

# CURRICULUM VITAE

## BATTAUZ ANNA

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SURNAME	<b>Battauz</b>
BIRTHDAY	01/10/1973
PLACE OF BIRTH	Gorizia (Italy)
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### EDUCATION

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*January 1998 – December 2000:* Ph.D. Program in Mathematics, with Applications to Finance and Insurance, Scuola Normale Superiore di Pisa (Italy). Title of the thesis: "Some issues about American options". Advisor: Prof. M.Pratelli. Thesis successfully defended on the 4<sup>th</sup> of December 2004. Referees: Prof. M.Avellaneda, Courant Institute, New York University and Prof. C.Albanese, Imperial College, London.

*October 1998 – February 1999:* Academic guest at the ETH, Zurich, (Switzerland).

*September 1992 – November 1996:* Italian Laurea in Mathematics, 110/110 Summa Cum Laude, University of Udine, Department of Mathematics and Computer Science. Supervisor: Prof. F.Zanolin.

### EMPLOYMENT AND ACADEMIC POSITIONS

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Director of MaFinRisk (*Master in quantitative finance and risk management*) Bocconi university, since 2020.

*October 2018- October 2027:* abilitazione nazionale di Prima Fascia ASN 13/D4 - METODI MATEMATICI DELL'ECONOMIA E DELLE SCIENZE ATTUARIALI E FINANZIARIE (I Fascia - Quinto Quadrimestre, ASN 2016-2018)

*September 2005 - current:* Associate Professor of Mathematical Finance; Department of Finance and Department of Decision Sciences, Bocconi University, Milan (Italy).

*March 2001 – August 2005:* Assistant Professor of Mathematical Finance; Institute of Quantitative Methods, Bocconi University, Milan (Italy).

*October 1999 – January 2000:* Stage at the Risk Management Division of Unicredit, Milan.

October 1998 – February 1999: Academic guest at the ETH, Zurich, (Switzerland).

Spring 1997: Research fellowship "Mathematical and Numerical Analysis of Differential Equations" at the Department of Mathematics and Computer Science, University of Udine (Italy).

#### TEACHING EXPERIENCE

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Calculus (Undergraduate Course), Quantitative Finance and Derivatives (Graduate Course), Numerical Methods in Finance (Advanced Graduate Course), Continuous Time Finance (PhD Course), Valuation Theory (Master Course).

#### AWARDS

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Bocconi Research Excellence Award: 2004, 2014  
Bocconi Teaching Excellence Award: 2018

#### PUBLICATIONS

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A. Battauz, M. De Donno, J. Gajda and A. Sbuelz: "Optimal exercise of American put options near maturity: a new economic perspective", *Review of Derivatives Research* (2021). <https://doi.org/10.1007/s11147-021-09180-w>

A. Battauz, S. Gatti, A. Prencipe and L. Viarengo: "Earnouts: the real value of disagreement in mergers and acquisitions", forthcoming on *European Journal of Financial Management*, 2021, <https://doi.org/10.1111/eufm.12304>

A. Battauz, and A. Sbuelz: "Non-Myopic Portfolio Choice with Unpredictable Returns: The Jump-to-Default Case", *European Journal of Financial Management*, vol. 24, p. 192-208, ISSN: 1354-7798, doi: 10.1111/eufm.12142 (2018).

A. Battauz, M. De Donno and A. Sbuelz: "Reaching nirvana with a defaultable asset?", *Decisions in Economics and Finance*, vol. 40, p. 31-52, ISSN: 1593-8883, doi: 10.1007/s10203-017-0192-x (2017).

A. Battauz, M. De Donno and A. Sbuelz: "Kim-Omberg revisited: the duality approach", *Journal of Probability and Statistics*, Vol. 2015, pages 1-6, (2015).

A. Battauz, M. De Donno and F.Ortu: "Envelope theorems in Banach lattices and asset pricing", *Mathematics and Financial Economics*, 9:303–323 (2015).

A. Battauz, M. De Donno and A. Sbuelz: "Real options and American derivatives: The double continuation region", *Management Science*, Vol. 61, No. 5, 1094–1107 (2015).

A. Battauz, M. De Donno and A. Sbuelz: "The put-call symmetry for American options in the Heston stochastic volatility model", *Mathematical Finance Letters*, Vol. 7, 1-8, ISSN 2051-2929 (2014).

A. Battauz, M. De Donno and A. Sbuelz: "Real options with a double continuation region", *Quantitative Finance*, **12**, Issue 3, (2012).

A. Battauz, M. De Donno, A. Sbuelz and M. Tolotti: "Risk tolerance levels for insurance companies", *Giornale dell'Istituto Italiano degli Attuari* (2012).

A. Battauz, M. De Donno and F. Ortu: "Intertemporal Asset Pricing and the Marginal Utility of Wealth", *Journal of Mathematical Economics*, **47**, Issue 2, 227-244 (2011).

A. Battauz and M. De Donno: "A note on passport options", *Journal of Insurance and Risk Management - Pravartak*, vol. IV, 18-25, (2009).

A. Battauz and F. Ortu: "Dynamic versus one-period completeness in event-tree security markets", *Economic Theory*, **30**, 191-193 (2007).

M. Baccara, A. Battauz and F. Ortu: "Effective securities in arbitrage-free markets with bid-ask spreads: a linear programming characterization", *Journal of Economic Dynamics and Control*, **30**, 55-79 (2006).

A. Battauz and M. Pratelli: "Optimal stopping and American options with discrete dividends and exogenous risk". *Insurance: Mathematics and Economics*, **35**, 255-265 (2004).

A. Battauz and F. Beccacece: "Dividends and uncertainty: the Italian market", *International Journal of Theoretical and Applied Finance*, **7/1**, pp 1- 18, (2004).

A. Battauz: "Quadratic hedging for asset derivatives with discrete stochastic dividends", *Insurance: Mathematics and Economics*, **32/2**, pp 229 - 243, (2003).

A. Battauz: "Change of numeraire and American options", *Stochastic Analysis and Applications*, **20** (04), 709-730, (2002).

A. Battauz: "Coexistence states for periodic planar Kolmogorov systems ", *Nonlinear Analysis*, **037/06**, 735-749, (1999).

A. Battauz and F. Zanolin: "Coexistence states for periodic competitive Kolmogorov systems," *Journal of Mathematical Analysis and Applications*, **219**, 179-199, (1998).

#### SUBMITTED PAPERS

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A. Battauz and F. Rotondi: "American options with stochastic interest rates", 2021.

## WORKING PAPERS

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A. Battauz, M. De Donno, and A. Sbuelz: "On the exercise of American quanto options", 2021.

A. Battauz, F. Rotondi and A. Sbuelz: "Equity derivatives pricing with interest rate risk", 2021.

## BOOKS AND LECTURE NOTES

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A. Battauz and F. Ortu: "Arbitrage Theory in Discrete and Continuous Time", lecture notes for the graduate course Quantitative Finance and Derivatives, Bocconi University, Egea, Milano, (third edition) 2009.

A. Battauz: "Topics in quantitative finance", lecture notes for the graduate course Applied Numerical Finance, 2010.

## BOOK CHAPTERS

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A. Battauz: (Italian) "Quali sicurezze per i nostri risparmi?" *Catalogo della mostra "Matemilano"* M. Bertolini et alii editors, Springer, 2003.

## CURRENT INSTITUTIONAL SERVICE

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MaFinRisk Director, since 2020.

MaFinRisk Coordinator, since November 2016.

Member of Comitato CdS CLEFIN/Finance, since 2016.

Member of the Faculty Board of the PhD in Statistics, Bocconi University, since 2015.

(Italiano) Delegata di dipartimento al riesame del SUA-RD, da aprile 2017.

Department delegate for diversity and inclusion since 2020.

Recruitment activities for Bachelor, Master and PhD prospect students.

## REFEREE FOR

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Mathematical Finance  
Decisions in Economics and Finance  
European Journal of Operation Research  
Quantitative Finance

Journal of Futures Markets  
International Journal of Theoretical and Applied Finance  
International Review of Economics and Finance  
Applied Mathematical Modelling  
Computational Management Science  
Rivista degli Attuari Italiani  
Financial Innovation  
Social Sciences and Humanities Research Council of Canada

#### PHD COMMITTEE MEMBER

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PhD in Economics and Finance, Bocconi University (2020)  
PhD in Statistics, Bocconi University (2019)  
PhD in Mathematics for Economic Decisions, University of Trieste (2006)  
PhD in Computational Mathematics, University of Padova (2006)  
PhD in Mathematics, University of Bologna (2007)  
PhD in Economics, University of Torino (2012)

#### SEMINARS AND PRESENTATIONS

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"On the exercise of American quanto options", Département de finance, assurance et immobilier, Faculté des sciences de l'administration, Université Laval (Canada), September 2021.

"On the exercise of American quanto options", *24th International Congress on Insurance: Mathematics and Economics*, University of Illinois Urbana-Champaign and the Pennsylvania State University (USA), Ulm University (Germany), and the University of New South Wales (UNSW Sydney, Australia), July 2021.

Chair of the Young Researcher Best Paper session, *44th AMSES Meeting*, Padova University, September 2020.

"American options with stochastic interest rates" Quantitative Life Sciences Guest Seminar, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste (Italy), 23 July 2019.

"American options and stochastic interest rates", *INFORMS Advances in Decision Analysis conference*, Bocconi University, June 2019.

"On the exercise of American quanto options", *European Financial Management Association Meeting*, Catholic University of Milan, June 2018.

"The geometry of the double continuation region", *Optimal stopping and applications*, University of Torino, Department of Mathematics, May 2017.

"On the exercise of American Quanto Options", *XVIII Workshop on Quantitative Finance*, Università Milano-Bicocca, January 2017.

Chair of the Session on Derivatives Pricing and discussant, XVI Workshop on Quantitative Finance, Parma, January 2015.

"Real options and American derivatives: the double continuation region", Stochastic Methods in Financial Markets, Faculty of Mathematics and Physics of University of Ljubljana (Slovenia), August 2011.

"Real options and American derivatives: the double continuation region", Ludwig Maximilians Universität München, Fakultät für Mathematik, Informatik und Statistik, (Germany), May 2010.

"The double continuation region", Conference on Numerical Methods in Finance, University of Udine (Italy), June 2008.

"Viability, State-Price Densities and the Marginal Utility of Optimal Wealth", Frankfurt MathFinance Colloquium, Goethe University, Frankfurt (Germany), January 2007.

"Closed-form optimal investment when present values and costs are jump-diffusions", Meeting AMASES 2006, Trieste (Italy), September 2006.

"Dynamic versus one-period completeness in event-tree security markets", Meeting AMASES 2005, Palermo (Italy), September 2005.

"Optimal stopping and American options with discrete dividends and exogenous risk", Third World Bachelier Conference, Chicago (USA), July 2004.

"The evaluation of American options with discrete dividends", Università degli Studi del Piemonte Orientale, Faculty of Economics, Novara (Italy), May 2004 and Università degli Studi di Udine Faculty of Economics, June 2004.

"The evaluation of passport options", Università degli Studi di Bologna (Italy) Department of Mathematics, May 2004.

"Optimal stopping with exercise restrictions", Meeting AMASES 2003, Cagliari (Italy), September 2002.

"Dividends and uncertainty: the Italian market", 7th International Congress on Insurance: Mathematics & Economics, ISFA, University Claude Bernard, Lyon (France), June 2003.

"Dividends and uncertainty: the Italian market", First EMS -SMAI -SMF Joint Conference Applied Mathematics and Applications of Mathematics, Nice (France), February 2003 and Meeting AMASES, Verona (Italy), September 2002.

"Quadratic Hedging for asset derivatives with discrete stochastic dividends", Meeting AMASES, Firenze (Italy), September 2001 and III workshop di Finanza Matematica, Università di Verona (Italy), January 2002.

"Quadratic Hedging for asset derivatives with discrete stochastic dividends", 6th International Congress on Insurance: Mathematics & Economics, ISEG, Technical University of Lisbon (Portugal), July 2002.

"No Arbitrage for asset derivatives with discrete stochastic dividends", Summer School in Mathematical Finance, Dubrovnik (Croatia), September 2001.

"No Arbitrage for asset derivatives with discrete stochastic dividends", SAET (Society for the Advancement of Economic Theory), Ischia (Italy), July 2001.

"Change of numeraire and American options", Workshop on Probability Theory and Applications, Department of Mathematics, Università di Bologna (Italy), February 2001.

"Change of numeraire and American options", II Workshop di Finanza Matematica, Università di Pisa (Italy), February 2001.

"Change of numeraire and American options", Quantitative Risk Management Conference, Carnegie Mellon University, Pittsburgh (USA), August 2000.

#### MATERNITY LEAVES

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2008, 2013