

Philip Lewis Kalikman

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Citizenship: US

Education:

Yale University	
Ph.D. in Economics	2019
M.Phil. in Economics	2015
M.A. in Economics	2015
University of Chicago	
B.A. in Mathematics	2007
Phillips Exeter Academy	
Diploma	2004

Primary Fields: Finance
Real Estate

Current Position: Visiting Assistant Professor of Finance and Real Estate,
Sy Syms School of Business, Yeshiva University, 2020 – Present

Current Teaching: Investment Analysis (U), Syms School of Business
Real Estate Finance (U), Syms School of Business
Real Estate Capital Markets (U), Syms School of Business
Special Topics in Real Estate (G), Syms School of Business

University Service: Organizer, Syms Research Seminar, Fall 2021
Organizer, Syms Brownbag Research Seminar, Summer 2021
Course Design, Special Topics in Real Estate, 2020

Scholarly Papers

PDFs of published and working papers are available for download at kalikman.com/research.

Working Papers:

1. “Targeted Principal Forgiveness is Effective: Mortgage Modification and Financial Crisis,” with Joelle Scally (2021). Under review, *AER*.
2. “Mortgage Default: A Heterogeneous-Agent Model,” with Joelle Scally (2021).

Works In Progress:

3. “Hurricane, Storm, and Climate Change: Past and Future Effects on Mortgage Default,” with Alex Gelber, Tom Corringham, and Hai Long Duong (2020).
4. “Credit Availability Did Expand Before the Global Financial Crisis” (2021).
5. “Endogenous Leverage and Credit in an Agent-Based Model of the Housing Market,” with John Geanakoplos, Ravi Jagadeesan, Emily Dodwell, and Jesse Wang (2017).

Papers Published in Conference Proceedings:

6. “An Agent-Based Model of the Housing Market Bubble in Metropolitan Washington DC,” with Robert Axtell, Benjamin Conlee, Ernesto Carella, Doyne Farmer, John Geanakoplos, Jon Goldstein, Matthew Hendrey, Peter Howitt, David Masad, and Nathan Palmer (2014). In *Deutsche Bundesbank’s Spring Conference on “Housing markets and the macroeconomy: Challenges for monetary policy and financial stability.”*

Seminar and Conference Presentations

1. “Mortgage Default: A Heterogeneous-Agent Model,” Stony Brook University, February 2020.
2. “Mortgage Default: A Heterogeneous-Agent Model,” Yeshiva University, February 2020.
3. “Mortgage Modifications and Macroeconomic Policy,” Yale School of Management Program on Financial Stability, *Fighting a Financial Crisis* Conference, August 2019.
4. “Mortgage Modifications and Macroeconomic Policy,” Federal Reserve Bank of New York, August 2019.

5. “Rational Default, Mortgage Modification, and Macroprudential Policy,” Federal Reserve Bank of New York, October 2018.
6. “Credit Availability, House Prices, and the Great Recession,” Federal Reserve Bank of New York, July 2016.
7. “Calculating the Credit Surface,” Ellington Management Group, September 2015.
8. “Credit Availability and the Housing Market,” Federal Reserve Bank of New York, October 2015.
9. “An Agent-Based Model of Housing,” Ellington Management Group, March 2015.
10. “An Agent-Based Model of Housing,” Santa Fe Institute, November 2014 (coauthor).
11. “Research in Economics After the Crisis”, European Central Bank, June 2014 (coauthor).
12. “An Agent-Based Model of the Housing Market Bubble in Metropolitan Washington DC,” Deutsche Bundesbank’s Spring Conference on “Housing markets and the macroeconomy: Challenges for monetary policy and financial stability,” June 2014 (coauthor).
13. “An Agent-Based Model of the Housing Market,” Macro-financial Modeling Conference, May 2013 (coauthor).
14. “An Agent-Based Model of the Housing Market,” Lorentz Center Crisis Institute, April 2013 (coauthor).

Fellowships, Honors, and Awards:

University Dissertation Fellowship, Yale University, 2015 – 2016
Austen Colgate Fellowship, Yale University, 2015 – 2016
Cowles Foundation Fellowship, Yale University, 2012 – 2016
Nathan Hale Associates Fellowship, Yale University, 2013 – 2014
Anonymous Fellowship, Yale University, 2013 – 2014
Mathematics Department Honors, University of Chicago, 2007
General Honors, University of Chicago, 2007
Dean’s List, University of Chicago, 2004 – 2007

Computer Programming Skills:

Expert in R and Julia, package author, expert in `data.table` and `tidyverse` paradigms
Expert in Big Data, High-Performance Computing, Parallel Programming
Expert in Computational Heterogeneous Models, Agent-Based Modeling
Experienced in C, C++, Haskell, Java, LaTeX, Mathematica, Matlab, Python, SQL, Shell
Regular user of `git` and Amazon Web Services including Elastic Compute Cloud (EC2)

Full-Time Professional Experience:

Senior Economist, SpringHarbor Financial Group, 2017 – 2019
Fintech-focused Seed-to-B-stage Venture Capital Firm
Quantitative Research Manager, Ellington Management Group, 2014 – 2017
Mortgage-backed security focused Hedge Fund (\$12B AUM)

Consulting Experience:

Economist, FutureProof Technologies, 2020
Economic Policy Advisor, Sen. Cory Booker, 2017 – 2018
Economic Policy Advisor, Hillary for America, 2014 – 2016
Quantitative Research Associate, Ellington Management Group, 2012 – 2014

Teaching Experience:

Financial Theory, Yale College, 2014
Mathematics, Computer Science, Robotics, Choate Rosemary Hall, 2008 – 2012 (*Full-time*)
Mathematics and Writing Tutor, Advantage Testing of Westchester, 2007 – 2008 (*Full-time*)
Phillips Exeter Academy Summer School, 2007
Elementary and Intermediate Calculus, University of Chicago, 2005 – 2007
Young Scholars Program, University of Chicago, 2005 – 2007
Seminars for the Endorsement of Mathematics and Science Educators, U of C, 2005 – 2007

Volunteer Work:

Board of Directors, New York Festival of Song, 2017 – Present
Board of Directors, Students for Educational Justice, 2017 – Present
President, Exeter Association of Greater New York, 2020 – Present

Languages:

English (native), French (intermediate), German (beginner)

References:

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Paper Abstracts

PDFs of published and working papers are available for download at kalikman.com/research.

Targeted Principal Forgiveness is Effective: Mortgage Modification and Financial Crisis, with Joelle Scally (2021)

Research into the Global Financial Crisis finds forgiving mortgage principal ineffective at stemming defaults, and argues that borrowers default because of illiquidity, not strategically. We argue the opposite: targeted forgiveness is effective, and default is better explained by quantifying how illiquidity interacts with borrowers' strategy. We embed these interactions in a computational heterogeneous structural model, introducing idiosyncratic default penalties. Differing penalties explain borrowers' differing deviations from pure-financial optimality. We run the model on heterogeneous microdata, estimating penalties from credit scores and payment histories. Forgiving low-score, deep-underwater borrowers would have eliminated nearly all their defaults, with net gain for lenders.

Mortgage Default: A Heterogeneous-Agent Model, with Joelle Scally (2019, updated 2021)

We introduce a loan-level model of mortgage default with heterogeneity in borrower characteristics and mortgage terms, including idiosyncratic penalties for default. Borrowers' penalties determine how closely their behavior hews to the predictions of the double-trigger or strategic models. The model features a rich state space which varies loan-to-loan based on all of a loan's idiosyncratic characteristics. We employ high-performance computing clusters to test the model against real data drawn from linked databases with billions of observations of hundreds of simultaneous borrower, mortgage, property, and neighborhood attributes. The model better predicts defaults out-of-sample, better fits cross-sectional characteristics of the distribution of mortgage performance, and better classifies borrower likelihood of default than any prior benchmark of which we are aware. The model is therefore suited to study economic scenarios with realistic predictions of behavior not only in aggregate but also in the cross-section of heterogeneous borrowers.

Hurricane, Storm, and Climate Change: Past and Future Effects on Mortgage Default, with Alex Gelber, Tom Corringham, and Hai Long Duong (2020, updated 2021)

Much research into the economic impact of climate change focuses on transition risk, the risk associated with the costs of moving away from fossil fuels and towards renewable energy. Less well understood is the role of physical risk, the risk associated with physical damage to real property. Physical risk threatens real properties themselves, but does it have any effect on the broader economy? We study this question by exploiting the link between financial assets and physical properties that

collateralize them, focusing on residential mortgages backed by real properties at risk of severe weather events. We combine high-resolution geographic data on stormwater runoff from hurricane, storm, and other severe weather with data on the payment performance of mortgages backed by such properties. We use a difference-in-difference approach to identify the effect of stormwater runoff on mortgage delinquency and default in treated areas. As the realized level of stormwater runoff is an exogenous treatment, we achieve strong identification. We show that stormwater runoff significantly exacerbates both short-term delinquency and long-term default risk for mortgages backed by affected properties. Our findings raise challenging issues for financial policy. For example, they imply that present flood insurance requirements are inadequate to cover future expected losses. But aligning insurance requirements with expected losses would sap liquidity in historically under-invested regions, posing a conundrum for policymakers.

Credit Availability Did Expand Before the Global Financial Crisis (2015, updated 2021)

Scholars remain divided on whether the Global Financial Crisis was fueled by significantly looser credit underwriting standards in the early 2000s, disagreeing not only about whether loose standards caused the crisis, but even on whether standards were loose in that era. I examine three different loan-level mortgage origination datasets in the US to try to disentangle why scholars disagree on this question. I show that linking loans at the property-level, which is only possible for some of those datasets, is necessary to see the higher origination loan-to-value ratios that obtained before the crisis. Moreover, I show that leverage rose especially for less creditworthy borrowers, many of whom would have been excluded entirely from getting a mortgage in times of tighter credit. The simultaneous expansion in low-LTV financing diluted average leverage, obscuring the reality that unprecedented cheap credit was available pre-Crisis.

An Agent-Based Model of the Housing Market Bubble in Metropolitan Washington DC, with Robert Axtell, Benjamin Conlee, Ernesto Carella, Doyne Farmer, John Geanakoplos, Jon Goldstein, Matthew Hendrey, Peter Howitt, David Masad, and Nathan Palmer (2014)

We develop a computational model of a regional housing market. Over a million distinct agents buy, sell, and rent houses according to different behavior rules, which depend on demographic, financial, and housing stock characteristics we estimate using data in the Washington, D.C. metropolitan area from 1997 – 2009. We use both individual record-level matching and statistical inference on several dozen disparate datasets to simulate a single joint distribution of household characteristics. Households' transactions endogenously generate a housing market bubble and crash that resembles the observed history not only in the timing and magnitude of the boom and bust in home prices, but also in other aggregate dynamics such as time-on-market, homeownership rate, and vacancy rate and in distributional characteristics such as house prices across tiers of building quality and loan performance across bands of credit quality. We use the model to study the drivers of the bubble. We show that low risk-free interest rates do not generate a house price bubble when credit availability is restricted, whereas loose credit contributes to a bubble even without low risk-free rates.

Teaching Performance Highlights – All Reviewed Courses Taught at Yeshiva University

(We do not evaluate courses with limited enrollment.)

Investment Analysis (U), Spring 2021

Overall Performance:

	Question Text	Kalikman	Dept Avg
1	Instructor explained concepts clearly	5	3.9
2	Instructor encouraged student questions and participation	5	4.2
3	Instructor was reachable beyond class time including office hours	5	4.3
4	Instructor was clear about expectations for out-of-class prep time	4.5	4.0
5	Instructor provided clear constructive feedback to students	5	3.9

"What do you identify as the biggest strength of the course or of the instructor?"

Unedited responses:

Professor Kalikman is the best teacher I've had. He explains the material very clearly and is very patient. He ensures the students understand the material before moving on and he doesn't get frustrated. Although it is not an easy class I feel like I have learned a lot of valuable information.

Professor Kalikman was always approachable and patient to those who weren't clear with a concept. he never had a problem with repeating something more than once for the betterment of the students.

Real Estate Capital Markets (U), Spring 2021

Overall Performance:

	Question Text	Kalikman	Dept Avg
1	Instructor explained concepts clearly	4.8	3.9
2	Instructor encouraged student questions and participation	5	4.2
3	Instructor was reachable beyond class time including office hours	5	4.3
4	Instructor was clear about expectations for out-of-class prep time	4.5	4.0
5	Instructor provided clear constructive feedback to students	4.8	3.9

"What do you identify as the biggest strength of the course or of the instructor?"

Unedited responses:

Very smart, can reach out to him easily, understood what he was teaching VERY well...

Passionate and knowledgeable in the subject.

By far the best prof I've had at. Truly cares so much about the students wants to challenge them.

By far the best professor I have had up until this point. Finally someone who has both real world experience as well as a passion for teaching students. Also having a prof that we can relate to and has is own notes and is not scripted....

The instructor is so knowledgeable. He expects a lot but the work pays off as the content is really intriguing.

I think Professor Kalikman is amazing and genuinely wants us to learn.

His knowledge of the material shows by the speed at which he teaches. One of the smartest teachers ive seen.