

## EMANUELA ROSAZZA GIANIN

PERSONAL DATA

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- Date and place of birth: June 8, 1973 – Biella - Italy
- Nationality: Italian

POSITION AND RESEARCH ACTIVITIES

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December 2004 – October 31, 2008: **Assistant Professor** in Mathematics for Economics and Finance at “Università di Napoli Federico II” - Italy

November 1st, 2008 – February 29, 2012: **Assistant Professor** in Mathematics for Economics and Finance at University of Milano-Bicocca, Italy

March 1st, 2012 – 31 Ottobre 2016: **Associate Professor** in Mathematics for Economics and Finance at Università di Milano-Bicocca, Italy

November 1st, 2016 – Today: **Professor** in Mathematics for Economics and Finance at Università di Milano-Bicocca, Italy

**Coordinator of the PhD program** in Statistics and Mathematical Finance (33<sup>th</sup> cycle, until Dec. 2020)-Univ. Milano-Bicocca

**GEV member** of area 13 for the VQR (Evaluation of the Research Quality) 2011-2014

**Associate Editor** of *Insurance: Mathematics and Economics* (from 2018), *Mathematics and Financial Economics* (from January 2021), *Mathematics* (from May 2020)

**Referee** for Annals of Applied Probability, Annals of Operations Research, Decision in Economics and Finance, Dependence Modeling, European Journal of Operational Research, Finance and Stochastics, IMA Journal of Management Mathematics, Insurance: Mathematics and Economics, Journal of Banking and Finance, Journal of Risk, Mathematical Finance, Mathematics and Financial Economics, Positivity, Review of Finance, Science in China: Mathematics, SIAM Journal on Control and Optimization, Statistics and Risk Modeling, Stochastic Processes and their Applications, Stochastics, ...

EDUCATION

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1987 – 1992                      Liceo Scientifico A. Avogadro – Biella – Italy - Scientific certificate

1992 – December 14, 1998      Università degli Studi di Milano - Italy  
**Laurea in Matematica** (equivalent to a degree)

1999 – December 9, 2002      Università degli Studi di Bergamo - Italy  
**PhD** in “Metodi computazionali per le decisioni e previsioni economiche e finanziarie”

2000 – 2001                      Université Pierre et Marie Curie (Paris VI) – France  
**Diplôme d’Etudes Approfondis** (DEA) in “Probabilités et Applications - Filière Probabilités et Finances”, with final **internship** (from April to July 2001) at “Crédit Commercial de France” - “Direction de la Recherche et de l’Innovation” (DRI) – Paris - France

## VISITING PERIODS

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May 13 – June 5, 2015: **Associate member (short-term fellow)** of the Research Group "Robust Finance: Strategic Power, Knightian Uncertainty, and the Foundations of Economic Policy Advice" at ZIF center (Bielefeld University, Germany)

May 31, – June 4, 2004; January 26– February 4, 2005, January 8-12, 2007, March 5-9, 2007, May 30- June 1st, September 11-15, 2007: **Visiting** at ETH Zurich – Switzerland

April 22 – June 2nd, 2006: Visiting at Shandong University, Jinan, China (during this period visiting of 1 week at Fudan University, Shanghai, China)

September 29 – October 3, 2006: Visiting at University of Oslo, Norway

January 2-31, 2012: Visiting at INRIA-Rocquencourt, Paris, France

December 10-12, 2014: Visiting at University of Amsterdam, Netherlands

February 25-March 14, 2018; may 6-16, 2019: Visiting at University of Oslo, Norway

## FUNDED RESEARCH PROJECTS AND PRIZES

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Participant at **PRIN projects** 2006 and 2008

**Research prize** (joint with L. Eeckhoudt and A.M. Fiori), Dauphine-Amundi Chair in Asset Management, 2013-14 edition. Project: Downside loss-averse behaviours and risk measurement (VaR, CVaR and lower partial risk measures)

Coordinator of the **research project** “Loss aversion, prudence and the demand for insurance” (2015, other participants: L. Eeckhoudt e A.M. Fiori) – Chair *Individuals and Risk: analysis and market response* (Les particuliers face au risque: analyse et réponse des marchés) funded by Fondation du Risque, Université Paris-Dauphine, ENSAE and Groupama.

Participant at **progetto Gnampa** 2016 “Levy Processes, Optimal Control and portfolio allocation : theoretical analysis and empirical applications” (other participants: Asmerilda Hitaj; Elisa Mastrogiacono (coordinator))

Participant at **progetto Gnampa** 2018 “Infinitely divisible distributions for portfolio allocation” (other participants: Edit Rroji (coordinator); Asmerilda Hitaj, Claudio Macci)

Coordinator of the **Gnampa project** 2020 “Capital allocation per premi di Orlicz e misure di rischio di Haezendonck-Goovaerts”

## FOREIGN LANGUAGES

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French (fluent), English

### Master and advanced courses

Master di Finanza e Assicurazioni - Università degli Studi di Firenze, Italy  
Course on “Misure di Rischio”: 2002/03, 2003/04

Master in Economia e Diritto dei Mercati Finanziari – Università La Sapienza di Roma, Italy  
Course on “Misurazione e Gestione dei Rischi Finanziari”: 2002/03

Master Avellino – Lectures for the course “Propedeutico”: 2004/05

Corso di Alta Formazione (later, Master) in “Finanza Avanzata” - Istituto I.P.E. – Napoli, Italy  
Lectures for the course on “Metodi Quantitativi per la Finanza”: 2004/05  
Course on “Metodi Quantitativi per la Finanza”: 2005/06, 2006/07, 2007/08

### Laurea Specialistica / Magistrale Courses

Università di Milano-Bicocca, Italy  
Course on Gestione portafogli di derivati: 2007/08, 2008/09  
Course on Risk Theory: 2009/10, 2010/11, 2011/12  
Corso di Risk measures: 2012/13, 2013/14, 2014/15, 2015/16, 2016/17, 2017/18, 2018/19, 2019/20, 2020/21

Università di Milano, Italy  
Course on Finanza Matematica 2: 2013/14

### Laurea triennale Courses

Università di Napoli “Federico II”, Italy  
Course on Metodi matematici: 2005/06, 2006/07, 2007/08  
Course on Matematica Finanziaria I: 2006/07, 2007/08

Università di Milano-Bicocca, Italy  
Course on Matematica generale I: 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14, 2014/15  
Course on Matematica generale II: 2012/13, 2013/14, 2015/2016, 2016/17, 2018/19, 2019/20, 2020/21  
Course on Fondamenti di Finanza Quantitativa: 2010/11  
Course on Matematica per la Finanza: 2014/15, 2015/16, 2016/17, 2017/18, 2018/19, 2019/20, 2020/21

### Tutoring

Politecnico di Milano, Italy  
Laboratory tutoring for the course on Statistica: 2001/02, 02/03  
Tutoring for the course on Statistica: 2002/03, 03/04, 04/05  
Tutoring for the course on Calcolo delle Probabilità (per la Laurea on Line): 2002/03, 03/04, 04/05  
Tutoring for the course on Calcolo delle Probabilità: 2003/04  
Tutoring for the course on “Metodi Matematici per la Finanza”: 2003/04, 04/05

Università del Piemonte Orientale – Novara, Italy  
Tutoring for the course on Matematica: 1999/2000

Università Bocconi di Milano, Italy  
Tutor for the course on “Modelli quantitativi per la Finanza”: 2004/05

Università di Milano-Bicocca, Italy  
Tutoring for the course on “Metodi stocastici per la Finanza” – Laurea Magistrale in Matematica: 2010/11

June 3, 2004- ETH Zurich- Switzerland: “Some examples of risk measures via g-expectations”

December 14, 2004- Università di Milano Bicocca, Italy: “Misure di rischio invarianti in distribuzione”

March 16, 2005 – Politecnico di Torino, Italy: “Misure di rischio (statiche e dinamiche) e g-expectations”

June 2005 - Summer School on Risk Measurement and Control– Roma, Italy: “From static to dynamic risk measures”

May 2006 – Shandong University, Jinan, China: cycle of talks “Risk measures and g-expectations”

May 22 – 23, 2006 – Fudan University, Shanghai, China: “One-to-one correspondence between g-expectations and risk measures”; “Orlicz risk measures”

September 29, 2006 – Mathematics-Economics Day – University of Oslo, Norway: “Risk measures and finance I: One-to-one correspondence between risk measures and g-expectations”; “Risk measures and finance II: Orlicz risk measures”

September 29, 2007 – International Workshop on Models of Credit and Operational Risks in the Financial Sector – Bolzano, Italy: “Orlicz risk measures”

November 2007 – International Conference on Stochastic Analysis and Applications, Hammamet, Tunisia: “Penalty functionals of risk measures”

November 29, 2007 – Università del Piemonte Orientale, Novara, Italy: “Rappresentazione della funzione di penalità di una misura di rischio dinamica convessa”

27 maggio 2009 – Brown Bag Seminar – Vienna Institute of Finance, Austria: “Representation of the penalty term of dynamic time-consistent convex risk measures”

15 gennaio 2010 – Workshop on Foundations of Mathematical Finance – Fields Institute, Toronto, Canada: “g-expectations and the representation of the penalty term of dynamic convex risk measures”

5 febbraio 2010 –Università di Pisa, Italy: “g-expectations and the representation of the penalty term of dynamic convex risk measures”

19 febbraio 2010 –Università di Napoli “Federico II”, Italy: “Sulla continuità delle misure di rischio comonotone convesse”

September 30, 2010 - Workshop on Advanced Mathematical Methods for Finance, Berlin, Germany: “Non-convex risk measures”

January 20, 2012- Université de Marne la Vallée, France: “Quasi-concave acceptability indexes and liquidity risk”

September 24-26, 2013 - Innovation in Stochastic Analysis and Mathematical Finance Workshop – Bergen, Norway: “Dual representation of minimal supersolutions of convex BSDEs”

December 12, 2014, University of Amsterdam, Netherlands: “Pareto optimal allocations and optimal risk sharing for quasiconvex risk measures”

January 21, 2015, de Finetti Workshop, Università di Milano, Italy: “Dual Representation of Minimal Supersolutions of Convex BSDEs”

April 20-24, 2015, Conference on Stochastics of Environmental and Financial Economics, CAS center, Oslo: “Orlicz and Haezendonck-Goovaerts risk measures: axiomatization and robustification”

June 3, 2015, ZIF center, Bielefeld, Germany: “Pareto optimal allocations and optimal risk sharing for quasiconvex risk measures”

October 29-31, 2015, Conference on Risk measures: Frontiers of Mathematics and Regulation –Bologna: Risk measures and time-consistency

January 2018 – Workshop on Equilibrium Analysis- Napoli, Italy: “Capital allocation à la Aumann-Shapley for non-differential risk measures”

March 6, 2018- PhD gathering, Oslo, Norway: Time-consistency of risk measures: how strong is such a property?

May 15, 2018 – University of Vigo, Spain: Risk measures and capital allocations

May 9, 2019 – Oslo, Norway: Dynamic robust Orlicz premia and Haezendonck-Goovaerts risk measures

- June 3, 2020 - Oslo, Norway (webinar): Capital allocation rules and acceptance sets
- October 20, 2020 - LNU, Sweden (webinar): Risk measures and progressive enlargement of filtrations: a BSDE approach
- October 27-30, 2020 - Virtual Workshop on New Challenges in the Interplay between Finance and Insurance (in place of Oberwolfach Workshop): Capital allocation rules and acceptance sets

PRESENTATIONS AND SEMINARS (TALKS)

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- September 2000 - Convegno AMASES, Italy: "Misure di rischio sublineari"
- July 6, 2001- CCF- Paris, France: presentation of the internship report "About different measures of risk"
- September 2002 - Convegno AMASES, Italy: "Misure di rischio convesse"; "Misure di rischio e g-expectations"
- February 2003 - Convegno AMAM – Nice, France: "Preferences and Risk Measures"
- July 1st, 2003 - Conference Blaise Pascal – Paris, France: "Some examples of risk measures via g-expectations"
- September 2003 - Convegno AMASES, Italy: "Misure di rischio invarianti in legge"
- April 28, 2004 - Conference "Mathematical Finance and Actuarial Seminars"–Florence, Italy: "Some characterizations of Risk Measures"
- June 2004 - Conference "Risk Measurement and Control" –Roma, Italy: "Some examples of risk measures via g-expectations"
- July 2005 - SAET Conference – Spain: "Some examples of risk measures via g-expectations"
- September 2006 - Convegno AMASES, Italy: "Orlicz risk measures"
- September 2006 - Convegno PRIN "Metodi stocastici in Finanza Matematica"- Lecce, Italy: "Static Orlicz Risk Measures"
- July 2008 – Convegno PRIN "Metodi Stocastici in Finanza" – Torino, Italy: "Representation of the penalty term of dynamic concave utilities"
- September 2008 – Convegno AMASES – Trento, Italy: "Rappresentazione della funzione di penalità di una misura di rischio dinamica convessa"
- January 29, 2009 – X Workshop on Quantitative Finance – Politecnico di Milano, Italy: "Representation of the penalty term of dynamic concave utilities"
- September 2010 – Convegno AMASES – Macerata, Italy: "On the Continuity of Comonotone Convex and of Quasiconvex Risk Measures"
- June 2011 – International Congress on Insurance: Mathematics and Economics, Trieste, Italy: "Haezendonck risk measures and Orlicz quantiles"
- September 2011 – Convegno UMI, Bologna, Italy: "Haezendonck risk measures and Orlicz quantiles"
- September 2011 – Convegno AMASES, Pisa, Italy: "Haezendonck risk measures and Orlicz quantiles"
- June 28-30, 2012 - International Congress on Insurance: Mathematics and Economics, Hong Kong: "Quasi-concave acceptability indexes and liquidity risk"
- September 2012 – Convegno PRIN "Probability and Finance" – Pescara, Italy: "Generalized quantiles as risk measures"
- June 10-15, 2013 – AMAMEF Workshop, Warsaw, Poland: "Portfolio optimization with quasiconvex risk measures"
- June 2014, Bachelier World Congress, Bruxelles, Belgio: "Pareto optimal allocations and optimal risk sharing for quasiconvex risk measures"
- May 18-22, 2015, ZIF Research Group Workshop - Mathematics and Financial Economics, Bielefeld, Germany: "Orlicz and Haezendonck-Goovaerts risk measures: axiomatization and robustification"

September 1-4, 2015 - International Conference on Operations Research – Vienna, Austria: “Orlicz and Haezendonck-Goovaerts risk measures: axiomatization and robustification”

March 3, 2016 - University of Oslo, Norway: “Time-consistency for cash-subadditive risk measures”

May 30 – June 3, 2016 - ZIF Research Group Closing Conference - Robust Finance and Beyond, Bielefeld, Germania : “Time-consistency for cash-subadditive risk measures”

September 12–14, 2016 - Vienna Congress on Mathematical Finance – Vienna, Austria: “The Term Structure of Sharpe Ratios: A New Methodology for Arbitrage-Free Asset Pricing in Continuous Time”

September 2016 - Convegno AMASES – Catania, Italy: “The Term Structure of Sharpe Ratios: A New Methodology for Arbitrage-Free Asset Pricing in Continuous Time”

June 2017 – AMAMEF Conference – Amsterdam (invited session): “The Term Structure of Sharpe Ratios: A New Methodology for Arbitrage-Free Asset Pricing in Continuous Time”

July 2017 – IME Conference – Vienna, Austria: Time-consistency of risk measures: how strong is such a property?

September 2017 – AMASES – Cagliari, Italy: Time-consistency of risk measures: how strong is such a property?

May 30- June 3, 2018 - Conference in Actuarial Science & Finance on Samos, Greece: Dynamic Robust Return Risk Measures: Time-Consistency and g-Expectations

June 16-20, 2018- Bachelier Conference – Dublin, Ireland: Capital allocation for classical and set-valued risk measures

September 2018 – AMASES – Napoli, Italy: Dynamic Robust Return Risk Measures: Time-Consistency and g-Expectations

UMI-SIMAI-PTM Joint meeting – Wroclaw, Poland - September 2018: Capital allocation for classical and set-valued risk measures

June 2019: AMAMEF Conference – Paris, France: Dynamic robust Orlicz premia and Haezendonck-Goovaerts risk measures

July 10-12, 2019 - IME Conference – Munich, Germany: Risk measures and progressive enlargement of filtrations: a BSDE approach

September 16-20, 2019 - DEA Conference – Krakov, Poland: Risk measures and progressive enlargement of filtrations: a BSDE approach

- Frittelli, M., Rosazza Gianin, E. (2002): "Putting Order in Risk Measures", *Journal of Banking & Finance*, Vol. 26, n. 7, 1473-1486.
- Frittelli, M., Rosazza Gianin, E. (2004): "Dynamic Convex Risk Measures", in: *Risk Measures for the 21<sup>st</sup> Century*, G. Szegö ed., J. Wiley, 227-248.
- Frittelli, M., Rosazza Gianin, E. (2005): "Law Invariant Convex Risk Measures", in: *Advances in Mathematical Economics*, Vol. 7, S. Kusuoka e T. Maruyama eds., 33-46.
- Rosazza Gianin, E. (2006): "Risk measures via g-expectations", *Insurance: Mathematics and Economics* 39, 19-34.
- Bellini, F., Rosazza Gianin, E. (2008): "On Haezendonck risk measures", *Journal of Banking and Finance* 32/6, 986-994.
- Bellini, F., Rosazza Gianin, E. (2008): "Optimal Portfolios with Haezendonck Risk Measures", *Statistics and Decisions* 26, 89-108.
- Delbaen, F., Peng, S., Rosazza Gianin, E. (2010): "Representation of the penalty term of dynamic concave utilities", *Finance and Stochastics* 14/3, 449-472.
- Frittelli, M., Rosazza Gianin, E. (2011): "On the penalty function and on continuity properties of risk measures", *International Journal of Theoretical and Applied Finance* 14/1, 163-185.
- Fiori, A., Rosazza Gianin, E., Spasova, A. (2012): "Risk measures and Pareto tails", in: *Mathematical and Statistical Methods for Actuarial Sciences and Finance*, Perna e Sibillo eds., Springer, 183-191.
- Bellini, F., Rosazza Gianin, E. (2012): "Haezendonck-Goovaerts risk measures and Orlicz quantiles", *Insurance: Mathematics and Economics* 51/1, 107-114.
- Rosazza Gianin, E., Sgarra, C. (2013): "Acceptability indexes via g-expectations: an application to liquidity risk", *Mathematics and Financial Economics* 7, 457-475.
- Bellini, F., Klar, B., Müller, A., Rosazza Gianin, E. (2014): "Generalized quantiles as risk measures", *Insurance: Mathematics and Economics* 54, 41-48.
- Mastrogiovanni, E., Rosazza Gianin, E. (2015): "Pareto optimal allocations and optimal risk sharing for quasiconvex risk measures". *Mathematics and Financial Economics* 19/2, 149-167.
- Mastrogiovanni, E., Rosazza Gianin, E. (2015): "Portfolio optimization with Quasiconvex Risk Measures", *Mathematics of Operations Research* 40/4, 1042-1059.
- Eeckhoudt, L., Fiori, A.M., Rosazza Gianin, E. (2016): "Loss-averse preferences and portfolio choices: an extension", *European Journal of Operations Research* 249, 224-230.
- Drapeau, S., Kupper, M., Rosazza Gianin, E., Tangpi, L. (2016): "Dual Representation of Minimal Supersolutions of Convex BSDEs", *Annales de l'Institut Henri Poincaré - Probabilités et Statistiques* 52/2, 868-887.
- Bellini, F., Laeven, R., Rosazza Gianin, E. (2018): Robust Return Risk Measures. *Mathematics and Financial Economics*, 12(1), 5-32.
- Centrone, F., Rosazza Gianin, E. (2018): Capital allocation à la Aumann–Shapley for non-differentiable risk measures. *European Journal of Operational Research*, 267(2), 667-675.
- Eeckhoudt, L., Fiori, A. M., Rosazza Gianin, E. (2018): Risk Aversion, Loss Aversion, and the Demand for Insurance. *Risks*, 6(2), 60.

- Mastrogiacomo, E., Rosazza Gianin, E. (2019): Time-consistency of risk measures: how strong is such a property? *Decisions in Economics and Finance* 42(1), 287-317.
- Canna, G., Centrone, F., Rosazza Gianin, E. (2019). Capital allocations for risk measures: a numerical and comparative study. *RISK MANAGEMENT MAGAZINE*
- Centrone, F., Rosazza Gianin, E. (2020): Capital allocations for set-valued risk measures. *Journal of Theoretical and Applied Finance*, 23/01, 2050009.
- Calvia, A., Rosazza Gianin, E. (2020): Risk measures and progressive enlargement of filtration: a BSDE approach. *SIAM Journal on Financial Mathematics* 11(3), 815-848
- Canna, G., Centrone, F., Rosazza Gianin, E. (2020): Capital allocation rules and acceptance sets. *Mathematics and Financial Economics* 14(4), 759-781
- Bellini, F., Laeven, R., Rosazza Gianin, E. (2021): Dynamic robust Orlicz premia and Haezendonck-Goovaerts risk measures. *European Journal of Operational Research* 291, 438-446.
- Canna, G., Centrone, F., Rosazza Gianin, E. (2021): Capital Allocation Rules and the No-Undercut Property. *Mathematics* 9 (2), 175
- Beissner, P., Rosazza Gianin, E. (2021). The term structure of sharpe ratios and arbitrage-free asset pricing in continuous time. *Probability, Uncertainty and Quantitative Risk* 6(1), 23-52.

## BOOKS

- Rosazza Gianin, E., Sgarra, C. (2007): “Esercizi di Finanza Matematica”, Springer Italia.
- Rosazza Gianin, E., Sgarra, C. (2013): “Mathematical Finance: Theory Review and Exercises. From Binomial Model to Risk Measures”, Springer.

## WORKING PAPERS and PREPRINTS (not – yet – published)

- Rosazza Gianin, E. (2001): “About different measures of risk”, Direction de la Recherche et de l’Innovation, CCF, Francia, Rapporto di stage
- Frittelli, M., Rosazza Gianin, E. (2002): “Equivalent Formulations of Reasonable Asymptotic Elasticity”, Working paper, Dipartimento di Matematica per le Decisioni, Università di Firenze
- Rosazza Gianin, E. (2002): “Some examples of risk measures via g-expectations”, Rapporto di ricerca n. 41, Dip. di Metodi Quantitativi, Univ. di Milano Bicocca
- Rosazza Gianin, E. (2002): “Convexity and Law Invariance of Risk Measures”, Tesi di Dottorato, Università di Bergamo
- Eeckhoudt, L., Pagani, E., Rosazza Gianin, E. (2016): “Prudence, risk measures and the Optimized Certainty Equivalent: a note”. Working paper.