CO-PIERRE GEORG

https://cogeorg.github.io ◇ cogeorg@gmail.com

EMPLOYMENT

Frankfurt School of Finance and Management
Professor of Practice in Digital Finance and Technology — *09/2024 – today*
Director, Frankfurt School Blockchain Center

University of Cape Town
NRF SARChI Dual Research Chair in Blockchain — *10/2023 – 09/2024*
South African Reserve Bank Research Chair — *01/2019 – 10/2022*
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*

EDHEC Business School
Associate Professor — *10-2022 – 12/2023*

Deutsche Bundesbank
Research Economist (Part-time since 06/2013) — *06/2012 – 06/2021*

AFFILIATIONS

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)

NYU Stern School of Business — *02/2011 - 04/2011*
Visiting PhD Student

Karlsruhe Institute of Technology — *10/2000 - 12/2005*
MSc in Physics

VISITING POSITIONS

University of Zurich (Computer Science) — *05/2024 – 09/2024*
HEC Paris (Finance) — *2018 – 2024*
EPFL (Finance) — *04/2022 – 05/2022*
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*

Xiamen University (Wang Yanan Insitute) *12/2012 – 01/2013*
Oxford University (Saïd Business School) *2012,2013*

PUBLICATIONS

Publications in Economics and Finance

1. *"Contagious Zombies"* (with Christian Bittner, Deutsche Bundesbank; and Falko Fecht, Deutsche Bundesbank) – Forthcoming, **Journal of Financial Stability**;
2. *"Measuring Regulatory Complexity"* (with Jean-Edouard Colliard, HEC Paris) – **Journal of Financial Economics** 174 (2025);
3. *"Social Learning in a Network Model of Covid-19"* (with Allan Davids, Gideon du Rand, Tina Koziol, and Joeri Schasfoort), **Journal of Economic Behaviour and Organization** 213, (2023);
4. *"Exit Spirals in Coupled Networked Markets* (with Christoph Aymanns and Ben Golub), **Operations Research** 71(5), (2023);
5. *"Discussants"* (with Daniel Opolot and Michael E. Rose), **Research Policy** 50(1), (2022);
6. *"Systemic Risk-Shifting in Financial Networks"* (with Matthew Elliott and Joe Hazell), **Journal of Economic Theory** 191, (2021)
7. *"What 5,000 Acknowledgements Tell Us About Informal Collaboration in Financial Economics"* (with Michael E. Rose), **Research Policy** 50(6), (2021)
8. *"Information Contagion and Systemic Risk"* (with Toni Ahnert), **Journal of Financial Stability**, 35(5), (2018)
9. *"Contagious Herding and Endogenous Network Formation in Financial Networks"* (with Christoph Aymanns)), **Journal of Banking and Finance** 50(1), (2015)
10. *"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 and Lorraine Eden); **Tax Management International Journal**, 5 Feb (2021)
2. *"Revealing Patterns of Local Species Richness Along Environmental Gradients with a Novel Network Tool"* (with Mara Baudena, Angel Sanchez, Paloma Ruiz-Benito, Miguel A. Rodriguez, Miguel A. Zavala, and Max Rietkerk); **Nature Scientific Reports** 5, 11561, (2015)
3. *"A Network View on Interbank Liquidity"* (with Silvia Gabrieli, Banque de France), Banque de France Working Paper 531 / Deutsche Bundesbank Discussion Paper 44 (2014); Available on SSRN;
4. *"Complex Derivatives"* (with Stefano Battiston, Guido Caldarelli, Robert M. May, and Joseph E. Stiglitz); **Nature Physics** Vol. 9, No. 3, (2013)

5. *"Systemic Risk in the Financial Sector"*, with Ian Goldin, Mike Mariathasan, and Tiffany Vogel. 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), Special Note in the Financial Stability Review, South African Reserve Bank March 2011, (2011).

Working Papers

1. *"The (In-)Finite Money Glitch"* – Available on SSRN;

   Abstract:
   The "infinite money glitch" is the strategy where a firm issues convertible debt to purchase crypto assets-primarily Bitcoin-which increases its stock's volatility, in turn boosting hedge fund demand for its convertible bonds and enabling the company to issue even more debt to buy more crypto assets in a self-reinforcing cycle. I build a three-date equilibrium model in which convertible issuance, hedging motives, and an inelastic Bitcoin market jointly determine pricing and deal size. Convertible-arbitrage hedge funds dynamically short and cover the stock as it moves, which transmits Bitcoin shocks into realized equity volatility and raises the value of the conversion option in subsequent issues, supporting further issuance and purchases of Bitcoin. The model shows that, if conversion fails at maturity, forced Bitcoin sales can trigger large drawdowns when sell-side impact is steep, tradable supply is thin, and prior issuance was large. This yields non-monotonic effects: looser intermediation lifts prices near term but increases expected liquidation later, with testable implications for the implied-realized volatility gap, stock-loan tightness, and free-float measures.

2. *"What Makes a Paper Seminal? Evidence from 80 Years of Economic Research"* – Available on SSRN;

   Abstract:
   We study what makes an economics paper seminal, using 29,823 articles published in a Top-5 economics journal between 1940 and 2020. Seminal papers are in the Top-1% of within-year citations 16-20 years after publication and continue to accumulate citations, while citations to early hit papers peak 1-5 years after publication. Author prolificness strongly predicts seminality, whereas seniority does not. Co-author network centralities do not predict seminality, although they predict papers' broader influence. Conditional on being Top-5 publication, affiliation rank is not a reliable predictor of seminality and is weakly favorable to lower-ranked affiliations. Combinatorial novelty is insignificant or negatively correlated with seminality, while semantic novelty of abstracts is uninformative. Figures correlate with seminality, whereas tables mainly predict broad influence in the "empirical era." Authors with one additional seminal paper are 1.76 pp more likely to eventually become Nobel laureates.

3. *"Vulnerability Webs: Systemic Risk in Software Networks"* (with Cornelius Fritz, Penn State; Angelo Mele, JHU Carey; and Michael Schweinberger, Penn State) – Available on SSRN; Presented at EC24;

   Abstract:
   Modern software development is a collaborative effort that re-uses existing code to reduce development and maintenance costs. This practice exposes software to vulnerabilities in the form of undetected bugs in direct and indirect dependencies, as demonstrated by the Crowdstrike and HeartBleed bugs. The economic costs resulting from such vulnerabilities can be staggering. We

study a directed network of 52,897 software dependencies across 16,102 Python repositories, guided by a strategic model of network formation that incorporates both observable and unobservable heterogeneity. Using a scalable variational approximation of the conditional distribution of unobserved heterogeneity, we show that outsourcing code to other software packages by creating dependencies generates negative externalities. Modeling the propagation of risk in networks of software packages as an epidemiological process, we show that increasing protection of dependencies based on popular heuristics is ineffective at reducing systemic risk. By contrast, AI-assisted coding enables developers to replace dependencies with in-house code and reduces systemic risk.

4. *"Fake News in Social Networks"* (with Christoph Aymanns, Jakob Foerster, and Matthias Weber) – Available on OpenReview;

   Abstract:
   We develop a practical and flexible computational model of fake news on social networks in which agents act according to learned best response functions. We achieve this by extending an information aggregation game to allow for fake news and by representing agents as recurrent deep Q-networks (DQN) trained by independent Q-learning. In the game, agents repeatedly guess whether a claim is true or false taking into account an informative private signal and observations of actions of their neighbors on the social network in the previous period. We incorporate fake news into the model by adding an adversarial agent, the attacker, that either provides biased private signals to or takes over a subset of agents. The attacker can follow either a hand-tuned or trained policy. Our model allows us to tackle questions that are analytically intractable in fully rational models, while ensuring that agents follow reasonable best response functions. Our results highlight the importance of awareness, privacy and social connectivity in curbing the adverse effects of fake news.

5. *"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.

6. *"Similar Investors"* (with Diane Pierret, University of Luxembourg; and Sascha Steffen, Frankfurt School of Finance and Management) – Available on SSRN;

   Abstract:
   We test the prediction that investors divest from an asset in anticipation of large liquidation costs when their portfolio similarity with other asset holders is high. We provide evidence supporting

this hypothesis using detailed data on money market funds that invest in the debt securities of financial institutions. We develop an instrument that exploits variation in portfolio similarity driven by idiosyncratic redemptions from other funds to confirm our results. Consistent with our hypothesis, the effect of portfolio similarity on divestment is stronger for ex-post illiquid securities, for more illiquid and diversified funds, and for actively managed institutional funds.

White papers

1. *"Central Bank Digital Currency Global Interoperability Principles"* (World Economic Forum Whitepaper) (2023) – Available online.
2. *"Issuing Central Bank Digital Currency Using Algorand"* (with Andrea Civelli, Pietro Grassano, and Naveed Ihsanullah, Algorand Inc) – Available on the Algorand website (2021).
3. *"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).
4. 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.

AWARDS AND GRANTS

AvaLabs *2025 – 2026*
Development grant (USD 150,000)
This grant suppports our building of a privacy-preserving digital asset wallet for CBDC.

National Research Foundation + Swiss National Fund *2023–2024*
South African Research Chair Initiative (ZAR 15,000,000 + CHF 600,000; ∼ USD 1,467,000)
The DSI-NRF Dual Research Chair in Blockchain focuses on privacy in blockchain systems, data provenance, and cybersecurity. Original duration until 2028.

Ripple *2021 – 2026*
University Blockchain Research Initiative (USD 400,000)
This grant supports our ongoing work on blockchain with a focus on the interoperability of central bank digital currencies and privacy in distributed systems.

Algorand Foundation *2021 – 2026*
Algorand-UCT Innovation Hub (USD 1,100,000)
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.

South African Reserve Bank *2018 – 2023*
Research Chair in Financial Stability Studies (ZAR 14,800,00 ; ∼ 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)

2026 Crypto Assets Lab Conference 2026
2025 Berkeley Initiative for Transparency in the Social Sciences Annual Meeting
2024 EARIE 2024, EC24, Mapping and Governing the Online World 2024, AFA (x2)
2023 WFA; BSE Networks; SAFE LawLab Conference; EPFL DeFi Conference
2022 SFS Cavalcade

Discussions (Past five years; *=scheduled)

2026 Crypto Asset Lab Conference 2026, Bernardo et al., *"On the Operational Resilience of CBDC: Threats and Prospects of Formal Validation for Offline Payments for Offline Payments*
2025 SSM Workshop 2025, Azar, Casillas, and Farboodi, *"Natural Centralization in Decentralized Finance"*
CEPR / Bocconi / ECB Conference on The Future of Payments 2025, Prat et al., *"Shock*
HSG Fintech Summit, Gambacorta and Shreeti, *"The AI Supply Chain"*
Propagation in Decentralized Lending Networks: Evidence from the Compound Protocol"
2024 Digital Economy Workshop 2024, Kaiser and Peukert, *"Get Rich or Die Tryin': Concerts"*
and the Digitization of Recorded Music
2023 CEPR-Bocconi Conference on the future of payments and digital assets, Braun and Haeusle, *"Collusion-proof oracles for DAOs"*
Torino Decentralized Finance Conference, Schoenleber et al., *"Maneuvering and Investing in Yield Farms"*
2022 Tilburg Banking Conference, Li, Li, and Sun, *"Bank Credit and Money Creation on Payment Networks: A Structural Analysis of Externalities and Key Players"*
Gerzensee, Schilling, Fernandez-Villaverde, and Uhlig, *"Central Bank Digital Currency: When Price and Bank Stability Collide"*

Seminars (Past five years; *=scheduled)

2026 De Nederlandsche Bank, TU Dresden*
2025 Goethe University, Complexity Science Hub Vienna, University of the Armed Forces Munich
2024 KU Leuven
2023 FSU Jena, University of Glasgow; KIT; St. Gallen;
2022 Fed Board; Bocconi University; Uni Zurich; EDHEC; Uni Luxembourg;
University of Pretoria;

ACTIVITIES AND MEMBERSHIP

01/2020 – 09/2022	Advisor for CBDC Projects, Algorand Inc
07/2019 – 09/2022	Economic Advisory Committee, Algorand Foundation
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 Financial Studies, 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; Denmarks Fund

Academic committee: WFA 2024; FIRS 2018–2024; ESRB, RiskLab and BoF Systemic Risk Workshop 2018–2023; Federal Reserve Conference on the Interconnectedness of Financial Systems 2024; CHAINSCI 2024;

TEACHING

Postdoctoral Students (#: First placement):

1. Changyeop Lee (PhD Ohio State Unviersity, 09/2025–);
2. Xuejing Zhao (PhD Warwick, 09/2025–);
3. Marcin Borsuk (PhD Gdansk, 11/2021–11/2023; #: Research Associate, Oxford)
4. Joeri Schasfoort (PhD Groningen, 10/2019–10/2021; #: Lecturer, University of Groningen)
5. Suraj Shekhar (PhD Penn State, 08/2016–06/2019; #: Assistant Professor, Ashoka University)
6. Christine Makanza (PhD UCT, 06/2016–06/2017; #: Senior Lecturer, University of Cape Town)
7. Pawel Fiedor (PhD Krakow, 06/2015–06/2016; #: Research Economist, Bank of Ireland)
8. Hylton Hollander (PhD Stellenbosch, 06/2015–01/2016; #: Lecturer, Stellenbosch University)

PhD Students (#: First placement):

1. Bingle Kruger (MPhil UCT, secondary advisor, since 10/2022)
2. Julian Kanjere (MPhil UCT, main advisor, since 04/2021)

3. Tina Koziol (MBusSc Jena, main advisor, since 04/2016-04/2020; Postdoc, University of Minnesota)
4. Esti Kemp (MPhil Pretoria, main advisor, since 04/2016, part-time; SARB Financial Stability Department; #: Bank for International Settlements)
5. Gideon du Rand (MCom Stellenbosch, PhD Student Stellenbosch, 04/2015-10/2019; #: Lecturer at Stellenbosch University)
6. Michael Rose (MSc Kiel, main advisor, 04/2015 - 05/2018; #: MPI for Competition and Innovation, Munich)

Masters Level Courses:

1. *"Financial Platforms"* (MSc Financial Technology), FS (2026)
2. *"Introduction to Digital Economics"* (MSc Financial Technology), FS (2025)
3. *"Fintech: Innovations in Finance"* (MSc Financial Technology), FS (2025)
4. *"Foundations of Financial Technology"* (MSc Financial Technology), FS (2025)
5. *"Fintech and Entrepreneurial Finance"* (Masters in Finance), EDHEC, (2023)
6. *"Financial Regulation"* (Masters in Finance), EDHEC, (2023)
7. *"Fintech and Cryptocurrencies"* (MPhil in Financial Technology), University of Cape Town, (2018–2021)
8. *"Introduction to FinTech"* (Executive Master's in Finance) HEC Paris (2020)
9. *"Fintech"* (MBA Core course; MBA Elective course) HEC Paris (2019–2021)
10. *"Fintech Study Tour"* (Executive Program) HEC Paris in Qatar (2019)
11. *"Financial Software Engineering"* (MPhil in Financial Technology), University of Cape Town, (2018, 2019)
12. *"Financial Regulation"* (MBA Elective) HEC Paris (2019)
13. *"Financial Regulation"* (MCom in Risk Management of Financial Markets), University of Cape Town (2016, 2017)
14. *"Econometrics"* (MCom in Risk Management of Financial Markets), University of Cape Town (2016, 2017)
15. *"Quantitative Methods in Economics"*, BCom, University of Cape Town (2015)
16. *"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: University of St Gallen, *"Fintech Seminars"* as part of certificate of advanced study (2024); EPFL, several modules in executive education program *"Fintech: Disrupting Finance"* (2022-2024); Hanken School of Economics, short-course on *"Systemic Risk Modelling"* (2018); WEHIA 2016 Summer School, Universitat Jaume I, short course on *"Financial Networks"* (2016); *"Financial Networks in Emerging Countries"*, Bank of Uganda and Banco Central do Brazil, (2013); Complexity Economics Summer School, IMT Lucca, (2012)

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 CTO *06/2021 – 10/2023*
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: Discontinued. Associated Patent: US 16/811,653; PCT/IB2020/051959.

Registree Rocks (https://registree.io)
Co-Founder and CEO *12/2017 – 07/2021*
Registree is a decentralized 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: Discontinued.