

Davide Lauria

Curriculum Vitae

Current Positions

- 2024 **Assistant Professor**, Department of Management, University of Bergamo, Bergamo, Italy.
- 2022 **Researcher Partner**, Department of Mathematics & Statistics, Texas Tech University, Lubbock, Texas, United States.

Experience

- 2022-2023 **Assistant Professor**, Department of Economics, Statistics and Finance, University of Calabria, Cosenza, Italy.
- 2021-2023 **Director of Software Development**, Jantz Analytics, Dallas, Texas, United States.
- 2022 **Quantitative Finance Lab Coordinator**, Department of Mathematics & Statistics, Texas Tech University, Lubbock, Texas, United States.
- 2018 - 2021 **Postdoctoral Researcher and Teaching Scholar**, Department of Mathematics & Statistics, Texas Tech University, Texas, United States.
- 2017 - 2018 **Postdoctoral Researcher**, *Department of Management, Economics and Quantitative Methods*, University of Bergamo, Bergamo, Italy.
- 2014 - 2015 **Junior Analyst - PhD student**, A DYNAMIC STOCHASTIC PROGRAMMING MODEL FOR ASSET LIABILITIES MANAGEMENT, UniCredit Pension Fund, Milano, Italy.
- 2014 - 2016 **Junior Analyst - PhD student**, DYNAMIC OPTIMIZATION TOOL FOR PENSION FUND MANAGEMENT, Allianz Investment Management Milano S.p.A., Milano, Italy.
- 2012 - 2013 **Senior Analyst**, ENGINEERING FOR DEVELOPING, [HTTPS://ISF.POLIMI.IT](https://isf.polimi.it), Politechnic University of Milan, Milano, Italy.

Research

Optimal chance-constrained pension fund management through dynamic stochastic control, *D.Lauria, G. Consigli, F. Maggioni*, OR Spectrum 44, 967–1007, 2022.

Nonparametric estimation of systemic risk via conditional value-at-risk, *A Belhad, D. Lauria, A. Trindade*, Journal of Risk, Vol. 25, No. 1, 2022, June 21, 2022.

Insuring Hollywood: A Movie Returns Index and the American Stock Market, *Lauria, D.; Phillips, W.D.*, J. Risk Financial Manag. 2021, 14, 189. <https://doi.org/10.3390/jrfm14050189>.

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Hedonic Models of Real Estate Prices: GAM Models; Environmental and Sex-Offender-Proximity Factors, Bailey J.R., Lauria D., Lindquist W.B., Mittnik S., Rachev S.T., J. Risk Financial Manag. 2022, 15(12), 601, June 21, 2022.

An Empirical Implementation of the Shadow Riskless Rate, Lauria, D.; Park, J.; Hu, Y.; Lindquist, W.B.; Rachev, S.T.; Fabozzi, F.J., Risks 2024, 12, 187.

Working Paper under revision

ESG-Valued Portfolio Optimization and Dynamic Asset Pricing, D. Lauria, B. Lindquist, S. Mittnik, S. Rachev, arXiv:2206.02854, in review at *Annals of Operations Research*.

Global and Tail Dependence: A Differential Geometry Approach, Lauria, D., S. Rachev and A. Trindade, arXiv:2106.05865, in review at *Extremes*.

Unifying Market Microstructure and Dynamic Asset Pricing, Davide Lauria, W. Brent Lindquist, Svetlozar T. Rachev and Yuan Hu, arXiv:2304.02356, in review at *The Review of Financial Studies*.

Enhancing CVaR portfolio optimisation performance with GAM factor models, D. Lauria, Lindquist B. W., S. Rachev, in review at *International Journal of Forecasting*.

Research Interests

Stochastic Processes.

Stochastic Programming/Convex Optimization.

Financial Econometrics.

Asset Pricing.

Asset and Liability Management.

Courses Taught

Undergraduate **Calculus III with Applications**, 45 hours, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.

Undergraduate **Mathematical Statistics I**, 45 hours, Fall 2020, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.

Undergraduate **Mathematical Statistics II**, 45 hours, Spring 2021, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.

Undergraduate **Quantitative theory of Interest**, 45 hours, Spring 2021, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.

Undergraduate **Mathematical Statistics for Engineers & Scientists**, 45 hours, Fall 2021, Spring 2022, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.

Undergraduate **Mathematical Finance**, 42 hours, Spring 2023, Department of Economics, Finance and Statistics, University of Calabria, Rende, Italy.

- Undergraduate **Calculus I-II**, 84 hours, Fall 2023, Department of Economics, Finance and Statistics, University of Calabria, Rende, Italy.
- Undergraduate **Methods and Models for Economics and Finance**, 72 hours, Spring 2024, Department of Economics, University of Bergamo, Bergamo, Italy.
- Undergraduate **Calculus I**, 72 hours, Fall 2024, Department of Management, University of Bergamo, Bergamo, Italy.
- Undergraduate **Mathematics for Economics**, 48 hours, Fall 2024, Department of Economics, University of Bergamo, Bergamo, Italy.
- Graduate **Stochastic Programming for Asset and Liability Management**, *Individual study - 20 hours*, Fall 2021, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.
- Graduate **Stochastic Programming**, *Individual study - 20 hours*, Fall 2021, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.
- Graduate **Mathematical Finance**, *Individual study - 20 hours*, Spring 2022, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.
- PhD Programs **Static Optimization**, 12 hours, PhD Program in Economic and Business Sciences, Cycle XXXVIII, University of Calabria.

Member of Doctoral Committees

- January, 2021 **Abotaleb Shirvani, Multiple Lévy subordinator with applications in Finance**, Texas Tech University.

Professional presentations

- September, 2016 **Pension Fund Liabilities Replication and Arbitrage Free Scenarios**, 40th AMASES Meeting, Catania, Italy.
- September, 2017 **Longevity Swap Pricing through Dynamic Stochastic Programming**, 2nd European Conference on Stochastic Optimization (ECISO 2017), Department of Roma Tre University in Rome.
- September, 2018 **Stochastic Programming for Asset and Liability Management**, *Seminars in Applied Mathematics*, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.
- March, 2021 **Global and Tail Dependence: A Differential Geometry Approach**, *Seminars in Applied Mathematics*, Department of Mathematics and Statistics, Texas Tech University, Lubbock, Texas, USA.
- December, 2023 **Global and Tail Dependence: A Differential Geometry Approach**, 17th International Conference on Computational and Financial Econometrics, HTW Berlin, University of Applied Sciences, Berlin, Germany, 16-18 December 2023.
- July, 2024 **Distributionally Robust Optimal Portfolios under ESG Ambiguity**, 18th International Joint Conference on Computational and Financial Econometrics and Computational and Methodological Statistics (CFE-CMStatistics 2024), Technical University of Denmark Copenhagen, Denmark, June 30rd to July 3th, 2024.

September, **Asymmetric Tail Dependence**, *A.M.A.S.E.S. XLVIII Annual Conference*, Ischia, 2024 September 5-6-7, 2024.

December **Distributionally Robust Optimal Portfolios and ESG Ambiguity**, *18th International Joint Conference on Computational and Financial Econometrics and Computational and Methodological Statistics (CFE-CMStatistics 2024)*, King's College London, London, UK, 14-16 December, 2024.

Grants and Funds

June 2021 **High Frequency Trading Strategies**, *Principal Investigator*, Private Grant - from Jantz Analytics to Texas Tech University, \$10000.

December **High Frequency Trading Strategies on Cryptocurrencies**, *Principal Investigator*, 2021 Private Grant - from Jantz Analytics to Texas Tech University, \$10000.

Education

2014 - 2016 **PhD program**, *Analytics for Economics and Business (AEB)*, Department of Management, Economics and Quantitative Methods, University of Bergamo, Italy.

PhD Thesis

Pricing and Hedging Pension Fund Liability via Portfolio Replication

2015 **Visiting period as PhD student**, JIAOTONG UNIVERSITY, Xi'an, China.

2014 **International Summer School on Risk Measurement and Control**, *Luiss Guido Carli University*, Roma, Italy.

2012 **Masters Degree in Economics**, *University of Pavia*, *Final Grade: 105/110*.

2007 **Bachelor in Economics of Financial Markets**, *University of Pavia*.

Principal Topics

- Econometrics for economics and financial analysis.
- Mathematical models for non-linear systems (optimal control, neural network, deterministic chaos).
- Behavioural economics.

Masters Thesis

Title *A Financial Model with Heterogeneous Agents*

Supervisors Fabio Tramontana & Andrea Fumagalli

Description An artificial financial market model with two types of agents with different but contagious beliefs has been developed and tested.

Computer skills

Intermediate C, C++, GAMS

Advanced OFFICE, MATLAB, PYTHON, R, LATEX, BLOOMBERG TERMINAL

Languages

Italian **Mothertongue**

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English **Advanced**
Spanish **Advanced**
French **Basic**

Basic words and phrases only