



CURRICULUM VITAE

PERSONAL

Name: Stefano Battiston

Date of Birth: July 28, 1972

Place of Birth: Venice, Italy

Citizenship: Italian



EDUCATION AND POSITIONS

- From 11/2013 **University of Zurich, Department of Banking and Finance**
SNF Professor
- 08/2005-09/2013 **ETH Zurich**
Senior Researcher (Oberassistent) and initially Post Doc, at the Chair of Systems Design of Prof. Frank Schweitzer. Responsibilities: EU projects, PhD students supervision, teaching.
- 10/2004-07/2005 **Ecole des Hautes Etudes en Sciences Sociales, Paris**
CNR Post Doc at Centre d'Analyse et Mathematique Social, director Prof. Henry Berestycki
- 01/2001-03/2004 **Eurobios and Ecole Normale Superieure, Paris**
PhD in Physics at Laboratoire de Physique Statistique, Thesis: "Dynamics and Evolution of Complex Networks in Socio-Economic Networks", supervisors Eric Bonabeau and Gerard Weisbuch.
- 04/1999-12/2000 **Brandeis University, MA, USA**
Master Degree in Neuroscience. 03/1998. Teaching assistant. Research assistant in Dynamical and Evolutionary Machine Organization, director Prof. Jordan Pollack
- 06/1997-03/1999 **SISSA, Trieste, Italy**
Research assistant in Prof. Vincent Torre's lab and then in Prof. Matthew Diamond's lab.
- 03/1998 **Padua University**
Laurea degree in Physics, 110/110. Thesis: "Neuronal Networks: Statistical Methods and Mutual Information Measure", supervisors Attilio Stella and Vincent Torre.
- 06/1992 **Liceo Classico Tito Livio, Padova, Italy**
Degree of "Licenza Classica", majors: Greek and Latin, 60/60.

RESEARCH TOPICS

- Since 2006 **Financial networks:** models of systemic risk, default cascades, distress propagation
- Since 2001 **Socio-Economic networks:** empirical analyses and models of corporate networks across countries and globally, network topology and geography
- 2007-2011 **R&D networks:** models of evolving networks under strategic interaction and game-theoretical settings, efficiency and stability of networks
- Since 2007 **On-line social networks:** empirical analysis and models of recommender systems
- 1998 – 2001 **Neuron networks:** measuring mutual information in empirical data

CONTRIBUTIONS TO FUNDED PROJECTS

- 2013-2016 **SIMPOL** (Simulation of Financial Networks for Policy Models), coordinated by Stefano Battiston.
- 2010-2013 EU FET project **FOC** (Forecasting Financial Crises), coordinated by Guido Caldarelli at IMT Lucca, is an interdisciplinary project that gathers 13 partners groups including the ECB. My role: co-founder of the project, assisting coordinator in management; in charge of WP on Systemic Risk Forecast and IT development. Link: www.focproject.net/
- 2012-2015 EU FET project **MULTIPLEX** (under negotiation), coordinated by Guido Caldarelli at IMT Lucca, is a large Integrated Project that includes all the leading scientists of the Complex Networks field, including Vespignani, Barabasi and Bollobas. My role: contribution to the proposal, in charge of WP on dissemination. Link not ready.
- 2012-2014 **INET Task Force on Systemic Risk**, directed by Joseph E. Stiglitz (Columbia Univ.)
Role: in charge of coordination of Working Group on Financial Networks.
Link: <http://ineteconomics.org> , specific link not ready.
- 2010-2013 SNF project **OTC** (OTC Derivatives and Systemic Risk in Financial Networks) granted to the Chair of Systems Design. My role: concept of the proposal and coordination of the activities.
Link:http://www.sg.ethz.ch/projects/otc_derivatives_and_systemic_risk_in_financial_networks
- 2012-2014 **INET Grant** “Long-range Correlations in Financial Networks”, coordinated by Imre Kondor at Parmenides Foundation. My role: in charge of package on multi-agent simulations of default cascades. Link: <http://ineteconomics.org> , specific link not ready.
- 2005-2008 EU project **COSTP10, Swiss Chapter**. My role: contribution to proposal; in charge of WP on default cascades in networks of firms.
- 2006-2009 EU project **MMCOMNET** (Measuring and Modelling Complex Networks across Domains), coordinated by Felix Reeds-Tsochas at Said Business School. My role: in charge (on behalf of Frank Schweitzer) of WP on supply networks.
- 2002-2005 EU FET project **COSIN**: the first EU project on Complex Networks, coordinated by Guido Caldarelli, at CNR. My role: in charge (on behalf of Gerard Weisbuch) of WP on Socio-economic networks.

REFeree AND EDITOR

- PNAS, Scientific Reports, Physics Review E, Physics Review D, European Physics Journal B, Quantitative Finance, Physica A
- J. of Economic Behaviour and Organization, J. of Economic Dynamics and Control, J. of Financial Stability,

Guest editor for EPJB, Associate editor of EPJDATA.

TEACHING

- Spring 2011, 2013 Course on Economic Networks, ETH Zurich
- Spring 2010 Course on Complex Adaptive Systems, ETH Zurich
- 2-7 July 2008 Lectures on “Financial Networks”, IX Trento Summer School, Trento, Italy.
- 10-14 July 2008 Lectures on “Social Networks”, Summer School on Complex Systems, Central European University (CEU)- Collegium Budapest (ColBud), Budapest, Hungary.

PUBLICATIONS

For citations and statistics see Stefano Battiston's profile on Google Scholar at <http://scholar.google.com/citations?hl=en&user=3wrVpcYAAAAJ>

Working Papers and Papers under Review

1. Vitali S., Battiston, S.: The community structure of the Global Corporate Network, submitted, available upon request.
2. Tasca P. and Battiston S.: Diversification and Financial Stability, ETHZ CCSS Working Paper, earlier version: SSRN, 1878596.
3. Tasca P. and Battiston S.: Market Procyclicality and Systemic Risk, current version at ETH Risk Center Working Paper Series, ETH-RC-12-012.
4. Vitali S., Battiston, S., Gallegati M.: 'Financial Distress Propagation in a Network of Regions', (2012), SSRN, 2152697.
5. Tanase D., Walter, F. E., Battiston, S.: An Anatomy of Recommender Systems, *submitted to PLoS-ONE* (2012).

All the above working papers are available upon request.

Publications in Journals

Economic Networks

6. Roukny, T., Bersini, H., Pirotte, H., Caldarelli, G. & Battiston, S. Default Cascades in Complex Networks: Topology and Systemic Risk. *Scientific Reports* **3**, (2013).
7. Kaushik, R., Battiston, S.: Credit default swaps drawup networks: too interconnected to be stable? *PloS one* **8**, e61815 (2013).
8. Battiston, S., Caldarelli, G., Georg, C.-P., May, R. & Stiglitz, J. Complex derivatives. *Nature Physics* **9**, 123–125 (2013).
9. Galbiati, M., Delpini, D. & Battiston, S. The power to control. *Nature Physics* **9**, 126–128 (2013).
10. Delpini, D., Battiston, S., Riccaboni, M., Pammolli, F., & Caldarelli, G. (2013), Network Controllability in Interbank Markets, *Scientific Reports* **3**, 1626.
11. Musmeci, N., Battiston, S., Puliga, M., & Gabrielli, A. (2012). Bootstrapping topology and systemic risk of complex network using the fitness model *J. of Statistical Physics* **151**, 3-4, 720 (2013), archive version at <http://arxiv.org/abs/1209.6459>.
12. Battiston, S., Puliga, M., Kaushik R., Tasca, P. Caldarelli, G., DebtRank: Too Central to Fail? *Scientific Reports* **2**, 541, (2012). <http://www.nature.com/srep/2012/120802/srep00541/full/srep00541.html>
13. Bordino I., Battiston S., Caldarelli G., Cristelli M., Ukkonen A., Weber I., [Web search queries can predict stock market volumes](#), *PLoS ONE* **7**(7): e40014 (2012).
14. Battiston, S., Gatti, D. D., Gallegati, M., Greenwald, B. C. N. & Stiglitz, J. E.: Default Cascades: When Does Risk Diversification Increase Stability?, *Journal of Financial Stability*, (2012), doi:10.1016/j.jfs.2012.01.002.
15. Battiston, S., Gatti, D. D., Gallegati, M., Greenwald, B. C. N. & Stiglitz, J. E.: Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk, *Journal of Economic Dynamics and Control*, **36**, 8 (2012). Earlier version: [NBER Working Papers](#).
16. König, M.D., Battiston, S., Napoletano, M., Schweitzer, F.: The Efficiency and Stability of R&D networks, *Games and Economic Behaviour*, **75**, 2, 694-713 (2012), Early version: [CER-ETH Working Papers](#).
17. Vitali S., Glattfelder, J. & Battiston, S.: The Network of Global Corporate Control, *PLoS ONE* **6**(10): e25995 (2011). doi:10.1371/journal.pone.0025995.

18. Vitali, S., Battiston, S.: Geography versus topology in the European Ownership Network, *New Journal of Physics*, vol. 13, no. 6 (2011) 063021.
19. Koenig, M. D., Battiston, S., Napoletano, M., Schweitzer, F.: Recombinant Knowledge and the Evolution of Innovation Networks, *Journal Economic Behaviour and Organization*, vol. 79, no. 3 (2011) pp. 145-164.
20. Glattfelder, J.B., Battiston, S.: Backbone of complex networks of corporations: The flow of control, *Physical Review E* 80 (2009) 036104.
21. Lorenz, J., Battiston, S., Schweitzer, F.: Systemic Risk in a Unifying Framework for Cascading Processes, *Networks European Physical Journal B*, vol. 71, no. 4 (2009) pp. 441-460.
22. Koenig, M., Battiston, S., Napoletano, M., Schweitzer F.: On Algebraic Graph Theory and the Dynamics of Innovation Networks, *Networks and Heterogeneous Media*, vol. 3, no. 2 (2008) pp. 201-219.
23. Lorenz, J., Battiston, S.: Systemic risk in a network fragility model analyzed with probability density evolution of persistent random walks, *Networks and Heterogeneous Media*, vol. 3, no. 2 (2008) pp. 185-200.
24. Weisbuch, G., Battiston, S.: Production Networks and Failure Avalanches, *Journal of Economic Behaviour and Organization* (2007).
25. Battiston, S., Delli Gatti, D., Gallegati, M., Greenwald, B., Stiglitz, J.E.: Credit chains and bankruptcy propagation in production networks, *Journal of Economic Dynamics and Control*, vol. 33, no. 6 (2007) pp. 2061-2084.
26. Battiston, S., Rodrigues J. F., Zeytinoglu, H.: The Network of Inter-Regional Direct Investment Stocks across Europe, *Advances in Complex Systems*, vol. 10, no. 1 (2007) pp. 29-51
27. Garlaschelli D., Battiston S., Castri M., Servedio V.D.P., Caldarelli G.: The scale free topology of market investments, *Physica A*, vol. 350, no. 2-4 (2005) pp. 491-499
28. Battiston S. and Catanzaro M.: Statistical properties of board and director networks, *Eur. Phys. J. B*, vol. 38, no. 2 (2004) pp. 345-352.
29. Battiston S.: Inner structure of capital control networks, *Physica A*, vol. 338, no. 1-2 (2004) pp. 107-112.
30. Battiston, S., Bonabeau, E., Weisbuch G.: Decision making dynamics in corporate boards, vol. 322, no. 1 (2003) pp. 567-582.
31. Battiston, S., Weisbuch G., Bonabeau, E.: Decision spread in the corporate board network, *Advances in Complex Systems*, vol. 6, no. 4 (2003) pp. 631-644.

On-line Social Networks

32. Yildirim, M., Walter, F.E., Battiston, S., Schweitzer, F.: Moving Recommender Systems from On-line Commerce to Retail Stores, *Information Systems and E-Business Management* (2011), doi:10.1007/s10257-011-0170-8.
33. Walter, F.E., Battiston, S., Schweitzer, F.: Personalised and Dynamic Trust in Social Networks, *Proceedings of the third ACM Conference on Recommender Systems* (2009) pp. 197-204.
34. Walter, F.E., Battiston, S., Schweitzer, F.: A Model of a Trust-Based Recommendation System on a Social Network, *Journal of Autonomous Agents and Multi-Agent Systems*, vol. 16, no. 1 (2008) pp. 57-74.

Neuronal Networks

35. Mirabella G., Battiston S., Diamond, M.E.: Processing of multiple-whisker information in rat somatosensory cortex, *Cerebral Cortex*, vol. 11, no. 2 (2001) pp. 164-170
36. Pinato G., Battiston, S., Torre, V.: Neural computation in the leech ganglion, *Biological Cybernetics*, vol. 83, no. 2 (2000) pp. 119-130
37. Rousche P. J., Petersen, R. S., Battiston, S., Giannotta, R., Diamond, M. E.: Examination of the spatial and temporal distribution of sensory cortical activity using a 100-electrode recording system, *Journal of Neuroscience Methods*, vol. 90 (1999) pp. 57-66

Publications in Books

38. Battiston, S., Glattfelder, J.B., Garlaschelli, D., Lillo, F., Caldarelli, G.: The Structure of Financial Networks in *Network Science* (2010) pp. 131—163 Springer
39. Koenig, M., Battiston, S.: From Graph Theory to Models of Economic Networks. A Tutorial. In: “Networks, Topology and Dynamics”, ed. Naimzada A.K., (2009)
40. Koenig, M. D., Battiston, S., Schweitzer F.: Modeling Evolving Innovation Networks, *Innovation Networks - New Approaches in Modeling and Analyzing* (Eds. A. Pyka, A. Scharnhorst) (2008)
41. Battiston, S., Delli Gatti, D., Gallegati, M.: Trade Credit Networks and Systemic Risk, *Managing Complexity: Insights, concepts, Applications* (Eds. Helbing, D.) (2008) pp. 219-239
42. Walter, F. E., Battiston, S., Schweitzer, F.: Coping with Information Overload through Trust-based Networks, *Managing Complexity: Insights, concepts, Applications* (Eds. Helbing, D.) (2008) pp. 273-300
43. Battiston, S., Gallegati, M., Delli Gatti, D.: Trade credit networks and systemic risk, *Managing Complexity: Insights, concepts, Applications* (Eds. Helbing, D.) (2008) pp. 273-300
44. Walter, F. E., Battiston, S., Schweitzer, F.: Emergence and Evolution of Coalitions in Buyer-Seller Networks, *Emergent Intelligence of Networked Agents, Studies in Computational Intelligence* (Eds. Namatame, A., Kurihara, S., Nakashima, H) vol. 56 (2007) pp. 245-258
45. Caldarelli, G.; Battiston, S. & Garlaschelli, D. (2006), 'The skeleton of the Shareholders Networks' *Practical Fruits of Econophysics: Proceedings of the Third Nikkei Econophysics Symposium*, Springer.
46. Caldarelli G., Battiston S., Garlaschelli D., Catanzaro M.: Emergence of Complexity in Financial Networks, *Lecture Notes in Physics* (Eli Ben-Naim, Hans Frauenfelder, Zoltan Toroczkai) vol. 650 (2004) pp. 399 – 423

Publications in Conference Proceedings

1. Frank E. Walter, Stefano Battiston, and Frank Schweitzer (2006). Emergence and Evolution of Coalitions in Buyer-Seller Networks. Workshop "Emergent Intelligence of Networked Agents" at the Fifth International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2006), Hakodate, Japan.
2. Stefano Battiston, Frank E. Walter, and Frank Schweitzer (2006). Impact of Trust on the Performance of a Recommendation System in a Social Network. Workshop "Trust in Agent Societies" at the Fifth International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2006), Hakodate, Japan.
3. Battiston, S., Caldarelli G., Garlaschelli D., The scale free nature of market investment network, WEHIA (Workshop on Economical Heterogeneous Interacting Agents) 2003, Kiel (DE)
4. Battiston, S., Bonabeau, E., Weisbuch G., Decision making dynamics in corporate boards, WEHIA 2002, Trieste (IT)

INVITED TALKS (2010-2013)

- 14 February 2013 DebtRank and Systemically Important Financial Institutions, Deutsche Bundesbank, Stability Division.
- 11 January 2013 DebtRank and Systemically Important Financial Institutions, Austrian Central Bank, Stability Division.
- 7 November 2012 DebtRank and Systemically Important Financial Institutions, Quant Invest and CTA World 2012, Paris.
- 27 September 2012 DebtRank: Too Central to Fail? Financial Networks, the FED and Systemic Risk, International Symposium “Economics in a complex world: networks, agents and people”, Foundation Ramon Areces, Madrid.
- 16 May 2012 DebtRank: Too Central to Fail? Financial Networks, the FED and Systemic Risk, Workshop on Global Systems and Networks of Networks, Florence, Italy.
- 9 February 2012 Emergence of Systemic Risk in Financial Networks, ECARES, Université Libre de Bruxelles, Belgium.
- 29 November 2011 Systemic risk in financial networks, Risk Center Seminar Series, ETH Zurich, Switzerland.
- 13-16 November 2011 Lectures on Financial Networks, FOC School, Livorno, Italy.
- 02 November 2011 Systemic risk in financial networks, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea.
- 28 April 2011 Risk diversification and default cascades in financial networks, Complex Networks Seminar, LIP6 lab Université Pierre et Marie Curie, Paris, France.
- 8 April 2011 Liaisons Dangereuses: Systemic Risk in Financial Networks, GRETHA Université Montesquieu, Bordeaux, France.
- 17 March 2011 Liaisons Dangereuses: Systemic Risk in Financial Networks, OFCE, Sophia-Antipolis, France.
- 2 September 2010 Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk, Workshop on Counterparty Risk and Systemic Risk, Institute Louis Bachelier.
- 23 - 25 September 2010 Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk, MAFIN, Reykjavik, Conference.
- 4 June 2010 Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk, 2nd Conference on Financial Stability, University of Tilburg.
- 24 - 26 February, 2010 Efficiency and Stability of R&D Networks, COST Action MP0801 Workshop on Evolution and Co-evolution, Valencia.
- 2 - 6 February, 2010 Systemic Risk in Complex Financial Networks, BIFI Conference, Zaragoza.