
Bargeron and Bonaime (Arizona Junior Finance Conference)

**Do Companies Care About Insider Trading Behavior? Evidence From Director Turnover**
De Groote, Bruynseels, and Gaeremynck (Midwest Finance Association)

2016 **Uncertainty, Real Options, and Firm Inaction: Evidence from Monthly Plant-Level Data**
Carvalho (Western Finance Association)

2015 **Do Managers Do Good With Other People's Money?**
Cheng, Hong, and Shue (Northern Finance Association)

**Understanding Director Elections: Determinants and Consequences**
Ertimur, Ferri, and Oesch (MIT Asia Conference in Accounting)

2014 **A Corporate Finance Application of the Oaxaca-Blinder Decomposition**
Brendel, Rudolph, and Schwetzler (Midwest Finance Association)

2011 **Demographic Preferences and Price Discrimination in New Vehicle Sales**
Langer (International Industrial Organization Conference)

## Fellowships and prizes

2016 **Huizingh Outstanding Undergraduate Teacher Award Finalist**, Arizona State University

2011 – 2012 **Walter J. Gores Faculty Achievement Award for Excellence in Teaching**, Stanford University
Stanford's "highest award for excellence in teaching," awarded annually to one graduate student university-wide

2011 – 2012 **Shultz Graduate Fellowship in Economic Policy**, Stanford Institute for Economic Policy Research

2010 – 2011 **Gerald J. Lieberman Fellowship**, Stanford University

2009 – 2010 **George Shultz Dissertation Support Fellowship**, Stanford Institute for Economic Policy Research

2009 **Economics Department Oustanding Teaching Assistant Award**, Stanford University

2007 – 2008 **Forman Family Fellowship in Economics**, Stanford University
Highest overall score on graduate qualifying examinations

2006 – 2008 **Economics Department Graduate Fellowship**, Stanford University

1998 **USA Mathematical Olympiad Honorable Mention**

## Teaching experience

### Instructor

2014 – 2017 **Managerial Finance**, undergraduate (ASU Finance 302)

2010 – 2011 **OHS Microeconomics**, high school (Stanford EPGY OHS Econ. 20)

2009 **Intermediate Microeconomics**, undergraduate (Stanford Econ. 50)

2007 – 2008 **Microeconomic Theory for Non-Economics Ph.D. Students**, Ph.D. (Stanford Econ. 202N)

### Teaching Assistant

2013 **Introduction to Financial Economics**, undergraduate (Stanford Econ. 140)

2012 **Managerial Economics**, MBA (Stanford GSB Management Econ. 200)

2012 **Economics for Sloan Fellows**, MS (Stanford GSB Management Econ. 209)

2011 **Emergency Medical Technician Training**, undergraduate (Stanford Surgery 111/211A)

2009 **First-Year Macroeconomics**, Ph.D. (Stanford Econ. 210)

## Advising

**Doctoral**, Sean Flynn (2017, Colorado State University), Hong Zhao (2017, NEOMA Business School, France), Yung-Ling Chi (2016, National Chung Hsing University, Taiwan), Qi Dong (2015, King Fahd University of Petroleum and Minerals, Saudi Arabia)

**Undergraduate**, Hamza Amjad* (2018), Gurkaran Chotalla* (2017), Landon Gagner (2017), Matt Klein (2017), John Lauro (2017), Michael Muscheid (2017), Aaron Chavez (2016), A. J. Gilman (2016), Steven Kaye (2016), Samir Reddy* (2016)

*Thesis director

## University and professional service

**Arizona State University**, Dept. Undergraduate Programs Committee (2016–18), Sonoran Winter Finance Conference Organizing Committee (2015–16), Dept. Research Seminar Committee (2014–15), Dept. Faculty Recruiting Committee (2013–14)

**Harvard University**, Undergraduate admissions interviewer (2008–15)

**Stanford University**, Stanford Emergency Medical Service (2010–13), Univ. Bicycle Safety Committee (2008–12), Registrar's Student Advisory Group (2007–11)

**Program committee**, ASU Sonoran Winter Finance Conference (2014, 2015, 2017, 2018), FIRN Financial Research Network (2017), FMA Annual Meeting (2014, 2015), FMA Annual Meeting Best Paper Committee (2015)

**Referee**, American Economic Review; Econometrica; Journal of Finance; Quarterly Journal of Economics; Review of Financial Studies; AEJ: Applied Economics; Journal of Applied Econometrics; Journal of Development Economics; Journal of Econometrics; Journal of Economic Behavior and Organization; Economic Journal; Journal of Economics and Management Strategy; Journal of Empirical Finance; Journal of the European Economic Association; Explorations in Economic History; Israel Science Foundation; Journal of Labor Economics; Labour Economics; Journal of Law, Economics, and Organization; Journal of Legal Studies; Journal of Monetary Economics; Macroeconomic Dynamics; Management Science; Quarterly Review of Economics and Finance; Venture Capital

## Past positions

2010 **Price Theory Scholar**, Becker Center on Chicago Price Theory, University of Chicago

2008 – 2009 **Economics and International Trade Team Member**, Obama-Biden Presidential Transition Team

2006 **Consultant**, Bain & Company (Tokyo)

2005 – 2006 **Senior Associate Consultant**, Bain & Company (New York and Tokyo)

2004 – 2005 **Special Assistant**, Office of Strategic Initiatives, New York City Department of Education

2002 – 2004 **Associate Consultant**, Bain & Company (New York)

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