



# Marco Maggis

## Curriculum Vitae

### PERSONAL INFORMATION

- Born Vimercate 2 January 1983  
Address Via Belvedere 2, Bernareggio (MB), Italy 20881  
Married with Laura in 2008, 7 children (Caterina, Chiara, Giuseppe, Giacomo, Agnese, Vera, Gregorio)

### ACADEMIC POSITIONS

- March 2019 **Associate Professor**, *Department of Mathematics, SECS-S/06*, Università degli Studi di Milano.  
–Present  
2016–2019 **Assistant Professor, tenure track (Ricercatore Tempo Determinato B)**, *Department of Mathematics, SECS-S/06*, Università degli Studi di Milano.  
2015 **Fellow of the Center of Advanced Studies**, Ludwig-Maximilians Universität München.  
2012–2015 **Assistant Professor without tenure (Ricercatore Tempo Determinato A)**, *Department of Mathematics, SECS-S/06*, Università degli Studi di Milano.  
2011–2012 **Post Doc**, *Department of Economics, Management and Quantitative Methods*, Università degli Studi di Milano.

### EDUCATION

- 2007–2010 **PhD in Mathematics and Statistics for Computational Sciences**, Università degli Studi di Milano, *Excellent (highest honor)*.  
2005–2007 **Master in Mathematics**, Università degli Studi di Milano, *110/110 cum laude*.  
Curriculum: Probability Theory, Stochastic Processes and Financial Applications.  
2002–2005 **Bachelor in Mathematics**, Università degli Studi di Milano, *109/110*.  
2004 **Fifth year Diploma in Piano**, Conservatorio di Brescia (Privatista), *7/10*.  
2000–2001 **A-level: Mathematics (grade B) , Italian (grade A) and AS-level: English Literature (grade B), Chemistry (grade B)**, St.Dominic's Sixth Form College, London.  
1997–2002 **Diploma Liceo Scientifico**, Istituto Sacro Cuore Milano, *100/100*.

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## RESEARCH INTERESTS

**Mathematics:**, *Measure Theory, Probability Theory, Stochastic Calculus, Functional/Convex Analysis, Topological  $L^0$ -modules.*

**Mathematical Finance:**, *Static and Dynamic Risk Measures, Utility Theory in dynamic frameworks, No Arbitrage Theory under Model Uncertainty.*

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## PUBLICATIONS

- 2021 M. Maggis, A. Maran, Stochastic Dynamic Utilities and Intertemporal Preferences, *Math. Fin. Econ.*, Vol 15, 611-638.
- 2020 M. Burzoni and M. Maggis, Arbitrage-free modeling under Knightian Uncertainty, *Math. Fin. Econ.*, Vol. 14, 635-659.
- 2019 M. Maggis, T. Meyer-Brandis and G. Svindland, Correction to: Fatou closedness under model uncertainty (*Positivity*, (2018), 22, 5, (1325-1343), 10.1007/s11117-018-0578-1), *Positivity*, Vol. 23(1), 247-247.
- 2019 M. Burzoni, M. Frittelli, Z. Hou, M. Maggis, J. Obloj, Pointwise Arbitrage Pricing Theory in discrete time, *Math. Op. Res.*, Vol. 44(3), 1034-1057.
- 2018 M. Maggis, T. Meyer-Brandis and G. Svindland, The Fatou Closedness under Model Uncertainty, *Positivity*, Vol. 22(5), 1325-1343.
- 2018 M. Frittelli and M. Maggis, Disentangling Price Risk and Model Risk: P&R Measures, *Math. Fin. Econ.*, Vol. 12(2), 219-247.
- 2017 M. Burzoni, M. Frittelli and M. Maggis, Model-free superhedging duality, *Ann. Appl. Prob.*, Vol. 27, 1452-1477.
- 2016 M. Burzoni, M. Frittelli and M. Maggis, Universal Arbitrage Aggregator in Discrete Time Markets under Uncertainty, *Fin. & Stoch.*, Vol. 20(1), 1-50.
- 2014 M. Frittelli and M. Maggis, Conditional evenly convex sets and evenly convex maps, *J. Math. An. Appl.*, Vol. 413(1), 169-184.
- 2014 M. Frittelli and M. Maggis, Complete duality for quasiconvex dynamic risk measures on modules of the  $L^p$ -type, *Statistics and Risk Modelling*, Vol. 31(1), 103-128.
- 2014 M. Frittelli, M. Maggis and I. Peri, Risk measures on  $P(R)$  and Value At Risk with Probability/Loss function, *Mathematical Finance*, Vol. 24(2), 442-463.
- 2013 M. Maggis, The dynamics of Risk beyond convexity, *Bollettino U.M.I., Serie IX*, Vol. 6(2), 441-457.
- 2012 D. La Torre and M. Maggis, A Goal Programming Model with Satisfaction Function for Risk Management and Optimal Portfolio Diversification, *INFOR*, Vol. 50(3), 117-126.
- 2011 M. Frittelli and M. Maggis, Conditional Certainty Equivalent, *Int. J. Theor. Appl. Fin.*, Vol. 14(1) pp 41-59.
- 2011 M. Frittelli and M. Maggis, Dual representation of quasiconvex conditional maps, *SIAM J. Fin. Math.*, Vol 2 pp 357-382.

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## PREPRINTS

- 2021 F.B. Liebrich, M. Maggis, G. Svindland, Model Uncertainty: A Reverse Approach, arXiv:2004.06636.

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## PHD THESIS

- Subject *Dual representation of quasiconvex conditional maps, Conditional Risk Measures, Stochastic Dynamic Utilities and  $L^0$ -modules topological structures.*
- Supervisor Professor Marco Frittelli
- Reference M. Maggis, On quasiconvex conditional maps. Duality results and applications to Finance, Ledizioni, Math. Sciences Series, Vol. 4

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## PRESENTATIONS AS INVITED SPEAKER

- Bielefeld A general framework for quasisure functional analysis (Seminar @Bielefeld University), May 2019
- Hammamet Stochastic Dynamic Utilities and inter-temporal preferences, International Conference on Control, Games and Stochastic Analysis, October 2018.
- Oxford Topological issues arising in Pricing Theory under Model Uncertainty, Robust Techniques in Quantitative Finance, September 2018.
- Marseille Looking Forward a Forward Looking approach to the theory of rational choice, CIRM Advances in Stochastic Analysis for Risk Modeling, November 2017.
- L'Aquila Arbitrage and Probability, I Gran Sasso Workshop in Mathematical Finance, September 2017.
- Munich The Fatou closedness under Model Uncertainty, Mini Workshop on Model Uncertainty, June 2017.
- Torino Pointwise Arbitrage Pricing Theory in discrete time, First Italian Meeting on Probability and Mathematical Statistics, June 2017.
- Paris Disentangling Price Risk and Model Risk, Model Validation Seminar @Institute Luis Bachelier, June 2017.
- Zurich The Fatou closedness under Model Uncertainty, Young Researchers in Robust Mathematical Finance, April 2017.
- Zurich Pointwise Arbitrage Pricing Theory in discrete time, Workshop on Pricing-Hedging Duality (in financial markets), March 2017.
- London Arbitrage Theory without a Reference Probability: challenges of the model independent approach (Seminar @UCL), November 2015.
- Milan Arbitrage Theory without a Reference Probability: challenges of the model independent approach (Seminar @PoliMi), July 2015.
- Chicago Robust Arbitrage under Model Uncertainty in discrete time (Mini-Symposium), SIAM Conference on Financial Mathematics, November 2014.
- Munich Robust Arbitrage under Model Uncertainty in discrete time (Seminar @LMU), June 2014.

- Paris Robust Arbitrage under Model Uncertainty in discrete time, Labex Louis Bachelier-SIAM-SIMAI Conference on Financial Mathematics, June 2014.
- St. Barbara Robust Arbitrage under Model Uncertainty in discrete time (Seminar @UCSB), March 2014.
- Bologna Dualità completa per misure di rischio dinamiche quasiconvesse su moduli di variabili aleatorie, (Conferenziere di Sessione), Congresso dell'Unione Matematica Italiana, September 2011.
- Milan A module approach to conditional risk, Workshop on Mathematical Finance, Milan, April 2011.
- San Francisco Conditional Certainty Equivalent (Mini-Symposium), SIAM Conference in Financial Mathematics and Engineering, November 2010.

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## PRESENTATIONS AS CONTRIBUTED SPEAKER

- Napoli Function Spaces under Model Uncertainty: Order and Aggregation, XXI Workshop on Quantitative Finance, January 2020.
- Milano The Fatou closedness under Model Uncertainty, XVIII Workshop on Quantitative Finance, January 2017.
- Napoli Arbitrage Theory without a Reference Probability: challenges of the model independent approach. The abstract was selected for the special session dedicated to B. De Finetti at the RSA of the Societa' Italiana degli Economisti, October 2015.
- Berlin Risk measures on  $\mathcal{P}(\mathbb{R})$  and Value At Risk with Probability/Loss function, Young researchers Workshop, September 2012.
- Sydney Complete duality for quasiconvex dynamic risk measures on modules of the  $L^p$ -type, 7<sup>th</sup> World Congress of the Bachelier Finance Society, June 2012.
- Pescara Risk measures on  $\mathcal{P}(\mathbb{R})$  and Value At Risk with Probability/Loss function, PRIN 2008 Probability and Finance Congress, September 2012.
- Paris On Quasiconvex Conditional Maps, Modelling and Managing Financial Risks, January 2011.
- Toronto Conditional Certainty Equivalent, 6<sup>th</sup> World Congress of the Bachelier Finance Society, June 2010

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## VISITING FOREIGN INSTITUTIONS

- Oxford June 2016, visiting fellow invited by prof. Jan Obloj
- Oxford January 2016, visiting fellow invited by prof. Jan Obloj
- LMU From October 2014 to February 2015, invited by prof. Francesca Biagini at the Department of Mathematics, Munich
- UCSB From 5/03/2014 to 12/03/2014, invited by prof. J.P. Fouque at the Department of Statistics and Applied Probability, Santa Barbara
- ETH From 29/01/2013 to 01/02/2013, invited by prof. W. Farkas at ETH, Zurich

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## FUNDING AND GRANTS

- January 2018 Finanziamento attività ricerca di base, MIUR. Grant: 3000 Euro
- December 2017 FONDI RETTORALI GIOVANI RICERCATORI. **Project:** Managing and Assessing Model Risk. Grant: 2500 Euro.
- January 2017 FONDI RETTORALI GIOVANI RICERCATORI. **Project:** Duality methods for financial markets under model ambiguity. Grant: 2500 Euro.
- March 2016 FONDI RETTORALI GIOVANI RICERCATORI. **Project:** Un approccio assiomatico alla teoria delle preferenze intertemporali. Grant: 2200 Euro.
- March 2015 Bando GNAMPA professore visitatore 2014: Invitation of prof. Emeritus Freddy Delbaen. Total amount: 700 Euro.
- May 2014 FONDI RETTORALI GIOVANI RICERCATORI. **Project:** The impact of Model Uncertainty on financial market models. Grant: 3000 Euro.
- May 2013 GNAMPA project: Funzionali Value&Risk nell'analisi di incertezza di modello. Grant: 2000 Euro.
- 2008 Member of the project PRIN 2008 *Probability and Finance*, coordinator prof. M. Frittelli

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## ORGANIZATION OF CONFERENCES/SEMINARS

**14th Viennese Conference on Optimal Control and Dynamic Games**, *Organizer of the session: Stochastic control and optimization in Finance*, 3-6 July 2019.

**Workshop on Model Uncertainty and Robust Finance**, *Member of the organizing and scientific committee, Milano 15-16 March 2018.*

**Workshop on Model Uncertainty and Robust Finance**, *Member of the organizing and scientific committee, Milano 10-11 November 2016.*

**De Finetti Risk Seminars**, *Milano Lectures on the Mathematical Theory of Economics and Finance*, Member of the scientific committee 2011/2012, 12/13, 13/14, 14/15, 16/17, 17/18, 18/19.

**De Finetti Workshop**, *Organizer of a one day Workshop held in Milano in January 2015.*

**Minisymposia**, *Organizer of two minisymposia on Dynamic Risk and Performance Measures and related fields*, SIAM Conference on Financial Mathematics and Engineering, Chicago (November 2014).

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## REFEREE ACTIVITY

- |                                  |                                    |
|----------------------------------|------------------------------------|
| - Finance & Stochastics          | - Mathematical Finance             |
| - Annals of Applied Probability  | - SIAM Journ. Fin. Math.           |
| - Math. Operations Research      | - Europ. Journ. Op. Research       |
| - Math. Financial Economics      | - Nonlinear Anal. Real World Appl. |
| - Journal of Risk                | - Science China Mathematics        |
| - Journal Mathematical Economics | - Journal of Economic Theory       |

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## TEACHING: MASTER LEVEL

2016 to 2020 **Lecturer**, UNIMI, Milan

Title Finanza Matematica 2. Master in Mathematics

**Topics:**

- Continuous time stochastic financial models
- Dynamic optimization

2014 **Temporary Lecturer**, LMU, Munich

Title Stochastic Analysis: Advanced Topics. Master in Mathematics.

**Topics:**

- Stochastic Control
- Duality methods for utility maximization
- BSDEs and Dynamic Risk Measures

2014 **Lecturer**, UNIMI, Milan

Title Argomenti Avanzati di Finanza Matematica. Master in Mathematics.

**Topics:**

- Stochastic Control

2014 **Lecturer**, UNIMI, Milan

Title Finanza Matematica 1. Master in Mathematics

**Topics:**

- Discrete and continuous time stochastic financial models
- No Arbitrage Theory

2013 to 2017 **Temporary Lecturer**, UNITO and Collegio Carlo Alberto, Turin

Title Probabilistic Methods for Finance. Master of Finance and Insurance.

**Topics:**

- Measure theory, abstract integration, conditional expectations
- Discrete and continuous time stochastic processes
- Stochastic integration

2009 to 2012 **Teaching Assistant** (prof. M. Frittelli), UNITO and Collegio Carlo Alberto, Turin

Title Probabilistic Methods for Finance. Master of Finance and Insurance.

2011,2012 **Teaching Assistant** (prof. D. La Torre), UNIMI, Milan

Title Mathematics. Master in Political Sciences.

**Topics:**

- Static and dynamic optimization

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## TEACHING: BACHELOR LEVEL

- from 2019 **Lecturer**, UNIMI, Milan  
Title Matematica del Continuo. 1<sup>st</sup> year, Sicurezza dei Sistemi e delle Reti Informatiche.
- from 2017 **Lecturer**, UNIMI, Milan  
Title Istituzioni di Matematiche e Statistica (Modulo di Statistica). 1<sup>st</sup> year, Scienze Naturali.
- 2012 to 2015 **Lecturer**, UNIMI, Milan  
Title Laboratorio di Matematica e Statistica (modulo di Statistica). 1<sup>st</sup> year, Biologia.
- 2010, 2011 **Teaching Assistant** (prof. C. Tommasi), UNIMI, Milan  
Title Statistica. 1<sup>st</sup> year, Scienze Politiche.
- 2010 **Temporary Lecturer and Teaching Assistant** (prof. M. Marinacci), BOCCONI UNIVERSITY, Milan  
Title Matematica Generale. 1<sup>st</sup> year Economia.

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## Thesis Supervision: Master in Mathematics

- 2013 Cristina Pozzi, A mathematical model-free approach to forecast market risks.  
Andrea Ferravante, Option pricing in incomplete markets: an  $L^0$  module approach.  
Erica Salvi, Systemic Risk and the contagion effects of banking crises.  
Jie Hu, Fundamental theorems of asset pricing under ambiguity.
- 2014 Giuditta Formenti, Model uncertainty and the superreplication price in discrete time models.  
Giacomo Landoni, Robust portfolio optimization in markets subject to discontinuous returns (External supervisor: prof. Giorgio Consigli)  
Francesco Re, Systemic Risk and Stochastic Control.  
Alessandro Zanatta, Optimal weighted distributions and applications to financial time series.
- 2015 Andrea Angiuli, An adaptive version of the Robbins-Monro algorithm for the approximation of Backward Stochastic Differential Equations with Least Squares Regression. (External supervisor: doct. Plamen Turkedjiev)  
Davide Sciarra, Risk measures generated by g-expectations: a Functional Ito Calculus approach.  
Arianna Zanotti, Bounding Systemic Risk under dependence uncertainty.  
Federica Morandi, Optimal investment in defaultable securities. (External supervisor: prof. Frank Seifried)
- 2016 Federica Tonolini, Interest rate modelling after the financial crisis.  
Maristella Addante, A general framework for market models under transaction costs.
- 2017 Laura Zanolli, Robustezza di Misure di Rischio invarianti in legge  
Alice Del Vecchio, Forward intertemporal preferences

- Alice Rinaldi, On time consistent dynamic risk measures  
Mauro Crippa, On supervision of mortality models
- 2018 Chiara Reali, An Analysis of Viability and Arbitrage under Knightian Uncertainty  
Vittoria Colombo, On the detection of market abuse phenomena  
Giacomo Brandolini, Arbitrage and acceptability: an extension beyond the classical case  
Stefano Checchi, Signaling Games
- 2019 Stefano Di Terlizzi, Risk indifference Pricing  
Thomas Di Toma, A detection method for potential market abuse  
Andrea Maran, On the dynamics of decision making
- 2020 Samuele Gatti, Functions spaces related to model uncertainty in Finance  
Agnese Radaelli, Optimal investment under uncertainty: smooth ambiguity, time consistency and learning  
Giacomo Allaria, Robust Approaches to Arbitrage Theory in Discrete Time  
Alessandro Altamura, An Energy Spot Price Model for Insider Trading detection  
Lorenzo Bernardini, Equilibrium Theory for Knight-Walras Economies
- 2021 Eleonora Galli, A measure theoretic approach to robust utility maximization  
Costanza Somigli, Statistical Arbitrage in financial market models

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## Other academic responsibilities

- From 2020 to present **Member and secretary of the Commissione Informatica**, *Dept. of Mathematics (UniMi)*.
- From 2016 to present **Member of the Commissione Orientamento**, *Faculty of Sciences and Technologies (UniMi)*.
- From 2014 to 2019 **Member of the Collegio di Dottorato in Scienze Matematiche**, *Dept. of Mathematics (UniMi)*.

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## OTHER EMPLOYMENTS

- Sept. 2007 **High school professor**, *Liceo Classico Sacro Cuore, Milan*, Subjects: Mathematics and Physics, Classes: II-III Liceo.
- Febr. 2011 **High school professor**, *Liceo Classico Sacro Cuore, Milan*, Subjects: Mathematics and Physics, Classes: IV-V Ginnasio and I-II-III Liceo.

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## DECLARATION

I authorize the handling of personal information in this curriculum, according to D.Lgs n. 196/03 and following modifications and Regulations EU 679/2016 (General Regulations concerning Data Protection or GRDP).

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## SIGNATURE