

Prof. Alessandro Gnoatto PhD

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Nationality Italian
Date of birth 04.04.1983

Work experience

03.2018 - present	<p>Department of Economics - University of Verona Sector: higher education Position: Associate Professor</p> <p>Activities: lectures on "Financial Risk Management" for the Master in Quantitative Finance and "Mathematical Finance for the BSc in Applied Mathematics.</p>
09.2015 - 02.2018	<p>BayernLB Sector: investment banking Position: assistant vice president - Interest Rate Derivatives Trading and xVA</p> <p>Activities: Computation of xVA for OTC derivatives using hybrid models in a Monte Carlo setting. Responsible for the maintenance and development of the pricing system from a quantitative and an IT perspective. Conceptual studies and initial development of a proprietary analytics library in Java for front office pricing.</p>
03.2012 - 08.2015	<p>Mathematisches Institut der LMU München Sector: higher education Position: post-doc researcher</p> <p>Activities: research on advanced asset pricing models based on matrix-valued affine processes. Applications to the valuation of FX options, multiple-curve interest rate models, long-term yield, basket options, volatility products.</p>
09.2011 - 02.2012	<p>Prometeia Spa Sector: consulting Position: junior analyst</p> <p>Activities: production of the RiskSize (www.risksize.com) variance/covariance matrix, by employing the RiskMetrics methodology. Development of an FFT pricing framework under the Variance Gamma model.</p>
03.2008 - 08.2008	<p>Fonditaria-Sai Spa Sector: insurance-finance Position: internship in the derivatives front office.</p> <p>Activities: call overwriting, hedging of equity participations, creation of forward variance swap positions, analysis of index linked products, basis trading (CDS), stock lending. Creation of reports regarding the desk's activity.</p>

Education	
05.04.2017	<p>Italian Ministry for Education University and Research Qualification: Habilitation as Associate Professor of Mathematical Finance (Mathematical methods for economics and financial and actuarial sciences)</p>
01.2009 - 26.11.2012	<p>University of Padua – Department of Pure and Applied Mathematics Qualification: Ph.D in Computational Mathematics</p> <p>Main subjects: research on advanced asset pricing models based on matrix-valued affine processes under the supervision of Prof. M. Grasselli and Prof. W. Runggaldier.</p>
09.2009 - 09.2011	<p>ETH (Swiss Federal Institute of Technology Zurich) – UZH (University of Zurich) Qualification: Master of Science in Quantitative Finance</p> <p>Main subjects: mathematical finance (courses by Prof. M. Schweizer, J. Teichmann, W. Farkas), numerical methods (PDE and Monte Carlo under Prof. C. Schwab), financial engineering (Prof. P. Vanini), credit risk (Prof. D. Coculescu).</p>
2003 - 2008	<p>University of Padua Qualifications: Master in Banking and Finance</p> <p>Main subjects: mathematical finance, computational finance, statistics, microeconomics, macroeconomics.</p>
1997 - 2002	<p>ITCG „L. Einaudi“ Qualification: high school diploma in accounting and foreign languages</p> <p>Main subjects: economics and accounting, foreign languages, applied mathematics.</p>
Computer skills	
Operating Systems	Mac OSX and Windows, working knowledge of Linux Debian
Programming	Java (OOP), Matlab/Octave, VBA, C/C++ and Python. Basic knowledge of Unix and MS-Dos shell scripting.
Other	Good knowledge of Numerix CrossAsset, Open Office/Libre Office/MS Office (Spreadsheets, Word Processing, Presentations), L ^A T _E X. Working knowledge of Bloomberg, Thomson Reuters Eikon, HTML, SQL
Software projects	<ul style="list-style-type: none"> • Contributor to finmath, a Java library for quantitative finance (Fourier methods for European options). See http://www.finmath.net • Matrix functions toolbox: a full Java implementation of the matrix exponential and logarithm
Language skills	
English	Reading skills: very good - Writing skills: very good - Oral skills: very good
German	Reading skills: very good - Writing skills: very good - Oral skills: good
Spanish	Reading skills: very good - Writing skills: basic - Oral skills: basic

Special courses

22.08.2011 - 29.08.2011	Summer school in financial mathematics in Ljubljana Faculty: Prof. N. H. Bingham, Prof. A. Lipton, Prof. D. B. Madan, Prof. M. R. Pistorius, M. Urusov Main subjects: Lévy Processes, stochastic volatility models, financial modeling with jumps, SDE's.
21.05.2009 - 22.05.2009	Spring school in finance in Bologna Faculty: Prof. E. Eberlein – Prof. P. Tankov Main subjects: crash courses on financial modelling with jump processes.
2001 - 2002	Goethe Institut Qualification: B1 international certificate for the German language
2001 - 2002	Trinity college Qualification: Level 9 international certificate for the English language

Theses

Title	Wishart processes: theory and applications in mathematical finance
Type	Ph.D Thesis
Supervisors	Prof. M. Grasselli and Prof. W. Runggaldier
Title	Yield-curve shapes for affine processes on S_d^+
Type	Master thesis
Supervisor	Prof. J. Teichmann
Title	Calibration of the Heston model using variance swaps
Type	Master thesis
Supervisor	Prof. M. Grasselli

Visiting

- 1) LMU Universität München - Mathematisches Institut - 17.09./21.09.2018: guest of F. Biagini - Project on BSDEs for xVA.
- 2) Oxford University - Mathematical Institute - 29.07./16.08.2019 and 13.01/24.01.2020: guest of C. Reisinger - Machine Learning for xVA computations.

Peer reviewed
publications

Citations: 112 total citations by 85 documents. h-index: 8. Co-authors: 9
Source - Scopus author page: <https://www.scopus.com/authid/detail.uri?authorId=55524308700>

Title	General analysis of long-term interest rates
Co-authors	F. Biagini, M. Härtel
Journal Info	International Journal of Theoretical and Applied Finance, 23(01) (2020) 2050002
Doi	https://doi.org/10.1142/S0219024920500028
Title	Affine multiple yield curve models
Co-authors	C. Cuchiero and C. Fontana
Journal Info	Mathematical Finance 29(2) (2019) 568-611
Doi	https://doi.org/10.1111/mafi.12183
Title	Long-term yield in an affine HJM framework on S_d^+
Co-authors	F. Biagini and M. Härtel
Journal Info	Applied Mathematics and Optimization, (2018) 77(3) 405-441
Doi	http://dx.doi.org/10.1007/s00245-016-9379-8
Title	Coherent foreign exchange market models
Journal Info	International Journal of Theoretical and Applied Finance, 20(01) (2017) 1750007
Doi	http://dx.doi.org/10.1142/S0219024917500078
Title	A general HJM framework for multiple yield curve modelling
Co-authors	C. Cuchiero and C. Fontana
Journal Info	Finance and Stochastics, 20(2) (2016) 267-320
Doi	http://dx.doi.org/10.1007/s00780-016-0291-5
Title	General closed form basket option pricing bounds
Co-authors	R. Caldana, G. Fusai, and M. Grasselli
Journal Info	Quantitative Finance, 16(4) (2015) 535-554
Doi	http://dx.doi.org/10.1080/14697688.2015.1073854
Title	Analytic pricing of volatility-equity option within Wishart-based stochastic volatility models.
Co-author	J. Da Fonseca and M. Grasselli
Journal Info	Operations Research Letters, (43) (2015) 601-607
Doi	http://dx.doi.org/10.1016/j.orl.2015.09.006
Title	An affine multicurrency model with stochastic volatility and stochastic interest rates
Co-author	M. Grasselli
Journal Info	SIAM Journal on Financial Mathematics, 5(1) (2014) 493-531
Doi	http://dx.doi.org/10.1137/130922902
Title	The explicit Laplace transform for the Wishart process
Co-author	M. Grasselli
Journal info	Journal of Applied Probability 51(3) (2014) 640-656
Doi	http://dx.doi.org/10.1239/jap/1409932664
Title	Smiles all around: FX joint calibration in a multi-Heston model
Co-authors	A. De Col and M. Grasselli
Journal info	Journal of Banking and Finance 37(10) (2013) 3799-3818
Doi	http://dx.doi.org/10.1016/j.jbankfin.2013.05.031
Title	A flexible matrix Libor model with smiles
Co-authors	J. Da Fonseca and M. Grasselli
Journal info	Journal of Economic Dynamics and Control 37(4) (2013) 774-793
Doi	http://dx.doi.org/10.1016/j.jedc.2012.11.006
Title	The Wishart short rate model
Journal info	International Journal of Theoretical and Applied Finance 15(08) (2012) 1250056
Doi	http://dx.doi.org/10.1142/S0219024912500562

Working papers

Title	Deep xVA solver - A neural network based counterparty credit risk management framework (2020)
Co-authors	A. Picarelli and C. Reisinger
Title	Cross Currency Valuation and Hedging in the Multiple Curve Framework. (2020)
Co-authors	N. Seiffert
Title	Multiple yield curve modelling with CBI processes. (2019)
Co-authors	C. Fontana and G. Szulda
Title	Pricing of counterparty risk and funding with CSA discounting, portfolio effects and initial margin. (2019)
Co-authors	F. Biagini and I. Oliva
Title	A penny saved is a penny earned: less expensive zero coupon bonds (2016).
Co-authors	M. Grasselli and E. Platen

Work in Progress

Title	BSDEs of xVA: a quantization approach
Co-authors	G. Callegaro and M. Grasselli
Title	Stochastic volatility models based on CBI processes
Co-authors	C. Fontana and G. Szulda
Title	Learning Multiple Yield Curve Dynamics
Co-authors	C. Cuchiero and C. Fontana

Refereeing activity

Finance and Stochastics
Mathematical Finance
Quantitative Finance
Journal of Banking and Finance
European Journal of Operational Research
Annals of Operations Research
Methodology and Computing in Applied Probability
Applied Mathematical Finance
Review of Derivatives Research
Asia-Pacific Financial Markets
Applied Mathematics and Computation
International Journal of Theoretical and Applied Finance
Decisions in Economics and Finance
Journal of Computational Finance

Research funding

2019	Cooperint Verona - outbound mobility: 3000 EUR to fund visiting periods at the Mathematical Institute of the University of Oxford. Project on numerical methods for BSDEs of counterparty risk.
2019	Cooperint Verona - inbound mobility: 3990 EUR to fund the visiting period of Mr. Guillaume Szulda (Univ. Paris Diderot) for a research project on multiple curve interest rate models.

Talks

Valuation and Hedging with Funding Costs and Collateralization in a multi currency setting.

January 2020 - XXI Workshop on Quantitative Finance - Naples

Pricing of counterparty risk and funding with CSA discounting, portfolio effects and initial margin. (Invited Talk).

January 2020 - Mathematical Institute - Oxford University

BSDEs of xVA: a quantization approach

July 2019 - ICIAM 2019 - Valencia

BSDEs of counterparty risk in the presence of multiple discounting rules and aggregation levels.

June 2019 - SIAM Conference on Financial Mathematics and Engineering - Toronto

Affine Multiple Yield Curve Models

June 2017 - Prometeia - Bologna (Invited Talk)

February 2017 - Financial Engineering Workshops - CASS Business School - London (Invited Talk)

PDE Vs Expectations for CVA computation.

June 2016 - Numerix Quant of the Year Lecture Series - Frankfurt

Bewertung von Derivaten nach der Finanzkrise - Eine Einführung

April 2016 - Finanzsymposium - Mannheim

Hybrid FX-Interest rate models: a tale of two risks

September 2015 - Amamef Swissquote Conference - EPFL Lausanne

Spread modeling in a general multiple-curve HJM framework

April 2015 - Challenges in Derivatives Markets - TU Munich

Interest rate modelling after the financial crisis

January 2015 - Nicola Bruti Liberati Quantitative Finance Lab - Politecnico di Milano. (Invited Talk)

November 2014 - Prometeia SpA - Bologna (Invited Talk)

Coherent foreign exchange market models.

January 2014 - University of Florence - XV Workshop on Quantitative Finance.

April 2013 - ETH Zurich - Talks in financial and insurance mathematics. (Invited Talk)

An analytic multi-currency model with stochastic volatility and stochastic interest rates

September 2013 - Munich - CEQURA conference

The Explicit Laplace Transform for the Wishart process

November 2011 - München. (Invited Talk)

October 2011 - Padova - Seminario dottorato

A Multifactor Libor Market Model

July 2012 - Minneapolis - Siam Conference on Financial Mathematics and Engineering. (Invited Talk)

June 2012 - München - Oberseminar Finanz und Versicherungsmathematik

June 2012 - Technische Universität Berlin. (Invited Talk)

September 2011 - Pisa - Convegno Amases

August 2011 - Ljubljana - Workshop on stochastic methods in financial markets

July 2011 - Istanbul - International conference on mathematical finance and economics 2011

June 2011 - Padova - Seminari di calcolo delle probabilità

Teaching activity

Mathematical Finance in discrete time
Winter Semester 2019/2020 - University of Verona - BSc in Applied Mathematics

Financial Risk Management
Summer Semester 2018, 2019, 2020 - University of Verona - MSc in Banking and Finance

Introduction to Java programming
Summer Semester 2019 - University of Verona - MSc in Banking and Finance

Stochastic calculus, FX and interest rate modeling (Quantitative Models for Business Management)
Winter Semester 2018/2019 - University of Verona - MA in International Economics and Business Management

Introduction to actuarial Mathematics
February 2019 - University of Verona

Seminar on Credit Risk Modeling
Winter Semester 2017/2018 - München

Seminar on counterparty credit risk and funding
Summer Semester 2017 - München

Computational finance
Summer Semester 2012, 2013, 2014 and 2015 - München

Introduction to object oriented programming in Java for financial engineers
Summer Semester 2015 - München
Winter Semester 2013/2014 - München

Exercises for the lecture “Numerical methods for financial mathematics”
Summer Semester 2015 - München
Winter Semester 2012/2013 - München

Interest rate modeling in the multiple curve framework - PhD course
March 2015 - Politecnico di Milano

Exercises for the lecture “Applied mathematical finance and its object-oriented implementation”
Winter Semester 2014/2015 - München

Workshop on stochastic volatility and multi-curves (joint with J. Kienitz and C. Fries)
Summer Semester 2014 - München

Term structure models (Finanzmathematik 3)
Winter Semester 2013/2014 - München

Exercises for the lecture “Introduction to the LIBOR market model for the valuation of interest rate derivatives”
February/March 2013 - München

Lévy and affine processes
Winter Semester 2012/2013 - München

Exercises for the lecture “Applied mathematical finance: interest rate models”
Summer Semester 2012 - München

Matlab classes for “Matematica per l’economia e la finanza 2”
December 2011 - Padova

Professional Projects

01.07.2017- 28.02.2018

Compatibl xVA

Activity as quantitative analyst in the context of a platform upgrade from Numerix CVA to Compatibl xVA at BayernLB. The project followed an Agile style.

Main Tasks:

- Responsible for the definition of the hybrid model for exposure generation.
- Default probability methodology definition.
- Collaboration in the definition of the set of requirements from the front office perspective.
- Theoretical research on valuation adjustments (CVA, DVA, FVA, CoVA, KVA).
- Analysis of pricing equations for contingent claims in the presence of collateral in different currencies.
- Software testing in an Agile framework (User/Business side perspective).

01.07.2016- 30.09.2016

Proof of Concept - New xVA software

Activity as assistant project leader (Stellvertreter Projektleiter) for the proof of concept for the new software solution for the XVA Desk of BayernLB, providing coordination between: external software provider, external consultants, internal IT, risk management and front office.

01.2016-04.2016

Compatibl Numerix CVA v3.5.2

As a Quant analyst working on the xVA Desk of BayernLB I was mainly responsible for the test phase and introduction of a new version of the main pricing software.

Innovations included:

- a better support for negative interest rates.
- shifted lognormal swaption volatilities.

Tasks included:

- Modification of the data model in order to account for new volatility quoting mechanism and more flexibility in the specification of the term structure of default probabilities.
- Review of model calibration quality.
- Benchmark of the main figures produced by the front office system (PV, CVA, FVA) against the results produced by the risk management team for accounting on a test portfolio.

Awards

April 2017

Eurolace Institute of Finance (Institut Louis Bachelier) and Fédération Bancaire Française.

EIF prize 2017 for the best paper in finance

<http://www.louisbachelier.org/risk-forum-2017-fintech-favorisent-linnovation-financiere/>

Bachelor Thesis

1. Carolin Vöckler - Mean-Variance Analysis with an Implementation on DAX Data - LMU München - 2012
2. Valentin von Trotha - FFT Network Model For Option Pricing - A Numerical Example - LMU München - 2018

Master Thesis

1. Marco Gasperini - The Heston model: Derivation and Implementation - LMU München - 2012
2. Hakki Dogan Dalai - Wishart Multifactor Stochastic Volatility, Implementation and Financial Interpretation - LMU München - 2013
3. Edoardo Cetraro - Risk Management of Basket Options in the Presence of Stochastic Correlations - LMU München - 2013
4. Gaia Laura Talone - Lévy-driven HJM models before and after the financial crisis - LMU München - 2014
5. Dominik Milewski - Interest Rate Modelling in a Negative Rate Environment - LMU München and BayernLB - 2017
6. Anton Sporrer - Credit Valuation Adjustment Incorporating Wrong Way Risk and their Object Oriented Implementation for Hybrid Interest Rate Models - LMU München and BayernLB - 2017
7. Nicolas Röchner - Numerical methods for backward stochastic differential equations - LMU München - 2018
8. Nicole Seiffert - Collateralized Markets in a multi-currency Environment - LMU München - 2018
9. Carla Delfini - The Valuation of Credit Default Swaps - University of Verona - 2018
10. Marta Busato - Stochastic Optimal Control and Dynamic Portfolio Optimization - University of Verona - 2019
11. Alessandro Fina - Quantization methods in Stochastic Volatility models - University of Verona - 2019
12. Francesco Maria Marchetti - Implementation of the CIR model in the Finmath Java library - University of Verona
13. Martina Prà - Comparison of the xVA frameworks of Brigo and Crépey - University of Verona
14. Pierferdinando Generoso - BSDE approach to hedging - University of Verona
15. Arianna Sasso - Polynomial chaos expansion: theory and applications in finance - University of Verona
16. Michela Sandrini - Trading in the presence of initial margin: central counterparties: MVA, ISDA SIMM, AAD - University of Verona
17. Davide Serpelloni - Neural Networks for CVA computation - University of Verona

PhD Thesis

1. I collaborated to/co-supervised two out of three chapters of the thesis of Dr. Maximilian Härtel "The asymptotic behavior of the term structure of interest rates" supervised by Prof. F. Biagini at LMU München.
2. I am collaborating the the PhD project of Mr. Guillaume Szulda supervised by Prof. C. Fontana at University of Paris-Diderot.

Organizer of

October 2019	Autumn School in Financial Mathematics University of Verona Featured Lectures by: Andrea Pallavicini (Banca IMI and Imperial College) on xVA and Christian Fries (DZ Bank and LMU München) on Computational Finance (AAD - MVA) http://dse.univr.it/asfm
July 2019	Mini-symposium organizer: Post-Crisis Financial Mathematics: Counterparty Risk, Funding and Central Counterparties SIAM conference on Financial Mathematics and Engineering - Toronto - CA Featured talks by: S. Crépey (University of Evry), Daniele Marazzina (Politecnico of Milan), Ryan Ferguson (Riskfuel)
October 2018	DEM Workshop in Financial Mathematics University of Verona Featured talks by: G. Callegaro (University of Padova), Daniele Marazzina (Politecnico of Milan), Andrea Pallavicini (Banca IMI and Imperial College) and Christa Cuchiero (University of Vienna) http://dse.univr.it/demwfm/

Academic Services

2019	Secretary of the commission for an RTDB position - 13/D4 University of Verona - Department of Economics
2018	Member of the commission for an RTDA position - 13/D4 University of Padova - Department of Mathematics
2018	Secretary of the commission: State Exam of Tax Advisors (Ordine commercialisti e revisori contabili) University of Verona - Department of Economics

Academic Societies

Bachelier Finance Society
SIAM - Society for Industrial and Applied Mathematics - Financial Mathematics Activity Group.
SIMAI - Società Italiana di Matematica Applicata e Industriale.
Amases - Association for Mathematics Applied to Economics and Social Sciences.