

Office Contact Information

University of Pennsylvania
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Employment

University of Pennsylvania Law School
Assistant Professor of Law, July 2018–Present

The Wharton School, University of Pennsylvania
Assistant Professor of Finance (secondary), July 2018–Present

Education

Harvard University Department of Economics, Ph.D., August 2014–November 2018
Fields: Finance
Advisors: Howell Jackson, David Scharfstein, Jeremy Stein, Lawrence Summers

Harvard Law School, J.D. Cum Laude, May 2014
Dean's Scholar Prize, Corporate Finance
Justice Elena Kagan Supreme Court Reading Group

Yale University, B.A. with Distinction, May 2011
2007 George Hume Senior Essay Prize

Teaching Experience

Spring 2019	Consumer Financial Regulation (Seminar)
Spring 2017	The Financial System and the Central Bank, Harvard University, TF for Prof. Jeremy Stein, Certificate of Distinction for Excellence in Teaching
2013–2017	The Future of Globalization, Harvard University, TF for Prof. Robert Lawrence and Prof. Lawrence Summers
2013–2017	Inside Government, Harvard Law School, TF for Prof. Lawrence Summers and Prof. Cass Sunstein

Professional Activities

Presentations
(2016–Present)

- Brookings Papers on Economic Activity Symposium
- Institute of International Finance
- Harvard Law School
- Georgetown McDonough Business School
- Consumer Financial Protection Bureau
- Brookings Kiessling Seminar

American Law and Economics Association
University of Pennsylvania Law School
University of Virginia Law School
Northwestern Law and Economics Colloquium
Philadelphia Federal Reserve Board
Society for Empirical Legal Studies (Awarded Theodore Eisenberg Prize)
American Association of Law Schools Conference: Financial Regulation
Roundtable
Stanford Law Behavioral Law and Economics (Spring 2019)
Berkeley Law, Economics, and Business Workshop (Spring 2019)
University of Texas Law and Economics Seminar (Spring 2019)
New York University/University of Pennsylvania Law and Finance
Conference (Spring 2019)
Boulder Consumer Financial Decision-Making Conference (Spring 2019)
American Law and Economic Association Annual Meetings (Spring
2019)
Kansas City Federal Reserve Board (Summer 2019)
National Bureau of Economic Research Summer Institute, Household
Finance (Summer 2019)
Chicago Law Review Annual Symposium: Rethinking the Chicago
School of Antitrust (Summer 2019)
IMF Stress Testing Conference (Fall 2019)

Refereeing Quarterly Journal of Economics

Bar Admission California (2015)

Working Papers

“Price Regulation in Two-Sided Markets: Empirical Evidence from Debit Cards” (with Vladimir Mukharlyamov)

This paper studies the impact of regulation on price structures in two-sided markets, where firms must “get both sides of the market on board.” Since platforms such as card networks can only succeed by convincing consumers to use cards and merchants to accept them, their business model often relies on subsidizing one segment to generate supracompetitive profits from another (Rochet and Tirole 2003). Using a novel proprietary dataset on processing fees borne by retailers, we show that restricting banks’ ability to charge high debit card processing fees to merchants (the Durbin Amendment) amounts to a wealth transfer from the previously subsidized side of the market—consumers—to merchants. Our empirical evidence adds to the theoretical concerns of Rochet and Tirole (2003b) that market failures in two-sided markets are hard to identify, let alone regulate.

“Bank Adjustment” (with Emily Williams)

Profits in the banking industry are remarkably stable. Absent the financial crisis, in the last three decades banks’ return on assets (ROA) is consistently around 1 percent. Since 1990, banks’ net interest margin (NIM) has decreased by nearly one-third. At this same time, banks’ non-interest expense (NIE) has fallen one-for-one with net interest margins. The result is ROA is unchanged despite wide fluctuations in interest rates that, without contemporaneous decrease in banks’ non-interest expense, would have substantially decreased banks’ profits. We exploit changes in state tax revenues and study how banks adjust to changes in their NIM. We show that in the face of a shock to income banks respond by decreasing NIE, which results in a stable ROA.

“Private Equity Investments in the Life Insurance Industry: Implications for Capital, Taxes, and Risk” (with Divya Kirti)

Since the financial crisis, private equity holdings in the life insurance industry grew from \$23 billion in 2010 to nearly \$250 billion in 2014. Much of this growth was driven by three insurance groups. We examine the effect of these and other private equity investments on the management of life insurance firms. These insurance groups take advantage of opportunities to increase risk without corresponding capital charges and decrease tax burdens through reinsurance. Specifically, we find that PE-backed insurers shifted away from corporate bonds and into asset-backed securities, taking advantage of a regulatory change that enabled them to increase risk without holding additional capital. PE-backed insurers (primarily Athene, a subsidiary of Apollo Global Management) lowered their tax liabilities by using captive reinsurers based in low tax countries. We provide suggestive evidence that (1) ratings of PE-backed life insurance firms may not fully reflect the risk of their assets and (2) some of PE-backed insurers' tax and capital savings may have been passed on to annuities purchasers through more attractive rates.

Published and Forthcoming Papers

“On Market-Based Approaches to the Valuation of Capital” (with Lawrence H. Summers)

Handbook of Financial Stress Testing, Forthcoming

Market measures suggest banks are as risky as they were in the pre-crisis period. This appears attributable to a decrease in bank franchise value, rather than a byproduct of the current low interest rate environment, and cautions about the stability of the financial sector. However, stress test results reveal little cause for concern; in 2017, all 34 stressed institutions in the United States passed the tests, suggesting they will remain well-capitalized in the event of a downturn more severe than the Great Recession. Their passage paved the way for capital disbursements and ignited calls for deregulation. In this paper, we demonstrate that a market-based stress test approach produces results that are significantly less encouraging than the regulatory tests. While a pure market-based stress test is undesirable, we believe it is important to incorporate market information into the stress test methodology to facilitate more credible inferences about bank safety.

“Making Consumer Finance Work”

Columbia Law Review, Forthcoming

The financial crisis exposed major faultlines in banking and financial markets more broadly. Policymakers responded with far-reaching regulation that created a new agency—the CFPB—and changed the structure and function of these markets. Consumer advocates cheered reforms as welfare-enhancing, while the financial sector declared that consumers would be harmed by interventions. With a decade of data now available, this Article presents the first empirical examination of the successes and failures of the consumer finance reform agenda. Specifically, I marshal data from every zip code and bank in the United States to test the efficacy of three of the most significant post-crisis reforms: in the debit, credit, and overdraft markets. The empirical evidence leads me to novel insights for regulatory design. First, banks regularly levy hidden fees on consumers, obscuring the true cost of financial products. Regulators should restrict such practices. Second, consumer finance markets are regressive: low-income customers pay higher prices than their higher-income counterparts. Regulators should address this inequity. Finally, profit-maximizing banks will always discourage regulation by promising its costs will be passed through to consumers. Regulators should not be overly swayed by their dire warnings.

“What’s in Your Wallet (and What Should the Law Do About it?)”

Chicago Law Review, Forthcoming

In traditional markets, firms can charge prices that are significantly elevated relative to their costs only if there is a market failure. However, this is not true in a two-sided market (like Amazon, Uber, and Mastercard), where firms often subsidize one side of the market and generate revenue from the other. This means consideration of one side of the market in isolation is problematic. The Court embraced this view in *Ohio v. American Express*, requiring that anticompetitive harm on one side of a two-sided market be weighed against benefits on the other side. In this Article, I argue that consumer protection, rather than antitrust, is best suited to address problems in two-sided markets. Consumer protection authority allows for intervention on the grounds that platform users create unavoidable externalities for all consumers. The Consumer Financial Protection Bureau (“CFPB”) has broad power to curtail “unfair, abusive, and

deceptive practices.” This authority can be used to restrict practices that decrease consumer welfare, like the anti-steering rules at issue in *Ohio v. American Express*.

“Understanding Bank Risk through Market Measures” (with Lawrence H. Summers)

Brookings Papers on Economic Activity, 2017

Since the financial crisis, there have been major changes in the regulation of large financial institutions directed at reducing their risk. Measures of regulatory capital have substantially increased; leverage ratios have been reduced; and stress testing has sought to further assure safety by raising levels of capital and reducing risk taking. Standard financial theories would predict that such changes would lead to substantial declines in financial market measures of risk. We test this proposition using information on stock price volatility, option-based estimates of future volatility, beta, credit default swaps, earnings-price ratios, and preferred stock yields. To our surprise, we find that financial market information provides little support for the view that major institutions are significantly safer than they were before the crisis and some support for the notion that risks have increased. This does not make a case against the regulatory approaches that have been pursued, but does caution against complacency. We believe that our findings are most consistent with a dramatic decline in the franchise value of major financial institutions, caused at least in part by new regulations. This decline in franchise value makes financial institutions more vulnerable to adverse shocks. We highlight that the ratio of the market value of common equity to assets on both a risk-adjusted and risk-unadjusted basis has declined significantly for most major institutions.