Christian Brownlees

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Personal Data

Born in 1979 in Florence (Italy). British and Italian Citizen.

Research Interests

Time Series, Statistics, Econometrics, Empirical Finance, Statistical Computing

Affiliations, Academic and Visiting Positions (longer than a month)

Professor Agregat — 2020–
Department of Economics and Business, Universitat Pompeu Fabra — Barcelona, Spain

Associate Research Professor — 2017–2022
Barcelona School of Economics — Barcelona, Spain

Associate Professor — 2017–
Department of Economics and Business, Universitat Pompeu Fabra — Barcelona, Spain

Visiting Scholar — 2015
Department of Economics, European University Institute — Florence, Italy

Fernand Braudel Scholar — 2014
Department of Economics, European University Institute — Florence, Italy

Affiliated Professor — 2011–
Barcelona School of Economics — Barcelona, Spain

Assistant Professor — 2011–2017
Department of Economics and Business, Universitat Pompeu Fabra — Barcelona, Spain

Post-Doc Research Fellow — 2008–2011
Department of Finance, Stern School of Business, NYU — New York, USA
Supervisor: Robert Engle

Visting Scholar — 2007–2008
Department of Finance, Stern School of Business, NYU — New York, USA
Sponsor: Robert Engle

Research Fellow — 2007–2008
Department of Statistics, University of Florence — Florence, Italy

Visiting Scholar — 2006
Department of Economics, UCSD — San Diego, USA
Sponsor: Hal White

Research Fellow — 2003
Department of Statistics, University of Florence — Florence, Italy

Education

Doctorate in Applied Statistics — 2007
Department of Statistics, University of Florence — Florence, Italy
"Essays in Parameter Reduction Techniques for Nonlinear Time Series Models"

B.S. in Economics and Quantitative Methods — 2003
Department of Statistics, University of Florence — Florence, Italy
"The impact of overnight innovation on intra-daily volatility: a high frequency approach" *summa cum laude*

Articles

28. "Nonstandard Errors" with Albert J. Menkveld (and others), Journal of Finance, forthcoming

27. "Performance of Empirical Risk Minimization for Linear Regression with Dependent Data" with Gudmundur Stefan Gudmundsson, Econometric Theory, forthcoming

26. "Projected Dynamic Conditional Correlations" with Jordi Llorens-Terrazas, International Journal of Forecasting, forthcoming

25. "Corporate Hedging and the Variance of Stock Returns" with Kizkitza Biguri and Filippo Ippolito, Journal of Corporate Finance, Journal of Corporate Finance, 2022, 72 doi.org/10.1016/j.jcorpfin.2021.102147

24. "Community Detection in Partial Correlation Network Models" with Gudmundur Stefan Gudmundsson and Gabor Lugosi *Journal of Business and Economics Statistics*, 2022, 40, 216–226 doi.org/10.1080/07350015.2020.1798241

23. "Detecting Groups in Large Vector Autoregressions" with Gudmundur Stefan Gudmundsson *Journal of Econometrics*, 2021, 225, 2–26 doi.org/10.1016/j.jeconom.2021.03.012

22. "Backtesting Global Growth-at-Risk" with Andre B. M. Souza *Journal of Monetary Economics*, 2021, 118, 312–330 doi:10.1016/j.jmoneco.2020.11.003

21. "Bank Credit Risk Networks: Evidence from the Eurozone" with Christina Hans and Eulalia Nualart *Journal of Monetary Economics*, 2021, 117, 585–599 doi:10.1016/j.jmoneco.2020.03.014

20. "Detecting Granular Time Series in Large Panels" with Geert Mesters *Journal of Econometrics*, 2020, 220, 544–561 doi:10.1016/j.jeconom.2020.04.013

19. "Back to the Future: Backtesting Systemic Risk Measures During Historical Bank Runs and the Great Depression" with Ben Chabot, Eric Ghysels and Christopher Kurz *Journal of Banking and Finance*, 2020, 113, 105736 doi:10.1016/j.jbankfin.2020.105736

18. "On the estimation of integrated volatility in the presence of jumps and microstructure noise" with Eulalia Nualart and Yucheng Sun, *Econometric Reviews*, 2020, 39, 991–1013 doi:10.1080/07474938.2020.1735751

17. "Impulse Response Estimation By Smooth Local Projections" with Regis Barnichon, *The Review of Economics and Statistics*, 2019, 101, 522–530 doi:10.1162/rest_a_00778

16. "Hierarchical GARCH" *Journal of Empirical Finance*, 2019, 51, 17–27 doi:10.1016/j.jempfin.2019.01.009

15. "NETS: Network Estimation for Time Series" with Matteo Barigozzi, *Journal of Applied Econometrics*, 2018, 34, 347–364, doi:10.1002/jae.2676

14. "Realized Networks" with Eulalia Nualart and Yucheng Sun, *Journal of Applied Econometrics*, 2018, 33(7), 986-1006 doi:10.1002/jae.2642

13. "Evaluating the accuracy of tail risk forecasts for systemic risk measurement" with Giuseppe Cavaliere and Alice Monti, *Annals of Financial Economics*, 2018, 13(2), 1–25 doi:10.1142/S2010495218500094

12. "Power-Law Partial Correlation Network Models" with Matteo Barigozzi and Gabor Lugosi, *Electronic Journal of Statistics*, 2018, 12(2), 2905–2929 doi:10.1214/18-EJS1478

11. "Credit Risk Interconnectedness: What Does the Market Really Know?" with Puriya Abbassi, Christina Hans and Natalia Podlich, *Journal of Financial Stability*, 2017, 29, 1–12 doi:10.1016/j.jfs.2017.01.002

10. "SRISK: A Conditional Capital Shortfall Measure of Systemic Risk" with Robert Engle, *The Review of Financial Studies*, 2017, 30(1), 48–79, doi:10.1093/rfs/hhw060

9. "Empirical Risk Minimization for Heavy–Tailed Losses" with Emilien Joly and Gabor Lugosi, *Annals of Statistics*, 2015, 43(6), 2507–2536, doi:10.1214/15-AOS1350

8. "Disentangling Systematic and Idiosyncratic Dynamics in Panels of Volatility Measures" with Matteo Barigozzi, Giampiero M. Gallo and David Veredas; *Journal of Econometrics*, 2014, 182(2), 364-382, doi:10.1016/j.jeconom.2014.05.017

7. "A Bayesian Approach for Capturing Daily Heterogeneity in Intra-Daily Durations Time Series: the Mixed Autoregressive Conditional Duration Model" with Marina Vannucci; *Studies in Nonlinear Dynamics & Econometrics*, 2013, 17(1), 21-46, doi:10.1515/snde-2012-0043

6. "A Practical Guide to Volatility Forecasting Through Calm and Storm" with Robert Engle and Bryan Kelly; *Journal of Risk*, 2011, 14(2), 1-20

5. "Intra-daily Volume Modeling and Prediction for Algorithmic Trading" with Fabrizio Cipollini and Giampiero M. Gallo; *Journal of Financial Econometrics*, 2011, 9(3) 489-518, doi:10.1093/jjfinec/nbq024

4. "Shrinkage Estimation of Semi-Parametric Multiplicative Error Models" with Giampiero M. Gallo; *International Journal of Forecasting*, 2011, 27(1) 365-378, doi:10.1016/j.ijforecast.2010.04.005

3. "Comparison of Volatility Measures: A Risk Management Perspective" with Giampiero M. Gallo; *Journal of Financial Econometrics* 2010, 8(1) 29-56, doi:10.1093/jjfinec/nbp009

2. "On Variable Selection for Volatility Forecasting: The Role of Focused Selection Criteria" with Giampiero M. Gallo; *Journal of Financial Econometrics* 2008, 6(4) 513-539, doi:10.1093/jjfinec/nbn012

1. "Financial econometric analysis at ultra–high frequency: Data handling concerns" with Giampiero M. Gallo; *Computational Statistics & Data Analysis* 2006, 51(4) 2232-2245, doi:10.1016/j.csda.2006.09.030

Book Chapters

2. "Multiplicative Error Models" with Giampiero Gallo and Fabrizio Cipollini in "Handbook in Financial Engineering and Econometrics: Volatility Models and Their Applications" L. Bauwens, C. Hafner and S. Laurent, editors Wiley 2012

1. "Measuring Systemic Risk" with Viral Acharya, Robert Engle, Farhang Farazmand and Matthew Richardson in "Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance" Viral A. Acharya, Thomas F. Cooley, Matthew P. Richardson and Ingo Walter, editors Wiley 2010

Conference Proceedings

1. "Financial Risk Management Via Multi Model Inference Grid Applications" with Simone Contini, Riccardo Di Meo and Valerio Sullo; Proceedings of the "Grid Technology for Financial Modelling and Simulation" conference, 3-4 February 2006, Palermo, Italy

Working Papers

1. "Empirical Risk Minimization for Time Series: Nonparametric Performance Bounds for Prediction" with Jordi Llorens-Terrazas (R&R Journal of Econometrics)

2. "Unit Averaging for Heterogenous Panels" with Vladislav Morozov (R&R Journal of Business & Economic Statistics)

Seminar and Conference Presentations (from 2019)

2024
Seminar at the Economics and Finance Department, LUISS (Rome, 8, April, 2024); seminar at the Economics Department, Surrey University (Guildford, 17, April, 2024); seminar at the Tinbergen Institute (Amsterdam, April 25, 2024); presentation at the "Financial Econometrics Conference" (invited speaker) (Toulouse, June 17–18, 2022); online Seminar at Fundação Getulio Vargas (San Paulo, 23, August, 2024);

2023
Seminar at the Economics Department, Lancaster University (Lancaster, April 26, 2023); seminar at the Pepsico Digital Hub (Barcelona, February 28, 2023); seminar at the Economics Department, Lund University (Lund, February 16, 2023); seminar at the European Stability Mechanism (Luxembourg, January 26, 2023).

2022
Presentation at the "SoFiE 2022 Annual Conference" conference (Cambridge, June 24–27, 2022); presentation at the "Quantitative Finance and Financial Econometrics 2022" conference (invited plenary speaker) (Marseille, June 16–17, 2022); presentation at the "Spring Meeting of Young Economists 2022" (invited plenary speaker) (Orléan, May 19–21, 2022); presentation at the "IWEEE 2022" conference (Rimini, January 20–21, 2022); seminar at the Centre for Econometrics and Business Analytics, St. Petersburg State University (St. Petersburg, February 11, 2022); presentation at the "XIIt Workshop in Time Series Econometrics" (Zaragoza, March 31–April 1, 2022).

2021
Webinar at the Department of Mathematics, Eindhoven University of Technology (Eindhoven, March 23, 2021); webinar at the "1st International Conference on Economics and FinTech" (invited plenary speaker) (Athens, April 12, 2021); webinar at the Granger Centre, Nottingham University (Nottingham, April 22, 2021); webinar at the School of Economics and Finance, Queen Mary University of London (London, April 27, 2021); webinar at the Philadelphia Fed (Philadelphia, April 30, 2021); webinar at the Finance Research Unit, University of Copenhagen (Copenhagen, May 11, 2021); webinar at the Finance and Insurance Seminar, CREST (Paris, May 27, 2021); webinar at the "The 7th RCEA Time Series (Web-)Workshop" (Milan, June 25–27, 2021); webinar at the "The 11th RCEA Money, Macro & Finance Conference" (Milan, July 27–28, 2021); presentation at the "High Voltage Econometrics 2" conference (Zurich, October 1–2, 2021); poster at the "2021 NBER-NSF Time Series Conference" (Austin, October 15–16, 2021); presentation at the "20th Workshop in Econometrics for Finance" (invited plenary talk) (Nanterre, November 10, 2021); seminar at the ESSEC Business School (Paris, December 13, 2021).

2020
Seminar at the Department of Finance, University College Dublin (Dublin, February 20, 2020); Webinar at the Higher School of Economics, National Research University (Moscow, September 14, 2020);

2019
Seminar at the Department of Economics, Durham University Business School (Durham, January 17, 2019); presentation at the "High Dimensional Time Series in Macroeconomics and Finance" conference at IHS (invited plenary talk) (Vienna, May 16–17, 2019); seminar at the Department of Finance, Université Paris-Dauphine (Paris, May 23, 2019); seminar at Itaù Asset Management, (San Paulo, October 4, 2019); poster at the Fourth International Workshop in Financial Econometrics, (Maceiò, October 6–9, 2019); seminar at the EMbeDS 2019 Workshop (Pisa, November 26–27, 2019); seminar at the Department of Economics and Finance, ESADE Business School, (Barcelona, December 3, 2019);

Referee Activity

American Economic Journal: Economic Policy, American Economic Review, Annals of Statistics, Biometrika, Computational Statistics & Data Analysis, Econometric Theory, Econometrica, Journal of Applied Econometrics, Journal of Banking and Finance, Journal of Business Economics and Statistics, Journal of Econometrics, Journal of Economic Dynamics and Control, Journal of Empirical Finance, Journal of Finance, Journal of Financial and Quantitative Analysis, Journal of Financial Econometrics, Journal of Financial Intermediation, Journal of Financial Stability, Journal of Machine Learning Research, Journal of the American Statistical

Association, Journal of the Royal Statistical Society (Series A), Journal of the Royal Statistical Society (Series B), Macroeconomic Dynamics, Management Science, Quantitative Finance, Review of Asset Pricing Studies, Review of Economics and Statistics, Review of Economic Studies, Review of Financial Studies.

Editorial Activity

Associate Editor for the Journal of Risk and Financial Management (2014–), Annals of Financial Economics (2014–), Econometrics (2014–), Journal of Network Theory in Finance (2014–), International Journal of Forecasting (2020–).

Teaching Experience

Summer Schools
"Systemic Risk Measurement", RSSIA 2017, Moscow 2017
"Econometric Methods for Financial Time Series", Barcelona GSE Summer School in Macroeconometrics, Barcelona 2017
"Econometric Analysis of Networks", CIdE Summer School in Econometrics, Perugia 2014
"Volatility Modeling", CIdE Summer School in Econometrics, Bertinoro 2007–2010 and 2012.

Executive
"Systemic Risk Measurement", Barcelona GSE course on Systemic Risk and Prudential Policy, Barcelona 2012–2015.

Graduate
"Computing Lab" (Master in Data Science), Barcelona GSE, Barcelona 2014–2016.
"Financial Econometrics" (Master in Finance/Master in Data Science), Barcelona GSE, Barcelona 2011–
"Trading and Financial Markets" (Master in Finance), Barcelona GSE, Barcelona 2012–2014.

Undergraduate
"Forecasting Techniques", Universitat Pompeu Fabra, Barcelona 2014–
"Probability & Statistics", Universitat Pompeu Fabra, Barcelona 2011–

Conferences & Workshops Organization

BSE Summer Forum on Advances in Econometrics, Barcelona, June 13–15, 2022

Galatina Summer Forum on Econometrics, Galatina, Italy, August 31, 2019

BGSE Summer Forum on High-dimensional Statistics and Random Structures, Barcelona, June 18–19, 2018

BGSE Summer Forum on Time Series Analysis in Macro and Finance, Barcelona, June 14–15, 2018

BGSE Summer Forum on Time Series Analysis in Macro and Finance, Barcelona, June 6–7, 2017

BGSE Summer Forum on Time Series Analysis in Macro and Finance, Barcelona, June 20–21, 2016

BGSE Summer Forum on High-Frequency Financial Econometrics, Barcelona, June 11–12, 2015

BGSE Summer Forum on Time Series Analysis in Macro and Finance, Barcelona, June 8–9, 2015

BGSE Summer Forum on Time Series Analysis in Macro and Finance, Barcelona, June 19–20, 2014

BGSE Summer Forum on Time Series Analysis in Macro and Finance, Barcelona, June 10–11, 2013

Barcelona Workshop on Networks in Finance, Barcelona, May 3, 2012

Conference Scientific Committees

14th Annual Society for Financial Econometrics Conference, Cambridge, June 24–26, 2022

High Dimensional Time Series in Macroeconomics and Finance, Vienna, IHS, June 9–10, 2017

Neural Information Processing Systems 2020, Vancouver, Canada, December 6–12, 2020

International Association of Applied Econometrics Conference 2020, London, June 30–July 3, 2020

13th Annual Society for Financial Econometrics Conference, June 15 – 17 2020

International Association of Applied Econometrics Conference 2017, Sapporo, Japan, June 26–30, 2017

High Dimensional Time Series in Macroeconomics and Finance, Vienna, IHS, June 8–9, 2017

International Association of Applied Econometrics Conference 2016, Milan, Italy, June 22–25, 2016

8th Annual SoFiE Conference, CREATES at Aarhus University, Aarhus, Denmark, June 24–26, 2015

High Dimensional Time Series in Macroeconomics and Finance, Vienna, IHS, May 21–22, 2015

Systemic Risk and Financial Regulation, Banque de France, Paris, July 3–4, 2014

7th Annual SoFiE Conference, Rotman School of Management and the Global Risk Institute, Toronto, Canada, June 11–13, 2014

6th Annual SoFiE Conference, Sim Kee Boon Institute for Financial Econometrics, Singapore, June 12–14, 2013

Marie Curie Risk ITN - Risk Management and Risk Reporting, University of Konstanz, Konstanz, Germany April 11–12, 2013

5th Annual SoFiE Conference, Saïd Business School, Oxford, UK, June 20–22, 2012

Ph.D. Student Job Market Placement

Vladislav Morozov, 2024
Placement: Assistant Professor at University of Bonn (Germany)

Ignacio Crespo, 2024
Placement: Assistant Professor at CUNEF Universidad (Spain)

Jordi Llorens-Terrazas, 2022
Placement: Assistant Professor at University of Surrey (UK)

Andre M. B. Souza, 2020
Placement: Assistant Professor at ESADE Business School (Spain)

Stefan Gudmundsson, 2018 (Co-supervised with Gabor Lugosi)
Placement: Assistant Professor at Department of Economics and Business at Aarhus University (Denmark)

Yucheng Sun, 2017 (Co-supervised with Eulalia Nualart)
Placement: Assistant Professor at International School of Economics and Management at Capital University of Economics and Business (China)

Scientific Software Projects

`Vlab` (2008-2011): One of my assignments as Post-Doc of the Finance Department at Stern was the development of the Volatility Laboratory software. The Volatility Laboratory (Vlab) provides real time measurement, modeling and forecasting of financial volatility and correlations for a wide spectrum of assets. The project blends together both classic models as well as some of the latest advances proposed in the financial econometrics literature. The aim of the laboratory is to provide real time evidence on market dynamics for both researchers and practitioners. The vlab allows one to access statistics and graphs about volatility and correlations through a Web content management system. Starting from April 2010 the vlab also provides a variety of risk measures for top US financial firms and rankings of the most systemically risky firms. The aim of this project is to provide regulators and market participants tools for understanding and monitoring systemic risk in real time. The latest version of the vlab can be viewed at the URL `http://vlab.stern.nyu.edu`.

Grants

EIF Research Grant
(2017-2018, EUR 10,000, PI: Gaelle Le Fol)

BBVA Grant for Research on Big Data
(2016-2017, EUR 100,000, PI: Barbara Rossi)

Spanish Ministry of Science Research Group Grants
(2012-2015 "Prediction and inference in high-dimensional structured models" MTM2012-37195, EUR 34,000, PI: Gabor Lugosi; 2015-2017 "Estimación de redes latentes" MTM2015-67304-P, EUR 43,000, PI: Gabor Lugosi and Omiros Papaspiliopoulos, 2018-2021 "Prediction, inference, and computation in structured high-dimensional models" PGC2018-101643-B-I00, EUR 141,812, PI: Gabor Lugosi and Omiros Papaspiliopoulos)

Awards, Fellowship and Scholarships

Beatriu de Pinós Fellowship, 2013

EUI Fernand Braudel Senior Fellowship, 2013

Engle Prize in Financial Econometrics, 2013
for the paper "Comparison of volatility measures: a risk management perspective"

Second placement for best Italian Applied Statistics PhD dissertation, 2007-2008.

University of Florence Scholarship for the Doctorate program in Applied Statistics, 2004

"Villa Favard" Award for most original thesis of the Florence School of Economics, 2003