

Short CV – February 1, 2024

JOSEP VIVES

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1. Personal data:

- Born in Barcelona, 1963, July 6. Residence in Barcelona
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2. Professional career:

- PhD in Mathematics. University of Barcelona (UB). January 1994. Thesis: *Stochastic calculus of variations in Wiener and Poisson spaces: Applications to study of the regularity of the supremum and the local time*. Supervisor: Professor David Nualart.
- Different non permanent positions in the Department of Mathematics of the Universitat Autònoma de Barcelona (UAB) up to February 1996.
- Associate professor at the Department of Mathematics of the Universitat Autònoma de Barcelona (March 1996 – August 2005).
- Associate professor at the Faculty of Mathematics and Computer Science of the University of Barcelona (September 2005 – August 2023)
- Associate professor at the Faculty of Economics and Business of the University of Barcelona since September 2023.

3. Teaching:

During the last 35 years I have taught many many courses related with topics like Probability Theory, Mathematical Statistics, Applied Statistics, Stochastic Analysis, Stochastic Finance, Time Series, Game Theory, R programme, in bachelor degrees on Mathematics, Computer Science, Chemistry or Pharmacy, or master degrees on Advanced Mathematics or Data Science.

4. Academic responsibilities:

- Coordinator of the degree of Statistics (1998-2002), UAB.
- Coordinator of a master degree on Financial Instruments (2002-2008), UAB-CRM (Center of Mathematical Research).
- Coordinador the master on Advanced Mathematics (2009-2016), UB.
- Coordinator of the PhD Programme (2009-2012), UB.
- Vicedean of Research (2009-2016), Faculty of Mathematics and Computer Science, UB.
- Coordinator of the degree of Mathematics, (2016-2017), UB.
- Vicedean of Academic affairs (2017-2021), Faculty of Mathematics and Computer Science, UB.

6. PhD supervisions:

Supervision or co-supervision of 5 PhD thesis: three of Mathematics and 2 of Economy. Currently I have one PhD student of Mathematics. All devoted to topics related with Stochastic Finance.

7. Publications in International journals:

1. D. Nualart, J. Vives (1988): "Continuité absolue de la loi du maximum d'un processus continu". C.R.A.S.P. t.307, serie I: 349-354
2. D. Nualart, J. Vives (1990): "Anticipative Calculus for the Poisson process based on the Fock space". Séminaire des Probabilités XXIV. Lectures Notes in Mathematics 1426: 154-165.
3. D. Nualart, J. Vives (1992): "Smoothness of Brownian Local Time and Related Functionals". Potential Analysis 1: 257-263.
4. D. Nualart, J. Vives (1992): "Chaos expansions amd Local Times". Publicacions Matemàtiques 36: 827-836.
5. D. Nualart, J. Vives (1994): "Smoothness of Local Time and related Wiener functionals". Chaos expansions, Multiple Wiener-Ito Integrals and their Applications, Probability and Stochastic Series, CRC Press: 317-336.
6. D. Nualart, J. Vives (1995): "A Duality Formula on the Poisson space and Some Applications". Proceedings of the Ascona Conference on Stochastic Analysis, Progress in probability, Birkhäuser: 205-213.

7. P. Imkeller, V. Perez-Abreu, J. Vives (1995): "Chaos expansions of double intersection local time of Brownian Motion in \mathbb{R}^d and renormalization". *Stochastic Processes and their Applications* 56: 1-34.
8. J. León, J. L. Solé, J. Vives (1998): "The chaos decomposition of functionals of the jump times for the Poisson process over a compact time interval". *Aportaciones Matemáticas de la Sociedad Matemática Mexicana* 14: 269-282.
9. N. Privault, J. L. Solé, J. Vives (2000): "Chaotic Kabanov formula for the Azema martingales". *Bernoulli* 6 (4): 633-651.
10. J. León, J. L. Solé, J. Vives (2000): "Sur certaines relations entre les integrales trajectorielles et l'opérateur de translation et son dual dans l'espace de Poisson canonique". *Publicacions Matemàtiques* 44: 325-337
11. J. León, J. L. Solé, J. Vives (2001): "A pathwise approach to backward and forward stochastic differential equations on the Poisson space". *Stochastic Analysis and Applications* 19 (5): 821-839.
12. C. A. Tudor, J. Vives (2002): "Anticipating Stratonovich integral with respect to the Azema martingales". *Stochastic Analysis and Applications* 20, (3): 673-692.
13. C. A. Tudor, J. Vives (2002): "The indefinite Skorohod integral as integrator on the Poisson space". *Random operators and Stochastic equations* 10 (1): 26-46.
14. J. León, J.L. Solé, F. Utzet, J. Vives (2002): "On Lévy processes, Malliavin calculus and market models with jumps". *Finance and Stochastics* 6 (2): 197-225.
15. M. Eddahbi, J. Vives (2003): "Chaotic expansion and smoothness of some functionals of the fractional Brownian motion". *Journal of Mathematics of Kyoto University* 43 (2): 349-368.
16. M. Eddahbi, R. Lacayo, J. L. Solé C. A. Tudor, J. Vives (2005): "Regularity of the local time for the d-dimensional fractional Brownian motion with N parameters. *Journal of Stochastic Analysis and Applications* 23 (2): 383-400.
17. M. Eddahbi, J. L. Solé, J. Vives (2005): "A Stroock formula for a certain class of Lévy processes and Applications fo Finance". *International Journal of Stochastic Analysis* 2005, 25 pages.

18. F. Espinosa, J. Vives (2006): "A volatility varying and jump diffusion Merton type model of interest rate risk". *Insurance: Mathematics and Economics* 38 (1): 157-166.
19. J. Vives (2006): "Cálculo de Malliavin para procesos de Lévy: aplicación a la valoración y cobertura de derivados financieros". *Memorias del Congreso Regional de la Universidad Autónoma de Aguascalientes en Probabilidad de Noviembre de 2005*. Pàgines 172-190.
20. J. L. Solé, F. Utzet, J. Vives (2007): "Canonical Lévy processes and Malliavin calculus". *Stochastic Processes and Applications* 117 (2): 165-187.
21. M. Eddahbi, R. Lacayo, J. L. Solé C. A. Tudor, J. Vives (2007): "Renormalization of the local time for the d-dimensional fractional Brownian motion with N parameters". *Nagoya Journal of Mathematics* 186: 173 - 191.
22. J. L. Solé, F. Utzet, J. Vives (2007): "Chaos expansions and Malliavin calculus for Lévy processes". *Proceedings of the Abel Symposium 2005*: 595-612
23. E. Alòs, J. León, J. Vives (2007): "On the short time behaviour of the implied volatility for jump diffusion models with stochastic volatility". *Finance and Stochastics* 11 (4): 571-589.
24. E. Alòs, J. A. León, J. Vives (2008): "An anticipating Itô formula for Lévy processes". *ALEA* 4: 285-305.
25. E. Alòs, J. A. León, M. Pontier, J. Vives (2009): "A Hull and White formula for a general stochastic volatility jump-diffusion model and some applications". *JAMSA Volume 2008*, Article ID 359142, 17 pages
26. A. Gulishasvili, J. Vives (2012): "Two sided estimates for distribution densities in models with jumps". In *Stochastic Differential Equations and Processes, Springer Proceedings in Mathematics* 7: 239-254.
27. J. A. León, D. Márquez, J. Vives (2012): *Anticipating Linear Stochastic Differential Equations Driven by a Lévy Process*. *Electronic Journal of Probability* 17, no. 89: 1–26.
28. H. Jafari and J. Vives (2013): A Hull and White formula for a stochastic volatility Lévy model with infinite activity. *Communications on Stochastic Analysis* 7 (2): 321-336
29. J. Vives (2013): "Malliavin calculus for Lévy processes: a survey". *Proceedings of the 8th Conference of the ISAAC-2011. Rendiconti del Seminario Matematico, Università e Politecnico di Torino* 71 (2): 261-272.

30. J. A. León, J. L. Solé, F. Utzet, J. Vives (2014): "Local Malliavin Calculus for Lévy Processes and Applications". *Stochastics: An International Journal of Probability and Stochastic Processes* 86 (4): 551-572.
31. A. Gulisashvili, J. Vives (2015): "Asymptotic analysis of stock price densities and implied volatilities in mixed stochastic models". *SIAM Journal on Financial Mathematics* 6: 158-188.
32. E. Alòs, R. De Santiago and J. Vives (2015): "Calibration of stochastic volatility models via second order approximation: the Heston case". *International Journal of Theoretical and Applied Finance* 18 (6): 1550036 (31 pages).
33. R. Merino and J. Vives (2015): "A generic decomposition formula for pricing vanilla options under stochastic volatility". *International Journal of Stochastic Analysis*, volume 2015, article ID 103647, 11 pages.
34. J. Vives (2016): "Decomposition of the pricing formula for stochastic volatility models based on Malliavin – Skorohod type calculus". *Proceedings of the Research School CIMPA-UNESCO-MSER-MINECO-MOROCCO on Statistical Methods and Applications in Actuarial Science and Finance 2013*. Springer.
35. G. Di Nunno, J. Vives (2017): "A Malliavin-Skorohod calculus in L^0 and L^1 for additive and Volterra-type processes". *Stochastics: An International Journal of Probability and Stochastic Processes* 89 (1): 142-170.
36. N. Savy and J. Vives (2017): "Anticipative integrals with respect to a filtered Lévy processes and Lévy-Itô decomposition". *Communications on Stochastic Analysis* 11 (1). DOI: 10.31390/COSA.11.1.05. (2 citas).
37. R. Merino and J. Vives (2017): "Option price decomposition in spot-dependent volatility models and some applications". *International Journal of Stochastic Analysis*. Volume 2017, Article ID 8019498. DOI: 10.1155/2017/8019498. (8 citas).
38. R. Merino, J. Pospíšil, T. Sobotka and J. Vives (2018): "Decomposition formula for jump diffusion models". *International Journal of Theoretical and Applied Finance* 21 (8).
39. S. Jin, H. Schellhorn and J. Vives (2020): "Dyson type formula for pure jump Lévy processes with some applications to Finance". *Stochastic Processes and their Applications* 130 (2): 824-844.

40. A. Gulisashvili, M. Lagunas, R. Merino and J. Vives (2020): "Higher order approximation of call option prices in stochastic volatility models". *Journal of Computational Finance* 24 (1).
41. M. Khalfallah, M. Hadji and J. Vives (2021): "Pricing cumulative loss derivatives under additive models via Malliavin calculus". *Boletim Sociedade Paranaense de Matematica* 41 (2023): 1-15.
42. R. Merino, J. Pospisil, T. Sobotka, T. Sottinen and J. Vives (2021): "Decomposition formula for rough Volterra stochastic volatility models". *International Journal of Theoretical and Applied Finance* 24 (2). 2150008.
43. I. Alia, F. Chighoub, N. Khelfallah & J. Vives (2021): "Time-consistent investment and consumption strategies under a general discount function". *Journal of Risk and Financial Management (MDPI)* 14 (2), 86.
44. L. L. Aromí, Y. A. Katz & J. Vives (2021): "Topological features of multivariate distributions: dependency on the covariance matrix". *Communications in Nonlinear Science and Numerical Simulation* 103. 105996.
45. Y. El-Khatib, S. Goutte, Z. S. Makumbe and J. Vives (2022): "Approximate pricing formula to capture leverage effect and stochastic volatility of a financial asset". *Finance Research Letters* 44. DOI: 10.1016/j.frl.2021.102072. (No citado). *Business and Finance-SSCI* (2020): JIF 95% (Q1).
46. D. Guerdouh, N. Khelfallah & J. Vives (2022): "Optimal Control Strategies for the Premium Policy of an Insurance Firm with Jump Difusion Assets and Stochastic Interest Rate". *Journal of Risk and Financial Management (MDPI)* 15 (3), 143.
47. Y. El-Khatib, S. Goutte, Z. S. Makumbe & J. Vives (2023): "A hybrid stochastic volatility model in a Lévy Market". *International Review of Economics and Finance* 85: 220-235.
48. P. Diaz, T. Lozano & J. Vives (2023): "Neural SDEs for Conditional Time Series Generation and the Signature-Wasserstein-1 metric". *Journal of Computational Finance* 27 (1): 1-23.
49. J. A. León, D. Márquez-Carreras & J. Vives (2023): "Stability of Some Anticipating Semilinear Stochastic Differential Equations of Skorohod Type". Accepted in *Journal of Dynamics and Differential Equations*.
50. Y. El-Khatib, Z. S. Makumbe, J. Vives (2024): "Approximate option pricing under a two factor Heston-Kou stochastic volatility". *Computational Management Science* 21 (3).

8. Conferences:

Participation as a speaker in about 100 conferences.

9. Scientific societies:

Member of the Catalan Mathematical Society, Royal Spanish Mathematical Society, Spanish Society of Statistics and Operational Research, European Mathematical Society, Bernoulli Society. Currently vicepresident of the Catalan Mathematical Society (2019-2026).

10. Editorial activity:

- Co – Editor of two books by Springer.
- Editor of *Collectanea Mathematica* (IMUB-Springer) (2016-2021).
- Referee of many many papers in more than 30 international scientific journals.
- Frequent reviewer of *Mathematical Reviews* and *Zentralblatt*.

11. Organization of scientific events:

- Organizer of different regular seminars of Probability or Stochastic Finance.
- Organizer of several (about 15) summer schools, workshops and conferences.