Last Update:
January 2026

Maddalena Cavicchioli

Associate Professor, University of Modena and Reggio Emilia

CONTACTS

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University of Modena and Reggio Emilia
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CURRENT POSITION

Associate Professor in Economic Statistics (STAT-02/A)
Department of Economics "Marco Biagi" - University of Modena and Reggio Emilia, Italy
1st September 2021- now
[Maternity Leave: from 28th September 2021 to 28th February 2022]

Member of the Academic Senate of the PhD in Labor, Development and Innovation
Fondazione Marco Biagi and University of Modena and Reggio Emilia, Italy
29 January 2019 - now

*Abilitazione Scientifica Nazionale al ruolo di **Professore Ordinario – I Fascia**:
- Settore Concorsuale 13/D2 (ssd: STAT-02/A) STATISTICA ECONOMICA, from 02/10/2022 to 02/10/2034
- Settore Concorsuale 13/A5 (ssd: ECON-05/A) ECONOMETRIA, from 6/11/2024 to 6/11/2036

*Abilitazione Scientifica Nazionale for the position of **Associate Professor – II Fascia**:
- Settore Concorsuale 13/D2 (ssd: STAT-02/A) ECONOMIC STATISTICS (STATISTICA ECONOMICA), from 31/05/2021 to 31/05/2030
- Settore Concorsuale 13/D1 (ssd: STAT-01/A) STATISTICS (STATISTICA), from 16/07/2018 to 16/07/2027
- Settore Concorsuale 13/A5 (ssd: ECON-05/A) ECONOMETRICS (ECONOMETRIA), from 28/03/2017 to 28/03/2026

PAST POSITION

Member of the Executive Council of the Department of Economics "Marco Biagi"
University of Modena and Reggio Emilia, Italy
1 November 2022 - 31 October 2025

Visiting Researcher at International Centre for Mathematical Sciences
Research-in-Groups (RIGs) Programme
Edinburgh, UK (April 2025)

Assistant Professor (rtd b) (SECS-S/03)
Department of Economics "Marco Biagi" - University of Modena and Reggio Emilia, Italy
1st September 2018 - 31 August 2021
[Maternity Leave: from 15th February 2019 to 18th September 2019]
[Maternity Leave: from 7th May 2020 to 7th October 2020]

Post-Doc Research Fellowship (SECS-S/03)

Department of Economics - University of Verona, Italy
1st September 2016 - 31st August 2018
[Maternity Leave: from 29th May 2017 to 9th November 2017]

Cultore della Materia in "Statistics for the Labor Market" (SECS-S/03) - A.Y. 2016/2017
Department of Economics "Marco Biagi"
University of Modena and Reggio Emilia, Italy

Visiting Researcher at University of Macedonia
Thessaloniki, Greece (November - December 2016)

Post-Doc Research Fellowship (SECS-P/05)
Department of Economics "Marco Biagi" - University of Modena and Reggio E., Italy
1st September 2015 - 31st August 2016
Supervisor: Prof. M. Forni

Visiting Researcher at Imperial College Business School
London, UK (September - October 2015)

Post-Doc Research Fellowship (SECS-P/05)
Department of Economics "Marco Biagi" - University of Modena and Reggio E., Italy
1st September 2013 - 31st August 2015
Supervisor: Prof. M. Forni

RESEARCH INTERESTS

Econometrics, Time series models, Stochastic Processes, Nonlinear Models, Estimation Methods, Testing Problems, Algorithms for Model Selection, Multivariate Statistics, Statistical Inference, Classification and Data reduction statistical methods.

AFFILIATIONS

Member: Societá Italiana di Statistica (SIS), RECent Unimore, DIAS-SIS.

EDUCATION

MSc in Economics (*Summa cum laude*) 2009
Dept. of Economics "Marco Biagi" - University of Modena and Reggio Emilia, Italy
Thesis: *"Structural macroeconomic analysis for dynamic factor models"*
Supervisor: M.Forni - Winner Premio Costa 2010 (1st place)

Visiting PhD Student at Centro de Estudios Monetarios y Financieros (CEMFI)
Madrid, Spain (January - June 2012)

PhD in Economics (*Excellent and mention of "Doctor Europaeus"*) 2014
Advanced School of Economics - Cá Foscari University of Venice, Italy
Thesis: *"Essays on Markov Switching Models with Applications in Economics and Finance"*
Supervisor: M.Billio - Winner 2014 SIE Award for the Best PhD Thesis in Economics

FURTHER EDUCATION

- *Erasmus Exchange Program* - Goteborg University, Sweden
August 2006 - February 2007
- *CIDE Summer School* - Introductory Econometrics and Time Series
21 June 2009 - 4 July 2009
- *Bocconi Summer School* in Business Management - SDA Bocconi
3 - 5 September 2009
- *CIDE Summer School* - Time Series and Financial Econometrics
29 August - 3 September 2011
- *CIDE Summer School* - Bayesian Methods in Economics and Finance

9 -15 September 2012
- *I.S.E.O Summer School 2014* with Nobel Laureate in Economics
14 - 21 June 2014

PRESENTATIONS

- (2012): CEMFI (Madrid, Spain), Cá Foscari (Venice, Italy) , CFE-ERCIM 2012 (Oviedo, Spain)
- (2013): QED Jamboree 2013 (Vienna, Austria), 1st WEEE (Perugia, Italy), S.Co. 2013 (Milan, Italy), RSA SIE 2013 (Bologna, Italy), Economic Seminar Series (Modena, Italy)
- (2014): BOMOPAV 2014 (Padova, Italy), RCEF 2014 (Rimini, Italy), PRIN workshop (Rome, Italy), CFE 2014 (Pisa, Italy)
- (2015): ICEEE 2015 (Salerno, Italy), 2nd Vienna Workshop on High-Dimensional Time Series in Macroeconomics and Finance (Vienna, Austria), Economic Seminar Series (Modena, Italy), ITISE 2015 (Granada, Spain), RSA SIE 2015 (Napoli, Italy), PRIN workshop (Bologna, Italy)
- (2016): TES 2016 (Chiang Mai, Thailand), University of Macedonia (Thessaloniki, Greece), MAF 2016 (Paris, France), CAC 2016 (Lyon, France), EEA-ESEM 2016 (Geneve, Switzerland), EC^2 conference on big data (Toulouse, France)
- (2017): ICEEE 2017 (Messina, Italy), University of Verona (Italy)
- (2018): CAC 2018 (Lyon, France), RCEF 2018 (Rimini, Italy), SIS 2018 (Palermo, Italy)
- (2019): ICEEE 2019 (Lecce, Italy), Alle frontiere della ricerca – RECent (Modena, Italy), Big Data in Business (London, UK), Felicitá e Lavoro (Modena, Italy), CFE-CMStatistics 2019 (London, UK)
- (2020): 33rd EBES 2020 (Madrid, Spain - virtual), CFE-CMStatistics 2020 (virtual)
- (2021): CFE-CMStatistics 2021 (virtual)
- (2022): SIS 2022 (Caserta, Italy), CFE-CMStatistics 2022 (London, UK)
- (2023): EcoMod2023 (Prague, CZ), AIDEA 2023 (Salerno, Italy), CFE-CMStatistics 2023 (Berlin, Germany)
- (2024): 2nd Italian Conference on Economic Statistics (Florence, Italy), Keele University (Keele, UK), SIS 2024 (Bari Italy), 21st EIASM on Corporate governance (Dublin, Ireland), Sao Paulo School of Economics (Sao Paulo, Brazil), CFE-CMStatistics 2024 (London, UK)
- (2025): 3rd Italian Conference on Economic Statistics (Naples, Italy), SIS 2025 (Genova, Italy), SIS DIAS 2025 (Bari, Italy), JIAAT & JMG (Cagliari, Italy), HAW symposium (Riga, Latvia), CFE-CMStatistics 2025 (London, UK)

PARTICIPATION IN RESEARCH PROJECTS

- PRIN-MIUR Grant 2010-2011 - prot. 2010J3LZEN-003 (Modena Unit): *"Forecasting economic and financial time series: understanding the complexity and modelling structural change"* Scientific Coordinator: Prof. Tommaso Proietti; Local Coordinator: Prof. Mario Forni; 01/09/2013 - 31/01/2016
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 26,200): *"VAR Strutturali e Modelli a Fattori per l'Analisi e la Previsione del Ciclo Economico: Teoria ed Applicazioni"* - Coordinator: Prof. Mario Forni; 01/09/2015 - 31/12/2016

- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 6,000): *"Effetti non lineari di shock macroeconomici: metodi e applicazioni"* - Coordinator: Prof. Mario Forni; 01/01/2018 - 31/03/2020
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 2,460): *"Analisi statistica di modelli nonlineari per serie finanziarie e valutazione empirica del loro fitting ai dati reali"* - Coordinator: Dott. Maddalena Cavicchioli; 01/01/2020 - 31/03/2021
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 5,000): *"Modelli Fattoriali e Regime switching per l'Analisi e Previsione dei Prezzi energetici Intertemporale (breve-medio-lungo periodo): FaR hAPPI"* - Coordinator: Prof. Mario Forni; 30/07/2020- 30/01/2022
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 60,000): *"Work datafication and behavioral visibility in the digital workplace"* - Coordinator: Prof. Tommaso Fabbri; 01/12/2021- 01/06/2023
- API PON REDiRECT - REDuce REuse Ceramic Tiles - Sperimentazione di tecnologie, risorse e processi ecoefficienti per lo sviluppo di materiali ceramici per un'architettura circolare. (Prog.n. F/160016/04/X41 CUP: B92C21001400005COR:6145238); 01/01/2021 – 01/06/2023
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 1,383): *"Advances in Markov Switching Bilinear and VAR models: statistical inference and empirical applications"* - Coordinator: Prof. Maddalena Cavicchioli; 26/7/2022 - 25/01/2024
- Ecosystem For Sustainable Transition of Emilia-Romagna (ECOSISTER) – Spoke 5 "Circular economy and blue economy" – codice domanda: ECS00000033 (CUP: E93C22001100001); finanziato dall'Unione Europea – NextGenerationEU; 1/10/2022 - 30/09/2025
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 8,000): *"La performance ESG delle Universitá: metodi e strumenti data-driven per un assessment multidimensionale della sostenibilitá"* - Coordinator: Prof. Sara Giovanna Mauro; 10/5/2023 - 9/11/2024
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 8,653): *"La performance ESG di Unimore: una visione globale e multidimensionale della sostenibilità per gli stakeholders coinvolti"* - Coordinator: Prof. Maddalena Cavicchioli; 17/07/2024 - 16/01/2026
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 4,000): *"Integrated and Composite Measures for Sustainable Meat Supply Chains"* - Coordinator: Prof. Maddalena Cavicchioli; 27/05/2025 – 26/11/2026
- FAR Research Grant (given by the University of Modena and Reggio Emilia) (€ 2,000): *"Happiness Metrics: An Integrated Framework for Measuring Employee and Stakeholder Wellbeing "* - Coordinator: Prof. Alessandro Tampieri; 27/05/2025 – 26/11/2026

PUBLIC ENGAGEMENT PROJECTS

- "La statistica per tutti. La statistica fa crescere" (participant): November 2021 - April 2022 - PE project DEMB
- "Statistica per tutti 2.0: il nostro mondo in dati" (proponent): November 2022 - April 2023 - PE project UNIMORE
- "Statistica per tutti 3.0: dalla datificazione dei processi alla previsione" (participant): October 2023 - February 2024 - PE project UNIMORE

- ”Gimme (uni)MORE data: accetta la sfida ai dati” (participant): September 2024 - February 2025 - PE project UNIMORE

COMMISSIONS

- Member of the Research Commitee of the Department of Economics Marco Biagi, April 2025 - now.
- Member of the examining commission for PhD in Economics and Finance - Candidate: Alessio Staffini
  University Cattolica Sacro Cuore - Milan - 15 december 2022
- Member of the Scientific Program Committee for *International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics)*

GRANTS & HONORS

- *Academic scholarship* for worth students A.Y. 2006/2007 and A.Y. 2007/2008
  University of Modena and Reggio Emilia
- *Degree prize* scholarship for the A.Y. 2008/2009
  University of Modena and Reggio Emilia
- *Three years full scholarship* for Doctoral Program in Economics
  Cá Foscari University of Venice and MIUR
- *”Angelo Costa” 2010-2011 prize for the M.Sc.Thesis in Economics* (1st place)
  Rivista di Politica Economica and Confindustria - October 2011
- *Certificate of Merit* University of Modena and Reggio E. for distinguished activities within national and international research - October 2012
- *Scholarship* (€ 1,500) for I.S.E.O. Summer School 2014
- *Best PhD Thesis in Economics* (XIV Edition, Italian Economic Association) - October 2014
- *Best Doctoral Student Award* (€ 3,000) Cá Foscari University of Venice - Fall 2014
- *Certificate of Merit* University of Modena and Reggio E. for distinguished activities within national and international research - December 2014
- Winner of the *Robert Solow Postdoctoral Fellowship A.Y. 2015/2016* (selected among 222 candidates), Cournot Centre - Paris
- *Certificate of Merit* University of Modena and Reggio E. for distinguished activities within national and international research - March 2016
- *Research grant* (€ 2,000) *CooperInt* 2016, University of Verona
- *Rosalind Franklin Award in Science* winners – for the best paper for the year 2021 in Big Data journal (with Ulpiana Kocollari)
- *Prize to young scholars for contributions to statistical discipline*, Edition 2024, awarded by the Italian Statistical Society, Honorable Mention.

PAPERS IN PEER-REVIEWED JOURNALS

1. Cavicchioli M., (2011) *Structural Macroeconomic Analysis for Dynamic Factor Models*, **Rivista di Politica Economica** 10-12, 39-70.

2. Cavicchioli M., (2011) *Some Convergence Results on Dynamic Factor Models*, **Theoretical and Practical Studies in Economic Fields**, Volume II, Issue **2**(4).

3. Cavicchioli M., (2012) *Acute Triangulations of Convex Quadrilaterals*, **Discrete Applied Mathematics** 160, 1253-1256.
[ISSN: 0166-218X - DOI: 10.1016/j.dam.2012.01.004]

4. Cavicchioli M., (2013) *Inference Methods for Stochastic Volatility Models*, **International Mathematical Forum** 8(8), 369-375.
[ISSN: 1312-7594 - DOI: 10.12988/imf.2013.13035]

5. Cavicchioli M., (2013) *Acute Triangulations of Trapezoids and Pentagons*, **Journal of Mathematics**, Volume 2013, Article ID 747128, 5 pages.
[DOI: 10.1155/2013/747128]

6. Cavicchioli M., (2013) *On Asymptotic Properties of the QML Estimator for GARCH Models*, **Economics Bulletin** 33(2), 959-966.
[ISSN: 1545-2921]

7. Cavicchioli M., (2013) *Spectral Density of Markov Switching VARMA Models*, **Economics Letters** 121, 218-220.
[ISSN: 0165-1765 - DOI: 10.1016/j.econlet.2013.07.022]

8. Cavicchioli M., (2014) *Determining the Number of Regimes in Markov-Switching VAR and VMA Models*, **Journal of Time Series Analysis** 35(2), 173-186.
[ISSN: 1467-9892 - DOI: 10.1111/jtsa.12057]

9. Cavicchioli M., (2014) *On Spectral Representation of VARMA Models with Change in Regime*, **Mathematics and Statistics** 2(2), 89-100.
[ISSN: 2332-2071 - DOI: 10.13189/ms.2014.020205]

10. Billio M. and Cavicchioli M., (2014) *Business Cycle and Markov Switching Models with Distributed Lags: a Comparison between US and Euro area*, **Rivista Italiana degli Economisti** 19(2), 253-276.
[ISSN: 1593-8662 - DOI: 10.1427/77084]

11. Cavicchioli M., (2014) *Quasi Maximum Likelihood Inference for Stochastic Volatility Models*, **Frontiers in Finance and Economics** 11(1), 1-24.
[ISSN: 1814-2044]

12. Cavicchioli M., (2014) *Analysis of the Likelihood Function for Markov-Switching VAR(CH) Models*, **Journal of Time Series Analysis** 35(6), 624-639.
[ISSN: 1467-9892 - DOI: 10.1111/jtsa.12085]

13. Cavicchioli M., (2014) *Autocovariance and Linear Transformations of Markov Switching VARMA Processes*, **Central European Journal of Economic Modeling and Econometrics** 6, 275-289.
[ISSN: 2080-119X]

14. Cavicchioli M., (2015) *Likelihood Ratio Test and Information Criteria for Markov Switching VAR Models: an Application to the Italian Macroeconomy*, **Italian Economic Journal** 1(3), 315-332.

[ISSN: 2199-322X - DOI: 10.1007/s40797-015-0015-6]

15. Billio M. and Cavicchioli M., (2016) *Validating Markov Switching VAR Through Spectral Representations*, in: Causal Inference in Econometrics (V.N. Huynk et al. eds.), Stud.in Comp.Int. **622**, Springer-Verlag.
[ISBN: 978-3-319-27284-9 - DOI: 10.1007/978-3-319-27284-9_1]

16. Cavicchioli M., (2016) *Weak VARMA Representations of Regime-Switching State-Space Models*, **Statistical Papers** 57(3), 705-720.
[ISSN: 0932-5026 - DOI: 10.1007/s00362-015-0675-1]

17. Cavicchioli M. and Pistoresi B., (2016) *Testing threshold cointegration in Wagner's Law: the role of military spending*, **Economic Modelling** 59, 23-31.
[ISSN: 0264-9993 - DOI: 10.1016/j.econmod.2016.06.011]

18. Cavicchioli M., (2016) *Statistical Analysis of Mixture Vector Autoregressive Models*,**Scandinavian Journal of Statistics** 43(4), 1192-1213.
[ISSN: 1467-9469 - DOI: 10.1111/sjos.12237]

19. Cavicchioli M., (2017) *Third and Fourth Moments of Vector Autoregressions with Regime Switching*, **Communications in Statistics - Theory and Methods** 46(9), 4181-4194.
[ISSN: 0361-0926 - DOI: 10.1080/03610926.2015.1080840]

20. Cavicchioli M., (2017) *Asymptotic Fisher information matrix of Markov switching VARMA models*, **Journal of Multivariate Analysis** 157, 124-135.
[ISSN: 0047-259X - DOI: 10.1016/j.jmva.2017.03.004]

21. Cavicchioli M., (2017) *Matrix Algebra and Invertibility Conditions for Linear Dynamic Stochastic General Equilibrium Models*, **International Journal of Statistics and Economics** 18(3), 41-55.
[ISSN: 0975-556X - DOI:]

22. Pistoresi B., Cavicchioli M. and Brevini G., (2017) *Central Bank Independence, financial instability and politics: new evidence for OECD and non-OECD countries*, **International Journal of Economics and Finance** 9(7), 179-188.
[ISSN: 1916-971X - DOI: 10.5539/ijef.v9n7p179]

23. Cavicchioli M., (2017) *Estimation and Asymptotic Covariance Matrix for Stochastic Volatility Models*, **Statistical Methods and Applications** 26(3), 437-452.
[ISSN: 1618-2510 - DOI: 10.1007/s10260-016-0373-8]

24. Billio M. and Cavicchioli M., (2017) *Markov Switching GARCH Models: Filtering, Approximations and Duality*, in: Mathematical and Statistical Methods for Actuarial Sciences and Finance (Corazza M. et al. eds.), Springer, 59-72.
[ISBN: 978-3-319-50234-2 - DOI: 10.1007/978-3-319-50234-2_5]

25. Cavicchioli M., (2017) *Higher Order Moments of Markov Switching VARMA Models*, **Econometric Theory** 33(6), 1502-1515.

[ISSN: 0266-4666 - DOI: 10.1017/S0266466616000438]

26. Cavicchioli M., (2018) *On Mixture Autoregressive Conditional Heteroskedasticity*, **Journal of Statistical Planning and Inference** 197, 35-50.
[ISSN: 0378-3758 - DOI: 10.1016/j.jspi.2017.12.002]

27. Cavicchioli M., Papana A., Papana Dagiasis A., and Pistoresi, B., (2018) *A Random Forests Approach to Assess Determinants of Central Bank Independence*, **Journal of Modern Applied Statistical Methods** 17(2), eP2611.
[ISSN: 1538-9472 - DOI: 10.22237/jmasm/1553610953]

28. Cavicchioli M., (2020) *Invertibility and VAR Representations of Time-Varying Dynamic Stochastic General Equilibrium Models*, **Computational Economics** 55, 61-86.
[ISSN: 0927-7099 - DOI: 10.1007/s10614-018-9877-7]

29. Cavicchioli M., (2020) *Spectral Representation and Autocovariance Structure of Markov Switching DSGE Models*, **Communications in Statistics - Theory and Methods** 49(7), 1635-1652.
[ISSN: 0361-0926 - DOI: 10.1080/03610926.2018.1563184]

30. Cavicchioli M., (2020) *A note on the asymptotic and exact Fisher Information matrices of a Markov Switching VARMA process*, **Statistical Methods and Applications** 29, 129-139.
[ISSN: 1618-2510 - DOI: 10.1007/s10260-019-00472-y]

31. Cavicchioli M. and Pistoresi B., (2020) *Unfolding the relationship between mortality, economic fluctuations and health in Italy*, **The European Journal of Health Economics** 21, 351-362.
[ISSN: 1618-7598 - DOI: 10.1007/s10198-019-01135-1]

32. Cavicchioli M., (2020) *Generalised Cepstral Models for the Spectrum of Vector Time Series*, **Electronic Journal of Statistics** 14, 605-631.
[ISSN: 1935-7524 - DOI: 10.1214/19-EJS1672]

33. Cavicchioli M. and Kocollari U., (2021) *Learning from failure. Big data analysis for detecting the patterns of failure in innovative startups*, **Big Data** 9(2), 79-88.
[ISSN: 2167-6461 - DOI: 10.1089/big.2020.0047]

34. Cavicchioli M., (2021) *OLS estimation of Markov Switching VAR models: asymptotics and application to energy use*, **AStA Advances in Statistical Analysis** 105(3), 431-449.
[ISSN: 1863-8171 - DOI: 10.1007/s10182-020-00383-4]

35. Cavicchioli M., (2021) *A matrix approach to the Beveridge-Nelson decomposition of Markov-Switching processes with applications to business cycle*, **Applied Economics Letters** 28(19), 1648-1655.
[ISSN: 1350-4851 - DOI: 10.1080/13504851.2020.1841882]

36. Cavicchioli M., (2021) *Fourth Moment Structure of Markov Switching Multivariate GARCH Models*, **Journal of Financial Econometrics** 19(4), 565-582.
[ISSN: 1479-8409 - DOI: 10.1093/jjfinec/nbz020]

37. Cavicchioli M., (2021) *Statistical inference for mixture GARCH models with financial application* , **Computational Statistics** 36, 2615-2642.
[ISSN: 0943-4062 - DOI: 10.1007/s00180-021-01092-5]

38. Cavicchioli M., (2022) *Goodness-of-fit Tests for Markov Switching VAR Models using Spectral Analysis*, **Journal of Statistical Planning and Inference** 219, 189-203.
[ISSN: 0378-3758 - DOI: 10.1016/j.jspi.2021.12.008]

39. Cavicchioli M. and Lalla M., (2022) *Evidences from survey data and fiscal data: nonresponse and measurement errors in annual incomes*, **Statistical Methods & Applications** 31, 587-615.
[ISSN: 1618-2510 - DOI: 10.1007/s10260-021-00593-3]

40. Kocollari U., Pedrazzoli A., Cavicchioli M. and Girardi A., (2022) *Too Tied to Fail: A Multidimensional Approach to Social Capital in Crowdfunding Campaigns*, **Journal of Small Business and Enterprise Development** 29(5), 719-741.
[ISSN: 1462-6004 - DOI: 10.1108/JSBED-07-2021-0253]

41. Minoja M., Kocollari U. and Cavicchioli M. (2022) *”Exploring differences of CSR perceptions and expectations between Eastern and Western countries: emerging patterns and managerial implications*, **International Journal of Cross Cultural Management** 22(2), 327-347.
[ISSN: 1470-5958 - DOI: 10.1177/14705958221112253]

42. Cavicchioli M., (2022) *Markov Switching GARCH Models: higher order moments, kurtosis measures, and volatility evaluation in recessions and pandemic*, **Journal of Business & Economic Statistics** 40(4), 1772-1783.
[ISSN: 0735-0015 - DOI: 10.1080/07350015.2021.1974459]

43. Cavicchioli M., (2023) *Spectral analysis of Markov switching GARCH models with statistical inference*, **Scandinavian Journal of Statistics** 50(1), 102-119.
[ISSN: 1467-9469 - DOI: 10.1111/sjos.12571]

44. Cavicchioli M., (2023) *Statistical analysis of Markov switching vector autoregression models with endogenous explanatory variables*, **Journal of Multivariate Analysis** 196, 105164.
[ISSN: 0047-259X - DOI: 10.1016/j.jmva.2023.105164]

45. Cavicchioli M., (2023) *Trend and cycle decomposition of Markov switching (co)integrated time series*, **Statistical Methods & Applications** 32, 1381-1406.
[ISSN: 1618-2510 - DOI: 10.1007/s10260-023-00710-4]

46. Cavicchioli M., (2023) *Likelihood-based analysis in Mixture Global VARs*, **Journal of Mathematical Sciences** 271, 341-353.

[ISSN: 1072-3374 - DOI: 10.1007/s10958-023-06509-8]

47. Cavicchioli M., (2023) *Estimation and asymptotics for vector autoregressive models with unit roots and Markov switching trends*, **Stochastics: An International Journal of Probability and Stochastic Processes**, 95(8), 1488-1509.
[ISSN: 1744-2508 - DOI: 10.1080/17442508.2023.2227752]

48. Cavicchioli M., (2023) *Impulse Response Function Analysis for Markov Switching VAR Models*, **Economics Letters** 232, 111357.
[ISSN: 0165-1765 - DOI: 10.1016/j.econlet.2023.111357]

49. Kocollari U., Cavicchioli M. and Demaria F., (2024) *The 5 E(lements) of employee-centric CSR and their stimulus on Happiness At Work: an empirical investigation*, **Corporate Social Responsibility and Environmental Management** 31, 1959–1976.
[ISSN: 1535-3958 - DOI: 10.1002/csr.2667]

50. Cavicchioli M., (2024) *Generalised autocovariance matrices for multivariate time series*, **Communications in Statistics – Theory and Methods** 53(10), 3797-3817.
[ISSN: 0361-0926 - DOI: 10.1080/03610926.2022.2164465]

51. Cavicchioli M., (2024) *A matrix unified framework for deriving various impulse responses in Markov switching VAR: Evidence from oil and gas markets*, **The Journal of Economic Asymmetries** 29, e00349.
[ISSN: 1703-4949 - DOI: 10.1016/j.jeca.2023.e00349]

52. Ghezal, A., Cavicchioli M., Zemmouri, I. (2024) *On the existence of stationary threshold bilinear processes*, **Statistical Papers** 65, 3739-3767.
[ISSN: 0932-5026 - DOI: 10.1007/s00362-024-01539-z]

53. Kocollari U., Girardi A., Cavicchioli M., and Pedrazzoli A. (2025) *Crowdability: a new configuration of accountability forms in crowdfunding campaigns of non-profit organisations*, **Journal of Applied Accounting Research** 26(1), 222-248.
[ISSN: 0967-5426 - DOI: 10.1108/JAAR-08-2023-0257]

54. Cavicchioli M. (2025) *Forecasting Markov switching vector autoregressions: Evidence from simulation and application*, **Journal of Forecasting** 44(1), 136-152.
[ISSN: 0277-6693 - DOI: 10.1002/for.3180]

55. Cavicchioli M., Demaria F., Nannetti F., Scapolan A.C., Fabbri T. (2025) *Employees' attitudes and work-related stress in the digital workplace: an empirical investigation*, **Frontiers in Psychology** 16, 1546832.
[ISSN: 1664-1078 - DOI: 10.3389/fpsyg.2025.1546832]

56. Kocollari U., Demaria F., Cavicchioli M. (2025) *Time after time: exploring the role of CSR on employees' long-lasting working relationships in Italy*, **Small Business Economics** 65, 995-1021.
[ISSN: 1573-0913 - DOI: 10.1007/s11187-025-01019-0]

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