Daniele Giachini

Scuola Superiore Sant'Anna — Institute of Economics and Department EMbeDS
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Born: May 18th, 1987 — San Benedetto del Tronto (AP), Italy
Nationality: Italian

Areas of Specialization and Research Interests

Financial Economics, Mathematical Economics, Models of Financial Markets with Heterogeneous Agents, Market Selection, Online Learning, Applications of Information Theory, Statistical Analysis of Simulated Agent-Based Models.

Current Position

Ricercatore a tempo determinato Legge 240/2010 art. 34 comma 3 lett. b (tenure-track Assistant Professor), SECS-P/01 "Economia Politica" (Economics), Institute of Economics and Department EMbeDS, Scuola Superiore Sant'Anna.

National Scientific Qualification

Italian "Abilitazione Scientifica Nazionale" in 13/A1 – ECONOMIA POLITICA Fascia II, valid from 31/05/2021 to 31/05/2030.

Education

12/10/2015 Philosophiae Doctor (PhD) in Economics, Scuola Superiore Sant'Anna, Pisa. Members of the examining committee: Prof. Giulio Bottazzi, Prof. Pietro Dindo, Prof. Stefano Marmi, Prof. Filippo Massari, Prof. Remco Zwinkels.

09/03/2012 Laurea Magistrale (Master Degree), summa cum laude, in *Scienze Economiche e Finanziarie* (Economics and Finance), Università Politecnica delle Marche, Ancona. Supervisor: Prof. Mauro Gallegati,

07/11/2009 Laurea Triennale (Bachelor Degree), summa cum laude, in *Economia, Mercati e Gestione d'Impresa* (Economics and Management), Università Politecnica delle Marche, Ancona. Supervisor: Prof. David Bartolini.

Grants and Awards

28/07/2023 2-year project funded by the program PRIN 2022 PNRR (progetti di ricerca di rilevante interesse nazionale – bando 2022 PNRR) of the Italian Ministry of University and Research. Title: "Analyzing climate Lobbying with a simulation Model based ON Dynamic Opinions (ALMONDO)". Role: Principal investigator and leader of the Scuola Superiore

Sant'Anna's unit. Other units: Università di Pisa, Università di Napoli Parthenope, Università di Camerino.

13/06/2023 2-year project funded by the program PRIN 2022 (progetti di ricerca di rilevante interesse nazionale – bando 2022) of the Italian Ministry of University and Research. Title: " Market Learning and Robust Predictions (MALERP)". Role: leader of the Scuola Superiore Sant'Anna's unit and substitute Principal investigator. Other units: Università di Bologna and Università di Venezia. Principal investigator: Prof. Filippo Massari (Università di Bologna).

14/12/2021 3-year project funded by the program PRIN 2020 (progetti di ricerca di rilevante interesse nazionale – bando 2020) of the Italian Ministry of University and Research. Title: "At the frontier of agent-based modelling: a new data driven framework for policy design toward sustainable and resilient economies". Role: leader of the Scuola Superiore Sant'Anna's unit. Other units: Università di Macerata, Università di Venezia, Università di Genova. Principal investigator: Prof. Luca Riccetti (Università di Macerata).

21/10/2015 Research fellowship for the period 01/11/2015 - 31/10/2016 (then extended until 31/10/2018) at Scuola Superiore Sant'Anna, Institute of Economics. Title of the fellowship: "Models of Financial Markets with Heterogeneous Agents", supervisor: Prof. Giulio Bottazzi. First two years funded by European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 640772—DOLFINS, principal investigator: Prof. Stefano Battiston,

25/09/2012 3-year PhD scholarship, International Doctoral Programme in Economics, Scuola Superiore Sant'Anna.

Publications & talks

PhD Thesis

Giachini, Daniele (2015), "Three Essays in Evolutionary Finance". Supervisor: Prof. Giulio Bottazzi.

Published Papers

2023 Bottazzi G., D. Giachini, and M. Ottaviani, "Market selection and learning under model misspecification". *Journal of Economic Dynamics and Control*, 156, 2023: 104739. Elsevier, the Netherlands. DOI: `https://doi.org/10.1016/j.jedc.2023.104739`.

2023 Antico A., G. Bottazzi, and D. Giachini, "On the Evolutionary Stability of the Sentiment Investor". In *Behavioral Finance and Asset Prices: The Influence of Investor's Emotions*, part of *Contributions to Finance and Accounting*, volume F234, 155-173. Springer International Publishing. DOI: `https://doi.org/10.1007/978-3-031-24486-5_7`.

2022 Vandin A., D. Giachini, F. Lamperti, and F. Chiaromonte, "MultiVeStA: Statistical Analysis of Economic Agent-Based Models by Statistical Model Checking". In *International Symposium: From Data to Models and Back*, part of *Lecture Notes in Computer Science*, volume 13268 LNCS, 3-6. Springer International Publishing. DOI: `https://doi.org/10.1007/978-3-031-16011-0_1`.

2022 Bottazzi G. and D. Giachini, "A general equilibrium model of investor sentiment". *Economics Letters*, 218, 2022: 110749. Elsevier, the Netherlands. DOI: `https://doi.org/10.`

`1016/j.econlet.2022.110749`.

2022 Vandin A., D. Giachini, F. Lamperti, and F. Chiaromonte, “Automated and Distributed Statistical Analysis of Economic Agent-Based Models”. *Journal of Economic Dynamics and Control*, 143, 2022: 104458. Elsevier, the Netherlands. DOI: `https://doi.org/10.1016/j.jedc.2022.104458`.

2022 Bottazzi G. and D. Giachini, “Strategically biased learning in market interactions”. *Advances in Complex Systems* 25(2&3), 2022: 2250004. World Scientific, Singapore. DOI: `https://doi.org/10.1142/S0219525922500047`.

2022 Calvino F., D. Giachini, and M. Guerini, “The age distribution of business firms”. *Journal of Evolutionary Economics* 32(1), 2022: 205-245. Springer Nature, Switzerland. DOI: `https://doi.org/10.1007/s00191-021-00747-2`.

2021 Giachini D. , “Rationality and asset prices under belief heterogeneity”. *Journal of Evolutionary Economics* 31(1), 2021: 207-233. Springer Nature, Switzerland. DOI: `https://doi.org/10.1007/s00191-020-00708-1`.

2020 Fagiolo G., D. Giachini, and A. Roventini, “Innovation, finance, and economic growth: an agent-based approach”. *Journal of Economic Interaction and Coordination* 15, 2020: 703-736. Springer Nature, Switzerland. DOI: `http://doi.org/10.1007/s11403-019-00258-1`.

2019 Bottazzi G. , P. Dindo, and D. Giachini, “Momentum and reversal in financial markets with persistent heterogeneity”. *Annals of Finance* 15, 2019: 455-487. Springer Nature, Switzerland. DOI: `https://doi.org/10.1007/s10436-019-00353-0`.

2019 Bottazzi G., and D. Giachini. “Betting, Selection, and Luck: A Long-Run Analysis of Repeated Betting Markets”. *Entropy* 21(6), 2019: 585. MDPI, Switzerland. DOI: `https://doi.org/10.3390/e21060585`.

2019 Bottazzi G., and D. Giachini. “Far from the madding crowd: Collective wisdom in prediction markets”. *Quantitative Finance* 19(9), 2019: 1461-1471. Taylor and Francis, UK. DOI: `https://doi.org/10.1080/14697688.2019.1622285`.

2018 Bottazzi G., P. Dindo, and D. Giachini. “Long-run heterogeneity in an exchange economy with fixed-mix traders”. *Economic Theory* 66(2), 2018: 407-447, Springer Nature, Switzerland. DOI: `https://doi.org/10.1007/s00199-017-1066-8`.

2017 Bottazzi G. and D. Giachini, “Wealth and price distribution by diffusive approximation in a repeated prediction market”. *Physica A: Statistical Mechanics and its Applications* 471, 2017: 473-479. Elsevier, the Netherlands. DOI: `http://dx.doi.org/10.1016/j.physa.2016.12.012`.

Working Papers

2020 Bottazzi G. and D. Giachini, "Selection in incomplete markets and the CAPM portfolio rule". LEM Working Papers Series 2020/29, Institute of Economics, Sant'Anna School of Advanced Studies, Pisa, Italy. `https://www.lem.sssup.it/WPLem/files/2020-29.pdf`.

Conference and Workshop Talks

2023 Annual Congress of the European Economic Association (EEA-ESEM 2023), Barcelona, title: "Market selection and learning under model misspecification",

2022 The 34th Annual EAEPE Conference 2022 (EAEPE 2022), Naples, title: "Market Learning",

2022 Workshop 2022 of the EMbeDS Department of Excellence of Scuola Superiore Sant'Anna, Pisa, organizer of the session "Economic Theory and Learning Processes",

2022 Ital-IA Convegno nazionale CINI sull'intelligenza artificiale, Workshop *AI per la Finanza ed il Commercio*, Turin (online), title: "Market learning",

2021 The Second Conference on Zero/Minimal Intelligence Agents (ZIMI Conference), Boston (online), title: "Market structure or agent rationality: How efficiency trades with belief updating?",

2021 The 33rd Annual EAEPE Conference 2021 (EAEPE 2021), Naples (online), title: "Automated and Distributed Statistical Analysis of Economic Agent-Based Models",

2021 International Schumpeter Society Conference (ISS), Rome (online), title: "The age distribution of business firms",

2021 Workshop on the Economic Science with Heterogeneous Interacting Agents (WEHIA), Milan (online), title: "Market selection and learning under model misspecification",

2021 Computing in Economics and Finance (CEF), Tokyo (online), title: "Market selection and learning under model misspecification",

2020 XXI Workshop in Quantitative Finance, Naples, title: "Market Learning",

2019 The 31st Annual EAEPE Conference 2019 (EAEPE 2019), Warsaw, organizer (with M. Guerini, F. Lamperti, A. Mazzocchetti) of the special session "Agent-based modelling in macroeconomics and finance: issues, problems and possible futures", and presenter of a talk on "Artificial Prediction Markets for Model Aggregation",

2019 Workshop on the Economic Science with Heterogeneous Interacting Agents (WEHIA), London, title: "Fixed-Mix and Mean-Variance Investors with Imperfect Information in Incomplete Markets",

2019 First Young Economists of Tuscan Institutions (YETI) meeting, Siena, title: "Rationality and Asset Prices under Belief Heterogeneity",

2018 The 30th Annual EAEPE Conference 2018 (EAEPE 2018), Nice, organizer (with M. Guerini, F. Lamperti, A. Mazzocchetti) of the special session "Evolutionary models and the relation between financial and real markets", and presenter of a talk on "New Results on Betting Strategies, Market Selection, and the Role of Luck",

2018 A unifying approach in the study of complex systems: the role of heterogeneity and the concept of time in models and data, Pisa, title: "Rationality and Asset Prices under Belief Heterogeneity",

2018 International Symposium in Computational Economics and Finance (ISCEF), Paris, title:

"Innovation, Finance, and Economic Growth: an Agent-Based Approach",

2018 Second Finexus Conference on Financial Networks and Susteinability, Zurich, title: "Innovation, Finance, and Economic Growth: an Agent-Based Approach",

2017 Finance and Economic Growth in the Aftermath of the Crisis, Milan, title: "The Finance-Growth Nexus in a Model with Locally Interacting Agents",

2017 Inaugural Conference Mathematical Economics and Finance (invitation-only), Manchester, title: "Long-run Heterogeneity in an Exchange Economy with Fixed-Mix Traders",

2017 Workshop on the Economic Science with Heterogeneous Interacting Agents (WEHIA), Milan, title: "Rationality and Asset Prices: the Less the Better?",

2016 Annual Meeting of the Association of Southern European Economic Theorists (ASSET), Thessaloniki, title: "A Model of Market Sentiment",

2016 Research in Behavioral Finance Conference (RBFC), Amsterdam, title: "A Model of Market Sentiment",

2016 Computing in Economics and Finance (CEF), Bordeaux, title: "A Model of Market Sentiment",

2016 Workshop on the Economic Science with Heterogeneous Interacting Agents (WEHIA), Castelló de la Plana, title: "A Model of Market Sentiment",

2015 Annual Meeting of the Association of Southern European Economic Theorists (ASSET), Granada, title: "The Wisdom of the Crowd, Reconsidered",

2015 PhD workshop, Scuola Superiore Sant'Anna, Pisa, title: "The Wisdom of the Crowd, Reconsidered",

2015 Workshop on the Economic Science with Heterogeneous Interacting Agents (WEHIA), Sophia Antipolis , title: "Long-run Heterogeneity in a Lucas' Tree Economy with Fixed-Mix Traders",

2015 XVI Workshop in Quantitative Finance (poster session), Parma, title of the poster: "Persistent Fluctuations in a Market for Long-Lived Assets",

2014 Annual Meeting of the Association of Southern European Economic Theorists (ASSET), Aix-en-Provence, title: "Persistent Fluctuations in a Market for Long-Lived Assets",

2014 PhD workshop, Scuola Superiore Sant'Anna, Pisa, title: "Persistent Fluctuations in a Market for Long-Lived Assets",

2012 Workshop European governance and the problems of peripheral countries (WWWforEurope Project), Vienna, title: "The evolution of rurality in the experience of the "Third Italy"".

Seminar Talks

2020 Institute of Economics seminar, Scuola Superiore Sant'Anna, title: "The age distribution of business firms",

2017 Institute of Economics seminar, Scuola Superiore Sant'Anna, title: "The Less the Better: Naive Traders and Asset Prices",

2016 Institute of Economics seminar, Scuola Superiore Sant'Anna, title: "A Model of Market Sentiment",

2015 Summer School of Mathematics for Economics and Social Science by Centro De Giorgi, San Miniato (PI), series of seminars (7 hours) on "Evolutionary Finance and the Wisdom of the

Crowd",

2015 Department of Banking and Finance weekly internal seminar, University of Zurich, title: "A Model of Market Sentiment",

2015 Department of Banking and Finance weekly internal seminar, University of Zurich, title: "Long-run Heterogeneity in a Lucas' Tree Economy with Fixed-Mix Traders".

Other Contributions

Sotte, F., R. Esposti, and D. Giachini (2012), "The evolution of rurality in the experience of the "Third Italy" , Workshop European governance and the problems of peripheral countries (WWWforEurope Project), Vienna: WIFO, July 12th-13th.

Teaching Activities

05/2023-06/2023 Teacher of the course "Financial Economics" (together with Professor Giulio Bottazzi, in the PhD program in Economics by Scuola Superiore Sant'Anna), 20 hours, personal teaching load: 10 hours;

04/2023-05/2023 Teacher of the course "Finanza Evolutiva" (together with Professor Giulio Bottazzi, internal course for Allievi Ordinari of Scuola Superiore Sant'Anna), 10 hours, personal teaching load: 5 hours;

02/2023-05/2023 Teacher of the course "Advanced Microeconomics" (together with Professors Pier Mario Pacini and Thomas Ivar Renstrom, in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant'Anna), 12 ECTS, personal teaching load: 4 ECTS;

09/2022-12/2022 Teacher of the course "Financial Economics" (together with Professor Giulio Bottazzi, in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant'Anna), 9 ECTS, personal teaching load: 4 ECTS;

04/2022-06/2022 Teacher of the course "Financial Economics" (together with Professor Giulio Bottazzi, in the PhD program in Economics by Scuola Superiore Sant'Anna), 20 hours, personal teaching load: 10 hours;

04/2022-05/2022 Teacher of the course "Information Theory" (together with Professor Giulio Bottazzi, internal course for Allievi Ordinari of Scuola Superiore Sant'Anna), 10 hours, personal teaching load: 5 hours;

09/2021-12/2021 Teacher of the course "Metodi Matematici e Statistici per Giuristi" (together with Professors Luca Gori and Dario Trevisan, in the Master "Diritto dell'innovazione per l'impresa e le istituzioni" by University of Pisa), 9 ECTS, personal teaching load: 3 ECTS;

09/2021-12/2021 Teacher of the course "Financial Economics" (together with Professor Giulio Bottazzi, in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant'Anna), 9 ECTS, personal teaching load: 4 ECTS;

05/2021-06/2021 Teacher of the course "Topics in Financial Economics" (together with Professor Giulio Bottazzi, internal course for Allievi Ordinari of Scuola Superiore Sant'Anna), 10 hours, personal teaching load: 5 hours;

02/2021-03/2021 Teacher of the course "Financial Economics" (together with Professor Giulio Bottazzi, in the PhD program in Economics by Scuola Superiore Sant'Anna), 20 hours, personal teaching load: 10 hours;

09/2020-12/2020 Teacher of the course “Financial Economics” (together with Professor Giulio Bottazzi, in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna), 9 ECTS, personal teaching load: 4 ECTS;

02/2020-03/2020 Teacher of the course “Financial Economics” (together with Professor Giulio Bottazzi, in the PhD program in Economics by Scuola Superiore Sant’Anna), 20 hours, personal teaching load: 10 hours;

09/2019-12/2019 Teacher of the course “Financial Economics” (together with Professor Giulio Bottazzi, in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna), 9 ECTS, personal teaching load: 4 ECTS;

04/2019-05/2019 Teacher of the course “Financial Economics” (together with Professor Giulio Bottazzi, in the PhD program in Economics by Scuola Superiore Sant’Anna), 12 hours, personal teaching load: 6 hours;

09/2018-12/2018 Teaching assistant for the course “Financial Economics” taught by Professor Giulio Bottazzi (in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna);

09/2017-12/2017 Teaching assistant for the course “Financial Economics” taught by Professor Giulio Bottazzi (in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna);

09/2016-12/2016 Teaching assistant for the course “Financial Economics” taught by Professor Giulio Bottazzi (in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna);

02/2016-06/2016 Teaching assistant for the course “Financial Economics” taught by Professor Giulio Bottazzi (in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna);

02/2015-06/2015 Teaching assistant for the course “Financial Economics” taught by Professor Giulio Bottazzi (in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna);

02/2014-06/2014 Teaching assistant for the course “Financial Economics” taught by Professor Giulio Bottazzi (in the Master of Science in Economics by University of Pisa and Scuola Superiore Sant’Anna);

09/2010-12/2010 Teaching assistant for the course “Economia Politica II” (Macroeconomics) taught by Professor Renato Balducci (in the Bachelor Degree in Economics by Università Politecnica delle Marche).

Other Research Activities

15/05/2012-15/07/2012 Research assistant in Regional Economics at Associazione Bartola, Piazzale Martelli 8, Ancona.

Refereeing Activities

Mind and Society, Industrial and Corporate Change, European Economic Review, North American Journal of Economics and Finance, Journal of Economic Dynamics and Control, Journal of Economic Behavior and Organization, Journal of Economic Interaction and Coordination, Journal of Evolutionary Economics, Journal of Systems Science and Systems

Engineering, Advances in Complex Systems, International Journal of Computational Economics and Econometrics.

Relevant Experiences

2023 Co-organizer of the Summer School of Mathematics for Economics and Social Science by Centro De Giorgi. Topic of the summer school "Dynamic Optimization in Economics and Finance",

2022 Co-organizer of the Summer School of Mathematics for Economics and Social Science by Centro De Giorgi. Topic of the summer school "Online Learning with Applications to Digital Markets",

01/2020-03/2020 Member of the judging committee for the attribution of one ANIA/ENBIFA scholarship (1500 euro) for the best master thesis on labor by a student of the University of Pisa,

16/09/2019-20/09/2019 Participant at Summer School of Mathematics for Economics and Social Science by Centro De Giorgi. Topic of the summer school "An introduction to random dynamical systems and their perturbations",

2018-... Member of Complexity Modelers Society of the Institute of Economics and EMbeDS Department of Excellence of Scuola Superiore Sant'Anna,

01/03/2015-30/05/2015 Visiting student at University of Zurich under the supervision of Prof. Thostern Hens with a Research Activity Program based on Evolutionary Finance,

15/09/2014-19/09/2014 Participant at Summer School of Mathematics for Economics and Social Science by Centro De Giorgi. Topic of the summer school "Games and Networks",

01/07/2013-05/07/2013 Participant at summer school in econometrics by CiDE. Topic of the summer school "Time Series Econometrics".

Support activities

2023-... Co-organizer of the LEM seminar series,

2021-... Point-person for the "CoMoS Economic Dynamics" group inside the Complexity Modelers Society of the Institute of Economics and EMbeDS Department of Excellence of Scuola Superiore Sant'Anna,

2019-2023 Editor of the LEM working papers series,

2019-2022 Organizer of four editions the annual PhD workshop of the Institute of Economics of Scuola Superiore Sant'Anna.

Computer Skills

OS Good knowledge of Linux-based and Windows operating systems, preferred: LinuxMint,

Languages/Softwares Good knowledge of C/C++, Octave, Matlab, Gnuplot, LaTex, Gretl. Fair knowledge of R, Stata.

International Certifications

2011 GRE, with Quantitative Reasoning score 166, above 94th percentile, 2011 TOEFL, with score 101/120.

Languages

Italian: Native,

English: Fluent.

Pisa, October 6th, 2023.