Luis Damiano

Rosario, 2000, Argentina
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Education

Universidad Nacional de Rosario, Department of Statistics 2014-2017

Master's in Applied Statistics. GPA 9.1/10.[1]

Thesis: *Evaluating Forecast Accuracy of GARCH Volatility Models Applied to Daily Stock Prices in Argentina*. (Link)

Research performed while working full-time.

Pontificia Universidad Católica Argentina, Department of Management 2006-2010

Bachelor's in Business Management. GPA 8.9/10.[2]

Additional Ph.D.-level Coursework

Universidad Nacional de Rosario, Department of Statistics[3] 2016-2017

- Bayesian Statistics (2 credit hours).
- Measure Theory and Probability (3 credit hours).
- Panel Data Econometrics (3 credit hours).

Additional Master's-level Coursework

Universidad Nacional de Rosario, Department of Management 2011-2012

Master's in Finance. GPA 8.5/10.[4]

Completed coursework requirements for professional Master's in Finance.

Research Interests

Bayesian inference, time series analysis, state-space models (continuous and discrete latent states), dynamic linear models, hierarchical models, Bayesian regularization, quantitative finance.

[1] Scale from 1 to 10: 6 Pass, 7 Good, 8 Very Good, 9 Distinguished, 10 Outstanding.
[2] Scale from 1 to 10: 4 Pass, 5 Satisfactory, 6-7 Good, 8 Very Good, 9 Excellent, 10 Outstanding.
[3] Students are allowed to complete all Ph.D.-level coursework prior to formal application to the Ph.D. program. After admission, candidates focus exclusively on their thesis and do not take additional courses.
[4] Scale from 1 to 10: 6 Pass, 7 Good, 8 Very Good, 9 Distinguished, 10 Outstanding.

Publications

Conditionally Accepted

- **Damiano L.** "A Tutorial on Hidden Markov Models using Stan." Submitted to StanCon 2018 and invited to present. (Link)

In Preparation

- **Damiano L.**, Peterson B., Weylandt M. "A Replication Analysis of 'Stock Market Forecasting Using Hidden Markov Model: A New Approach' by Hassan and Nath." Work performed as part of GSoC 2017. (Link)

Published Software

In Preparation

- **Damiano L.**, Peterson B., Weylandt M. "BHHMM: Frequentist and Bayesian Inference for Hierarchical Hidden Markov Models Using Stan." Work performed as part of GSoC 2017.

Presentations

Inter-American Statistical Conference 2017, Rosario, Argentina — October 2017

- Daily Stock Price Forecasts in Argentina Using Hidden Markov Models.

Artificial Intelligence in Industry and Finance, Winterthur, Switzerland — September 2017

- Brian Peterson presented "Regime Switching and Technical Trading with Dynamic Bayesian Networks in High-Frequency Stock Markets" (Link) as part of his keynote talk "Machine Learning in Trading".

R/Finance 2017, Chicago, IL — May 2017

- A Quick Introduction to Hidden Markov Models Applied to Stock Volatility. (Slides; Notebook)

Research Experience

Universidad Nacional de Rosario — 2016-2017

Graduate thesis for the Master's in Applied Statistics program.

- *Title*: Evaluating Forecast Accuracy of GARCH Volatility Models Applied to Daily Stock Prices in Argentina. (Link)
- *Advisor*: María Teresa Blaconá.

GSoC Student for R Project for Statistical Computing — Summer 2017

- *Title*: Bayesian Hierarchical Hidden Markov Models applied to financial time series.

- *Mentors*: Brian Peterson and Michael Weylandt.

  Investigation of full Bayesian posterior inference (MCMC) for Hierarchical Hidden Markov Models with applications to financial time series. Contributions included: Development of specialized priors to smooth posterior geometry and improve MCMC convergence; Adaptation of forward-backward and Viterbi algorithms to Hierarchical HMMs; Efficient implementation of Hamiltonian Monte Carlo for Hierarchical HMMs, suitable for high-frequency financial time series. (GitHub repository; Link)

Teaching Experience

Pontificia Universidad Católica Argentina, Department of Management — Fall 2010

Finance II: Valuation and Capital Budgeting, Return and Risk, Capital Structure and Dividend Policy. Instructor: G. Messina.

Professional Experience

FIRST Capital Markets, Head of Asset Management, Buenos Aires, Argentina — 2015-Present

Managed development of quantitative strategies including: GARCH for foreign exchange volatility, PCA of the yield curve, cross-sectional and time series analysis on currency futures, Monte Carlo simulation to model Delta-neutral commodity trading strategies, and hierarchical linear models for cohort analysis of credit portfolios.

FIRST Corporate Finance, Lead Structurer for ABS, Rosario, Argentina — 2010-2015

Primary responsibilities included structuring Asset-Backed Securities (ABS) as well as producing all the technical documents for the initial public offering. Quantitative aspects of the daily work included:

1. Analysis of the historical performance of assets (static gross and net loss performance, default, recoveries, prepayments), handling databases with 100 million records.
2. Modeling and forecasting cash flows (credit enhancement, fixed/variable interest rates, amortizations schemes, revolving, currency, tranching).

Personal Details

- Dual citizenship: Argentinian, Italian.

Languages

- *Spanish*: Native.

- *English*: Full Professional Proficiency.
  TOELF: Registered to take the exam in November 2017.
  Certificate in Advanced English, Council of Europe Level C1 (2009).
  First Certificate in English, Council of Europe Level B2 (2008).

- *Italian*: Limited working proficiency.
  PLIDA Certificate, Council of Europe Level B1 (2005).

- *French*: Limited working proficiency.
  More than 700 hours of coursework in the Alliance Française, Rosario.

References

María Teresa Blaconá (Master's Thesis Advisor)

Instituto de Investigaciones Teóricas y Aplicadas Escuela de Estadística
Universidad Nacional de Rosario

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Brian G. Peterson (GSoC 2017 Mentor)

Lecturer
Department of Computational Finance & Risk Management
University of Washington

Partner & Head of Automated Trading
DV Trading, Chicago IL

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Michael Weylandt (GSoC 2017 Mentor)

Ph.D. Candidate
Department of Statistics
Rice University

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