

## Peter Bossaerts

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Honours

- Fellow of The Econometric Society (Elected 2010)
- Fellow of The Society for the Advancement of Economic Theory (Elected 2011)
- Redmond Barry Distinguished Professor at The University of Melbourne (Elected 2016)
- Fellow of the Academy of Social Sciences in Australia (Elected 2017)
- Professorial Fellow, Robinson College (Cambridge) (Elected 2023)

Academic Appointments – Primary

- Leverhulme International Professor of Neuroeconomics, University of Cambridge (Established Non-clinical Academic) 2022 –
- Professor, Experimental Finance & Decision Neuroscience, University of Melbourne 2014–2022
- Honorary Professorial Fellow, Florey Institute of Neuroscience and Mental Health 2014 – 2018
- David Eccles Professor of Finance & Adjunct Professor of Neurology, University of Utah 2013 – 2015
- William D Hacker Professor of Economics and Management, Caltech 2003 – 2013
- Swiss Finance Institute Professor, EPFL 2007 - 2012
- Professor of Finance, Caltech 1998 – 2013
- Associate Professor of Finance, Caltech 1994 - 1998
- Research Professor of Investments Analysis, Tilburg University 1994 - 1996
- Assistant Professor of Finance, Caltech 1990 - 1994
- Assistant Professor of Finance, Carnegie Mellon University 1987 - 1990

Academic Appointments – Secondary

- Visiting Professor, Geneva Finance Research Institute, University of Geneva 2021
- Visiting Associate in Finance, Caltech 2013 – 2020
- Visiting Professor, Cambridge University 2012 - 2014
- Honorary Professorial Fellow, University of Melbourne 2012 – 2013
- Fellow, UTS Market Design Centre 2014 - 2017
- Research Fellow, Centre for Economic Policy Research 1995 – 2014
- Fellow, University of Zurich Center for Engineering Social & Economic Institutions 2012 - 2014

	Affiliate, USC Theoretical Research in Neuroeconomic Decision Making (TREND)	2012 –
	Member of the Computation and Neural Systems group, Caltech	2006 – 2013
	Swiss Finance Institute Visiting Professor, University of Lausanne	2006 – 2007
	Fellow, Center of Excellence, Kobe University	2006
	Guest Professor, University of Zurich	2004
	Leif Johansen Distinguished Visiting Scholar, Norwegian School of Management	1999
	Visiting Associate Professor of Finance, Yale University	1998
	Postdoctoral Research Fellow, Carnegie Mellon University	1986 – 1987
Academic Appointments – Executive	Director, R. and M. Linde Institute of Economic and Management Sciences, Caltech	2011-12
	Co-Dean, College of Management, EPFL	2008
	Founding Program Chair, Master in Financial Engineering, EPFL	2007-8
	Chair, Division of The Humanities and Social Sciences, Caltech	2006-7
	Executive Officer for the Social Sciences, Caltech	2002-5
Industry Experience	Executive Education, Behavioral Finance and Algorithmic Trading, Foundation William E. Simon Graduate School of Business Administration in Switzerland	2015 – 2021
	Advisory Board, Dysrupt Labs (Melbourne, Australia)	2017 –
	Scientific Committee, Geneva Institute for Wealth Management	2017 –
	Scientific Committee, The Future Resilient Systems (FRS) programme of the Singapore-ETH Centre	2020 – 2022
	Lectures, several organizations: Willis Towers Watson (Australia), i3 (Australia), CLSA (Hong Kong), KBC (Belgium), BayernLB (Germany), Julius Baer (Zurich), Pictet (Geneva), SAC (New York), Nokia (Helsinki), Portfolio Construction Forum (Sydney), KWS (Germany), ...	
Education	Ph.D. (Management), UCLA	1983 – 1986
	Coursework, Master’s Program in Statistics, Free University Brussels	1982 – 1982
	Doctorandus (Applied Economics), UFSIA (Summa Cum Laude)	1981 – 1982
	Licenciaat (Applied Economics), UFSIA (Cum Laude)	1977 – 1981
Grants	Leverhulme Trust International Professorship, nominated by Cambridge University, 5 years, 3,880,720 GBP, 2022-2027.	
	Australian Research Council, for the Linkage Project “Continuous Combinatorial Order Processing in Financial Markets,” 2019-21.	
	Australian Research Council, for the Discovery Project “A New Framework to Improve Human-Robot Interaction in Financial Markets,” 2018-20.	
	National Science Foundation, for the project “Price Quality in Dark Markets: Tests of the Duffie-Malamud-Manso Theory Using Controlled Experiments,” 2014-6, with Elena Asparouhova (University of Utah)	

National Science Foundation, for the project “Workshop for the Promotion of Experimental Validation of the Theory of Asset Pricing,” 2014-5, with Elena Asparouhova (University of Utah)

Fondation Banque de France, for the project “Price Quality in Dark Markets,” 2014-5, with Elena Asparouhova (University of Utah)

National Science Foundation, for the project “US-German Collaboration: Computational and Neural Mechanisms of Inference over Decision-Structure,” 2012-15, joint with John O’Doherty (Caltech) and Jan Gläscher (University Medical Center Hamburg).

National Science Foundation, for the project “Market Bubbles As Expression Of Social Norms: Experiments,” 2011-13, Grant #SES-1061824, with Elena Asparouhova (University of Utah)

Swiss National Science Foundation, for the SystemX.ch project “Neural Correlates of Collective Decision Making: From Molecules to Minds,” 2008-12 (co-PI)

Swiss National Science Foundation, NCCR Finrisk 3rd Phase, for the project “Behavioural Finance,” 2008-13 (with Ernst Fehr and Thorsten Hens)

AXA Foundation Grant For A Postdoctoral Student, 2006-8.

Inquire Europe, for the project “Will Equilibrium-Induced Predictability Survive Undoing By The Uninitiated And Skeptical?” 2006-8.

Co-Principal, Tamagawa University-Caltech Center of Excellence grant

Moore Foundation grant to Caltech, for the project “Experimentation with Large, Diverse and Interconnected Socio-Economic Systems,” 2006-11.

National Science Foundation, for the project “Experiments on Information and Information Processing in Financial Markets,” 2006-11, Grant #SES-0616431, with Elena Asparouhova (University of Utah) and William Zame (UCLA)

National Science Foundation, for the project “How Asset Markets Assist Complex Problem Solving: Identifying The Cues Through Neurocorrelates,” 2005-2010, Grant #SBE-0527491

National Science Foundation, for the project “The Evolution of Prices and Allocations in Markets: Theory and Experiment,” 2003-2006, Grant #SES-0317715, with William Zame (UCLA)

National Science Foundation, for the project “Perfectly Rational Markets, Imperfectly Rational Traders: Theory and Experiment,” 2000-2003, Grant #SES-0079374, with William Zame (UCLA)

Grant to support research on financial markets from the R.G. Jenkins Family Fund of the Fidelity Investments Charitable Gift Fund, 2000

Research Grant from State Street Bank to Caltech for the Proposal “Assessing The Severity of the Absence of ‘Packaging’ Possibilities At the NYSE Open,” 1999

Research Grant, “Participation of Boundedly Rational Agents in Financial Markets: Effects on Speculation, Trading Volume and Price Volatility,” European Union, Grant #ERB4001GT950936, 1995-6

Grant, “Local Parametric Analysis of Hedging In Discrete Time,” Royal Dutch Academy of Sciences, 1995.

Research Grant from First Quadrant to Caltech for the Proposal “Forecasting Non-Stationary Financial Return Data,” August 93-July 94

Standard Oil Research Chair Award, Summer 1987

Awards	<p>2021 Australian Financial Review Higher Education Award, Teaching and Learning Category, 3<sup>rd</sup> place, for the class “Fundamentals of Fintech”</p> <p>2020 Financial Management Association (FMA) Innovation in Teaching Award, for “Teaching Algorithmic Trading as A Hands-On Robotics Class”</p> <p>2018 Best Paper Award, Behavioral Finance and Capital Markets Conference, Latrobe University (September 2018), for “Building Financial Skills Training Schemes”</p> <p>2017 Financial Management Association (FMA) Best Paper Award (Markets &amp; Institutions) for: “Costly Information Acquisition in Decentralized Markets: An Experiment,” with Elena Asparouhova and Wenhao Yang</p> <p>2014 Pagano and Zechner Prize for Best Non-Investments Article Published in the Prior Year in the Review of Finance, for: “The Speed of Information Revelation and Eventual Price Quality in Markets with Insiders: Comparing Two Theories”</p> <p>Doctoral Faculty 2014 Teaching Excellence Award, David Eccles School of Business, University of Utah</p> <p>2013 Best Paper Award, Behavioral Finance and Capital Markets Conference, Centre for Applied Financial Studies of The University of Adelaide (August 2013), for: “‘Lucas’ in the Laboratory”</p> <p>Lloyd’s Science of Risk 2011 Prize for “Hedging your bets by learning about reward correlations in the human brain,” published in Neuron</p> <p>Review of Finance 2004 Goldman Sachs Asset Management Best Research Paper Award for the paper “Basic Principles of Asset Pricing Theory: Evidence From Large-Scale Experimental Financial Markets”</p> <p>Journal of Financial Markets 2003 Best Paper Award for the paper “Excess Demand and Equilibration in Multi-Security Financial Markets: The Empirical Evidence”</p> <p>Mathematical Finance 1993 Best Paper Award (Third Prize) for the paper “A Test of a General Equilibrium Stock Option Pricing Model”</p>
Keynote Lectures – Since 2007	<p>“Decision Making When Complexity Causes Uncertainty,” University of Melbourne, November 2024.</p> <p>“Computational Complexity and (Primate) Decision Making,” Summer School on Cognitive Foundations of Decision-Making, University Mohammed VI, Rabat, Morocco, July 2024.</p> <p>“How Humans Deal with Complexity (Including Taking Prescription Drugs),” The Economist’s Society, London (U.K.), November 2023.</p> <p>“How Humans Deal with Complexity (Including Taking Prescription Drugs),” Geneva Institute for Wealth Management, 5<sup>th</sup> Anniversary Conference, November 2023.</p> <p>“Computational complexity and human decision-making,” Monash Business Behavioural Lab Symposium, November 2022.</p> <p>“Complexity as a Neglected Source of Uncertainty,” Geneva Conference on Neurofinance, November 2021.</p> <p>“Reinforcement Learning: From Animal Learning to Machine Learning and the Brain... and Back,” 13<sup>th</sup> Annual Meetings of the Society for Financial Econometrics, San Diego, June 2021.</p>

- “Information Structure and Aggregation: Theory, Experiments, and Implications for Prediction Markets,” International Fintech Conference, The Hebrew University, March 2020 (Postponed).
- “The Relevance of Theoretical Finance in a World of Behavioral Finance,” North American Meeting of the Society for Experimental Finance, Salt Lake City, February 2020
- “The Relevance of Theoretical Finance in a World of Behavioral Finance,” 9th Behavioural Finance and Capital Markets Conference, Melbourne, October 2019
- “Computational Complexity and Asset Pricing,” 9th Helsinki Finance Summit, Helsinki (Finland), August 2019
- “Performing Complex Tasks: Behavior, Biology and Pharmacology,” Conference on Experiments Applied to Corporate and Entrepreneurial Finance, Laboratoire Magellan, Lyon (France), June 2019
- “Towards Biological Foundations of Decisions with Uncertainty: A Mission Incomplete,” Melbourne Brain Symposium, October 2018
- “Asset Pricing under Computational Complexity,” FIRN 2018 Asset Pricing Conference, Melbourne, October 2018
- “Modeling Ignorance: Uncertainty or Complexity?” Research in Behavioral Finance Conference, Amsterdam, September 2018
- “Asset Pricing under Computational Complexity,” NTU Behavioral and Experimental Economics Workshop, Singapore, August 2018
- “Asset Pricing under Computational Complexity,” Behavioural and Experimental Economics and Finance Workshop, Sydney, July 2018
- “Modeling Ignorance: Uncertainty or Complexity?” Experimental Finance Workshop, Max Planck Institute (Bonn, Germany), June 2018
- “Human-Robot Interaction in Financial Markets: Experiments,” Workshop on Algorithmic Trading, University of Luxemburg, June 2018
- “Modeling Ignorance: Uncertainty or Complexity?” The Computational Neuroscience of Prediction, Federation of European Neuroscience Societies, Rungstedgaard, Denmark, April 2018
- “How Neurobiology Can Inform Decision Science,” Asia-Pacific Meetings of the Economic Science Association Meetings, Brisbane, 2018.
- “Towards an Experimental Framework to Study and Improve Human-Robot Interaction in Financial Markets,” Market Design and Regulation in The Presence of High-Frequency Trading, Hong Kong, December 2017
- “Fact and Fiction in Finance: The Scientist’s View,” 24<sup>th</sup> CLSA Investors’ Forum, Hong Kong, September 2017
- “How Neurobiology Can Inform Decision Science: The Case of Trading Skill,” 2017 Conference of the Association for NeuroPsychoEconomics, Antwerp (Belgium).
- “How Do Humans Perceive Financial Risks?” 2016 North-American Meetings of the Society for Experimental Finance, Tucson AR (USA).
- “Neuro-biological Foundations of Financial Market Psychology,” Sixth Behavioural Finance and Capital Markets Conference, Adelaide (Australia), September 2016
- “Using Alpha to Generate Alpha,” CIFR Conference on Investment Management and Markets, Sydney (Australia), May 2016.

- “Neuro-biological Foundations of Financial Market Psychology,” Auckland Finance Meeting, December 2015
- “Human Reaction To Leptokurtosis and Its Biological Foundations,” Australasian Society for Cognitive Science, Monash University, December 2014
- “Human Reaction To Leptokurtosis and Its Biological Foundations,” Financial Management Association European Meetings, Maastricht (The Netherlands), June 2014
- “Outlier Risks,” Third Behavioral Finance and Capital Markets Conference, Adelaide (Australia), August 2013
- “Outlier Risks,” World Meetings of the Economic Science Association, Zurich, July 2013
- “The Neurobiology Behind Human Decision Making,” 2013 Finance Down Under Conference, Melbourne (Australia), March 2013
- “The human brain behind financial skill,” Joint Symposium, National Taiwan University, National Chengchi University, National Yang-Ming University, Taipei (Taiwan), March 2012
- “The human brain behind financial skill.” Second Miami Behavioral Finance Conference, December 2012
- “The human brain behind financial skill.” Swiss Finance Institute Annual Meeting, November 2011
- “Double-Sided Markets,” C-Suite Lunch Talk, Australian Graduate School of Management, University of New South Wales, April 2011
- “Neurobiological Foundations of Decision Making under Uncertainty,” Finance Down Under, University of Melbourne, March 2011
- “Experimental Finance,” Finance Down Under, University of Melbourne, March 2011
- “Market Bubbles and Crashes as an Expression of Tension between Social and Individual Rationality: Theory and Experiments,” WISE International Workshop on Experimental Economics and Finance, Xiamen University, China, December 2010
- “Experiments on Market Dynamics,” Experimental Finance 2010 Conference, University of Gothenburg, Sweden, October 2010
- “What Decision Neuroscience Teaches Us about Financial Decision Making,” Marian Miner Cook Athenaeum Lecture, Claremont McKenna College, March 2010
- “Neuroscience and Decision Making,” at: A Birdseye View of Finance: Past, Present, and Future Frontiers, Conference organized in honor of Haim Levy, Jerusalem, August 2009
- “Experimenting With Financial Markets,” Austrian Central Bank, June 2009
- “Strategic Uncertainty In Games and Markets: A Neuroeconomic Perspective,” at: 5th International Meeting On Experimental And Behavioral Economics, Granada (Spain), April 2009
- “Potential Policy Implications of Neuroeconomics,” at: The Social Brain, symposium organized by the Royal Academy of Arts, Manufacture and Commerce (RSA) and the Wellcome Trust, London, January 2009
- “Decision Making under Uncertainty: Risk and Risk Learning,” Building Bridges in Medical Sciences, Cambridge University Medical School, November 2008
- “The Neuroeconomics of Decision Making,” World Economic Forum, Geneva, September 2008.

“Neurobiological Foundations of Perception and Decision under Uncertainty,” 2008  
International Economic Science Association Conference, California Institute of Technology,  
June 2008

“Neurobiological Foundations of Perception and Decision under Uncertainty,” Fourth Asia  
Pacific Meeting of the Economic Science Association, National University of Singapore,  
February 2008

“Neurobiological Foundations of Perception and Decision under Uncertainty,” 9<sup>th</sup> Biennial  
Symposium “Neuroeconomics: Decision Making and the Brain,” New York University Center  
for Neural Science, January 2008

“The Neuroeconomics of Decision Making,” 30th Annual Meeting of Japan Neuroscience  
Society, September 2007

“The Neuroeconomics of Decision Making,” Second ESA Asia-Pacific Regional Meeting, Osaka  
(Japan), February 2007

#### Engagement

Workshop for the Promotion of Experimental Validation of the Theory of Asset Pricing,  
Sundance Resort, Utah, October 2015; co-organiser (with Elena Asparouhova); workshop  
funded by the U.S. National Science Foundation, Fondation Banque de France, a grant from the  
Moore Foundation to Caltech, and The University of Utah.

Society for Neuroeconomics, President (2011-2), Board member (2007-2014), Council member  
(2015-16)

Society for Experimental Finance, President (2017-9), Founding member (2011), Chief  
Organizer of 2018 Asia Pacific regional meetings, Scientific Board member (2020-).

Econometric Society, elected member of the Australasian Standing Committee (2019-21).

Australian Research Council, member of the College of Experts (2018-2021)

Co-Editor: Review of Finance (2005-2009)

Ad-hoc Acting Editor: Journal of Finance

Ad-hoc Acting Editor: Proceedings of The National Academy of Sciences (PNAS)

Invited Issue Editor: Journal of Behavioral and Experimental Finance (2023)

Editorial Board Member: Scientific Reports (2023).

Associate Editor: Management Science (Finance; 2020-), Management Science (Behavioral  
Economics and Decision Analysis; 2019-2023), Review of Financial Studies (1994-7), Journal  
of Finance (2015-2017), Journal of Financial Markets (1997-), Journal of Financial  
Econometrics (2001-2012), Mathematical Finance (2002-5), Review of Finance (2003-5; 2009-),  
Annals of Finance (2004-2007), Foundations and Trends in Economic Theory (2006-), Journal  
of Neuroscience, Psychology and Economics (2009-11, 2018-), Algorithmic Finance (2010-),  
Frontiers in Decision Neuroscience (2010-), Frontiers in Integrative Neuroscience (2018-2019),  
Critical Finance Review (2010-)

Referee: American Economic Review, American Economic Journal-Microeconomics, The  
American Journal of Psychiatry, Behavioral and Brain Sciences, Cerebral Cortex, Cognition,  
Current Biology, Econometrica, Economic Journal, Economics Letters, Economic Theory,  
European Economic Review, Finance, Frontiers in Behavioral Neuroscience, Frontiers in  
Decision Neuroscience, International Economic Review, Journal of The American Statistical  
Association, Journal of Business, Journal of Business and Economic Statistics, Journal of  
Econometrics, Journal of Economic Behavior and Organization, Journal of Economic Dynamics  
and Control, Journal of Empirical Finance, Journal of Experimental Psychology, Journal of  
Finance, Journal of Financial Economics, Journal of Financial and Quantitative Analysis, Journal

of International Money and Finance, Journal of Money, Credit and Banking, Journal of Neuroscience, Psychology, and Economics, Journal of Political Economy, Management Science, Nature Neuroscience, Nature Computational Science, NeuroImage, Neuron, PLoS (Biology; Computational Biology; Neuroscience and Psychiatry), Philosophical Transactions B of the Royal Society (Biological Sciences), Proceedings of the National Academy of Sciences, Psychological Science, Rand Journal of Economics, Review of Economics and Statistics, Review of Economic Studies, Review of Financial Studies, Science, Science Advances, Scientific Reports, Utah Winter Finance Conferences, Western Finance Association, Miami Behavioral Finance Conferences.

Neuroeconomics Symposium, Co-Organizer (APESA, Singapore, February 2008)

Neuro-Finance Symposium, Co-Organizer (Zurich, Switzerland, July 2007)

European Neuroeconomics Association, Member of the Scientific Council (2009-)

European Finance Association, Director, Executive Committee, 2010-12

Economic Science Association, Officer (Section Head, Finance; 2004-2005)

American Finance Association, member of the 2002 & 2016 Nominating Committees

Financial Management Association, Member of the Doctoral Consortium mentoring advanced Ph.D. students (2015)

Member of Review Panels (Committees of Experts), European Research Council Advanced Grants (2008-9); National Science Foundation (2010-12).

Reviewer of Grant Applications: national (U.S., Australia, Canada, Switzerland, U.K, Belgium, France, Germany) and international (European Union) public and private (e.g., AXA) foundations, including the U.S. NSF and NIH

Member (Past and/or Present): American Finance Association, Association for Psychological Science, Econometric Society, Economic Science Association, European Finance Association, Society for Neuroeconomics, Society for Neuroscience, Society for the Promotion of Financial Studies, Western Finance Association

## Asset Pricing Theory – Articles

1. “Common Nonstationary Components of Asset Prices,” *Journal of Economic Dynamics and Control* 12 (1988), 347-364.
2. “A General Equilibrium Model of Changing Risk Premia: Theory and Tests,” with Richard C. Green, *Review of Financial Studies* 2 (1989), 467-493.
3. “A Test of a General Equilibrium Stock Option Pricing Model,” with Pierre Hillion, *Mathematical Finance* 3 (1993), 311-347.
4. “Transaction Prices When Insiders Trade Portfolios,” *Finance* 14 (1993); Summary appeared in *Journal of Finance* 48 (1993), 1069-1070.
5. “Tax-Induced Intertemporal Restrictions on Security Returns,” with Robert Dammon, *Journal of Finance* 49 (1994):,1347-1372.
6. “Asset Prices and Volume in a Beauty Contest,” with Bruno Biais, *Review of Economic Studies* 65 (1998), 307-340; Summary appeared in *Journal of Finance* 49 (1994), reprinted in *Advances in Financial Modeling*, B. Biais and M. Pagano, eds., Oxford University Press, 2001.
7. “Speculative Behavior and the Functioning of Financial Markets: Discussion,” (in Spanish), *Moneda y Credito* 200 (1995), 39-44.



8. “Expectations and Learning in Iowa,” with Oleg Bondarenko, *Journal of Banking and Finance* 24 (2000), 1535-1555.
9. “An Exploration of Neo-Austrian Theory Applied To Financial Markets,” with Harald Benink, *Journal of Finance* 54 (2001), 1011-1028.
10. “An Optimal IPO Mechanism,” with Bruno Biais and Jean-Charles Rochet, *Review of Economic Studies* 69 (2002) 117-146.
11. “Filtering Returns for Unspecified Biases in Priors when Testing Asset Pricing Theory,” *Review of Economic Studies* 70 (2003), 1-24.
12. “Asset Trading Volume in Infinite-Horizon Economies with Dynamically Complete Markets and Heterogeneous Agents: Comment,” with William Zame, *Finance Research Letters* 3 (2006), 96-101.
13. “Prices and Allocations in Financial Markets: Theory, Econometrics, and Experiments,” with Charles Plott and William Zame, *Econometrica* 75 (2007), 993-1038.
14. “Modeling Price Pressure in Financial Markets,” with Elena Asparouhova, *Journal of Economic Behavior and Organization* 72 (2009), 119-130.
15. “Equilibrium Asset Pricing Under Heterogeneous Information,” with Bruno Biais and Chester Spatt, *Review of Financial Studies* 23 (2010), 1503-43.
16. “Ambiguity in Asset Markets: Theory and Experiment,” with Paolo Ghirardato, Serena Guarnaschelli and William Zame, *Review of Financial Studies* 23 (2010), 1325-59.
17. “Competition in Portfolio Management: Theory and Experiment,” with Elena Asparouhova, Jernej Copic, Brad Cornell, Jaksa Cvitanic and Debrah Meloso, *Management Science* 61(2015), 1868-1888.
18. “Asset Pricing and Asymmetric Reasoning,” with Elena Asparouhova, Jon Eguia and William Zame, *Journal of Political Economy* 123 (2015), 66-122.
19. “Costly Information Acquisition in Decentralized Markets: An Experiment,” with Elena Asparouhova and Wenhao Yang, *Management Science*, 2024, <https://doi.org/10.1287/mnsc.2023.4976> (Best paper award for Financial Markets & Institutions, 2017 Meetings of the Financial Management Association).
20. “Price Formation in Field Prediction Markets: the Wisdom in the Crowd,” with Frederik Bossaerts, Nitin Yadav, Chad Nash, Torquil Todd, Torsten Rudolf, Rowena Hutchins, Anne-Louise Ponsonby and Karl Mattingly, *Journal of Financial Markets*, 68 (2024), 100881.

Asset Pricing  
Theory –  
Books

1. *The Paradox of Asset Pricing* (Princeton: Princeton University Press, 2002; Paperback version appeared 2005; Asian version appeared 2007).
2. *Lecture Notes in Corporate Finance*, with Bernt Arne Ødegaard (Singapore: World Scientific Publishing, 2001; Second, Revised Edition 2007).

Asset Pricing  
Theory –  
Working  
Papers

1. “Has the Cross-Section of Average Returns Always Been The Same? Evidence from Germany, 1881-1913,” with Caroline Fohlin, *Caltech Social Science Working Paper* 1084: 2000.
2. “Arbitrage-Based Pricing When Volatility is Stochastic,” with Eric Ghysels and Christian Gouriéroux, October 1997.

3. “Price Formation in Continuous Double Auctions, with Implications for Asset Pricing,” with Elena Asparouhova and John Ledyard, 2020 (presented at 2009 SAET Conference, Ischia, Italy).
4. “Voting to ensure existence and Pareto-optimality of insurance and loan markets,” with Michèle Itten (2009) (SURF project Summer 2011).
5. “The Role of Financial Markets in Mitigating Credit Market Bubbles,” with Elena Asparouhova and Anh Tran, 2022 (presented at various conferences, under review).
6. “Tracking the Tangency Portfolio with Alpha,” with Wenhao Yang, Yang Chen, Nitin Yadav and Carsten Murawski, 2018 (prepared for submission).
7. “Asset Pricing in a World of Imperfect Foresight,” with Felix Fattinger and Wenhao Yang, 2022 (Presented at multiple conferences; e.g., 12<sup>th</sup> Miami Behavioral Finance Conference, 2022; submitted).
8. “Modelling Asset Prices Under Heterogeneous Beliefs,” with Ryan Anderson, 2020 (to be resubmitted).
9. “Information Structure and Aggregation: Theory and Experiments,” with Ryan Anderson and Felix Fattinger, 2021.
10. “General Equilibrium Asset Pricing with Decreasing Returns to Scale: Theory and Experiments,” with Sean Crockett, Xinan Fan, Felix Fattinger, Max Ruan, June 2024 (presented, among others, at the 2024 Annual Meetings of the Society for Experimental Finance).
11. “Gaussian Fundamentals, Heavy-Tailed Price Changes, and the Role of the Market Maker,” with Abhi Anand, Harvey Huang, Max Hunt, Rob Woods and Nitin Yadav, October 2020 (presented at the First Conference on Zero- and Minimal- Intelligence Agents, *Yale University*, October 2020).
12. “Investments and asset pricing in a world of satisficing agents,” with Tony Berrada and Giuseppe Ugazio (U Geneva Geneva Institute for Financial Research), 2024 (presented at various conferences, e.g., 2024 European Summer Meetings of the Econometric Society).

Experimental  
Finance –  
Articles

1. “Price Discovery in Financial Markets: The Case of the CAPM,” with D. Kleiman, and C. Plott, in Charles R. Plott, *Collected papers on the Foundations of Experimental Economics and Political Science: Information, Finance and General Equilibrium*, vol. 3, Edwin Elgar Publishers, 2004.
2. “Experiments With Financial Markets: Implications For Asset Pricing Theory,” *The American Economist*, Spring 2001. Reprint in *Shifting Paradigms, New Directions in Economics*, Cambridge, UK: Cambridge University Press (2004).
3. “The CAPM in Thin Experimental Financial Markets,” with Charles Plott, *Journal of Economic Dynamics and Control* 26 (2002), 1093-1112.
4. “Inducing Liquidity in Thin Financial Markets Through Combined-Value Trading Mechanisms,” with Leslie Fine and John Ledyard, *European Economic Review* 46 (2002), 1671-95.
5. “Excess Demand and Equilibration In Multi-Security Financial Markets: The Empirical Evidence,” with Elena Asparouhova and Charles Plott, *Journal of Financial Markets* 6 (2003), 1-22.
6. “Basic Principles of Asset Pricing Theory: Evidence From Large-Scale Experimental Financial Markets,” with C. Plott, *Review of Finance* 8 (2004), 135-169.

7. "Asset Pricing," in *Handbook of Experimental Economics Results*, Charles R. Plott and Vernon L. Smith, eds., Amsterdam: North-Holland (2008).
8. "From Market Jaws to the Newton Method: The Geometry of How a Market Can Solve Systems of Equations," with Charles R. Plott; in *Handbook of Experimental Economics Results*, Charles Plott and Vernon L. Smith, eds, Amsterdam: North-Holland (2008).
9. "Risk Aversion in Laboratory Asset Markets," with William Zame, in: *Risk Aversion in Experiments*, Ed. J. Cox and G. Harrison, Greenwich, CT: JAI Press, *Research in Experimental Economics*, (12), 2008.
10. "Promoting Intellectual Discovery: Patents vs. Markets," with Jernej Copic and Debrah Meloso, *Science*, 323 (2009), 1335-1339.
11. "The Experimental Study of Asset Pricing Theory," *Foundations and Trends in Finance* 3 (2009), 289-361.
12. "Excessive Volatility Is Also A Feature Of Individual Level Forecasts," with A. Nursimuli, *Journal of Behavioral Finance* 15 (2014), 16-29.
13. "The Speed of Information Revelation and Eventual Price Quality in Markets with Insiders," with Cary Frydman and John Ledyard, *Review of Finance* 18 (2014), 1-22.
14. "Lucas In The Laboratory," with Elena Asparouhova, Nilanjan Roy and William Zame, *Journal of Finance* 71 (2016) 2727-2780.
15. "Experiments on Percolation of Information in Dark Markets," with Elena Asparouhova, *The Economic Journal* 127 (2017) F518-F544.
16. "Perception of Intentionality in Investor Attitudes towards Financial Risks," with S. Suzuki and J. O'Doherty, *Journal of Behavioral and Experimental Finance* (2017) <https://doi.org/10.1016/j.jbef.2017.12.011>.
17. "Transferring Cognitive Talent Across Domains to Reduce the Disposition Effect in Investment," with Kristian Rotaru, Nitin Yadav and Petko Kalev, *Scientific Reports* 11 (2021), 1-9.
18. "Pairing Multi-Market Theory with Experiments," with Elena Asparouhova and Sean Crockett, *Handbook of Experimental Finance*, Edward Elgar (Northampton, MA, USA) (2022).
19. "Emotional Engagement and Trading Performance: Evidence from a Controlled Experiment," with Felix Fattinger, Kristian Rotaru and Katong Xu, *Management Science* (2023) <https://doi.org/10.1287/mnsc.2023.4883>.
20. "Humans in Charge of Algorithmic Trading: The First Experiment," with E. Asparouhova, T. Wang, N. Yadav and W. Yang, *Review of Finance* 28 (2024), 1215-44.
21. "Resource Allocation, Computational Complexity, and Market Design," with E. Bowman, Felix Fattinger, S. Huang, C. Murawski, A. Suthakar, S. Tang, N. Yadav, *Journal of Behavioral and Experimental Finance* 42 (2024), 100906.

Experimental  
Finance –  
Working  
Papers

1. "Prices and Allocations in Dynamically Complete Markets: Experimental Evidence," with Debrah Meloso and William Zame, 2013 (Caltech SURF project Summer 2011).
2. "Is Academic Finance Really that Wrong?" 2017. Available at SSRN: <https://ssrn.com/abstract=3122143> (Transcript of keynote speech at 24<sup>th</sup> CLSA Investors' Forum, Hong Kong)

3. “Cognitive Biases in Group Investment Decision-Making: The Disposition Effect,” with E. Wang (in preparation).
4. “Perspective: Why Dissenting Views Gradually Become More Polarized,” with Elena Asparouhova, Felix Fattinger and Wenhao Yang (to be resubmitted).
5. “ETF indexing strategies and asset prices: Experimental evidence,” with John Duffy, Jean Paul Rabanal, Olga Rud and Nitin Yadav, 2024 (presented at 2023 Annual Meetings of the Society for Experimental Finance; under review).
6. “Arbitrage Opportunities: Anatomy and Remediation,” with Jason Shachat and Kuangli Xie, 2024 (R&R for *Journal of Finance*).

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2. “Statistical Efficiency in Reinforcement Learning,” with Shijei Huang, Shinsuke Suzuki and Nitin Yadav (to be resubmitted; presented at various conferences, e.g., keynote lecture at the 13<sup>th</sup> Annual Meetings of the Society for Financial Econometrics, San Diego, 2021).
3. “Judgment and decision-making under uncertainty,” mimeo (2021).
4. “Estimating self-performance when making complex decisions,” with Xiaping Lu, Carsten Murawski and Shinsuke Suzuki, (Revised and resubmitted to *Scientific Reports*)
5. “Modeling Behavior When Inference Is Complex,” with Luis Rayo, 2024.
6. Decision-Making when Computational Complexity Causes Uncertainty, based on keynote lecture at the Summer School on Cognitive Foundations of Decision Making (Rabat, Morocco, 2024); solicited by *Economic and Behavioral Sciences*.
7. “How humans solve computationally complex resource procurement problems: The example of food choice,” with Fabian Grabenhorst and Wolfram Schultz, 2024 (work in progress).
8. “Stereoelectroencephalography (SEEG) Recording and Stimulation of Anterior Insula in an Instrumental Task with Frequent Outliers,” with Fabienne Picard and Nina Sooter, 2024 (work in progress).

9. “Neuroeconomics: A Review,” with Wolfram Schultz, solicited by *Annual Reviews in Economics*, 2024 (work in progress).
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2. “Computational Complexity and Human Decision-Making,” with Carsten Murawski, *Trends in Cognitive Sciences* 21 (2017), 917-29.
3. “Uncertainty and Computational Complexity,” with Nitin Yadav and Carsten Murawski, *Philosophical Transactions of the Royal Society B* 374 (2019): 20180138.
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5. “Exploiting Distributional Temporal Difference Learning to Deal with Tail Risk,” with Harvey Huang and Nitin Yadav, *Risks* 8 (2020): doi:10.3390/risks8040000.
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Papers

1. “How Well Can Humans Approximate Optimality in Computationally Hard Problems?” with Nitin Yadav, Anthony Hsu, Juan Pablo Franco and Carsten Murawski, 2024, under review.
2. “A Continuous Combinatorial Financial Exchange: Design, Simulations and Live Testing,” with Rob Woods, John Ledyard, Malick Sy and Nitin Yadav, 2024.

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Finance –  
Articles

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2. “The Econometrics of Learning in Financial Markets,” *Econometric Theory* 11 (1995), 151-189.
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7. “Local Parametric Analysis of Hedging in Discrete Time,” with Pierre Hillion, *Journal of Econometrics* 81 (1997), 243-272.
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2. “On the Power of the Gibbons-Ross-Shanken Test of Optimality of a Portfolio,” with Debrah Meloso, 2009.
3. “MDL-Based Variable Lookback Algorithm and Application To Finance,” with Lionel Coulot and Martin Vetterli, 2015.
4. “Can and Do Professional Investment Advisors Adjust to The Threat of Disintermediation Caused by Social Media?” with Nazanin Babolmorad and Nadia Massoud, 2024 (to be submitted).

Development  
of Instruments

1. jMarkets 1.0 (2005), 1.5 (2006), 2.0 (2008): Scientific project supervisor; jMarkets is a pure-Java, J2EE-compliant open-source software tool to run large-scale internet-based experiments with multiple interconnected markets (source and binary code published at <http://jmarkets.ssel.caltech.edu>); joint with Walter Yuan, Raj Advani and William Zame.
2. U.S. Patents 7,853,514 (Issued: 12/14/2010) and 8,386,370 (Issued: 2/26/2013): Method and Apparatus For Providing A Market Environment, with Walter Yuan and Raj Advani.
3. Flex-E-Markets (2007-): Scientific project supervisor; “software-on-demand” tool for flexible and easy deployment of internet-based double-sided markets; Software as a Service; recipient of a Caltech Grubstake development grant; [www.flexemarkets.com](http://www.flexemarkets.com)
4. DG (2014-): Software suite for standalone, online and phone-based games in behavioral finance and neuroeconomics using the Unity platform ([uleef.business.utah.edu/games/](http://uleef.business.utah.edu/games/))
5. FMClient/AlgoHost (2017-): Python Client and Server Software for Algorithmic Traders interfacing with Flex-E-Markets, used in teaching and research (<http://alghost.bmmlab.org/>)
6. COEX (2020-): Continuous Combinatorial Open-Book Multi-Asset Exchange (<https://coex.bmmlab.org/>).

PhD Advisees  
and Postdocs

- Past PhD students (first appointments in parentheses):
  - Economics & Finance: Kaoru Kato (McKinsey), Oleg Bondarenko (University of Illinois), Serena Guarnaschelli (McKinsey), Elena Asparouhova (University of Utah), Debrah Meloso (Bocconi University), Ming Hsu (UC Berkeley), Nilanjan Roy (City University of Hong Kong), Cary Frydman (USC), Wenhao Yang (University of Southern Carolina), Ryan Anderson (HEC, Paris)
  - Decision Neuroscience: Kerstin Preuschoff (EPFL), Ulrik Beierholm (University of Birmingham), Antoine Bruguier (Google), Alan Hampton (McKinsey), Klaus Wunderlich (Ludwig Maximilians Universitaet Munich), Elise Payzan (University of New South Wales), Anjali Nursimulu (EPFL), Yutaka Kayaba (University of Tokyo), Juan Pablo Franco (University of Melbourne), Xiaping Lu (TBD)

- Finance & Computer Science: Harvey (Shijei) Huang (National Australia Bank)
  
- Past Postdocs (some co-mentored; first subsequent appointment in parentheses):
  - Decision Neuroscience: Kerstin Preuschoff (University of Geneva), Ulrik Beierholm (University of Birmingham), Mathieu d'Acremont (Northwestern University), Charlotte Prévost (Columbia University), Yutaka Kayaba (University of Tokyo)
  - Finance: Nitin Yadav (University of Melbourne), Felix Fattinger (Vienna University of Economics and Business), Jason Schoeters (University of Firenze and DISIA 'Giuseppe Parenti')

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