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Personal Information
Nationality: Vietnam
Date of birth: 29 Jan 1989
Marital Status: Single

Education

PhD. Business and Quantitative method, Universidad Carlos III de Madrid
Thesis title: Bayesian inference for high dimensional factor copulas
Supervisors: **Prof. M. Concepción Ausín** and **Prof. Pedro Galeano** 2015-Now
Visiting PhD student at Ca' Foscari University of Venice,
Invited by **Prof. Roberto Casarin**, 2017/10 - 2017/12.

MSc. Business and Quantitative method, Universidad Carlos III de Madrid
Thesis title: Modelling Stock Dependence using Factor Copulas 2013-2015
Dissertation Advisor: **Prof. M. Concepción Ausín**

BA, National Economics University, Vietnam (NEU).
Degree in Banking and Finance 2007-2011

References

Dr. Pedro Galeano
Associate Professor
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UC3M, Madrid, Spain
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Job market paper **Variational Bayesian inference for high dimensional factor copulas**, with M. Concepción Ausín and Pedro Galeano (2018), (Paper - Code - Appendix - Slides - Poster)

Factor copula models have been recently proposed for describing the joint distribution of a large number of variables in terms of a few common latent factors. In this paper, we employ a Bayesian procedure to make fast inferences for multi-factor and structured factor copulas. To deal with the high dimensional structure, we apply a variational inference (VI) algorithm to estimate different specifications of factor copula models. Compared to the Markov chain Monte Carlo (MCMC) approach, the variational approximation is much faster and could handle a sizeable problem in a few seconds. Another issue of factor copula models is that the bivariate copula functions connecting the variables are unknown in high dimensions. We derive an automatic procedure to

recover the hidden dependence structure. By taking advantage of the posterior modes of the latent variables, we select the bivariate copula functions based on minimizing the Bayesian information criterion (BIC). The simulation studies in different contexts show that the procedure of bivariate copula selection could be very accurate in comparison to the true generated copula model. We illustrate our proposed procedure with two high dimensional real data sets.

Publications

Parallel Bayesian inference for high dimensional dynamic factor copulas, with M. Concepción Ausín and Pedro Galeano (2018) - Journal of Financial Econometrics (forthcoming), (Paper - Code - Appendix - Slides - Poster)

To account for asymmetric dependence in extreme events, we propose a dynamic generalized hyperbolic skew Student-t factor copula where the factor loadings follow Generalized Autoregressive Score (GAS) processes. Conditioning on the latent factor, the components of the return series become independent, which allows us to run Bayesian estimation in a parallel setting. Hence, Bayesian inference on different specifications of dynamic one factor copula models can be done in a few minutes. Finally, we illustrate the performance of our proposed models on the returns of 140 companies listed in the S&P500 index. We compare the prediction power of different competing models using Value-at-Risk (VaR), and Conditional Value-at-risk (CVaR), and show how to obtain optimal portfolios in high dimensions based on minimum CVaR.

Working paper

What are drivers of Swedish sustainable development path? New evidence from Bayesian Dynamic Linear Models, Proceedings XX Applied Economic Meeting, with Jesper Stage, Magnus Lindmark, Huong Nguyen (2017) - Paper

According to my knowledge, we are the first who aim to find out the dynamic relationship between genuine savings (GS) and long-term well-being represented by future consumptions (PVC). By extending the measure of GS to account for a wider range of impacts on natural resource, human capital, and technological progress, we apply the Bayesian approach to estimate Dynamic Linear Models (DLMs). We discover that there are increasing dependent trends with all explanatory GS variables and provide a new empirical evidence on the technological progress that underpins Swedish sustainable development. The dynamic model also provides a trivial framework for testing the hypothesis that their relationship approach to one as the net investment term includes more types of capital.

Work in progress

Leverage stochastic volatility using copulas with Roberto Casarin, M. Concepción Ausín and Pedro Galeano (2018).
Variational inference for Markov switch factor copula models.
Variational inference for dynamic GAS factor copula models.

Presenter at Conference & seminar

Parallel Bayesian inference for high dimensional dynamic factor copulas
Presenter, CFE-CMStatistics 2016 — Seville 2016
Presenter, Workshop in Bayesian Econometrics, UC3M — Madrid 2016
Poster presenter, International Society for Bayesian Analysis (ISBA) — Cagliari 2016

What are drivers of Swedish sustainable development path?
Presenter, XX Applied Economics Meetings — Valencia 2017

Variational Bayesian inference for high dimensional factor copulas
Presenter, 49th Meeting of the Working Groups "Statistical Computing"

	and "Biostatistics"	Gunzburg 2017
	Presenter, University Ca' Foscari Internal research seminar	Venice 2017
	Presenter, Workshop on Financial Econometrics	Örebro 2018
	Presenter, CFE-CMStatistics 2018	Pisa 2018
	Poster presenter, International Society for Bayesian Analysis (ISBA)	Edinburgh 2018
Teaching Experience	**Teaching Assistant,** Statistics Department, UC3M	
	Course: *Statistics for Social Sciences I* - Web content	2017-2018
	Course: *Optimization and simulation for business* - Web content	2018
	Course: *Statistics for Social Sciences III* - Web content	2017
	Course: *Statistics for Business Administration* - Web content	2016
	Course: *Statistics for Telecommunication* - Web content	2016
	Course: *Financial Risk Management* - Web content	2015
Research Experience	**Research Assistant,** Department of Business Administration, UC3M	
	Project: Eco-innovation in Madrid	
	Prof. Maria Jose Alvarez and **Prof. Maria Jose Montes**	Summer 2014
Short courses attendance	*Tail Risk*, **Prof. David Veredas** (Université libre de Bruxelles)	Madrid 2014
	Empirical Distribution, **Prof. Winfried Stute** (U. of Giessen)	Madrid 2014
	The power of penalties, **Prof. Paul Eilers** (Erasmus University)	Madrid 2015
	Non-Linear Methods for Complex Systems Analysis, **Prof. Reik Donner** & **Marc Wiedermann** (PIK - Potsdam)	Cologne 2015
	Bayesian Statistics and Algorithms (CIRM - Thematic month)	Marseille 2016
	Data Mining, **Prof. Mykola Pechenizkiy** (TU Eindhoven)	Jyvaskyla 2016
	Longitudinal Data Analysis, **Prof. Molenberghs** (KU Leuven)	Jyvaskyla 2016
	Le Cam's Asymptotic Theory, **Prof. Marc Hallin**	Madrid 2017
	Quasi Monte Carlo, (Summer School)	Graz 2017
	Thematic Semester on Statistics for Energy Markets	Paris 2018
	Master class in Bayesian statistics	Marseille 2018
Fellowships and Awards	ISBA World meeting travel grant	2018
	UC3M mobility grant	2017
	ALDE travel grant	2017
	ISBA World meeting travel grant	2016
	PhD fellowship at Universidad Carlos III de Madrid	2015-2018
	Full Master Scholarship at Universidad Carlos III de Madrid	2013-2015
	Scholarship for 3-months exchange at Saint Mary's University (Canada)	2012
	Second prize at National Student Olympiad in Programming Contest	2009

Computer Skills

Languages: R, C++, Python, Matlab
Software: Latex, Open Office.
OS: Linux.

Languages

Vietnamese (Native), English (Advanced); Spanish (Intermediate); German (Beginner);

Miscellaneous

Representative for UC3M in Econometric game 2017 **(Final round 10/30 teams)**;
Coding Club UC3M content manager (Website: https://codingclubuc3m.github.io/);