

Sven Rady, PhD



Academic career

1982 - 1989	Studies in mathematics and physics at the universities of Konstanz, Bonn, Paris VII (France)
1989	Diploma in Mathematics, University of Bonn
1990 - 1991	European Doctoral Program in Quantitative Economics, University of Bonn
1991 - 1995	European Doctoral Program in Quantitative Economics, London School of Economics, England, UK
1994 - 1996	Lecturer in Economics, London School of Economics, England, UK
1995	PhD in Economics, London School of Economics, England, UK
1996 - 1999	Assistant Professor of Economics, Graduate School of Business, Stanford University, CA, USA; promotion to untenured Associate Professor in 1999, on leave 1999 - 2001
1999 - 2011	Professor of Economics, LMU Munich
Since 2011	Hausdorff Chair for Mathematical Economics (W3), University of Bonn

Honours

1983 - 1988	Scholarship, Studienstiftung des Deutschen Volkes
1991 - 1992	Grant for doctoral studies abroad, German Academic Exchange Service (DAAD)
1993	Research Scholarship, COLONIA Scholarship Foundation (Germany)
1993 - 1994	Graduate Fellowship, Economic and Social Research Council of the UK
1995	Participant in the Review of Economic Studies May Meetings (Brussels-London-Toulouse) with paper "Optimal Experimentation in a Changing Environment"
2005	Teaching Award of the State of Bavaria
2008 - 2010	Research Professorship at the University of Munich under the auspices of GRK 801 (10/2008 - 03/2009) and LMUexcellent (04/2009 - 09/2010)

Offers

2002	Goethe University Frankfurt
2005	University of St. Gallen, Switzerland

Invited Lectures

2012	Minicourse "Strategic Experimentation", Yonsei University, Seoul, South Korea
2016	Minicourse "Strategic Experimentation", University of Texas at Austin, USA

Research Projects and Activities

DFG Collaborative Research Center SFB/TR 15 "Governance and the Efficiency of Economic Systems"

Project leader for two projects:

1. "Incomplete Markets, Market Interactions and Social Comparisons", 2004 – 2011
2. "Strategic Acquisition and Transmission of Information", 2008 - 2015

DFG Cluster of Excellence "Hausdorff Center for Mathematics"

Principal investigator (since 2012) and member of the Board of Directors (since 2013)

DFG Collaborative Research Center SFB/TR 224 "Economic Perspectives on Societal Challenges: Equality of Opportunity, Market Regulation, and Financial Stability"

Spokesperson

Project leader for two projects:

1. "Decentralized Markets"
2. "Platform Markets"

Research profile

My research is concerned with the dynamics of individual decisions and the resulting equilibrium processes when economic agents are uncertain about the environment in which they operate and can learn about it through experimentation. Particularly interesting dynamics arise from informational spillovers between the agents. Examples are research teams, R&D alliances between firms, or open source projects. Generalizing classic models of optimal sequential choice of experiments, I consider multiple agents who face identical two-armed bandit problems and observe each other's actions and payoffs. While it is natural to use the posterior belief about these characteristics as the state variable for Markov perfect equilibria ([7], [5], [4], [3]), in current work I investigate the consequences of allowing for non-Markovian behavior.

While I will continue to investigate multi-agent bandit problems in my future work, I will put stronger emphasis on payoff externalities and market interactions. Building on [4], I intend to address more general correlation structures between the characteristics of the different agents' risky projects. Using the methods developed in [10] and [8], I plan to study experimentation with restless bandits whose characteristics change stochastically over time, so that there is an incentive to learn even in the very long run. Further research into the dynamics of two-sided market platforms with cross-group externalities will build on [1]. More broadly, I plan to investigate information aggregation in large decentralized markets where information is dispersed and participants search and learn at the same time.

Editorships

- Review of Economic Studies (Associate Editor, 2000 - 2007)
- Berkeley Electronic Journals in Theoretical Economics (Associate Editor, 2006 - 2010)
- Berkeley Electronic Journals in Theoretical Economics (Co-Editor, 2010 - 2013)
- Journal of Mathematical Economics (Co-Editor, since 2013)
- Mathematics of Operations Research (Associate Editor, since 2016)

Research Area I The focus of my research in this area is on strategic experimentation, that is, the active production of information when there are informational spillovers between the agents. Examples are research teams, R&D alliances between firms, or open source projects. Generalizing classic models of optimal sequential choice of experiments, I consider multiple agents who face identical two-armed bandit problems in continuous time and observe each other's actions and payoffs. One arm is safe in that it generates a known payoff per unit of time. The other arm is risky in that its payoffs are generated by a stochastic process whose characteristics are initially unknown. Using the common posterior belief about these characteristics as the natural state variable, [7] and [5] analyze Markov equilibria of an experimentation game where the type of the risky arm is the same for all players (perfect positive correlation). [4] solves a two-player game where this type is negatively correlated across players. Whether learning can be efficient in the long run turns out to depend crucially on this correlation structure. Earlier work ([10], [9], [8]) investigates Bayesian learning in dynamic pricing and trading problems with payoff externalities.

Supervised theses

Master theses: 11

Diplom theses: 101

PhD theses: 11

Selected PhD students

Markus Reisinger (2004): "Three Essays on Oligopoly: Product Bundling, Two-Sided Markets, and Vertical Product Differentiation",
now Professor, Frankfurt School of Finance & Management

Ferdinand von Siemens (2004): “Inequity Aversion and Incentives: Three Essays in Microeconomic Theory”,

now Professor, University of Frankfurt

Nicolas Klein (2010): “Learning and Experimentation in Strategic Bandit Problems”,

now Assistant Professor, University of Montreal, QC, Canada

Selected publications

- [1] Martin Peitz, Sven Rady, and Piers Trepper. Experimentation in two-sided markets. *J. Eur. Econ. Ass.*, 15(1):128–172, 2017.
- [2] Paul Heidhues, Sven Rady, and Philipp Strack. Strategic experimentation with private payoffs. *J. Econom. Theory*, 159(part A):531–551, 2015.
- [3] Godfrey Keller and Sven Rady. Breakdowns. *Theor. Econ.*, 10(1):175–202, 2015.
- [4] Nicolas Klein and Sven Rady. Negatively correlated bandits. *Rev. Econ. Stud.*, 78(2):693–732, 2011.
- [5] Godfrey Keller and Sven Rady. Strategic experimentation with poisson bandits. *Theor. Econ.*, 5(2):275–311, 2010.
- [6] François Ortalo-Magné and Sven Rady. Housing market dynamics: on the contribution of income shocks and credit constraints. *Rev. Econom. Stud.*, 73(2):459–485, 2006.
- [7] Martin Cripps, Godfrey Keller, and Sven Rady. Strategic experimentation with exponential bandits. *Econometrica*, 73(1):39–68, 2005.
- [8] Godfrey Keller and Sven Rady. Price dispersion and learning in a dynamic differentiated-goods duopoly. *RAND J. Econ.*, 34(1):138–165, 2003.
- [9] Harrison Hong and Sven Rady. Strategic trading and learning about liquidity. *Journal of Financial Markets*, 5(4):419–450, 2002.
- [10] Godfrey Keller and Sven Rady. Optimal experimentation in a changing environment. *Rev. Econom. Stud.*, 66(3):475–507, 1999.