1. Record Nr. UNINA9910770258903321 Autore Kitsos Christos P **Titolo** Statistical Modelling and Risk Analysis [[electronic resource]]: Selected contributions from ICRA9, Perugia, Italy, May 25-27, 2022 / / edited by Christos P. Kitsos, Teresa A. Oliveira, Francesca Pierri, Marialuisa Restaino Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2023 **ISBN** 3-031-39864-5 Edizione [1st ed. 2023.] Descrizione fisica 1 online resource (230 pages) Collana Springer Proceedings in Mathematics & Statistics, , 2194-1017;; 430 Altri autori (Persone) OliveiraTeresa A PierriFrancesca RestainoMarialuisa Disciplina 519.5 Soggetti **Statistics** Biometry Statistical Theory and Methods **Biostatistics** Statistics in Business, Management, Economics, Finance, Insurance Biometria Congressos Llibres electrònics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Intro -- Preface -- Contents -- Examining the Network Effects in Bank Risk: Evidence from Liquidity Creation in Mutual Banks -- 1 Introduction -- 2 Methodology -- 2.1 Spatial Model -- 2.2 Econometric Specification -- 3 Data and Results -- 4 Concluding Remarks --Appendix -- References -- Teaching Note-Data Science Training for Finance and Risk Analysis: A Pedagogical Approach with Integrating Online Platforms -- 1 Introduction -- 2 Structure and Content of the Course -- 3 Implementation Process -- 4 Results -- 5 Main Conclusions -- References -- Analysing Misclassifications in Confusion Matrices -- 1 Introduction -- 2 Methodology -- 3 Marginal

Homogeneity -- 4 Bayesian Approach -- 5 Applications -- 5.1

Application 1 -- 5.2 Application 2 -- 6 Conclusions and Final Comments -- References -- Management Excellence Model Use: Brazilian Electricity Distributors Case -- 1 Introduction -- 2 Literature Review -- 3 The Excellence Management Model -- 4 Methodology --4.1 Research Classification-Sample and Population -- 4.2 Data Collection and Variables of Interest -- 5 Data Analysis -- 6 Discussion and Conclusions -- Appendix: List of Acronyms -- References -- A Statistical Boost to Assess Water Quality -- 1 Introduction -- 2 Some Background on EU Directives and Water Quality -- 3 Statistical Utilities -- 3.1 Checking Independence -- 3.2 Comparing Seasons -- 3.3 Detecting Correlated Seasons -- 3.4 Detecting and Estimating Trends -- 3.5 Additional Notes and Software -- 4 Analysing Water Quality in Two Study Sites -- 4.1 Study Sites Description -- 4.2 Statistical Changes Between the Months -- 4.3 Investigating Temporal Trends --5 Concluding Remarks and Thoughts -- References -- Time Series Procedures to Improve Extreme Quantile Estimation -- 1 Motivation and Introduction -- 2 Main Results in Extreme Values Analysis -- 2.1 Parameters of Interest. 2.2 Statistical Approaches in EVT -- 3 An Overview of Time Series Modelling -- 4 Application to Environmental Data -- 5 Concluding Remarks and Future Work -- References -- Factors Associated with Powerful Hurricanes in the Atlantic -- 1 Introduction -- 2 Data -- 3 Logistic Regression Models, Results and Discussion -- 4 Summary and Concluding Remarks -- References -- Reliable Alternative Ways to Manage the Risk of Extreme Events -- 1 Introduction and Scope of the Paper -- 1.1 EVI-estimation of Pareto-Type Models -- 1.2 Further Details on the CTE -- 1.3 Scope of the Paper -- 2 A Few Considerations on the Asymptotic Behaviour of the MOp CTE-estimators -- 3 A Monte-Carlo Simulation Study -- 4 Concluding Remarks -- References -- Risk Analysis in Practice and Theory -- 1 Introduction -- 2 Practical Background -- 3 Theoretical Inside -- 4 Discussion -- Appendix 1 --Appendix 2 -- References -- On Some Consequences of COVID-19 in EUR/USD Exchange Rates and Economy -- 1 Exchange Rates 10/13/2019-4/9/2020 -- 2 Forecasting EUR/US Exchange Rates --2.1 Finding a Model for Forecasting -- 2.2 Forecasting: 34 Days in the Future (Due to the Difference of Observed Data and Current Date) -- 3 Discussion: What Does This Mean for the Economy? -- 4 Conclusion --References -- Natural Risk Assessment of Italian Municipalities for Residential Insurance -- 1 Introduction -- 2 Data -- 3 Earthquake Risk Assessment -- 4 Flood Risk Assessment -- 5 Results -- 6 Conclusion -- References -- Variable Selection in Binary Logistic Regression for Modelling Bankruptcy Risk -- 1 Introduction -- 2 Methodology and Study Design -- 3 Data Description -- 4 Results -- 4.1 Stepwise, LASSO and Maximum Data Variance Selection Methods -- 4.2 Single and Forest of Trees Methods -- 4.3 Comparison Between the Best Method of Each Group -- 5 Discussion -- References. Operations with Iso-structured Models with Commutative Orthogonal Block Structure: An Introductory Approach -- 1 Introduction -- 2 Commutative Jordan Algebras of Symmetric Matrices -- 3 Models with Commutative Orthogonal Block Structure -- 4 Operating Iso-structured COBS -- 5 Conclusion -- References -- Long and Short-Run Dynamics in Realized Covariance Matrices: A Robust MIDAS Approach -- 1 Introduction -- 2 A New MIDAS-Type Model -- 2.1 The Hadamard Exponential Specification -- 2.2 Estimation -- 3 Empirical Analysis --3.1 Dataset -- 3.2 Estimation Results -- 3.3 In-Sample Comparison --

3.4 Out-of-Sample Analysis -- 4 Concluding Remarks -- References -- Taxonomy-Based Risk Analysis with a Digital Twin -- 1 Introduction -- 2 Related Work -- 3 Methodology -- 3.1 Employing a Digital Twin for

Risk Management -- 4 The Smart Resort Business Case -- 5 Conclusion and Future Work -- References -- Advanced Lattice Rules for Multidimensional Sensitivity Analysis in Air Pollution Modelling -- 1 Introduction -- 2 The Stochastic Approaches -- 3 Case Study: UNI-DEM Model -- 3.1 Sensitivity Studies with Respect to Emission Levels -- 3.2 Sensitivity Studies with Respect to Chemical Reactions Rates -- 4 Conclusion -- References -- On Pitfalls in Statistical Analysis for Risk Assessment of COVID-19 -- 1 Introduction -- 2 Methods -- 3 Results and Discussion -- 3.1 Use of Cox and Logistic Models -- 3.1.1 At Risk -- 3.1.2 Censored Sample -- 3.2 Analysis of Combined Samples -- 3.3 Adjusting for Confounder -- 3.4 Correction for Selection Bias -- 3.5 Measurement Error -- 3.5.1 Biases Due to Measurement Error/Misclassification -- 3.5.2 Reliability Ratio -- 3.5.3 Adjusting for Unbalanced Confounder -- 3.5.4 Decreasing Power -- 3.5.5 Sensitivity and Specificity -- 3.5.6 22 Misclassification Model -- 4 Conclusion --References.

## Sommario/riassunto

This volume covers the latest results on novel methods in Risk Analysis and assessment, with applications in Biostatistics (which is providing food for thought since the first ICRAs, covering traditional areas of RA, until now), Engineering Reliability, the Environmental Sciences and Economics. The contributions, based on lectures given at the 9th International Conference on Risk Analysis (ICRA 9), at Perugia, Italy, May 2022, detail a wide variety of daily risks, building on ideas presented at previous ICRA conferences. Working within a strong theoretical framework, supporting applications, the material describes a modern extension of the traditional research of the 1980s. This book is intended for graduate students in Mathematics, Statistics, Biology, Toxicology, Medicine, Management, and Economics, as well as quantitative researchers in Risk Analysis.