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Vita

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Citizenship: U.S., Ireland

Education

Ph.D. (Finance), Kellogg Graduate School of Management,
Northwestern University, 1979

M.A. (Economics), Northwestern University, 1976

B.S. (Economics), University of Illinois, 1975
University of Manchester

Honorary Degrees

Doctor of Laws *Honoris Causa*, awarded by University College Dublin, 2015.

Doctorate *Honoris Causa*, awarded by the Universität Bern, Switzerland, 2012.

Doctorate *Honoris Causa*, awarded by the Facultés Universitaires Catholiques à Mons (FUCAM), Belgium, 2007.

Positions Held

Robert W. Purcell Professor of Finance and Professor of Economics,
Cornell University
Professor (1989-1992), Associate Professor (1985-1988),
Assistant Professor (1979-1984)
Member – Institute for Cryptocurrencies and Contracts (IC3)

Professor of Finance, University of Technology Sydney, 2016- 2018.

Visiting Professor of Finance,
University of Paris-Dauphine, 2006; Hong Kong University of Science and
Technology, 2000; School of Banking and Finance, University of New South
Wales, 1996; London Business School, 1994, 1995.

Overseas Fellow, Churchill College, University of Cambridge, 1993-1994.

Visiting Associate Professor of Finance, Graduate School of Management, University of California, Los Angeles, 1985-1986.

Awards and Honors

Fellow, American Finance Association, 2002.

FMA Fellow, Financial Management Association, 2000

Institutional Investor Trading Technology 40, 2013

Distinguished Scholar Award, Eastern Finance Association, 2013

Keynote Speaker, French Finance Association Meetings, 2018

Keynote Speaker, Tunisian Society for Financial Studies Meetings, 2018

Keynote Speaker, FRIC 18 Conference, Copenhagen, 2018

Keynote Speaker, Northern Finance Association Meetings, 2016

Keynote Speaker, Indonesian Finance Association Meetings, 2014

Keynote Speaker, SFS Cavalcade, May 2013

Keynote Speaker, Asian Finance Association Meetings, 2011

Keynote Speaker, Western Finance Association Meetings, 2011

Keynote Speaker, Midwest Finance Association, 2011

Keynote Speaker, Finance Down Under Conference (Melbourne), 2010, 2015

Keynote Speaker, Swiss National Bank Microstructure Conference, 2009

Keynote Speaker, INFINITI Conference (Dublin), 2008.

Keynote Speaker, NTU IEFA Conference (Taiwan), 2007.

Keynote Speaker, European Financial Management Association Meetings, 2006.

Keynote Speaker, Euronext- Paris Dauphine Conference, 2006.

Keynote Speaker, Australasian Banking and Finance Meetings, 2002.

Keynote Speaker, European Finance Association Meetings, Berlin 2002.

Keynote Speaker, Bachelier Finance Association Meeting, 2002.

Keynote Speaker, Asian Pacific Finance Association Meetings, 2001.

Keynote Speaker, Financial Management Association Annual Meetings, 1998.

Peter L. Bernstein Award for the Best Article published in the Institutional Investor Journals, 2017.

William F. Sharpe Award for Scholarship in Financial Research, recognizing the best paper in the *Journal of Financial and Quantitative Analysis* 2016

Northern Finance Association Award for Best Paper on Capital Markets, 2011.

Journal of Trading Prize (Runner-up) for Best Paper in the *Journal of Trading*, 2010

Nasdaq OMX Award for Best Paper on Asset Pricing at the Western Finance Association meetings, 2009

Smith-Breeden Prize for Distinguished Paper in the *Journal of Finance*, 2003.

Smith-Breeden Prize for Distinguished Paper in the *Journal of Finance*, 2002.

Smith-Breeden Prize for Distinguished Paper in the *Journal of Finance*, 2000.

Nasdaq Award for the Best Paper on Capital Formation at the Western Finance Association Meetings, 2000.

Cornerstone Research Award for the Best Paper at the Western Finance Association Meetings, 1999.

D. P. Jacobs Award for the Best Paper in the *Journal of Financial Intermediation*, 1998.

Class of 1992 Outstanding Teacher Award, 1993

Stephen and Margery Russell Distinguished Teaching Award, 1993, 2001, 2017.

Books

Market Microstructure Theory, (Blackwell Publishers, Cambridge, Mass.: 1995).
Japanese edition published by (Kinzai Institute for Financial Affairs, Tokyo, 1996). Chinese edition published by (Liang Publishing Studio, Beijing, 2007).

High Frequency Trading: New Realities for Traders, Markets and Regulators, (Risk Books, London: 2013) jointly edited with David Easley and Marcos Lopez de Prado.

Something for Nothing: Arbitrage and Ethics on Wall Street, (W. W. Norton, New York: 2016).

Research Publications

"The Postal Savings System in the Depression," Journal of Economic History, September 1979 (with D. Easley).

"Property Rights and the Financial Firm," Journal of Law and Economics, October 1981.

"Characterization of Optimal Plans for Stochastic Dynamic Programs," Journal of Economic Theory, December 1982 (with L. Blume and D. Easley).

"Asymmetric Information and the Coordination of Decision Making," in Productivity in Distribution, D. Gautschi (ed.), Elsevier, North Holland, 1983.

"A Dynamic Theory of the Banking Firm," Journal of Finance, March 1983.

"The Economic Role of the Nonprofit Firm," Bell Journal of Economics, Autumn 1983 (with D. Easley).

"Tax-Exempt Financing: Some Lessons from History," Journal of Money, Credit, and Banking, November 1983.

"Commodity Bonds and Consumption Risks," Journal of Finance, March 1984.

"Technology and Hedging Behavior: A Proof of Hicks' Conjecture," American Economic Review, December 1985.

"Optimal Non-profit Firms," in The Economics of Nonprofit Institutions: Studies in Structure and Policy, S. Rose-Ackerman (editor), Oxford University Press, New York, 1986 (with D. Easley).

"The Microeconomics of Market Making," Journal of Financial and Quantitative Analysis, December 1986 (with G. Oldfield).

"Building Blocks: An Introduction to Block Trading," Journal of Banking and Finance, 11 (1987), (with K. Burdett).

"Comments on Amihud and Mendleson," Journal of Finance, July 1987.

"Price, Trade Size, and Information in Securities Markets," Journal of Financial Economics, 19 (1987), (with D. Easley).

"Contracts and Asymmetric Information in the Theory of the Firm," Journal of Economic Behavior and Organization, 9 (1988), (with D. Easley).

- "Primes and Scores: An Essay on Market Imperfections," Journal of Finance, December 1989 (with R. Jarrow).
- "Financial Contracts and International Lending," Journal of Banking and Finance, 14 (1990).
- "Deposit Insurance and Wealth Effects: The Value of Being 'Too Big to Fail'," Journal of Finance, December 1990 (with W. Shaw).
- "Order Form and Information in Securities Markets," Journal of Finance, July 1991, (with D. Easley).
- "Public Ends, Private Means: Central Banking and the Profit Motive, 1823-1832," Journal of Monetary Economics, 28 (1991), 287-322, (with R. A. Highfield and J.H. Wood).
- "Extracting Rents with Forward Contracts," International Journal of Industrial Organization, 10 (1992), 103-125, (with P. DeGraba).
- "Adverse Selection and Large Trade Volume: The Implications for Market Efficiency," Journal of Financial and Quantitative Analysis, 27(2), June 1992, 185-208, (with D. Easley).
- "Time and the Process of Security Price Adjustment," Journal of Finance, 47 (2), June 1992, 577-607, (with D. Easley).
- "Real Bills Revisited: Market Value Accounting and Loan Maturity", Journal of Financial Intermediation, III(1), 1993.
- "Market Statistics and Technical Analysis: The Role of Volume," Journal of Finance, (with L. Blume and D. Easley), 1994.
- "Market Microstructure," in the Handbook of Finance, edited by R.A. Jarrow, V. Maksimovic, and W. T. Ziemba, in the Handbooks in Operations Research and Management Science (North Holland Press), (with D. Easley), 1995.
- "Do Open Market Operations Matter? Theory and Evidence from the Second Bank of the United States," Journal of Economic Dynamics and Control, (with R. A. Highfield and B. Smith), 20 (1996).
- "Cream - Skimming or Profit - Sharing? The Curious Role of Purchased Order Flow", Journal of Finance, (with D. Easley and N. Kiefer), July 1996.
- "Liquidity, Information, and Infrequently Traded Stocks", Journal of Finance, (with D. Easley, N. Kiefer, and J. Paperman), September 1996.

- "The Information Content of the Trading Process", Journal of Empirical Finance, (with D. Easley and N. Kiefer), No. 4, 1997.
- "High Frequency Data in Financial Markets: Issues and Applications", Journal of Empirical Finance, (with C. A. E. Goodhart), No. 4, 1997.
- "One Day in the Life of a Very Common Stock", Review of Financial Studies, (with D. Easley and N. Kiefer), Fall 1997.
- "Experiences sur la transparence des marches", in Organisation et qualite des marches financiers, ed. B. Biais, D. Davydoff, and B. Jacquillat, Presses Universitaires de France, 1997, (with R. Bloomfield).
- "The Law and Economics of Best Execution", Journal of Financial Intermediation, (with J. R. Macey), 6, (1997)
- "Option Volume and Stock Prices: Evidence on Where Informed Traders Trade", Journal of Finance, (with D. Easley and P.S. Srinivas), 53 (2), 1998.
- "Financial Analysts and Information-based Trade", Journal of Financial Markets, (with D. Easley and J. Paperman), 1(2), 1998, 175 – 202.
- "Does Order Preferencing Matter?" Journal of Financial Economics, (with R. Bloomfield) 50 (1998) 3-37.
- "Liquidity and Less Frequently Traded Stocks", in Equity Market Structure for Large- and Mid- Cap Stocks, ed. R. Schwartz and W. Gerke, (Deutsche Borse), 1998.
- "The Regulation of Exchanges and Alternative Trading Systems: A Law and Economics Perspective", Journal of Legal Studies, (with J. Macey), 28(1), 1999, 17-54.
- "Market Transparency: Who Wins and Who Loses?" Review of Financial Studies, (with R. Bloomfield), 12(1), 1999, 5-36.
- "A Guide to the Initial Public Offering Process," Corporate Finance Review, March 1999 (with K. Ellis and R. Michaely).
- "Globalization, Exchange Governance, and the Future of Exchanges," Brookings-Wharton Papers on Financial Services, (with J. Macey), 1999.
- "Making Market Microstructure Matter", Financial Management, Summer, 1999.
- "Can Transparent Markets Survive?" Journal of Financial Economics, (with R. Bloomfield), 2000

- “When the Underwriter is the Market Maker: An Examination of Trading in the IPO Aftermarket,” Journal of Finance, (with K. Ellis and R. Michaely), 55(3), 2000, 1039-1074.
- “The Interaction of Law, Finance, and Markets,” Journal of Financial Intermediation, (with J. Macey) 9 (2000), 113-116.
- “The Accuracy of Trade Classification Rules: Evidence from Nasdaq,” Journal of Financial and Quantitative Analysis, (with K. Ellis and R. Michaely), 35,(4), 2000, 529-551.
- “How Stock Splits Affect Trading: A Microstructure Approach”, Journal of Financial and Quantitative Analysis, (with D. Easley and G. Saar), 36 (1), 2001, 25-51.
- “Designing Markets for Developing Countries”, International Review of Finance, 2(4), 2001. Also published in SASIN Management Review, 7, APFA supplement, December 2001.
- “Overview: Market Structure Issues in Market Liquidity”, in Market Liquidity: Proceedings of a Workshop Held at the BIS, BIS Papers, No. 2 (2001), April, Basel, 1-8.
- “The Economics of Listing Fees and Listing Requirements,” Journal of Financial Intermediation, (with J. Macey), 11 (2002), 297-319.
- “Is Information Risk a Determinant of Asset Prices?” Journal of Finance, (with D. Easley and S. Hvidjkaer), 57(5), 2002, 2185-2223.
- “The Making of a Dealer Market: From Entry to Equilibrium in the Trading of NASDAQ Stocks”, Journal of Finance, (with K. Ellis and R. Michaely), 57(5), 2002, 2289-2317.
- “Solving the Corporate Governance Problems of Banks: A Proposal,” The Banking Law Journal, (with J. Macey), 120(4), 2003, 326-348.
- “The Corporate Governance of Banks”, FRBNY Economic Policy Review, (with J. Macey), April 2003, 91-107. Reprinted in The ICFAI Journal of Bank Management, 2(3), August 2003, 35-56.
- “Microstructure and Asset Pricing”, in the Handbook of Financial Economics, ed. by G. Constantinides, M. Harris, and R. Stulz, Elsevier- North Holland, (with D. Easley), 2003.
- “Presidential Address: Liquidity and Price Discovery,” Journal of Finance, 58 (4), 2003, 1335-1354.
- “Information and the Cost of Capital,” Journal of Finance, (with D. Easley), 59, 2004.

- “Searching for a New Center: U.S. Securities Markets in Transition,” Economic Review, Federal Reserve Bank of Atlanta, Fourth Quarter 2004.
- “Liquidity and Financial Market Stability,” National Bank of Belgium, Research Series, 200405 – 11, June 2004.
- “The “Make or Take” Decision in an Electronic Market: Evidence on the Evolution of Liquidity”, Journal of Financial Economics, (with R. Bloomfield and G. Saar), 75(1), 2005, 165-200.
- “Best Execution Regulation: From orders to markets,” Journal of Financial Transformation, (with J. Macey) February, 2005, 43-55.
- “Stock Transfer Restrictions and Issuer Choice in Trading Venues,” Case Western Reserve Law Review, (with J. Macey), 55(3), Spring 2005, 587-616.
- “From Markets to Venues: Securities Regulation in an Evolving World,” Stanford Law Review (with J. Macey), 58(2), November 2005, 563-598.
- “Optimal Microstructures”, European Financial Management, 13 (5), 2007.
- “Bubbles: Some Perspectives (and Loose Talk) from History,” Review of Financial Studies, 21 (1), 2008.
- “Time-Varying Arrival Rates of Informed and Uninformed Traders”, (with D. Easley, R. F. Engle, and L. Wu), Journal of Financial Econometrics, 2008.
- “Down and Out in the Stock Market: The Law and Finance of the Delisting Process”, (with J. Macey and D. Pompilio), Journal of Law and Economics, 51(4), 2008, 683-714.
- “Ambiguity and Non-participation: The Role of Regulation”, (with D. Easley), Review of Financial Studies, 22(5), 2009, 1817-1844.
- “Helping Law Catch up to Markets: Applying Securities Law to Subprime Mortgages,” (with J. Macey, G. Miller, and G. Rosenberg), Journal of Corporation Law, 34(3), Spring 2009, 791-842.
- “How Noise Trading Affects Markets: An Experimental Analysis”, (with R. Bloomfield and G. Saar), Review of Financial Studies, 22(6), 2009, 2275-2306.
- “Regulation and Scholarship: Constant Companions or Occasional Bedfellows?” (with J. R. Macey), Yale Journal of Regulation, 26(1), Winter 2009
- “Factoring Information into Returns” (with D. Easley, S. Hvidkjaer), Journal of Financial and Quantitative Analysis, 45 (2), 2010, 293-309.

- “Liquidity and Valuation in an Uncertain World,” (with D. Easley), Journal of Financial Economics, 97(1), July 2010, 1-12
- “What is a Quote?” Journal of Trading, 5(2), Spring 2010, 11-16.
- “Microstructure and Ambiguity,” (with D. Easley), Journal of Finance, 65(5), October 2010, 1827-1846.
- “The Microstructure of the ‘Flash Crash’,” Journal of Portfolio Management, (with D. Easley and M. Lopez de Prado), Winter 2011.
- “Is Market Fragmentation Harming Market Quality?” (with M. Ye), Journal of Financial Economics, 100(3), June 2011, 459-474.
- “Competition in Investment Banking,” Review of Financial Development, (with K. Ellis and R. Michaely), 1(1), Jan-Mar. 2011, 28-46.
- “The Exchange of Flow Toxicity,” Journal of Trading, (with D. Easley and M. Lopez de Prado), Spring 2011, 8-14.
- “The Characteristics of Informed Trading: Implications for Asset Pricing,” Journal of Empirical Finance, (with H. Aslan, D. Easley, and S. Hvidkjaer), 18(5), December 2011, 782-801
- “Flow Toxicity and Liquidity in a High Frequency World,” Review of Financial Studies, (with D. Easley and M. Lopez de Prado), 25(5), May 2012, 1457-1493.
- “The Volume Clock: Insights into the High Frequency Paradigm,” Journal of Portfolio Management, (with D. Easley and M. Lopez de Prado), Winter 2012.
- “Opaque Trading and Asset Prices: Implications for Hedge Fund Regulation” Review of Financial Studies, (with D. Easley and L. Yang), April 2014, 27(4), 1190 –1237
- “High Frequency Trading and Its Impact on Markets”, Financial Analysts Journal, 70(3) May/June 2014, 18-27.
- “What’s Not There: Odd Lots and Market Data”, Journal of Finance (with C. Yao and M. Ye), October 2014, 65(5), 2199 – 2236
- “High Frequency Market Microstructure”, Journal of Financial Economics, May 2015, 116 (2), 257-270.
- “Optimal Execution Horizon,” Mathematical Finance, (with D. Easley and M. Lopez de Prado), 25(3), July 2015, 640-672.

- “Hidden Liquidity: Some New Light on Dark Trading,” Journal of Finance (with R. Bloomfield and G. Saar), October 2015, *70(5)*, 2227-2274.
- “Bank Corporate Governance: A Proposal for the Post-Crisis World,” (with Jonathan Macey), Economic Review, Federal Reserve Bank of New York, August 2016, *22(1)*, 85-106.
- “Differential Access to Price Information in Financial Markets,” Journal of Financial and Quantitative Analysis, (with D. Easley and L. Yang), *51(4)*, August 2016, 1071 -1111. (Winner of the W. F. Sharpe Award, 2016)
- “Discerning Information from Trade Data,” Journal of Financial Economics (with D. Easley and M. Lopez de Prado), *120 (2)*, May 2016, 269 – 286.
- “Footprints on a Blockchain: Information Leakage in Distributed Ledgers,” Journal of Trading (with R. Aune, A. Krellenstein, and O. Slama), *12(2)*, Summer 2017 (Winner of the Peter L. Bernstein Award). Featured in Practical Applications, *6 (2)*, Fall 2018.
- "An Improved Version of the Volume-Synchronized Probability of Informed Trading: A Comment", Critical Finance Review, (with D. Easley and M. Lopez de Prado), Vol. *6 (2)*, 2017.
- “Vertical and Horizontal Problems in Financial Regulation and Corporate Governance,” (with Jonathan Macey) in *The Future of Large, Internationally Active Banks*, Asli Demirgüç-Kunt, Douglas D. Evanoff and George G. Kaufman, editors. World Scientific Publishing Co. Pte. Ltd, New Jersey, 2016. Reprinted in *The Oxford Handbook of Corporate Law and Governance*, J.H. Gordon and W-G. Ringe (eds.), Oxford: 2018.
- “The Volker Rule and Corporate Bond Market Making in Times of Market Stress”, Journal of Financial Economics, (with J. Bao and X. Zhou), 2018, *130 (1)*, 95-113.
- “The Execution Quality of Corporate Bonds,” Journal of Financial Economics, (with Yihui Wang and Xing Zhou), 2018, *130 (2)*, 308-326.
- “From Mining to Markets: The Evolution of Bitcoin Transaction Fees” Journal of Financial Economics, (with David Easley and Soumya Basu), 2019, *134(1)*, 91-109.
- “Relative Tick Size and the Trading Environment,” Review of Asset Pricing Studies, (with G. Saar and Z. Zhong), 2019, *9(10)*, 47-90.

Other Publications

"From Too Big to Fail to Too Sick to Save," The Wall Street Journal, Editorial Page, Feb. 19, 1991.

"Strategies for Survival in the Financial Markets," European Management Review, 9, September, 1991.

"Savings and Loan Associations," in The New Palgrave Dictionary of Money and Finance, edited by P. Newman, et al, Macmillan Press (London, 1992).

"Resolution Trust Corporation," in The New Palgrave Dictionary of Money and Finance edited by P. Newman, et al, Macmillan Press (London, 1992).

"Derivatives: What's Needed to Protect the Financial Markets?" Economic Affairs, 15(2), Spring 1995.

"Postal Savings", in The Oxford Encyclopedia of Economic History, edited by J. Mokyr, Oxford University Press (Oxford).

"The Future of Stock Exchanges," TIAA-CREF Investment Forum, March 2000.

"From Orders to Markets," Regulation, 28(2), Summer 2005. (with J. Macey)

"Microstructure" in *The New Palgrave Dictionary of Economics*, edited by Steven Durlauf and Lawrence Blume, 2nd edition.

"The Impact of computer trading on liquidity, price efficiency/discovery and transactions costs" a part of the Foresight Project on The Future of Computer Trading in Financial Markets, UK Government Office for Science, September 2011 (with O. Linton)

"Financial Markets are at risk of a 'big data' crash," Financial Times, May 20, 2013 (with D. Easley)

"ETFs and Systemic Risks", Research Foundation Brief, CFA Institute, (with A. Bhattacharya), *forthcoming*.

Working Papers

"Can ETFs Increase Market Fragility? Effect of Information Linkages in ETF Markets," Working Paper (with A. Bhattacharya)

"Innovation and Informed Trading: Evidence from Industry ETFs," Working Paper (with S. Huang and Z. Zhong)

- “The Active World of Passive Investing”, Working Paper (with D. Easley, D. Michayluk, and T. Putnins)
- “Microstructure in the Machine Age,” Working Paper (with D. Easley, M. Lopez de Prado, and Z. Zhang)
- “Information Flows and Asset Pricing,” Working Paper (with D. Easley, D. Michayluk, V. Patel, and T. Putnins)
- “Towards a Functional Fee Market for Cryptocurrencies,” Working paper (S. Basu, D. Easley, and Emin Gun Sirer)
- “The Electronic Evolution of Corporate Bond Dealers,” Working Paper (with Z. Zhou)
- “ETFs and Market Runs” Working Paper (with A. Bhattacharya).
- “Market Ethics”, Working Paper (with D. Easley)

Grants Received

National Science Foundation Grants:

- "Transactions, Intermediaries, and the Transmission of Information," July 1984-December 1985, Grant No. IST - 8408770.
- "Transactions and Information," July 1985 - December 1986, Grant No. IST - 8510031.
- "The Information Content of the Trading Process," March 1994 - January 1996, Grant No. SBR - 9320889.
- “Economics and Econometrics of Trading in Financial Markets,” October 1996 - 1998, SBR - 9631583.
- Morgan Stanley Equity Market Microstructure Research Grant, “Factoring Information into Returns”, May 2003 – May 2004.

Professional Activities

- President, *American Finance Association*, 2002-2003
President-elect (2001-2002), Vice President (2000-2001), Director (1992-1995), Nominating committee (1988).
- President, *Western Finance Association*, 1997 - 1998.
Program Chair (1996–1997), Vice President (1995-1996), Director (1993-1995).
- President, *Financial Management Association*, 2009-2010.

Vice President – Program (2006-2007), Director 2001- 2004

President, *Society for Financial Studies*, 2008– 2011, Vice President (2005-2008).

President, *International Atlantic Economic Society*, 2010-2011.

Executive Editor, Review of Financial Studies, 1999 – 2005.

Co-Editor, Review of Asset Pricing Studies, 2010 – 2016.

Senior Fellow, FDIC Center for Banking Research, 2003 – 2007.

Co - Editor, Journal of Financial Intermediation, 1993 - 1998.
Associate Editor (1989-1993).

Advisory Editor, Journal of Financial Markets, 2005 – present.

Associate Editor - Journal of Financial and Quantitative Analysis, 1997 - 2006.

Associate Editor - Journal of Finance 1988-1990.

Associate Editor - Journal of Financial Services Research, 1992 - 2000.

Advisory Boards – Financial Management, 2017- present; Financial Analysts Journal
2018 - present

Corporate and other Boards

Trustee, Teachers Insurance Annuity Association of America (TIAA), 2009-present
Investment Committee, Risk Committee, Audit Committee.

Advisor, AVA Labs, 2019-present

Advisor, Symbiont, 2015 – present.

Advisor, BMLL, 2017 – present.

Chairman of the Board of Directors, Investment Technology Group, Inc., 2007-2016.
Director (2003- 2016), Audit Committee, Compensation Committee

Director, NewStar Financial, Inc., 2006- 2017
Audit Committee, Nominating and Governance Committee

Chairman of the Board, Catholic Charities of the Diocese of Rochester, 2003-2005
Treasurer, 1999-2003, Member of Board of Directors 1997-2006.

Chairman, FINRA Economic Advisory Board, 2009-2011, member 2001 – 2011.

Member, SEC Equity Market Structure Advisory Committee, 2015 – 2018.

Member, CFTC-SEC Joint Committee on Emerging Regulatory Issues, 2010-2011.

Member, International Advisory Board, Securities Exchange Board of India, 2012 - 2014.

Member, Advisory Committee, Office of Financial Research, U.S. Treasury, 2012 - 2014.

Member, NASD Debt Markets Panel, 2004

Advisory Board, CREDO (Catholic Research Economic Discussion Organization), 2013- present.

Chairman, NASDAQ Economic Advisory Board, 1996- 1997, member 1995-1998.