

Curriculum Vitae

Ramo Gençay Professor

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Books (Total Citations¹: 2,113)

An Introduction to High-Frequency Finance, *Academic Press*, 2001, with M. Dacorogna, U. Müller, R. Olsen and O. Pictet. (*The 1st Chinese edition will be published in 2018.*)

An Introduction to Wavelets and Other Filtering Methods in Finance and Economics, *Academic Press*, 2001, with F. Selçuk and B. Whitcher.

Journal Articles (Web of Science Thomson Reuters Citations: 1,676, *h*-Index: 24.)²

66. The tale of two financial crises: An entropic perspective, 2017, *Entropy*, forthcoming, with N. Gradojevic.
65. Application of wavelet decomposition in time-series forecasting, 2017, *Economics Letters*, forthcoming, with K. Zhang and E. Yazgan.
64. Tests for serial correlation of unknown form in dynamic least squares regression with wavelets, 2017, *Economics Letters*, 155, 104-110, with M. Li.
63. Informativeness of trade size in foreign exchange markets, 2017, *Economics Letters*, 150, 27-33, with N. Gradojevic and D. Erdemlioğlu.
62. Is it Brownian or Fractional Brownian Motion?, 2016, *Economics Letters*, 145, 52-55, with M. Li and Y. Xue.
61. Commodity futures hedging, risk aversion and the hedging horizon, 2016, *European Journal of Finance*, 22, 1534-1560, with T. Conlon and J. Cotter.

¹Google Scholar.

²Google Scholar Citations: 7,052, *h*-index: 35.

60. Informed traders' arrival in foreign exchange markets: Does geography matter?, 2015, *Empirical Economics*, 49, 1431-1462, with N. Gradojevic, R. Olsen and F. Selçuk.
59. Economic links and credit spreads, 2015, *Journal of Banking and Finance*, 55, 157-169, with D. Signori, Y. Xue, C. Yu and K. Zhang.
58. Multi-scale tests for serial correlation, 2015, 184, 62-80, *Journal of Econometrics*, with D. Signori.
57. Hedging through a limit order book with varying liquidity, 2014, *Journal of Derivatives*, 22, 32-49, with R. Agliardi.
56. Jump detection with wavelets for high-frequency financial time series, 2014, *Quantitative Finance*, 14, 1427-1444, with Y. Xue and S. Fagan.
55. Private information and its origins in an electronic foreign exchange market, 2013, *Economic Modelling*, 33, 86-93, with N. Gradojevic.
54. Fuzzy logic, trading uncertainty & technical trading, 2013, *Journal of Banking and Finance*, 37, 578-586, with N. Gradojevic.
53. Hierarchical information and the rate of information diffusion, 2012, *Journal of Economic Dynamics and Control*, 36, 1372 - 1401, with Y. Xue.
52. Trading frequency and volatility clustering, 2012, *Journal of Banking and Finance*, 36, 760 - 773, with Y. Xue.
51. Errors-in-variables estimation with wavelets, *Journal of Statistical Computation and Simulation*, 2011, 81, 1545-1564, with N. Gradojevic.
50. Financial applications of non-extensive entropy, 2011, 28, 116-141, *IEEE Signal Processing Magazine*, with N. Gradojevic.
49. Investment horizon effect on asset allocation between value and growth strategies, 2011, 28, 1489-1497, *Economic Modelling*, with Francis In and Sangbae Kim.
48. Unit root tests with wavelets, 2010, *Econometric Theory*, 26, 1305-1331, with Y. Fan.
47. Asymmetry of information flow between volatilities across time scales, 2010, *Quantitative Finance*, 10, 895-915, with N. Gradojevic, F. Selçuk and B. Whitcher.
46. Crash of '87 - Was it expected? Aggregate market fears and long range dependence, *Journal of Empirical Finance*, 2010, 17, 270-282 , with N. Gradojevic.
45. Option pricing with modular neural networks, *IEEE Transactions on Neural Networks*, 2009, 20, 626-637 with N. Gradojevic and D. Kukolj.

44. Overnight interest rates and aggregate market expectations, *Economics Letters*, 2008, 100, 27-30, with N. Gradojevic.
43. Model risk for European-style stock index options, *IEEE Transactions on Neural Networks*, 2007, 18, 193-202, with R. Gibson.
42. Overnight borrowing, interest rate risk and extreme value theory, *European Economic Review*, 2006, 50, 547-563, with F. Selçuk.
41. Intraday dynamics of stock market returns and volatility, *Physica A*, 2006, 367, 375-387, with F. Selçuk.
40. Multiscale systematic risk, *Journal of International Money and Finance*, 2005, 24, 55-70, with F. Selçuk and B. Whitcher.
39. Extreme value theory and Value-at-Risk: Relative performance in emerging markets, *International Journal of Forecasting*, 2004, 20, 287-303, with F. Selçuk.
38. High volatility, thick tails and extreme value theory in Value-at-Risk estimation, *Insurance: Mathematics & Economics*, 2003, 33, 337-356, with F. Selçuk and A. Ulugülyagcı.
37. Systematic risk and time scales, *Quantitative Finance*, 2003, 3, 108-116, with F. Selçuk and B. Whitcher.
36. Foreign exchange trading models and market behavior, *Journal of Economic Dynamics and Control*, 2003, 27, 909-935, with M. Dacorogna, R. Olsen and O. Pictet.
35. Scaling, self-similarity and multifractality in FX markets, *Physica A*, 2003, 323, 578-590, with Z. Xu.
34. Exploring exchange rate returns at different time horizons, *Physica A*, 2002, 313, 671-682, with R. Nekhili and A. Salih.
33. Real-time trading models and the statistical properties of foreign exchange rates, *International Economic Review*, 2002, 43, 463-491, with G. Ballocci, M. Dacorogna, R. Olsen and O. Pictet.
32. Pricing and hedging derivative securities with neural networks: Bayesian regularization, early stopping and bagging, *IEEE Transactions on Neural Networks*, 2001, 12, 726-734, with M. Qi.
31. Time-to-expiry seasonalities in Eurofutures, *Studies in Nonlinear Dynamics and Econometrics*, 2001, 4, 227-231, with G. Ballocci, M. Dacorogna and B. Piccinato.
30. Using genetic algorithms to select architecture of a feedforward artificial neural network, *Physica A*, 2001, 289, 574-594, with J. Arifovic.

29. Differentiating intraday seasonalities through wavelet multi-scaling, *Physica A*, 2001, 289, 543-556, with F. Selçuk and B. Whitcher.
28. Effective return, risk aversion and drawdowns, *Physica A*, 2001, 289, 229-248, with M. Dacorogna, U. Müller and O. Pictet.
27. Scaling properties of foreign exchange volatility, *Physica A*, 2001, 289, 249-266, with F. Selçuk and B. Whitcher.
26. Is the largest Lyapunov exponent preserved in embedded dynamics?, *Physics Letters A*, 2000, 276, 59-64, with W. D. Dechert.
25. Pricing and hedging derivative securities with neural networks and a homogeneity hint, *Journal of Econometrics*, 2000, 94, 93-115 , with R. Garcia.
24. Statistical properties of genetic algorithm learning in a model of exchange rate, *Journal of Economics Dynamics and Control*, 2000, 24, 981-1005, with J. Arifovic.
23. Intraday statistical properties of Eurofutures, *Derivatives Quarterly*, 1999, 6, 28-44, with G. Ballochi, M. Dacorogna and B. Piccinato.
22. Linear, nonlinear and essential foreign exchange rate prediction with simple technical trading rules, *Journal of International Economics*, 1999, 47, 91-107.
21. A visual goodness-of-fit test for econometric models, *Studies in Nonlinear Dynamics and Econometrics*, 1998, 3, 157-167, with Faruk Selçuk.
20. Moving average rules, volume and the predictability of security returns with feed-forward networks, *Journal of Forecasting*, 1998, 17, 401-414 , with T. Stengos.
19. The predictability of security returns with simple technical trading rules, *Journal of Empirical Finance*, 1998, 5, 347-359.
18. Optimization of technical trading strategies with neural network models and evidence of profitability in security markets, *Economics Letters*, 1998, 59, 249-254.
17. Testing Chaotic Dynamics via Lyapunov Exponents, *Physica D*, 1998, 114, 1-2, with M. Bask.
16. Nonlinear modeling and prediction with feedforward and recurrent networks, *Physica D*, 1997, 108, 119-134, with T. Liu.
15. Technical trading rules and the size of the risk premium in security returns, *Studies in Nonlinear Dynamics and Econometrics*, 1997, 2, 23-34, with T. Stengos.
14. Semiparametric estimation of a hedonic price function, *Journal of Applied Econometrics*, 1996, 11, 633-648, with P. M. Anglin.

13. The identification of spurious Lyapunov exponents in Jacobian algorithms, *Studies in Nonlinear Dynamics and Econometrics*, 1996, 1, 145-154, with W. D. Dechert.
12. A forecast comparison of residential housing prices by parametric versus semiparametric conditional mean estimators, *Economics Letters*, 1996, 52, 129-135, with X. Yang.
11. Nonlinear prediction of security returns with moving average rules, *Journal of Forecasting*, 1996, 15, 165-174.
10. The topological invariance of Lyapunov exponents in embedded dynamics, *Physica D*, 1996, 90, 40-55, with W. D. Dechert.
9. A statistical framework for testing chaotic dynamics via Lyapunov exponents, *Physica D*, 1996, 89, 261-266.
8. Forecast comparisons of residential housing prices by parametric and semiparametric regression, *Canadian Journal of Economics*, 1996, 39, 515-519, with X. Yang.
7. A consistent nonparametric test of symmetry in linear regression models, *Journal of the American Statistical Association*, 1995, 90, 551-557, with Y. Fan.
6. Tests of the risk premium on foreign currency futures implied by the intertemporal asset pricing theory, *Applied Financial Economics*, 1995, 5, 85-94.
5. Nonlinear prediction of noisy time series with feedforward networks, *Physics Letters A*, 1994, 187, 397-403.
4. Hypothesis testing based on modified nonparametric estimation of an affinity measure between two distributions, *Journal of Nonparametric Statistics*, 1993, 2, 389-403, with Y. Fan.
3. Lyapunov exponents as a nonparametric diagnostic for stability analysis, *Journal of Applied Econometrics*, 1992, 7, 41-60, with W. D. Dechert.
2. An algorithm for the n Lyapunov exponents of an n -dimensional unknown dynamical system, *Physica D*, 1992, 59, 142-157, with W. D. Dechert.
1. International chaos, *European Economic Review*, 1988, 32, 1569-1584, with M. Frank and T. Stengos.

Chapters in Books & Proceedings

10. An Introduction to Textual Econometrics, Handbook of Empirical Economics and Finance, with S. Fagan, eds., A. Ullah and D. Gill, Chapman and Hall/CRC, ISBN 9781420070354, 2010.

9. High volatility, thick tails and extreme value theory in Value-at-Risk estimation, with F. Selçuk, in *Proceedings of the 2002 North American Summer Meetings of the Econometric Society: Econometrics*, eds., D. K. Levine, W. Zame, L. Ausubel, P. A. Chiappori, B. Ellickson, A. Rubinstein and L. Samuelson, <http://www.dklevine.com/proceedings/economic-theory.htm>, 2002.
8. The predictability of security returns with simple technical trading rules, in *Forecasting Financial Markets: The International Library of Critical Writings in Economics*, ed. T. C. Mills, Edgar Elgar Publishing Limited, 2002. Reprint from *Journal of Empirical Finance*, 5, 1998, 347-359.
7. Trading models as specification tools, in *Computational Finance – Proceedings of the Sixth International Conference, Leonard N. Stern School of Business, January 1999*, 2000 eds., Y. S. Abu-Mostafa, B. LeBaron, A. W. Lo, and A. S. Weigend, Cambridge, MA: MIT Press.
6. Option pricing with neural networks and a homogeneity hint, in *Decision Technologies for Computational Finance*, 1998, A-P. N. Refenes, A. N. Burgess and J. E. Moody, eds., Kluwer Academic Press.
5. Forecast performance of moving average rules with stock returns, in *Neural Networks in Financial Engineering*, 215-226, 1996, P. Refenes, ed., World Scientific Ltd.
4. The predictability of stock returns with local versus global nonparametric estimators, in *Neural Networks in Financial Engineering*, 259-269, 1996, P. Refenes, ed., World Scientific Ltd., with T. Stengos.
3. International chaos?, in *Chaos Theory in Economics: Methods, Models and Evidence*, 557-572, 1996, W. Davis Dechert, ed., Edward Elgar Publishing Ltd., Cheltenham, U.K.
2. An algorithm for the n Lyapunov exponents of an n -dimensional unknown system, in *Chaos Theory in Economics: Methods, Models and Evidence*, 222-237, 1996, W. Davis Dechert, ed., Edward Elgar Publishing Ltd., Cheltenham, U.K.
1. Lyapunov exponents as nonparametric diagnostic for stability analysis, in *Nonlinear Dynamics, Chaos and Econometrics*, 33-52, 1993, M. Hashem Pesaran and S. Potter, eds., Wiley, New York.

Software/Software Review

2. EVIM: A software package for extreme value analysis in MATLAB, *Studies in Nonlinear Dynamics and Econometrics*, 2001, 5, 213-239, with F. Selçuk and Abdurrahman Ulugülyagcı.

1. Software Review: Matlab Neural Networks Toolbox, *International Journal of Forecasting*, 2001, 17, 305-317, with F. Selçuk.

Manuscripts

11. Economic links and return volatility, 2016, with X. Yu and K. Zhang.
10. International diversification and the investor horizon, 2016, with T. Conlon and J. Cotter.
9. Tick size change in the wholesale foreign exchange market, 2016, with S. Mahmoodzadeh.
8. Price impact of aggressive liquidity provision, 2016, with S. Mahmoodzadeh, J. Rojček and M. Tseng.
7. Contagion in a network of heterogeneous banks, 2016, with H. Pang, Y. Xue and M. Tseng.
6. Heterogeneous beliefs about volatility and asset pricing, 2016, with Y. Duan and Y. Xue.
5. Estimation of linear model with one time-varying parameter via wavelets, 2016, with M. Tseng.
4. High frequency trading, noise herding and market quality, 2016, with Y. Xue and C. Wang.
3. White noise jumps and adverse selection in FX market, 2016, with M. Tseng and S. Mahmoodzadeh.
2. Mutual fund performance and network characteristics, 2016, with K. Zhang.
1. Predictors of triangular arbitrage opportunities: Interdependence and order book indicators, 2015, with N. Gradojevic.

Invited Presentations at Scholarly Conferences

23. White noise jumps and adverse selection in FX market, *Microstructure of Foreign Exchange Markets*, Cambridge University-INET Institute, May 19-21, 2016, Cambridge, England 2016.
22. A wavelet ratio estimator for fractional noise, *Info-Metrics Institute 2016 Spring Workshop on Information-Theoretic Methods of Inference*, Cambridge University, April 1-2, 2016, Cambridge, England.
21. Wavelet methods for time series, NIPS Time Series Workshop, Montreal, Canada, December 11, 2015.

20. Resilience to financial crisis in customer-supplier networks, *2nd International Workshop on "Financial Markets and Nonlinear Dynamics (FMND)"*, Paris, France, June 4-5, 2015.
19. Multi-Scale Information Processing in Economics & Finance, *Info-Metrics Institute 2015 Spring Workshop on Philosophy of Information and Information Processing*, Oxford University, Oxford, England, March 27, 2015.
18. Breakthrough areas in economic and financial systems, *Perm Winter School*, February 14-15, 2015, Perm, Russia, 2015.
17. Forecasting with wavelets, *Conference on Advances in Applied Macro-Finance and Forecasting*, September 1-2, 2014, Istanbul, Turkey, 2014.
16. Financial networks, *Perm Winter School*, January 30-February 1, 2014, Perm, Russia, 2014.
15. Hedging through a limit order book with varying liquidity, *Modeling High-Frequency Trading Activity*, September 1-6, 2013, Banff International Research Station, Banff, 2013.
14. Multi-scale tests for serial correlation, *2nd Rimini Time Series Workshop*, University of Bologna, Rimini Campus, Italy, June 27-28, 2013.
13. Economic links and counterparty risk, *International Istanbul Finance Congress*, Kadir Has University, Istanbul, Turkey, May 30-31, 2013.
12. Economic links and counterparty risk, *Info-Metrics Institute, Information and Econometrics of Networks*, American University, Washington D.C., U.S.A., March 30-31, 2012.
11. Unit root tests with wavelets, *Workshop on Frequency Domain Research in Macroeconomics and Finance*, Helsinki, Finland, October 20-21, 2011.
10. Unit root tests with wavelets, *Info-Metrics Fall Conference*, American University, Washington D.C., U.S.A., September 24-25, 2010.
9. Financial Economics Panel: Global Financial Crisis and Growth Prospects for the World Economy, Bilgi University, Istanbul, Turkey, July 7, 2009.
8. Asymmetric Liquidity-Induced Dynamics in Futures Markets, *International Conference on Price, Liquidity and Credit Risk*, Konstanz, Germany, October 3-4, 2008.
7. Liquidity-Induced Dynamics in Futures Markets, *Symposium on Chaos and Complex Systems*, Istanbul, Turkey, May 7-10, 2008.

6. Liquidity-Induced Dynamics in Futures Markets, *University of Konstanz & University of Strasbourg Joint Workshop*, Henge, Germany, November 1-2, 2007.
5. Algorithms for the n Lyapunov exponents of an n -dimensional unknown dynamical system, *Symposium on Chaos and Complex Systems*, Istanbul, Turkey, May 12-13, 2006.
4. Day before the crash of 1987, *Bank of Canada Financial Forecasting Workshop*, Bank of Canada, Ottawa, May 1-4, 2006.
3. Unit root and cointegration tests with wavelets, *Financial Econometrics Conference*, CIREQ, Montreal, May 5-6, 2006.
2. Valuation of collateral in securities settlement systems for extreme market events, *Conference on Counterparty Clearing*, European Central Bank, Frankfurt, April 3-4, 2006.
1. Technical trading: An Overview, *Machine Learning in Finance, Neural Information Processing Systems*, Whistler, British Columbia, December 5-10, 2005.

Invited Lectures

Beijing Institute of Technology, Beijing, China, 2017.

Chulalongkorn University, Bangkok, Thailand, 2017.

Bilgi University, Istanbul, Turkey, 2017.

Saint Petersburg State University, Saint Petersburg, Russia, 2016.

Universidad EAFIT, Medellin, Colombia, 2016.

Universidad Navarra, Pamplona, Spain, 2016, 2015, 2013.

Aarhus University, Aarhus, Denmark, 2015.

Universidad del Rosario, Bogotá, Colombia, 2015.

Perm Winter School, Perm, Russia, 2015, 2014.

University of Santa Catarina, Florianopolis, Brazil, 2014.

Belarus State University, Minsk, Belarus, 2014.

Perm Summer School, Perm, Russia, 2015, 2014.

University of Zurich, Switzerland, 2016, 2015, 2014, 2013, 2011, 2009, 2007

University of Bologna, Italy, 2016, 2013, 2012, 2011, 2010, 2009

Bilgi University, Istanbul, Turkey, 2013, 2010.

Bosphorus University, Istanbul, Turkey, 2013.

University of Chile, Santiago, Chile, 2013.

Karaganda State Technical University, Karaganda, Kazakhstan, 2013.

University of Electronic Science and Technology, China, 2011.

Papers Presented at Scholarly Conferences

66. Price impact of aggressive liquidity provision, *European Meeting of the Econometric Society*, Geneva, Switzerland, August 22-26, 2016.
65. Economic links and return volatility, *2016 Asian Meeting of the Econometric Society*, Kyoto, Japan, August 11-13, 2016.
64. Economic links and return volatility, *2016 Australasia Meeting of the Econometric Society*, Sydney, Australia, July 5-8, 2016.
63. Economic links and return volatility, *3rd China Meeting of the Econometric Society*, Chengdu, China, June 25-27, 2016.
62. Economic links and return volatility, *Canadian Economics Association 50th Annual Conference*, Ottawa, Canada, June 3-5, 2016.
61. Economic links and return volatility, *9th Financial Risks International Forum*, Paris, France, March 21-22, 2016.
60. Mutual fund performance and network characteristics, *9th Financial Risks International Forum*, Paris, France, March 21-22, 2016.
59. Tick size change in the wholesale foreign exchange market, *11th World Congress of the Econometric Society*, Montreal, Canada, August 17-21, 2015.
58. Resilience to the financial crisis in customer-supplier networks, *2nd Seattle-Vancouver Econometrics Conference*, Vancouver, Canada, September 11-12, 2015.
57. Resilience to financial crisis in customer-supplier networks, *49th Annual Conference of the Canadian Economics Association*, Toronto, Canada, May 29-31, 2015.
56. Resilience to financial crisis in customer-supplier networks, *8th Financial Risks International Forum*, Paris, France, March 30-31, 2015.
55. Systematic risk in customer-supplier networks, *Latin American Meetings of the Econometric Society*, São Paulo, Brazil, November 20-22, 2014.

54. High frequency trading, noise herding and market quality, *Latin American Meetings of the Econometric Society*, São Paulo, Brazil, November 20-22, 2014.
53. Multi-scale tests for serial correlation, *Latin American Meetings of the Econometric Society*, Mexico City, Mexico, October 31 - November 2, 2013.
52. Informed Traders Arrival in Foreign Exchange Markets: Does Geography Matter?, *European Meeting of the Econometric Society*, Gothenburg, Sweden, August 26-30, 2013.
51. Multi-scale tests for serial correlation, *Canadian Econometric Study Group Meeting*, Kingston, Ontario, October 27-28, 2012.
50. Private information and its origins in an electronic foreign exchange market, *European Meeting of the Econometric Society*, Malaga, Spain, August 27-31, 2012.
49. Measuring counterparty risk in financial networks, *World Finance Conference*, Rio de Janeiro, Brazil, 2-4 July 2012.
48. Measuring counterparty risk in financial networks, *RCEA Finance Workshop*, Rimini, Italy, May 30, 2011.
47. Unit root tests with wavelets, *10th World Congress of the Econometric Society*, Shanghai, China, August 17-21, 2010.
46. Jump detection with wavelets, *RCEA Conference in Economics and Finance*, Rimini, Italy, June 8-13, 2010.
45. Unit root tests with wavelets, *European Meeting of the Econometric Society*, Barcelona, Spain, August 23-27, 2009.
44. The role of signal precision and transaction costs in equity, option & volatility trading, *Annual Congress of the European Economic Association*, Barcelona, Spain, August 23-27, 2009.
43. When do informed traders arrive in FX markets?, *2008 Latin American Meeting of the Econometric Society*, Rio de Janeiro, November 2-22, 2008.
42. When do informed traders arrive in FX markets?, *63rd European Meeting of the Econometric Society*, Milano, August 27-31, 2008.
41. When do informed traders arrive in FX markets?, *Canadian Economics Association Meeting*, Vancouver, June 6-8, 2008.
40. Managing adverse dependence for portfolios of collateral in financial infrastructures, *Latin American Meeting of the Econometric Society*, Bogota, Colombia, October 4-6, 2007.

39. Unit root and cointegration tests with wavelets, *Canadian Econometric Study Group Meeting*, McGill University, Montreal, September 29-30, 2007.
38. Unit root and cointegration tests with wavelets, *North American Summer Meetings of the Econometric Society*, Duke University, Durham, June 21 - 24, 2007.
37. Valuation of collateral in securities settlement systems for extreme market events, *61st European Meeting of the Econometric Society*, Vienna, August 24-28, 2006.
36. Option pricing with modular neural networks, *61st European Meeting of the Econometric Society*, Vienna, August 24-28, 2006.
35. Option pricing with modular neural networks, *Canadian Economics Association Meeting*, Montreal, May 26-28, 2006.
34. Return and volatility dynamics across time scales, *9th World Congress of the Econometric Society*, London, England, August 18-24, 2005.
33. Asymmetry of information flow between FX volatilities across time scales, *Winter Meetings of the Econometric Society*, San Diego, U.S.A., January 2-6, 2004.
32. Degree of mispricing with the Black-Scholes model and nonparametric cures, *Winter Meetings of the Econometric Society*, Washington D. C., January 3-5, 2003.
31. Degree of mispricing with the Black-Scholes model and nonparametric cures, *57th European Meeting of the Econometric Society*, Venice, Italy, August 24-28, 2002.
30. High volatility, thick tails and extreme value theory in Value-at-Risk estimation, *Sixth International Congress on Insurance Mathematics and Economics*, Lisbon, Portugal, July 15-17, 2002.
29. High volatility, thick tails and extreme value theory in Value-at-Risk estimation, *The North American Summer Meeting of the Econometric Society*, Los Angeles, U.S.A., June 20-24, 2002.
28. Information flow between FX volatilities across time scales, *The 22nd International Symposium on Forecasting*, Dublin, Ireland, June 23-26, 2002.
27. Overnight borrowing, interest rate risk and extreme value theory, *Northern Finance Meeting*, Saint Mary's University, Halifax, September 28-30, 2001.
26. Overnight borrowing, interest rate risk and extreme value theory, *56th European Meeting of the Econometric Society*, University of Lausanne, Lausanne, Switzerland, August 25-29, 2001.
25. Overnight borrowing, interest rate risk and extreme value theory, *35th Annual Meeting of the Canadian Economics Association*, McGill University, Montréal, Québec, May 31-June 3, 2001.

24. Real-time trading models and the statistical properties of foreign exchange rates, *Workshop in Economic Dynamics*, CeNDEF, University of Amsterdam, January 13-15, 2000.
23. Real-time trading models and the statistical properties of foreign exchange rates, *Winter Meetings of the Econometric Society*, Boston, January 6-9, 2000.
22. Real-time trading models and the statistical properties of foreign exchange rates, *Canadian Econometric Study Group Meeting*, Montreal, Canada September 24-26, 1999.
21. Real-time trading models and the statistical properties of foreign exchange rates, *European Meetings of the Econometric Society*, Santiago de Compostela, Spain, August 29 - September 1, 1999.
20. Real-time trading models and the statistical properties of foreign exchange rates, *Computational Finance'99*, New York, January 5-9, 1999.
19. Pricing and hedging derivative securities with neural networks and a homogeneity hint, *Winter Meetings of the Econometric Society*, New York, January 2-4, 1999.
18. Pricing and hedging derivative securities with neural networks and a homogeneity hint, *European Meetings of the Econometric Society*, Berlin, Germany, August 29-September 2, 1998.
17. Pricing and hedging derivative securities with neural networks and a homogeneity hint, *European Economic Association Meetings*, Berlin, Germany, September 2-5, 1998.
16. Pricing and hedging derivative securities with neural networks and a homogeneity hint, *North American Summer Meetings of the Econometric Society*, Montreal, Canada, June 23-28, 1998.
15. Pricing and hedging derivative securities with neural networks and a homogeneity hint, *Computational Finance'97*, London Business School, December 15-17, 1997.
14. Using genetic algorithms to select architecture of a feedforward artificial neural network, *Universite de Montréal*, Montréal, November 20, 1996.
13. Optimization of technical trading strategies with neural network models and evidence of profitability in security markets, *12th Canadian Futures and Options Conference, Montréal Stock Exchange*, Montréal, September 16-17, 1996.
12. Optimization of technical trading strategies with neural network models and evidence of profitability in security markets, *CIRANO and Universite de Montréal*, September 12-16, 1996.

11. Learning from technical analysis in the foreign exchange markets, *1996 North American Summer Meetings of the Econometric Society*, Iowa City, Iowa, June 20-24, 1996.
10. Linear, nonlinear and essential exchange rate prediction with simple technical trading rules, *7th World Congress of the Econometric Society*, Tokyo, Japan, August 22-29, 1995.
9. The prediction of security returns with simple technical trading rules, *1995 Meeting of the Society of Economic Dynamics and Control*, Barcelona, Spain, July 2-5, 1995.
8. Semiparametric feedforward regression, *1994 North American Summer Meetings of the Econometric Society*, Quebec City, Quebec, June 24-28, 1994.
7. A forecast comparison of residential housing prices with semiparametric regression, *27th Annual Meeting of the Canadian Economics Association*, Calgary, Alberta, June 10-13, 1994.
6. Semiparametric estimation of a hedonic price function, *1994 Winter Meetings of the Econometric Society*, Boston, MA, January 3-5, 1994.
5. Semiparametric estimation of a hedonic price function, *11th Annual Meeting of the Canadian Econometric Study Group Conference*, Toronto, September 16-18, 1993.
4. Nonlinear prediction of observed time series by feedforward networks, *Santa Fe Institute May Series Workshop*, Santa Fe, New Mexico, May 9-23, 1993.
3. An algorithm of Lyapunov exponents of unknown dynamics of time series, *26th Annual Meeting of the Canadian Economics Association*, Charlottetown, P.E.I., June 4-7, 1992.
2. An algorithm for the n Lyapunov exponents of an n -dimensional unknown dynamical system, *1992 North American Summer Meeting of the Econometric Society*, Seattle, Washington, June 24-28, 1992.
1. Estimating Lyapunov exponents with multilayer feedforward network learning, *Journal of Applied Econometrics Conference on Nonlinear Dynamics and Econometrics*, University of California in Los Angeles, April 5-6, 1991.

Editorial Boards

Managing Editor (Letters section), *International Review of Finance*, 2015 - present.

Associate Editor, *Studies in Nonlinear Dynamics and Econometrics*, 2006 - present.

Associate Editor, *High Frequency*, 2016 - present.

Board of Editors, *Ecos de Economía: A Latin American Journal of Applied Economics*, 2016 - present.

Advisory Board, *Marmara Journal of Economics*, 2016 - present.

Founding Editor-in-Chief, *Finance Research Letters*, 2004 - 2014.

Employment

Professor, Simon Fraser University, Canada, 2004 - present.

Professor, Carleton University, Canada, 2003 - 2004.

Professor, University of Windsor, Canada, 1997 - 2003.

Associate Professor, University of Windsor, Canada, 1994 - 1997.

Assistant Professor, University of Windsor, Canada, 1991 - 1994.

Fellowship & Visiting Posts

Invited Professor, University of Zurich, 2017.

Invited Professor, Saint Petersburg State University, Saint Petersburg, Russia, 2016.

Invited Professor, Universidad EAFIT, Medellin, Colombia, 2016.

Invited Professor, University of Navarra, Pamplona, Spain, 2016.

Invited Professor, University of Zurich, 2016.

Invited Professor, University of Bologna, 2016.

Invited Professor, University of Chile, Santiago, Chile, 2015.

Invited Professor, University of Navarra, Pamplona, Spain, 2015.

Invited Professor, Aarhus University, Denmark, 2015.

Invited Professor, Universidad del Rosario, Bogotá, Colombia, 2015

Invited Professor, University of Zurich, 2015.

Invited Professor, University of Santa Catarina, Florianopolis, Brazil, 2014.

Invited Professor, University of Zurich, 2014.

Invited Professor, Bilgi University, 2013.

Invited Professor, University of Chile, Santiago, Chile, 2013.

Invited Professor, Karaganda State Technical University, 2013.

Invited Professor, University of Navarra, 2013.

Invited Professor, University of Zurich, 2013.

Invited Professor, University of Bologna, 2012.

Invited Professor, University of Bologna, 2011.

Invited Professor, University of Zurich, 2011.

Invited Professor, University of Bologna, 2010.

Invited Professor, University of Electronic Science and Technology, China, 2011.

Research Fellow, Info-Metrics, American University, Washington, 2009 - to-date.

Invited Professor, University of Zurich, 2009.

Invited Professor, University of Bologna, 2009.

Senior Fellow, Rimini Center for Economic Analysis, University of Bologna, Italy
2007 - to-date.

Invited Professor, University of Zurich, 2007.

Invited Professor, HEC Genève, Université de Genève, 2003.

Invited Professor, FAME, Switzerland, 2003.

Research Visitor, Forschungsinstitut für Mathematik, Zurich, Switzerland, 2002.

Research Fellow, Olsen & Associates, Zurich, Switzerland, 1998.

Visiting Professor, Bilkent University, Turkey, 1997.

Research Fellow, University of Wisconsin, Madison, U.S.A., 1994.

Research Fellow, Santa Fe Institute, U.S.A., 1994.

Professional Service

World Finance Conference, Scientific Committee Member, Sardinia Island, Italy,
2017.

World Finance & Banking Symposium, Scientific Committee Member, Bangkok,
Thailand, 2017.

World Finance Conference, Scientific Committee Member, New York, U.S.A., 2016.

4th International Symposium in Computation Economics and Finance, Scientific
Committee Member, Paris, France, 2016.

World Finance & Banking Symposium, Scientific Committee Member, Hanoi, Viet-
nam, 2015.

World Finance Conference, Scientific Committee Member, Buenos Aires, Argentina,
2015.

Philosophy of Information and Information Processing, Program Committee Mem-
ber, Info-Metrics Institute Workshop, Pembroke College, Oxford, United Kingdom,
2015.

RCEA Conference in Economics and Finance, Scientific Committee Member, Uni-
versity of Bologna, Italy, 2014.

Conference on Advances in Applied Macro-Finance and Forecasting, Co-Organizer, Bilgi University, Istanbul, Turkey, 2014.

31st Annual Canadian Econometric Study Group Meeting, Local Co-Organizer, Simon Fraser University, Vancouver, 2014.

ASE/IEEE International Conference on Economic Computing, Program Committee Member, Beijing, China, 2014.

World Finance Conference, Program Committee Member, Venice, Italy, 2014.

Mitacs College of Reviewers, University of British Columbia, 2013.

Modeling High-Frequency Trading Activity, Co-organizer, Banff International Research Station, September 1-6, 2013, Banff, Alberta.

World Finance Conference, Honor Committee Member, Limassol, Cyprus, 2013.

Society for Computational Economics Conference, Program Committee Member, Vancouver, 2013.

ASE/IEEE International Conference on Economic Computing, Program Committee Member, Washington D.C., 2013.

Society for Nonlinear Dynamics and Econometrics Conference, Program Committee Member, Istanbul, 2012.

World Finance Conference, Honor Committee Member, Rio de Janeiro, Brasil, 2012.

Quantitative Finance Workshop, Co-organizer, Rimini Center for Economic Analysis, Rimini, Italy, 2012.

World Finance Conference, Honor Committee Member, Rhodes, Greece, 2011.

RCEA Conference in Economics and Finance, Program Committee Member, University of Bologna, Italy, 2010.

World Finance Conference, Honor Committee Member, Viana do Castelo, Portugal, 2010.

Info-Metrics Institute Conference, Program Committee Member, American University, DC, 2010.

27th Annual Canadian Econometric Study Group Meeting, Program Committee Member, University of British Columbia, Vancouver, 2010.

International RCEA Conference, Program Committee Member, Rimini Center for Economic Analysis, Rimini, Italy, 2010.

Quantitative Finance Workshop, Co-organizer, Rimini Center for Economic Analysis, Rimini, Italy, 2009.

Quantitative Finance Workshop, Organizer, Rimini Center for Economic Analysis, Rimini, Italy, 2008.

Program Committee Member, *Interdisciplinary Chaos Symposium*, Istanbul Kültür University, Istanbul, 2008.

Consultant, Bank of Canada, 2005-2006.

Member, Center for Scientific Computing, Simon Fraser University, 2006 - present.

Management Group Member, IRMACS, Simon Fraser University, 2006 - 2013.

Program Committee Member, *Interdisciplinary Chaos Symposium*, Istanbul Kültür University, Istanbul, 2006.

Organizer & Program Committee Member, *22nd Annual Canadian Econometric Study Group Meeting*, Simon Fraser University, Vancouver, 2005.

Co-organizer, *NIPS Workshop on Machine Learning in Finance*, Whistler, B.C., 2005.

Advisory Editor, *Taylor & Francis Books*, 2005.

Executive Council Member of the Canadian Econometric Study Group, 1999 - 2002.

International Committee Member, *Conference on Computational Intelligence for Financial Engineering*, 2001 - 2003.

IEEE Neural Networks Council Computational Finance Committee Member, 2001 - 2003.

Director of the Canadian Econometric Study Group (CESG), 1994 - 2000.

Program Committee Member, *17th Annual Canadian Econometric Study Group Meeting*, University of Guelph, 2000

Program Committee Member, *Computational Finance'2000*, London Business School, London, England, 2000

Program Committee Member, *Computational Finance'99*, Stern School of Business, New York, 1999

Program Committee Member, *Computational Finance, Neural Networks in Capital Markets*, London Business School, London, England, 1997

Program Committee Member, *14th Annual Canadian Econometric Study Group Meeting, Queen's University, 1997*

Program Committee Member, *13th Annual Canadian Econometric Study Group Meeting, University of Waterloo, 1996*

Organized the 11th Annual Canadian Econometric Study Group Meeting at the University of Windsor, held September 16-18, 1994

Served as a referee for *Econometric Theory, Journal of Econometrics, Journal of Applied Econometrics, Journal of Business and Economic Statistics, Econometric Reviews, Journal of Finance, Review of Financial Studies, Journal of Financial Markets, Journal of Financial and Quantitative Analysis, European Journal of Finance, Journal of Business, Studies in Nonlinear Dynamics and Econometrics, Economics Letters, International Economic Review, Journal of Economic Dynamics and Control, Journal of Empirical Finance, Journal of International Economics, Journal of Forecasting, Journal of Banking and Finance, Journal of Financial Econometrics, Quantitative Finance, Physica A, Physica D, Journal of Nonparametric Statistics, Economic Notes, Economics Bulletin, Journal of Economic Behavior and Organization, Scandinavian Journal of Economics, The Economic Journal, The Geneva Papers, International Review of Economics & Finance, Journal of International Money and Finance, International Journal of Forecasting, Applied Economics, Applied and Computational Harmonic Analysis, Empirical Economics, Energy Economics, Journal of Nonlinear Science, Journal of Economic Education, Journal of Economic Behavior, Neural Networks, International Journal of Neural Systems, Information Science, Managerial and Decision Economics, Management Science, European Physics Journal, Journal of the Franklin Institute, Global Finance Journal, Journal of Computational and Graphical Statistics, Journal of Statistical Planning and Inference, Journal of Risk, Journal of Housing Economics, Communications in Statistics: Theory and Methods, Computational Statistics and Data Analysis, Canadian Public Policy, Central European Journal of Operations Research, Computers and Operations Research, The Quarterly Review of Economics and Finance, Journal of Time Series Analysis, Decision Support Systems, Digital Signal Processing, IMA Journal of Mathematical Economics, Applied Mathematical Finance, African Journal of Business Management, Applied and Computational Harmonic Analysis, IEEE Transactions on Neural Networks, Neural Computing & Applications, International Transactions in Operational Research, Nonlinear Analysis Series B: Real World Applications, Canadian Journal of Statistics, Quarterly Review of Economics and Finance, Statistical Papers, Journal of Financial Stability, SIAM Journal of Financial Mathematics, Applied Mathematics and Computation, European Journal of Operational Research, Annals of Operational Research, Annals of the Institute of Statistical Mathematics, Journal of Machine Learning Research, Mathematics and Computers in Simulation, Macroeconomic Dynamics, Mathematical Finance,*

NSERC, SSHRC, National Science Foundation, FCAR, Austrian National Bank and Hong Kong Research Council grant applications.

Co-organized a session on *Nonlinear Time Series Models* for the Allied Social Science Associations Meeting held in Anaheim, California, January 5-7, 1993.

University Service

Recruitment Committee: 2004-05; Nominations Committee: 2006-2007; Tenure & Promotion Committee: 2006-2007; SFU Senator: 2006-2009; Computing Committee, 2008-2009; Research Officer, 2008-2009; Chair Selection Committee, 2009; Undergraduate Curriculum Committee, 2009-2010; Computing Committee, 2009-2010; Undergraduate Curriculum Committee, Graduate Admissions Committee, Management Science Representative, 2011-2012; Placement Officer, 2012-2013; Computing Committee, 2013-2014; Tenure and Promotion Committee, Graduate Program Committee, 2014-2015; MA Placement Officer, 2015-2016; Appointments Committee, Graduate Admissions Committee, 2016-2017; Undergraduate Curriculum Committee, External Member of Tenure and Promotion Committee for Beedie School of Business, 2017-2018.

Invited Talks

Dalhousie University, Halifax, 1992; Bilkent University, Ankara, 1993; Middle East Technical University, Ankara, 1993; University of Western Ontario, London, 1993; Santa Fe Institute, U.S.A., 1994; University of Montréal, 1996; Simon Fraser University, Vancouver, 1996; University of British Columbia, Vancouver, 1996; York University, Toronto, 1997; University of Guelph, Guelph, 1997; Cirano, Montréal, 1997; University of Waterloo, Waterloo, 1997; University of Michigan, Ann Arbor, 1998; Marmara University, Istanbul, 1998; Istanbul Stock Exchange, Istanbul, 1998; Olsen & Associates, Zurich, 1998; Universidad Carlos III de Madrid, 1998; Cirano, Montréal, 1999; Ford Scientific Research Labs, Detroit, 1999; École Des Hautes Études Commerciales de Montréal (HEC Montreal), 1999; Algorithmics Inc., Toronto, 2000; University of Waterloo, Waterloo, 2000; University of Geneva, 2000; University of Lausanne, 2000; Wayne State University, Detroit, 2001; Swiss Federal Institute of Technology Zurich, 2002; University of Geneva, 2002; Lancaster University, United Kingdom, 2002; GRC-CERN, Geneva, 2002; Colorado College, Colorado Springs, 2003; Rutgers University, New Brunswick, 2003; Simon Fraser University (SFU), British Columbia, 2004; Bank of Canada, Ottawa, 2004; University of Victoria, British Columbia, 2005; University of Guelph, 2005; Bank of Canada, Ottawa, 2005; SFU-Finance, 2005; SFU-Statistics, 2005; Bank of Canada, Ottawa, 2006; Istanbul Kültür University, Istanbul, 2006; SFU-IRMACS, 2006; Bilkent University, Ankara, 2006; Bank of Canada, Ottawa, 2006; University of Amsterdam, 2007; Cambridge University, U.K., 2007, University College Dublin, 2007; University of British Columbia, 2007; University of Konstanz, Germany,

2007; Olsen Ltd, 2007; HEC Montreal, 2009; New York University, 2009; Bilgi University, Istanbul, 2009; SFU-IRMACS, 2010; University of Washington, Seattle, 2010; American University, Washington DC, U.S.A., 2010; SFU-IRMACS-Coast-to-Coast, 2011; Lakehead University, Thunder Bay, 2011; University of Victoria, 2011; Bilgi University, Istanbul, 2012; University of Chile, Santiago, 2012; Florida State University, Tallahassee, 2013; University of Navarra, Pamplona, 2013; University of Chile, Santiago, 2013; Central Bank of Colombia, Bogota, 2013; Bogazici University, Istanbul, 2013; Aarhus University, Aarhus, Denmark, 2013; University of Washington, Seattle, 2014; Higher School of Economics, Moscow, Russia, 2014; University of Konstanz, Konstanz, 2014; Belarus State University, Minsk, Belarus, 2014; Lille Catholic University, Lille, France, 2014; University of Santa Catarina, Florianopolis, Brazil, 2014; Universidad del Rosario, Bogotá, Colombia, 2015; University of Oxford, Oxford, United Kingdom, 2015; Lund University, Lund, Sweden, 2015; University of Chile, Santiago, Chile, 2015; Aarhus University, Aarhus, Denmark, 2016; Bogazici University, Istanbul, Turkey, 2016; University of Navarra, Pamplona, 2016; Universidad EAFIT, Medellin, Colombia, 2016; Saint Petersburg State University, Saint Petersburg, Russia, 2016; University of Chile, Santiago, Chile, 2016; Bilgi University, Istanbul, Turkey, 2017; University of Guelph, Guelph, Canada, 2017; Beijing Institute of Technology, Beijing, China, 2017; Chulalongkorn University, Bangkok, Thailand, 2017.

Honors and Awards

Endowed Research Fellowship, Simon Fraser University, 2004.

Research Achievement Award, Carleton University, 2003.

Listed in Canadian Who's Who, 2001.

Young Scientist Award of the Turkish Academy of Sciences, 2000.

University of Windsor Research Professorship Award, 1994.

Education

Ph.D. in Economics, 1991, University of Houston, U.S.A.

M.A. in Economics, 1987, University of Guelph, Canada

B.Sc. (Honors) in Economics, 1986, Middle East Technical University, Ankara, Turkey

Research Grants

Natural Sciences and Engineering Research Council of Canada, 2014-2019.

Institute of New Economic Thinking & Centre for International Governance Innovation, 2013-2016.

Social Sciences and Humanities Research Council of Canada, 2011-2014.

Natural Sciences and Engineering Research Council of Canada, 2009-2014.

Social Sciences and Humanities Research Council of Canada, 2007-2010.

Social Sciences and Humanities Research Council of Canada, Conference Grant, 2005.

Natural Sciences and Engineering Research Council of Canada, 2004-2009.

Social Sciences and Humanities Research Council of Canada, 2003-2006.

Natural Sciences and Engineering Research Council of Canada, 2000-2004.

Social Sciences and Humanities Research Council of Canada, 1999-2002.

Natural Sciences and Engineering Research Council of Canada, 1996-2000.

Social Sciences and Humanities Research Council of Canada, 1996-1999.

Natural Sciences and Engineering Research Council of Canada Equipment Grant, 1996.

Social Sciences and Humanities Research Council of Canada Conference Grant, 1994.

Natural Sciences and Engineering Research Council of Canada Conference Grant, 1994.

Social Sciences and Humanities Research Council of Canada, 1993-1996.

Natural Sciences and Engineering Research Council of Canada, 1993-1996.