#### Vita

# Jeffrey D. Fisher, Ph.D.

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## **EDUCATION**

Ohio State University, Ph.D., 1980. Wright State University, M.B.A., 1972. Purdue University, B.S.I.M., 1970.

#### UNIVERSITY APPOINTMENTS

John Hopkins University, 2016 – Present Visiting Professor

Indiana University 2011 – Present Professor Emeritus

Indiana University, 1996 - 2011 Charles Dunn Professor of Finance and Real Estate

Indiana University, 1986 – 2011 Director, Center for Real Estate Studies

Indiana University, 1984 - 1995 Associate Professor of Finance and Real Estate

Indiana University, 1979 - 1984 Assistant Professor of Real Estate

Ohio State University, 1978 - 1979 Lecturer in Real Estate

Wittenberg University, 1976 - 1977 Assistant Professor of Business

Wright State University, 1973 - 1976 Instructor of Finance and Statistics

## PROFESSIONAL APPOINTMENTS

Partner, Pavonis Group LLC

Director, RealNex, LLC

President and Chair of the Board, Homer Hoyt Institute 2011 to present

Consultant to the National Council of Real Estate Investment Fiduciaries, 1999 to present

Research Fellow, Real Estate Research Institute 2004 – present

Member of the advisory committee to Ecole hôtelière de Lausanne Real Estate Finance and Economics Institute in Switzerland.

Member Global Investment Performance Standards (GIPS) Real Estate Workgroup sponsored by the CFA Institute. 2011 to 2015

Consultant to Real Capital Analytics 2010 to 2015

Consultant to ARGUS Software 2010 to 2013

Director, Pension Real Estate Association (PREA) 2004 - 2011

Research Affiliate, MIT Center for Real Estate, 2004

Advisory Board, Sterling Valuation

Director, Paul I. Cripe Company, Inc. 1998 - 2005.

Director, National Council of Real Estate Investment Fiduciaries (NCREIF), 1991 to 1996.

Director, Real Estate Research Institute, 1995 - 1998.

Director, MIG Residential Real Estate Investment Trust, 1993 to 1998.

President, American Real Estate and Urban Economics Association (AREUEA), 1990. First Vice President, 1989, Second Vice President and Program Chairman, 1988. Secretary-Treasurer, 1984 to 1987.

Chairman, Real Estate Center Directors and Chairholders Association, 1986-87.

Founding trustee of The Appraisal Foundation, 1987 to 1993. Officer (treasurer) from 1987 to 1990. Served on the task force that developed the content outline for the national appraiser certification exam.

Faculty Associate, Lincoln Institute of Land Policy, Cambridge, MA.

Member of the Executive Council of the Lamda Alpha International Student Association.

Member of the Editorial Board of the "Real Estate Information Technology" section of the Journal of Real

Estate Literature.

#### HONORS AND AWARDS

Ricardo Award from American Real Estate Society, 2016 for outstanding contributions to real estate research and education.

Pioneer Award from American Real Estate Society, 2012 for pioneering contributions to research and education during my career.

Legacy Award from American Real Estate Society, 2012 for best paper in the *Journal of Real Estate Research* during past three years.

Richard Ratcliff award from the American Real Estate Society for impact on the real estate profession, April 2007.

Excellent Writing Prize awarded by the Real Estate Companies Association of Japan, 2007 for Japanese version of Income Property Valuation textbook.

Honorary Fellow in the Japanese Association for Real Estate Securitization, Tokyo, 2006.

Martin Katz award for contributions to the valuation literature -- awarded by the American Property Tax Association (APTC) 2004.

Most Outstanding Paper in 2001 in the Journal of Property Investment and Finance.

Counselor of Real Estate (CRE) designation awarded by The Counselors of Real Estate, 2001

Schuyler F. Otteson teaching award, IU Kelley School of Business, 2001.

Award for the "best paper presented on real estate investment/portfolio management" received from the American Real Estate Society, 2000.

Indiana University Teaching Excellence Recognition Award, 2,000

George Bloom Award for "Outstanding Contribution to the Field of Real Estate" received from the American Real Estate and Urban Economics Association, 1999.

1993 Alpha Kappa Psi Alumni Award for Teaching Excellence in Finance in the Indiana University School of Business.

PREA/Graaskamp Award for Research Excellence, presented at the Annual Plan Sponsor Real Estate Conference by the Pension Real Estate Association. 1992.

Fellow, Weimer School of Advanced Studies in Real Estate and Land Economics, Homer Hoyt Advanced Studies Institute, 1991. (Post Doctoral Award from the Homer Hoyt Institute, 1983).

Second place winner of the American Institute of Real Estate Appraisers 1980 Manuscript Competition.

Phi Alpha Phi (Finance); Beta Gamma Sigma (Business); Phi Kappa Phi (University)

Editorial board; Real Estate Economics.

## **PUBLISHED ARTICLES**

"Portfolio Upside and Downside Risk – Both Matter" (with Joseph D'Alessandro), <u>Journal of Portfolio Management</u>, Special Real Estate Issue 2021.

"The Impact of Hurricanes on the Value of Commercial Real Estate" (with Sara Rutledge), <u>Business</u> <u>Economics</u>, 3-202.

"Risk Adjusted Attribution Analysis of Real Estate Portfolios" (with Joseph D'Alessandro), <u>Journal of Portfolio Management</u>, Special Real Estate Issue, 2019.

"Virtual Technology: The Future Is Now for the Commercial Real Estate Industry," (with Michael K. Lerg and Demetrios M. Louziotis, Jr.), Real Estate Issues, Special Issue on Global Cities in an Era of Change, 2017.

"New NCREIF Value Index and Operations Measures," (with Michael Young and Joseph D'Alessandro), <u>Journal of Real Estate Literature</u>, Vol 25, No. 1 2017 pp 221-235.

"Virtual Reality (VR) coming to the CRE Industry" (with Michael Lerg), <u>Real Estate Review</u>, Summer 2016 Volume 45 Number 2.

"Cash Flow Performance of Fannie Mae Multifamily Real Estate: Evidence from Repeated NOI and EGI Indices," (with Xudong An and David Geltner), <u>Journal of Real Estate Finance and Economics</u>, 2016; 52(4), 512-542.

"Commercial Real Estate Rental Index: A Dynamic Panel Data Model Estimation" (with Xudong An, Yongheng Deng, and Maggie (Rong) Hu, Real Estate Economics. Vol. 44; Issue 2 Summer 2016 pages 378-410

"Benchmarking and Attracting Institutional Capital to Seniors Housing," (with Glenn Mueller and Richard Wincott). <u>Journal of Real Estate Research</u>, Vol 19, o 3 2013.

"The Walkability Premium in Commercial Property Investing" (with Gary Pivo). <u>Real Estate Economics</u> 39(2), 185-219. 2011

"Income, Value and Returns in Socially Responsible Office Properties" (with Gary Pivo) <u>Journal of Real</u> Estate Research, Volume 32: No. 3 - 2010.

"Risk and Reasonableness for Non-Market Occupancy: A Second Look During a Real Estate Recession" with Richard Parli. The Appraisal Journal, 2010

"Bidder's Choice Cap Rate Auctions: A New Strategy for Selling Real Estate Portfolios" with Margo Weinstein and Stephen Good, Journal of Real Estate Practice and Education, 2009.

"Institutional Capital Flows and Return Dynamics in Private Commercial Real Estate Markets" with David Ling and Andy Naranjo, Real Estate Economics, 2009.

"A Cross Sectional Analysis of Cap Rates by MSA", with Doina Chichernea, Norm Miller, Mike Sklarz and Robert White, <u>Journal of Real Estate Research</u>, Vol. 30, No. 3 2008.

- "Pricing and Index Considerations in Commercial Real Estate Derivatives," with David Geltner, <u>Journal of Portfolio Management</u>, Special Real Estate Issue, 2007.
- "A Quarterly Transactions-Based Index of Institutional Real Estate Investment Performance and Movements in Supply and Demand," with David Geltner and Henry Pollakowski, <u>Journal of Real Estate Finance and Economics</u>, Volume 34, #1, 2007.
- "Performance of Real Estate Portfolios: A Bootstrapping Approach," with William Goetzmann, <u>Journal of Portfolio Management</u>, special issue 2005.
- "New Strategies for Commercial Real Estate Investment and Risk Management: Introducing the NPI-based derivative." <u>Journal of Portfolio Management</u>, special issue 2005.
- "Analysis of Economic Depreciation for Multi-Family Property," with Brent Smith, Jerrold Stern and Brian Webb, Journal of Real Estate Research, Volume 27, Number 4, November 2005.
- "An Analysis of the Determinants of Transaction Frequency of Institutional Commercial Real Estate Investment Property," with Dean Gatzlaff, David Geltner and Donald Haurin, <u>Real Estate Economics</u>, June, 2004.
- "Construction of Real Estate Indices in the U.S." Proceedings of a joint conference of IMF and BIS on Real Estate Indicators and Financial Stability, held on 27-28 October 2003 at IMF Headquarters Washington D.C." (2004).
- "Risk and Reasonableness for Non Market Occupancy," with Richard Parli. <u>The Appraisal Journal</u>, April 2003.
- "Controlling for the Impact of Variable Liquidity in Commercial Real Estate Price Indices," with Dean Gatzlaff, David Geltner and Donald Haurin, Real Estate Economics, Volume 31, Number 2, Summer 2003.
- "Real Time Real Estate Valuation," Journal of Property Investment and Finance, (Vol 20, Issue 5) 2002.
- "Property Level Benchmarking of Real Estate Development Investments Using the NCREIF Property Index," <u>Real Estate Finance</u>, Volume 18, Number 4 Winter 2002 (with David Geltner).
- "Pricing Commercial Mortgage-Backed Securities," <u>Journal of Property Investment and Finance</u>, (Vol 19 No 6) 2001 (with Clark Maxam). **Selected as Most Outstanding Paper for 2001**.
- "NCREIF Executive Summary and Discounted Cash Flow Database," <u>The Appraisal Journal</u>, Volume LXIX, Number 4, October 2001 (with Ted McWilliams).
- "Institutional Property Tenure: Evidence from the NCREIF Database" <u>Journal of Real Estate Portfolio</u> Management, Vol 6, No. 4 October December 2000 (with Michael S. Young).
- "Is Sector Diversification More Important Than Regional Diversification?" <u>Real Estate Finance</u> Fall 2000 (with Youguo Liang).
- "Holding Periods for Institutional Real Estate in the NCREIF Database." Real Estate Finance, Fall 2000.

(with Mike Young).

"A Repeat Sales Index for Commercial Real Estate - Using Sold Properties in the NCREIF Database," <u>Real</u> Estate Finance, Summer 2000."

"Commercial Real Estate Equity Returns," <u>Real Estate Finance</u>, Summer 2000." With Mike Miles and David Guilkey.

"Trends in Capitalization Rates from the NCREIF Database: Twenty Years of Sold Properties," <u>Real Estate Finance</u>, Spring 2000.

"De-Lagging the NCREIF Index: Transaction Prices and Reverse-Engineering," with David Geltner, <u>Real Estate Finance</u>, Spring 2000.

"How Reliable are Commercial Appraisals? Another Look," with Mike E. Miles and R. Brian Webb, <u>Real Estate Finance</u>, Fall 1999.

"Real Estate as Part of a Going Concern," Valuation Insights, Appraisal Institute, 1998.

"Evaluating the Risk of Commercial Mortgage-Backed Securities," (with George Pappadopoulos), Chapter 11, *Commercial Mortgage-Backed Securities*, ed. by Frank J. Fabozzzi and David P. Jacob, 1998.

"Commercial Mortgage-Backed Securities," (with George Pappadopoulos), Chapter 32, *Handbook of Structured Financial Products*, ed. by Frank J. Fabozzzi., 1998.

"Development of an Effective Rent (Lease) Index for the Chicago CBD," (with Brian Webb), *Journal of Urban Economics*, January 1996.

"Real Estate Performance Measures," Real Estate Issues, Vol. 20, Number 3, December 1995.

"Cash Flow versus NOI: An Analysis of Capital Expenditures for Malls," *Real Estate Finance*, Volume 12, Number 2, Summer, 1995.

"Alternative Measures of Real Estate Performance: Exploring the Russell-NCREIF Database," *Real Estate Finance*. Volume 11, Number 3, Fall, 1994.

"Hybrid Mortgages: A Blend of Debt and Equity," (with Brian Webb), *Real Estate Finance*. Volume 11, Number 2, Summer, 1994.

"Value Indices of Commercial Real Estate: A Comparison of Index Construction Methods," (with David Geltner and R. Brian Webb), *Journal of Real Estate Finance and Economics*, 9:137-164 (1994).

"The Role of Commercial Real Estate in a Multi-Asset Portfolio," (with C.F. Sirmans), *Journal of Property Management*, January/February 1994.

"Effects of Asbestos on Commercial Real Estate: A Survey of MAI Appraisers," (with George Lentz and Maurice Tse), *The Appraisal Journal*, October, 1993.

"Equilibrium in Commercial Real Estate Markets: Linking Space and Capital Markets," (with Susan

Hudson-Wilson and Charles Wurtzebach), The Journal of Portfolio Management, October, 1993.

"Valuation of the Effects of Asbestos on Commercial Real Estate," (with George Lentz and Maurice Tse), *Journal of Real Estate Research*, (Vol. 7, No. 3) Summer, 1992.

"Integrating Research on Space and Capital Markets," (1990 Presidential Address to AREUEA), *Journal of The American Real Estate and Urban Economics Association (AREUEA Journal)*, Summer 1992.

Reproduced in Classic Readings in Real Estate and Development, edited by Jay M. Stein, Urban Land Institute, 1996. Also reproduced in Contemporary Real Estate Finance: Selected Readings, edited by John B. Major and Fung-Shine Pan, Prentice Hall, 1996.

"Issues in Office Market Research," (with Brian Webb) *Journal of The American Real Estate and Urban Economics Association (AREUEA Journal)*, Summer 1992.

"Business Value in Shopping Malls: An Empirical Test," (with George H. Lentz), *Journal of Real Estate Research*, Volume 5, Number 1, Spring 1990.

"The Business Enterprise Value Component of Operating Properties," (with William N. Kinnard, Jr.), *Journal of Property Tax Management*, Panel Publishers, Inc. Volume II, Number 1, 1990.

"Rethinking Corporate Real Estate," (with William Brueggeman and David Porter), *Journal of Applied Corporate Finance*, Volume 3, Number 1, Spring 1990.

"Tax Reform and Organizational Forms for Holding Investment Real Estate: Corporation vs. Partnership," (with George H. Lentz), *Journal of The American Real Estate and Urban Economics Association (AREUEA Journal)*, Volume 17, Number 3, 1989.

"Using Circular Reference in Spreadsheets to Estimate Value," *The Quarterly Byte*, Volume 5, Number 4, Fourth Quarter 1989.

"Tax Reform and the Value of Real Estate Income Property," (with George H. Lentz), *Journal of The American Real Estate and Urban Economics Association (AREUEA Journal)*, Summer, 1986.

"Tax Incentives for Investment in Nonresidential Real Estate: A Simulation Analysis," (with George Lentz and Jerrold Stern), *National Tax Journal*, March 1984.

"Anticipated Growth and the Specification of Debt in Real Estate Value Models," (with Lusht), *Journal of The American Real Estate and Urban Economics Association (AREUEA Journal)*, Spring, 1984.

"Real Estate as an Investment Vehicle," (Part I), Investment Decisions, December 1983.

"Real Estate as an Investment Vehicle," (Part II), Investment Decisions, February 1984.

"Real Estate Finding a Home in Pension Portfolios," *Investment Decisions*, June 1984.

"Building an Equity Real Estate Portfolio," Investment Decisions, August 1984.

"Channeling Funds to Real Estate," *Investment Decisions*, October 1984.

"A Model for Teaching Investment Analysis," Journal of Real Estate Education, Summer, 1983.

"The Future of Capitalization Rates," *The Real Estate Appraiser and Analyst*, Winter, 1982."

"Selecting the Optimal Depreciation Method for Real Estate Investors," (with Jerrold Stern), *Real Estate Issues*, 1982.

"Rental Housing and the Economic Recovery Tax Act of 1981," (with William Brueggeman and Jerrold Stern), *Public Finance Quarterly*, April, 1982.

"Choosing an Optimal Depreciation Method Under 1981 Tax Legislation," (with Brueggeman and Stern), *Real Estate Review*, Winter, 1982.

"Federal Income Taxes, Inflation and Holding Periods for Income-Producing Property," (with William Brueggeman and Jerrold Stern), *Journal of The American Real Estate and Urban Economics Association (AREUEA Journal)*, Summer, 1981.

"Taxation and Real Estate Valuation," *Research in Real Estate*, Volume 1, JAI Press, 1981.

"Capitalization Rates and Market Information," (with Anthony Sanders), *The Appraisal Journal*, April, 1981.

"Mortgage Equity Analysis with a Debt Coverage Constraint," (with Ken Lusht), The *Real Estate Appraiser and Analyst*, Fall, 1981.

"Ellwood J Factors - A Further Refinement," *The Appraisal Journal*, January, 1979.

"Dealing with Uncertainty in Income Valuation," (with Edgar Hemmer), *The Appraisal* Journal, April, 1978.

"How the Tax Law Alters Cash Flow," (with William Brueggeman) Real Estate Review, Fall. 1977.

"Ellwood After Tax - New Dimensions," *The Appraisal Journal*, July, 1977.

## **PUBLISHED MONOGRAPHS and ABSTRACTS**

"Development of an Effective Rent (Lease) Index for U.S. Office Space," PREA Quarterly, April, 1993.

"Development of an Effective Rent (Lease) Index for the Chicago CBD," PREA Quarterly, July, 1993.

"Real Estate in Pension Fund Portfolios: A Review of the Literature and Annotated Bibliography," (with C.F. Sirmans), published by Pension Real Estate Association (PREA), 1991.

"Computer Assisted Investment Analysis and Valuation of Income Property," Research Report Number 6, Center for Real Estate Education and Research, Ohio State University, August, 1979.

## **TEXTBOOKS**

Brueggeman, William F., and Fisher, Jeffrey D., *Real Estate Finance and Investments*, 15th edition, McGraw Hill, Inc., Homewood, Ill., 2016. Also available in Korean and Japanese.

Fisher, Jeffrey D. and Martin, Robert S., *Income Property Valuation*, Dearborn Financial Publishing Co., Inc. Chicago, IL., 3<sup>re</sup> Edition, 2008.

Fisher, Jeffrey D. and Martin, Robert S., *Income Property Appraisal*, Real Estate Education Company, 2<sup>nd</sup> edition, Chicago, IL., 2003.

Bloom, George F., Weimer, Arthur M., and Fisher, Jeffrey D., *Real Estate*, 8th edition, John Wiley and Sons, New York, 1982.

## TEXTBOOKS CONTRIBUTIONS

"Real Estate Appraisal and Valuation", Chapter in **Alternative Investments** (part of Robert W. Kolb series in Finance) published by John Wiley & Sons. 2014

"Private Real Estate Investments", Reading prepared for use in the CFA Institute Curriculum. 2011.

"Real Estate Derivatives", Chapter in Handbook on Real Estate Capital Markets, edited by Nico Rottke & Dirk Schiereck, Immobilien Manager Verlag, 2008.

"Pricing Commercial Real Estate Derivatives", Chapter in Handbook of Finance, Volume 2, edited by Frank Fabozzi, John Wiley & Sons, 2008.

"Commercial Real Estate Derivatives", Chapter in Handbook of Finance, Volume 1, edited by Frank Fabozzi, John Wiley & Sons, 2008.

Fisher, Jeffrey D. "Valuation Techniques for the Private Real Estate Market," appearing in *Real Estate Investing in the 1990s*, published by the Association for Investment Management and Research, 1995.

Fisher, Jeffrey D. "Real Estate Appraisal," chapter 5 in *Managing Real Estate Portfolios*, edited by Susan Hudson-Wilson and Charles H. Wurtzebach, Richard D. Irwin, Inc., 1994.

Fisher, Jeffrey D. "Rethinking Corporate Real Estate," (with William Brueggeman and David Porter) Part VI. Corporate Restructuring: The 1980s, No. 8, *The New Corporate Finance*, edited by Donald H. Chew, Jr., McGraw-Hill, Inc. 1993. (Reprint of article from the Journal *of Applied Corporate Finance*.)

Fisher, Jeffrey D. "Office Investment Performance Measurement," Chapter 31. *The Office Building*, a joint publication of the American Society of Real Estate Counselors, the Appraisal Institute, and the Society of Industrial and Office REALTORS, 1993.

Fisher, Jeffrey D., "Portfolio Construction: Real Estate," Chapter 11 in *Managing Investment Portfolios*, Edited by Donald L. Tuttle and John L. Maginn, Published by Warren, Gorham & Lamont for The Institute of Chartered Financial Analysts, 1983. (Translated into Japanese and published in Japan by the Nikko Research Center, Ltd., 1989)

Fisher, Jeffrey D., "Valuation of Real Estate," article published in Real Estate: Valuation Techniques and

*Portfolio Management*, Edited by Susan Hudson-Wilson, The Institute of Chartered Financial Analysts Continuing Education Series, Charlottesville, VA, 1989.

Fisher, Jeffrey D., "Real Estate Appraisal," prepared exclusively for *CFA Readings in Real Estate*, Edited by Susan Hudson-Wilson, The Institute of Chartered Financial Analysts, Charlottesville, VA, 1990.

## **CONTINUING EDUCATION BOOKS**

Fisher, Jeffrey D. and Martin, Robert S., *Techniques of Income Property Appraisal*, Dearborn Financial Publishing Co., Inc. Chicago, IL., 1995.

Fisher, Jeffrey D. and Martin, Robert S., *Investment Analysis for Appraisers*, Dearborn Financial Publishing Co., Inc. Chicago, IL., 1995.

Fisher, Jeffrey D., Martin, Robert S. and Mosbaugh, Paige, *The Language of Real Estate Appraisal*, Real Estate Education Company, Chicago, IL., 1991.

Fisher, Jeffrey D. and Tosh, Dennis S., *Questions and Answers to Help You Pass the Appraisal Certification Exams*, Real Estate Education Company, Inc., Chicago, IL., 1990 (A special edition also was prepared for the American Society of Appraisers, Washington, D.C.).

## SEMINAR DEVELOPMENT and EXECUTIVE EDUCATION

"Advanced Real Estate Valuation", Executive Development Course taught for the Indian School of Business (ISB) in Hyderabad, India, April 2012

"Internet Search Strategies for Real Estate Appraising," Seminar developed for The Appraisal Institute and presented in Chicago, New York, Los Angeles, Denver, Dallas, and other locations.

"Real Estate Portfolio Management and Strategy." Prepared for the National Council of Real Estate Investment Fiduciaries (NCREIF) (with David Geltner). Presented in Chicago and San Francisco in 1996.

"Real Estate Portfolio Management." Prepared for the Pension Real Estate Association (PREA) (with Brian Webb). Presented at University Place in Indianapolis, June, 1993.

"Real Property Prep Course." Prepared for the American Society of Appraisers (with Dennis S. Tosh), June, 1990.

"Appraiser Examination Preview Seminar." Prepared for the North Carolina Real Estate Commission, (with Dennis S. Tosh), June, 1990.

"Advanced Yield Capitalization." Written by Jeffrey D. Fisher and Robert S. Martin. A national seminar developed for the American Institute of Real Estate Appraisers used for recertification credit by MAIs. Developed in 1985; revised in 1989.

"Valuation of Syndicated Real Estate and Partnership Interests." A national seminar by Jeffrey D. Fisher and Robert S. Martin for the American Institute of Real Estate Appraisers. Developed in 1986.

"The Use of Spreadsheets in the Appraisal Office." A national seminar by Jeffrey D. Fisher and Austin Jaffe. Developed for the Society of Real Estate Appraisers in 1987.

"After-tax Valuation." Written by Jeffrey D. Fisher and Robert S. Martin. A national seminar for the Society of Real Estate Appraisers. Developed in 1986.

## **SELECTED PRESENTATIONS**

"Evolution of Commercial Real Estate Indices," Keynote presentation, 3<sup>rd</sup> Hospitality Finance & Economics Conference, Ecole Hoteliere De Lausanne, Switzerland, 27-28 June 2019.

"Risk Adjusted Performance Attribution," AREUEA International Conference, Universita Bocconi, Milano, Italy June 25, 2019.

Lectures and Executive Education at Harvard University and MIT University during 2014-15 academic year.

Served on three technology related panels at the American Real Estate Society Meetings, April 2015.

Executive Education Course on Real Estate Valuation and Development. Presented at the Indian School of Business, Hyderabad, India in March 2012 and 2013. Also taught 3 weeks of Real Estate Investments for the Indian School of Business in Mohali, India, March 2013.

"Determinants of Building Level Returns," Presented at the American Real Estate Society meetings in Hawaii, April 2013.

"Who's Flipping and Who's Holding" (with Robert White), presented at the Homer Hoyt Institute, May 2012.

Keynote luncheon speaker, National Association of Real Estate Investment Trusts (NAREIT) REITWise Conference, Hollywood, FL, 2012.

"Commercial Real Estate Market Update." Appraisal Institute Washington Summit, 2010.

"Responsible Property Investing." Presentation at a conference organized by the Initiative for Responsible Investment at Harvard University, sponsored by the Rockefeller Foundation in New York City, 2010.

"Emerging Trends in Real Estate." Sponsored by the Indian Chapter of the Urban Land Institute. November 18<sup>th</sup>, 2010. Presentation and moderation of panel with CFO's from Simon Property Group and Duke Realty Corp.

"The Walkability Premium in Commercial Real Estate Investments." Third Annual Real Estate Research Symposium sponsored by the University of California, Irvine Conference, Laguna Beach, February 19th, 2010.

"Effects of Walkability on Property Values and Investment Returns," Homer Hoyt Advanced Studies

Institute, May, 2009.

"Investment Returns from Responsible Property Investments: Energy Efficient, Transit-Oriented and Urban Regeneration Office Properties in the US from 1998 – 2008." American Real Estate Society Meeting, Monterey, CA, April 2009.

"Current Issues in the Valuation of Commercial Real Estate" presented at the Asian Real Estate Society meeting, Shanghai, China, May, 2008.

"Cap Rates Auctions," presented at the American Real Estate Society meetings in Florida, April, 2008.

"Evolution and Pricing of Real Estate Derivatives," presented at the Asian Real Estate Society Meetings in Macau, China, July 11, 2007.

"Indices of Demand and Supply: Estimating and Examining Their Movements in the Residential Property Market", (with David Geltner, Dean Gatzlaff and Don Haurin) Presented at the American Real Estate and Urban Economics Association, January 5, 2007.

"A Cross Sectional Analysis of Cap Rates by MSA", (with Doina Chichernea, Norm Miller, Mike Sklarz and Robert White) Presented at the American Real Estate and Urban Economics Association, January 5, 2007.

"The Dynamics of Capital Flows and Property Returns: A Disaggregated Analysis of Metropolitan Areas and Property Types", (with David Ling and Andy Naranjo) Presented at the American Real Estate and Urban Economics Association, January 5, 2007.

"Global Real Estate Trends," Presentation at East China Normal University, Shanghai, China, November 20, 2006.

"Evolution of Indices for Commercial Real Estate," Public Talk sponsored by the National University of Singapore, November 13, 2006.

"Evolution of Indices for Commercial Real Estate," Presentation to MBA and EMBA students at Nankai University in Tianjin, China. November 16, 2006.

"Global Real Estate Trends," Presented at an International Symposium titled "New Perspectives in Real Estate Market" at Istanbul University, Turkey, May, 26, 2006.

"The Dynamics of Capital Flows and Property Returns: A Disaggregated Analysis of Metropolitan Areas and Property Types", Presented at Real Estate Research Institute, Chicago, April 27, 2006.

"Evolution of Real Estate Indices," Keynote Presentation to Association for Real Estate Securitization, Tokyo, Japan, April 11, 2006

"Evidence of Gamma in the NCREIF Database," Presented at American Real Estate Society, Key West, April 20, 2006.

"The Dynamics of Capital Flows and Property Returns: A Disaggregated Analysis of Metropolitan Areas and Property Types", Presented at American Real Estate Society, Key West, April 20, 2006.

"Real Estate Derivatives", Presentation at American Real Estate and Urban Economics Association International Meeting, Vancouver, Canada, July 2, 2006.

- "Quarterly Transactions-Based Index of Institutional Real Estate Investment Performance", Real Estate and Urban Economics Association, Boston, January 6, 2006.
- "Trends in Global Real Estate," World Conference for Property Research, Waseda University, Tokyo, Japan, July 19th and 20th, 2005.
- "Trends in Institutional Real Estate," Jones Lang LaSalle Real Estate Conference, Phoenix, AZ, November 18, 2004.
- "Development of Real Estate Indices," Homer Hoyt Advanced Studies Institute, West Palm Beach, FL, May 13, 2004.
- "Use of Commercial Real Estate Indices," National Council of Real Estate Investment Fiduciaries Seminar, Chicago, IL October 1, 2004
- "Estimation of NOI Growth, Volatility and Clustering by MSA" American Real Estate and Urban Economics Association (part of ASSA) San Diego, January 2, 2004.
- International Monetary Fund (IMF) Conference on Real Estate Indicators and Financial Stability, Washington D.C., October 27-28 2003 Presented a paper on the Construction of Real Estate Indices in the U.S. Conference included selected academics and participants from World Banks and global research organizations.
- "An Analysis of the Determinants of Transaction Frequency of Institutional Commercial Real Estate Investment Property" with David Geltner (MIT), Dean Gatzlaff (FL State) and Don Haurin (OSU) presented at Real Estate Research Institute, April 10<sup>th</sup> & 11<sup>th</sup>, 2003, Chicago, IL.
- "Estimation of NOI Growth, Volatility and Clustering by MSA" with Yongheng Deng (USC), Anthony Sanders (OSU) and Brent Smith presented at Real Estate Research Institute, April 10<sup>th</sup> & 11<sup>th</sup>, 2003, Chicago, IL.
- "A Structured Model Approach to Estimating Return and Volatility for Commercial Real Estate" with Brian A. Ciochetti (UNC) and Bin Gao (UNC) presented at Real Estate Research Institute, April 10<sup>th</sup> & 11<sup>th</sup>, 2003, Chicago, IL.
- "Transaction Based Commercial Property Indices: The Question of Sample Selection Bias," with David Geltner, Don Haurin and Dean Gatzlaff, presented at the AREUEA meetings, Atlanta, January 2002.
- "Analysis of Economic Depreciation for Residential Income Property," with Brent Smith and Jerrold Stern, presented at the AREUEA meetings, Atlanta, January 2002.
- "Valuation of Real Estate Portfolios," with Seow-Eng Ong, presented at the AREUEA meetings, Atlanta, January 2002.
- "Real Time Valuation" keynote address at the World Valuation Congress, Singapore, April 2001.
- "Integration of Space and Capital Markets," CCIM Institute, Amelia Island, FL June 23, 2002.
- "Commercial Real Estate Indices," presented at the National Association of Real Estate Investment Managers (NAREIM) meeting, Atlanta, March 20, 2001.

- "Trends in Commercial Real Estate," presented to the Association of University Real Estate Officials, July 31, 2000 in Lafayette, IN.
- "Institutional Property Tenure: Evidence from the NCREIF Database," with Mike Young, presented at the 2000 meeting of the American Real Estate Society in Santa Barbara.
- "Evaluating Diversification Using Pure Sector and Regional Returns," with Will McIntosh and Youguo Liang, presented at the 2000 meeting of the American Real Estate Society in Santa Barbara.
- "Quarterly Unsmoothing of the NCREIF Index Without Assuming an Efficient Market," with David Geltner, presented at the January 2000 annual AREUEA meetings in Boston.
- "Estimating an Effective Rent (Lease) Index for the Chicago Suburbs." Presented at the American Real Estate and Urban Economics Association, New Orleans, LA January 5, 1997.
- "Latest Techniques and Trends to More Effectively Manage Your Portfolio," Real Estate Portfolio Managers Summit, Boston, MA, June 24, 1997.
- "Commercial Real Estate Outlook: The Impact on Indiana Banking." Presented at the Indiana Bankers Association Conference, June 5, 1996.
- "Estimating an Effective Rent (Lease) Index for the Chicago Suburbs." Presented at the Advanced Studies Institute of the Homer Hoyt Institute, May 17, 1996.
- "Office Market Leading Indicators," Presented at the Urban Land Institute, Cleveland, OH April 26, 1996.
- "Estimating an Effective Rent (Lease) Index for the Chicago Suburbs," presented at the American Real Estate Society, Lake Tahoe, CA, March 28, 1996.
- "Investing in Real Estate: Public and Private Debt and Equity," presentation for the New York District of the Urban Land Institute, New York, March 18, 1996. (Held at the TIAA/CREF education center.)
- "Surfing the Internet for Real Estate Information," presentation at NCREIF, St. Petersburg Beach, FL., February 8, 1996.
- "Evaluating Real Estate Transactions Data," invited presentation at the MIT Center for Real Estate Members meeting, Boston, MA, May 24, 1995.
- "Hybrid Mortgage Valuation and Option Pricing Theory," American Real Estate and Urban Economics Association Annual Meeting, Washington, D.C., January 6, 1994.
- "Trends in Office Building Investments," Midwest Chapter of the Counselors of Real Estate and Chicago Chapter of the Appraisal Institute, Chicago, October 13, 1994.
- "Appraising Real Estate in the 21st Century: A Securities Market Approach," Association for Investment Management and Research (AIMR), Chicago, IL September 13, 1994.
- "Development of an Effective Rent Index for Chicago Office Space," American Real Estate and Urban

Economics Association Annual Meeting, January 3, 1994.

"Issues in the Valuation of Shopping Centers," National Conference of State Tax Judges, Lincoln Institute of Land Policy, Cambridge, MA October 1, 1993.

"Historical Value Indices of Commercial Real Estate," The Institute for Quantitative Research in Finance (Q Group), Tampa, Florida, March 30, 1993.

"Spatial Structure and Rents in Shopping Centers," American Real Estate and Urban Economics Association Annual Meeting, Anaheim, January 7, 1993.

"Historical Value Indices of Commercial Real Estate," American Real Estate and Urban Economics Association Annual Meeting, Anaheim, January 6, 1993.

"The Role of Real Estate in the Pension Portfolio," New York University Pension Fund Investment in Real Estate Conference, New York, May 19, 1992.

"Measuring Changes in Effective Rental Rates on National Office Space," American Real Estate and Urban Economics Association Annual Meeting, New Orleans, January 4, 1992

"The Underlying Risk of Commercial Real Estate Value - Modeling Net Operating Income," The National Council of Real Estate Investment Fiduciaries (NCREIF) Fall Meeting, Atlanta, 1991.

"Hybrid Mortgage Valuation and Option Pricing Theory: An Empirical Investigation," Financial Management Association Meeting, Chicago, 1991.

"Equilibrium Rents and Tenant Mix in Shopping Malls," Weimer School of Advanced Studies in Real Estate, Homer Hoyt Advanced Studies Institute, West Palm Beach, January 3, 1991.

"Integrating Research on Space and Capital Markets," Presidential Address, American Real Estate and Urban Economics Association, Washington, D.C., December 29, 1990.

"Business Value in Shopping Malls: An Empirical Test," American Real Estate Society, Lake Tahoe, Nevada, March 29, 1990.

"Measuring the Performance of Hybrid Mortgage Instruments," American Real Estate Society, Lake Tahoe, Nevada, March 30, 1990.

"Measuring Business Value in Shopping Malls," American Real Estate and Urban Economics Association, Atlanta, Georgia, December 28, 1989.

"Assessment of Shopping Centers," Institute of Property Taxation Property Tax Symposium, Tulsa, Oklahoma, November 14, 1989.

"The Business Enterprise Value Component of Operating Properties: The Example of Shopping Malls.," International Association of Assessing Officers 55th International Conference on Assessment Administration, Forth Worth, TX, September 27, 1989.

"Business Enterprise Value Components in a Major Retail Shopping Mall," Society of Real Estate

Appraisers 21st Annual Symposium, Minneapolis, Minnesota, September 21, 1989.

"Mall and Department Store Valuation," Institute of Property Taxation, Chicago, IL. March 15, 1989.

"Valuation of Real Estate," Presented at the *Real Estate: Valuation Techniques and Portfolio Management Seminar*, Institute of Chartered Financial Analysts, Chicago, IL. October 25, 1988.

"Computer Assisted Income Capitalization," seminar for American Institute of Real Estate Appraisers," presented in Reno, Nevada, 1985; Anchorage, Alaska, 1985; Orlando, Florida, and other locations.

"Tax Neutrality and the Value of Real Estate Income Property," AREUEA midyear meeting, Washington, D.C., May 1985.

"Measuring Real Estate Tax Benefits," AREUEA annual meeting, Dallas, Texas, December 1984.

Special presentation and overview of advancements in computer applications for real estate valuation. Seventh Colloquium on Real Estate Models and Computer Applications, Georgia State University, Atlanta, Georgia, December 7, 1984.

"The Effect of Alternative Tax Benefits on Real Assets," FMA Meeting, Toronto, October 1984.

"Computer Applications: Income Analysis," Honolulu, Hawaii, November 1984. This presentation was part of the educational program of the American Institute of Real Estate Appraiser's national meeting.

Presentation on the Realval computer model, Sixth Colloquium on Real Estate Models and Computer Applications, Georgia State University, Atlanta, Georgia, 1983.

"Federal Income Taxes and the Equilibrium Pricing of Alternative Mortgage Instruments," Financial Management Association, Atlanta, October 1983.

"Federal Income Taxes and the Valuation of Alternative Mortgage Instruments," American Real Estate and Urban Economics Association, New York, December 1982.

"Issues in Real Estate Taxation," Financial Management Association, San Francisco, October 1982.
"Tax Incentives for Investment in New, Existing, and Rehabilitated Non- residential Real Estate: A Simulation Analysis. American Real Estate and Urban Economics Association, Washington, D.C. June 1982.

"Federal Tax Treatment of Rental Residential Housing: Cumulative Effects and Proposed Changes," Conference on Taxes, Mortgage Instruments, and Housing, sponsored by the Department of Housing and Urban Development, September 10, 1981.

"Computer Assisted Income Property Evaluation," Fifth Colloquium on Real Estate Models and Computer Applications. Atlanta, Georgia. October 1981.

"Computer Assisted Investment Analysis and Valuation of Real Estate Income Property," Fourth Colloquium on Real Estate and Land Use Computer Models. Georgia State University. April 1980.

"Recent Trends in Real Estate Evaluation," Society of Industrial Realtors Executive Session. Indiana

University. March 1981.

"Tax Neutrality and Holding Periods for Income Producing Real Estate," Financial Management Association New Orleans. October 1980.

"Taxation and Real Estate Evaluation," American Real Estate and Urban Economics Association. Denver. September 5, 1980.

"A Mean Variance Analysis of the Demand for Tax-Sheltered Investments," Financial Management Association. Boston. October, 1979.

## SELECTED SERVICE AND PROFESSIONAL ACTIVITIES

Developed case study funded by ARGUS Software that was used in a case competition among universities around the country.

Consultant to the Federal Reserve in Washington, D.C. Prepared data used for BASIL II and for reports to the Federal Open Market Committee (FOMC) in 2004 and 2005.

Developed a Housing Affordability Index Indiana and geographic areas within the state.

Developed a case study based on the formation of Evans Withycombe Residential, Inc. for the Pension Real Estate Association (PREA) – presented October 24, 1994 in Phoenix, Arizona.

Participated in the Economic Outlook Panel for the Indiana University School of Business.

Created a new publication titled "The Commercial Real Estate Compendium" published jointly (1994) by the Building Owners and Managers Association (BOMA) and the IU Center for Real Estate Studies.

Developer of the Advanced Income Capitalization course for the Appraisal Institute and revised all the income capitalization chapters for the 10th edition of The Appraisal of Real Estate, 1991.

Member of the Curriculum Committee for the American Institute of Real Estate Appraisers (AIREA). Revised the Computer Assisted Investment Analysis Course offered by AIREA in 1986.

Developed and taught a Corporate Real Estate Finance course for the International Association of Corporate Real Estate Executives (NACORE) in 1988.

Served as an expert witness in court cases for several clients including Simon Property Group, Mall of America Company, and the Internal Revenue Service (IRS).