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Department of Economics
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EDUCATION

Ph.D. *Statistical and Mathematical Methods for Economics and Social Sciences*, University of Perugia, Italy.

Diplôme d'Etudes Approfondis (Master degree) in *Probabilités et Applications*, curriculum "Finance", Laboratoire de Probabilités dell'Université Pierre et Marie Curie, Paris, France.

Bachelor's Degree (Laurea, 4 years) in Mathematics, University of Perugia, Italy.

RESEARCH AREAS

Quantitative risk management, volatility modelling, financial econometrics, derivative pricing and hedging, crypto-currencies and digital assets.

ACADEMIC POSITIONS

Permanent positions

- 2005-present , Associate Professor, Department of Economics, University of Perugia, ITALY.
- 2002-2005, Associate Professor, University of Calabria, ITALY.
- 1997-2002, Assistant Professor, University of Tuscia, ITALY.

Temporary appointments

New York University, Department of Finance and Risk Engineering, NYU Tandon School of Engineering (formerly NYU Poli in 2016)

<https://engineering.nyu.edu/faculty/gianna-figa-talamanca>

- September - December, 2018, Industry Associate Visiting Professor

Courses taught:

FRE 6931: Special topics in financial Engineering - Cryptocurrencies

FRE 6091: Financial Econometrics

- September, 2017 - February, 2018, Industry Associate Visiting Professor

Courses taught:

FRE 6931: Special topics in financial Engineering - Cryptocurrencies

FRE 6091: Financial Econometrics

- March -August, 2016, Visiting Scholar

SHORT VISITING POSITIONS

Nov. 18- Dec. 11, 1999, Centre de Mathématiques Appliquées, Ecole Polytechnique, Palaiseau (Paris), FR.

Oct. 7-29 , 2000, Département Mathématiques et Ingénierie Financière , Pole Universitaire Leonard de Vinci, Paris, FR.

Nov. 21-28, 2002, Centre de Mathématiques Appliquées, Ecole Polytechnique, Palaiseau (Paris), FR.

Sept. 2008, Johann Radon Institute for Computational and Applied Mathematics (RICAM), Linz, AU, during the Special Semester on *Stochastics with Emphasis on Finance*.

Sept, 22-26 and Nov. 4-12, 2014, Isaac Newton Institute for Mathematical Finance, Cambridge, UK, during the Special Semester on *Systemic Risk: Mathematical Modelling and Interdisciplinary Approaches*.

September, 01- 21, 2016, Department of Finance and Risk Engineering, New York University (New York, U.S.A.)

March, 28-April 21, 2017, Department of Finance and Risk Engineering, New York University (New York, U.S.A.)

February 26, 2019-March 14, 2019, Department of Management, City University of New York (New York, U.S.A.)

ACADEMIC PUBLICATIONS

Published or forthcoming

1. "Spiking the volatility punch", with P. Carr, accepted in *Applied Mathematical Finance*, 2021
2. "Dynamic factor analysis of cryptocurrencies", with S.Focardi, M. Patacca, *Decisions in Economic and Finance*, 2021.
3. "Disentangling the relationship between Bitcoin and market attention measures", with M. Patacca, *Journal of Industrial and Business Economics*, 2019.
4. "Bubble regime identification in an attention-based model for Bitcoin and Ethereum price dynamics", with A. Cretarola, *Economics Letters*, 2020.
5. "Detecting bubbles in Bitcoin price dynamics via market exuberance", with A. Cretarola, *Annals of Operations Research*, 2020
6. "Market attention and Bitcoin price modeling: theory, estimation and option pricing", with A. Cretarola, M.Patacca, *Decision in Economics and Finance*, 2019.
7. "Does market attention affect Bitcoin returns and volatility?", with M. Patacca, *Decision in Economics and Finance*, 2019.

8. "Studying forward-looking bubbles in Bitcoin/USD exchange rates", with S. Bistarelli, F. Lucarini. In *Proceedings of the 23rd International Database Applications & Engineering Symposium*, 2019.
9. "SMART-or and SMART-and fuzzy average operators: A generalized proposal", with A. Capotorti, *Fuzzy Sets and Systems*, 2019
10. "Model-based arbitrage in multi-exchange models for Bitcoin price dynamics", with S. Bistarelli, A. Cretarola, M. Patacca, *Journal of Digital Finance*, 2019
11. "Is arbitrage possible in the bitcoin market? " with S. Bistarelli, A. Cretarola, I. Mercanti, M. Patacca. In *Lecture Notes of Computer Science: Economics of Grids, Clouds, Systems, and Services*, Springer, 2019.
12. "Two SMART Fuzzy Aggregation Operators", with A. Capotorti. In *Lecture Notes of Computer Science: Fuzzy Logic and Applications*, Springer, 2019.
13. "A continuous time model for Bitcoin price dynamics" with A. Cretarola, *Mathematical and Statistical Methods for Actuarial Sciences and Finance*, Springer-Verlag, 2018.
14. "Modeling Bitcoin Price and Bubbles", with A. Cretarola. In *Blockchain and Cryptocurrencies* - ISBN:978-953-51-6703-7, Intech Open, 2018.
15. "A Generalized SMART Disjunction of Volatility Indicators Applied to Option Pricing in a Binomial Model", with A. Capotorti, *Soft Methods for Data Science, Advances in Intelligent Systems and Computing*, Springer, 2017.
16. "Nonparametric Estimation of Energy and Commodity Price Processes", with A. Roncoroni. In: Roncoroni A., Fusai G., Cummins M., *Handbook of Multi-Commodity Markets and Products: Structuring, Trading and Risk Management*. John Wiley and Sons, 2015.
17. "A Statistical Test for the Heston model". In: Perna, C., Sibillo, M., *Mathematical and Statistical Methods for Actuarial Sciences and Finance*, Springer-Verlag, 2014.
18. "Smart Fuzzy Weighted Averages of Information Elicited through Fuzzy Numbers", with A. Capotorti. In: Anne Laurent and Olivier Strauss and Bernadette Bouchon-Meunier and Ronald R. Yager Eds. *Information Processing and Management of Uncertainty in Knowledge-Based Systems*, 2014.
19. "On an implicit assessment of fuzzy volatility in the Black and Scholes environment", with A. Capotorti, *Fuzzy Sets and Systems*, 2013
20. "Market Application of the Fuzzy-Stochastic Approach in the Heston Option Pricing Model", with M.L. Guerra, L. Stefanini, *Czech Journal of Economics and Finance*, 2012.
21. "Fuzzy uncertainty in the Heston stochastic volatility model", with M.L. Guerra, *Fuzzy Economic Review*, 2011.
22. "Testing volatility autocorrelation in the constant elasticity of variance stochastic volatility model", *Computational Statistics and Data Analysis*, 2009.
23. "Case-Study: Nonparametric estimation of jump-diffusions", with G. Fusai, A. Roncoroni, in: Fusai, G., Roncoroni, A., *Implementing Models in Quantitative Finance*, Springer-Verlag, 2008.
24. "Conditional tail behaviour and Value at Risk", with F. Bellini, *Quantitative Finance*, 2007.

25. "Fitting prices with a complete model", with M.L. Guerra, *Journal of Banking and Finance*, 2006.
26. "Runs test for assessing volatility forecastability in financial time series", with F. Bellini, *European Journal of Operational Research*, 2005.
27. "Detecting and modeling tail dependence", with F. Bellini, *International Journal of Theoretical and Applied Finance*, 2004.

Work in progress

- "Who do we listen to? An empirical investigation on the role of expert ratings and media attention in Initial Coin Offerings", with M. Halbinger, R.Kher, submitted.
- "Regime switching and commonalities in cryptocurrencies", with S.Focardi, M. Patacca, submitted.
- "Theory of money and theory of cryptocurrencies", with S.Focardi, M. Patacca, submitted.
- Modelling sentiment and volatility, with A.Cretarola and M.Patacca, in progress.

OTHER SCIENTIFIC ACTIVITIES

Lead Guest Editor : Special Issue in Blockchain and Cryptocurrencies for the Journal *Decisions in Economics and Finance* , Springer-Verlag, ongoing since September 2019.

Referee for following scientific journals:

Annals of Operations Research
 European Journal of Operational Research,
 Quantitative Finance,
 Insurance Mathematics and Economics,
 Studies in Nonlinear Econometrics,
 International Transactions in Operational Research,
 Risk and Decision Analysis,
 Economic Letters,
 Journal of Banking and Finance,
 Journal of Risk Model Validation,
 Journal of Financial Econometrics,
 Decisions in Economics and Finance,
 Frontiers in Blockchain,
 Journal of Financial Innovation,
 Applied Network Science,

Financial Innovation.

TEACHING ACTIVITY

In the last 5 years I have been in charge (alternatively) of the following courses:

Basic Calculus (Matematica Generale, undergraduate in Economics)

Financial Mathematics (Matematica Finanziaria, undergraduate in Economics)

Financial Hedging and Risk Management,

Matlab Lab (Laboratorio Informatico 2), graduate course in Finance and Quantitative Methods for Economics.

Mathematical Finance, Ph.D in Economics (curriculum in Quantitative Methods)

In preceding years I have also been teaching:

Undergraduate level

Mathematical Models for Financial Markets
Portfolio Theory

Graduate level

Financial Risk Theory and Management
Pricing and Managing Derivatives

PhD level

Volatility modelling