

Rodrigo Herrera

CONTACT

INFORMATION

Rodrigo Herrera

Faculty of Business and Economics
Universidad de Talca
Av. Lircay Km 1 s/n, Talca

↳: +56 71 2200308

⤒: @RodHerreraL

✉: rodrigo.herrera@utalca.cl

🌐:

<https://rodherrera.github.io/>

⌚: github.com/rodrigo-sudo/

PERSONAL

DETAILS

Born April 6, 1978 in Talca, Chile

Native Spanish speaker, fluent in English and German

RESEARCH

INTERESTS

Quantitative Methods in Economics, Applied Econometrics, Financial Econometrics.

APPOINTMENTS

2015 – Present Associate Professor (with tenure)

School of Economics and Business, Universidad de Talca, Chile.

2018 – 2024 Dean School of Economics and Business

School of Economics and Business, Universidad de Talca, Chile.

2015 – 2018 Director Center for Applied Economic Research

School of Economics and Business, Universidad de Talca, Chile.

2015 – 2018 Director Master Program in Economics

School of Economics and Business, Universidad de Talca, Chile.

2011 – 2015 Assistant Professor

School of Economics and Business, Universidad de Talca, Chile.

School of Engineering, Universidad de Talca, Chile.

2010 – 2011 Instructor Professor

School of Engineering, Universidad de Talca, Chile.

EDUCATION

Postdoc, Dresden University of Technology, Germany. 2010.

PhD in Economics with emphasis on Econometrics, Dresden University of Technology, Germany. 2009.

Civil Industrial Engineering, Universidad de Talca, Chile. 2002.

Bachelor in engineering (Joint Hons.), First Class, Universidad de Talca, Chile. 2002.

AWARDS AND FELLOWSHIPS

Postdoctoral Scholarship. Fritz Thyssen Foundation: “*Multivariate models of extreme value theory with Applications in Risk Management*”. Germany. 2009 – 2010.

Post-doctoral Scholarship of the “*Association of Friends and Sponsors of TU Dresden e.V.*”. Germany. 2009

DAAD-Ass. Scholarship within the PhD. Research Program, Dresden, Germany.

Grant-holder ALFA Program of the European Commission, SISTING project. Contract No: AML/B7-311/97/0666/II321-FA. Saarbrücken, Germany. 2007.

Funding for young scientists of the German Statistical Society, Kiel, Germany. 2007.

President of the Republic Scholarship for Doctoral Studies in Germany, Chile. Mideplan. 2003.

Best student award 2002, en Ingeniería Industrial, Universidad de Talca, Chile. 2002.

Scholarship within the academic exchange between Universidad de Talca and Dresden University of Technology to finish part of the Thesis of Engineering. Dresden, Germany. 2002.

Scholarship of the Chilean Association of Banks and Financial Institutions. 2002.
DAAD Scholarship, Academic exchange at the Dresden University of Technology. Dresden, Germany. 1999.

COMPETITIVE
RESEARCH
GRANTS

Research Project FONDECYT Regular N° 12110915 “*Systemic tail risk: New directions for understanding high-dimensional extreme financial risk*”. 2021–2024. Principal Investigator.

Research Project FONDECYT Regular N° 1180672 “*Modeling high-dimensional and high-frequency extreme events in financial markets: Incorporating trading activity, liquidity measures and news flow*”. 2018–2020. Principal Investigator.

Research Project FONDECYT Regular N° 1150349 “*Extreme Financial Risk: A Multivariate Conditional Framework of Extreme Events*”. 2015–2017. Principal Investigator.

International Research Project *Iberoamerican Network of Agro-Bigdata and Decision Support Systems (CYTED)*. 2015–2019. Co-researcher.

Research Project FONDECYT for Initiation in research N° 11110247 “*Advanced extremal models for Risk Modeling under Basel II*”. 2011–2013. Principal Investigator.

International Research Project for Scientists (DAAD-CRUCH). Project: “*Extreme value theory with Applications in Risk Management and Crisis Contagion*”. 2011. Principal Investigator.

PUBLICATIONS *WoS and Scopus Articles*

1. Bień-Barkowska, K and Herrera, R. (2025). “*When to be discrete: The importance of time formulation in the modeling of extreme events in finance*”. Accepted in International Journal of Forecasting.
2. Fuentes, F and Herrera, R., Clements, A. (2025). “*Tail risk dynamics of banks with score-driven extreme value models*”. Journal of Empirical Finance. Vol 81. March 2025, 101593.
3. Herrera,R. and C. Candia (2024). “*An Empirical Review of Dynamic Extreme Value Models for Forecasting Value at Risk, Expected Shortfall and Expectile*”. Journal of Empirical Finance. Vol 77. June 2024, 101488
4. Piña M. and Herrera, R. (2024). “*Risk modelling with option-implied correlations and score-driven dynamics*”. North American Journal of Economics and Finance. Vol 72, May 2024, 102136
5. Gaete M. and Herrera, R. (2023). “*Diversification benefits of commodities in portfolio allocation: A dynamic factor copula approach*”. Journal of Commodity Markets. Volume 32, December 2023, 100363.
6. Fuentes, F, Herrera, R. and Clements. A. (2023). “*Forecasting extreme financial risk: A score-driven approach*”. International Journal of Forecasting. Vol 39 (2), 720-735.
7. Rodriguez, A., Pino, G. and Herrera, R. (2021). “*A non-parametric statistic for testing conditional heteroscedasticity for unobserved component models*”. Journal of Applied Statistics, Vol. 48 (3), 471-497.
8. Clements, A., Herrera, R. and Hurn, A. (2020) . “*Network analysis: a novel approach to identify PM2.5 hotspots and their spatio-temporal impact on air quality in Santiago de Chile*”. Air Quality, Atmosphere and Health, Vol. 13, 1075-1082.

9. Fuentes, F. and Herrera, R. (2020). "Dynamics of Connectedness in Clean Energy Stock Markets". *Energies*, vol 13, 3705.
10. Hautsch N. and Herrera R. (2020). "Multivariate dynamic intensity peaks over threshold models". *Journal of Applied Econometrics*. Vol.35 (2), 248 - 272.
11. Herrera, R., and Clements, A. (2020). "A marked point process model for intraday financial returns: Modelling extreme risk". *Empirical Economics*. Vol.58, 1575-1601.
12. Pino, G., Herrera, R. and Rodriguez, A. (2019). "Geographical spillovers on the relation between risk-taking and market power in the US banking sector". *North American Journal of Economics and Finance*. Vol.47, 351-364.
13. Herrera, R., Clements, A. and Fuentes, F. (2018). "Modeling Extreme Risks in Commodities and Commodity Currencies". *Pacific-Basin Finance Journal*, Vol. 51, pp. 108-120.
14. Moisan, S., Herrera, R., and Clements, A. (2018)."A Dynamic Multiple Equation Approach for PM2.5 Forecasting in Santiago, Chile". *International Journal of Forecasting*. Vol. 34, pp. 566-581.
15. Herrera, R. and Gonzalez, S. (2018). "Mutual excitation between OECD Stock and Oil Markets: A Conditional Intensity Extreme Value Approach".*North American Journal of Economics and Finance*. Vol.46, 70-88.
16. Herrera, R., and Clements, A. (2018). "Point process models for extreme returns: Harnessing implied volatility". *Journal of Banking and Finance*, Vol. 88, pp. 161-175.
17. Herrera, R. and Fuentes, F. (2018). "Are Crude Oil and Natural Gas extreme prices interdependent?". *Journal of Physics: Conference Series*. 1053 012112.
18. Herrera, R., Rodriguez, A. and Pino, G. (2017)."Modeling and Forecasting Extreme Commodity Prices: A Markov-Switching based Extreme Value Model". *Energy Economics*, Vol. 63, 129-143.
19. Herrera, R., Clements, A. and Hurn, A. (2015) . "Modeling Interregional Links in Electricity Price Spikes". *Energy Economics*, Vol. 51, 383-393.
20. Herrera, R., and Schipp, B (2014). "Statistics of extreme events in Risk Management: The impact of the Subprime and Global Financial Crisis on the German stock market". *North American Journal of Economics and Finance*. Vol. 29, 218-238.
21. Herrera, R. and N. González (2014). "Modeling and Forecasting of Extreme Events in Electricity Spot Markets". *International Journal of Forecasting*, Vol. 30 (3), pp 477-490.
22. Herrera, R. and A. Karmann (2014). "New evidence of contagion in the Asian crisis". *Review of Development Economics*. Vol.18(2), 354-371.
23. Herrera, R. (2013). "Energy risk management through self-exciting marked point process". *Energy Economics*. Vol. 38, 64-76.
24. Herrera, R and Schipp, B. (2013). "Value at Risk forecasts by extreme value models in a conditional duration framework". *Journal of Empirical Finance*. Vol. 23. 33-47.

25. Herrera, R. and S. Eichler (2011). *"Extreme Dependence with Asymmetric Thresholds: Evidence for the European Monetary Union"*. Journal of Banking and Finance. 35, Vol. 11, 2916-2930.

Book Chapters

26. Herrera, R., Schipp, B. (2009). *"Self-exciting extreme value models on stock market crashes*. In: Statistical Inference, Econometric Analysis and Matrix Algebra". Physica-Verlag Heidelberg., 209 - 231.
27. Herrera, R., S. Nickel and J. Kalcsics (2007). *"Reliability Models for the Uncapacitated Facility Location Problem with User Preferences"*. Operations Research Proceedings 2007, 135-140.

Other Publications in Spanish

28. Herrera, R., M. Aguirre and G. Bravo (2007). *"Análisis comparativo de eficiencia técnica entre la banca chilena y alemana"*. Revista de Matemática: Teoría y Aplicaciones 14(2) : 203-218. ISSN: 1409-2433.
29. Herrera, R., M. Aguirre and G. Bravo (2004). *"Una frontera de Producción para la banca Chilena"* Panorama Socioeconómico, ISSN: 0718-1566. Chile.

WORKING
PAPERS

- Herrera, R. and Clements, A. (2024) *"Using Realized moderate Volatility (RmV) for estimating HAR model coefficients*. R&R in "Econometrics and Statistics".
 Bień-Barkowska, K., Kliber, A. and Herrera, R. (2024) *"Can Uncertainty affect Extreme Events in the Oil Market?: A MIDAS Touch to Dynamic POT Models"*. R&R in " Journal of Empirical Finance".
 Herrera, R., Candia, C. and K. Bień-Barkowska *"Hawkes POT Factor Models: Measuring Tail Risk in Commodity Market"*
 Herrera, R., Candia, C. and Clements, A. *"Assessing Multivariate Tail Risk Forecasting Using a Vector Autoregressive Tail Index Model for Extremes"*

WORK IN
PROGRESS

- Herrera, R. and Clements, A. *"Realized conditional intensity of extreme events from a high-frequency perspective"*
 Herrera, R. and K. Bień-Barkowska *"Dynamic binary models for extreme risk in financial markets"*

CONFERENCES,
WORKSHOPS,
SEMINARS AND
INVITED TALKS

- 2024 16th Annual Society for Financial Econometrics (SoFiE) Conference (Rio de Janeiro).
 XXIV International Finance Conference (Lima)
 2023 58° Congreso Internacional CLADEA 2023 (Córdoba), XXIII International Finance Conference (Durango), Department of Actuarial Studies and Business Analytics, Macquarie University (Sydney), Financial Research Group, Universidad Veracruzana (Veracruz).
 2022 LACEA LAMES Annual Meeting 2022 (Lima), IFABS 2022 Naples Conference (Naples), Chilean Society of Regional Studies SOCHER (Antofagasta).
 2021 LACEA LAMES Annual Meeting 2021 (Bogotá), Chilean Society of Regional Studies SOCHER (Talca).
 2020 12th Econometric Society World Congress (Milan).
 2019 XIX International Finance Conference (Córdoba), Asia Pacific Conference in Economics and Finance (Singapur), Workshop on Environmental Economics and Natural Resources (Parral).
 2018 National Meeting of Schools and Faculties of Administration ENEFA (Valparaíso), XVIII International Finance Conference (Porto Alegre), National Meeting of the Chilean

- Economic Society SECHI (Viña del Mar), Chilean Society of Regional Studies SOCHER (San Pedro de Atacama).
- 2017 Asian Meeting of the Econometric Society (Hong Kong), XVII International Finance Conference, FEN Universidad de Chile (Santiago), National Meeting of the Chilean Economic Society SECHI (Talca), Finance Seminar UAI, Statistics (Santiago), Econometrics and Finance Workshop PUCV (Valparaíso), Chilean Society of Regional Studies SOCHER (Chillán).
- 2016 Erasmus University Rotterdam (Rotterdam). National Statistics Conference SOCHE (Viña del Mar), International Econometrics and Financial Statistics Workshop PUCV.
- 2015 8th Annual SoFiE Conference (Aarhus), National Meeting of the Chilean Economic Society SECHI (Talca), National Statistics Conference, SOCHE (Concepción).
- 2014 Frontiers in Financial Econometrics NCER (Brisbane), Inaugural Conference: Master of Business Administration Program PUCV (Viña del Mar), XIII Latin American Congress of Probability and Mathematical Statistics (Cartagena de Indias), Sixth Brazilian Conference on Statistical Modeling in Insurance and Finance (Maresias)
- 2013 Seminar for Master in Statistics Program Universidad de Concepción (Concepción). Seminar for Industrial Engineering School, Universidad Autónoma de Chile (Talca), 2da Jornadas en Investigación de Operaciones. Universidad de Talca (Curicó). National Statistics Conference SOCHE (Valparaíso)
- 2012 XLIV SBPO- XVI CLAIO Brasil (Rio de Janeiro), Latin American Congress of Probability and Mathematical Statistics CLAPEM (Viña del Mar).
- 2011 The 16th INFORMS Applied Probability Conference (Stockholm), the 65th European meeting of the Econometric Society EEA-ESSEM (Oslo), III Bayesian Congress of Latin America COBAL (Pucón), National Statistics Conference SOCHE (Pucón), Optima2011 Chilean Congress of Operation Research (Pucón).
- 2010 Latin American Congress of Statistical Societies IX CLATSE (Viña del Mar), Deutsche Arbeitsgemeinschaft Statistik DagStat2010 (Dortmund), Workshop on Liquidity and Trust in Incomplete Markets (Freiburg). 9th German Open Conference on Probability and Statistics (Leipzig)
- 2009 European Meeting of the Econometric Society (Barcelona)
- 2008 Jumps and Volatility High Frequency Financial Data - held by Prof. Yacine Ait-Sahalia (Berlin). Pfingsttagung der Deutschen Statistischen Gesellschaft (Berlin), Young Scientist Workshop of the German Statistical Society (Berlin).
- 2007 Country risk and FDI - Deutsche Bundesbank (Dresden), Annual International Conference of the German Operation Research Society (Saarbrücken), German Statistical Week (Kiel).
- 2006 Summer School Quantitative Risk Management (Munich)
- 2002 Latin-Iberian American Congress of Operation Research (Concepción).
- 2001 Chilean Congress of Operation Research Optima2001 (Curicó).

**VISITING
FELLOW**

Saïd Business School–University of Oxford (2025), SGH Warsaw Institute of Econometrics–School of Economics (2025), Department of Administration – University of Chile (2025), School of Mathematics – The University of Edinburgh (2024), School of Economics & Finance – Queensland University of Technology (2016-2019), Econometric Institute – Erasmus University Rotterdam (2016), National Research Center for Econometrics – Queensland University of Technology (2014), School of Economics & Finance – Queensland University of Technology (2013), Institute for Statistics and Econometric – Humboldt-Universität zu Berlin (2012), Chair of Econometrics – Dresden University of Technology (2012), CRC 649 Economic Risk – Humboldt-Universität zu Berlin (2010), Institute of Operations Research– Karlsruhe Institute of Technology (2009), Department of Operation Research and Logistic – Universität des Saarlandes (2007)

TEACHING	<p>Postgraduate: Financial Econometrics, Quantitative Methods and Data Science, Advanced Econometrics, Time Series, Quantitative Finance, Quantitative Risk Management, Research Methodology, Introduction to Statistical and Econometric Analysis, MBA Introduction to Statistics.</p> <p>Undergraduate: Econometrics, Stochastic Modelling, Stochastic Frontiers, Productivity Analysis, Optimization, Operations and Logistics, Supply Chain Management.</p>
SELECTED PROFESSIONAL ACTIVITIES	<p>Board member of the International Finance Conference (2023 –).</p> <p>Member of the Copper Reference Price Advisory Committee (2024 –).</p> <p>EfD Member of the Research Nucleus on Environmental and Natural Resource Economics (2018–)</p> <p>Board member of the Chilean Economic Society (2016-2019).</p> <p>Reviewer for <i>Energy Economics</i>, <i>Journal of Empirical Finance</i>, <i>International Review of Economics and Finance</i>, <i>Applied Economics</i>, <i>International Journal of Forecasting</i>, <i>Journal of Futures Markets</i>, <i>North American Journal of Economics and Finance</i>, <i>Applied Economics Letters</i>, <i>Expert Systems With Applications</i>, <i>Emerging Markets Finance and Trade</i>, <i>Resources Policy</i>, <i>Journal of Statistical Software</i>, <i>Journal of Forecasting</i>, <i>Empirical Economics</i>.</p> <p>Referee for <i>Fondecyt Regular grants</i>, Referee "Becas Chile" for Doctoral and Master Programs (Chilean NSF).</p>
SUPERVISING AND MENTORING	<p><i>Ph.D programs</i></p> <ul style="list-style-type: none"> – E. Muñoz (2023 –) <i>Financial Risk Modelling in Green Finance</i> – C. Candia (2024) <i>Three Tales of Extreme Financial Risk</i> (Assistant Professor, Universidad de Concepción, Chile) – F. Fuentes (2021) <i>Multivariate time Varying Extreme value models in Finance</i>. (Assistant Professor, University of Talca, Chile) <p><i>Master in Economics</i></p> <ul style="list-style-type: none"> – M. Piña (2020) <i>Risk modelling with option-implied correlations and score-driven dynamics</i> (PhD student in Economics at the University of Virginia) – M. Gaete (2019) <i>Diversification benefits of commodities in portfolio allocation: A dynamic factor copula approach</i> – T. Pérez (2019) <i>Predicting future Spot prices with Dynamic Conditional Beta models</i> – S. Moissan (2017) <i>A Dynamic Multiple Equation Approach for PM2.5 Forecasting in Santiago, Chile</i>. – E. Muñoz (2017) <i>Causal effect of oil prices on airline losses: A Conditional Intensity Approach</i>. <p><i>Master in Operation Management</i></p> <ul style="list-style-type: none"> – S. González (2015) <i>Comovements between OECD Stock and Oil Markets: A Conditional Intensity Extreme Value Approach</i>. – F. Fuentes (2015) <i>Quantifying the Impact of Extreme Events on Commodity Currencies</i>

- F. Urrutia (2014) *Production planning with hierarchical models and supplier-related uncertainty*
- N. González (2013) *Time Varying Autoregressive Conditional Duration Peaks Over Threshold Models in Finance*
- W. Lagos (2013) *Modeling of Value at Risk through the Extreme Values Theory and Shot Noise Point Processes*

Member of an evaluation committee for a PhD degree

- P. Vargas-Ferrer (2024) *Chilean Power System: Transformation and Operation for Carbon Neutrality in 2050.* UTalca
- R. Rubio (2020) *Interfaces Between Statistical Learning and Quantitative Risk Management.* PUC Chile (Data & Analytics, BCI Bank)
- D. Castro (2015) *Bivariate Extremes: Modeling, Smoothing, and Regression.* PUC Chile . (Professor at University of Glasgow, UK).
- R. Valdes (2012) *Market integration and pricing efficiency; empirical approaches to the agribusiness sector.* UTalca (Professor at Pontifical Catholic University of Valparaíso, Chile).

MEMBERSHIPS

Financial Econometric Society (SOFIE), Econometric Society, Chilean Statistical Society (Soche), Chilean Economic Society (Sechi).

NUMBERS

My Erdős number is 4 and my Gauss number is 8.

REFERENCES

Bernard Schipp

Professor in Econometrics
Faculty of Business and Economics
Dresden University of Technology
bernhard.schipp@tu-dresden.de

Adam Clements

Professor in Finance
QUT Business School
Queensland University of Technology
a.clements@qut.edu.au

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