Paolo Zaffaroni

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Personal

- Born 22nd October 1967; Italian citizenship; Married; Three children.
- Languages: Italian (mother tongue); English.

Current Post

- Professor in Financial Econometrics, (2010-), Imperial College Business School, Imperial College London.
- Instructor for:
  - Financial Statistics, MSc Risk Management and Financial Engineering (average teaching evaluation 4.5 out of 5; maximum 4.75 out of 5);
  - Empirical Asset Pricing, PhD programme (teaching evaluation 4.96 out of 5).
  - Financial Modelling (teaching evaluation 4.5 out of 5) .

Corporate Engagements

- Associazione Nazionale Istituti d'Assicurazione (Italian equivalent of ABI), Board Member of Scientific Committee, (2006-).
- Epsilon Asset Management, Tactical Asset Allocation Group, (2005-2006),
- Barclays Wealth, Quantitative Analytic Group (2007).
- Executive education: Banca di Roma (financial econometrics), ANIA, Royal Bank of Scotland (portfolio and risk management), ENI shipping and trading (financial econometrics), Pioneer LLP.
- Quaestio Capital LLP, Head of Research and founding member (2010-2014).
- Selfiewealth LTD, Board member (2017-2019).
- Merian Capital LLP, Global Equity Desk, Advisory Board (2019-2021).
- Jupiter Capital LLP, Global Equity Desk, Advisory Board (2022-).

Other affiliations

- Professore Ordinario (tempo limitato, 2009-), University La Sapienza, Rome.
- Fellow, Imperial College Cross-Faculty AI Network, (2017-).
- Fellow, Imperial College Analytics Center, (2023-).

University Education

- **Ph.D. Economics**, (1997). London School of Economics, Thesis title "Nonlinear long memory models with applications in finance". Supervised by Professor Peter M. Robinson.
- **Master in Econometrics and Mathematical Economics**, (1993). London School of Economics. Awarded with *Distinction*.
- **Laurea in Economic Statistics**, (1991). Universita' di Roma "La Sapienza".
  Awarded *Summa cum Laude (it.* 110/110 *e lode).* Supervised by Professor Luigi Spaventa.

Grants, Awards and Prizes

- **ESRC grant RES-000-22-3219** , Principal Investigator, approx GPB 100K, on "Estimation of parametric linear factor models: theory and applications", awarded October 2008.
- **European Community**: *Human Capital Mobility fellowship* (1994-1995).
- **Banca d'Italia**: *Bonaldo Stringher fellowship* (1993).
- **London School of Economics**: *Ely Devons prize.* Awarded for outstanding performance *(scored 1st out of 25 students)* in M.Sc. Econometrics and Mathematical Economics (1993).

Academic Achievements

- **Ranked** 51**st** in the ranking of individuals by theoretical econometrics publications based on standartized page counts 2000-2005 (top within Imperial College London), in Badi Baltagi, "Worldwide Econometrics Rankings: 1998-2005" Econometric Theory, 23, 2007, pp 952-1012.
- **Fellow** of the *Journal of Econometrics*, (2009-). Awarded on the basis of the total number of pages published and single-authored articles.
- **Associate Editor** of the *Journal of Financial Econometrics* , 2022-.
- **Invited speaker** Rencontre, Analyse des Series Temporelles et Applications, Marseille, France, 2003.
- **Invited speaker** at the Latin American Meeting of the Econometric Society, Mexico City, November 2007.
- **Invited speaker** at Conference on Statistical Models for Financial Data II, Graz, May 2007.

- **Invited speaker** at NBER-NSF Time Series Conference, Aarhus, September 2008.
- **Invited speaker** at the Chicago-London Conference 1: "What Went Wrong? Financial Engineering, Financial Econometrics, and the Current Stress", London, December 2008
- **Invited speaker (plenary talk)** at conference on "Challenges for Risk Management - Measuring Future Risk", London, February 2009.
- **Invited speaker (plenary talk)** at "FInancE STAtistique" conference, Ecole Polytechnique Paris, June 2009.
- **Invited speaker** at QASS Conference in Financial Econometrics, London, June 2009.
- **Invited speaker** at Cowles Foundation Econometrics Conference on "Handling Dependence: Temporal, Cross-sectional, and Spatial", Yale, June 2009.
- **Invited speaker** at NBER Summer Institute, Working Group on Empirical in Macroeconomics and Finance, Boston, July 2009.
- **Invited speaker** at the Chicago-London Conference 3: "Factor Models in Finance", London, December 2009
- **Invited speaker (plenary talk)** at the Mona School of Business Roundtable 2010 "Managing Risk for Growth Development", Kingston (JAM), March 2010
- **Invited speaker** at NBER Summer Institute, Working Group on Empirical in Macroeconomics and Finance, Boston, July 2011.
- **Invited speaker** at Princeton University, Bendheim Center for Finance, "Measuring Risk", October 7-8, 2011.
- **Invited speaker (plenary talk)** at Heidelberg University, "Macro and Financial Econometrics Conference", September 29-30, 2011.
- **Invited speaker** at University of Toulouse, 2012 Financial Econometrics Conference, September 8-10, 2012.
- **Invited speaker** at University of Graz, "Statistical models for financial data III", May 23-25, 2012.
- **Invited speaker** at the Society of Financial Econometrics meeting Large-scale Factor Models in Finance, Lugano, October 2013.
- **Invited speaker** at University of Toulouse, 2012 Financial Econometrics Conference, May 21-22, 2015.
- **Invited speaker** at Asian Econometric Society Meeting, Kyoto, August 2016.
- **Invited speaker (plenary talk)** at WieCo Financial Econometrics Conference 2017, Vienna, March 2017.
- **Invited speaker** at FERM2018 Financial Engineering and Risk Management International Symposium, Shanghai, June 2018.
- **Invited speaker** at SOFIE 2018 Society of Financial Econometrics, Lugano, June 2018.
- **Speaker** at the Society of Financial Econometrics annual meeting, Oxford, June 2012.
- **Speaker** at NBER Summer Institute, Working Group on Empirical Finance, July 2015.
- **Speaker** at Hedge Fund Conference, Imperial College Business School, December 2015.

- **Speaker** at Hedge Fund and Private Equity Conference, January 2016.
- **Speaker** at Western Finance Association (WFA), June 2016.
- **Speaker** at NBER-NSF, September 2016.
- **Speaker** at Enquire, November 2016.
- **Speaker** at American Finance Association (AFA), January 2017.
- **Speaker** at American Finance Association (AFA), January 2018.
- **Speaker** at American Finance Association (AFA), January 2019.
- **Speaker** at North American Meeting Econometric Society (ASSA), January 2019.
- **Speaker** at American Finance Association (AFA), January 2020.
- **Speaker** at SFS Cavalcade, (virtual conference hosted by Indiana University), May 2020.
- **Speaker** at Summer Meeting Econometric Society (ASSA), (virtual conference hosted by U of Montreal), June 2021.
- **Speaker** at Midwestern Finance Association Annual Meeting, Chicago, March 2022.
- **Speaker** 14th Annual Meeting of Society for Financial Econometrics (SoFiE), Cambridge, June 2022.
- **Speaker** Vienna-Copenhagen Conference on Financial Econometrics, Copenhagen, June 2022.
- **Speaker** North American Summer Meeting Econometric Society, Miami, June 2022.
- **Invited Speaker** Asset Pricing Conference, York, July 22.
- **Invited Speaker** Financial Econometrics Conference, Copenhagen, June 22.
- **Invited Speaker** U of Miami, March 2023.
- **Invited Speaker** U of Houston, March 2023.
- **Invited Speaker** Big Data and Machine Learning in Econometrics, Finance, and Statistics, U of Chicago, October 2022.
- **Invited Speaker** Kellogg School of Management, October 2022.
- **Invited Speaker** University of Miami, March 2023.
- **Invited Speaker** University of Houston, March 2023
- **Speaker** NBER New Developments in Long-Term Asset Management, Chicago Booth, April 23.

Former Posts

- **Head of the Finance Group**, (2010-2014), Imperial College Business School, Imperial College London.

  Under my leadership, the group's composition reached 22 academic faculty members, nearly doubling in size from inception. At the same time, during my tenure the School launched the Brevan Howard Center and was part of the committee that appointed Douglas Gale and Franklin Allen (directors of BH Center). As chair, I was an effective member of the School Management Board.

- **Academic Programme Director**, MSc Risk Management and Financial Engineering (2006-2010), Imperial College Business School, Imperial College London.

  I have co-founded this programme and designed its syllabus: it went from a cohort size of 15 students to the current 150 students (two streams). It is one of the most important programme of our finance suite.

- **Reader in Financial Econometrics**, (2005-2010), Imperial College Business School, Imperial College London.

- **Economist (Funzionario di 2nda)**, capital markets and econometric modelling units, Servizio Studi, Banca d'Italia, (1998-2005).

- **Senior research officer**, (2001 and 2003), Department of Applied Economics, University of Cambridge.

- **Lecturer in Finance**, (1997), Department Finance, London School of Economics (resigned after one year to move to Italy).

Research Interest

- **Asset Pricing:** cross-sectional methods for empirical asset pricing, asset pricing and portfolio choice under misspecification.

- **Financial and Theoretical Econometrics:** volatility modelling, long memory, aggregation, dynamic factor models for large cross-sections, panel data.

Research Output

Published

- "Modelling nonlinearity and long memory in time series", with Peter M. Robinson, in *Nonlinear Dynamics and Time Series*, ed. by C.Cutler and D.Kaplan, American Mathematical Society, 1997.
- "Nonlinear time series with long memory: a model for stochastic volatility", with Peter M. Robinson, *Journal of Statistical Planning and Inference*, 68, 359-371, 1998.
- "(Fractional) Beta convergence", with Claudio Michelacci, *Journal of Monetary Economics*, 45(1), 129-53, 2000.
- "The long range dependence paradigm for macroeconomics and finance", with Marc Henry,ed. by Doukhan, Oppenheim and Taqqu, *Long range dependence: theory and applications*, Birkhauser, 2003.
- "Gaussian inference on certain long-range dependent volatility models", *Journal of Econometrics* , **115**, 199-258, 2003.
- "Stationarity and memory of ARCH(∞) models", *Econometric Theory*, **20**, 147-160, 2004.
- "Contemporaneous aggregation of linear dynamic models in large economies", *Journal of Econometrics* , **120**, 75-102, 2004.
- "Pseudo-maximum likelihood estimation of ARCH(∞) models", with Peter M. Robinson, *Annals of Statistics.*, **34**, 1049-1074, 2006.
- "Memory and aggregation for models of changing volatility ", *Journal of Econometrics.*, **136**, 237-249, 2007.
- "Contemporaneous aggregation of GARCH processes", *Journal of Time Series Analysis* , **28**, 521-544, 2007
- "A goodness of fit test for GARCH models ", with Javier F. Hidalgo, *Journal of Econometrics*, **141**, 835-875, 2007.

- “Estimating and forecasting volatility with large scale models: theoretical appraisal of professionals’ practice”, *Journal of Time Series Analysis*, **29**, 581-599, 2008.
- “Model averaging in risk management with an application to futures markets”, with M. Hashem Pesaran and C. Schleicher, *Journal of Empirical Finance* **16**, 280-305, 2009.
- “Whittle estimation of EGARCH and other exponential volatility models”, *Journal of Econometrics*, **151**, 190-200, 2009.
- “Can aggregation explain the persistence of inflation in the Euro area?”, with Filippo Altissimo and Benoit Monjon, *Journal of Monetary Economics* , **56**, 231-241, 2009.
- “On moment conditions for quasi-maximum likelihood estimation of multivariate ARCH models”, with M. Avarucci and E. Beutner, *Econometric Theory* , **29**, 545-566, 2013.
- “Dynamic factor models with infinite-dimensional factor space: one-sided representations”, with M. Forni, M. Hallin and M. Lippi, *Journal of Econometrics*, **185**, 359-371, 2015.
- “Long memory affine term structure models”, with Adam Golinski, *Journal of Econometrics*, **191**, 33-56, 2016.
- “Asymptotic Theory for Spectral Density Estimates of General Multivariate Time Series”, with Wei Biao Wu, *Econometric Theory*, **34**, 1-22, 2017.
- “Dynamic factor models with infinite-dimensional factor space: asymptotic analysis’, with M. Forni, M. Hallin and M. Lippi, *Journal of Econometrics*, **199**, 74-92, 2017.
- “Testing Beta-Pricing Models in Large Cross-Sections”, with V. Raponi and C. Robotti, *Review of Financial Studies*, *33*, 2796-2842, 2020.
- “Robust Estimation of Large Panels with Factor Structures”, with M. Avarucci, forthcoming *Journal of the American Statistical Association*, 2022.
- “Comment on: Identification Robust Testing of Risk Premia in Finite Samples”, *Journal of Financial Econometrics*, **21**, 303-305,2023.
- “ Inferential Theory for Generalized Dynamic Factor Models”, joint with M. Barigozzi, M. Hallin, and M. Luciani, forthcoming *Journal of Econometrics*, 2023.
- “ Factor Models for Conditional Asset Pricing”, R&R *Journal of Political Economy*, 2022.

In preparation/submitted

- “ Robust Portfolio Choice”, joint with V. Raponi and R. Uppal, submitted, 2023.
- “ Frequency-Band Estimation of the Number of Dynamic Factors - The Main Business Cycle Shocks”, joint with Marco Avarucci, Maddalena Cavicchioli, and Mario Forni, submitted, 2023.
- “ What is Missing in Asset-Pricing Factor Models?”, joint with Massimo Dello-Preite, Raman Uppal, and Irina Zviadadze, 2023.
- “Testing for Spurious Factors in Conditional Asset Pricing”, with S. Kim and V. Raponi, 2023.
- “ Dissecting Anomalies in Conditional Asset Pricing Models” , with V. Raponi, 2023.
- “Efficient Estimation of Asset Pricing Factor Models”, with M. DelloPreite and M. Pelger, 2021.
- “Co-movement of volatility: representation, estimation and testing”, with R. Pedersen and A. Rahbek 2015.

Other Professional Activities

- Referee for:

  Annals of Statistics, Econometrica, Econometric Theory, Econometrics Journal, Journal of the American Statistical Association, Journal of Applied Econometrics, Journal of Business & Economic Statistics, Journal of Econometrics, Journal of Finance, Journal of Financial and Quantitative Analysis, Journal of Financial Econometrics, Journal of Empirical Finance, Journal of Forecasting, Journal of Time Series Analysis, Journal of the Royal Statistical Society, International Economic Reviews, Management Science, Quantitative Finance, Review of Economic Studies, Review of Financial Studies, Review of Economics and Statistics

London, April 2023