Curriculum Vitae – Peter H. Gruber

Personal Information

Institute of Finance
Università della Svizzera italiana
Via Giuseppe Buffi 13
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Switzerland
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Research Interests Asset Pricing, Financial Econometrics, Numerical Methods, Blockchain Finance

Current Positions

Università della Svizzera italiana, Lugano 2017-ongoing
Senior Scientist and Lecturer (*docente ricercatore*)

Universität St. Gallen 2005-ongoing
Lecturer (*Lehrbeauftragter für Statistik*)

Education

University of St. Gallen 2018-2020
Certificate of Adcanced Studies (CAS) in University didactics

swiss:finance:institute and **Università della Svizzera italiana, Lugano** 2015/06
PhD in Economics, "Essays on Variance Risk", Thesis Committee: David Bates (Iowa), Patrick Gagliardini (Lugano), Markus Leippold (Zürich), Fabio Trojani (Lugano, advisor)

University of St. Gallen 2005-2007
PhD program in Economics and Finance

University of St. Gallen 2005/11
M.A. in Quantitative Economics and Finance, "Market Expectations of Short Interest Rates", advisor: Paul Söderlind

CERN, Geneva and Vienna University of Technology 2001/09
PhD in Particle Physics, "Ionization Cooling for a Neutrino Factory"

Vienna University of Technology 1998/09
MSc Physics (Diplom-Ingenieur), advisor: Heinz Oberhummer

Working Papers

Valuation of Proof-of-Work cryptocurrencies, (2019)

The Price of the Smile and Variance Risk Premia, (2015), joint work with C. Tebaldi and F. Trojani, swiss:finance:institute Research Paper No. 15-36, accepted to Management Science, http://ssrn.com/abstract=2648288

Three Make a Dynamic Smile – Unspanned Skewness and Interacting Volatility Components in Option Valuation, (2010), joint work with R. Reno, C. Tebaldi and F. Trojani, http://ssrn.com/abstract=1786408

Eliciting a Smile – Numerical Methods for Option Pricing with Matrix Affine Jump Diffusions, (2015), http://www.people.usi.ch/gruberp/ElicitingASmile.pdf

Presentations

The Price of the Smile and Variance Risk Premia

Workshop on Skewness, Heavy Tails, Market Crashes and Dynamics, Society for Financial Econometrics and Institute for New Economic Thinking, 2014, Cambridge, UK; Finance Seminar at the University L. Bocconi, 2014, Milan; Research Days of the swiss:finance:institute, 2014 Gerzensee, Switzerland; 7th World Congress of the Bachelier Finance Society, 2014, Brussels; Annual meeting of the French Finance Society 2015, Paris*; Society for Financial Econometrics annual meeting 2016, Hong Kong*; European Finance Association, 2016, Oslo*; Northern Finance Association, 2019, Vancouver (best paper award)

Three Make a Dynamic Smile – Unspanned Skewness and Interacting Volatility Components in Option Valuation

Seminar at the Vienna University of Technology, 2010, Vienna; 5th World Congress of the Bachelier Finance Society, 2010, Toronto, Canada; European Finance Association Annual Meeting, 2010, Frankfurt, Germany*; Midwestern Finance Association Annual Meeting, 2011, Chicago; Eastern Finance Conference, 2011, Savannah, GA

Seven golden steps towards implementing Matrix Affine Jump Diffusion models

Research Seminar, Università della Svizzera italiana, 2008, Lugano

Option pricing with matrix affine jump diffusions

PEF Research Seminar, 2008, St. Gallen; finrisk Research Day, 2008, Gerzensee, Switzerland; X. Workshop on Quantitative Finance, 2009, Milan

* presentation given by a co-author

Discussions

"Stock Illiquidity, Option Prices, and Option Returns" by Stefan Kanne, Olaf Korn and Marliese Uhrig-Homburg, European Finance Assosciation, Oslo, 2016

"A Market-Based Funding Liquidity Measure" by Zhuo Chen and Andrea Lu, 13^{th} International Paris Finance Meeting, 2015

"Do stylized facts of equity-based volatility indices apply to fixed-income volatility indices? Evidence from the US Treasury market" by R. Lopez, AFFI Annual Meeting, 2015, Cergy

"The Information Content of Option Demand" by K. Kehrle et al., 9th finrisk Research Day, 2012, Gerzensee, Switzerland

"Foreign currency returns and systematic risks" by V. Galsband et al., Workshop on Financial Determinants of Exchange Rates, 2011, Banca d'Italia, Rome

"Recovering Nonlinear Dynamics from Option Prices" by A. Engulatov et al., 10th Swiss Doctoral Workshop in Finance, 2011, Gerzensee, Switzerland

"Does Risk-Neutral Skewness Predict the Cross-Section of Equity Option Portfolio Returns?" by T. Bali et al., Eastern Finance Conference, 2011, Savannah, GA

"VIX Dynamics with Stochastic Volatility of Volatility" by A. Kaeck et al., Midwestern Finance Association Annual Meeting, 2011, Chicago

"Correlation risk and the term structure of interest rates" by A. Buraschi et al., Financial Markets and Real Activity, 2008, Paris, France

"Joint model of corporate default intensities and macroeconomic dynamics" by V. Sahakyan et al., 7th Swiss Doctoral Workshop in Finance, 2008, Gerzensee

"Benchmarks in Aggregate Household Portfolios" by Pascal St-Amour, NCCR finrisk Research Day, 2007, Gerzensee, Switzerland

"A small investor model for the limit order book and some applications" by Jörg Osterrieder, NCCR finrisk Workshop, 2006, Gerzensee, Switzerland

TEACHING EXPERIENCE

Applied Numerical Methods with MATLAB, R and Python

- *Solving Economics and Finance Problems with MATLAB*, (course design, responsible, master level, English, 3 ECTS, 2005-ongoing), U. St. Gallen, 80 students/yr
- *An introduction to MATLAB*, (course design, responsible, bachelor level, English, 2 ECTS, 2014-ongoing), University of St. Gallen, 30 students/yr
- *Informatica II – Numerical Methods with R* (course design, co-responsible, bachelor level, English, 6 ECTS, 2014-ongoing), Univesità della Svizzera italiana, 40 students/yr
- *Advanced Numerical methods and data science*, (course design, responsible, master level, English, 3 ECTS, 2015-ongoing), University of St. Gallen, 15 students
- *Programming in Finance I + II*, (course design, responsible, master level, English, 3+3 ECTS, 2018-ongoing), University of Lugano, 20 students/yr
- *Numerical methods with MATLAB*, (course design, co-responsible, master level, English, 6 ECTS, spring 2013 and 2014), Univesità della Svizzera italiana, 15 students/yr

Econometrics and Data Science

- *Financial Data Analysis*, (course design, responsible, master level, English, 6 ECTS, 2019-ongoing), U. St. Gallen, 30 students
- *Data visualization*, (course design, responsible, bachelor level, English, 3 ECTS, 2018-ongoing), U. St. Gallen, 30 students
- *Statistica I* (responsible for exercises, bachelor level, Italian, Univesità della Svizzera italiana, 7.5 ECTS, 2017-ongoing), 150 students/yr
- *Linear Models and Variance Analysis* (course design, responsible, bachelor level, English, 2 ECTS, 2007-2008), U. St. Gallen, 15 students/yr
- *Financial Econometrics* (course assistant, master level, English, 3 ECTS, 2011-2013), Univesità della Svizzera italiana, 35 students/yr

Derivatives and asset pricing

- *Advanced derivatives* (co-teaching with P. Veronesi and C. Tebaldi, master level, English, 3 ECTS, fall 2018), Bocconi Univ, 25 students/yr
- *Asset pricing* (course assistant, English, 2014-2015), U. Geneva

Macroeconomics

- *Übungen Makroökonomie II*, (course assistant, bachelor level, German, 3 ECTS credits, 2005-2014), U. St. Gallen, appx. 100 students/yr

STUDENT SUPERVISION

15 master thesis (U. St. Gallen)
7 bachelor thesis (U. Lugano and U. St. Gallen)

LECTURE NOTES

Linear Models and Variance Analysis, (2009), 113 pages
http://www.people.usi.ch/gruberp/LinModelsScript.pdf

Solving Economics and Finance Problems with MATLAB, (2012), 200 pages
http://www.people.usi.ch/gruberp/MatlabMasterScript.pdf

PUBLICATIONS DIDACTICS

P. Gruber and the ESPACE Collaboration, (2000), **The LTWO paradigm – a general theory for IT-based education systems** *Proceedings of the 5th Workshop on Multimedia in Physics Teaching and Learning, Vienna, 8th-11th October 2000*, Editor: H. Oberhummer
http://pen-physik.de/w_jodl/MPTL/MPTL5/mmp/contribution/gruber.html

Publications Physics (selected)

M. Catanesi et al., (2008) **Measurement of the production cross-sections of $\pi^{\pm}$ in p-C and $\pi^{\pm}$-C interactions at 12 GeV/c**, Astroparticle Physics 29, 257-281

A. Blondel et al., (2004), **CFA/CERN Studies of a European Neutrino Factory Complex** *CERN Yellow Report*, CERN-2004-002. (Editor for the part on machine physics)

Mohammad M. Alsharoa et al., (2003), **Recent progress in neutrino factory and muon collider research within the Muon Collaboration**, Physical Review Accelerators and Beams, 6, 081001

J. Norem et al., (2003), **Dark Current and X Ray Measurements of an 805 MHz Pillbox Cavity** *Proceedings of the International PAC, Portland (USA)*, IEEE

P. Gruber, J. Torun, (2003), **Beam Photography** *Proceedings of the International Particle Accelerator Conference (PAC), Portland (USA)*, IEEE

P. Gruber, (2003), **Normalized Emittance in the Case of Large Momentum Spreads** *J. Phys. G: Nucl. Part. Phys.* 29

P. Gruber (Ed.), (2002), **The Study of a European Neutrino Factory Complex** *CERN/PS/2002-080 (PP)*

P. Gruber and E. Mckigney, (2001), **A First Study of a Scintillating Fibre Detector for a Muon Ionization Cooling Experiment** *CERN-NUFACT-079, IC/HEP-01*

A. Blondel et al., (2000), **Neutrino Factory. Beam and Experiments: Summary** *Nucl. Instruments Methods Phys. Res., A* : 451

Professional Experience

Università della Svizzera italiana, Lugano 2018-ongoing
Senior Scientist and Lecturer

Scuola Professionale Universitaria della Svizzera italiana, Manno 2017-2018
Docente ricercatore, teaching mathematics and numerical methods

Università della Svizzera italiana, Lugano 2008-2017
Research associate, NCCR-Finrisk project, project leader: Prof. Fabio Trojani

University of St. Gallen, Department of Economics 2004/11-2005/12
Assistant in Monetary and Real Estate Economics to Prof. Jörg Baumberger

CERN, Geneva 2001/09-2003/08
Research Fellow, Neutrino Factory Working Group, simulations with Fortran, development of a muon cooling experiment, co-editor of a CERN report, supervision of two students

Awards

Best Paper Award, Annual Meeting of the Northern Finance Association	2019
Swiss Finance Institute Best Discussant Award	2011
CERN Fellowship	2001

Grants

ALGORAND research grant (3M ALGO, valued at appx. USD 750k, awarded to USI)	2019
Research grant of the Swiss Innovation Agency Innosuisse (CHF 15k)	2018
Research grant of the CAREFIN foundation (EUR 3k)	2009
CERN Austrian Doctoral Student Programme Scholarship (CHF 84k)	1999

COMMUNITY SERVICE

Universtità della Svizzera italiana
Representative of the non-professorial teaching staff in he faculty of economics (2018-19)
Member, committee for teaching quality of the faculty of economics (2018-19)

University of St. Gallen
Member, search committee for a tenure track position in mathematics, HSG (2008)
Student representative, program committee of the PEF-PhD program, HSG (2006-2008)

Conference program committees
European Finance Association, annual meeting
French Finance Association (AFFI), Paris December Finance meeting

Referee Reports
European Journal of Finance
Journal of Empirical Finance
Economic Notes
Mathematics and Financial Economics

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Guidelines for Discussions at the Annual Swiss Doctoral Workshop in Finance

LANGUAGES

German (native speaker), English (teaching), Italian (teaching), French
MATLAB (teaching), R (teaching), Python (teaching), SQL