

# Tarik Roukny

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*Financial Intermediation, Networks, Technology,  
Systemic Risk, Regulation, Market Design*

## Academic Employment

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- 2018 - now** KU LEUVEN, BUSINESS AND ECONOMICS DEPARTMENT  
Assistant Professor of Finance
- 2017 - 2018** MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MEDIA LAB  
Postdoctoral Research Associate
- 2016 - 2017** GHENT UNIVERSITY, ECONOMICS DEPARTMENT  
Postdoctoral Research Associate

## Education

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- 2011-2016** POLYTECHNIC SCHOOL & CHAIR OF FINANCE, SOLVAY BRUSSELS SCHOOL  
Université Libre de Bruxelles (ULB)  
Ph.D. in Engineering Sciences and Technology  
Title: “*Financial Networks, Complexity and Systemic Risk*”  
Supervisors: Hugues Bersini, Hugues Pirottes  
Committee: Mathias Dewatripont, Renaud Lambiotte and Koen Schoors
- 2015** (Spring) STANFORD UNIVERSITY, DEPARTMENT OF ECONOMICS  
Visiting Scholar (Prof. Matthew O. Jackson)
- 2014** (Fall) UNIVERSITY OF CAMBRIDGE, ISAAC NEWTON INSTITUTE  
*Systemic Risk Program* (Prof. Fernando Vega-Redondo and Prof. Rama Cont)
- 2014** (Spring) UNIVERSITY OF OXFORD, SAID BUSINESS SCHOOL  
Wiener-Anspach Fellow (Dr. Felix Reed-Tsochas)
- 2009 – 2011** POLYTECHNIC SCHOOL, ULB  
M.Sc. Engineering and Information Technology  
*Summa Cum Laude* - First Class Honours
- 2010 – 2011** UNIVERSIDAD POLITÈCNICA DE MADRID  
Erasmus Exchange  
*Summa Cum Laude* - First Class Honours
- 2006 – 2009** POLYTECHNIC SCHOOL, ULB  
B.Sc. Engineering and Applied Sciences  
*Cum Laude*

## Other Employment

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- 2016** EUROPEAN SYSTEMIC RISK BOARD  
Consultant
- 2015** (Fall) EUROPEAN SYSTEMIC RISK BOARD, EUROPEAN CENTRAL BANK  
Trainee Program (Dr. Tuomas Peltonen)
- 2013 - 2015** DEUTSCHE BUNDESBANK, DEPARTMENT OF RESEARCH  
External Researcher
- 2013** (Spring) DEUTSCHE BUNDESBANK, DEPARTMENT OF RESEARCH  
Internship (Dr. Co-Pierre Georg)

## Short-term Visits

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- 2017** European Systemic Risk Board, Media Lab - Massachusetts Institute of Technology  
(Prof. Cesar Hidalgo)
- 2016** Dep. Banking and Finance - University of Zurich (Dr. Marco D’Errico), De Nederlandsche Bank (Prof. Iman van Lelyveld)
- 2015** De Nederlandsche Bank (Prof. Iman van Lelyveld), National Spanish Tax Agency  
(Dr. Ignacio Gonzales)

- 2014** Banco de Mexico (Dr. Serafin Martinez-Jaramillo), Financial Networks Analytics (FNA) (Dr. Kimmo Soramaki), Dep. Banking and Finance - University of Zurich (Prof. Stefano Battiston)
- 2013** INET - University of Oxford (Prof. Doyne J. Farmer)
- 2012** IMT Lucca (Prof. Guido Caldarelli), Chair of System Design - ETH Zurich (Prof. Stefano Battiston)

## Peer-Reviewed Publications

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- 2018** *Generalists and Specialists in the Credit Market*  
with Daniel Fricke (UCL - LSE - Deutsche Bundesbank)  
*Journal of Banking and Finance* (in press)
- 2018** *Interconnectedness as a Source of Uncertainty in Systemic Risk*  
with Stefano Battiston (UZH) and Joseph E. Stiglitz (Columbia University)  
*Journal of Financial Stability*, Volume 35, 93-106
- 2016** *The Price of Complexity in Financial Networks*  
with Stefano Battiston (UZH), Guido Caldarelli (IMT), Robert May (Oxford University) and Joseph E. Stiglitz (Columbia University)  
*Proceedings of the National Academy of Science (PNAS)*, 2016 113 (36) 10031-10036
- 2013** *Default Cascades in Complex Networks: Topology and Systemic Risk*  
with Hugues Bersini (IRIDIA-ULB), Hugues Pirotte (SBSEM-ULB), Guido Caldarelli (IMT Lucca) & Stefano Battiston (ETH Zurich)  
*Scientific Reports*, Nature Group, Volume 3: 2013

## Working/Submitted Papers

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- 2017** *Compressing Over-the-Counter Markets*  
**ESRB Ieke van den Burg Prize 2017**  
*European Systemic Risk Board WP*, 2017-44  
with Marco D'Errico (ESRB)
- 2017** *A Macroprudential View on Portfolio Compression*  
*Available upon request*  
with Marco D'Errico (ESRB) and Tuomas Peltonen (ESRB)

## Other Publications

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- 2018** *Compressing OTC Markets - Policy Brief*  
*Research Bulletin*, MIT Golub Center for Finance and Policy, 04/2018
- 2016** *Shedding lights on dark markets: first insights from the new EU-wide OTC derivative dataset*  
with Jorge Abad (CEMFI), Inaki Aldasoro (BIS), Christoph Aymanns (LSE), Marco D'Errico (UZH), Linda Fache Rousova (ECB), Peter Hoffman (ECB) and Sam Langfield (ESRB)  
*Occasional Paper No. 11/16*, European Systemic Risk Board
- 2014** *A Network Analysis of the Evolution the German Interbank Market*  
with Co-Pierre Georg (Deutsche Bundesbank) & Stefano Battiston (UZH)  
*Discussion Paper*, Deutsche Bundesbank, no 22/2014

## Work in Progress

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- Centralised and Decentralised Multilateral Netting*  
with Marco D'Errico (ESRB) and Haoxiang Zhu (MIT Sloan)
- A Market-based Approach to Central Bank Digital Currencies*  
with Christoph Aymanns (LSE)
- Contest in Networks*  
with Ugo Bolletta (GREQAM) and Igor Letina (Bern University)

## Awards and Grants

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- 2017** Young Research Initiative Fellow, United Nations Trade and Development Conference
- 2017** Winner of the ESRB Ieke van den Burg Prize 2017
- 2016** Visiting Expert Grant, European Central Bank (ECB)

<b>2015</b>	US Visiting Grant, Belgian National Science Foundation (FRS-FNRS)
<b>2014</b>	Isaac Newton Fellowship, INI Program Systemic Risk, Cambridge University
<b>2014</b>	Project Support Grant, Wiener Anspach Foundation, Oxford University
<b>2013-2015</b>	Visiting Fellowship, Deutsche Bundesbank
<b>2012-2016</b>	Belgian National Science Foundation (FRS-FNRS) Fellowship
<b>2011-2012</b>	Seed Financing Doctoral Grant, National Bank of Belgium

## Other Training

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<b>12/2016</b>	“ <i>Econometrics of Networks</i> ” CORE, Univeristé Catholique de Louvain’
<b>07/2013</b>	“ <i>Modeling and Policy Design for Financial Crises</i> ” WEHIA, University of Reykjavik
<b>07/2013</b>	“ <i>International School on Network Science</i> ” NetSci, Technical University of Denmark, Copenhagen
<b>10/2012</b>	“ <i>Complex Financial Networks</i> ” FOC - CRISIS, IMT Lucca

## Academic Activities

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<b>Teaching</b>	· Principles of Scientific Programming (Main Teacher) Cursus: Executive Master of Quantitative Finance 2014 <i>Solvay Brussels School of Economics and Management</i>
<b>Academic Supervisor</b>	· <i>Improving Financial Supervision through a User Friendly and Robust Framework</i> with Valentin Haarscher · <i>Analysing the Belgian Economic Fabric using Graph Theory</i> with Charles Hoffremon
<b>Referee</b>	· Journal of Financial Stability (Elsevier), Journal of Network Theory and Finance (Risk), Scientific Reports (Nature Group), Journal of Complex Networks (Oxford), Plos ONE (PLoS), EPJ Data Science (Springer), Physica A (Elsevier), Advances in Complex Systems
<b>Conference Organisation</b>	· GraphNet Seminars at ULB (Brussels), Deutsche Bundesbank Conference on Networks 2013 (Frankfurt), BENet 2014 (Brussels), BESC 2014 (Shanghai), BESC 2015 (Nanjing), Network Models and Stress-testing - CEMLA 2015 (Mexico), Regulatory Dataframeworks Workshop - ESRB (Frankfurt), Network Models and Stress-testing - CEMLA 2017 (Mexico), Postdoc Seminar Series at MIT Media Lab (Boston), Cryptovalley Conference (Zug), Complex Networks 2018 (Cambridge)

## Conferences

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<b>2018</b>	Belgian Finance Research Forum (Brussels), CompleNet 2018 (Boston)
<b>2017</b>	United Nations Conference on Trade and Development (Geneva), ESRB 2nd Annual Conference (Frankfurt), Workshop on Measurements and Control of Systemic Risk (Montreal), Conference on Complex Systems 2017 (Cancun), SIAM Network Workshop (Pittsburgh), International Conference on Network Science 2017 (Indianapolis), International Banking, Economics and Finance Association 2017 (San Diego), Joint Expert Group in Interconnectedness - ESRB/ECB (Frankfurt), First Conference of Financial Networks and Sustainability (Zurich), American Economic Association 2017 Annual Meeting (Chicago)
<b>2016</b>	BeNet 2016 (Louvain-La-Neuve), Systemic Risk in Derivatives Markets - Systemic Risk Center (London), IFABS 2016 (Barcelona), Joint Expert Group in Interconnectedness - ESRB/ECB (Frankfurt), Belgian Research Financial Forum (Brussels)
<b>2015</b>	Joint Expert Group in Interconnectedness - ESRB/ECB (Frankfurt), Stress Testing For Financial Stability - CEMLA/University of Zurich (Mexico), Systemic Risk Analytics - ESRB/Bank of Finland (Helsinki), Endogenous Networks and Equilibrium Dynamics - Banque de France (Paris)
<b>2014</b>	Network Analysis and Financial Stability Issues - CEMLA (Mexico), ECCS 2014 (Lucca), Global System Science Meeting (Lucca), Eco**2 Symposium - London School of Economics (LSE)

- 2013** Workshop on Financial Networks - Deutsche Bundesbank (Frankfurt), IFABS 2103 (Nottingham), WEHIA 2013 (Reykjavik), Second GSS Conference (Brussels), Networks of Networks - NetSci 2013 (Copenhagen), Network Approaches to Interbank Markets (Castellon)
- 2012** Modelling Financial Systems - Latsis Symposium (Zurich), Data-driven Modelling of Contagion Processes - ECCS 2012 (Brussels)

## Seminars

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- 2018** Finance lunch Seminar - MIT Sloan
- 2017** Finance Seminar - University of St. Gallen, LIDS Seminar - MIT, Financial Mathematics Seminar - Worcester Polytechnic School, Institute for Data, Systems and Society (IDSS) - MIT, Chair of Mathematical Finance - Imperial College London, NaXys Seminar - University of Namur, Media Lab - MIT
- 2016** Interaction Seminar - GREQAM Université of Aix-Marseille, ESRB Seminar - European Central Bank, Research Seminar - The Nederlandsche Bank, CeNDEF- University of Amsterdam, CORE - Université Catholique de Louvain, Department of Economics - University of Ghent, CeReFIM - University of Namur, Departement of Banking and Finance - University of Zurich
- 2015** Media Lab - Massachusetts Institute of Technology (MIT), Department of Economics - Ghent University, Emile Bernheim Centre - Université Libre de Bruxelles, Department of Economics - Stanford University
- 2014** Isaac Newton Institute - University of Cambridge, NaXys - Université de Namur, Financial Complex Systems (FiXS) - Université Catholique de Louvain, INET - Oxford University, Paris School of Economics (PSE) - Université Paris Sorbonne-Panthéon
- 2013** DG-Market - European Commission, INET - Oxford University, IB2 - ULB and VUB (Brussels), ECARES - Solvay Brussels School of Economics and Management

## Conference Discussions

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- 06/2017** *CDS market structure and systemic risk* (Iman van Lelyveld)  
Session on Understanding Derivative Markets Using Trade Repository Data  
International Banking, Economics and Finance Association (IBEFA), San Diego
- 05/2014** *Mandatory Disclosure and Financial Contagion* (Gadi Barlevy)  
Interconnectedness: Building Bridges between Policy and Research  
International Monetary Fund (IMF) Conference, Washington DC
- 10/2013** *Taking Uncertainty Seriously: Simplicity versus Complexity in Financial Regulation* (Sujit Kapadia)  
Banking Regulation in Complex Financial Systems  
Deutsche Bundesbank Conference, Frankfurt

## Computer Skills

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C, C++, JAVA, HTML, CSS, PHP, SQL, MATLAB, R, Python, STATA, Qt, OpenGL, LISP, Perl, Bash, MS Office, Latex, Django, Git, Bootstrap

## Software Development

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*NetGen* (<http://www.netgen-toolbox.net>)  
Open source software that cleans and analyzes raw data on financial networks. Aimed at helping policy makers and academics in analysing markets through the lens of data mining and network theory

## Languages

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French (native), English (fluent), Spanish (fluent), Dutch (basic), Arabic (basic)