



## *Isabel Casas*

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### RESEARCH INTERESTS

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- Semiparametric and nonparametric econometrics
- Time-varying coefficients multivariate models and their applications
- Time series econometrics
- Applications: Finance, Health economics, Macroeconomics and Wave Power

### EDUCATION

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- 2004 – 2006 Doctor of Philosophy (Econometrics)  
School of Mathematics and Statistics, University of Western Australia (UWA)
- 2002 – 2003 Preliminary Ph.D. in Financial Statistics  
School of Mathematics and Statistics, University of Western Australia.
- 1997 – 1998 Higher Diploma in Computational Methods and Numerical Software  
Departments of Computer Science and Mathematical Physics, University College Dublin, Ireland.
- 1989 – 1997 Honours Degree in Mathematics  
Department of Mathematics, Autonomous University of Madrid, Spain.

### ACADEMIC AND RESEARCH EXPERIENCE

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#### **Academic Positions** [2002 – Present]

- 2016 – Marie Skłodowska-Curie Fellow, Basque Center for Applied Mathematics.
- 2011 – Associate Professor, University of Southern Denmark.
- 2008 – 2011 Postdoc, CREATES, Aarhus University.
- 2008 Visiting position, Department of Statistics, K.U. Leuven.
- 2007 – 2008 Assistant Professor, Department of Statistics, Universidad Carlos III.
- 2006 – 2007 Postdoc, Department of Statistics, K. U. Leuven.
- 2002 – 2006 Research Assistant, School of Mathematics and Statistics, UWA.

**Teaching Experience** [2004 – Present]

- 2014 – 2015 Business Statistics (Bachelor level).
- 2011 – 2015 Time Series Econometrics (Master level).
- 2011 – 2013 Microeconometrics (Master level).
- 2007 – 2008 Introduction to Econometrics, Statistical Inference (Bachelor level) and Design of Experiments (Master level)
- 2004 – 2005 Multivariate Calculus (Bachelor level)

**Supervision** [2011 – Present]Internship projects

2017 - Supervision of Florian Heise during the project entitled “How do central banks work? A crash course”, founded by the European Commission. A set of educative videos about monetary policy in layman’s terms. The videos may be found [here](#).

Master projects

1. “Option pricing forecast with big tails distributions” by Nicklas Adrian Stewart.
2. “Forecasting portfolio returns” by Kamil Makiel and Branislav Prielozny.
3. “A vector autoregressive analysis of oil price changes and shocks in three net oil exporting countries” by Fredrik Skatland.
4. “A vector autoregressive analysis of the monetary policy of 6 European countries” by Peter A. Troelsen.
5. “A VaR model with jumps for event risk estimation” by Franco Scapolan.
6. “Warrant pricing performance under different volatilities - based on the Hong Kong Derivative warrants market” by Linrong Xue and Yan Wang.

Bachelor projects

1. “Theory behind GARCH with application to option pricing” by Mikkel S. Nielsen.
2. ”Two non-parametric estimation of volatility” by Mikkel H. Pedersen.
3. “Non-parametric vs parametric estimation of volatility: A simulation study” by Masih U. Majidzada and Emil N. Sørensen.

**PhD Thesis Evaluation Committee**

1. “Trending Time Series Models with Endogeneity” by Li Chen (2017) – Department of Business Econometrics, Monash University, Australia.
2. “Intangible Assets and Information Asymmetries: Challenges in Corporate Finance” by Saskia Clausen (2015) – Department of Business and Economics, University of Southern Denmark.
3. “Essays on Continuous Time Diffusion Models ” by Di Yuan (2013) – University of Adelaide, Australia.

**Editorial Activities and Referee**

2015 – 2016 Guest Editor of the Special Issue “Nonparametric Methods in Econometrics” in *Econometrics*.

2013 – Editorial Board Member of *Econometrics*.

Ad hoc refereeing for: Journal of Econometrics, Econometrics Journal, Journal of Applied Econometrics, Applied Stochastic Models in Business and Industry, Computational Statistics and Data Analysis, Journal of Nonparametric Statistics, and the European Commission.

**Administrative Activities** [2012 – 2016]

Member of the Department Council. Advisory position to the Head of the Department.

International Staff Coordinator. I help International newly hired staff at the department to settle into the Danish culture.

**PUBLICATIONS**

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**Publications in journals**

Villalba, E., Casas, I., Lupiañez-Villanueva, F. and Maghiros, I. (2015). “Adoption of Health Information Technologies by physicians for clinical practice: The Andalusian case”. *International Journal of Medical Informatics*, 84, pp. 477-485.

Aslanidis, N. and Casas, I. (2013). “Nonparametric correlation models for portfolio allocation”. *Journal of Banking and Finance*, 37, pp. 2268-2283.

Villalba, E., Casas, I., Abadie, F. and Lluch, M. (2013). “Integrated personal health and care services deployment: experiences in eight European countries”. *International Journal of Medical Informatics*, 82, pp. 626-635.

Casas, I. and Gijbels, I. (2012). “Unstable volatility functions: the break preserving local linear estimator”. *Journal of Nonparametric Statistics*, 24, pp. 883–904.

Casas, I. and Gao, J. (2008). “Econometric estimation in long-range dependent volatility models: Theory and practice”. *Journal of Econometrics*, 147, pp. 72–83.

Gao, J. and Casas, I. (2008). “Specification testing in discretized diffusion models: Theory and practice”. *Journal of Econometrics*, 147, pp. 131-140.

Casas, I. (2008). “Estimation of stochastic volatility with LRD”. *Mathematics and Computers in Simulation*, 78, pp. 335–340.

Casas, I. and Gao, J. (2007). “Nonparametric Methods in Continuous Time Model Specification”. *Econometric Reviews*, 26, 91–106.

Casas Villalba, M.I, Tan, C.J.K. and Alexandrov, V. (2000). “Efficient Monte Carlo Linear Solver with Chain Reduction and Optimization Using PLFG”. *High-Performance Computing and Networking*, edited by B. Hertzberger, A. Hoekstra and R. Williams. *Lecture Notes in Computer Science*, 2110, pp. 405–414. Springer-Verlag.

**Conference proceedings**

Casas, I. and Grassi, S. (2014). “Tv-VAR estimation: nonparametric vs bayesian”. *Proceedings ITISE 2014: International Work-conference on Time Series*.

Villalba, E., Casas, I., Abadie, F., Lluch, M. and Maghiros, I. (2012). “Towards integrated personal health and care services deployment in Europe”. *IV Workshop on Technology for Healthcare and Healthy Lifestyle*, pp. 30–32.

Casas, I. and Gao, J. (2005). “Stochastic volatility with long-range dependence”. MODSIM 2005 International Congress on Modelling and Simulation, pp. 802–806.

### White papers

Aslanidis, N. and Casas, I. (2010). “Modelling asset correlations during the recent financial crisis: A semiparametric approach”. CREATES Research Paper 2010-71.

Casas, I. and Gijbels, I. (2009). “Unstable volatility functions: the break preserving linear estimator”. CREATES Research Paper 2009-48.

### Collaborations as Statistics Consultant

Cadierno, T., Ibarretxe-Antuñano, I., and Hijazo-Gascón, A. (2016). “Semantic categorization of placement verbs in L1 and L2 Danish and Spanish”. *Language Learning*, 66, pp. 191–223.

Ibarretxe-Antuñano, I., Cadierno, T., and Hijazo-Gascón, A. (2016). “The role of force dynamics and intentionality in the reconstruction of L2 verb meanings: A Danish-Spanish bidirectional study”. *Review of Cognitive Linguistics*, 14, pp. 136–160.

Hijazo-Gascón, A., Cadierno, T., and Ibarretxe-Antuñano, I. (2016). “Learning the placement caused motion construction in L2 Spanish”. In S. De Knop and G. Gilquin (Eds.), *Applied construction grammar*, pp. 185–210. Berlin / New York: Mouton de Gruyter.

## WORK IN PROGRESS

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“Forecast of time-varying effects of post-GFC monetary policy & a novel computing application” (with several authors). Marie Skłodowska-Curie Individual Fellowship starting in 2016, including:

- Time-varying SURE: application to portfolio management (with Eva Ferreira and Susan Orbe) – Presented at Compustat 2016 and CFE 2016.
- Time-varying impulse response function: effect of interest rates zero bound (with Selva Demiralp).
- Comparison of Time-varying VAR estimated with nonparametric methodologies and with Bayesian methodologies (with Richard Gerlach).
- Development of an R package for the time-varying SURE (with Ruben Fernandez-Casal).
- Development of an R package for the time-varying VAR and time-varying impulse response function.

“Nonparametric leverage: Volatility forecasting and implications for option pricing” (with Helena Veiga) – Presented at the World Finance Conference 2015 and the Australasian Banking & Finance Conference 2015.

“Modelling crude oil price return volatility-level nexus: A robust nonparametric approach” (with Sandy Suardi) – Presented at Computational and Financial Econometrics 2014.

“Variability at the start of foreign language learning: A comparative study with Danish and Spanish young learners of English” (with Carmen Muñoz and Teresa Cadierno).

“Panel data model with nonstationary trend and fixed effects” ( with Shanyu Xie and Jiti Gao).

“Re-visiting asymmetric measures for improving volatility forecasts and stock return predictability” (with Helena Veiga and Xiupin Mao).

## AWARDS AND SCHOLARSHIPS

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2016–2018 Marie Skłodowska-Curie Fellowship from the European Commission.

2008–2011 Research fellowship from the Danish Council for Independent Research.

2008 Jose Castillejo mobility scholarship for young researchers by the Spanish Ministry of Science and Innovation (6 months research visiting scholarship).

2006 FIRN Younger Research Award by the Australian Research Council Financial Integrity Research Network.

2004 – 2006 Australian Postgraduate Award (3 years research scholarship).

## LATEST CONFERENCE AND INVITED SEMINAR PRESENTATIONS

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December 2016: 10th International Conference on Computational and Financial Econometrics, Seville, Conference Presentation.

October 2016: Public University of Navarre, Pamplona, Invited Seminar.

August 2016: Computational Statistics 2016, Ovido, Conference Presentation.

December 2015: Australasian Banking & Finance Conference, Sydney, Conference Presentation.

November 2015: University of New South Wales, Sydney, Invited Seminar.

July 2015: World Finance Conference, Buenos Aires, Conference Presentation.

December 2014: 8th International Conference on Computational and Financial Econometrics, Pisa, Conference Presentation.

June 2014: International Work-Conference on Time Series Analysis, Granada, Conference Presentation.

April 2014: Monash University, Department of Econometrics and Business Statistics, Melbourne, Invited Seminar.

April 2014: University of Sydney, Business Analytics Discipline, Sydney, Invited Seminar.

March 2014: Macquarrie University, Department of Economics, Sydney, Invited Seminar.

December 2013: 7th International Conference on Computational and Financial Econometrics, London, Conference Presentation.

March 2012: 10th German Open Conference on Probability and Statistics, Mainz, Conference Presentation.

October 2013: University of the Basque Country, Bilbao, Invited Seminar.

July 2011: Monash University, Department of Econometrics and Business Statistics, Melbourne, Invited Seminar.

July 2011: Econometrics Society Australasian Meeting, Adelaide, Conference Presentation.

December 2010: 4th CSDA International Conference on Computational and Financial Econometrics, London, Conference Presentation.

October 2010: Universitat Rovira i Virgili, Economics Department, Reus, Invited Seminar.

August 2010: 10th Econometric Society World Congress, Shanghai, Conference Presentation.

June 2010: 6th Bachelier Finance Society World Congress, Toronto, Conference Presentation.

March 2010: 9th German Open Conference on Probability and Statistics, Leipzig, Conference Presentation.

### **Conference Organisation**

Invited Session organisation for the 10th International Conference on Computational and Financial Econometrics, Sevilla, December 2016.

Co-chair, Local Organising Committee, International Conference on Time Series Econometrics, Finance and Risk, Perth, Western Australia, July 2006.

Member, International Program Committee, International Conference on Time Series Econometrics, Finance and Risk, Perth, Western Australia, July 2006.

Member, Programme Committee, International Workshop on Financial Econometrics and Statistics, Perth, Western Australia, April 2005.

## **EXPERIENCE IN THE PRIVATE SECTOR**

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1999 – 2002 Software Engineer – Norkom Technologies (Dublin)

- Development and design of C++ and Java applications
- Liaised between Product Development and Analytics department regarding issues relating both Mathematics and Computing

1998 – 1999 Software Developer – Datasim Education (Amsterdam and Dublin)

- Research in simulation techniques in finance such as the Monte Carlo and Quasi-Monte Carlo methods
- Research in the Black-Scholes equation applied to European, American and Asian options
- Development and design of C/C++ applications of the aforementioned algorithms
- Development and design of a parallel version of the aforementioned software in MPI (Message Passing Interface)

## LANGUAGES

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- Spanish. Mother tongue.
- English. Fluent in all respects.
- Danish. Intermediate level.