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CURRICULUM VITA

Oleg Bondarenko

Department of Finance (MC 168)
College of Business Administration
601 S. Morgan St.
Chicago IL, 60607

Phone: (312) 996-2362
Fax: (312) 413-7948
Email: olegb@uic.edu
Web: www.uic.edu/~olegb

EMPLOYMENT

Associate Professor with tenure, CBA, University of Illinois at Chicago, 2004-present
Visiting Scholar, Kellogg School of Management, Northwestern University 2013
Visiting Scholar, Kellogg School of Management, Northwestern University 2006-2007
Visiting Associate Professor, Olin School of Business, Washington University in St. Louis, 2004-2005
Assistant Professor, CBA, University of Illinois at Chicago, 1997-2004

EDUCATION

Ph.D. Social Sciences, 1998 – California Institute of Technology
MS Banking and Finance, 1993 – International University in Moscow
MS Applied Mathematics and Computational Methods, 1991– Moscow Institute of Physics and Technology
BS Applied Mathematics, 1989 – Moscow Institute of Physics and Technology

PUBLICATIONS

- “Rearrangement Algorithm and Maximum Entropy,” with C. Bernard and S. Vanduffel, *Annals of Operations Research*, 2018, Vol. 261, p. 107-134.
- “Exploring Return Dynamics via Corridor Implied Volatility,” with T. Andersen and M. Gonzalez-Perez, 2015, *Review of Financial Studies*, Vol 28, p. 2902-2945
- “The Fine Structure of Equity-Index Option Dynamics,” with T. Andersen, V. Todorov, and G. Tauchen, 2015, *Journal of Econometrics*, Vol. 187, p. 532-546
- “Assessing Measures of Order Flow Toxicity and Early Warning Signals for Market Turbulence,” with T. Andersen, 2015, *Review of Finance*, Vol. 19, p. 1-54, the lead article

- “Variance Trading and Market Price of Variance Risk,” 2014, *Journal of Econometrics*, Vol. 180, p. 81-97
- “Why are Put Options So Expensive?” 2014, *Quarterly Journal of Finance*, Vol. 4 (3), 1450015 [50 pages], the editor’s choice paper
- “VPIN and the Flash Crash,” with T. Andersen, 2014, *Journal of Financial Markets*, Vol. 17, p. 1-46, the lead article
- “Reflecting on the VPIN Dispute,” with T. Andersen, 2014, *Journal of Financial Markets*, Vol. 17, p. 53-64
- “A General Framework for the Derivation of Asset Price Bounds: An Application to Stochastic Volatility Option Model,” with I. Longarela, 2009, *Review of Derivatives Research*, Vol. 12, p. 81-107
- “Construction and Interpretation of Model-Free Implied Volatility” with T. Andersen, 2007, in *Volatility as an Asset Class*, (London: Risk Books), Ed. by I. Nelken, p. 141-181
- “Statistical Arbitrage and Securities Prices,” 2003, *Review of Financial Studies*, Vol. 16, p. 875-919
- “Estimation of Risk-Neutral Densities Using Positive Convolution Approximation,” 2003, *Journal of Econometrics*, Vol. 116, p. 85-112
- “Specialist Participation and Limit Orders,” with J. Sung, 2003, *Journal of Financial Markets*, Vol. 6, p. 539-571
- “Competing Market Makers, Liquidity Provision, and Bid-Ask Spread,” 2001, *Journal of Financial Markets*, Vol. 4, p. 269-308
- “Expectations and Learning in Iowa,” with P. Bossaerts, 2000, *Journal of Banking and Finance*, Vol. 24, p. 1535-1555

WORKING PAPERS

- “Intraday Trading Invariance in the E-mini S&P 500 Futures Market,” with T. Andersen, A. Kyle, and A. Obizhaeva, 2017 working paper. Best Paper Award, 7th Annual R/Finance Conference, Chicago
- “A Corridor Fix for High-Frequency VIX: Developing Coherent Implied Volatility Measures,” with T. Andersen and M. Gonzalez-Perez, 2017, working paper. BME Award for the best paper on Derivatives, the 25th Annual Meeting of the Spanish Finance Association, Universitat Pompeu Fabra.

“Joint Distribution of a Random Vector with Known Margins of Linear Combinations,” with with C. Bernard and S. Vanduffel, working paper

“Option Implied Dependence” with C. Bernard and S. Vanduffel, 2018, working paper

“Determining Factors of Affine Option Models,” 2015, working paper

“Market Price of Variance Risk and Performance of Hedge Funds,” 2006, working paper; presented at AFA 2006

OTHER PUBLICATIONS AND CONFERENCE PROCEEDINGS

“Put a cap on Drawdown,” October 2017, Modern Trader

“An Analysis of Index Option Writing with Monthly and Weekly Rollover,” 2016, Research study commissioned by CBOE

“Statistical Arbitrage and Securities Prices,” 2002, Proceedings of the North American Summer Meetings of the Econometric Society (Finance)

“Recovering Risk-Neutral Densities: A New Nonparametric Approach,” 2000, Proceedings of the CBOT 13th Futures Research Symposium

RECENT MEDIA COVERAGE

Strategy and Business, 02/26/2013, “Predicting ‘Flash Crashes’”

Economist Intelligence Unit: Executive Briefings, 07/03/2012, and *Morningstar*, 04/09/2012, “The Trouble with VPIN: New Economic Indicator Fails to Live up to Its Promises”

Economist Intelligence Unit: Executive Briefings, 10/03/2008, “The VIX, CIV, and MFIV: Measuring up the Accuracy of Option-Based Predictors of Volatility”

OTHER PROFESSIONAL ACTIVITIES

Invited presentations (2004 and later, with selected presentations by co-authors):

(presenter, unless otherwise noted as d – discussant, pd – presenter & discussant, c – co-author)

- American Finance Association, “Why are Put Options So Expensive?” 2004
- Symposium “People & Money: The human factor in financial decision-making” (Chicago), “Why are Put Options So Expensive?” 2004

- European Summer Symposium in Financial Markets, “Variance Trading and Market Price of Variance Risk,” 2004
- Gutmann Center Symposium on Hedge funds (Vienna) , “Variance Trading and Market Price of Variance Risk,” 2004
- McGill University, “Why are Put Options So Expensive?” 2004
- Northwestern University, “Why are Put Options So Expensive?” 2004
- Pennsylvania State University, “Why are Put Options So Expensive?” 2004
- University of Iowa, “Why are Put Options So Expensive?” 2004
- University of Texas at Dallas, “Why are Put Options So Expensive?” 2004
- University of Wisconsin at Madison, “Why are Put Options So Expensive?” 2004
- Washington University in St. Louis, “Why are Put Options So Expensive?” 2004
- Stockholm School of Economics, “Variance Trading and Market Price of Variance Risk,” 2004
- New York University, IXIS/NYU Conference on Hedge Funds, “Variance Trading and Market Price of Variance Risk,” September 2005
- University of Illinois at Chicago, “Variance Trading and Market Price of Variance Risk,” September 2005
- NBER Workshop in Behavioral Finance, “Demand-Based Option Pricing” (d)
- NYU/ISE Symposium “The Transformation of Options Trading” (d)
- American Finance Association meeting 2006, “Variance Trading and Market Price of Variance Risk,” January 2006 (pd)
- University of Florida, “Variance Trading and Market Price of Variance Risk,” October 2006
- Northwestern University, “Nonparametric Test of Affine Option Models,” 2006
- University of Chicago, “Variance Trading and Market Price of Variance Risk,” 2006
- Chicago Quantitative Alliance, “Variance Trading and Market Price of Variance Risk,” 2006
- Morningstar , “Variance Trading and Market Price of Variance Risk,” 2006
- Conference on Volatility and High Frequency Data, “Nonparametric Test of Affine Option Models,” 2007
- Baruch College, “Nonparametric Test of Affine Option Models,” 2007
- University of Illinois at Chicago, “Nonparametric Test of Affine Option Models,” 2007
- North American Meeting of the Econometric Society, “The Pricing of Variance Risk in the US Treasury Market”, January 2008

- European Summer Symposium in Financial Markets, “Nonparametric Test of Affine Option Models,” July 2008 (pd)
- “The Conference on Advances in the Analysis of Hedge Fund Strategies,” Imperial College (London), December 2008 (d)
- “What Went Wrong? Financial Engineering, Financial Econometrics, and the Current Stress,” Cass Business School, London, “Nonparametric Test of Affine Option Models,” December 2008
- Center for Research In Economic Analysis of Time Series (CREATES), “Dissecting the Pricing of Equity Index Volatility,” June 2009 (c)
- Oxford-Man, “Dissecting the Pricing of Equity Index Volatility,” September 2009 (c),
- Rice University, “Dissecting the Pricing of Equity Index Volatility,” 2009 (c)
- Society of Quantitative Analysts (SQA), “Quantitative Methods in Uncertain Times,” New York, “Dissecting the Pricing of Equity Index Volatility,” June 2009,
- Society for Financial Econometrics (SoFiE), “Dissecting the Pricing of Equity Index Volatility,” June 2009 (c),
- Warwick University, “Dissecting the Pricing of Equity Index Volatility,” September 2009 (c)
- Foundation for the Advancement of Research in Financial Economics (FARFE) “Dissecting the Pricing of Equity Index Volatility,” September 2010 (c),
- NYU Conference “Modeling High Frequency Data in Finance II,” “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2010 (c)
- University of Colorado, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” March 2010 (c)
- Federal Reserve Board of Governors, Washington, D.C., “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2010 (c)
- SoFiE-CREATES Conference in Aarhus, October 2010, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2010 (c)
- University of Illinois at Chicago, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2010
- Virginia Tech, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2010 (c)
- Spot Trading, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” January 2011 (c)
- University of Illinois at Chicago, “Did VPIN Signal the Flash Crash? Evidence from Transaction Level Data,” February 2011
- University of Washington, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2011, (c)

- Commodity Futures Trading Commission, July 2011, “Did VPIN Signal the Flash Crash? Evidence from Transaction Level Data”
- Federal Reserve Bank of Chicago, “Did VPIN Signal the Flash Crash? Evidence from Transaction Level Data,” 2011 (c)
- Midwest Econometrics Group Meetings, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” October 2011 (c)
- Osaka Conference on “High-Frequency Data Analysis in Financial Markets,” “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” October 2011 (c)
- High-Frequency Trading Leaders Forum, “Did VPIN Signal the Flash Crash? Evidence from Transaction Level Data,” October 2011 (c)
- University of Wisconsin School of Business, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” November 2011 (c)
- Illinois Institute of Technology, Stuart School of Business, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” 2011
- Conference “Finance Down Under: Building on the Best from the Cellars of Finance,” Melbourne, Australia, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” March 2012 (c)
- Western Finance Association meetings, “A Corridor Fix for VIX: Developing a Coherent Model-Free Option-Implied Volatility Measure,” June 2012
- Danish Academic Economists in North America Meeting , “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” April 2013 (c)
- Northwestern University, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” May 2013 (c)
- Duke University, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” May 2013 (c)
- SAC Capital Management, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” May 2013 (c)
- “High-Frequency Data and High-Frequency Trading,” Stevanovich Center for Mathematical Finance, University of Chicago, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” May 2013 (c)
- Second ITAM Finance Conference, Mexico City, Mexico (c), “Uncovering Novel Features of Equity-Index Return Dynamics via Corridor Implied Volatility,” June 2013 (c)
- Society for Financial Econometrics (SoFiE) 6th Annual Conference, Singapore Management University, “Uncovering Novel Features of Equity-Index Return Dynamics via Corridor Implied Volatility,” June 2013 (c)

- “Workshop on Measuring and Modeling Financial Risk with High Frequency Data,” European University Institute (Italy), “Uncovering Novel Features of Equity-Index Return Dynamics via Corridor Implied Volatility,” June 2013 (c)
- “High-Frequency Trading Conference” in Banff, Canada “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” September 2013 (c)
- “Quantitative Finance Retrospective Workshop” the Fields Institute for Research in Mathematical Sciences, Toronto, Canada, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” October 2013, (c)
- The London Quantitative Finance Seminar, CFM-Imperial Institute for Quantitative Finance, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” January 2014 (c)
- University of Illinois at Chicago, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” February 2014
- Illinois Institute of Technology, “Assessing VPIN Measurement of Order Flow Toxicity Using Perfect Trade Classification,” February 2014
- Purdue University Computational Finance Seminar, “Dissecting the Pricing of Equity Index Volatility,” February 2014 (c)
- CIREQ Econometrics Conference: Time Series and Financial Econometrics, Montreal, Canada, “Exploring the Equity-Index Return Dynamics via Corridor Implied Volatility,” May 2014 (c)
- Joint Econometric Society Australasian and Australian Conference of Economists Meeting, Hobart, Australia, “Uncovering Novel Features of Equity-Index Return Dynamics via Corridor Implied Volatility,” July 2014 (c)
- Joint Econometric Society Australasian and Australian Conference of Economists Meeting, Hobart, Australia, “The Fine Structure of Equity-Index Option Dynamics,” July 2014 (c)
- Cambridge University, Isaac Newton Institute, United Kingdom, “Monitoring Systemic Risk: Data, Models, and Metrics,” “Assessing Measures of Order Flow Toxicity and Early Warning Signals for Market Turbulence,” September 2014 (c)
- University of Kansas, “Assessing Measures of Order Flow Toxicity and Early Warning Signals for Market Turbulence,” October 2014
- Concordia University, Montreal, Canada, “Assessing Measures of Order Flow Toxicity and Early Warning Signals for Market Turbulence,” November 2014
- Workshop on Recent Advances in High-Frequency Statistics, Humboldt, Berlin, “Intraday Trading Invariance for Equity-Index Futures”, November 2014 (c)
- High-Frequency Financial Data Conference, Montreal, Canada, “Intraday Trading Invariance for Equity-Index Futures”, December 2014 (c)
- Market Microstructure: Confronting many Viewpoints, Paris, France, “Intraday Trading Invariance for Equity-Index Futures”, December 2014 (c)

- Fields Institute, Toronto, Canada, “Intraday Trading Invariance for Equity-Index Futures”, January 2015 (c)
- Management School, Lancaster University, United Kingdom, “Intraday Trading Invariance for Equity-Index Futures”, January 2015 (c)
- Financial Econometrics Workshop, Lancaster University, United Kingdom, “Uncovering Novel Features of Equity-Index Return Dynamics via Corridor Implied Volatility,” February 2015 (c)
- Federal Reserve Bank of Atlanta, “Intraday Trading Invariance for Equity-Index Futures”, February 2015 (c)
- Georgia State University, “Intraday Trading Invariance for Equity-Index Futures”, February 2015 (c)
- Institute for Pure and Applied Mathematics (IPAM) workshop: Systemic Risk and Financial Networks, UCLA, Los-Angeles, “Implied Systemic Risk Index”, March 2015 (c)
- EDHEC, Singapore, “Intraday Trading Invariance for Equity-Index Futures”, March 2015 (c)
- University of Manchester, United Kingdom, “Intraday Trading Invariance for Equity-Index Futures”, March 2015 (c)
- Midwest Finance Association, Chicago, “Intraday Trading Invariance for Equity-Index Futures”, March 2015 (c)
- Midwest Finance Association, Chicago, “Determining Factors of Affine Option Models”, March 2015
- R Finance Conference, UIC, Chicago, “Intraday Trading Invariance for Equity-Index Futures”, Best Paper Award, May 2015
- “Market Microstructure and High-Frequency Data,” Stevanovich Center for Mathematical Finance, University of Chicago, “Intraday Trading Invariance in the E-mini S&P 500 Futures Market,” May 2015 (c)
- GSE Summer Forum in Barcelona, Spain, “Intraday Trading Invariance for Equity-Index Futures”, June 2015 (c)
- Society for Financial Econometrics (SoFiE) 8th Annual Conference, University of Aarhus, Denmark, “Intraday Trading Invariance for Equity-Index Futures”, June 2015
- European Summer Symposium in Financial Markets (ESSFM), Gerzensee, Switzerland, “Intraday Trading Invariance in the E-mini S&P 500 Futures Market,” July 2015 (c)
- 11th World Congress of Econometric Society, Montreal, Intraday Trading Invariance for Equity-Index Futures”, August 2015
- 11th World Congress of Econometric Society, Montreal, “Exploring Return Dynamics via Corridor Implied Volatility”, August 2015
- American Mathematical Society Sectional Meeting, Chicago, “Robust Replication of Variance Derivatives”, October 2015

- 2nd International Financial Econometrics Conference, Salvador, “Intraday Trading Invariance in the E-mini S&P 500 Futures Market,” October 2015 (c)
- University of Illinois at Chicago, “Intraday Trading Invariance for Equity-Index Futures”, November 2015
- “Market Microstructure”, the CFM-Imperial Workshop, London, “Intraday Trading Invariance in the E-mini S&P 500 Futures Market,” December 2015 (c)
- “Accessing the Volatility Risk Premium with Cash-Secured Put Writing,” CAIA Association, PRMIA, and CBOE, Chicago, “Expensive Puts Puzzle”, March 2016
- “Recent Developments in Dependence Modeling with Applications in Finance and Insurance”, Vrije Universiteit Brussel (VUB), Belgium, “Rearrangement Algorithm and Maximum Entropy,” May 2016
- “Dependence Modelling in Finance, Insurance and Environmental Science”, Technical University of Munich, Germany, “Inferring Tail Correlation from Option Prices”, May 2016 (c)
- FMA European Conference, Helsinki, Finland, “Intraday Trading Invariance in the E-mini S&P 500 Futures Market,” June 2016 (c)
- Conference on High-Frequency Trading, Vienna, Austria, “Intraday Trading Invariance in the Foreign Exchange Futures,” September 2016 (c)
- “Research on Options”, Rio de Janeiro, Brazil, “Model-Free Approach to Pricing Multivariate Derivative”, November 2016 (c)
- “Model Uncertainty and Robust Finance” Conference, University of Milan, Italy, “Dependence Uncertainty: Some Results and Applications”, November 2016 (c)
- American Finance Association, Chicago, “Intraday Trading Invariance in the E-mini S&P 500 Futures Market”, January 2017
- Mathematical Research Institute of Oberwolfach, Germany, “Model-Free Approach to Pricing Multivariate Derivative”, February 2017 (c)
- Midwest Finance Association, Chicago, “A Corridor Fix for High-Frequency VIX: Developing Coherent Implied Volatility Measures,” March 2017
- Instituto de Empresa, Madrid, Spain, “A Corridor Fix for High-Frequency VIX: Developing Coherent Implied Volatility Measures,” March 2017 (c)
- University of Catolica-Nova, Lisbon, Portugal, “A Corridor Fix for High-Frequency VIX: Developing Coherent Implied Volatility Measures,” March 2017 (c)
- R/Finance Conference, University of Illinois at Chicago, “Rearrangement Algorithm and Maximum Entropy,” May 2017
- “Market Microstructure and High-Frequency Data,” Stevanovich Center for Mathematical Finance, University of Chicago, “Intraday Trading Invariance in the Foreign Exchange Futures,” June 2017 (c)

- Annual Meeting of the Spanish Finance Association, Barcelona, Spain, “A Corridor Fix for High-Frequency VIX: Developing Coherent Implied Volatility Measures,” July 2017 (c)
- University of Crete, Heraklion, Greece, “Rearrangement Algorithm and Maximum Entropy,” July 2017 (c)
- University of Illinois at Chicago, “Option Implied Dependence”, October 2017
- International Workshop on “New Frontiers in Financial Markets”, CUNEF, Madrid, Spain, “Option Implied Dependence”, March 2018
- Northwestern University, “Option Implied Dependence”, May 2018

Conference program committee:

European Finance Association 2005

Western Finance Association 2009

Financial Management Association Conference on Derivatives and Volatility at CBOE, 2016

“Recent Developments in Dependence Modelling with Applications in Finance and Insurance,” 2017

Conference session chair:

North American Econometric Society 2002

ICSA Applied Statistics Symposium 2001

Midwest Finance Association 2015, 2017

11th World Congress of Econometric Society 2015

Ad hoc referee: Annals of Finance, Finance and Stochastics, Journal of Banking and Finance, Journal of Business and Economic Statistics, Journal of Econometrics, Journal of Economic Dynamics and Control, Journal of Finance, Journal of Financial and Quantitative Analysis, Journal of Financial Econometrics, Journal of Financial Economics, Journal of Financial Markets, Mathematical Finance, Quantitative Finance, Review of Accounting and Finance, Review of Finance, Review of Financial Studies

Sponsored Research:

CRB Research Grant, 1999, UIC

Research fund, International Center for Futures and Derivatives (2007, 2008)

“Raising the Research Profile of CBA”, Dean’s Research Grant, \$500,000, 2011-2014, with T. Andersen, D. Majumdar, P. Mykland, D. Rosenthal, N. Sinha, L. Zhang

Financial Markets and Risk Management Research Grant, CME Group Foundation,
\$35,000, with T. Andersen, 2014

IFSID Research Grant, “Inferring Tail Correlation from Option Prices”, \$57,000 CAD,
with C. Bernard and S. Vanduffel, 2015-2018

Professional Activities:

CBOE Product Development Committee member, 2015-present

HONORS AND AWARDS

REAP Fellowship, Caltech; 1993-1995

Summa Cum Laude, Moscow Institute of Physics and Technology, 1991

Silver Medal, the 26th International Mathematical Olympiad, Helsinki, Finland; 1985

First prize, USSR Mathematical Olympiad; 1984 and 1985