STÉPHANE VILLENEUVE

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POSITION

Professor of Mathematics, Toulouse School of Economics (TSE) *2007-present*

RESEARCH ACTIVITIES AND ADMINISTRATION

- Director Master program (First year) *Mathematics and Economic decisions,* TSE 2020-2022
- Co-head of TSE/SCOR chair *Market risk and Value creation* 2007-2022
- Associate Editor, *Mathematics and Financial Economics* 2015-present
- Member of the scientific board of the Institut Louis Bachelier LABEX FCD 2015-present
- Head of the TSE math department recruiting committee 2023
- Member of the CNRS TSM-R lab committee 2021.
- Member of the department council 2020
- Head of the Department of Mathematics, TSE 2014-2017

PAST POSITION

- Visiting Professor, Ecole Polytechnique fédérale Lausanne, Juin 2024.
- Visiting Professor, University of California Santa Barbara 2007-2008
- Assistant Professor, University of Toulouse 1 Capitole 2002-2007
- Assistant Professor, University of Evry 1999-2002

EDUCATION

- Habilitation à diriger les recherches: *Optimal Stopping, Singular Control with application to finance* 2006

- PhD in Applied Mathematics: Options Américaines dans une modèle de Black-Scholes miltidimensionnel, University of Marne la Vallée, *Supervisor*: Damien LAMBERTON 1999
- Master of Science in Statistics and stochastic models in Finance with highest honors Université Paris 7 1995

RESEARCH INTEREST

General: Stochastic Control and Applications: Optimal stopping, singular control and games
Current research topic: Dynamic Contracting theory

GRANTS AND AWARDS

- Research senior fellowships, Collegio Carlos Alberto, Turin 2024.
- Grant Air Force Office of Scientific Research, FA 8655-22-1 2022-2025
- French Doctoral Supervision and Research Award (PEDR and PES) 2014-2017 and 2019-2022
- Academic fellow, Institut Louis Bachelier 2017-present

- Member of the scientific committee of the Green and Sustainable finance Transversal Program 2017-present
- Research grant ANR-16-CE05-0027, partner
- EUROPLACE Institute of Finance reseach grant *Managerial turnover and long-term investment* 2015-2020
- Research Grant, "Pertubation Analysis for Deterministic and Stochastic Optimal Control Problems", programme PGMO 2013-2016
- Research Grant ANR-09-BLAN-0358-01, partner 2009-2013
- Finance Best Paper Award for *Free Cash-Flow, Issuance Costs and Stock Price Volatility* Europlace Institute of Finance 2012

CONFERENCES AND WORKSHOP

As participant

- Invited Plenary Speaker: Frontiers in Stochastic Modelling for Fiannce and Economics, Palermo, Oct 25-27, 2023.
- Invited Plenary Speaker: Applications of Stochastic Control to Finance and Economics, May 2-May 9, 2023, BIRS, Banff.
- Invited Speaker: AIm center on Quantitative methods in Business, EM Lyon, Mars 2023.
- Invited Speaker: Math Finance Colloquium, University of Southern California, November 2022.
- Invited Speaker: PSTAT department Colloquium, University of Santa Barbara, November 2022.
- Invited Plenary Speaker European summer school of the European Mathematical society, Ecole Polytechnique, August 27- 31 2018
- Invited Speaker, Workshop on Stochastic Modelling and Financial Applications, Verona 11-15 June 2018
- Invited Speaker, Conference, Les défis de l'industrie de l'assurance, Caisse des dépôts, May 18th 2018.
- Invited Speaker: Conference PDE and Probability Methods for Interactions , Antibes, April 2017
- Invited Speaker: Conference Stochastic Analysis of Dynamical Systems, Stochastic Control and Games, Leeds October 2016
- Speaker Bachelier Conference, New-York, July 2016.
- Invited Speaker: Closing Conference Robust Finance thematic semester on Mathematics and Financial Economics Center For Interdisciplinary Research, BIELEFELD, May 17 - 21, 2016
- Invited Speaker: Conference "Information in Finance and Insurance", PARIS, 23-25 June
- Invited Speaker: Workshop on Mathematics and Financial Economics Center For Interdisciplinary Research, BIELEFELD, May 18 - 22, 2015
- Invited Speaker: Annual Conference of the Chaire Finance et Développement Durable, Paris october 2013.
- Invited Speaker: Swissquote Conference on Liquidity and Systemic Risk, Lausanne November 2012.
- Invited speaker: Optimal stopping, optimal control and Finance, University of Warwick July 2012.
- Speaker Conference PWRI, Toulouse April 2012.
- Invited speaker: Conference on credit and liquidity risks, University of Freiburg March 2012.
- Speaker *IMS annual meeting*, Miami August 2011.
- Seminar, ORFE princeton may 2011.
- Seminar, EPFL Lausanne, april 2011.
- Seminar, ISFA LYON, march 2011
- Speaker: *Modelling and managing the risk*, Paris janvier 2011.
- Invited Speaker: Symposium of Optimal stopping with applications, Turku Finland June 2009.
- Invited speaker: First FBF/IDEI Conference on Investment Banking and Financial markets March 2009.
- Workshop on Dynamic Risk Sharing, Paris January 2009.
- World Congress of the Bachelier Society, London July 2008
- Invited speaker Congress of the American Mathematical Society, San Diego January 2008.
- Financial Mathematics Seminar, Stanford University December 2007.
- Financial Mathematics Seminar, University of California Santa Barbara October 2007.
- World Congress on Real options, Berkeley June 2007.

- Bachelier Seminar, IHP Paris May 2007.
- Seminar of the school of mathematics, University of Manchester November 2006.
- New mathematical methods in risk theory, Florence October 2005.

As organizer

- *Annual Conference on Risk Markets and value creation*, Toulouse, October 2022.
- *New Challenges in Insurance*, Paris, September 2022.
- *Conference in honour of the 60th birthday of Jean-Charles Rochet*, Toulouse, May 31th, June 1 2018
- *Optimization of the flow of dividends: 20 years after*, Palais Brongniart, Paris, France, May 26th–27th 2016.
- *SCOR and IDEI Conference on Extreme Events and Uncertainty in Insurance and Finance*, SCOR headquarter, Paris, January 10th 2014.
- *Stochastic Control and Optimal Stopping in Finance*, Toulouse, France, December 9th-11th 2011
- *Risk Management after the Crisis II*, Toulouse, France, September 6th-7th 2011.
- *Risk Management after the Crisis*, Toulouse, France, April 2011.
- *Integration of Extremal Events in Quantitative Risk Management*, La Tour SCOR- La Défense, Paris, France, March 2010.
- *First IDEI-SCOR Conference on "Risk Sharing and Finance*, Toulouse, France, September 10th-11th 2009.

PUBLICATION

- Stéphane Villeneuve et Eduardo Abi Jaber: Gaussian Agency problems with memory and Linear Contracts, TSE Working Paper, n 22-1363, septembre 2022, *Revise and Resubmit Finance and Stochastics*
- Jérôme Bolte, Laurent Miclo et Stéphane Villeneuve: Swarm gradient dynamics for global optimization: the mean-field limit case, *Forthcoming Mathematical Programming*, (2023)
- Martin J., and Villeneuve S.: Risk-Sharing and optimal contracts with large exogenous risks, *Decisions in Economics and Finance*, Vol 46, p.1-43, 2023,
- Décamps, J.P. and Villeneuve, S: Dynamics of cash holdings, learning about profitability, and access to the market, *Journal of Economic Theory*, vol. 205, 105, p.(2022).
- Miclo L. and Villeneuve S.: On the forward algorithm for stopping problems on continuous-time Markov chains, *Journal of Applied Probability*, Vol 58, 4, p.1043-1063 (2021).
- De Angelis, T., Gensbittel F. and Villeneuve S.: Dynkin Game on Assets with Incomplete Information on the Return, *Mathematics of Operations Research*, vol. 46, 1, p. 28–60, (2021).
- Décamps, J.P. and Villeneuve S., S: A two-dimensional control problem arising from dynamic contracting theory, *Finance and Stochastics*, vol. 23, 1, p. 1–28 (2019).
- Pouget, S, Sauvagnat J. and Villeneuve, S.: A mind is a terrible thing to change: confirmation bias in financial markets, *Review of Financial Studies*, vol. 30, n 6, p. 2066–2109,(2017).
- Pierre, E., Villeneuve, S. and Warin, X. : Numerical approximation of a cash-constrained firm value with investment opportunities, *SIAM Journal on Financial Mathematics*, vol. 8, No 1, p. 54–81,(2017).
- Décamps, J.P., Gryglewicz S., Morellec E. and Villeneuve, S.: Corporate Policies with Temporary and Permanent Shocks, *Review of Financial Studies*, vol. 30, No 1, p. 162–210,(2017).
- Pierre, E.; Villeneuve, S. and Warin, X. : Capital Investment and Liquidity Management with collateralized debt, *Finance and Stochastics*,vol. 20, No 4, p. 809–854,(2016)
- Décamps, J.P. and Villeneuve, S. : Rethinking Dynamic Capital Structure Models with roll-over debt, *Mathematical Finance*,Vol 24, 1,66-96,(2014)
- Villeneuve, S. and Warin, X.: Optimal Liquidity management and hedging in the presence of a non predictable growth opportunity, *Mathematical and Financial Economics*, Vol 8, 2, 193-227, (2014).
- Décamps, J.P; Mariotti, T; Rochet, J.C and Villeneuve, S.: Free Cash-Flow, Issuance Costs and Stock Price Volatility. *Journal of Finance* Vol 66, p 1501-1544,(2011).

- Rochet, J.C and Villeneuve, S.: Liquidity Risk and Corporate Demand for Hedging and Insurance. *Journal of Financial Intermediation*, vol 3, p 300-323, (2011).
- Biais, B.; Mariotti, T.; Rochet, J.C. and Villeneuve, S.: Large Risk, Limited Liability and Dynamic Moral Hazard. *Econometrica*, Vol 78, No 1, p 73-118,(2010).
- Bobtcheff, C. and Villeneuve, S. : Technology Choice under Several Uncertainty Sources, *European Journal of Operation Research*, Vol 206, No 3,p 586-600, (2009).
- Décamps, J.P., Mariotti T and Villeneuve, S. : Irreversible investment under uncertainty, Erratum, *Mathematics of Operation Research*, Vol 34 No 1, p 255-256, (2009).
- Ly Vath V., Pham, H. and Villeneuve, S.:A mixed singular/switching control problem for a dividend policy with reversible technology investment. *Annals of Applied Probability* Vol 18, No 3,p 1164-1200,(2008).
- Villeneuve, S.: On the threshold strategies for optimal stopping arising in Real option Theory. *Journal of Applied Probability* Vol 44, No 1, 181-198, (2007).
- Décamps, J.P. and Villeneuve, S.: Optimal dividend policy and growth option. *Finance and Stochastics* Vol 11, No 1, 3-27, (2007).
- Ekstrøm E. and Villeneuve, S. : On the value of optimal stopping games. *Annals of Applied Probability* Vol. 16, No. 3, 1576-1596, (2006).
- Décamps, J.P., Mariotti T and Villeneuve, S.: Irreversible investment in alternative projects, *Economic theory*, Vol 28, No 2, 425-448, (2006).
- Rochet, J.C and Villeneuve, S.: Corporate Portfolio Management, *Annals of Finance*, Vol 1, No3, 225-243, (2005).
- Décamsp, J.P., Mariotti T et Villeneuve, S.: Irreversible investment under uncertainty, *Mathematics of Operation Research*, vol 30, No 2, 472-500, (2005).
- Ern, A.; Villeneuve, S. and Zanette, A. : Adaptive finite element methods for local volatility European option pricing, *International Journal of theoretical and applied finance*, vol 7, 659-684, (2004).
- Lamberton, D. and Villeneuve, S. : Critical Price near maturity for an American option on a dividend-paying stock, *Annals of Applied Probability*, vol 13, 800-815, (2003).
- Loubergé, H., Villeneuve, S. and Chesney, M. : Long term Risk Management of Nuclear waste, *Journal of Economic Dynamics and Control*, vol 27,157-180, (2002).
- Villeneuve, S. and Zanette, A. : Parabolic A.D.I. methods for pricing American options on two stocks, *Mathematics of Operation Research*, vol 27,121-149, (2002).
- Villeneuve, S.: Exercise regions of American options on several assets, *Finance and Stochastics*, vol 3, 295-322, (1999).

WORKING PAPERS

- Gadat, S and Villeneuve S.: Parsimonious Wasserstein Text-mining, TSE Working Paper, n° 23-1471, septembre 2023.
- BIAIS, B., Gersbach, H., Rochet, J.C., von Thadden, E.L. and Villeneuve, S.: Money and Taxes Implement Dynamic Optimal Mechanisms (September 14, 2023).
  Available at SSRN: https://ssrn.com/abstract=4571768
- Dammann F., Rodosthenous N. and Villeneuve S.: Debt management game and Debt Ceiling, submitted to *Applied Mathematics and optimization* 2023.

CONTRIBUTION TO BOOKS AND POLICY PAPER

- Villeneuve S.: Alternating Direction Implicit Method , in Encyclopedia of Quantitative Finance, Wiley Sons Ltd: Chichester, p. 30-37, (2010).
- Décamps, J.P. and Villeneuve S. : Optimal Investment under liquidity constraints , in Real Options, Ambiguity, Risk and Insurance (Editors: Bensoussan, A., Peng, S. , Sung, J.), (2013) .
- Guembel, A. and Villeneuve S. : Regulating performance-based compensation in the financial sector, Opinion et débats, Institut Louis bachelier, (2013).

- Décamps, J.P. and Villeneuve S.: Jusqu'où les compagnies d'assurance peuvent-elles investir dans le financement des dettes des PME/ETI ?, Revue d'économie financière,126, association d'économie financière (2017).

PH-D STUDENTS

- Supervisor of Dung Anh — September 2021.
- Supervisor of Amadou Thiam — September 2019-present
  Defense scheduled in September 2023. Amadou has been hired at Banque postale in 2022.
- Supervisor of Jessica Martin — September 2017-May 2021.
  Jessica has been hired at Goldman Sachs in 2021.
- Supervisor of Vincent Tena, — September 2016-July 2021.
  Vincent has accepted a tenure-track position at the University of Paris-Dauphine at the 2020 job market.
- Supervisor of Lee Dinetan, Professor of Mathematics, Nice — 2012-2015.
- Supervisor of Erwan Pierre, Quantitative analyst, BCM energy, — 2012-2015.
- Co supervisor of Catherine Bobtcheff, CNRS researcher — 2002-2003

REFEREE

Grant proposals

- Natural Sciences and Engineering Research Council (NSERC) of Canada.
- NSF Grant

Journals

- *Econometrica, Journal of Economic Theory, Journal of Finance, Review of Economic Studies, Finance and Stochastics, Annals of Applied Probability, Mathematics of Operation Research, Mathematical Finance, Stochastic Processes and their applications, Operation Research, Management Science, Rand Journal of Economics, Journal of Mathematical Economics, Mathematics and Financial economics International Journal of Theoretical and Applied Finance.*