

UNIVERSITY OF MILAN

Selection procedure for recruiting full professors under art. 18, paragraph 1, of Law No.240/2010 for competition sector 13-STAT-04, (scientific-disciplinary sector STAT-04 / A____) at the Dipartimento di Matematica "FEDERIGO ENRIQUES", (announcement published in Official Gazette 99 (165), IV serie speciale_ del _13 dicembre 2024_- Competition code 5656)

Sara Biagini

CURRICULUM VITAE

(N.B. CV MUST BE OF UP TO 30 PAGES AND INCLUDE THE DETAILS CANDIDATES CONSIDER USEFUL FOR THE ASSESSMENT.

ALL THE TITLES INSERTED BELOW ARE JUST EXAMPLES THAT CAN BE REPLACED, CHANGED OR COMPLETED)

PERSONAL DATA (DO NOT INCLUDE YOUR PERSONAL ADDRESS AND LANDLINE OR MOBILE PHONE NUMBER)

SURNAME	BIAGINI
NAME	SARA
DATE OF BIRTH	20 TH JULY 1974

QUALIFICATIONS

DEGREE

Laurea con lode in Matematica (MSc in Mathematics, magna cum laude).
Obtained from Pisa University, 1999.
Title of the thesis: 'La trasformata di Esscher e sue applicazioni finanziarie'

DOCTORAL DEGREE OR EQUIVALENT QUALIFICATION EARNED IN ITALY OR ABROAD / MEDICAL SPECIALISATION DIPLOMA OR EQUIVALENT QUALIFICATION, FOR THE RELEVANT SECTORS, EARNED IN ITALY OR ABROAD

Perfezionamento con lode in Matematica per le applicazioni finanziarie e assicurative (PhD in Mathematics applied to finance and insurance, magna cum laude).
Obtained from Scuola Normale Superiore, 2005.
Title of the thesis: 'Convex duality in Financial Theory with General Semimartingales'.

FURTHER QUALIFICATIONS

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TEACHING ACTIVITIES

CLASSES AND MODULES

All courses below were conducted in compliance with the teaching load required for the role and, unless otherwise

indicated, I was the course instructor.

LUISS G. Carli.
Undergraduate level: Mathematical Finance (2016-today) in the fall semester, Mathematics II (2015-2016) in the fall semester. Master level: Probability(2019-2021), Mathematical Finance (2015-18), Mathematical Methods for Economics and Finance (2021-23), Derivatives (current). All the quantitative courses take place in the fall semester.
University of Pisa.
Undergraduate level: Mathematical Finance(2011-2014), Calculus for Economics (2008-2011). Master level: Financial Derivatives, Mathematical Methods for Financial Markets (2010-2015).
Princeton University.
Master level: Interest rate models, Spring 2007.
University of Perugia.
Master level: Mathematics for Risk Management; Advanced Calculus; Financial Mathematics, years 2005-2008. PhD level: Finance (with S. Herzel) (2002-08).

COMPLEMENTARY TEACHING ACTIVITIES AND SERVICE ACTIVITIES TO STUDENTS

MENTORING BACHELOR'S DEGREE, MASTER'S DEGREE, PhD, AND SPECIALISATION SCHOOL DISSERTATIONS AND THESES

Advising: PhD students & Post-Docs
2021 - 22 Maria Arduca, post-doc at LUISS, PhD from Milano Bicocca. 2019 - 21 Margherita Zanella, post-doc at LUISS, PhD from Pavia Uni. Co-advised with Fausto Gozzi. 2015 Candia Riga, PhD from Scuola Normale Superiore. Co-advised with Rama Cont.
Advising: undergraduate & master students
2015- today: 41 thesis at LUISS University, 7 Master Theses in Mathematical Finance and Probability, and 34 BA theses in (applied) mathematical finance (Economics & Business)
2008- 2014: 7 Master thesis in Finanza e Mercati (FAMF) at Pisa University.

TUTORING BACHELOR'S DEGREE, MASTER'S DEGREE, AND PhD STUDENTS

Perugia University: 2002-05 assistant lecturer in the course Mathematics, first year in the BA Economics and Business, fall semester, and in the course Mathematical Finance, fall semester, third year of the same BA.

SEMINARS

During my career, I've been invited to more than 40 Departmental seminars in Italy, Europe and in the US, from the LSE and Boston University to Princeton, UT at Austin, University of Michigan, Dublin and Paris (Paris Dauphine, ENSAE, Polytechnique and two Bachelier Seminars), University of Oslo, and many others. Seminars last from 1h to 2h.
Here is a selected list of recent ones:
<ul style="list-style-type: none"> Peking University School of Mathematical Sciences seminar, September 19, 2024. Title: <i>Carbon neutrality and net-zero regulation</i>. Finance of Energy Markets Laboratory (FiME) group seminar at IHP, June 21, 2024. Title: <i>Carbon neutrality and net-zero in compliance markets</i>.

- Department of Statistics and Operations Research at the University of Vienna, seminar, May 27, 2024. Title: *Emission impossible: balancing environmental concerns and inflation*.
- Seminari del Dipartimento di Economia e Finanza Tor-Vergata, May 24, 2023. Title: *Optimal ETS emission regulation*.
- Imperial Event, March 22, 2023. Joint seminar with the EEE Control and Power group at the Imperial College London. Title: *Optimal dynamic regulation of carbon emissions market*.

Here is a selected list of non-recent ones:

- Bilkent University Series in Financial Mathematics, March 26, 2019
- Statistics and mathematics Seminar, WU Wien, January 2017
- Nomura Seminar, Oxford, May 2015
- London Mathematical Finance Seminar, London, March 2013
- Bachelier Seminar at Institute H. Poincaré, Paris, May 2012
- Nomura Seminar, Oxford, March 2012
- Mathematical Finance Seminar, Dublin City University, February 2011
- Financial Mathematics Seminar (two seminars), University of Michigan, April 2009
- Mathematical Finance Seminar, UTexas at Austin, October 2007
- Mathematical Finance Seminar, Boston University, July 2007
- Mathematical Finance Seminar, UT at Austin, April 2007
- Columbia Probability Seminar, Columbia University, February 2007
- Seminar on Financial Mathematics, ETH Zurich, November 2006
- Seminar of the TU Math Department, Helsinki U-Technology, October 2006
- ORFE Seminar, Princeton, March 2006
- Bachelier Seminar at IHP, Paris, December 2005
- 5th Seminar in Stochastic Analysis, Centro Stefano Franscini, Ascona, June 2005
- Berlin Workshop for Young Researchers, Berlin, January 2004

SCIENTIFIC RESEARCH ACTIVITIES

SCIENTIFIC PUBLICATIONS

1. Authors: S. Biagini, G. Zitkovic

- Title: Representation of random variables as Lebesgue integrals
- Journal: Bernoulli, no. 30:3, pp 1878-1893
- Date of publication: August 2024
- DOI: 10.3150/23-BEJ1656

2. Authors: R. Aid, S. Biagini

- Title: Optimal dynamic regulation of carbon emissions market
- Journal: Mathematical Finance, no. 33(1) pp 80-115
- Date of publication: January 2023
- DOI: 10.1111/mafi.12364

3. Authors: S. Biagini, F. Gozzi, M. Zanella

- Title: Robust portfolio choice with sticky wages
- Journal: SIAM Journal of Financial Mathematics, no. 13 (3), pp 1004-1039
- Date of publication: 2022
- DOI: 10.1137/21M1429722

4. Authors: S. Biagini, A. Cerny

- Title: Convex Duality and Orlicz Spaces in Expected Utility Maximization
- Journal: Mathematical Finance, no. 30 (1) pp 85-127
- Date of publication: 2020
- DOI: 10.1111/mafi.12209

5. Authors: S. Biagini, M. Pinar

- Title: The robust Merton problem of an ambiguity averse investor
- Journal: Mathematics and Financial Economics, no. 11(1), pp 1-24
- Date of publication: 2017
- DOI: 10.1007/s11579-016-0168-6

6. Authors: S. Biagini, B. Bouchard, K. Kardaras, M. Nutz

- Title: Robust Fundamental Theorem for Continuous Processes
- Journal: Mathematical Finance, no. 27(4) pp 963-987
- Date of publication: October 2017
- DOI: 10.1111/mafi.12110

7. Authors: S. Biagini, J. Bion-Nadal

- Title: Dynamic quasi concave performance measures
- Journal: Journal of Mathematical Economics, no. 55, pp143-153
- Date of publication: 2014
- DOI: 10.2139/ssrn.2197272

8. Authors: S. Biagini, M. Pinar

- Title: The best Gain-Loss Ratio is a poor performance measure
- Journal: SIAM Journal of Financial Mathematics, no. 4-1, pp 228-242
- Date of publication: 2013
- DOI: 10.1137/120866774

9. Authors: S. Biagini, A. Cerny

- Title: Admissible strategies in semimartingale portfolio selection
- Journal: SIAM Journal on Control and Optimization, no. 49(1), pp 42-72
- Date of publication: 2011
- DOI: 10.1137/090774458

10. Authors: S. Biagini, P. Guasoni

- Title: Relaxed Utility Maximization in Complete Markets
- Journal: Mathematical Finance, No 21 no. 4, pp 703-722
- Date of publication: 2011
- DOI: 10.1111/j.1467-9965.2010.00451.x

11. Authors: S. Biagini, M. Frittelli, M. Grasselli

- Title: Indifference price with general semimartingales
- Journal: Mathematical Finance, no. 21(3), pp 423-446
- Date of publication: 2011
- DOI: 10.1111/j.1467-9965.2010.00451.x

12. Authors: S. Biagini, M. Frittelli

- Title: A Unified Framework for Utility Maximization Problems: An Orlicz Spaces Approach
- Journal: The Annals of Applied Probability, no. 18/3, pp 929-966
- Date of publication: 2008
- DOI: 10.1214/07-AAP471

13. Authors: S. Biagini, M. Frittelli

- Title: The supermartingale property of the optimal wealth process for general semimartingales
- Journal: Finance and Stochastics, no. 11/2, pp 253-266
- Date of publication: 2007
- DOI: 10.1007/s00780-006-0027-3

14. Authors: S. Biagini, M. Frittelli

- Title: Utility maximization in incomplete markets for unbounded processes
- Journal: Finance and Stochastics, no. 9/4, pp 493-517
- Date of publication: 2005

	<ul style="list-style-type: none"> DOI: 10.1007/s00780-005-0158-4
15. Authors: S. Biagini, M. Frittelli	<ul style="list-style-type: none"> Title: On the super replication price of unbounded claims Journal: The Annals of Applied Probability, no. 14/4, pp 1970-1991 Date of publication: 2004 DOI: 10.1214/105051604000000411

PREPRINTS

<ul style="list-style-type: none"> Author: S. Biagini. Title: Carbon neutrality and net-zero regulation. Submitted, 2024. Preprint at SSRN Authors: S. Biagini, E. Biffis, K. S. Nobari. Submitted 2024. Preprint at SSRN Authors R. Aid, S. Biagini, M. Arduca and L. Taschini. In preparation.

ACADEMIC VISITS

<ul style="list-style-type: none"> Imperial College, collaboration with prof Enrico Biffis and Imperial IX Lab on climate change, March 2024 (two weeks). Imperial College, collaboration with prof Enrico Biffis and Imperial IX Lab on climate change, February- March 2023 (one month). Paris Dauphine, in collaboration with prof Rene Aid and the FIME center (2020-today). Oslo Academy of Science, under Stochastics in Environmental and Financial Economics (SEFE) project May 2015-June 2015. The London School of Economics Statistics Department, from 01/2015 to 03/2015 (three months). Dublin City University Mathematics Dept, February 22-26 2011. Collegio Carlo Alberto Visiting Research Fellow of the Collegio, two months, May-June 2009. University of Michigan, Ann Arbor. Mathematics Dept, Apr 6-11 2009. Columbia University, New York. Mathematics Dept, Jan 18- 28 2009. Columbia University, New York. IEOR Dept, 26 Oct- 2 Nov 2007. University of Texas at Austin. Visiting Research Fellow, Mathematics Dept, 3 weeks, October 2007. Boston University. Visiting Research Fellow, Mathematics Dept, June-July 2007. Princeton University. Visiting Professor, ORFE Dept, five months, Spring 2007 . Ecole Polytechnique de France. June 2006, under AMaMeF short visit grant no. 901.
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ORGANISATION, SUPERVISION AND COORDINATION OF NATIONAL AND INTERNATIONAL RESEARCH CENTRES OR GROUPS, OR PARTICIPATION IN THEM

<ul style="list-style-type: none"> 2022 PRIN PROJECT <i>Impact of the Human Activities on the Environment and Economic Decision Making in a Heterogeneous Setting: Mathematical Models and Policy Implications</i>, 24 months - member, PI F. Gozzi (€ 250,000). 2017 PRIN PROJECT <i>The Time-Space Evolution of Economic Activities: Mathematical Models and Empirical Applications</i>, 36 months - member, PI F. Gozzi (€ 247,000). 2015 PRIN PROJECT <i>Deterministic and stochastic evolution equations</i>, 36 months - member, PI A. Lunardi. 2008 PRIN PROJECT <i>Teoria generale dei Processi Stocastici e Finanza Matematica</i>, 24 months - member, PI M. Frittelli. 2006 AMAMEF short visit grant: spent at Ecole Polytechnique de France on a project regarding model free pricing measures € 1,000. 2006 PRIN PROJECT <i>Finanza Stocastica: applicazioni della Teoria Generale dei Processi Stocastici</i>, 24 months - member, PI W. Runggaldier. 2004 PRIN PROJECT <i>Dualità in Finanza Matematica</i>, 24 months - member, PI W. Runggaldier.

SUPERVISION OF OR PARTICIPATION IN PUBLISHING COMMITTEES OF SCIENTIFIC MAGAZINES

(For each entry, specify year, role, scientific magazine, duration, etc.)

Associate Editor for:
<ul style="list-style-type: none"> • Mathematical Finance, Wiley, since 2021 • Review of Derivatives Research, Springer (2018-23)
Managing editor for:
<ul style="list-style-type: none"> • International Journal of Theoretical and Applied Finance, World Scientific, since 2022
Referee for many international journals in pure and applied mathematics, including:
<p>Annals of Applied Probability, Applied Mathematical Finance, Finance and Stochastics, Journal of Applied Probability, SIAM Journal of Control and Optimization, Journal of Functional Analysis, Mathematics and Financial Economics, SIAM Journal of Financial Mathematics, J. Banking and Finance, Stochastic Processes and their Applications, Mathem. Oper. Research Optimization.</p>

COMPETITIVE FUNDING OBTAINED AS A PROJECT SUPERVISOR

1. Funding of € 3,000 from LUISS for the co-organization of the international conference: *Mathematics of Uncertain Systems for Economics and Finance*, to be held in Rimini, May 2025.
2. Annual research funding allocations from LUISS assigned on an internal competitive basis, on average € 5,000 per year.
3. Funding of € 8,000 from LUISS for the co-organization (with Uni. Bielefeld) of the workshop *Taming Uncertainty and Complexity in Economics and Finance*, May 26-28, 2022.
4. 2006 AMAMEF short visit grant: spent at Ecole Polytechnique de France on a project regarding model free pricing measures € 1,000.

HOLDING PATENTS

(For each patent, specify authors' names, title, classification (national or international), patent number, etc.)

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NATIONAL AND INTERNATIONAL AWARDS AND ACCOLADES FOR RESEARCH ACTIVITY

- MINERVA Foundation Lectures: "Topics in portfolio optimization with general underlying assets" 2009. Instructor of a prestigious graduate course, on appointment by Y. Karatzas, Columbia University
- INDAM-SIMAI prize 2005. Best Italian Ph.D. thesis in Applied Mathematics of the year (awarded in 2006)

MEMBERSHIP OF RENOWNED SCIENTIFIC ACADEMIES

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SPEAKING AT CONFERENCES AND CONVENTIONS OF INTERNATIONAL INTEREST

Selected recent ones are (some plenary):
<ul style="list-style-type: none"> • 12th general AMaMeF conference, to be held from 23 to 27 June 2025 in Verona, Italy (plenary).

- **7th Berlin Workshop on Mathematical Finance for Young Researchers.** Humboldt University Berlin, September 4-6 2024 (plenary). Title: *Emission impossible: balancing environmental concerns and inflation.*
- **Risk Mitigation - Climate, Finance and Energy.** Humboldt University Berlin, September 2-3 2024 (plenary). Title: *Carbon neutrality and net-zero regulation.*
- **SIAM FM 2023, Session on Climate Risk Modelling and Green Investing.** Philadelphia, June 2023. Title: *Optimal dynamic regulation in carbon markets.*
- **Second Workshop on Energy, Climate, and ESG.** Oslo, May 3-5 2023 (plenary). Title: *Optimal dynamic regulation in carbon markets*
- **Bachelier World Congress,** June 2022 (Session in commemoration of Mark Davis). Title: *Robust portfolio choice with sticky wages.*
- **13th International Workshop on Stochastic Models and Control.** University of Lubeck 2022 (plenary). Title: *Regulation of carbon markets.*
- **15th Viennese Conference on Optimal Control and Dynamic Games,** Vienna July 9-11, 2022. Title: *Robust portfolio choice with sticky wages.*
- **Conference Advances in Mathematical Finance and Optimal Transport,** Centro de Giorgi, June 27-30, 2022 (plenary). Title: *Robust portfolio selection in a delay case.*
- **Seminaire Bachelier,** Institute Henri Poincare Paris, 2022. Title: *Robust portfolio choice with sticky wages.*
- **Uncertainty and Risk,** A Workshop to Commemorate Frank Knight and John Maynard Keynes, hosted by Alan Turing Institute, March 17-19 2021 (plenary). Title: *Robust portfolio choice with sticky wages.*

Selected non-recent ones are:

- Mathematical Economics and Finance, Uni. Manchester, July 2017
- Workshop on Stochastic Analysis and Optimisation, King's College London, June 2017
- 15th Winter School on Mathematical Finance, University of Amsterdam, Lunteren, Holland, January 2016
- Mathematics and Financial Economics, University of Bielefeld, ZIF Bielefeld, May 2015
- Mathematical Finance: Arbitrage and Portfolio Optimization, Banff Research Station, Canada, May 2014
- Bachelier Seminar at Institute H. Poincare, Paris, May 2012
- Mathematical Finance Workshop at LUISS, Roma, March 2012
- ICIAM, Sect. Advances in Financial Maths, Vancouver, July 2011
- Workshop in Financial Mathematics, Milano Statale University, April 2011
- Stochastic Analysis and Applications, Hammamet, October 2009
- NSF/CMBBS Conference on Convex Duality Methods in Mathematical Finance, UCSB, June 2008
- Stochastic Analysis and Applications, Princeton, June 2008
- Third AMAMEF Conference, Romania, Pitesti, May 2008
- First AMAMEF Conference, Antalya, April 2006
- 5th Seminar in Stochastic Analysis, Centro Stefano Franscini, Ascona, June 2005
- Berlin Workshop for Young Researchers, Humboldt University, Berlin, January 2004

Member of the following recruiting committees: <ul style="list-style-type: none"> • 2024 LUISS University, tenure track position in Mathematics in Economics and Finance (president), July 11. • 2024 University of Milan, tenure track position in Mathematics in Economics and Finance, November 14. • 2023 Dublin City University, post-doctoral position in Financial Mathematics, March 6. • 2022 University of Tor-Vergata, tenure track position in Mathematics in Economics and Finance, July 25. • 2022 Dublin City University, post-doctoral position in Financial Mathematics, February 21. • 2020 Dublin City University, assistant professor position in Financial Mathematics, February 3-4. • 2018 LUISS University, RTD A position in Mathematics in Economics and Finance, March 30. • 2008 University of Perugia, tenure track position in Mathematics in Economics and Finance, September 22. • Member/president of 5 post-doctoral recruiting committees in LUISS during the period 2015-2024.
Reviewer for national/international Research Councils: <ul style="list-style-type: none"> • 2016 Natural Sciences and Engineering Research Council of Canada (NSERC): Mathematical Finance national project reviewer. • 2016 MIUR (Italian Ministry of University): PRIN project reviewer for Economics and Finance.
Reporter of several international Ph.D. theses and member of Ph.D. committees (Milano Bicocca Economics, Padova Mathematics, Oslo Mathematics).

MANAGING, ORGANISATIONAL, AND SERVICE ACTIVITIES

MANAGING TASKS AND DUTIES UNDERTAKEN AT COLLEGIATE BODIES AND COMMITTEES, AT CONSIDERABLE PUBLIC AND PRIVATE INSTITUTIONS AND SCIENTIFIC AND CULTURAL ORGANISATIONS, OR AT THE UNIVERSITY OF MILAN OR AT OTHER UNIVERSITIES

At LUISS:

- Member of the 'Gruppo del Riesame' of the BA in Economics and Business since 2020;
- Responsible for the DD program with Nova Business School and the Stanford Summer School program since 2019.

THIRD MISSION ACTIVITIES

(Specify task/duty, institution, date, duration, etc.)

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CLINICAL-AID ACTIVITIES

(Specify date, duration, role, institution where the activity was carried out, etc.)

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Date

January 5, 2025

Place

La Spezia