# 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, Polytechnic 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.

**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 **Abootaleb 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 (ECSO 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.

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

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

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| 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

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| 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

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| Intermediate | C, C++, Gams |
| Advanced | Office, Matlab, Python, R, Latex, Bloomberg Terminal |

## Languages

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| Italian | **Mothertongue** |

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|---|---|---|
| English | **Advanced** | |
| Spanish | **Advanced** | |
| French | **Basic** | *Basic words and phrases only* |

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