

Tarik Roukny

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Date of birth: 30/08/1988

Finance, Technology, Policy

Academic Employment

- 2018 - now** [KU LEUVEN, FACULTY OF ECONOMICS AND BUSINESS](#)
Assistant Professor of Finance and Technology (tenure-track)
- 2016 - 2018** [MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MEDIA LAB](#)
Postdoctoral Research Associate

Other Appointments

- 2021 - now** [WORKING GROUP ON CENTRAL BANK DIGITAL CURRENCY](#)
Member of expert group chaired by the National Retail Payments Committee of Belgium
- 2019 - 2022** [FUND FOR FINANCIAL LITERACY - KING BAUDOIN FOUNDATION](#)
President of the expert committee and jury

Education

- 2016** [UNIVERSITÉ LIBRE DE BRUXELLES, ÉCOLE POLYTECHNIQUE](#)
Ph.D. in Engineering and Technology Sciences (2016)
M.Sc. in Computer Science Engineering (2011)
B.Sc. in Engineering and Applied Sciences (2009)
- 2015** [STANFORD UNIVERSITY, DEPARTMENT OF ECONOMICS](#)
(Spring) Visiting Scholar (Prof. Matthew O. Jackson)
- 2014** [UNIVERSITY OF CAMBRIDGE, ISAAC NEWTON INSTITUTE](#)
(Fall) *Systemic Risk Program* (Prof. Fernando Vega-Redondo and Prof. Rama Cont)
- 2014** [UNIVERSITY OF OXFORD, SAID BUSINESS SCHOOL](#)
(Spring) Wiener-Anspach Fellow (Dr. Felix Reed-Tsochas)
- 2010** [UNIVERSIDAD POLITÉCNICA MADRID, DEPARTMENT OF ARTIFICIAL INTELLIGENCE](#)
Erasmus Exchange

Professional Experience

- 2021 - now** [EUROPEAN COMMISSION, DIGITAL FINANCE UNIT](#)
Consultant
- 2019 - 2021** [NATIONAL BANK OF BELGIUM](#)
External Researcher
- 2018** [EUROPEAN SYSTEMIC RISK BOARD](#)
Financial Stability Expert
- 2016** [EUROPEAN SYSTEMIC RISK BOARD](#)
Consultant
- 2015** [EUROPEAN CENTRAL BANK](#)
Trainee Program (Dr. Tuomas Peltonen)
- 2013 - 2015** [DEUTSCHE BUNDESBANK, DEPARTMENT OF RESEARCH](#)
External Researcher
- 2013** [DEUTSCHE BUNDESBANK, DEPARTMENT OF RESEARCH](#)
Internship (Dr. Co-Pierre Georg)

Short-term Visits

- 2017** European Systemic Risk Board
- 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

- 2021 *Compressing Over-the-Counter Markets*
with Marco D'Errico (ESRB)
Operations Research Volume 69, No 6.
- **ESRB Ieke van den Burg Prize 2017**
- **ECMI Best Paper 2020**
Coverage: M. Draghi (ECB President): Welcome remarks at the third annual conference of the ESRB; International Financing Review (Thomson Reuters); Revision of the European Market Infrastructure Regulation (European Systemic Risk Board)
- 2020 *Generalists and Specialists in the Credit Market*
with Daniel Fricke (UCL - LSE - Deutsche Bundesbank)
Journal of Banking and Finance, Volume 112, 105335
- 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
Coverage: Bloomberg Businessweek, El Financiero, FNRS Magasine
- 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
Coverage: Bloomberg, Business World, Trends, L'Avenir

Working/Submitted Papers

- 2021 *Asset Overhang and Technological Change*
with Hans Degryse (KUL) and Joris Tielens (NBB)
a previous version circulated as "Banking Barriers to the green economy"
Coverage: ECB Strategy Review
- 2020 *Vertically Disintegrated Platforms*
with Christoph Aymanns (QuantCo) and Mathias Dewatripont (ULB)
Available at SSRN 3507355

Work in Progress

Regulatory approaches to Decentralized Finance (DeFi)
report prepared for the European Commission
Smart contracts and the rise of oracles
with Kartik Anand (Deutsche Bundesbank)
Cyclical matching in financial networks
with Ugo Bolletta (Paris-Saclay) and Yanis El Omari (ESMA)

Other Publications (policy, short papers, etc.)

- 2022 *Financial wealth and early income mobility*
with Milan van den Heuvel (UGhent), Koen Schoors (UGhent), and Jan Ryckebusch (UGhent)
Humanities & Social Sciences Communications, Nature Group, *forthcoming*
- 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
Coverage: M. Draghi (ECB President): Welcome remarks at the third annual conference of the ESRB; V. Constâncio (ECB Vice-President): "Macroprudential stress-tests and tools for the non-bank sector"; V. Constâncio (ECB Vice-President): "Macroprudential policy in a changing financial system"; M. Draghi (ECB President): ESRB annual conference welcome address; CentralBanking.com: "ESRB publishes guide to OTC derivatives database"; Philip Lane (Central Bank of Ireland Governor): "The Management of Systemic Risks: Current Priorities"; Andy Haldane (Bank of England Chief Economist) : "Will Big Data Keep Its Promise?"
- 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
- 2013** *Default Cascades in Complex Networks: Topology and Systemic Risk*
with Hugues Bersini (ULB), Hugues Pirotte (ULB), Guido Caldarelli (IMT Lucca) & Stefano Battiston (ETH Zurich)
Scientific Reports, Nature Group, Volume 3: 2013
Coverage: IMF Research Bulletin, La Libre, Knack

Awards and Grants

- 2021** Best Teaching Award - Faculty of Economics and Business, KU Leuven
- 2021-2025** BOF grant - single promotor (200k EUR)
- 2020** Best Paper Award - European Capital Markets Institute (ECMI)
- 2019** Best Teaching Award - Faculty of Economics and Business, KU Leuven
- 2019** National Bank of Belgium initiative on Climate Change (30k EUR)
- 2018** Seed Research Grant, KU Leuven (100k EUR)
- 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)
- 2015** US Visiting Grant, Belgian National Science Foundation (FRS-FNRS)
- 2014** Isaac Newton Fellowship, INI Program Systemic Risk, Cambridge University
- 2014** Project Support Grant, Wiener Anspach Foundation, Oxford University
- 2013-2015** Visiting Fellowship, Deutsche Bundesbank
- 2012-2016** Belgian National Science Foundation (FRS-FNRS) Fellowship
- 2011-2012** Seed Financing Doctoral Grant, National Bank of Belgium

Other Training

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

Academic Activities

Teaching	<p><i>Modern Banking and Financial Technology</i> Master of Business Administration - Spring 2020 - now <i>KU Leuven, Faculty of Economics and Business</i> <i>Banking</i></p> <p>Master of Business Administration - Spring 2019 <i>KU Leuven, Faculty of Economics and Business</i> <i>Principles of Scientific Programming</i></p> <p>Master of Quantitative Finance - Fall 2014 <i>Solvay Brussels School of Economics and Management</i></p>
Referee	<p>Management Science (Informs), Operations Research (Informs), Journal of Banking and Finance (Elsevier), Journal of Financial Stability (Elsevier), European Central Bank Working Paper Series, Journal of Financial Services Research (Springer), European Journal of Operational Research (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</p>
Conference Organisation	<p>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), 4th Benelux Banking Research Day (Brussels)</p>
Seminars	<p>KUL Finance Seminar Fall 2019, Spring 2020 (Leuven), Belgium Finance Research Seminar (in collaboration with National Bank of Belgium) (Brussels)</p>

Conferences and Seminars

2022	<p>*Economics Seminar at Université Paris-Saclay (Paris), *3rd Biennial Bank of Italy and Bocconi University conference on Financial stability and Regulation (Milan - online), *Economics of Financial Technology Conference (Edinburgh), *OCC Symposium on Climate Risk in Banking and Finance (Washington), *13th Toulouse Conference on The Economics of Energy and Climate (Toulouse), *BSE Summer Forum Workshop on Financial Intermediation and Risk (Barcelona), *IMF-BAM-IMFER Conference on Transformational Recovery: Seizing Opportunities from the Crisis (Rabat), *Qatar Centre for Global Banking and Finance annual conference (Qatar), *Department of Finance-SFiC Workshop on Green Finance (Birmingham), *7th Annual Conference on Alternative Finance (Cambridge)</p>
2021	<p>Belgian Environmental Economics Day 2021 (online), 1st Workshop on Decentralized Finance (online), 2021 Swiss Winter Conference on Financial Intermediation (Lenzerheide - online), SIAM Financial Mathematics Conference (online), Financial Networks Analytics (FNA) Seminar series (online), Global Research Alliance for Sustainable Finance conference (Beijing - online), the Zurich workshop on Sustainable Finance (Zurich)</p>
2020	<p>American Economic Association Annual Meeting (San Diego), 13th Digital Economics Conference (Toulouse), Regulation Finance Conference - The Impact of Post-Crisis Regulation on Financial Markets (Philadelphia), KU Leuven - Brownbag Seminar (Leuven), the Twenty-First ACM Conference on Economics and Computation EC'2020 (Budapest), Central Bank Research Association Annual Meeting (London), The Second New York Fed Research Conference on FinTech (New York City), 11th Biennial Conference of the National Bank of Belgium (Brussels), MIT Digital Currency Initiative Seminar (Boston), 3rd Toronto FinTech Conference (Toronto), ECMI Annual Conference, INFORMS Annual Conference (Maryland), European Banking Authority Policy Research Workshop - New technologies in the banking sector: impacts, risks and opportunities (Paris), Louvain Economics of Digitization Seminar (Louvain-la-Neuve), The Nederlandsche Bank (Amsterdam), 13th Financial Risks International Forum (Paris), First Edinburgh Conference on the Economics of Financial Technology (Edinburg), 10th International Conference of the Financial Engineering and Banking Society (Chania)</p>

- 2019** Consob-Bocconi Baffi-Carefin meeting (Milan), Swiss Society for FinancialMarket Research (Zurich), Spring Meeting of Young Economists (Brussels), International Banking, Economics and Finance Association (San Francisco), 5th International Conference on Computational Social Science (Amsterdam), Peer-to-Peer Financial System Workshop - European Central Bank (Frankfurt), The International Sociological Association Research Committee 28 Summer Meeting (Princeton), The Royal Academy of Science (Brussels), University of Antwerp, Digital currencies, central banks and the blockchain: policy implications - BIS, CEBRA and ONB (Vienna), Social Mobility joint conference AMSE - Banque de France - CEPR (Paris), AI Belgium PhD School Seminar (Brussels), 6th Annual Payments Canada and Bank of Canada Joint Payments Research Symposium (Ottawa), Finance seminar - Vrije Universteit Amsterdam (Amsterdam)
- 2018** Joint Expert Group in Interconnectedness - ESRB/ECB (Frankfurt), Belgian Finance Research Forum (Brussels), CompleNet 2018 (Boston), Finance lunch Seminar - MIT Sloan, Solvay Brussels School of Economics and Management (Brussels)
- 2017** 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), Finance Seminar - University of St. Gallen, LIDS Seminar - MIT, Financial Mathematics Seminar - Worcester Polytecnic School, Institute for Data, Systems and Society (IDSS) - MIT, Chair of Mathematical Finance - Imperial Colledge London, NaXys Seminar - University of Namur, Media Lab - MIT, Faculty of Business and Economics - KU Leuven
- 2016** 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), Interaction Seminar - GREQAM Université of Aix-Marseille (Marseille), ESRB Seminar - European Central Bank (Frankfurt), Research Seminar - The Nederlandsche Bank (Amsterdam), CeNDEF- University of Amsterdam (Amsterdam), CORE - Université Catholique de Louvain (Louvain-la-Neuve), Department of Economics - University of Ghent (Ghent), CeReFIM - University of Namur (Namur), Departement of Banking and Finance - University of Zurich (Zurich)
- 2015** 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), Media Lab - Massachusetts Institute of Technology (Boston), Department of Economics - Ghent University (Ghent), Emile Bernheim Centre - Université Libre de Bruxelles (Brussels), Department of Economics - Stanford University (Stanford)
- 2014** Network Analysis and Financial Stability Issues - CEMLA (Mexico), ECCS 2014 (Lucca), Global System Science Meeting (Lucca), Eco**2 Symposium - London School of Economics (London), Isaac Newton Institute - University of Cambridge (Cambridge), NaXys - Université de Namur (Namur), Financial Complex Systems (FiXS) - Université Catholique de Louvain (Louvain-la-Neuve), INET - Oxford University (Oxford), Paris School of Economics (PSE) - Unversité Paris Sorbonne-Panthéon (Paris)
- 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), DG-Market - European Commission (Brussels), INET - Oxford University (Oxford), IB2 - ULB and VUB (Brussels), ECARES - Solvay Brussels School of Economics and Management (Brussels)
- 2012** Modelling Financial Systems - Latsis Symposium (Zurich), Data-driven Modelling of Contagion Processes - ECCS 2012 (Brussels)

Conference Discussions

- 2022** *Climate Change-Related Regulatory Risks and Bank Lending* (Isabella Mueller - Halle Institute for Economic Research)
2022 Swiss Winter Conference on Financial Intermediation (Lenzerheide)

- 2021** *Credit Freezes, Equilibrium Multiplicity, and Optimal Bailouts in Financial Networks* (Matthew Jackson - Stanford University)
Congress of the Scottish Economic Society (online)
- 2019** *Regulation automata: using the blockchain to efficiently supervise financial markets* (Raphael Auer - BIS)
Peer-to-Peer Financial System Workshop - European Central Bank, Frankfurt
Lighting up the Dark: Liquidity in the German Corporate Bond Market (Yalin Gunduz - Deutsche Bundesbank)
International Banking, Economics and Finance Association (IBEFA), San Francisco
Information Sharing and Bank Risk-Taking Behavior (Beni Kouevi-Gath - ECARES, ULB)
Spring Meeting of Young Economists, Brussels
- 2017** *CDS market structure and systemic risk* (Iman van Lelyveld - De Nederlandsche Bank)
Session on Understanding Derivative Markets Using Trade Repository Data
International Banking, Economics and Finance Association (IBEFA), San Diego
- 2014** *Mandatory Disclosure and Financial Contagion* (Gadi Barlevy - Chicago Fed)
Interconnectedness: Building Bridges between Policy and Research
International Monetary Fund (IMF) Conference, Washington DC
- 2013** *Taking Uncertainty Seriously: Simplicity versus Complexity in Financial Regulation* (Sujit Kapadia - Bank of England)
Banking Regulation in Complex Financial Systems
Deutsche Bundesbank Conference, Frankfurt

Computer Skills

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

Software Development

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

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

References

Prof. Mathias Dewatripont
Solvay Brussels School of Economics and Management
mdewat@ulb.ac.be

Prof. Joseph E. Stiglitz
Columbia University
jes322@columbia.edu

Prof. Hans Degryse
KU Leuven
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Dr. Tuomas Peltonen
European Systemic Risk Board
tuomas.peltonen@ecb.int

Prof. Stefano Battiston
University of Zurich
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Prof. Hugues Bersini
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Prof. Renaud Lambiotte
University of Oxford
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