Nancy E. Wallace

Haas School of Business
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University of California

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Current Academic Position

Haas School of Business, U.C. Berkeley
Professor of Real Estate and Finance
Lisle and Roslyn Payne Chair of Real Estate Capital Markets
Chair, Real Estate Group
Co-chair, Chief Operating Officer, Fisher Center for Real Estate and Urban Economics.

Prior Academic Position

Washington State University
Department of Economics
Assistant Professor 1984 – 1986.

Research Interests

Residential house price dynamics, mortgage contract design and pricing, asset backed security pricing and hedging, algorithmic underwriting and discrimination, risks of energy inefficiency in commercial real estate, mortgage and real estate market exposures to wildfire risks.

Education

1982	**Ph.D. Urban and Regional Planning**, The University of Michgan.
1978	**Maîtrise**
1976	**License** Institut d'urbanisme l'Université de Paris, VIII Paris, France.
1976 – 1977	Réunion de mathématique, logique formelle et informatique l'Université de Paris, V Paris, France.
1970	**B.A. Political Science** The University of Michigan.

Teaching

- **Graduate Courses:**
  - Asset Backed Securitization, (MFE 230M)
  - Graduate Real Estate Seminar (PHD289A)
  - Real Estate Strategy (MBA284).
  - Real Estate Finance and Securitization (MBA283)
  - Introduction to Real Estate Investment Analysis and Sustainability (MBA280)
  - Statistics (MBA200S)
- **Undergraduate Courses**
  - Real Estate Finance (UGBA183)
  - Introduction to Real Estate Investment Analysis (UGBA180)

Awards and Professional Recognition

1982	Dissertation Award Finalist, National Tax Association.
1984	Shell Companies Foundation, Teaching Excellence Award.
1991	Post Doctoral Award, Weimar School of Advanced Studies.
1998–2006	Board of Directors, American Real Estate and Urban Economics Association (AREUEA).
2001	Second Vice President and Program Chair Winter meetings, AREUEA.
2002	First Vice President, AREUEA.
2002	Earl F. Cheit Outstanding Teaching Award, Evening MBA.
2003	President, AREUEA.
2005	Earl F. Cheit Outstanding Teaching Award, Masters of Financial Engineering.
2006	Distinguished Scholar Award, National Association of Office and Industrial Properties NAIOP.
2010	Richard Bloom Award, AREUEA.
2018	Pearson Prize for the Best Paper in *Financial Management* "CMBS Subordination, Ratings Inflation and Regulatory Capital Arbitrage."
2019	University of California, Berkeley Faculty Service Award.
2019	Best paper and presentation award, FMA Napa/Sonoma Conference "Mortgage Discrimination in the FinTech Era."
2020	Oliver Williamson Award, Haas School of Business, UC Berkeley.
2021	Earl F. Cheit Outstanding Teaching Award, Masters of Financial Engineering.
2024	John M. Quigley Medal, American Real Estate and Urban Economics Assocation.

U.S. Government Service

2012 – 2016	Financial Research Advisory Committee Mortgage liquidity working group Office of Financial Research, U.S. Treasury.
2013 – 2016	The Federal Reserve System, Model Validation Council.
2016	Chair, The Federal Reserve System, Model Validation Council.
March, April 2020	Emergency assistance to the Conference of State Bank Supervisors. "The State-level Incidence of Mortgage Origination and Balances at Risk" with Paulo Issler, Christopher Lako, and Richard Stanton. Analysis to determine the state-level impacts of the forbearance provisions of the CARES Act requested by: the State Banking Commissioners; State Governor Offices; Senate Banking Committee; and the Financial Stability Oversight Council, U.S. Department of Treasury.

University of California, Office of the President Service

2011 – 2012	University of California, Mortgage Programs Advisory Committee.
2013 – 2014, 2023 –	University of California, Senate Faculty Task Force on Investments and Retirement. UC Berkeley Representative.
2022 –	University of California Senate Faculty Welfare Committee, UC Berkeley Representative.

University of California, Berkeley Service

2010	External Review Committee, Department of Agricultural and Resource Economics.
2007 – 2008	Space Assignments and Capital Improvements Committee (SACI).
2009 – 2011	Committee on Courses of Instruction (COCI).
2012 – 2017	Committee on Academic Planning and Resource Allocation, (CAPRA).
2013 – 2015	Vice Chair, Chair CAPRA.
2016 – 2017	CAPRA subcommittee on the UCB Financial Model.
2014 – 2015	Divisional Council, Faculty Senate.
2014 – 2015	Task Force on the Banking Request for Proposals.
2013 – 2015	The University Athletics Board.
2013 – 2015	Space Assignment and Capital Improvements Committee.
2013 – 2015	GIMLET Administrative Planning Committee.
2014 – 2015	Task Force on the Lower Sproul Plaza Redevelopment.
2013 – 2014	Task Force to Re-Envision the Financial Structure of California Memorial Stadium.
2016 – 2022	UC Berkeley University Partnership Program Advisory Committee.
2018	External Review Committee, Berkeley Law School.
2019	Chancellor's Review Committee on the Upper Hearst Development Project.
2019 –	Faculty Welfare Academic Senate Committee.
2021 –	Chair, Faculty Welfare Academic Senate Committee.
2023 –	GIMLET Administrative Planning Committee.
2020 –	Clean Energy Campus Advisory Committee, Energy Infrastructure Re-development.
2023 –	Faculty Senate, Climate Task Force Working Group.

Haas School of Business Service

1995 – 1997	Policy and Procedures Committee.
1995 –	Chair, Real Estate Group.
1995 –	Co-Chair, Chief Operating Officer, Fisher Center for Real Estate and Urban Economics.
1995 –	Haas Executive Committee.
1995 – 2021	Ph.D. Director Real Estate Group.
2016 – 2018	Master of Financial Engineering, Expansion Feasibility Committee.
2015 –	Chair, Real Estate and Financial Markets Laboratory.
2016 –	Berkeley Real Estate Forum, Board Member, 501(c)3.
2018 – 2019	Haas Allies Committee.
2018 –	Masters in Financial Engineering, Program committee.
2019 – 2021	Haas Research Computing Committee

Other Professional Activities

1994 – 2002, 2022 –	Visiting Scholar San Francisco Federal Reserve Bank.
May 1994, 1995	Visiting Professor, Institut d'Etudes Politiques de Paris, Paris, France.
June/December, 1997	Visiting Professor, Royal Institute of Technology, Stockholm, Sweden.
Spring 1997	Visiting Professor: Graduate School of Business, Stanford University.
June 2001/2002	Visting Scholar, Université de Cergy Pointoise, THEMA, France.
Fall 2005	Visiting Scholar: Stockholm School of Economics, Stockholm, Sweden.
April 2009	Visiting Scholar New York Federal Reserve Bank.
November 2009/2010	Visiting Professor, Haas-Risk Management Institute, Financial Engineering Certificate Program, National University of Singapore.
2009 – 2014	Editorial Board, *Journal of Computational Finance*.
2011 – 2016	Board of Directors, Montgomery Street Income Securities (MTS).
Spring 2021	T20 Advisory on briefing materials for Rome G20 meetings. Co-chair of the TF6: Social Cohesion and the Future of Welfare Systems.

Publications

1. "The Consistency Doctrine and the Market Effects of Zoning Undeveloped Land," *Research in Law and Economics*, 4, edited by Austin Jaffe, JAI Press, 1987.
2. "The Market Effects of Zoning Undeveloped Land Parcels: Does Zoning Follow the Market?" *Journal of Urban Economics*, Volume 23, 1988.
3. "Spatial Price Competition and the Demand for Freight Transportation," with Fred Inaba. *Review of Economics and Statistics*, November 1989.
4. "Bayesian Analysis and Regularity Conditions on Flexible Functional Forms: Application to the U.S. Motor Carrier Industry," with James Chalfant. *Readings in Econometric Theory and Practice*, edited by William Griffiths, Helmut Lutkepohl and Mary Ellen Boch, North Holland, 1991.
5. "Nonparametric Estimation of Dynamic Hedonic Price Models and the Construction of Residential Housing Prices," with Richard Meese. *Journal of the American Real Estate and Urban Economics Association*, Fall, 1991.
6. "A Comparison of Nonparametric Methods to Measure Efficiency in the Savings and Loan Industry," with Richard Garbaccio, Benjamin Hermalin. *Journal of the American Real Estate and Urban Economics Association*, Volume 22, 1994.
7. "Testing the Present Value Relation for Housing Prices: Should I Leave my House in San Francisco," with Richard Meese. *Journal of Urban Economics*, 35, 1994.
8. "The Determinants of Efficiency and Solvency in Savings and Loans," with Benjamin E. Hermalin. *The RAND Journal of Economics*, 25, 1994.
9. "Spatial Price Competition and the Demand for Freight Transportation," with Frederick Inaba, Reprinted in *The Economics of Location*, Edited by Melvin Greenhut and George Norman, London, Elsevier, 1994.
10. "From Disaggregate Mode-Destination-Quantity Decisions to Predictions of Aggregate Freight Flows," with Fred Inaba and Murat Genc, *International Journal of Transport Economics*, Volume 21, 1994.
11. "Arm Wrestling: Valuing Adjustable Rate Mortgages Indexed to the 11th District Cost of Funds," with Richard Stanton, 23, *Journal of the American Real Estate and Urban Economics Association*, 1995.
12. "Hedonic-Based Price Indexes for Housing: Theory, Estimation, and Index Construction," Number 3, *Economic Review of the Federal Reserve Bank of San Francisco*, 1996.
13. "The Construction of Residential House Price Indices: Indexes: Repeat Sales, Hedonic Regression, and Hybrid Methods," with Richard Meese, 14, *Journal of Real Estate Finance and Economics*, 1997.
14. "Testing the Present Value Relation for Housing Prices: Should I Leave My House in San Francisco?" with Richard Meese. Reprinted in *The Economics of Housing* Volume I. Edited by John M. Quigley. Northamption, MA., Edward Elgar Publishing Limited, 1997.
15. "Mortgage Choice: What is the Point?" with Richard Stanton *Real Estate Economics*, 26, 2, 1998.
16. "The Anatomy of an ARM: Index Dynamics and Adjustable Rate Mortgage Valuation," with Richard Stanton, *Journal of Real Estate Finance and Economics*, 19, 1, 1998.
17. "Housing Price Cycles and Prepayment Rates of U.S. Mortgage Pools," with Joe Mattey, *Journal of Real Estate Finance and Economics*, 23, 2, 2001.
18. "Firm Performance and Executive Compensation in the Savings and Loan Industry," with Benjamin Hermalin, *Journal of Financial Economics*, 61, 2001.
19. "House Price Dynamics and Market Fundamentals: The Parisian Housing Market" with Richard Meese, *Urban Studies*, 40, 5/6, May 2003.
20. "An Empirical Test of a Two-Factor Mortgage Prepayment and Valuation Model: How Much Do House Prices Matter?" with Christopher Downing and Richard Stanton, *Real Estate Economics*, 33, 3, 2005.
21. "Innovations in Mortgage Modelling: An Introduction," *Real Estate Economics*, 33, 3, 2005.
22. "An Empirical Test of a Contingent Claims Lease Valuation Model," with Richard Stanton, *Journal of Real Estate Research*, 2007.

23. “Is the Market for Mortgage Backed Securities a Market for Lemons?” with Christopher Downing and Dwight Jaffee, *Review of Financial Studies*, 22, 2009.
24. “The Dynamics of Job Creation and Destruction and the Size Distribution of Cities,” with Donald Walls. 2009, *Housing Markets and the Economy: Risk, Regulation, Policy Essays in Honor of Karl Case*, edited by Edward Glaeser and John Quigley, Cambridge, MA., Lincoln Land Institute.
25. “Optimal Exercise of Executive Stock Options and Implications for Firm Cost,” with Jennifer Carpenter and Richard Stanton, *Journal of Financial Economics*, 98, 2010.
26. “The Bear’s Lair: Indexed Credit Default Swaps and the Subprime Mortgage Crisis,” with Richard Stanton, *Review of Financial Studies*, 24, 2011.
27. “All in One Basket: The Bankruptcy Risk of a National Agent-Based Mortgage Recording System,” *University of California, Davis Law Review*, 46, 2012.
28. “U.S. Residential-Mortgage Transfer Systems: A Data-Management Crisis,” with John Patrick Hunt and Richard Stanton, *Handbook of Financial Data and Risk Information* Volume 4: Data Risk, Cambridge University Press.
29. “Rebalancing Public and Private in the Law of Mortgage Transfer,” with John Patrick Hunt and Richard Stanton, *American University Law Review*, 63, 2013
30. “Energy Efficiency Retrofits for U.S. Housing: Removing the Bottlenecks,” with Ashok Bardhan, Dwight Jaffee, and Cynthia Kroll, *Regional Science and Urban Economics*, 14, 2014.
31. “The Industrial Organization of the U.S. Residential Mortgage Market,” with Johan Walden and Richard Stanton, *Annual Review of Financial Economics*, December 2014.
32. “Comments on: Lending on Hold: Regulatory Uncertainty and Bank Lending Standards, by Stefan Gissler, Jeremy Oldfather, and Doriana Ruffino,” *Journal of Monetary Economics*, 81, 2016.
33. “Mortgage Loan-Flow Networks and Financial Norms,” with Johan Walden and Richard Stanton, *Review of Financial Studies*, 31, 2018.
34. “Liquidity Crises in the Mortgage Market,” You Suk Kim, Steven Laufer, Karen Pence, Richard Stanton, *Brookings Papers on Economic Activity*, Spring, 2018.
35. “The Importance of Behavioral Factors in the Exercise and Valuation of Executive Stock Options,” with Jennifer Carpenter and Richard Stanton, *Journal of Finance*, 74, 3, 2018.
36. “CMBS Subordination, Ratings Inflation, and the Crisis of 2007-2009,” with Richard Stanton, *Financial Management*, 47, 2018. Best paper prize, 2019.
37. “Energy Factors, Leasing Structure and the Market Price of Office Buildings in the U.S., with Dwight Jaffee and Richard Stanton, *Journal of Real Estate Finance and Economics*, 59, 2019.
38. “Should Commercial Mortgage Lenders Care about Energy Efficiency? Lessons from a pilot study,” with Paul Mathew and Paulo Issler, *Energy Policy*, 150, 2021.
39. “Algorithmic Discrimination and Input Accountability under the Civil Rights Acts,” *Berkeley Technology Law Journal*, 36, 2021.
40. “Consumer-Lending Discrimination in the Fintech Era,” with Robert Bartlett, Adair Morse, and Richard Stanton, *Journal of Financial Economics* 143, 1, 2022.
41. “Nonbanks and Mortgage Securitization,” with You Suk Kim, Karen Pence, Richard Stanton, and Johan Walden, *Annual Review of Financial Economics*, 14, 2022.
42. “Algorithmic Fairness,” with Sanjiv Das and Richard Stanton, *Annual Review of Financial Economics* 15, 2023.

Working Papers

1. “Housing and Mortgage Markets with Climate Risk: Evidence from California Wildfires,” with Paulo Issler, Richard Stanton, and Carles Vergara-Alert, 2023.

2. “The Deposit Business at Large vs. Small Banks,” with Adrien d’Avernas, Andrea L. Eisfeldt, Can Huang, and Richard Stanton, NBER working paper 31865, November 2023.

3. “Value-at-Risk from the Introduction of Building Performance Standards on Commercial Real Estate Buildings,” with Paulo Issler, November, 2023.

4. “Multi-family Mortgage Default Risk Associated with Energy Inefficiency: Fannie Mae Securitized Loans,” with Paulo Issler and Paul Mathew, October, 2022.

5. “Commercial Real Estate Mortgage Default Accounting for Utility Expenditures,” with Paulo Issler, October, 2021.

6. The Pricing Risk of Energy Use Intensity for Office and Multifamily Mortgages with Paulo Issler and Paul Mathew, October, 2022.

7. “A New Dynamic House-Price Index”, with Richard Stanton and Christopher M. Strickland, Working paper, U. C. Berkeley 2018.

8. “Energy Efficiency and Commercial Mortgage Valuation”, with Paulo Issler, Dwight Jaffee, and Richard Stanton, Working paper 2017.

Ph.D. Advising

1992	Chia-Wen Lee (Comm.)	Simon Fraser University.
1989	Israel Finkelshtain (Comm. Ag. Econ.)	Hebrew University of Jerusalem.
1991	Laura Quigg (Chair)	University of Illinois Urbana-Champaign.
1989	Richard Garbaccio (Comm. Ag. Econ.)	EPA.
1996	Gary D. Painter (Comm. Economics)	University of Southern California.
1995	Xiaolun Sun (Comm. AG. Econ.)	World Bank.
1995	Emiko Hashida (Comm. Ag. Econ.)	PeopleSoft
1995	Yongheng Deng (Comm. Economics)	University of Wisconsin.
2003	Robert Novy-Marx (Comm.)	University of Rochester.
1996	Sau K. Lum (Chair)	National University of Singapore.
1996	Danny Ben-Shahar (Comm.)	Tel Aviv University.
1997	Scott J. Suzin (Comm. Economics)	Federal Housing Finance Agency.
1997	Christopher T. Downing (Comm. Economics)	Blackrock.
1998	Cherisa J. Yarkin (Comm. Ag. Econ.)	UCB Cooperative Research
2000	Christopher L. Redfearn (Comm. Economics)	University of Southern California.
2003	Stephen M Stohs (Comm. Ag. Econ.)	NOAA.
2003	Jaime H. Lee (Comm. Economics)	Blackrock.
2004	Beethika S. Khan (Comm. Economics)	National Science Foundation .
2005	Shimon Kogan (Comm.)	Wharton,
2006	Barbara A. Bukhvalova (Chair)	BI Norwegian School of Economics.
2006	Matthew Denny (Comm. CS)	Georgetown University.
2006	Ilona Babenko (Comm.)	Arizona State University.
2007	Peng Liu (Chair)	Cornell University.
2007	Gerd Welke (Chair)	Cal Poly Pomona.
2007	Carolina Marquez (Comm. Economics)	Blackrock.
2007	Alexander Vedrashko (Chair)	Simon Fraser.
2008	Carles Vergara-Alert (Chair).	I.E.S.E. University of Navarra, Barcelona.
2008	Stefano Corradin (Co-Chair)	European Central Bank.
2008	Wenlan Qian (Chair)	National University of Singapore.
2010	Boris Albul (Chair)	Boston Federal Reserve Bank.
2010	Sebastien Betermier (Comm.)	McGill University.
2011	Barney Hartman-Glaser (Co-chair)	UCLA, Anderson School of Business.
2011	Paulo F. Issler (Chair)	Fisher Center for Real Estate.
2012	Reza Shabani (Comm. Economics)	Blackrock.
2012	Alan Neale (Comm. Economics)	JP Morgan Chase.
2013	Xing Huang (Comm. Economics)	Washington University, Olin Business School.
2013	Pratish Patel (Co-chair)	California Polytechnic State University.
2013	Maya Papineau-Koritar (Comm. Ag. Econ.)	Carlton University, Canada.

Ph.D. Advising, Cont'd.

2014	Anna Amirdjanova (Chair)	Federal Reserve Board.
2014	Jiakai Chen (Chair)	University of Hawaii.
2015	Jessica Shui (Comm. Economics)	Federal Housing Finance Administration.
2015	Nirupama Kulkarni (Comm.)	Central Bank of India (CAFRAL).
2016	Aya Bellicha (Chair)	New Relic Applied Intelligence.
2016	Calvin Zhang (Co-Chair)	University of Oregon.
2016	Sanket Korgaonkar (Co-Chair)	University of Virginia.
2018	David Echeverry Perez (Chair)	Universidad de Navarra
2018	Haoyang Liu (Co-Chair)	New York Federal Reserve Bank.
2019	Dayin Zhang (Chair)	University of Wisconsin.
2019	Christopher Lako (Chair)	The Analysis Group.
2019	Troup Howard (Comm.)	University of Utah.
2020	Mohammad Rezaei (Chair)	UBER .
2021	Helen Banga Willis (Comm. Economics)	Consumer Finance Protection Board.
2023	Can Huang (Chair)	University of Illinois, Champaign-Urbana.
2023	Sizhu Lu (Committee)	Continued 2nd Ph.D. UC Berkeley Statistics.

Grants and Center Operation

1999	Ford Foundation, "Supply effects of eliminating the deductibility of home mortgage interest." **$20,000**.
2007	Society of Actuaries, "Estimation of Employee Stock Exercise and Firm Cost," Co-PI with Richard Stanton **$75,000**.
2009–2012	Department of Energy (DOE), ARRA "Incorporating Energy Efficiency into Commercial Mortgage Underwriting," Co-PI with Paul Mathew and Philip Haves Lawrence Berkeley National Laboratory (LBNL) First finance grant ever funded by DOE. **$760,000** total, $320,000 Haas Share.
2015–2017	DOE and LBNL with Paul Mathew Risk Analysis and Management to Accelerate Energy Efficiency Investments in Commercial Buildings **$125,752**.
2017 – 2023	DOE and LBNL with Paul Mathew Factors in Commercial Building Finance **$365,094**.
2018	DOE and LBNL with Jeff Deacon Analysis of Residential PACE Program Impacts **$46,221**.
2021	DOE and LBNL with Jeff Deacon The Impact of Energy Efficiency on Home Value and Mortgage Performance **$50,814**.

Grants and Center Operation, Cont'd.

2023 Lab for Sustainable Financial Services and Innovation at UC Berkeley
and Wells Fargo Bank
"Assessing Wildfire Risks to Property, Mortgage, and Insurance Valuations in California"
Co-PI with Richard Stanton
$80,000.

2023 – Department of Energy
Lawrence Berkeley National Labs
"Effects of Building Performance Standards on the
Energy Value-at-Risk of Commercial Real Estate: Policy Analysis and Measurement."
UCB PI
$100,694.

1995 – Faculty Co-chair and COO, Fisher Center for Real Estate and Urban Economics
Haas School of Business
$2.3 current annual budget
12 person staff.

2016 – Berkeley Real Estate Forum
Board Member, 501(c)3.

Invited Academic Presentations

1. *The Market Effects of Zoning Undeveloped Land Parcels: Does Zoning Follow the Market?*, Carnegie Mellon University, 1986, University of California Berkeley, Haas School of Business, 1986, Washington State University, 1986, AREUEA winter meetings, 1987.

2. *Spatial Price Competition and the Demand for Freight Transportation* with Fred Inaba, Washington State Department of Transportation, 1988, AREUEA winter meetings 1988.

3. *"Nonparametric Estimation of Dynamic Hedonic Price Models and the Construction of Residential Housing Prices* with Richard Meese, AREUEA winter meetings, 1989, San Francisco Federal Reserve Bank, 1989, University of Wisconsin, Madison, 1990, Weimar School Advance Studies, 1990.

4. *Testing the Present Value Relation for Housing Prices: Should I Leave my House in San Francisco* with Richard Meese, AREUEA winter meetings, 1990, Hautes Etudes Commercial, HEC Paris, 1990, INSEE, Paris, 1990; University of British Columbia; 1990.

5. *A Comparison of Nonparametric Methods to Measure Efficiency in the Savings and Loan Industry*, with Richard Garbaccio and Ben Herman San Francisco Federal Reserve Bank, 1993, University of British Columbia, 1992, AREUEA winter meetings, 1991, AREUEA International conference, 1992.

6. *The Determinants of Efficiency and Solvency in Savings and Loans*, with Ben Hermalin. American Finance Association Winter Meetings, 1993; Department of Economics, University of Los Angeles, Los Angeles, CA, 1993; Department of Economics, University of California, Santa Barbara, 1993.

7. *Arm Wrestling: Valuing Adjustable Rate Mortgages Indexed to the 11th District Cost of Funds*, AREUEA winter meetings, 1994, Royal Institute of Technology, Stockholm, Sweden, 1994, AREUEA International Conference, Singapore, 1995.

8. *Housing Price Cycles and Prepayment Rates of U.S. Mortgage Pools*, with Joe Mattey. AREUEA winter meetings, 1995, University of Wisconsin, Madison, 1995; The Wharton School, University of Pennsylvania, 1995; AREUEA International Conference, 1995.

9. *Hedonic-Based Price Indexes for Housing: Theory, Estimation, and Index Construction* AREUEA winter meetings, 1996; Federal Reserve Bank of San Francisco, 1996.

10. *Mortgage Choice: What is the Point?* with Richard Stanton, AREUEA winter meetings 1997; Stockholm School of Economics, 1997; University of British Columbia, 1997; Weimar School of Advance Studies, 1997; University of Southern California, Price, 1997;

11. *The Construction of Residential House Price Indices: Indexes: Repeat Sales, Hedonic Regres- sion, and Hybrid Methods* with Richard Meese, AREUEA winter meetings, 1998; University of British Columbia, 1998; Weimar School of Advanced Studies, 1999; Joint International AREUEA/Asian Real Estate Society meetings, Hawaii, 1999.

12. *House Price Dynamics and Market Fundamentals: The Parisian Housing Market* with Richard Meese, American Economic Association winter meetings, 1999; University of Wisconsin, Madison, 1999.

13. *An Empirical Test of a Contingent Claims Lease Valuation Model* with Richard Stanton, American Finance Association/AREUEA Winter meeting, 2000; International AREUEA meeting, Gävle, Sweden, 2000, Asian Real Estate Society, Seoul, Korea, 2002, National Bureau of Economic Research, Summer Institute, 2002.

14. *A Real Options Approach to Housing Investment* with Christopher Downing. Asian Finance Association meeting, Shanghai, 2000. Asian Real Estate Association Meetings, Beijing, 2000; National Bureau of Economic Research, Summer Institute, Boston, MA, August 2000; UC Berkeley, MIT and UT Austin, Vail Real Estate Conference, Vail, CO, 2001; University of Kentucky, 2001; American Finance Association/AREUEA Winter meetings; Atlanta, GA, 2002.

15. *An Empirical Test of a Two-Factor Mortgage Prepayment and Valuation Model: How Much Do House Prices Matter?* with Christopher Downing and Richard Stanton. American Finance Association/American Real Estate and Urban Economics Association, Winter meetings, January, 2001; NBER, Summer Institute, Boston, MA, July 2001; The University of British Columbia, Summer Institute, Vancouver, Canada, July 2001; Asian Real Estate Society, Sixth Annual Conference, Keio University, Tokyo, Japan, 2001; The Stockholm School of Economics, Stockholm, Sweden, 2001; University of Cergy-Pointoise, Paris, France, 2001; Federal Reserve Board, Washington D.C., 2001; Freddie Mac, Washington DC, 2001; Wells Fargo Bank, San Francisco, CA, 2001; Morgan Stanley Fixed Income Research, 2001; Finance Group, The University of North Carolina, Chapel Hill, N.C., 2001; The Lusk Center, The University of Southern California, Los Angeles, CA, 2002, Rice University, 2002, Institut National de la Statistique et des Études Économiques, 2002. Columbia University, Graduate School of Business, 2002.

16. *Is the Market for Mortgage Backed Securities a Market for Lemons?* with Christopher Downing and Dwight Jaffee. AFA Winter meetings, 2005, Bank Structuring Conference, Chicago Federal Reserve Board, 2005, Stockholm School of Economics, 2005, Chicago Quantitative Alliance, 2005. JOIM Conference, March 2006; NBER, Summer Institute, 2006, AFA, Nykredit Symposium, 2007.

17. *Volatility, Mortgage Default, and CMBS Subordination* with Chris Downing and Richard Stanton. AREUEA International Conference, July 2006. Moody's KMV; Barclays Global Investments, July 2006, AFA/AREUEA Winter Meetings, January, 2007. Real Estate Symposium, June, 2007.

18. *The Bear's Lair: Indexed Credit Default Swaps and the Subprime Mortgage Crisis*, with Richard Stanton. ASSA/AREUEA Winter meetings, San Francisco, 2009; New York Federal Reserve Bank, 2009; Norwegian School of Economics, Oslo, Norway, 2009; Yale Conference on the Financial Crisis, New Haven, CT, 2009 ; NBER Securitization Working Group, Palo Alto, CA, October, 2009; National University of Singapore, Singapore, December 2009; Summer Real Estate Symposium, San Diego, CA, 2010.

19. *CMBS Subordination, Ratings Inflation, and the Crisis of 2007-2009*, with Richard Stanton. National University of Singapore, Singapore, 2008 ; Federal Reserve Board, Washington, DC, 2008; Sveriges Riksbank, Stockholm, Sweden, 2010; Stockholm School of Economics, Stockholm, Sweden, 2010; NBER Project on Market Institutions and Financial Market Risk conference, New York City, 2010; Western Finance Association Meetings, 2011; NBER Public Economics and Real Estate, 2011;

GRETA Conference on Stability and Risk Control in Banking Insurance, and Finance Markets, 2011; San Francisco Federal Reserve Bank, 2012; George Washington University, 2012; XIII Madrid Finance Workshop: Banking & Real Estate, Madrid, Spain, 2012; American Real Estate and Urban Economics Association, Winter meetings, 2013.

20. *Energy Factors, Leasing Structure and the Market Price of Office Buildings in the U.S.*, with Dwight Jaffee and Richard Stanton. National University of Singapore, Singapore, November, 2010; The Lawrence Berkeley National Laboratory, 2011.

21. *Energy Efficiency and Commercial-Mortgage Valuation*, with Dwight Jaffee and Richard Stanton, Blackrock, Commodity Trading Group, September, 2011; The National University of Singapore, Financial Engineering, Risk Management Center, 2011; The Energy Institute, UCB, September, 2011; Carnegie Mellon University, December 2011; Real Estate Symposium, Las Vegas, June, 2012; American Real Estate and Urban Economics Association, January, 2013.

22. *Estimation of Employee Stock Option Exercise Rates and Firm Cost* with Jennifer Carpenter and Richard Stanton, The Ohio State University, 2012; Rice University, 2014; University of North Carolina, 2014.

23. *A New Dynamic House Price Index*, with Richard Stanton and Chris Strickland, AREUEA winter meetings, 2014; MIT Consortium for Systemic Risk, December, 2015; University of North Carolina 2015.

24. *Securitization Networks and Endogenous Financial Norms in U.S. Mortgage Markets*, with Johan Walden and Richard Stanton, JOIM Conference, September, 2014; London Business School, 2014; Stanford University, March 2015; Western Finance Association Conference, June, 2015; MIT, Consortium for Systemic Risk Analytics (CSRA), June 2015; NBER Summer Institute, 2015; Financial Intermediation Research Society (FIRS) Conference, Lisbon, Portugal, 2016.

25. *Consumer-Lending Discrimination in the Fintech Era*, with Robert Bartlett, Adair Morse, and Richard Stanton, JOIM Conference, Boston, 2017; Annual Research Conference of the Center for International Securities and Derivatives Markets, Boston, October, 2017; University of Southern California, 2017; Johns Hopkins University, 2018; Consumer Finance Protection Bureau, 2018; The American Economics Association Meetings, January, 2019; FMA Napa/Sonoma Finance Conference (best paper and presentation prize), 2019; NBER, Summer Institute Household Finance, 2019; Florida State University, 2020; Federal Housing Finance Agency, 2021.

26. *Housing and Mortgage Markets with Climate Risk: Evidence from California Wildfires*, with Paulo Issler, Richard Stanton, and Carles Vergara-Alert, Stanford GSB, 2020; Federal Reserve Stress Testing Conference, 2020; New York University, Second Annual Volatility and Risk Institute Conference, 2021; UCLA Anderson School of Business, 2021; Blackrock, 2021; S&P Global, 2021; University of Technology, Sydney, 2021; Federal Reserve Bank of San Francisco, Climate Seminar, 2021; Office of Financial Research, 2021; American Economics Association, Winter meetings, 2022; UC Berkeley–Wells Fargo Lab, 2022; UC Berkeley, Law, 2022; Bank of Canada, 2022; Rice University, Jones Graduate School of Business, 2023; Baruch College, Zicklin School of Business, 2023; NBER Innovative Data Conference, 2023.

Invited Policy Presentations and Keynotes

2004 AREUEA winter meetings, Presidential Address
Agglomeration Economies and the High-Tech Computer Cluster, with Donald Walls.
2010 Workshop on Housing Markets, Monetary Policy and Financial Stability, Sveriges Riksbank,
Real Estate Price Measurement and Stability Crises. 2012
Stress Testing Provisional Models for Commercial Real Estate Loans.
2014 Boston Federal Reserve Bank, Conference on Macro-Finance Linkages, *Bank Stress Testing: House Price Analytics and Systemic Risk in Mortgage Networks*.
2014 American Law Institute Conference, Georgetown University School of Law, *Financial Housing Markets: Pre and Post Crisis Challenges in Structure and Funding Flows.*
2014 Conference in Honor of Robert Shiller, Nobel Laureate 2014, Yale University,
What's Next in House Price Index Modeling?.
2015 Global Crossroads 2015: Financial Market Adaptation to Regulation and Monetary Policy, Stanford University, *U.S. Mortgage Market Pipeline Risks*.
2016 DOE Better Buildings Summit, Department of Energy, Washington DC
Underwriting Energy Efficiency in Commercial Mortgages: Challenges and Possible Interventions.
2016 Conference on Building Academic and Business Partnerships on Mortgage Data Analytics University of North Carolina, *CRE Mortgage Analytics: Data Integration and Management Challenges*.
2016 Macro Financial Modelling Conference, NYU Stern, *Mortgage and Housing Market Microdata: Database Construction and Challenges for Statistical Inference*.
2016 GNMA Conference on Managing Value and Liquidity in Mortgage Servicing, Washington DC,
GNMA Liquidity and Counterparty Risk,
2016 Financial Conduct Authority, London, England *Systemic Risks to Mortage Origination: The Role of Short-term Funding Market Fragility*.
2016 Golub Center for Finance and Policy, MIT *A Security Design Crisis in the Plumbing of U.S. Mortgage Origination*.
2016 Office of Financial Research, Washington, DC, *Monitoring GNMA/GSE Pipeline Liquidity*.
2017 Department of Energy/ ULI Greenprint Webinar *Energy Efficiency and Commercial Mortgage Default*.
2017 Federal Reserve Bank of New York, NYC Panel on *Appropriate Government Role in the U.S. Mortgage Markets.*
2018 Office of Financial Research and Federal Reserve Bank of Cleveland, Washington, DC,
Moral Hazard and Adverse Selection in Financial Markets.
2019 Commonwealth Club, San Francisco, *U.S. Housing and Mortgage Markets*.
2019 Ginnie Mae Summit, Washington DC, *Liquidity in the nonbank mortgage sector*.
2020 Institute for Private Capital, University of North Caroline, *COVID-19 Effects on Securitized Mortgage Markets.*
2020 Women in Finance, Washington DC., *Discrimination in Mortgage lending: Standards for algorithmic accountability and empirical evidence*
2020 CEPR: Climate Change: Financial Implications for Households, *Energy efficiency and the default risk of U.S. CRE*.
2021 Commonwealth Club, San Francisco, *U.S. Housing and Mortgage Markets*.
2021 Federal Reserve Board, Washington DC, *Algorithmic Accountability: Testing Targets and Features*.
2021 Banking on Data: Great Possibilities, Great Responsibilities. Santa Clara University,
Ethics of Artificial Intelligence and Machine Learning in Mortgage Lending.
2022 Real Estate and Climate Symposium, MIT, *Climate-Related Real Estate Capital Market Risks*.
2023 Matrix, University of California, Berkeley, *How to Think About the Doom Predictions for the San Francisco Economy*.
2023 Risk Management Association, *Climate Risk Metrics for RE Risks*.