

CO-PIERRE GEORG

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EMPLOYMENT

EDHEC Business School

Associate Professor

10-2022 – today

University of Cape Town

South African Reserve Bank Research Chair

01/2019 – 09/2022

Associate Professor (with tenure), School of Economics

01/2018–09/2022

Senior Lecturer, School of Economics & AIFMRM

11/2014 – 12/2017

Old Mutual Emerging Markets Lecturer, UCT Graduate School of Business

06/2013 – 10/2014

Deutsche Bundesbank

Research Economist (Part-time since 06/2013)

06/2012–06/2021

AFFILIATIONS

Imperial College Business School

Since 12/2018

Affiliate, Centre for Financial Technology

Columbia University

Since 01/2017

Affiliate, Center for Global Legal Transformation

Oxford University

Since 12/2016

Research Associate, Oxford Martin School for the 21st Century (INET)

EDUCATION

Universidad Carlos III de Madrid

10/2011 – 06/2012

Postdoctoral Researcher, Department of Mathematics

Friedrich-Schiller-University Jena

05/2008 - 09/2011

PhD in Economics (summa cum laude)

Dissertation title: *"Systemic Risk in Interbank Markets"* Advisor: Dr. Markus Pasche, Prof Andreas Freytag

NYU Stern School of Business

02/2011 - 04/2011

Visiting PhD Student (Prof Viral V. Acharya)

Karlsruhe Institute of Technology

10/2000 - 12/2005

MSc in Physics

Dissertation title: *"Interference Effects in Vector-Boson Fusion"* Advisor: Prof Dieter Zeppenfeld

VISITING POSITIONS

EPFL (Finance)

04/2022 – 05/2022

HEC Paris (Finance)

2018 – 2022

MIT Sloan School of Business (Finance)

09/2018 – 06/2019

Columbia Business School (Decision Risk and Operations)

01/2016 – 02/2016

Princeton University (Bendheim Center for Finance)	04/2014 – 05/2014
Federal Reserve Bank of New York (Financial Institutions Function)	1/2014
Xiamen University (Wang Yanan Insitute)	12/2012 – 01/2013
Oxford University (Saïd Business School)	2012, 2013

PUBLICATIONS

Publications in Economics and Finance

1. “*Social Learning in a Network Model of Covid-19*” (with Allan Davids, UCT; Gideon du Rand, Stellenbosch; Tina Koziol, UCT; and Joeri Schasfoort, UCT), **Journal of Economic Behaviour and Organization** (forthcoming);
2. “*Exit Spirals in Coupled Networked Markets* (with Christoph Aymanns, QuantCo; and Ben Golub, Northwestern University), **Operations Research** (forthcoming);
3. “*Discussants*” (with Daniel Opolot, University of Cape Town, and Michael E. Rose, MPI for Innovation and Competition), **Research Policy** 50(1) (2022);
4. “*Systemic Risk-Shifting in Financial Networks*” (with Matthew Elliott, Cambridge; and Joe Hazell, LSE), **Journal of Economic Theory** 191, (2021)
5. “*What 5,000 Acknowledgements Tell Us About Informal Collaboration in Financial Economics*” (with Michael Rose, MPI for Innovation and Competition), **Research Policy** 50(6), (2021)
6. “*Information Contagion and Systemic Risk*” (with Toni Ahnert, Bank of Canada), **Journal of Financial Stability**, 35(5), (2018)
7. “*Contagious Herding and Endogenous Network Formation in Financial Networks*” (with Christoph Aymanns, Oxford), **Journal of Banking and Finance** 50(1), (2015)
8. “*The Effect of the Interbank Network Structure on Contagion and Common Shocks*”, **Journal of Banking and Finance** 37(7), (2013)

Policy-, Interdisciplinary-, and Other Publications

1. “*Tax Complexity and Transfer Pricing Blueprints, Guidelines, and Manuals*” (with Jean-Edouard Colliard, HEC Paris, and Lorraine Eden, Texas A&M University); **Tax Management International Journal**, 5 Feb (2021)
2. “*Fake News in Social Networks*” (with Christoph Aymanns, St Gallen; and Jakob Foerster, Facebook) – Available on [SSRN](#);
3. “*Revealing Patterns of Local Species Richness Along Environmental Gradients with a Novel Network Tool*” (with Mara Baudena, Utrecht; Angel Sanchez, UC3M; Paloma Ruiz-Benito, Stirling; Miguel A. Rodriguez Alcala, Miguel A. Zavala, Alcala; and Max Rietkerk, Utrecht); **Nature Scientific Reports** 5, 11561, (2015)
4. “*Complex Derivatives*” (with Stefano Battiston, Zurich; Guido Caldarelli, IMT Lucca; Robert M. May, Oxford University; and Joseph E. Stiglitz, Columbia University); **Nature Physics** Vol. 9, No. 3, (2013)

5. “*Systemic Risk in the Financial Sector*”, with Ian Goldin, Oxford University, Mike Mariathasan, KU Leuven, and Tiffany Vogel, University of Oxford. In: “*The Butterfly Defect – Globalization and Systemic Risk*”, Ian Goldin and Mike Mariathasan, Princeton University Press (2013)
6. “*Note on Systemic Risk in the South African Interbank Market*” (with Nicola Brink, SARB), Special Note in the Financial Stability Review, South African Reserve Bank March 2011, (2011).

Papers Under Revision

1. “*Contagious Zombies*” (with Christian Bittner, Deutsche Bundesbank; and Falko Fecht, Frankfurt School of Finance and Management) – Resubmitted, **Management Science**; Available [online](#);
2. “*A Network View on Interbank Liquidity*” (with Silvia Gabrieli, Banque de France), Banque de France Working Paper 531 / Deutsche Bundesbank Discussion Paper 44 (2014) – Revision requested, **Journal of Banking and Finance**; Available on [SSRN](#);

Working Papers

1. “*A Strategic Model of Software Dependency Networks*” (with Angelo Mele, JHU Carey) – Available on [SSRN](#);

Abstract: Modern software development involves collaborative efforts and re-use of existing software packages and libraries, to reduce the cost of developing new software. However, package dependencies expose developers to the risk of contagion from bugs or other vulnerabilities. We study the formation of dependency networks among software packages and libraries, guided by a structural model of network formation with observable and unobservable heterogeneity. We estimate costs, benefits and link externalities of a package maintainer, using a scalable algorithm and data from 1,131,342 dependencies of 17,081 packages of the Rust programming language. We find evidence of a positive externality created by coders on other coders through the creation of dependencies. We also find that homophily and competition motives coexist in the creation of the network.

2. “*Measuring Regulatory Complexity*” (with Jean-Edouard Colliard, HEC Paris) – Available on [SSRN](#);

Abstract:

Despite a heated debate on the complexity of financial regulation, a comprehensive framework to study regulatory complexity is lacking. We propose one inspired by the analysis of algorithmic complexity in computer science. We use this framework to distinguish different dimensions of complexity, classify existing measures, develop new ones, compute them on two examples - Basel I and the Dodd-Frank Act - and validate them using novel experiments. Our framework offers a quantitative approach to the policy trade-off between regulatory complexity and precision. Our toolkit is freely available and allows researchers to measure the complexity of any normative text and test alternative measures.

3. “*Anticipated Financial Contagion*” (with Toni Ahnert, ECB, and Gideon du Rand, Stellenbosch) – Available on [SSRN](#);

Abstract: How likely is financial contagion when banks anticipate an aggregate liquidity shock and what are the consequences for bank choices, welfare, and regulation? We study an economy with two regional banks that insure risk-averse consumers against their idiosyncratic liquidity

shocks and hold interbank deposits to co-insure against regional liquidity shocks. An aggregate liquidity shock hits one of the banks with positive probability and can lead to contagion—the mutual default of banks. We numerically characterize the equilibrium and show that contagion is rare: it occurs in approximately 5% of the parameter space and its ex-ante probability is below 1%. For likely aggregate liquidity shocks, the decentralized economy achieves the same expected utility as a global bank benchmark, which we fully characterize analytically. For less likely liquidity shocks, the economy is constrained inefficient. To shield themselves from contagion, banks hold inefficiently low interbank positions (co-insurance) and excessive liquidity (self-insurance). Efficiency is restored via an alternative bank resolution scheme.

4. “*Similar Investors*” (with Diane Pierret, University of Luxembourg; and Sascha Steffen, Frankfurt School of Finance and Management) – Available on [SSRN](#);

Abstract:

With the failure of Silicon Valley Bank in March 2023, the concentration risk in bank liabilities has come under scrutiny. We use detailed security-level holdings of U.S. Money Market Mutual Funds (MMFs) that fund banks to introduce a novel measure of portfolio similarity among investors. Our findings suggest that MMFs actively manage their asset holdings based on the similarity of their portfolios with those of other investors. Specifically, when portfolios are more similar, investors are less likely to roll over investments, anticipating higher expected joint liquidation costs when portfolios are more similar. At the issuer bank level, the average similarity of its investors’ portfolios is a reliable predictor of the bank’s total funding in the following period. Importantly, banks are unable to fully compensate for the loss of funding when similar investors withdraw.

White papers

1. “*Issuing Central Bank Digital Currency Using Algorand*” (with Andrea Civelli, Pietro Grassano, and Naveed Ihsanullah, Algorand Inc) – Available on the Algorand [website](#) (2021).
2. “*A Trustless System for Data Ownership*” (with Sabine Bertram, UCT) – Available [online](#) (2020). This white paper is the foundation for our pending patent “*System and Associated Method for Ensuring Data Privacy*” (US 16/811,653; PCT/IB2020/051959).
3. A privacy-preserving system for data ownership using blockchain and distributed databases (with Sabine Bertram, UCT) – Available on [arxiv.org](#) (2018). This white paper is the foundation of our startup [registree.io](#).

Work in Progress

1. “*Bugs! Contagion in Software Dependency Networks*”
2. “*The complexity of cybersecurity regulation in Europe*” (with Alberto Partida, ECB)

AWARDS AND GRANTS

Algorand Foundation

2021 – 2026

Algorand-UCT Innovation Hub (USD 2,650,000)

I am the Director of the Algorand-UCT Financial Innovation Hub that will accelerate the university’s research on blockchain and financial technology and support students starting their own companies.

We focus on five related research themes on blockchain applications, privacy, cyber security, central bank digital currencies, and financial inclusion.

Ripple 2021 – 2026

University Blockchain Research Initiative (USD 100,000)

This grant supports our ongoing work on blockchain with a focus on the interoperability of central bank digital currencies.

South African Reserve Bank 2018 – 2023

Research Chair in Financial Stability Studies (ZAR 14,800,000 (~ USD 1,000,000))

I hold the SARB Research Chair in Financial Stability Studies. The Chair focuses in particular on financial interconnectedness and the intersection of financial stability and financial innovation.

Volkswagen Foundation 2015 – 2018

“Quantitative Easing and Financial (In-)Stability” (EUR 138,000 of total EUR 770,000; with Loriana Pelizzon, Goethe University)

As part of a larger research collaboration with NYU, Goethe University Frankfurt, and the University of Tokyo, our group has developed several models of financial interconnectedness.

Institut Louis Bachelier 2015

“Measuring Regulatory Complexity” (EUR 10,000; with Jean-Edouard Colliard, HEC Paris)

European Central Bank 2011

(EUR 10,000; Lamfalussy Fellowship)

7th International Conference on Computing in Economics (CEF2011) 2011

Best Student Paper Prize, finalist

FSU Jena, Graduate School “Global Financial Markets” 2009 – 2011

(ca. EUR 40,000; PhD fellowship)

CONFERENCE AND SEMINAR PRESENTATIONS

Conference Presentations (Past five years; *=scheduled)

- 2022 SFS Cavalcade, UNC Chapel-Hill;
- 2020 Crypto Economic Security Conference (CESC);
- 2019 FRB Financial Interconnectedness Conference, Washington, D.C.; UMD Short-Term Funding Conference, Bethesda, MD; NY Fed Fintech Conference, New York, NY; SFS Cavalcade, Pittsburgh, PA; EFA 2019, Lisbon
- 2018 FIRS 2018, Barcelona; IWH-FIN-FIRE 2018, Halle a.d. Saale; EFA 2018, Warsaw
- 2017 German Economists Abroad, Frankfurt; Bundesbank Big Data Conference, Frankfurt; Society for Economic Measurement conference 2017, Cambridge, MA; Central Bank Research Association Boston Policy Workshop, Boston, MA; CEPR Spring Symposium in Financial Economics, Imperial College, London
- 2016 Bank of England CCBS Workshop, London, MIT Center for Finance and Policy 3rd Annual Conference: “Causes of and Policy Responses to the U.S. Financial Crisis: What Do We Know Now that the Dust Has Settled?”, Boston, MA, Riksbank conference on “Challenges in Inter-connected Financial Systems”, Stockholm, European Economic Association Meetings, Geneva, GRI Fields Conference “The Stability of Financial Systems”, Toronto, Federal Reserve “Day Ahead Conference”, San Francisco

2015 Society for the Advancement of Economic Theory 2015, Cambridge, 2nd Annual Society for Economic Measurement Annual Conference, Paris, 24th UMichigan Mitsui Finance/RFS Symposium, Traverse City, FIRS 2015, Reykjavik, 10th Tinbergen Institute Conference, Amsterdam, INET Annual Conference 2015, Paris

Discussions (Past five years; *=scheduled)

2020 AFA 2020, Matthew O. Jackson and Agathe Pernoud “*What Makes Financial Networks Special? Distorted Investment Incentives, Regulation, and Systemic Risk Measurement*”

2019 EFA 2019, Bruno Biais, Christophe Bisière, Matthieu Bouvard, Catherine Casamatta, Albert Menkveld, “*Equilibrium Bitcoin Pricing*”;
CFIC 2019, Das, Mitchener, and Vossmeier, “*Systemic Risk and the Great Depression*”

2018 EuroFIT 2018, Fahad Saleh, “*Volatility and Welfare in a Crypto Economy*”
EFA 2018, Christoph Frei and Agostino Capponi, “*Counterparty Risk and Network Formation in Over-the-Counter Markets*”
FIRS 2018, Elena Carletti, Filippo De Marco, Vasso Ioannidou, and Enrico Sette “*Banks as Patient Lenders: Evidence from a Tax Reform*”

2017 FIRS, Jessie Wang, Mark Paddrik, and Haelim Park, “*Bank Networks and Systemic Risk: Evidence from the National Banking Acts*”

2015 EBC-DNB Conference, Amsterdam, Sujit Kapadia et al., “*Taking uncertainty seriously: Simplicity versus complexity in financial regulation*”

Seminars (Past five years; *=scheduled)

2022 Fed Board*; Bocconi University*; Uni Zurich*; EDHEC; Uni Luxembourg;
University of Pretoria;

2020 BU Questrom;

2019 MIT Sloan School of Management; Duke Fuqua Business School

2018 HEC Lausanne, Frankfurt School of Finance and Management, University of St Gallen, European Bank for Reconstruction and Development

2017 Goethe University Frankfurt, Banque de France, Columbia University (Law), UC3M, Copenhagen Business School, University of Zurich, Imperial College Business School

2016 London School of Economics (SRC), HEC Paris, Columbia Business School, University of Wisconsin Business School, Georgia Institute of Technology Scheller College of Business, IMF, GMU, Bank of Canada

ACTIVITIES AND MEMBERSHIP

Since 01/2020	Advisor for CBDC Projects, Algorand Inc
Since 07/2019	Economic Advisory Committee, Algorand Foundation
Since 08/2018	Member of the Intergovernmental Fintech Working Group, South Africa
06/2013-06/2017	Member of the euro area expert group on payment systems (TARGET2)
Since 01/2022	Associate Editor, Journal of Economic Dynamics and Control
Since 01/2019	Associate Editor, Journal of Financial Stability
Since 01/2017	Associate Editor, Journal of Network Theory in Finance
01/2018 – 06/2019	Managing Editor, ERSA Working Paper Series

Referee for: Journal of Finance, Review of Finance, Management Science, Operations Research, Journal of Economic Literature, Journal of Financial Intermediation, Journal of Economic Dynamics and

Control, Journal of the European Economic Association, Journal of Economic Behavior and Organization, Journal of Financial Stability, Journal of Banking and Finance, International Journal of Central Banking, Journal of Financial Regulation, BE Journal of Macroeconomics, Journal of Economic Interaction and Control, Review of Development Finance, African Finance Journal, South African Journal of Economics, Computational Economics, Economics in Transition, Emerging Markets Review, Journal of Statistical Mechanics, IEEE Transactions on Knowledge and Data Engineering

Also referee for: National Research Foundation (SA), Swiss National Fund, ECB Working Paper Series, Bank of England Working Paper Series, ERSA Working Paper Series; Denmark's Fund

Academic committee: FIRS 2018-2022;

Conference and Workshop Organization:

1. UCT/ERSA/Imperial/RoF Conference on “*Banking in Emerging Markets*” (Cape Town, **2016**; Mumbai, **2019**)
2. BIS/DNB/Bundesbank/RoF Conference on “*Global Financial Interconnectedness*” (Basle, **2015**)
3. Bundesbank/IMF/INET Workshop “*Interconnectedness: Building Research Into the Policy Agenda*” (Washington, D.C., **2014**)
4. ERSA Financial Economics Workshop (Cape Town, **2013**, Pretoria, **2014**, Pretoria, **2015**)
5. Bundesbank autumn conference “*Supervising Banks in a Complex Financial System*” (Frankfurt, **2013**)
6. Bundesbank/BCBS Workshop “*Supervising Financial Networks*” (Frankfurt, **2013**)

TEACHING

Postdoctoral Students (#: First placement):

1. Joeri Schasfoort (PhD Groningen, 10/2019-10/2021; #: Lecturer, University of Groningen)
2. Suraj Shekhar (PhD Penn State, 08/2016-06/2019; #: Assistant Professor, Ashoka University, New Delhi)
3. Christine Makanza (PhD UCT, 06/2016 – 06/2017; #: Senior Lecturer, University of Cape Town)
4. Pawel Fiedor (PhD Krakow, 06/2015 – 06/2016; #: Research Economist, Bank of Ireland)
5. Hylton Hollander (PhD Stellenbosch, 06/2015 – 01/2016; #: Lecturer at Stellenbosch University)

PhD Students (#: First placement):

1. Julian Kanjere (MPhil UCT, main advisor, since 04/2021)
2. Tina Koziol (MBusSc Jena, main advisor, since 04/2016-04/2020; Postdoc, University of Minnesota)
3. Esti Kemp (MPhil Pretoria, main advisor, since 04/2016, part-time; SARB Financial Stability Department; #: Bank for International Settlements)

4. Gideon du Rand (MCom Stellenbosch, PhD Student Stellenbosch, 04/2015-10/2019; #: Lecturer at Stellenbosch University)
5. Michael Rose (MSc Kiel, main advisor, 04/2015 - 05/2018; #: MPI for Competition and Innovation, Munich)

Masters Level Courses:

1. *“Fintech and Cryptocurrencies”* (MPhil in Financial Technology), University of Cape Town, (2018–2021)
2. *“Introduction to FinTech”* (Executive Master’s in Finance) HEC Paris (2020)
3. *“Fintech”* (MBA Core course; MBA Elective course) HEC Paris (2019–2021)
4. *“Fintech Study Tour”* (Executive Program) HEC Paris in Qatar (2019)
5. *“Financial Software Engineering”* (MPhil in Financial Technology), University of Cape Town, (2018, 2019)
6. *“Financial Regulation”* (MBA Elective) HEC Paris (2019)
7. *“Financial Regulation”* (MCom in Risk Management of Financial Markets), University of Cape Town (2016, 2017)
8. *“Econometrics”* (MCom in Risk Management of Financial Markets), University of Cape Town (2016, 2017)
9. *“Quantitative Methods in Economics”*, University of Cape Town (2015)
10. *“Economics for MBA Students”*, University of Cape Town Graduate School of Business, (2014)

Online Courses:

1. GetSmarter [Short Course](#) *“Blockchain and Digital Currency: The Future of Money”* (Launched 2021)
2. GetSmarter [Short Course](#) *“Fintech: Disruption in Finance”* (Launched 2019, 97.83% of students report expectations met or exceeded; Quality of material rating: 4.38/5.0)
3. Coursera [specialization](#) *“Fintech Startups in Emerging Markets”*, launched 2019 and consisting of four courses:
 - (a) [MOOC](#) *“Financial Regulation in Emerging Markets and the Rise of Fintech Companies”* (4.8/5.0)
 - (b) [MOOC](#) *“How Entrepreneurs in Emerging Markets can master the Blockchain Technology”* (4.9/5.0)
 - (c) [MOOC](#) *“Building Fintech Startups in Emerging Markets”* (4.6/5.0)
 - (d) [MOOC](#) *“Startup Your Fintech Future”* (4.5/5.0)

Other teaching: Hanken School of Economics, short-course on *“Systemic Risk Modelling”* (2018), WEHIA 2016 Summer School, Universitat Jaume I, (2016), *“Financial Networks in Emerging Countries”*, Bank of Uganda, Banco Central do Brazil, (2013), Complexity Economics Summer School, IMT Lucca, (2012)

MEDIA

TV: CNBC Africa, News24.com, Business Day TV

Radio: Talk702.com, Voice of the Cape FM

Print/Online: Financial Times, Bloomberg, Project Syndicate, CNN, Business Day, Sunday Times

SOFTWARE DEVELOPMENT AND STARTUPS

Much of my code is available at: <https://github.com/cogeorg>

Programming languages: Python, C++, Java, Perl, Fortran, PHP, JavaScript, Solidity

Nautilus Technologies (<https://ntls.io>)

Co-Founder and CEO

Since 06/2021

Nautilus combines a cloud storage- and computing solution with a licensing platform for code and data. Currently, privacy concerns prevent users from monetizing their data: if a user provides data to a third party, she loses control over their use and the ability to monetize them further. Our patent-pending technology allows groups of users to jointly monetize even private data by licensing it to third parties without loss of privacy. Current status: Post-revenue; 8 Employees; Raised >USD 100,000.

Associated Patent (pending): US 16/811,653; PCT/IB2020/051959.

Registree Rocks (<https://registree.io>)

Co-Founder and CEO

12/2017 – 07/2021

Registree is a decentralized and cryptographically secured student database and platform that connects universities, students, and employers. The project is driven by students and staff at the University of Cape Town. The Registree platform provides a number of valuable data services for its stakeholders, entirely without collecting any data from the students or from the universities. Current status: Post-revenue; 8 Employees; Raised >USD 200,000.

Software Projects

1. [Central Places](#)—Visualization and analysis website accompanying our projects on social ties in academia, with Michael Rose (MPI for Innovation).
2. [Black Rhino](#)—An open source financial multi-agent simulation toolbox developed in my research group (2013–today).

REFERENCES

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Northwestern University
E-Mail: ben.golub@gmail.com
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Oxford University
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Prof Katharina Pistor
Columbia University
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