

Curriculum Vitae

ANTONINO ZANETTE

Dipartimento di Scienze Economiche e Statistiche.
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Education

- 1991 LAUREA IN SCIENZE DELL'INFORMAZIONE, University of Udine.
- 1995 D.E.A. MASTER PROBABILITES ET FINANCES, University of Paris VI (France).
- 1996 DOTTORATO DI RICERCA IN MATEMATICA APPLICATA ALL'ECONOMIA, University of Trieste.
- 1998 POST-DOTTORATO DI RICERCA IN MATEMATICA APPLICATA ALL'ECONOMIA, UNIVERSITY OF TRIESTE.

Employment

- 2000-2010 ASSISTANT PROFESSOR, Faculty of Economics University of Udine.
- 2011 ASSOCIATE PROFESSOR, Department of Economics and Statistics, University of Udine.

Activity Research

My activity research lie in Computational Finance. The main topics are :

- Tree methods for Exotic American options, insurance derivatives in Black-Scholes, stochastic volatility and jumps models.
- Finite Difference Methods for pricing American options on two stocks, American lookback options, Swing options in jump models.
- Monte Carlo Methods for Pricing and Hedging American Option in High Dimension.

List of Publications

Publications in refereed journals

1. **S.Villeneuve A.Zanette 2002** *Parabolic A.D.I. methods for pricing American options on two stocks.*
MATHEMATICS OF OPERATIONS RESEARCH VOL.27 FEBRUARY (2002),
PP.121-149.
2. **A.Ern S.Villeneuve A.Zanette 2004** *Adaptive Finite-Element-Methods for Local Volatility European Option Pricing.*
INTERNATIONAL JOURNAL OF APPLIED AND THEORETICAL FINANCE
Vol.7 Number 6 September (2004).
3. **V.Bally L.Caramellino A.Zanette 2005** *Pricing and Hedging American Options by Monte Carlo Methods using a Malliavin Calculus Approach.*
MONTE CARLO METHODS AND APPLICATIONS Vol.11 Number 2,
(2005), pp.97-133.
4. **V.Bally L.Caramellino A.Zanette 2006** *A Mixed PDE-Monte Carlo Approach for Pricing Credit Default Index Swaptions.*
DECISIONS IN ECONOMICS AND FINANCE, 29, (2006), PP. 121-137.
5. **B.Jourdain A.Zanette 2008** *A Moments and Strike Matching Binomial Algorithm for Pricing American Put Options.*
DECISIONS IN ECONOMICS AND FINANCE, 31 (2008), no. 1, 33-49.
6. **F.Pressacco M.Gaudenzi L.Ziani A.Zanette 2008** *High Precision Pricing and Hedging of American Put Options: New Insights.*
EUROPEAN JOURNAL OPERATIONAL RESEARCH 185 (2008), NO. 1,
235-254.
7. **M.Gaudenzi A.Zanette A 2009** *Pricing American barrier options with discrete dividends by binomial trees.*
DECISIONS IN ECONOMICS AND FINANCE 32 (2009), no. 2, 129-148.
8. **M.Costabile M.Gaudenzi I.Massabó A. Zanette 2009 A.** *Evaluating fair premiums of equity-linked policies with surrender option in a bivariate model.*
INSURANCE: MATHEMATICS AND ECONOMICS 45 (2009), no. 2, 286-295.

9. **M.Gaudenzi M.A.Lepellere A.Zanette 2010** *The Singular Points method for Pricing American Path-Dependent Options.*
THE JOURNAL OF COMPUTATIONAL FINANCE 14 (2010), NO. 1, 29-56.
10. **L.Caramellino A.Zanette 2011** *Monte Carlo Methods for Pricing and Hedging American Options in High Dimension.*
RISK AND DECISIONS ANALYSIS (2011) VOL. 2, P. 207-220.
11. **M.Gaudenzi A.Zanette 2011** *Pricing cliquet options by tree methods.*
COMPUTATIONAL MANAGEMENT SCIENCE (2011) No. 8, 125-135.
12. **O.Kudryavtsev A. Zanette 2013** *Efficient pricing of Swing options in Levy-driven models.*
QUANTITATIVE FINANCE (2013), VOL. 13, No. 4, 627-635.
13. **X.Wei M.Gaudenzi A.Zanette 2013** *Pricing Ratchet equity-indexed annuities with early surrender risk in a CIR++ model.*
NORTH AMERICAN ACTUARIAL JOURNAL (2013). VOL.17, ISSUE 3, 229-252.
14. **E.Appolloni, M.Gaudenzi A.Zanette 2014.** *An Efficient Binomial Lattice Method for Step Double Barrier Options.*
INTERNATIONAL JOURNAL OF APPLIED AND THEORETICAL FINANCE (2014). VOL.17, ISSUE No. 6, 1-26.
15. **E.Appolloni, L.Caramellino A.Zanette 2015.** *A robust tree method for pricing American options with the Cox-Ingersoll-Ross interest rate model.*
IMA JOURNAL OF MANAGEMENT MATHEMATICS (2015) VOL.26, ISSUE NO. 4, 377-401, FIRST PUBLISHED ONLINE JANUARY 15, 2014.
16. **M.Briani L.Caramellino A.Zanette 2015.** *A hybrid approach for the implementation of the Heston model.*
IMA JOURNAL OF MANAGEMENT MATHEMATICS, ADVANCE ACCESS PUBLISHED NOVEMBER 12, 2015
DOI 10.1093/IMAMAN/DPV032
17. **L.Goudenege, A.Molent, A.Zanette 2016.** *Pricing and Hedging GLWB in the Heston and in the Black-Scholes with Stochastic Interest Rate Models.*

INSURANCE: MATHEMATICS AND ECONOMICS (2016), VOL. 70,
SEPTEMBER 2016, 38-57

Accepted articles in refereed journals

18. **M.Briani L.Caramellino A.Zanette 2016.** *A hybrid tree/finite-difference approach for Heston-Hull-White type models.*
TO APPEAR IN THE JOURNAL OF COMPUTATIONAL FINANCE.

Publications in refereed books

19. **J.Lelong A.Zanette 2010.** *Tree methods in Finance.*
ENCYCLOPEDIA OF QUANTITATIVE FINANCE, WILEY.
20. **O.Kudryavtsev A.Zanette 2015.** *Efficient pricing of Swing options in Levy-driven models.*
IN COMMODITIES EDITED BY M. A. H. DEMPSTER AND KE TANG
CHAPMAN AND HALL/CRC 2015 CHAPTER 28 607-621.

Publications in electronic journals

21. **A.Sulem A.Zanette 2009** *Premia: A Numerical Platform for Pricing Financial Derivatives.*
ERCIM NEWS [HTTP://WWW.ERCIM.ORG](http://www.ercim.org) July 2009.
22. **C.Martini A.Zanette 1999** *Premia: An Option Pricing Project .*
ERCIM NEWS [HTTP://WWW.ERCIM.ORG](http://www.ercim.org) n.38 July 1999

Preprints

23. **M.Gaudenzi A.Zanette 2012** *Fast binomial procedures for pricing Parisian/ParAsian options.*
INRIA RESEARCH REPORT NO. 8033, 2012
24. **L.Goudenege, A.Molent, A.Zanette 2016.** *Pricing and Hedging GMWB in the Heston and in the Black-Scholes with Stochastic Interest Rate Models.*
IN: ARXIV:1602.09078
25. **M.Briani L.Caramellino A.Zanette 2016.** *A hybrid approach for the implementation of the Bates model with stochastic interest rate.*
IN: ARXIV:1603:07225

Research programs

- Member from 2004 to now of the INRIA MathRisk project (INRIA, University of Paris-Est). Head A.Sulem. This project follow in 2012 to MathFI INRIA project.
[HTTPS://TEAM.INRIA.FR/MATHRISK/TEAM-MEMBERS/](https://team.inria.fr/mathrisk/team-members/)
- Scientific leader from 1998 to now of the software project Premia of the MathFi-MathRisk project ([WWW.PREMIA.FR](http://www.premia.fr)).
PREMIA is a computational platform designed to set up a technology watch for numerical problems related to the evaluation of financial derivative products and the management of pertinent risks. It is developed by the MATHRISK research team which gathers researchers in probability and mathematical finance from INRIA Paris-Rocquencourt and the University of Paris-Est.
- Partecipant 2011-2012 Collegio Dottorato ASSICURAZIONE E FINANZA: MATEMATICA E GESTIONE Università degli Studi di TRIESTE. Cicli: XXVII, XXVIII
- Partecipant 2013-2015 Collegio Dottorato SCIENZE MANAGERIALI E ATTUARIALI Università degli Studi di Udine. Cicli: XXIX, XXX, XXXI
- Partecipant 2002-04 PRIN 40% financed by MIU, Head Prof. Massimo De Felice.
- Partecipant 2007-09 PRIN 40% financed by MIUR, Head Prof. Flavio Pressacco.
- Partecipant 2015 High-End Foreign Expert Project of Central University of Finance and Economics Beijing China.

Other informations

- Referee activity on the following journals: Applied Mathematics and Computation, Decision Economics Finance, Journal of Computational Finance, Journal of Mathematical Analysis and Applications, Mathematical Finance, Mathematical Methods of Operation Research, Quantitative Finance, Scandinavian Actuarial Journal, SIAM Journal on Financial Mathematics.

Teaching

- **2004-to now** 50/72 hours. Mathematical Finance, **in 2year Master program of Faculty of Economics, University of Udine.**
- **2004-to now** 36/48 hours. Numerical Methods in Finance-Laboratory for Financial Engineering, **in 5year Master program of Faculty of Economics, University of Udine.**
- **2008** 4 hours. Monte Carlo Methods and Application of Malliavin Calculus Techniques. **Corso di Alta Formazione in Finanza Matematica, Bologna.**
- **2011-2014** 5 hours. Tree methods in Finance (in Methodes deterministe in Finance cours of prof.Lelievre). **Master program Ecole Nationale des Ponts et Chaussées, Champs-sur-Marne, France.**
- **2011** 9 hours. Numerical Probabilistic methods in Finance. **Financial mathematics Doctoral program, Politecnico di Milano.**
- **2012 and 2014** 60 hours (30 hours lectures and 30 hours tutorials and labs). Financial mathematics 2. **Master in Financial Mathematics. Faculty of Mathematics, University of Ljubljana. Slovenia.**

Talks in Conference

- *Parabolic A.D.I. methods for pricing American options on two stocks* **1999 International Conference on Mathematical Finance Hammamet.**
- *Comparison of finite difference methods for pricing American options on two stocks* **AMASES 2001 Firenze.**
- *Adaptive Finite-Element-Methods for Local Volatility European Option Pricing* **AMASES 2002 Verona, AMAM 2003 Nice.**
- *Pricing and Hedging American Options by Monte Carlo methods using a Malliavin calculus approach* **AMASES 2003 Cagliari, Giornata di Studio “Metodi Numerici in Finanza” 2003 Venezia, CEPET 2003 Summer Workshop Udine, MC2QMC 2004 conferences Juan Le Pins France.**
- *Monte Carlo Methods for Pricing and Hedging American Options in High Dimension* **AMASES Modena 2004.**
- *A Moments and Strike Matching Binomial Algorithm for Pricing American Put Options* **AMASES Palermo 2005, Italian-Spanish Conference of Mathematical Finance Verbania 2005.**
- *A Mixed PDE-Monte Carlo Approach for Pricing Credit Default Index Swaptions* **Stochastics Methods in Finance, Rome 2005, Poster Session in Conference “New Mathematical Methods in Risk Theory” in honour of H.Buhlman Firenze 2005, Bachelier Conference Tokio August 2006.**
- *The Singular Points Binomial Method for pricing American path-dependent options* **Second AMaMeF Conference. Advanced Mathematical Methods for Finance, 2007 Bedlewo(Poland).**
- *On a second order numerical scheme for computing exercise regions of American lookback options* **AMS Conference Joint Mathematics Meetings San Diego, CA, January 6-9, 2008, (Presented by S.Villeneuve), AMASES Trieste 2006.**
- *Pricing Cliquet options by tree methods* **5th International Conference in Computational Management Science, Imperial College London 2008.**

- *Pricing American barrier options with discrete dividends by binomial trees.* **AMASES Trento 2008**, Numerical methods in Finance Udine 2008 (Presented by M.Gaudenzi).
- *Evaluating fair premiums of equity-linked policies with surrender option in a bivariate model.* **Third conference on Numerical methods in Finance ENCP Paris 2009, IME Conference Istanbul 2009, AMASES Parma 2009.**
- *Pricing Ratchet equity-indexed annuities with early surrender risk in a CIR++ model.* **IME Conference Trieste 2011.**
- *Tree methods for pricing exotic options.* **Invited Speaker XIII Iberian-Italian Congress of Financial and Actuarial Mathematics Cividale del Friuli 2012.**
- *A hybrid tree-finite difference approach for the Heston model.* **Accepted talk at 8th World Congress of the Bachelier Finance Society Bruxelles 2014**
- *Pricing and Hedging GLWB in the Heston and Black-Scholes with stochastic interest rates models.* **Insurance: Mathematics and Economics (IME) Liverpool 2015 (Presented by L.Goudenege).**
- *Hybrid tree-finite difference methods for the Heston, Bates and Heston Hull-White models.* **Accepted talk at International Conference of Computational Finance (ICCF) University of Greenwich 2015, SIMAI Politecnico di Milano 2016.**