

CURRICULUM VITAE

JOSÉ SANTIAGO FAJARDO BARBACHAN

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EDUCATION

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| 2000 | Ph.D. in Mathematical Economics at Institute for Pure and Applied Mathematics (IMPA), Brazil. |
| 1996 | M.Sc. in Mathematical Economics at Institute for Pure and Applied Mathematics (IMPA), Brazil |
| 1994 | B.Sc. in Mathematics at the Pontifical Catholic University of Perú, Lima, Perú. |

RESEARCH INTEREST

Economic Theory, Financial Economics, Mathematical Finance and Behavioral Finance

ACADEMIC APPOINTMENTS

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|-----------------|---|
| 06/2010-current | Associate Professor, Brazilian School of Public and Business Administration, Getulio Vargas Foundation, Brazil. |
| 01/2007–05/2010 | Associate Professor, IBMEC Business School, Rio de Janeiro, Brazil. |
| 01/2003–12/2006 | Assistant Professor, IBMEC Business School, Rio de Janeiro, Brazil. |
| 04/2000–12/2002 | Assistant Professor, Catholic University of Brasília, Brazil |

FELLOWSHIPS

2014–2018	Research Fellowship, PQ I-C, CNPq, Brazil.
2016–2019	Research Fellowship, PRONEX, Faperj, Brazil.
2013–2016	Universal Research Project CNPq, Brazil.
2010–2014	Research Fellowship, PQ I-D, CNPq, Brazil.
2007–2010	Research Fellowship, PQ I-D, CNPq, Brazil.
2004–2007	Research Fellowship, PQ II, CNPq, Brazil.
2004–2007	Research Fellowship, PRONEX, Faperj, Brazil.
2002	Semester on Credit Risk and Financial Econometrics Fellowship. Scuola Normale Superiore di Pisa, Italia.
1996–2000	Doctoral Fellowship, CNPq, Brazil.
1995–1996	Master Fellowship, CNPq, Brazil.

PUBLICATIONS

- 2017 A New Factor to Explain Implied Volatility Smirk. Forthcoming *Applied Economics*.
- 2016 On the Optimal Investment. In “Advanced Modeling in Mathematical Finance: In honour of Ernst Eberlein”. Eds. J. Kallsen, A. Papapantoleon. Springer. p. 313-330. With José Manuel Corcuera and Olivier Menouken Pamen.
- 2016 CoCos with Extension Risk: A Structural Approach. In “A Fascinating Journey Through Probability, Statistics and Applications: In Honour of Ole E. Barndorff-Nielsen’s 80th Birthday”. Eds. Podolskij, M., Stelzer, R., Thorbjørnsen, S., Veraart, A.E.D. Springer, New York, p. 447-464. With José Manuel Corcuera, Wim Schoutens and Arturo Valdivia.
- 2016 Optimal Insider Strategy with Law Penalties. *Brazilian Review of Economics*. v. 70, n. 1, p. 31–40.
- 2015 Barrier Style Contracts under Lévy Processes: An Alternative Approach. *J. of Banking & Finance*, v. 53, p. 179-187.
- 2014 Close form pricing formulas for Coupon Cancellable CoCos. *J. of Banking & Finance*, v. 42, n. 1, p. 339-351. With J. M. Corcuera, Wim Schoutens, Jan Spiegeleer, Henrik Jönsson and Arturo Valdivia.
- 2014 Skewness Premium in Lévy Markets. *Quantitative Finance*, v. 14, n. 9, p. 1619-1626. With Ernesto Mordecki.

- 2014 Market Symmetry and Bates' Rule in Orstein-Unhlebeck Stochastic Volatility Models. *Decisions in Economics and Finance*, v. 37, n. 2, p. 319-327.
- 2012 Estimating Relative Risk Aversion, Risk-Neutral and Real-World Densities Using Brazilian Real Currency Options. *Brazilian Journal of Applied Economics*. v. 16, n. 4, p. 665-675. With Aquiles Farias and José Ornelas.
- 2011 Meixner Process and Brazilian Market: Theory and Applications. *Estudos Economicos*. v. 41, n. 2, p. 383-408. With Felipe Gomes.
- 2010 Statistical Arbitrage with Collateral and Default. *Economics Letters*, v. 108, n. 1, p. 81-84. With Ana Lacerda.
- 2010 Derivative Pricing using Multivariate Affine Generalized Hyperbolic Distributions. *J. of Banking & Finance*, v. 34, n. 7, p. 1607-1617. With Aquiles Farias.
- 2010 Market Symmetry in Time Changed Brownian Models. *Finance Research Letters*, v. 7, n. 1, p. 53-59. With Ernesto Mordecki.
- 2010 Behavioral Arbitrage with Default and Uncertain Deliveries. *Annals of Finance*, v. 6, n. 2, p. 241-254.
- 2010 Social Interactions and the Behaviour of Women in the Brazilian Capital Markets. *Brazilian Review of Economics*. v. 64, n. 3, p. 245-260. With Sandra Blanco.
- 2009 Existence of Equilibrium in the Common Agency Model. *Games and Economic Behaviour*, v. 66, n. 2, p. 749-760. With Guilherme Carmona.
- 2009 Multivariate Affine Generalized Hyperbolic Distributions: An Empirical Investigation. *International Review of Financial Analysis*, v. 18, n. 4, p. 174-184. With Aquiles Farias.
- 2009 Pricing and Optimality with Default Spreads. *Quarterly Review of Economics and Finance*, v. 49, n. 2, 686-692.
- 2008 Seasonalities in Ibovespa Index. *Brazilian Business Review*, v. 5, n. 3, p. 244-254. With Rafael Pereira.
- 2008 A Goodness-of-fit Test with focus on Conditional Value at Risk Estimation. *Brazilian Review of Finance*, v. 6, n. 2, p. 139-155. With José Ornelas and Aquiles Farias.
- 2008 Duality and Derivative Pricing with Time-Changed Lévy Processes. *Brazilian Review of Econometrics*, v. 28, n. 1, p. 95-110. With Ernesto Mordecki.
- 2007 Equilibrium in Stochastic Economies. In "Dynamical Economics, Applied Economics and Game Theory: Essays in Honour to Ramón García-Cobián". Eds. César Martinelli and Loretta Gasco. Fondo Editorial PUCP. p. 25-57.

- 2006 Symmetry and Duality in Lévy Markets. *Quantitative Finance*, v. 6, n. 2, p. 219–227. With Ernesto Mordecki.
- 2006 Pricing Derivatives on Two Lévy-Driven Stocks. *International Journal of Theoretical and Applied Finance*, v. 9, n. 2, p. 185–197. With Ernesto Mordecki.
- 2006 A Note on Pricing, Duality and Symmetry for Two Dimensional Lévy Markets. In “From Stochastic Analysis to Mathematical Finance - Festschrift for A.N. Shiryaev”. Eds. Y. Kabanov, R. Lipster and J. Stojanov. Springer Verlag, New York. p. 249-256. With Ernesto Mordecki.
- 2006 Testing CAPM by using a synthetic portfolio on Brazilian GDP. *Estudos Economicos*, v. 36, n. 3, p. 465–505 . With Eurilton Araujo and Leonardo Tavani.
- 2006 Goodness-of-fit Test focuses on Value at Risk Estimation. *Brazilian Review of Econometrics*, v. 26, n. 2, p. 309–326. With José Ornelas and Aquiles Farias.
- 2006 Equivalent Martingale Measures and Lévy Processes. *Brazilian Review of Economics*. v. 60, n. 4, p. 353–361.
- 2005 Endogenous Collateral. *Journal of Mathematical Economics*, v. 41, n. 4-5, p. 439–462. With Aloisio Araujo and Mário Páscoa.
- 2005 A Note on Arbitrage and Exogenous Collateral. *Mathematical Social Sciences*, v. 50, n. 3, p.336–341.
- 2005 Pricing of Bidimensional Derivatives. *Brazilian Journal of Applied Economics*, v. 9, n. 3, p. 385–414. With Hugo Azevedo.
- 2005 Analyzing the use of Generalized Hyperbolic Calculations to VaR Calculations. *Brazilian Journal of Applied Economics*, v. 9, n. 1, p. 25–38. With José Ornelas and Aquiles Farias.
- 2004 Generalized Hyperbolic Distributions and Brazilian Asset Returns. *Brazilian Review of Econometrics*, v. 24, n. 2, p. 1–21. With Aquiles Farias.
- 2003 Pricing of Brazilian IDI Options using CIR Model. *Estudos Economicos*, v. 33, n. 2, p. 287 – 323. With José Ornelas.
- 2003 Pricing of IDI Options using Generalized Hyperbolic Distributions. *Brazilian Journal of Applied Economics*, v. 7, n. 4, p. 767–794. With José Ornelas.
- 2003 Optimal Consumption and Investment with Lévy Processes. *Brazilian Review of Economics*, v. 57, n. 4, p. 825 – 848.
- 2002 Equilibrium in Stochastic Economies with Incomplete Financial Markets. *Brazilian Review of Econometrics*, v. 22, n. 1, p. 67–102.
- 2001 Arbitrage and pricing with Collateral In: “Mathematical Finance”. Eds. Michael Kohlmann Shanjian Tang. Birkhäuser Verlag, Berlin. p. 69–78.

- 2001 Lévy Processes and Brazilian Financial Market. *Brazilian Review of Econometrics*, v. 21, n. 2, p. 263–289. With Andres Schuschny and André Silva.
- 2000 Optimal Consumption and Investment with Hyperbolic Lévy Motion. *Brazilian Review of Econometrics*, v. 20, n. 1, p.27–54.
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WORKING PAPERS

- *Barrier Style Contracts under Asymmetric Lévy Processes II. Submitted.*
 - *Skewed Lévy Models and Implied Volatility Skew*, with Ernesto Mordecki and Federico De Olivera. *Submitted*
 - *Understanding the Effects of a Severe Hyperinflation Episode on Household Economic Behavior*, with Manuela Dantas. *Submitted*
 - *The Effects of Crime on Household Investment Behavior*, with Manuela Dantas.
 - *Impunity and Rationality in a Market for Offenses*, with Jaime Orrillo. *Submitted*
 - *Additional Enforcement Mechanisms in Economies with Default.*
 - *Psychological Influence on Women's Financial Investments*, with Sandra Blanco. *Submitted*
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WORKS IN PROGRESS

- *Cost-Efficiency with Skewed Lévy Models*, with Federico De Olivera and E. Mordecki.
 - *Endogenous Collateral and Pareto Efficiency*, with A. Araujo and M. Pascoa.
 - *Effects of Past Macro Shocks on Current Economic Decisions*, with Manuela Dantas.
 - *On Non Markovian equilibria in Kyle-Back's model with jumps*, with José Manuel Corcuera.
 - *Existence of Equilibrium in General Bertrand Games*, with G. Carmona.
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INVITED PRESENTATIONS

- 2017 Workshop on Mathematical Finance (Barcelona Spain)
- 2016 EMaP (Rio de Janeiro, Brazil), 16th SAET (Rio de Janeiro, Brazil)
- 2014 CBPF (Rio de Janeiro, Brazil). XXXVI SBE (Natal, Brazil)

- 2013 Universitat de Barcelona (Barcelona, Spain), UFRJ (Rio de Janeiro, Brazil), Insper (São Paulo, Brazil), EESP-FGV (São Paulo, Brazil).
- 2012 II JIPE (Lima, Peru), 5th LNCC Meeting (Petropolis, Brazil), 12th SAET (Brisbane, Australia), CRM-Universitat Autònoma de Barcelona (Barcelona, Spain), Universität Freiburg (Freiburg, Germany).
- 2011 Stevanovich Center, University of Chicago (Illinois, USA), EAESP-FGV (São Paulo, Brazil), PIMSV-Universität Bern (Bern, Switzerland).
- 2010 EPGE-FGV (Rio de Janeiro, Brazil), Insper (São Paulo, Brazil), EESP-FGV (São Paulo, Brazil), IMUB-Universitat de Barcelona (Barcelona, Spain), Catholic University of Brasília (Brasília, Brazil).
- 2009 Aarhus School of Business (Aarhus, Denmark), Institute of Statistics and Decision Support Systems-University of Vienna (Vienna, Austria), FAM-Vienna University of Technology (Vienna, Austria), School of Economics and Management-University of Aarhus (Aarhus, Denmark), Catholic University of Brasília (Brasília, Brazil), XXVII Brazilian Mathematics Colloquium-IMPA (Rio de Janeiro, Brazil), IMUB-Universität de Barcelona (Barcelona, Spain), Insper (São Paulo, Brazil), Research in Options 2009-IMPA (Búzios, Brazil), IMECC (Campinas, Brazil), UFF (Rio de Janeiro, Brazil).
- 2008 FAM-Vienna University of Technology (Vienna, Austria), V Probability and Mathematical Statistics Regional School (Montevideo, Uruguay), Pontifical Catholic University of Rio de Janeiro (Rio de Janeiro, Brazil), Pontifical Catholic University of Perú (Lima, Peru), Catholic University of Brasília (Brasília, Brazil).
- 2007 Banco de Portugal (Lisbon, Portugal), Central Bank of Uruguay (Montevideo, Uruguay), Pontifical Catholic University of Perú (Lima, Peru), IMPA (Rio de Janeiro, Brazil), Séminaire Bachelier, Groupe Parisien Bachelier (Paris, France), Universidad de Barcelona (Barcelona, Spain), Universidad de Navarra (Navarra, Spain).
- 2006 HEC (Paris, France), Pontifical Catholic University of Rio de Janeiro (Brazil), IMPA (Rio de Janeiro, Brazil), Sam Walton College of Business, University of Arkansas (Arkansas, US).
- 2005 EPGE-FGV (Rio de Janeiro, Brazil), IBMEC (São Paulo, Brazil), CONEST Universidad Nacional de Ingeniería (Lima, Peru), Pontifical Catholic University of Perú (Lima, Peru).
- 2004 IBMEC (São Paulo, Brazil), Pontifical Catholic University of Perú (Lima, Peru).
- 2003 Meeting of The Society for the Advancement of Economic Theory (SAET) (Rodes, Greece), Brazilian Mathematical Colloquium, IMPA (Rio de Janeiro, Brazil), Pontifical Catholic University of Rio de Janeiro (Brazil), EPGE-FGV (Rio de Janeiro, Brazil).

- 2002 Universita di Pisa (Pisa, Italia), Universidade de Brasília (Brasília, Brazil), IMPA (Rio de Janeiro, Brazil), Catholic University of Brasília (Brasília, Brazil).
- 2001 Brazilian Mathematical Colloquium, IMPA (Rio de Janeiro, Brazil), IB-MEC (Rio de Janeiro, Brazil), Catholic University of Brasília (Brasília, Brazil).
- 2000 NBER General Equilibrium Conference (New York, US), Catholic University of Brasília (Brasília, Brazil).
- 1999 Instituto y Universidad Torcuato Di Tella (Buenos Aires, Argentina).
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CONFERENCE PRESENTATIONS

- 2016 9th Bachelier Finance Society Meeting (New York, USA).
- 2015 XV Brazilian Finance Society Meeting (São Paulo, Brazil).
- 2014 8th Bachelier Finance Society Meeting (Brussels, Belgium). Latin American Meeting of the Econometric Society (São Paulo, Brazil).
- 2013 XXXV Brazilian Econometric Society (Foz de Iguaçu, Brazil).
- 2012 7th Bachelier Finance Society Meeting (Sidney, Australia), Latin American Meeting of the Econometric Society (Lima, Peru).
- 2011 V Lubrafin (Natal, Brazil).
- 2010 10th Econometric Society World Congress (Shanghai, China), AnStAp: Conference in Honour of Walter Schachermayer (Vienna, Austria), Fifth Advanced Mathematical Methods in Finance (Bled, Slovenia), XXXII Brazilian Econometric Society Meeting (Bahia).
- 2009 IX Brazilian Finance Society Meeting (Porto alegre, Brazil). ASSET Meeting (Istanbul, Turkey), XXXI SBE (Foz de Iguaçu).
- 2008 Third World Congress of The Game Theory Society (Evanston, US), Latin American Meeting of the Econometric Society (Rio de Janeiro, Brazil), Spanish Economic Simposium (Zaragoza, Spain).
- 2007 Latin American Meeting of the Econometric Society (Bogotá, Colombia), Brazilian Meeting of the Econometric Society (Recife, Brazil), VII Brazilian Finance Society Meeting (São Paulo, Brazil).
- 2006 AMaMeF Workshop on Financial Modelling with Jumps (Paris, France), ASSET Meeting (Lisbon, Portugal), Brazilian Meeting of the Econometric Society (Bahia, Brazil), Fourth World Meeting of The Bachelier Finance Society (Tokyo, Japan).
- 2005 Brazilian Finance Society Meeting (São Paulo, Brazil), Brazilian Meeting of the Econometric Society (Natal, Brazil).

- 2004 North-American Winter Meeting of The Econometric Society (San Diego, US), Third World Congress of the Bachelier Finance Society (Chicago, US), Latin American Meeting of The Econometric Society (Santiago de Chile, Chile).
- 2003 Seventh International Congress on Insurance: Mathematics and Economics (Lyon, France), Third Brazilian Finance Society Meeting (São Paulo, Brazil), Brazilian Meeting of the Econometric Society (Porto Seguro, Brazil).
- 2002 Second Brazilian Finance Society Meeting (Rio de Janeiro, Brazil), Latin American Meeting of The Econometric Society (São Paulo, Brazil), Brazilian Meeting of the Econometric Society (Nova Friburgo, Brazil).
- 2001 European Finance Association Meeting (Barcelona, Spain), European Meeting of the Econometric Society (Lausanne, Switzerland), Latin American Meeting of The Econometric Society, (Buenos Aires, Argentina), Latin American and Caribbean Economic Association Meeting (Montevideo, Uruguay), Brazilian Meeting of the Econometric Society (Bahia, Brazil).
- 2000 European Workshop in General Equilibrium Theory (Paris, France), First World Congress of the Bachelier Finance Society (Paris, France), Eight World Congress of the Econometric Society (Seattle, US), Workshop of The Mathematical Finance Research Project (Konstanz, Germany).
- 1999 Brazilian Meeting of the Econometric Society (Belem, Brazil), First JO-LATE (Bahia Blanca, Argentina), VIII ESTE (Nova Friburgo, Brazil).

OTHER ACADEMIC ACTIVITIES

President of the Brazilian Finance Society 2015-2017.

Director of the Brazilian Finance Society 2009-2013.

Associate Editor of Brazilian Review of Economics

Editorial Board Brazilian Finance Review.

Reviewer for:

American Mathematical Society

Mathematical Finance; Quantitative Finance; Journal of Banking & Finance; Journal of Mathematical Economics; Computational Statistics and data Analysis; Economics Bulletin, Portuguese Economic Journal; Applied Math. Journal of Chinese Universities; Empirical Economics; Journal of Behavioral and Experimental Economics; Studies in Nonlinear Dynamics and Econometrics; Economic Modelling; Economía Mexicana.

Revista Brasileira de Economia, Revista de Econometria, Estudos Economicos, Revista Brasileira de Finanças, Revista

de Economia, Revista BASE, RAE.

Member of:

Econometric Society; Game Theory Society; American Finance Association; Society for Financial Econometrics; Bachelor Finance Society; Bernoulli Society; Brazilian Econometric Society and Brazilian Finance Society.

Rio de Janeiro, March 7, 2017