Curriculum Vitae

### Prof. Dr. Marc Oliver Rieger

Date of Birth: 22 September 1974

University of Trier University Department IV Universitätsring 15 54286 Trier, Germany

Citizenship: German Marital Status: married, one child

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### **Current Academic Position**

### University of Trier, Department IV, **Business Administration**

Professor of Banking and Finance (W3), lectures on "Financial Economics", "Financial Derivatives", "Game and Decision Theory", "Behavioral Finance". Sabbatical at Xiamen University, China (September – December 2013)

### **Previous Academic Positions**

### University of Zürich, ISB

Assistant Professor ("Oberassistent") in Financial Economics. Member of the NCCR Finrisk and of the University Priority Project "Finance and Financial Markets". Lectures on "Advanced Microeconomics", "Financial Economics" and "Banking: Structured Products".

**University of Bielefeld** Oct. 2008–March 2009 and June 2009 Visiting Professor ("Lehrstuhlvertretung") in Mathematical Economics (former professorship of Prof. Reinhard Selten). Lectures within the QEM-Program (international master degree) on "Finance", "Behavioral Decision Theory and Finance" and "Dynamic Financial Markets".

University of Zürich and ETH Zürich Sep. 2004–March 2007 Postdoctorial Associate and lecturer for "Numerics I" and "Advanced Microeconomics I+II" (game theory and decision theory) at the University of Zürich. Research visits at the University of Bonn, the Université de Savoie and the University of Bath.

Sep. 2003-Aug. 2004 **Scuola Normale Superiore, Pisa** Postdoctoral Researcher at the Scuola Normale Superiore. Research visit at the Instituto Superior Técnico, Lisbon.

Carnegie Mellon University, Pittsburgh (USA) Sep. 2001–Aug. 2003 Research Scholar at the Center for Nonlinear Analysis. Research visits at the University of Bonn and at the California Institute of Technology.

since April 2010

April 2007–March 2010

#### Max-Planck-Institute for Mathematics in the Sciences, Leipzig

Oct. 1998-Aug. 2001

Research Assistant, PhD thesis on "Nonconvex Dynamical Problems". Advisor: Prof. Stefan Müller, Director of the MPI.

#### **University of Konstanz**

Oct. 1993–Sep. 1998

Student of Mathematics and Physics, diploma thesis on "Asymptotic Behaviour of Radially Symmetric Solutions to Thermoelasticity Equations". Advisor: Prof. Reinhard Racke.

### Main Research Interests

My main research interests are in the area of finance, in particular behavioral finance and financial derivatives as well as in the area of decision theory. I often combine theoretical, empirical and (sometimes) experimental methods. My current research is mainly focused on:

- **Financial derivatives and risk measures** (e.g. investor preferences on structured financial products; classification of acceptance sets of certain risk measures).
- **Behavioral finance** (e.g. application of behavioral finance to investment decisions or dividend policies; equity premium puzzle; behavioral game theory).
- Behavioral decision theory (e.g. further development of prospect theory; an international survey comparing investor preferences in 53 countries).

### Honors and Awards

*Listed in the Handelsblatt-Ranking* (the most influential ranking or researchers in business administration in the German speaking countries): 26<sup>th</sup> rank of all researchers below 40 years, 56<sup>th</sup> rank of all researchers, 2<sup>nd</sup> rank in the area of finance in Germany).

Jury president of the Swiss Derivative Awards in Zurich since 2010.

Special research grant of the University of Trier (2011).

*Grant* of the Scuola Normale Superiore for participation in the trimester on "Calculus of Variations and Partial Differential Equations" (2006).

*Offer of a professorship* at the *University of Trier* (accepted), at the *University of Kiel* (rejected) and at the Norwegian University of Science and Technology (rejected).

Grants for events and research of BhFS, IRML, Arkus Financial Solutions and Trier public utility company since 2011.

Postdoctoral Scholarship of the Scuola Normale Superiore (2003–2004).

Member of the graduate school of the University of Leipzig (2000–2001).

Scholarship of the *Studienstiftung des deutschen Volkes* (1993–1998).

Special prize at the final round of the German "Science Fair" competition ("Jugend forscht").

### **Doctoral Students**

- Ji Cao (graduation completed in 2014): "Analysis of Portfolio Risk of Private Investors" (work on the performance of bank managed portfolios and on effects of the new EU risk classification for structured products). The thesis was granted the "National Award for Outstanding Chinese Students Studying Abroad" of the China Scholarship Council.
- Shuonan Yuan (graduation completed in 2015): Work on diversification of structured products and on the role of attention in stock markets.
- Tonn Talpsepp (co-supervisor, PhD degree obtained in 2010). Title of the thesis: "Investor Behavior and Volatility Asymmetry".
- Hai Minh Ngo (graduation completed in 2016), work on Behavioral Explanations of Equity Premium Puzzles. The collaborative paper was granted the "Best Doctoral Student Paper Award" of the Academy of Behavioral Finance & Economics (Chicago, 2013).
- Actually I am supervising six doctoral students, two of them being external students, one scholarship students and two research assistants. Their research is focused on Behavioral Finance, Risk Measurement and Structured Products. In addition, I am the doctoral co-supervisor of a dissertation at the LUISS University of Rome (defense in May 2017).

### Professional and Administrative Service

- Various committees at the University of Trier.
- Member of the Advisory Board of the Confucius Institute of Trier (since 2016).
- Referee for various journals in economics, finance and mathematics (e.g. American Economic Review, Journal of Banking and Finance, Management Science, Journal of Economic Behavior and Organization, Journal of Economic Dynamics and Control, Theory and Decision, Nonlinearity, SIAM Journal of Appl. Math., Journal of Mathematical Economics)
- Reviewer of *Mathematical Reviews* of the *American Mathematical Society*.
- Organizer of the regular symposium QFQP<sup>++</sup> together with Professor Frank Seifried (mathematics, University of Trier), a symposium in Quantitative Finance of the universities of the "Greater Region".
- Organizer of the "East Asia Days" at the University of Trier (September 2014).
- Organizer of the "*Trier-Luxembourg Workshop on Financial Investments*" at the University of Trier (December 2011).

- Organizer of the public presentation of the ISB at the "*Parcours des Wissens*" for the 175<sup>th</sup> anniversary of the University of Zürich (March 2008).
- Organizer and member of the Scientific Committee for the international conference "ANA – Advances in Nonlinear Analysis" at the Carnegie Mellon University. For details see: http://www.math.cmu.edu/~ana/. (May/June 2003).

### Selected Talks

#### Invited talks at seminars and colloquia:

University of Piräus; University of Kaiserslautern; University of Zürich; Xiamen University; Zhongnan University of Economics and Law, Wuhan; Central South University, Changsha; Unversity of Bonn; University of Mainz; NTNU Trondheim; University of Dortmund; University of Kiel; University of Göttingen; University of Konstanz; University of Luxembourg; University of Ulm; Doshisha University (Kyoto); University of Münster; University of Bielefeld, University of Fribourg; Brunel University (London); Université de Savoie; ETH Zürich; University of Sussex; University of Bath; Instituto Superior Técnico, Lisbon; California Institute of Technology; University of Regensburg; University of Stuttgart; Perdue University, Indiana; University of Illinois etc.

#### **Conference talks (refereed papers) since 2008:**

Research in Behavioral Finance Conference, Amsterdam, 2016. 12<sup>th</sup> European Meeting on Game Theory (SING12), Odense (Denmark), 2016\* GAMES 2016, 5th World Congress of the Game Theory Society, Maastricht, 2016\* 69th European Meeting of the Econometric Society, Genf, 2016\* Go Symposium, at the Japanese Go Congress, Takarazuka (Japan), 2016 Second International Go Game Science Conference, Liberec, 2015. Institutional and Individual Investors - CGR Conference, Bath, 2015. 3<sup>rd</sup> Luxembourg Household Finance Workshop, 2015. World Banking and Finance Symposium, Singapore, 2014\*. Experimental Economics Workshop, Xiamen, 2013. World Finance and Banking Symposium, Peking, 2013\*. 3<sup>rd</sup> Quantitative Economics Conference, Sanya, 2013. Annual Meeting of the Academy of Beh. Finance and Economics, Chicago, 2013\*. 5<sup>th</sup> International IFABS Conference, Nottingham, 2013\*. 16<sup>th</sup> Conference of the Swiss Finance Association (SGF), Zürich, 2013\*. 19th Annual Meeting of the German Finance Association (DGF), Hannover, 2012\*. EFMA Conference, Barcelona, 2012\*. FMA European Conference, Istanbul, 2012\*. 15<sup>th</sup> Conference of the Swiss Finance Association (SGF), Zürich, 2012. 11<sup>th</sup> Kölner Finanzmarktkolloquium, Köln, 2012. 10<sup>th</sup> INFINITI conference, Dublin, 2012. Campus for Finance, WHU, Vallendar, 2012. 12<sup>th</sup> Symposium on Finance, Banking and Insurance, Karlsruhe, 2011. ESA (Economic Science Association) European Conference, Luxembourg, 2011. 8<sup>th</sup> INFINITI conference, Dublin, 2010\*. CARISMA conference "The interface of behavioral and quantitative finance", London, 2010.

EFA (European Finance Association) conference, Bergen, 2009. Annual conference of the "Verein für Socialpolitik", Magdeburg, 2009. 12<sup>th</sup> Conference of the Swiss Finance Association (SGF), Zürich, 2009. 8<sup>th</sup> Kölner Finanzmarktkolloquium, Köln, 2009. 11<sup>th</sup> Symposium on Finance, Banking and Insurance, Karlsruhe, 2008. 15<sup>th</sup> Meeting of the German Finance Association (DGF), Münster, 2008. European Mathematics Conference, Amsterdam, 2008 (invited talk). Conference on mathematical economics und finance, Manchester, 2008. 11<sup>th</sup> Conference of the Swiss Finance Association (SGF), Zürich, 2008. Asian Finance Association Conference, Yokohama, 2008. International Chinese Finance Conference, Dalian, 2008. \*Presentation by co-author.

### Media presence and publicity (selection)

Several newspaper articles and interviews, e.g. in:

- FAZ (Frankfurter Allgemeiner Zeitung),
- Süddeutsche Zeitung,
- Stern,
- Wirtschaftswoche,
- Westdeutsche Zeitung,
- Südkurier,
- Trierischer Volksfreund,
- NZZ (Neue Zürcher Zeitung),
- Tagesanzeiger,
- Bilanz (Schweizer Investment-Magazin),
- Cash Daily,
- Payoff Magazine etc

Several *radio interviews* (Swiss radio DRS, Deutschlandfunk, Kulturradio et al., 2008-2016).

*TV interview* (ARD, Report München, on the subject of Zero Interest-Rate Policy, 20.9.2016).

# **Selected Publications**

#### Publications in peer-reviewed journals in economics and finance:

- [1] "Asymmetric attention and volatility asymmetry" (with Michał Dzieliński and Tõnn Talpsepp), *Journal of Empirical Finance*, Vol. 45, pp. 59-67, 2018.
- [2] "Comment on Cenci et al. (2015): Half-full or half-empty? A model of decision making under risk", *Journal of Mathematical Psychology*, Vol. 81, pp. 110-113, 2017.
- [3] "Corporate Cash Holdings and Ambiguity Aversion" (with Wolfgang Breuer and K. Can Soypak), *Review of Finance*, Vol. 21, Issue 5, pp. 1933-1974, 2017.
- [4] "Characterization of acceptance sets for co-monotone risk-measures", *Insurance: Mathematics and Economics*, Vol. 74, pp. 147-152, 2017.
- [5] "The impact of culture on loss aversion" (with Mei Wang and Thorsten Hens), *Journal of Behavioral Decision Making*, Vol. 30, Issue 2, pp. 270-281, 2017.
- [6] "Estimating cumulative prospect theory parameters from an international survey" (with Thorsten Hens and Mei Wang), *Theory and Decision*, Vol. 82, Issue 4, pp. 567-596, 2017.
- [7] "Should Your Bank Invest for You? Evidence from Private Banking Accounts" (with Ji Cao and Marcel Fischli), *Journal of Behavioral and Experimental Finance*, Vol 13, pp. 1-8, 2017.
- [8] "How Time Preferences Differ: Evidence from 53 Countries" (with Mei Wang and Thorsten Hens), *Journal of Economic Psychology*, Vol. 52, pp. 115–135, 2016.
- [9] "The war puzzle: Contradictory effects of international conflicts on stock markets" (with Amelie Brune, Thorsten Hens and Mei Wang), *International Review of Economics*, Vol. 62, Issue 1, pp. 1-21, 2015.
- [10] "Risk Preferences Around the World", (with Mei Wang and Thorsten Hens), Management Science, Vol. 61, Issue 3, pp. 637-648, 2015.
- [11] "Evolutionary stability of prospect theory preferences", *Journal of Mathematical Economics*, 50, pp. 1-11, 2014.
- [12] "The behavioral foundations of corporate dividend policy a cross-country analysis" (with Wolfgang Breuer and K. Can Soypak), *Journal of Banking and Finance*, 42, pp. 247-265, 2014.
- [13] "Can utility maximization explain the demand for structured investment products?" (with Thorsten Hens), *Quantitative Finance*, 14(4), pp. 673-681, 2014.
- [14] "International evidence on the equity premium puzzle and time discounting" (with Thorsten Hens and Mei Wang), *Multinational Finance Journal*, 17(3/4), pp. 149-163, 2014.
- [15] Risk classes for structured products: mathematical aspects and their implications on behavioral investors" (with Ji Cao), *Annals of Finance*, Vol. 9, Issue 2, pp. 167-183, 2013.

- [16] "Can ambiguity aversion solve the equity premium puzzle? Survey evidence from international data" (with Mei Wang), *Finance Research Letters*, 9(2), pp. 63-72, 2012.
- [17] "Explaining the demand for structured financial products: survey and field experiment evidence" (with Thorsten Hens), *ZfB*, Vol. 82, Issue 5, pp. 491-508, 2012.
- [18] "Why do Investors buy bad financial products? Probability misestimation and preferences in financial investment decisions", *Journal of Behavioral Finance*, Vol. 13, Issue 2, pp. 108-118.4, 2012.
- [19] "Optimal financial investments for non-concave utility functions", *Economics Letters*, Vol. 114, Issue 3, pp. 239-240, 2012.
- [20] "Too risk-averse for prospect theory?" (with Thuy Bui), *Modern Economy*, Vol. 2, Issue 4, pp. 691-700, 2011.
- [21] "Volatility asymmetry, news and private investors" (with Michal Dzielinski and Tonn Talpsepp), *The Handbook of News Analytics*, Wiley & Sons, 2011.
- [22] "Co-monotonicity of optimal investments und the design of structural financial products", *Finance and Stochastics*, 15(1), pp. 27–55, 2011.
- [23] "Explaining asymmetric volatility around the world" (with Tonn Talpsepp), *Journal* of Empirical Finance, 17(5), pp. 938-956, 2010.
- [24] "Financial Market Equilibria with Cumulative Prospect Theory" (with Enrico De Giorgi and Thorsten Hens), *Journal of Mathematical Economics*, 46(5), pp. 633–651, 2010.
- [25] "SP/A and CPT: a reconciliation of two behavioral decision theories", *Economics Letters*, 108(3), pp. 327–329, 2010.
- [26] "What is behind the Priority Heuristic? A mathematical analysis" (with Mei Wang), *Psychological Review*, 2008.
- [27] "Prospect Theory for continuous distributions" (with Mei Wang), *Journal of Risk and Uncertainty*, vol. 36, no. 1, pp. 83–102, 2008.
- [28] "Cumulative Prospect Theory and the St. Petersburg Paradox" (with Mei Wang), *Economic Theory*, 28, pp. 665-679, 2006.

#### **Books:**

- "Financial Economics a concise introduction to classical and behavioral finance", approx. 400 pages, (with Thorsten Hens), Springer Verlag (2010). (The 2<sup>nd</sup> edition was published in 2016.)
- [2] "Optionen, Derivate und strukturierte Produkte ein Praxisbuch", approx. 350 pages, NZZ-Verlag, Zürich and Verlag Schäffer-Poeschel (2009). (The 2<sup>nd</sup> edition was published in 2016.)

#### Publications in applied mathematics (previous research area):

- "Comment on Cenci et al. (2015): Half-full or half-empty? A model of decision making under risk", *Journal of Mathematical Psychology*, Vol. 81, pp. 110-113, 2017.
- [2] "Characterization of acceptance sets for co-monotone risk-measures", *Insurance: Mathematics and Economics*, Vol. 74, pp. 147-152, 2017.
- [3] "Evolutionary stability of prospect theory preferences", *Journal of Mathematical Economics*, Vol. 50, pp. 1-11, 2014.
- [4] "Co-monotonicity of optimal investments and the design of structural financial products", *Finance and Stochastics*, vol. 15, no. 1, pp. 27-55, 2011.
- [5] "Financial Market Equilibria with Cumulative Prospect Theory" (with Enrico De Giorgi and Thorsten Hens), *Journal of Mathematical Economics*, Vol. 46, Issue 5, pp. 633-651, 2010.
- [6] "Gradient flows in asymmetric metric spaces" with Chenchiah, Isaac Vikram; Zimmer, Johannes; in: Nonlinear Anal. 71, no. 11, 5820-5834, 2009.
- [7] "Young measure flow as a model for damage" with Zimmer, Johannes; in: Z. Angew. Math. Phys. 60, no. 1, 1—32, 2009.
- [8] "Higher dimensional problems with volume constraints existence and Gammaconvergence"; in: Interfaces Free Bound. 10, no. 2, 155-172, 2008.
- [9] "Local minimizers of functionals with multiple volume constraints" with Oudet, Édouard; in: ESAIM Control Optim. Calc. Var. 14, no. 4, 780-794, 2008.
- [10] "Parameter dependence of multiscale systems and nanostructures on crystals" with Zirnstein, Heinrich-Gregor; in: Math. Mech. Solids 12, no. 5, 513-525, 2007.
- [11] "Variational problems for functionals involving the value distribution. Variational problems in materials science", 25--41, Progr. Nonlinear Differential Equations Appl., 68, Birkhäuser, Basel, 2006.
- [12] "Global existence for nonconvex thermoelasticity" with Zimmer, Johannes; in: Adv. Math. Sci. Appl. 15, no. 2, 559-569, 2005.
- [13] "Parabolic systems with nowhere smooth solutions" with Müller, Stefan; Šverăk, Vladimír; in Arch. Ration. Mech. Anal. 177, no. 1, 1-20, 2005.
- [14] "A model for hysteresis in mechanics using local minimizers of Young measures. Elliptic and parabolic problems", 403--414, Progr. Nonlinear Differential Equations Appl., 63, Birkhäuser, Basel, 2005.
- [15] "On the Gamma-limit of the Mumford-Shah functional" with Tilli, Paolo; in: Calc. Var. Partial Differential Equations 23, no. 4, 373-390, 2005.

- [16] "A relaxed model for step-terraces on crystalline surfaces" with Kurzke, Matthias; in: J. Convex Anal. 11, no. 1, 59-67, 2004.
- [17] "Abstract variational problems with volume constraints"; in: ESAIM Control Optim. Calc. Var. 10, no. 1, 84-98 (electronic), 2004.
- [18] "Young-measure approximations for elastodynamics with non-monotone stress-strain relations" with Carstensen, Carsten; in: M2AN Math. Model. Numer. Anal. 38, no. 3, 397-418, 2004.
- [19] "Exponential stability and global existence in thermoelasticity with radial symmetry", in: Quart. Appl. Math. 62, no. 1, 1-25, 2004.
- [20] "Young measure solutions for nonconvex elastodynamics"; in: SIAM J. Math. Anal. 34, no. 6, 1380--1398 (electronic), 2003.
- [21] "A volume constrained variational problem with lower-order terms", with Morini, Massimiliano; in: Appl. Math. Optim. 48, no. 1, 21-38, 2003.
- [22] "Time dependent Young measure solutions for an elasticity equation with diffusion";
   in: International Conference on Differential Equations, Vol. 1, 2 (Berlin, 1999), 457--459, World Sci. Publ., River Edge, NJ, 2000.

#### **Other publications:**

- [1] "Ungeduld und Risikoeinstellungen: Hemmschuhe für Integration?" (with Mei Wang), in: *Weiterbildung*, Vol. 2, pp. 23-25, 2017.
- [2] "Der globale Blick auf Risiko und Zeit" (with Mei Wang), in: *Forschung und Lehre*, 23, 3, pp. 236-237, 2016.

# Academic Courses

#### **University of Trier**

Lectures (often combined with seminars or group projects):

- "*Entscheidungs- und Spieltheorie"* (Diplom, SS 2010),
- *"Behavioral Finance"* (Master, since summer term 2010).
- "*Mathematik und Statistik*" (Master, winter term 10/11),
- "*Financial Economics*" (Master, summer terms 2010 and 2011),
- *"Grundlagenmodul"* (Master, includes mathematics, decision and game theory and empirical research, since winter term 11/12),
- "Advanced Microeconomics" (Master in Economics, winter term 10/11),
- "*Finanzderivate"* (Master, since winter term 10/11),
- "Investition und Finanzierung" (Bachelor, since winter term 11/12),
- "*Finance & Banking II"* (Bachelor, summer term 2014).

Project Groups:

- *"Decision Theory and Applications to Finance"* (Master, from summer term 2011 until winter term 11/12), in collaboration with the department of Economics.
- *"Framing in Finance"* (Master, from sumer term 2014 until winter term 14/15).
- "*Verkehrsmittelwahl"* (Bachelor, winter term 15/16).
- "*Research Project*" (Master, from sumer term 2016 until winter term 16/17).

### University of Zurich

Lectures:

- "Banking: Structured Products" (Bachelor, spring 2008 und spring 2009),
- "*Advanced Microeconomics*" (Master/PhD, autumn 2007 und autumn 2008),
- "Financial Economics" (Master/PhD, winter term 06/07 und autumn 2007),
- "*Microeconomics I+II*" (Bachelor, spring 2007 und autumn 2007),
- "*Numerics I*" (Bachelor, summer term 2005),
- *"Behavioral Finance and wealth management"* (2008, MBA-Level).

### University of Bielefeld

Lectures:

- *"Finance"* (winter term 08/09),
- "Dynamic Financial Markets" (winter term 08/09),
- "*Behavioral Decision Theory and Finance*" (seminar, winter term 08/09).

All lectures on Master level within the framework of the international QEM (Quantitative Economic Master Program).

• "*Behavioral Economics*" (Ph.D. course, June 2009).

### **Carnegie Mellon University**

Lectures on "Algebraic Topology" (spring 2003) and "Topics in Applied Mathematics – Game Theory" (spring 2002).

### Other teaching activities

- Various courses for practitioners on Behavioral Finance and financial derivatives, e.g. for Uhlenbruch publishing house, the universities of Zurich and Liechtenstein etc.
- Talks at special events organized for children and senior citizens at the University of the Trier.
- Voluntary Go teacher (Certificate by Myongji University, Seoul, Korea), since 2012.
- Superivision of a group project for the scholar competition "History" by the Federal President (Körber Foundation) titled "To be different misfits in history" (2015).
- Courses for the "Leipziger Schülergesellschaft Mathematik", 1999–2001.

## Work in practice (selection)

- Academic supervision of a study on digital marketing for asset managers by Edelman.ergo Unternehmenskommunikation
- Conception of a type of investor-check including an educational software for the *Sunflower Foundation* and the Zurich MoneyMuseum.
- Design of a multi-touch-table for the composition of structured products (in collaboration with the *Swiss Design Institute for Finance and Banking*). For photos and the web version of the software please see <a href="http://www.sdfb.ch/de/projekte/edit">http://www.sdfb.ch/de/projekte/edit</a>.
- Various projects, e.g. with Credit Suisse and Zürcher Kantonalbank, please refer to <u>http://globalinvestor.credit-suisse.com/behavioural/</u>.
- Reports on investor protection.
- Various Lectures, e.g. at the Congress of the Society of German Certified Fee Based Financial Advisors (2012 and 2014).

## Honorary Activities

- Speaker of the Advisory Board of Verkehrsverbund Region Trier (VRT), 2012-2015.
- Secretary of the Young Talents' Promotion at Deutscher Go Bund e.V. (since 2013) and Vice President (since 2016).
- Project Manager der European Go Federation f
  ür die Jugendmannschafts-EM (seit 2015).
- Marketing Management for the European Go Congress 2017.

- Juryman at the competition "Jugend forscht" (2016).
- Founding Member of the Friends' Association "Alte Synagoge Stavenhagen e.V." and responsible for their website www.synagoge-stavenhagen.de