## Curriculum Vitae of DARRELL DUFFIE

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University Education	Stanford University, Ph. D. (Engir	eering Economic Systems) (1984)
	University of New England (Austr Statistics) (1980)	alia), Master of Economics (Economic
	University of New Brunswick (Can ing (Civil Engineering) (1975)	ada), Bachelors of Science in Engineer-
Awards and Honors	<ul> <li>1985-86 NSF Research Fellowship</li> <li>1985-86 NSF Research Fellowship</li> <li>1988-89 Batterymarch Fellowship</li> <li>1990-92 NSF Research Grant</li> <li>1992-93 Catalyst Institute Research Grant</li> <li>1994-95 Q Group Research Award</li> <li>1994-96 NSF Research Grant</li> <li>Fellow, Econometric Society</li> <li>1997, Smith-Breeden Distinguished Paper Prize, Journa of F nance</li> <li>2001, Graham and Dodd Award, F nanc a Ana ysts Journa</li> <li>2002, NYSE Prize for equity research, Western Finance Association</li> <li>2003, Distinguished teacher award, Doctoral Program, Graduate School of Business, Stanford University</li> <li>2003, Financial Engineer of the Year, International Association of Financial Engineering</li> <li>2004, Clarendon Lectures in Finance, Oxford University.</li> <li>2007, Princeton Lectures in Finance.</li> <li>2007, Elected Fellow of the American Academy of Arts and Sciences.</li> <li>2008, Nash Lecture, Carnegie-Mellon University.</li> <li>2009, Elected President of the American Finance Association.</li> <li>2010, Tinbergen Institute Finance Lectures, Duisenberg Institute.</li> <li>2011, Minerva Foundation Lectures, Columbia University.</li> </ul>	
Employment	, f present Graduate School of E Current Poston Dean Witter Dis On eave Mathematical Sciences R	Business, Stanford University Stinguished Professor of Finance Research Institute, University of Califor-

Books	ecur ty Mar ets b toc ast c Mode s, Boston: Academic Press, 1988.
	<i>Futures Mar ets</i> , Englewood Cli s, New Jersey: Prentice-Hall, 1989. Japanese translation, Kinzai Publishing Company, 1994; Chinese translation, 1996.
	Dyna c Asset $Pr c n$ eory, Princeton University Press, 1992; Third Edition, 2001; French Translation, Modeles Dyna ques d Evaluation, Paris: Presse Universitaire Française, 1993; Japanese Translation, Shinbun Press, 1998; portions appearing in Italian translation in $I Pr nc p o d$ Arb tra o, edited by M. de Felice and E. F. Moriconi, Societá Editrice II Mulino, Bologna, 1996.
	Cred $t$ s $Fr c n$ Measure ent and Mana e ent, with Kenneth J. Singleton, Princeton University Press, 2003.
	$e^{\clubsuit}$ qua La e eport $F x n$ t e $F$ nanc a $\clubsuit$ yste , co-authored with the Squam Lake Group, Princeton University Press, 2010.
	How B Ban s Fa And I at to Do About It, Princeton University Press, 2010.
	Measur n Corporate Defau t s , Oxford University Press, 2011.
	Dar Mar ets Asset Pr c n and Infor at on rans ss on n Over e Counter Mar ets, Princeton University Press, 2012.
Research Publ ications	"Implementing Arrow-Debreu Equilibria by Continuous Trading of Few Long-Lived Securities," (with Chi-fu Huang), <i>Econo</i> etr ca, vol. 53 (1985), pp. 1337-1356, forthcoming in reprinted form in <i>Cont</i> nuous e F nance, edited by Stephen Schaefer, London: Edward Elgar, 2000.
	"Competitive Equilibria in General Choice Spaces," Journa of Mat e at ca Econo cs, vol. 14 (1986), pp. 1-23.
	"Stochastic Equilibria: Existence, Spanning Number, and the 'No Expected Financial Gains From Trade' Hypothesis," <i>Econo</i> etr ca, vol. 54 (1986), pp. 1161-1184.
	"Predictable Representation of Martingale Spaces and Changes of Proba- bility Measure, e na res de Probab te XIX, edited by J. Azéma and M. Yor, Lecture Notes n Mat e at cs Nu ber , (1985) Springer-Verlag: Berin, pp. 278-285.
	"Multiperiod Security Markets with Di erential Information: Martingales and Resolution Times" (with Chi-fu Huang), Journa of Mat e at ca Econo cs vol. 15 (1986), pp. 283-303.
	"Stochastic Equilibria with Incomplete Financial Markets", Journa of Eco no c eory, vol. 41 (1987), pp. 405-416. Corrigendum, vol. 49 (1989), p. 384.
	"Equilibrium in Incomplete Markets: I. A Basic Model of Generic Exis- tence" (with Wayne Shafer), Journa of Mat e at ca Econo cs, vol. 13 (1985), pp. 285-300, forthcoming in reprinted form in Genera Equ br u eory, edited by Gérard Debreu, Edward Elgar Publishing, Cheltenham, England.

"Equilibrium in Incomplete Markets: II. Generic Existence in Stochastic Economies" (with Wayne Shafer) Journa of Mat e at ca Econo cs, vol. 15 (1986), pp. 199-216, forthcoming in reprinted form in Genera Equ br u eory, edited by Gérard Debreu, Edward Elgar Publishing, Cheltenham, England.

"Intertemporal Arbitrage and the Markov Valuation of Securities" (with Mark Garman), *Cuadernos Econo* cos de *ICE*, vol. 49 (1991), pp. 37-60.

"An Extension of the Black-Scholes Model of Security Valuation," Journa of Econo c eory, Vol. 46 (1988), 194-204.

"Optimal Hedging and Equilibrium in a Dynamic Futures Market" (with Matthew O. Jackson), *Journa of Econo c Dyna cs and Contro*, Vol. 14 (1990), 21-33.

"Optimal Innovation of Futures Contracts" (with Matthew O. Jackson) ev ew of F nanc a 4 tud es, Vol. 2 (1989), pp. 275-296.

"Money in General Equilibrium Theory," Chapter 3, *Handboo of Monetary Econo cs*, Volume 1 (1990), edited by B. M. Friedman and F. H. Hahn, Elsevier Science Publishers, Amsterdam, pp. 81-100.

"The Consumption-Based Capital Asset Pricing Model" (with Bill Zame), Econo etr ca, Vol. 57 (1989), pp. 1279-1298.

"Transactions Costs and Portfolio Choice in a Discrete-Continuous Time Setting" (with Tong-Sheng Sun), Journa of Econo c Dyna cs and Contro, Vol. 14 (1990), 35-51.

"The Risk-Neutral Value of the Early Arbitrage Option", Advances n Futures and Options esearc, vol. 4 (1990), pp. 107-110.

"Corporate Financial Hedging with Proprietary Information" (with Peter Demarzo), Journa of Econo c eory, Vol. 53 (1991), pp. 261-286.

"From Discrete to Continuous Time Finance: Weak Convergence of the Financial Gain Process" (with Philip Protter), *Mat e at ca F nance*, Vol. 2 (1992), pp. 1-16.

"Mean-Variance Hedging in Continuous Time" (with Henry Richardson), Anna s of App ed Probab ty, Vol. 1 (1991), 1-15.

"Pricing Continuously Resettled Contingent Claims" (with Richard Stanton), Journa of Econo c Dyna cs and Contro, Vol. 16 (1992), pp. 561-574.

"Stochastic Di erential Utility," (with Larry Epstein), *Econo* etr ca, Vol. 60 (1992), pp. 353-394.

"PDE Solutions of Stochastic Di erential Utility" (with P.-L. Lions) Jour na of Mat e at ca Econo cs, Vol. 21 (1992). 577-606.

## "Asset Pricing with Stochastic Di erential Utility" (with Larry Epstein), ev ew of F nanc a stud es, Vol. 5 (1992), pp. 411-436.

- "A Yield-Factor Model of Interest Rates" (with Rui Kan), Mat e at ca F nance Volume 6 (1996) pp. 379-406, reprinted in e New Interest ate Mode s, London: Risk Books, 2000; and in Opt ons Mar ets, edited by G. Constantinides and A. Malliaris, London: Edward Elgar, forthcoming.
- "Swap Rates and Credit Quality" (with Ming Huang), *Journa* of F nance, Volume 51 (1996) pp. 921-950.
- "Recursive Valuation of Defaultable Securities and the Timing of the Resolution of Uncertainty" (with Mark Schroder and Costis Skiadas), *Anna s* of *App* ed *Probab* ty, Vol. 6 (1996) pp. 1075-1090.
- "An Econometric Model of the Term Structure of Interest Rate Swap Yields" (with Ken Singleton), *Journa of F nance*, Vol. 52, pp. 1287-1321, forthcoming in reprinted form in *Opt ons Mar ets*, edited by G. Constantinides and A. Malliaris, London: Edward Elgar, 2000.
- "A Liquidity-Based Model of Security Design" (with Peter DeMarzo), *Econo* etr ca, Vol. 67 (1999), pp. 65-99.
- "Modeling Term Structures of Defaultable Bonds" (with Ken Singleton), ev ew of F nanc a 4 tud es Vol. 12 (1999), 687-720.
- "Credit Swap Valuation," F nanc a Ana ysts Journa, January-February, 1999, pp. 73-87, reprinted in Cred t s Modes and Mana e ent, edited by David Shimko, London: Risk Books, 1999, pp. 245-258, and to be reprinted in Internat ona \* ecur t es edited by George Philippatos and Gregory Koutmos, The International Library of Critical Writings in Financial Economics, Senior Editor, Richard Roll, Edward Elgar Publishing, 2000.
- "Transform Analysis and Asset Pricing for A ne Jump-Di usions," (with Jun Pan and Ken Singleton), *Econo* etr ca, Vol. 68 (2000), pp. 1343-1376.
- "Floating-Fixed Credit Spreads," (with Jun Liu), *F nanc a Ana ysts Jour na*, May-June, 2001, pp. 76-87.
- "Term Structures of Credit Spreads with Incomplete Accounting Information," (with David Lando), *Econo* etr ca, Vol. 69 (2001), pp. 633-664.
- "Analytical Value-at-Risk with Jumps and Credit Risk," (with Jun Pan), F nance and toc ast cs, Vol. 5 (2001), pp. 155-180.
- "Risk and Valuation of Collateralized Debt Obligations," (with Nicolae Gârleanu), *F nanc a Ana ysts Journa*, January-February, 2001, pp. 41-62, winner, Graham and Dodd Scroll Award.
- "Universal State Prices and Asymmetric Information," (with Rui Kan), Journa of Mat e at ca Econo cs, Vol. 38 (2002), pp. 191-196.
- "Securities Lending, Shorting, and Pricing," (with Nicolae Gârleanu and Lasse Pedersen), *Journa of F nanc a Econo cs*, Vol. 66 (2002), pp. 307-339. (NYSE Award, Best Paper, Equity Analysis)

"Liquidation Risk," (with Alexandre Ziegler), *F nanc a Ana ysts Journa*, May-June 2003, pp 42-51.

"Modeling Sovereign Yield Spreads: A Case Study of Russian Debt," (with Lasse Pedersen and Ken Singleton), *Journa of F nance*, Vol. 58 (2003), pp. 119-159.

"A ne Processes and Applications in Finance," (with Damir Filipovic and Walter Schachermayer), Anna s of App ed Probab ty, Vol. 13 (2003), 984-1053.

"Market Pricing of Deposit Insurance," (with Robert Jarrow, Amiyatosh Purnanandam, and Wei Yang) Journa of Fnanc a \* erv ces esearc, Vol. 24 (2003), 93-119.

"Large Portfolio Losses," (with Amir Dembo and Jean-Dominique Deuschel), F nance and toc ast cs, Vol. 8 (2004), pp. 3-16.

"Estimation of Continuous-Time Markov Processes Sampled at Random Times," (with Peter Glynn), *Econo* etr ca Vol. 72 (2004), pp. 1773-1808.

"Over-The-Counter Markets," (with Nicolae Gârleanu and Lasse Pedersen), *Econo* etr ca, Volume 73 (2005), pages 1815-1847.

"Multi-Period Corporate Default Prediction with Stochastic Covariates," (with Leandro Saita and Ke Wang), *Journa of F nanc a Econo cs*, Volume, 83 (2007), 635-665.

"Common Failings: How Corporate Defaults are Correlated," (with Sanjiv Das, Nikunj Kapadia, and Leandro Saita), *Journa of F nance*, Volume 62 (2007), 93-117.

"The Existence of Independent Random Matching," (with Yeneng Sun), Anna s of App ed Probab ty, Volume 17 (2007), 386-419.

"Valuation in Over-The-Counter Markets," (with Nicolae Gârleanu and Lasse Pedersen), ev ew of F nanc a tud es, 2007, Vol. 20, pp.1865-1900.

"Information Percolation in Large Markets," (with Gustavo Manso), A er can Econo c ev ew Papers and Proceed n s, 2007, Vol. 97, pp. 203-209.

"Systemic Dynamics in the Federal Funds Market," (with Adam Ashcraft), A er can Econo c ev ew Fapers and Proceed n s, 2007, Vol. 97, pp. 221-225.

"Frailty Correlated Default," (with Andreas Eckner, Guillaume Horel, and Leandro Saita), *Journa of F nance*, 2009, Vol. 64, pp. 2089-2124.

"Information Percolation," (with Gaston Giroux and Gustavo Manso), A er can Econo cs Journa M croecono cs 2010, Vol. 2, pp. 100-111.

"Information Percolation with Equilibrium Search Dynamics," (with Semyon Malamud and Gustavo Manso), *Econo* etr ca 2009, Vol. 77, pp. 1513-1574.

	"The Relative Contributions of Private Information Sharing and Public In- formation Releases to Information Aggregation" (with Semyon Malamud and Gustavo Manso), <i>Journa of Econo c eory</i> 2010, Vol. 145, pp. 1574-1601.
	"Asset Price Dynamics with Slow-Moving Capital," Presidential Address, Journa of F nance 2010, Vol. 65, pp. 1238-1268.
	"Does a Central Clearing Counterparty Reduce Counterparty Risk?" (with Haoxiang Zhu), ev ew of Asset Pr c n * tud es 2011, Vol. 1, pp. 74-95.
	"The Exact Law of Large Numbers for Independent Random Matching" (with Yeneng Sun), <i>Journa of Econo c eory</i> 2012, Vol. 147, pp. 1105-1139.
	"Capital Mobility and Asset Pricing" (with Bruno Strulovici), <i>Econo et r ca</i> 2012, Vol. 80, pp. 2469-2509.
	"Information Percolation in Segmented Markets" (with Semyon Malamud and Gustavo Manso), Journa of Econo c eory 2014, Vol. 153, pp. 1-32.
	"Central Clearing and Collateral Demand" (with Martin Scheicher and Guillaume Vuillemey), forthcoming, <i>Journa of F nanc a Econo cs</i> , 2014.
Other Publications	"Money in General Equilibrium Theory," Chapter 3, Handboo of Monetary Econo cs, Volume 1 (1990), edited by B. M. Friedman and F. H. Hahn, Elsevier Science Publishers, Amsterdam, pp. 81-100.
	"Arrow and General Equilibrium Theory" (with Hugo Sonnenschein), Jour na of Econo c L terature, Vol. 27 (1989), pp. 565-598.
	"The Theory of Value in Security Markets," $e$ Handboo of Mat $e$ at ca Econo $cs$ o $u$ $e$ $I$ , Chapter 31, edited by Werner Hildenbrand and Hugo Sonnenschein, North-Holland (1991), 1615-1682.
	" 'Frontiers of Modern Financial Theory, Volume 1, Theory of Valuation,' A Review," ev ew of F nanc a \$ tud es, Vol. 2 (1989), pp. 267-272.
	"The Nature of Incomplete Security Markets," $Advances \ n \ Econo \ c \ e$ ory ou e, edited by Jean-Jacques La ont, Cambridge University Press (1992), pp. 214-262.
	"Intertemporal General Equilibrium: Comment," a ue and Cap ta F fty Years Later, edited by Lionel McKenzie and Stefano Zamagni, London: Macmillan (1991), 461-468.
	"Spanning in Security Markets" in <i>e New Fa rave D ct onary of Money</i> <i>and F nance</i> , (1992) edited by P. Newman, M. Milgate, and J. Eatwell, London: The Macmillan Press.

- "The Modigliani-Miller Theorem," in *e New Pa rave D ct onary of Money and F nance*, (1992) edited by P. Newman, M. Milgate, and J. Eatwell, London: The Macmillan Press.
- "Martingales, Arbitrage, and Portfolio Choice," Proceed n s of e Euro pean Con ress of Mat e at cs o u e II Inv ted Lectures edited by A. Joeseph and R. Rentschler, Boston: Birkhäuser Press, 1994, pages 3-21.
- "Asset Pricing in Incomplete Markets," *H totsubas Journa of Econo cs*, Vol. 34 (1993), 139-148.
- "Debt Management and Interest Rate Risk," s Mana e ent C a en es and<sup>4</sup> o ut ons, ed. W. Beaver and G. Parker, McGraw-Hill Publishing Company, 1994.
- "Incomplete Security Markets with Infinitely Many States: An Introduction" Journa of Mat e at ca Econo cs, Vol. 26 (1995), 1-8.
- "Multi-Factor Interest Rate Models," with Rui Kan, P osop ca rans act ons of e oya  $\bullet$  oc ety  $\bullet$  er es A, Volume 347 (1993), pp. 577-586, reprinted in Mat e at ca Mode s n F nance, Chapman and Hall, 1995.
- "Financial Market Innovation and Security Design" (with Rohit Rahi), Journa of Econo c eory, Vol. 65 (1995), pp. 1-42.
- "State-Space Models of the Term Structure of Interest Rates," in H. Körezlioglu, B. Øksendal, and A. Üstünel, editors," toc ast c Ana ys s and e ated op cs end vr for s op If, Boston: Birkhäuser, 1996, republished in as ce and Beyond, edited by Lane Hughston (RISK: London, 1997).
- "An Overview of Value at Risk," (with Jun Pan), *Journa of Der vat ves*, April, 1997, pp. 7-49, forthcoming in reprinted form in *Opt ons Mar ets*, edited by G. Constantinides and A. G. Malliaris, London: Edward Elgar, 2000.
- "Black, Merton, and Scholes Their Central Contributions to Economics," *cand nav an Journa of Econo* cs Vol. 11 (1998), pp. 411-424.
- "Measuring and Marking Counterparty Risk," (with Eduardo Canabarro), in, *ALM of F nanc a Inst tut ons*, edited by Leo Tilman, Institutional Investor Books (2004), Chapter 9.
- "Intertemporal Asset Pricing Theory," in *Handboo of F nanc a Eco no cs*, edited by George Constantinides, Milt Harris, and René Stulz, Amsterdam, North-Holland Elsevier (2004), Chapter 11, pp. 639-742.
- "Credit Risk Modeling with A ne Processes," Journa of Ban n and F nance, Vol. 29 (2005), 2751-2802.
- "A Review of toc ast c Ca cu us for F nance by Steven E. Shreve, Bu et n of t e A er can Mat e at ca  $\Rightarrow$  oc ety, Vol. 46 (2009), pp. 165-174.

"Policy Issues Facing the Market for Credit Derivatives," Chapter 8 of *e* oad *A* ead for *t* e Fed (2009), edited by John Corciari and John B. Taylor, pp. 123-136, Hoover Press.

"How Should We Regulate Derivatives Markets," Briefing Paper Number 5, The Pew Financial Reform Project.

"A Contractual Approach to Restructuring Financial Institutions," Chapter 6 of *End n Govern ent Ba outs as Je Know e*, edited by Kenneth Scott, George P. Schultz, and John B. Taylor, pp. 109-124, Hoover Press.

"Policy Perspectives on OTC Derivatives Market Infrastructure" (with Ada Li and Theo Lubke), Sta Report Number 424, Federal Reserve Bank of New York, January, 2010.

"Drawing Boundaries Around and Through the Banking System," Chapter 1.2, in *Jord Econo c Foru F nanc a Deve op ent eport*, October 31, 2012.

"Key Mechanics of the U.S. Tri-Party Repo Market" (with Adam Copeland, Antoine Martin, and Susan McLaughlin), *Econo* c *Po* cy ev ew of t e *Federa* eserve Ban of New Yor, October, 2012.

"Fixing the Flaw in Sovereign CDS" (with Mohit Thukral), *s* Ma az ne, July, 2012.

"Replumbing Our Financial System: Uneven Progress," Internat ona Jour na of Centra Ban n 2013, Volume 9, Supplement 1: 251-280.

Comment on "Risk Topography," by Brunnermeier, Gorton, and Krishnamurthy, in *NBE Macroecono cs Annua*, edited by Daron Acemoglu and Michael Woodford. Chicago: University of Chicago Press, 2012, pp. 177-183.

"A Dialogue on the Costs and Benefits of Automatic Stays for Derivatives and Repurchase Agreements" (with David Skeel) In *Ban ruptcy Not Ba out A*<sup>1</sup> *pec a C apter*, edited by Kenneth E. Scott and John B. Taylor, Hoover Press, 2012.

"Challenges to A Policy Treatment of Speculative Trading Motivated by Di erences in Beliefs," forthcoming, *Journa of Le a* tud es, 2014.

"Systemic Risk Exposures: A 10-by-10-by-10 Approach," in s opo ra p y \* yste c s and Macro Mode n, edited by Markus K. Brunnermeier and Arvind Krishnamurthy, National Bureau of Economic Research and University of Chicago Press, 2014.

"Financial Market Infrastructure: Too Important to Fail," in Across t e D v de New Perspect ves on t e F nanc a Cr s s, edited by Martin Bailey and John Taylor, Hoover Institution and Brookings Institute, 2014.

"Replumbing Our Financial System Uneven Progress," Internat ona Jour na of Centra Ban n Volume 9, 2013, Supplement 1: 251-280.

Working	"Di usion Approximation in Arrow's Model of Exhaustible Resources,"
Papers	(with Michael Taksar) Technical Report Number 416, Stanford Institute
	for Mathematical Studies in The Social Sciences (Economics Series), Stan-
	ford University, August, 1983.

- "Price Operators: Extensions, Potentials, and the Markov Valuation of Securities", Research Paper No. 813, Graduate School of Business, Stanford University, July, 1985.
- "Stochastic Production-Exchange Equilibria" (with Chi-Fu Huang), Research Paper, Graduate School of Business, Stanford University, May 1986.
- "Equilibrium and The Role of the Firm in Incomplete Markets" (with Wayne Shafer), Graduate School of Business, Stanford University, August, 1986.

"A Liquidity-Based Model of Asset-Backed Security Design" (with Peter DeMarzo), Working Paper, Kellogg Graduate School of Management, Northwestern University, November, 1993.

- "Asymptotic E ciency of Hansen-Scheinkman and Resolvent Estimators of Ornstein-Uhlenbeck Processes," (with Qiang Dai and Peter Glynn), Working Paper, Graduate School of Business, Stanford University, 1997.
- "First-to-Default Valuation," Working Paper, Université de Paris, Dauphine, and Graduate School of Business, Stanford University, 1998.
- "Defaultable Term Structure Models with Fractional Recovery of Par," Working Paper, Graduate School of Business, Stanford University, 1998.
- "Simulating Correlated Defaults," (with Ken Singleton), Working Paper, Graduate School of Business, Stanford University, 1998.
- "Reforming Money Market Funds," January, 2011, The Squam Lake Group.
- "On the Clearing of Foreign Exchange Derivatives," Graduate School of Business, Stanford University, May 2011. Comment on U.S. Treasury, "Determination of Foreign Exchange Swaps and Foreign Exchange Forwards under the Commodity Exchange Act," April, 2011.
- "Market Making Under the Proposed Volcker Rule," a report to the Securities Industry and Financial Markets Association and a submission to the O ce of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, and the Securities and Exchange Commission, January, 2012, Graduate School of Business, Stanford University.
- "A Sampling-Window Approach to Transactions-Based Libor Fixing" (with David Skeie and James Vickery), Federal Reserve Bank of New York Sta Report Number 513, February 2013.
- "Dynamic Directed Random Matching" (with Lei Qiao and Yeneng Sun), Working Paper, Graduate School of Business, Stanford University, June, 2014.

	"Benchmarks in Search Markets" (with Piotr Dworczak and Haoxiang Zhu), Working Paper, Graduate School of Business, Stanford University, October, 2014.
	"Reforming LIBOR and Other Financial-Market Benchmarks" (with Jeremy Stein), Working Paper, Graduate School of Business, Stanford University, September 2014.
	"Market Participants Group on Reforming Interest Rate Benchmarks, Fi- nal Report" (with the Market Participants Group), Financial Stability Board, March 2014.
	"Robust Benchmark Design" (with Piotr Dworczak), Working Paper, Graduate School of Business, Stanford University, September, 2014.
Editorial	Mana e ent <sup>®</sup> c ence, May 1986 to March, 1989.
Boards	Advances n Futures and Opt ons esearc, May, 1980 to rebruary, 1990. Anna s of App ed Frobab ty, September, 1989 to May, 1994. Econo c eory, December, 1989 to February, 1996. Journa of Econo c eory, 1986 to 1999. Mat e at ca F nance, October, 1989 to January, 2001. Econo etr ca

National Bureau of Economic Research, Research Associate.

International Examinations Committee, The Association of Certified International Investment Analysts, Japan.

NCCR FinRisk, International Scientific Council, Switzerland; 2005-2012.

Organizing Committee, Quantitative Developments in Finance, Newton Institute, Cambridge University, 2005.

American Finance Association, Executive Committee, 2007-2011; Vice-President, 2007-2008; President-Elect, 2008-2009; President, 2009-2010; Board of Directors, 2000-2003, 2007-2011.

Ban International Research Station, Scientific Advisory Board, 2005 to 2010. The Chicago Mercantile Exchange-Mathematical Sciences Research Insti-

The Chicago Mercantile Exchange-Mathematical Sciences Research Institute Prize Committee, 2005 to 2011.

The Federal Reserve Bank of New York, Financial Advisory Roundtable, 2006 to present.

Financial Economists Roundtable, 2007 to present.

Pacific Institute of Mathematical Sciences, Board of Directors, 2007 to present.

Stanford University, Working Group on Global Markets, Member, 2008 to present.

Squam Lake Working Group, Member, 2008 to present.

Stanford Institute of Economic Policy Research (SIEPR), Senior Fellow, 2009 to present.

Society of Financial Econometrics (SoFiE), Council, 2009 to present.

Swiss Finance Institute, Scientific Council, 2010 to present.

Duisenberg Institute, Scientific Council, 2010 to present.

Initiative on Global Markets (IGM), University of Chicago, Experts Panel, 2010-present.

Stanford University, Financial Institution Resolution Group, 2009-present. SWIFT Institute Advisory Council, 2012-present.

American Academy of Arts and Sciences, Fellow, and fellows nominating committee, 2010-present.

Stanford University, Financial and Risk Modeling Institute, Co-director, 2012-present.

Asian Bureau of Finance and Economics Research, Senior Academic Fellow. Bureau of Finance and Economics Research, Senior Academic Fellow.

Member, World Economic Forum Global Agenda Council on the Global Financial System.

World Economic Forum, The Role of Financial Services in Society, Steering Committee.

Market Participants Group on Reference Rate Reform (chair), August 2013-present.

P.R.I.M.E. Finance Foundation, Panel of Recognized International Market Experts in Finance. December, 2013-present.

Institute for Global Finance, University of New South Wales, Senior Fellow.

Corporate iShares Funds and Trusts, San Francisco, 2008-2011.

Boards Moody's Corporation, New York, October 2008 to present.

Other Bank One and I.R.S., Chicago (expert testimony, valuation of swaps). Board of Directors, A nium Fund, London. International Monetary Fund, Washington, D.C. (credit risk). Citigroup, New York (economic capital).

Activities	Merrill Lynch, New York (risk management).	
	Paloma Partners, Greenwich CT (risk management).	
2003-2014	Ixis, Paris (credit markets).	
	Schering-Plough, Kenilworth NJ (asset valuation).	
	MBIA, New York (credit risk management).	
	Bombardier, Toronto (corporate debt valuation).	
	Moody's, Academic Research and Advisory Committee, New York.	
	Credit Suisse, New York (financial markets and risk management), New York.	
	Quinn Emanuel, New York, (consulting and expert witness testimony, credit risk corporate debt valuation, credit derivatives).	
	New York State Tax Authority (repurchase agreements), New York.	
	Cantor Fitzgerald (inter-dealer broker markets), New York.	
	Independent Health Care Trusts for UAW Retirees of General Motors Cor- poration and of Ford Motor Corporation, (exercise of equity options),	
	Delfoil. State Street Bank (sneech to investor conference) Boston	
	PavNet Inc (estimation of default probabilities) Chicago	
	Matterhorn Investment Management (global capital markets), London.	
	Cantor Fitzgerald (interdealer brokerage of treasuries). New York.	
	Public Prosecutor of Milan (valuation of swap agreements), Milan Italy.	
	Federal Reserve Bank of Chicago (central clearing counterparties), Chicago.	
	Kepos Capital (academic advisory board), New York.	
	Lehman Estate (consultation on bankruptcy-related issues), New York.	
	Incisive Media (public speaking).	
	Rothwell, Figg, Ernst & Manbeck (consultation on intellectual property rights), Washington DC,	
	Sansome Capital (consultation on global capital markets), San Francisco.	

This curriculum vitae is current as of December, 2014.