

Viviana Fanelli

Associate Professor

Affiliation: Università degli Studi di Bari Aldo Moro, Dipartimento di Economia, Management e Diritto dell'Impresa, Largo Abbazia Santa Scolastica 53, 70124 Bari

E-mail: viviana.fanelli@uniba.it, viviana.fanelli@gmail.com

Research Interests: Commodity finance, arbitrage strategies, dynamic models, asset pricing, interest rate and credit risk modelling

Teaching: Mathematics, Financial Mathematics, Energy Finance, Financial Derivatives, Portfolio Theory and Management, Risk Management.

Academic positions

01/04/2019- present Associate Professor in Mathematical Methods for Economics, Actuarial Science and Finance at the Department of Economics, Management and Business Law, University of Bari Aldo Moro.

30/12/2013-01/04/2019 Assistant Professor in Mathematical Methods for Economics, Actuarial Science and Finance at the Department of Business and Law Studies, University of Bari Aldo Moro.

15/06/2013-30/12/2013 Postdoctoral fellow at the Department of Business and Law Studies, University of Bari Aldo Moro. Research project: Mathematical methods for pricing commodity financial derivatives.

2008/06-2010/06 Postdoctoral fellow at the Department of Economics, Mathematical and Financial Sciences, University of Foggia. Research project: The development of the new Italian energy market: economic and financial implications.

Professional experiences

01/01/2014-31/12/2017 Advisor c/o Mantho Solutions, Ltd., London: portfolio optimization, trading strategy, risk management.

28/07/2014-29/07/2014 Risk management consultant and trainer c/o Neatec S.p.A., Pozzuoli (Naples).

01/11/2006-31/03/2007 Junior consultant c/o KPMG Advisory S.p.A., Financial Services, Milan. Project on credit risk mitigation, Basle II, c/o Unicredit Bank.

15/01/2005-15/04/2005 Internship at the Economic Department, Italian Embassy in London. Activity: collection and analysis of macroeconomic data and drafting of related documents; participation in external conferences on subjects relating to the Department activity; collaboration with the IMO Office.

Education and scientific qualifications

2015 Expert in C.L.I.L. (Content and language integrated learning) methodology.

01/03/2009-30/11/2009 Executive Master in Energy Finance, Renewables & Commodity Trading, MIP Polytechnic of Milan, Graduate School of Business. Project work: Review of Commodity Statistical Arbitrage. Tutor: Prof. Andrea Roncoroni, ESSEC Business School.

01/11/2004-28/12/2007 PhD in Mathematical methods for economic and financial decisions at the Department of Economics, Mathematical and Financial Sciences, University of Foggia. Thesis: Numerical Implementation of a Credit risk Model in the HJM framework.

- 01/01/2006-31/07/2006 Master's Degree in Advanced Finance, I.P.E., Istituto per ricerche ed attività educative, Naples. Project Work in collaboration with Sanpaolo IMI Banco di Napoli, Intesa Bank. Title: Financial derivatives: theory and techniques of risk management.
- 07/2006-08/2006 Summer School on Options, Futures and Other Financial Derivatives (Dr. Jean Pierr Zigrand, Dr. Antonio Mele), LSE, London School of Economics and Political Science, London.
- 04/07/2004 Degree in Economics, University of Foggia (110/110 cum laude). Thesis: Multi-objective programming and economic applications.

Visiting Positions and Research Experiences

- 31/03/2020 - present Member of COST Action 19130 - Fintech and Artificial Intelligence in Finance - Towards a transparent financial industry, financed by the European Cooperation in Science and Technology.
- 01/01/2016-31/12/2018 Responsibility for studies and scientific research entrusted by Mantho Solutions, Ltd, London. Project "Hybrid portfolio optimization with investor historical risk aversion modeling": study and application of equity portfolio optimization methods through a risk aversion function.
- 01/01/2015-31/12/2015 Responsibility for studies and scientific research entrusted by Mantho Solutions, Ltd, London. Project "MantoLogit": construction and estimation of a logit model that measures the probability of increasing a given stock return over a certain time interval, given the exogenous explanatory variables.
- 01/01/2012-31/12/2013 Research project in collaboration with Prof. Andrea Roncoroni: Evaluation of the Collateralized Commodity Obligation. Short visiting period at ESSEC Business School in Paris.
- 01/03/2012-01/06/2012 Research Grant at the Department of Economics, Mathematical and Financial Sciences, University of Foggia. Research project: Preparation of a statistical database for market analysis of oil companies and their export chain.
- 03/03/2011-03/07/2011 Research Grant at the Department of Economics, Mathematical and Financial Sciences, University of Foggia. Research project: Stochastic models for the analysis of electricity price dynamics.

Invited presentations

- 22/09/2016 Invited speaker at the Workshop on New Themes in Finance, Insurance and Energy Markets, University Piemonte Orientale, Department of Economics and Business, Italy. Talk: Credit Risk and the Multicurve Framework.
- 03/06/2016-05/06/2016 Invited speaker at the 28th European Conference on Operational Research, Poznan University of Technology, Poland. Talk: A nonlinear dynamic model for credit risk.
- 17/05/2016 Invitation for a seminar at the Polytechnic of Milan, Quantitative Finance Section. Talk: Pricing a Swap on the Italian Spark Spread in the Presence of Counterparty Credit Risk.
- 17/02/2016 Invitation for a seminar at the Imperial College London, UK. Talk: Pricing a Swap on the Italian Spark Spread in the Presence of Counterparty Credit Risk.
- 09/10/2010-10/10/2010 Invited speaker at the Workshop on Credit Risk Models for Financial Markets and Banking, University of Rimini, Italy. Talk title: Numerical Implementation of a Credit Risk Model in the HJM Framework.

Other conferences and seminars

- 2019 Corporate Governance & Risk Management in Financial Institutions, University of Foggia, Italy, September 27. Talk title: "Norwegian pension fund divestments and the market effects".
- 2017 Commodity and Energy Markets Conference 2017, Oxford University, United Kingdom, June 14-15. Talk title: Mean-reverting Statistical Arbitrage in Commodity Markets.
Also Chairman of the Session "Topics in Energy Finance".
- 2015

- Workshop Energy Finance Italia, December 10-11, University of Camerino, Italy. Talk: Pricing a Swap on the Italian Spark Spread in the Presence of Counterparty Credit Risk.
 - XXXIX A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, Padua, Italy, September 10-12. Talk: Pricing a Swap on the Italian Spark Spread in the Presence of Counterparty Credit Risk.
- 2014 XXXVIII A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, University of Reggio Calabria, Italy, September 4-6. Electricity Price Modelling with a Regime Switching Volatility.
- MDEF (Dynamic models in Economics and Finance) 2014, University of Urbino, Italy, September 18-20. Talk: Investigating Statistical Arbitrage in Commodity Markets.
- 2012 XXXIII A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, University of Foggia, Vieste (FG), Italy, September 13-15. Talk: Extending the HJM Model to Risky Libor for Pricing Basis Swaps and Collateralized Derivatives after the Credit Crunch.
- 2011
- XXXII A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, University of Pisa, Italy, September 15-17. Talk: A comparison of models for renewable energy technology diffusion: the non-uniform influence effects.
 - Conference “Lo sviluppo del mercato energetico in Puglia: energie rinnovabili ed implicazioni economiche-finanziarie”, July 8, University of Foggia, Italy. Talk: A comparison of models for the diffusion of RETs.
- 2009 23rd European Conference on Operational Research, Bonn, Germany, July 5-8. Talk: A stochastic model for constant proportional debt obligations.
- 2008
- MDEF (Dynamic models in Economics and Finance) 2014, University of Urbino, Italy, September 25-27. Talk title: A mathematical model for the diffusion of a new technology.
 - Conference on Methods, Models and Information Technologies in support of Decisions (Convegno Metodi, Modelli e Tecnologie dell'Informazione a Supporto delle Decisioni), University of Salento, Lecce, Italy, September 18-20. Talk title: A mathematical model for the diffusion of a new technology.
 - XXXIIA.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, University of Trento, Italy, September 1-4. Talk title: A mathematical model for the diffusion of a new technology.
 - XXXII A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, University of Trento, Italy, September 1-4. Talk title: Modelling electricity forward curve dynamics in the Italian markets.
 - International Summer School on Risk Measurement and Control, La Sapienza University, Istituto di finanza dell'Università della Svizzera Italiana, LUISS Guido Carli, ABF, Rome, Italy, June 30-July 4. Talk title: Modelling electricity forward curve dynamics in the Italian markets.
 - International Summer School on Risk Measurement and Control, La Sapienza University, Istituto di finanza dell'Università della Svizzera Italiana, LUISS Guido Carli, ABF, Rome, Italy, June 30-July 4. Talk title: A mathematical model for the diffusion of photovoltaics.
 - 14th International Conference on Computing in Economics and Finance, Pantheon-Sorbonne, Paris, June 26-28. Talk title: Numerical Implementation of a Credit Risk Model in the HJM Framework.

2007

- XXXI A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, Lecce, Italy, September 3-6. Talk title: Numerical Implementation of a Credit Risk Model in the HJM Framework.
- XVIII U.M.I. Conference, Italian Mathematics Association, Bari, Italy, September 24-29. Talk title: Numerical Implementation of a Credit Risk Model in the HJM Framework.

2005 Workshop in Econophysics, "Econophysics: Economic Methods", University of Foggia, Italy, July 28. Talk title: Nonlinear phenomena: turbulences and correlations in financial markets. Beyond Black and Scholes.

Organisation of international conference

13/09/2012-15/09/2012 XXXIII A.M.A.S.E.S. Conference, Association of Mathematical Methods for Economics, Actuarial Science and Finance, Vieste (FG), University of Foggia, Italy.

Supervising and mentoring

2011-2015 Supervising and mentoring of the following project works as part of the Master in Energy Finance at the MIP Business School, Milan Polytechnic:

- Implementation of an electricity derivative pricing model with spikes, 2015;
- Estimation of some commodity PDF by using the Analog Ensemble method in a risk management framework, 2015;
- Active Portfolio Management: Active Management of Electricity Purchases for High Energy Consumers, 2014;
- Risk analysis for a sales company in the natural gas sector, based on its vertical integration in the supply chain, 2013;
- Pricing of a swing contract – Monte Carlo methods applied to energy commodities, 2013;
- Arbitrage Opportunities on the CO₂ Market, 2012;
- Statistical arbitrage strategies on commodities: a systematic approach, 2011.

2011-present Supervisor of numerous Bachelor's degree theses in Financial Mathematics (about 45 theses).

Funding

Beneficiary of the Fund for financing basic research activities, MIUR, from 01-01-2018 to today.

Award

07/02/2018 Award assigned to the paper "The seasonality in the Implied Accumulated Volatility of Electricity Options" (first draft of the paper entitled "On the seasonality of the implied volatility of electricity options" published in the journal *Quantitative Finance*), submitted to the Italy Energy Finance Workshop- University of Chieti- Pescara "Gabriele D'Annunzio". The co-author of the paper took advantage of the research grant in the period 15.02.2018-15.04.2018, at the University of Padua.

Other scholarly and professional experience

17/08/2017 Member of the Editorial Board of the Journal *Economics, Management and Financial Markets*, Addleton Academic Publishers, New York.

2013 Leader of the Financial Risk course for the certification in Energy Risk Professional issued by GARP- Global Association of Risk Professionals – Cass Business School in London and University of Geneva.

Reviewer for: European Journal of Operational Research, Nonlinear Analysis RWA, Economic Modelling, Journal of Economic Dynamics and Control, International Review of Applied

Financial Issues and Economics, Journal of Economics and Business, Journal of Banking and Finance, Risks, Energy Policy.

Member of the Commodity & Energy Markets Association (CEMA).

Member of the Association for Mathematics Applied to Economics and Social Sciences - AMASES.

Publications (Citations from Google Scholar)

Journal Papers

- 1) Fanelli, V., & Maddalena, L. (2020). "A nonlinear dynamic model for credit risk contagion". *Mathematics and Computers in Simulation*, 174, pp. 45-58. (Citations: 1)
- 2) Cerqueti, R., Fanelli, V., "Long Memory and Crude Oil's Price Predictability", *Annals of Operations Research*, pp 1-12, <https://doi.org/10.1007/s10479-019-03376-y>- (Citations: 2)
- 3) Fanelli V. & Schmeck, M.D., (2019), "On the seasonality of the implied volatility of electricity options", *Quantitative Finance*, Volume 9(8), pp. 1321-1337. (Citations: 5)
- 4) Cerqueti, R., Fanelli, V., & Rotundo, G., (2019), "Long Run Analysis of Crude Oil Portfolios", *Energy Economics*, Volume 79, pp. 183-205. (Citations: 5)
- 5) Fanelli, V., & Ryden, A. (2018), "Pricing a Swing Contract in a Gas Sale Company," *Economics, Management, and Financial Markets*, Volume 13(2), pp. 40–55. (Citations: 8)
- 6) Fanelli, V. (2017), "Implications of implicit credit spread volatilities on interest rate modelling", *European Journal of Operational Research*, Volume 263(2), pp. 707–718. (Citations: 1)
- 7) Fanelli, V., & Ryden, A. (2016), "The Hybrid Pricing System of European Natural Gas", *The Empirical Economics Letters*, Volume 15(10), pp. 975-983.
- 8) Fanelli, V., Maddalena, L., & Musti, S. (2016), "Asian options pricing in the day-ahead electricity market", *Sustainable Cities and Society*, Volume 27, pp. 196-202. (Citations: 14)
- 9) Fanelli, V., Maddalena, L., & Musti, S. (2016), "Modelling electricity futures prices using seasonal path-dependent volatility", *Applied Energy*, Volume 173, pp. 92–102. (Citations: 18)
- 10) Fanelli, V. (2016), "A Defaultable HJM Modelling of the Libor Rate for Pricing Basis Swaps after the Credit Crunch", *European Journal of Operational Research*, Volume 249(1), pp. 238–244. (Citations: 14)
- 11) Fanelli, V., Maddalena, L., & Musti, S. (2015), "Electricity market equilibrium model with seasonal volatilities", *Procedia Engineering*, Volume 118, pp. 1217–1224. (Citations: 2)
- 12) Fanelli, V., & A. Lesca, A. (2014), "Natural Gas Statistical Arbitrage: A systematic approach", *Argo, New Frontiers in Practical Risk Management*, Issue n. 4. (Citations: 1)
- 13) Fanelli, V., & Maddalena, L. (2012), "A time delay model for the diffusion of a new technology", *Nonlinear Analysis: Real World Applications*, Volume 13 (2), pp. 643-649. (Citations: 28)
- 14) Fanelli, V., Maddalena, L., & Musti, S. (2012), "Investigating the diffusion of renewable energy technologies in Italy", *Advances and Applications in Mathematical Sciences*, Volume 12(1), pp. 59-70.
- 15) Chiarella, C, Fanelli, V., & Musti, S. (2011), "Modelling the evolution of Credit Spreads using the Cox process within the HJM framework: a CDS option pricing model", *European Journal of Operational Research*, Volume 208(2), pp. 95-108. (Citations: 18)
- 16) Fanelli, V., & Maddalena, L. (2011), "A mathematical model for renewable technology diffusion", Proc. Mathematica Italia User Group meeting. Università di Torino, ISBN: 9788896810026
- 17) Fanelli, V., & Musti, S. (2010), "Why did CPDOs fail? An analysis focused on credit spread modeling", *International Review of Applied Financial Issues and Economics*, in press, Volume 2(4). (Citations: 1)

Book

Fanelli, V. (2020). *Financial Modelling in Commodity Markets*. New York: Chapman and Hall/CRC, <https://doi.org/10.1201/9781315184371>, ISBN: 978-1-138-73910-9

Book Chapters

- 1) Fanelli, V (2015) “Commodity-linked Arbitrage Strategies and Portfolio Management”. In *Handbook of Multi-Commodity, markets and products, Structuring, Trading and Risk Management*, edited by A. Roncoroni, G. Fusai, and M. Cummins, the Wiley Finance Series, ISBN: 978-0-470-74524-3. (Citations: 5)
- 2) Fanelli, V., Maddalena, L., & Musti, S. (2012), “La diffusione di tecnologie per la produzione di energia da fonte rinnovabile in Puglia: modelli a confronto”. In: Lucia Maddalena. *Lo sviluppo delle energie alternative: il caso Puglia*, Milano: Franco Angeli, ISBN: 9788820408893
- 3) Fanelli, V., Maddalena, L., & Musti, S. (2012), “Implementazione di un modello di equilibrio per la determinazione del prezzo forward dell’energia elettrica”. In: Lucia Maddalena. *Lo sviluppo delle energie alternative: il caso Puglia*, Milano: Franco Angeli, ISBN: 9788820408893
- 4) Fanelli, V. (2006) “Nonlinear phenomena: turbulences and correlations in financial markets. Beyond Black and Scholes”. In *Econofisica, Metodi per l’Economia*, Collana Interdipartimentale di Studi Economici, vol.11, pp. 49-62, Edizioni Scientifiche Italiane, Napoli, ISBN: 88-495-1325-9.

Bari, 24/09/2020

Viviana Fanelli