Scientific Curriculum

ASMERILDA HITAJ

PERSONAL INFORMATION

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CURRENT POSITION

- **August 2020 - Present**: Assistant Professor (RTD-B), sector SECS-S/06, Department of Economics, Università degli studi dell'Insubria
- August 14th, 2019 - August 14th, 2028 *National Scientific Habilitation* (ASN) for the position of Associate Professor, SECS-S/06-Mathematical Methods of Economics, Finance and Actuarial Sciences

PAST POSITIONS

- **October 2018 - July 2020**: Assistant Professor (RTD-A), sector SECS-S/06, Department of Statistics and Quantitative Methods, University of Milano-Bicocca
- **April 2018 – September 2018**: Postdoctoral Research Fellow in Quantitative Finance, sector SECS-S/06, University of Pavia. Subject: Robust optimization and applications to economics and finance. Under the supervision of Professor Elena Molho.
- **2014 – 2017**: Postdoctoral Research Fellow in Quantitative Finance, sector SECS-S/06, University of Milano-Bicocca (IT). Subject: Multicriteria Analysis for Portfolio Performance. Under the supervision of Professor Giovanni Zambruno.
- **2010 – 2013**: Postdoctoral Research Fellow in Quantitative Finance, sector SECS-S/06, University of Milano-Bicocca (IT). Subject: Mathematical Models for Hedge Funds Portfolio Allocation. Under the supervision of Professor Giovanni Zambruno

EARNED DEGREES

- **2008 – 2009**: Master in Risk and Asset Management, EDHEC Business School, NICE, (FR).
- **2007 – 2010**: PhD in Mathematics Applied to Finance, University of Milano Bicocca (IT).
- **2003 – 2006**: MSc in Finance and Economics - 110 / 110 cum laude, University of Milano Bicocca. Title of thesis: Performance Attribution and Risk Attribution for Fixed Income Portfolio.

VISITING POSITIONS

February 2017 – July 2017: Visiting Researcher: School of Industrial & Systems Engineering, Georgia Institute of Technology, Atlanta, USA. Research project with Professor Anton Kleywegt, 6 months.

AWARDS AND PRIZES

- 01 November 2006 – 28 February 2010: PhD fellowship in Mathematics Applied to Finance with University of Milano Bicocca.

- Certificate of reviewer acknowledge and appreciation for the "1-st International Conference on Computing Science, Communication and Security (COMS2 2020)", organized by the Ganpat University, Gujarat, INDIA, 26th- 27th March 2020.

FUNDED RESEARCH PROJECTS

- **Principal investigator** of the project "Robust optimization in set-valued and vector valued framework with applications to finance". Participants: Alessandro Barbiero, Fabio Bellini, Matteo Rocca. Financed by GNAMPA (2020).
- **Member** of the project "Infinitely divisible distributions for portfolio allocation". Coordinator: Edit Rroji. Participants: Asmerilda Hitaj. Emanuela Rosazza, Claudio Macci. Euro 3000. Financed by GNAMPA (2018)
- **Member** of the project. n. 35364 "Advanced Methods for Portfolio Optimization" of the "MIUR-DAAD Joint Mobility Program" P.I. Lorenzo Mercuri, members: Sandra Paterlini and Margherita Giuzio (German unit), Asmerilda Hitaj and Edit Rroji (Italian unit) Euro 10.000. Financed by MIUR (2018).
- **Member** of the project "Levy processes, stochastic control and portfolio optimization". Coordinator: Elisa Mastrogiacomo. Participants: Emanuela Rosazza, Asmerilda Hitaj. Financed by GNAMPA (2016)

RESEARCH INTERESTS

- Numerical methods for finance
- Asset allocation models in discrete and continuous time.
- Hedge fund portfolio selection using higher moments.
- Asset and liability management
- Robust optimization
- Risk and performance measures
- Portfolio insurance strategies
- Option pricing

TEACHING ACTIVITIES

- **Teaching assistant**: for the course **Financial Mathematics** (2-nd year undergraduate), University of Milano-Bicocca, Department of Quantitative Methods. During the academic years 2007-2008, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017
- **Teaching assistant**: for the course **Actuarial Mathematics** (1-st year postgraduate), University of Milano-Bicocca, Department of Quantitative Methods. During the academic years 2007-2008, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016
- **Teaching assistant**: for the course **Portfolio theory** (1-st year postgraduate). University of Milano-Bicocca, during the academic years 2014-2015, 2015-2016, 2016-2017
- **Teaching assistant**: for the course **Mathematics** (2-nd year undergraduate), Università degli Studi di Milano. During the academic year 2017-2018
- **Professor**: for the course **Actuarial Mathematics** (3-rd year undergraduate), University of Milano-Bicocca. During the academic year 2013-2014
- **Professor**: for the course **Mathematics Methods** (2-rd year undergraduate), University of Milano-Bicocca. During the academic years 2017-2018, 2018-2019, 2019-2020

- **Professor**: for the course **Matlab applied to finance** (1-st year postgraduate), University of Pavia. During the academic year 2017-2018.
- **Professor**: for the course **Applied Statistics for Finance** (postgraduate), University Cattolica del Sacro Cuore, Milan. During the academic year 2017-2018.
- **Professor**: for the course **Mathematics for finance** (postgraduate). University of Pavia. During the academic year 2018-2019.
- **Professor**: for the course **Fundamentals of Actuarial Mathematics** (3-rd year undergraduate), University of Milano-Bicocca. During the academic year 2019-2020.
- **Teaching assistant**: for the course **Asset Management** (Executive courses on Quantitative Finance), Politecnico di Milano. During the academic year 2019-2020.
- **Professor**: for the course **Mathematics** (1-st year undergraduate), University of Insubria. During the academic years 2020-2021, 2021-2022

THESIS SUPERVISION

- Supervisor of the Master thesis of Fabrizio Lilliu *"Pricing FX Investment Certificates with Stochastic Interest Rates"* (2018), Catholic University.

WORK EXPERIENCE

- **May 2006 – Nov 2006**: Internship at RAS BANK (custodian bank), Milano, Italy. My job consisted in analysing and verifying the informative rules of the various Hedge Funds invested in by clients of the RAS BANK to create a data base.
- **Jun 2009 – Sep 2009**: Internship at Albertini-SYZ SGR, Milano, Italy. This job consisted in creating a program, with VBA, that the SGR used to calculate the liquidity of the portfolio, taking into account the informative rules for the different hedge funds, like: withdrawal restrictions, redemption dates, notice deadlines, redeemable weight and potential penalty amounts. Accounting for all this information is important for a hedge fund manager in order to optimize the trading opportunities, minimize portfolio costs and maximize portfolio returns.
- **Dec 2015 – Dec 2016**: Assistant Editor for the Springer volume "Recent Advances in commodity and financial modeling. Quantitative methods in Banking, Finance, Insurance, Energy and Commodity markets'' edited by Giorgio Consigli, Silvana Stefani and Giovanni Zambruno, 'International Series in Operations Research and Management Science'

RESEARCH ACTIVITY

A. PUBLISHED AND FORTHCOMING PAPERS

[1] G. P. Clemente, R. Grassi, A. Hitaj (forthcoming) 'Smart network based portfolio selection models' **ANNALS OF OPERATIONS RESEARCH**

[2] A. Barbiero and A. Hitaj (2021). Approximation of continuous random variables for the evaluation of the reliability parameter of complex stress-strength models. (forthcoming) **ANNALS OF OPERATIONS RESEARCH**

[3] A. Barbiero and A. Hitaj (2020). Goodman and Kruskal's gamma coefficient for ordinalized bivariate normal distributions. **PSYCHOMETRIKA**, https://doi.org/10.1007/s11336-020-09730-5

[4] A. Hitaj, L. Mercuri and E. Rroji (2019). Lévy CARMA models for shocks in mortality. **DECISIONS IN ECONOMICS AND FINANCE**, ISSN: 1593-8883, *doi: 10.1007/s10203-019-00248-9*

[5] G. P. Clemente, R. Grassi, A. Hitaj (2019). Asset allocation: new evidence through network approaches. **ANNALS OF OPERATIONS RESEARCH**, p. 1-20, ISSN: 0254-5330, *doi: 10.1007/s10479-019-03136-y*

[6] G. Consigli, A. Hitaj, E. Mastrogiacomo (2018). Portfolio choice under cumulative prospect theory: sensitivity analysis and an empirical study. **COMPUTATIONAL MANAGEMENT SCIENCE**, p. 1-26, ISSN: 1619-697X, *doi: 10.1007/s10287-018-0333-x*

[7] A. Hitaj, L. Mercuri and E. Rroji (2018). Sensitivity analysis of Mixed Tempered Stable parameters with implications in portfolio optimization. **COMPUTATIONAL MANAGEMENT SCIENCE**, p. 1-25, ISSN: 1619-697X, *doi: 10.1007/s10287-018-0306-0*

[8] A. Hitaj, F. Hubalek, L. Mercuri and E. Rroji (2018). On Properties of the MixedTS Distribution and Its Multivariate Extension**. INTERNATIONAL STATISTICAL REVIEW**, ISSN: 0306-7734, *doi: 10.1111/insr.12265*

[9] A. Hitaj, C. Mateus and I. Peri (2018). Lambda Value at Risk and Regulatory Capital: A Dynamic approach to Tail Risk. **RISKS**, vol. 6, 17, ISSN: 2227-9091, *doi: https://doi.org/10.3390/risks6010017*

[10] A. Hitaj and G. Zambruno (2016). Are Smart Beta strategies suitable for hedge fund portfolios? **REVIEW OF FINANCIAL ECONOMICS**, vol. 29, p. 37-51, ISSN: 1058-3300, *doi:10.1016/j.rfe.2016.03.001*

[11] A. Hitaj, L. Mercuri and E. Rroji (2015). Portfolio selection with independent component analysis. **FINANCE RESEARCH LETTERS**, vol. 15, p. 146-159, ISSN: 1544-6123, *doi: 10.1016/j.frl.2015.09.005*

[12] A. Hitaj and L. Mercuri Portfolio allocation using multivariate variance gamma models. **FINANCIAL MARKETS AND PORTFOLIO MANAGEMENT**, vol. 27, p. 65-99, ISSN: 1934-4554

[13] A. Hitaj, L. Martellini and G. Zambruno (2012). Optimal Hedge Fund Allocation with Improved Estimates for Coskewness and Cokurtosis Parameters. **THE JOURNAL OF ALTERNATIVE INVESTMENTS**, vol. 14, p. 6-16, ISSN: 1520-3255*, doi: 10.3905/jai.2012.14.3.006*

[14] A. Hitaj, F. Martinelli and G. Zambruno. Universal Performance Measures per Investimenti Alternativi, (2014). **Quaderno AIAF** n:158, (2013) ISSN 2280-949X.

B. PUBLISHED AND FORTHCOMING CHAPTERS IN BOOK

[1] G. P. Clemente, R. Grassi and A. Hitaj (2019). ‘Optimal Portfolio Selection via network theory in banking and insurance sector’. In Smart Statistics for Smart Applications (pp. 197-204). edited by G. Ariba, S. Peluso, A. Pini and G. Rivellini. ISBN 9788891915108, PEARSON.

[2] A. Hitaj, L. Mercuri and E. Rroji (2018). ‘VIX computation based on affine stochastic volatility models in discrete time’. INTERNATIONAL SERIES IN OPERATIONS RESEARCH & MANAGEMENT SCIENCE, edited by G. Consigli, S. Stefani and G. Zambruno. vol.257, p. 141-164, Springer New York LLC, ISBN: 978-3-319-61318-5, ISSN: 0884-8289, *doi: 10.1007/978-3-319-61320- 8_7* (peer review).

[3] A. Hitaj and G. Zambruno (2018). ‘Portfolio Optimization Using Modified Herfindahl Constraint.’ INTERNATIONAL SERIES IN OPERATIONS RESEARCH & MANAGEMENT SCIENCE, edited by G. Consigli, S. Stefani and G. Zambruno. vol.257, p. 141-164, Springer New York LLC, ISBN: 978-3-319-61318-5, *doi: 10.1007/978-3-319-61320-8_1* (peer review).

[4] A. Hitaj, L. Mercuri and E. Rroji (2018). Some Empirical Evidence on the Need of More Advanced Approaches in Mortality Modeling. In: Mathematical and Statistical Methods for Actuarial Sciences and Finance. Edited by M. Corazza, M. Durbán, A. Grané, C. Perna, M. Sibillo. p. 425-430, Springer, ISBN: 978-3-319-89823-0, *doi: 10.1007/978-3-319-89824-7_76*

[5] A. Hitaj, F. Martinelli and G. Zambruno (2014). Portfolio Allocation Using Omega Function: An Empirical Analysis. In Mathematical and Statistical Methods for Actuarial Sciences and Finance, edited by M. Corazza, C. Pizzi. p. 179-193, Springer, ISBN: 978-331902498-1, *doi: 10.1007/978-3-319- 02499-8-17*

[6] A. Hitaj and L. Mercuri (2013). 'Hedge Fund Portfolio Allocation with Higher Moments and MVG Models'. In Advances in Financial Risk Management, edited by J. A. Batten, P. MacKay and N. Wagner, Palgrave Macmillan. pp 331-346, ISBN: 978-1-349-43874-7 (peer review)

C. CONFERENCE PROCEEDINGS

[1] Barbiero A., Hitaj A. (2020). 'Comparing approaches for approximating continuous random distributions with application in reliability engineering'. **Book of abstract** of '9-th International Eurasian conference on mathematical sciences and applications'.

[2] Barbiero A., Hitaj A. (2020). 'Goodman and Kruskal's gamma coefficient for ordinalized bivariate distributions'**. Book of abstract** of 'International Conference on Pure and Applied Mathematics', **e-ISBN:978-975-7616-73-3**

[3] Hitaj, F. Hubalek, L. Mercuri and E. Rroji (2016). 'On multivariate extensions of the Mixed Tempered Stable distribution'. Proceedings of COMPSTAT 2016 - 22nd International Conference on Computational Statistics, edited by A. Colubi, A. Blanco and C. Gat. (peer review). The International Statistical Institute / International Association for Statistical Computing ISBN/EAN: 978-90-73592-36-0, pag. 159-167 (peer review)

PRESENTATIONS IN ACADEMIC CONFERENCES AND SEMINARS

- **25 Oct – 26 Oct 2021**: Presenter at the 'International Conference on Data Analytics for Business and Industry' of the paper "Dynamic portfolio selection: Naive estimators versus Multivariate GARCH, using a self-adjusted rebalancing approach" **(invited)**
- **10 May -13 May 2021**: Presenter at Global Conference on Services and Retail Management (GLOSERV-2021), On-line **(invited)**
- **15 Apr – 17 Apr 2020**: Presenter at the 9th International Conference on Mathematical and statistical methods for actuarial sciences and finance (e-MAF2020), On-line
- **9 – 11 Sep 2019**: Presenter at the conference AMASES XLIII 2019, Perugia (Italy)
- 2**3 – 26 Jun 2019**: Presenter at the conference EURO 2019, Dublin (Ireland)
- **13 – 15 Sep 2018**: Presenter at the conference: AMASES 2018, Napoli (Italy)
- **29 – 31 May 2018**: Presenter at the XV conference on computational management science (CMS 2018). Trondheim (Norway) (**invited**)
- **September 2017:** Invited speaker at a Seminar: 'ALM under distributionally robust optimization'. Pavia (Italy)
- **14 – 16 Sep 2017**: Presenter at the conference: AMASES 2017, Cagliari (Italy)
- **15 – 17 Sep 2016**: Presenter at the conference: AMASES 2016, Catania (Italy)
- **23 – 26 Aug 2016**: Presenter at the conference: COMPSTAT 2016, Oviedo (Spain)
- **28 – 29 Jan 2016**: Presenter at the conference: XVII Quantitative Finance Workshop, Pisa (Italy)
- **11 – 13 Jun 2015**: Presenter at the conference: 5th International Conference of the Financial Engineering and Banking Society, Nantes (France)
- **14 – 16 May 2015**: Presenter at the conference: Euro working group for Commodities and finance, Ankara (Turkey)
- **4 – 6 Dec 2014**: Presenter at the conference: Euro working group for Commodities and finance, Milan (Italy)

- **7 – 9 Jul 2014**: Presenter at the Second Young researchers meeting on BSDEs, Numerics and Finance. Bordeaux (France).
- **6 – 8 Jun 2013**: Presenter at the conference: 3-rd International Conference of the Financial Engineering and Banking Society. Paris. (France)
- **10 – 12 Apr 2012**: Presenter at the conference: Mathematical and Statistical Methods for Actuarial Science and Finance, Venice (Italy)
- **13 – 15 Sep 2012**: Presenter at the conference: Amases XXXVI 2012 Vieste, Italia
- **Nov 2011**: Invited speaker at the Seminar: Portfolio Allocation Using Multivariate Variance Gamma Distribution. Milano (Italy)
- **15 – 17 Sep 2011**: Presenter at the conference: XXXV Convegno Amases, Pisa (Italy).
- **27 – 28 Jan 2011**: Presenter and contributed speaker at the conference: XII Workshop of Quantitative Finance, Padova.

MEMBERSHIP

- **2012 – 2017 member of AIAF** (Associazione Italiana degli Analisti Finanziari). Member of the project: "Advanced models for finance".
- **Since June 2010** member of the **AMASES** (Association of Applied Math for Social and Economics Science) association.
- **Since January 2016** member of the National group for Mathematical Analysis, Probability and their Applications (**GNAMPA**) of the National institute of Mathematics (INdAM).

Administration and Collective responsibilities

- **3-6 July 2022** Organizer (with E. Mastrogiacomo) of the special section 'Multi-objective and advanced models for finance and insurance' at the conference EURO22, ESPOO Finland **(forthcoming)**
- **25-26 Ottobre 2021**: Organizer (with A. Barbiero) of the special sessions entitled 'Statistical and Financial Modeling' within the International Conference on Data Analytics for Business and Industry (DATA'21), Bahrain/online.
- **Since Feb 2021**: Member of the Technical Program Committee of the **3rd International Applied Mathematics, Modelling and Simulation Conference,** (AMMS2021) Paris, France – June, 24-26, 2021. http://www.amms.org/committee.html
- **May 2021 – Dec 2021** Member of the Technical Program Committee of the **International Conference on Statistics, Applied Mathematics and Computing Science(CSAMCS 2021),** Nanjing, China Nov 26-28, 2021 http://csamcs.org/gYLOaRrM
- **Jan 2021-Dec 2021**: Member of the Technical Program Committee of **The International Conference on Mathematics, Algorithm and Computer Simulation** (AMMCS2021)**,** Wuhan, China - Nov. 13-14, 2021. https://www.macsconf.org/commit
- **Jan 2021-Dec 2021**: Member of the Technical Program Committee of the **3rd International Conference on Advanced Information Science and System (AISS 2021)**. Sanya, China - Nov. 26-28, 2021. http://www.aiss2021.net/committee.html
- **Jan 2021 – Aug 2021**: Member of the Technical Program Committee of **the 5-th International Conference on Computer, Software and Modeling**. Rome, Italy - July 21-23, 2021. (http://www.iccsm.org/committee.html)
- **Jan 2021 – Jun 2021:** Member of the Scientific and Paper Review Committee of the '**Global Conference on Services and Retail Management**' (GLOSERV 2021). Naples, Italy - May 11-13, 2021. (http://economia.unipv.it/sitonuovo/?pagina=p&titolo=Date-Esami)

- **Sep-2019** Conference **AMASES 2019**, organizer of the special sessions entitled 'Innovative models for insurance' and 'Advanced methods in financial modeling' with Edit Rroji, Annamaria Gambaro and Immacolata Oliva. Perugia, Italy.
- **Sep-2018** Conference **AMASES 2018**, organizer of the special session entitled 'Time series modeling in finance and insurance' with Edit Rroji. Naples, Italy.
- **Sep 2014 – Dec 2014**: Member of the Organizing Committee for the Conference: **Euro Working Group for Commodities and Financial Modelling**; held in Milan, Italy - Dec. 4-6, 2014.

SUMMER AND WINTER SCHOOLS

- **Jan 15 – 21, 2017**: Stochastic programming with applications in energy, logistics and finance, Passo del Tonale, Italy
- **Oct 25 – 27, 2016**: International School in Actuarial Mathematics (UNISActuarial School 2016). Salerno, Italy.
- **Jul 3 – 16, 2011**: Summer course in Mathematics, Cortona, Italy.
  Course: "Stochastic and Numerical Methods in Finance"
- **Aug 2007**: Summer course in Mathematics, Perugia, Italy.
  Courses: "Probability" & "Operational Research"

REFEREE ACTIVITIES

Financial Markets and Portfolio Management; International Review of Financial Analysis; Annals of operations research; Decisions in Economics and Finance; International Journal of Business Intelligence and Data Mining; International Journal of Portfolio Analysis and Management; Entropy

COMPUTER SKILLS

- Software Applications: Scientific WorkPlace 5.5, Microsoft Office (Word, Excel, Power Point).
- Econometrics and Statistics software: E-views, Gauss.
- Programming languages: C++, MATLAB, Visual Basic, R.

LANGUAGE SKILLS

Italian – Excellent **English** – Fluent

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