

## Dr Polina Khrennikova

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*DOB:* December 14, 1984

*Nationality:* British/Swedish

### Education

- 2021** Course “Philosophy of AI: Foundations”, Umea University, Sweden.
- 2019** PG Cert. in Academic Practice in Higher Education, University of Leicester.
- 2011-2016** Ph.D. Finance, School of Business, University of Leicester.  
Thesis Title: “Quantum like Modelling: Applications to Decision Theory under Uncertainty and Risk”.  
*Advisor:* Prof. Emmanuel Haven (first), Prof. Christophe Schinckus (second).
- 2008** MSc in International Business Studies and Economics, Department of Economics, Linnaeus University, Sweden.  
Major subject: Business Administration.
- 2002-2006** BA in International Economics, Department of Economics, Linnaeus University, Sweden.

### Professional Qualifications

Fellow of The Higher Education Academy (FHEA)

### Research Interests

*Behavioural Finance; Investments; Experimental Finance; Experimental Accounting; Entrepreneurship and Innovation.*

My research interests embrace decision making under uncertainty and risk, with applications to investments, asset pricing, and corporate reporting. I am also interested in applying artificial intelligence, machine learning and quantum technologies to the fields of investments and trading as well as to eco-innovation decisions. I employ experimental methods and secondary data analysis in my works.

I obtained a grant (PI) from British Academy/Leverhulme small grant scheme to study investment behaviour under various decision making contexts (adding stocks to portfolios, looking at the impact of investment horizon, and its interplay with the information display across various financial asset classes).

My current and future research interests are grounded in exploring investors' perception of high risk entrepreneurial projects and investment behaviour under various feedback horizons, when investing in asset classes with lottery-type payoffs.

**Jan 2023-** Assistant Professor in Accounting and Finance (tenured), Financial Engineering Section, Department of High-tech Business and Entrepreneurship, University of Twente, Netherlands.

**Sept 2016 -Dec 2022** Lecturer in Finance and Accounting (Research and Teaching), Economics, Finance and Accounting Division, School of Business, University of Leicester.

**2015-2016** Teaching Fellow in Accounting and Finance, Accounting and Finance Division, School of Management, University of Leicester.

**2011-2015** Associate Tutor in Finance and Accounting: selected amongst 6 other Ph.D. Candidates as a "GTA" (Graduate Teaching Assistant), at the School of Management, University of Leicester.

## Selected publications

Khrennikova, P. (2024) Human centered AI for financial Decisions. *Studies in Systems, Decision and Control*, Springer (forthcoming).

Basieva, I., Pandey, V., Khrennikova, P. (2022) More Causes Less Effect: Destructive Interference in Decision Making. *Entropy*, 24, 725.

Khrennikova, P., Patra, S. (2019) Asset Trading under non-classical ambiguity and heterogeneous beliefs. *Physica A: Statistical Mechanics and its Applications*, 521, 562577.

Haven, E., Khrennikova, P. (2018) A Quantum-probabilistic paradigm: non-consequential reasoning and state dependence in investment choice. *Journal of Mathematical Economics*, 78, 150-162.

Basieva, I., Khrennikova, P., Pothos, E., Asano, M., Khrennikov, A. (2018) Quantumlike model of subjective expected utility. *Journal of Mathematical Economics*, 78, 150-162.

Khrennikova, P., Haven, E. (2017) Quantum generalized observables framework for psychological data: a case of preference reversals in US elections. *Philosophical Transactions of the Royal Society A*, 375, 20160391.

Khrennikova, P. (2017) Modeling behavior of decision makers with the aid of algebra of qubit creation–annihilation operators. *Journal of Mathematical Psychology*, 78, 76-85.

Khrennikova, P. (2016) Application of quantum master equation for long term prognosis of asset prices. *Physica A: Statistical Mechanics and its Applications*, 450, 253-263.

Khrennikova, P., Haven, E. (2016) Instability of political preferences and the role of mass media: a dynamical representation in a quantum framework. *Philosophical Transactions of the Royal Society A*, 374, 20150106.

### **Future Research Projects and Interests**

Determinants of entrepreneurial risk attitudes in projects with high level of uncertainty; Impact of sequences of losses and gains upon investors' expectation formation when investing in assets with skewed return distributions; Managerial overconfidence and high uncertainty investment projects. Organizational paradox in early stage companies' ESG initiatives; Corporate reporting of ESG initiatives and investors' sustainability preferences.

### **Supervision of PhD students**

**2021-** Co-supervisor of *Mr Probowo Erawan*. Thesis title: “ The link between Eco Innovation and Tax Avoidance: A Study of FTSE All Shares.”

**2019-2022** Co-supervisor (main) of *Dr Andrew Christodoulou*. Thesis title: “Accountants' Views of the Issues in the Accounting Environment that Threaten the Long-term Survival of UK Small and Medium Enterprises.” Ph.D. degree awarded in March 2022. Andrew works in the industry as a professional chartered accountant.

**2018- 2024** Co-supervisor of *Mr Pascal Van der Straeten*. Thesis title: “The Significance of Tail Risk Management in the Strategic Planning of U.S. Global Systemically Important Banks”. Pascal finished up his minor revisions after his February 2024 viva.

### **Invited Talks and Seminars**

**Jan 2024** “Human centered AI for Financial Decisions” Invited Speaker at the 17th International Conference of the Thailand Econometric Society, Faculty of Economics, Chiang Mai University, Thailand.

**Jan 2022** “New Paradigm of Economic Thinking Under Uncertainty”. Invited Speaker at the 5th International Econometric Conference of Vietnam, Cho Chi Minh University, (via ZOOM).

**Jan 2020** “Contextual Representation of Agents' Preferences in Investment Choice.” Invited Speaker at the 3rd International Econometric Conference of Vietnam, Cho Chi Minh University.

- 2019-05-29** “Disjunction effect or Myopia: What drives non-consequential preferences in investment choice? Some new experimental findings from a Portfolio Game”, Judgement and Decision Making Research Group, Department of Neuroscience, Psychology and Behaviour, University of Leicester.
- Mar 2019** “Violation of Savage Sure Thing principle and state dependence in investment choice: generalized probability representation of decision making”, City University, London (host: Prof. Pothos).
- 2018-11-12** “Non-consequential reasoning and state dependence in investment choice: experimental evidence from a Portfolio Game”, Internal Finance Seminar, School of Business, University of Leicester.
- 2017-03-07** “Quantum probability models of endogenous uncertainty,” 2-nd Workshop of the Econophysics Network, University of Leicester.
- 2015-05-29** “Decision making dynamics in a quantum framework: a case of voters’ preference non-separability in US elections”, Invited Seminar, Department of Computer Science, University of Middlesex, London.

I also presented my research at multiple international conferences, in the areas of investments, corporate finance, behavioural finance and accounting, economics, experimental finance, mathematical modelling, and econophysics. Below are the conferences that I attended in the last 3 years.

### Other Conferences

- Experimental Finance Conference (EF) 2023, Sofia, Bulgaria, 19-22 June, 2023.
- Behavioural Finance Working Group Conference (BFWG) 2022, Queen Mary University, London, 9-10 June, 2022. Title of the paper: *Measuring Contextuality in Investment Preferences: an Experiment on Foreign Country Investment and Individual Stock Selection*.
- Neuro-Pshycho-Economics Conference, 11-12 June, 2020. Online via ZOOM. Title of the paper: *Non-consequential Preferences and their Psychological Determinants: New experimental Evidence from an Investment game*. (with E. Haven).
- Behavioural Finance Working Group Conference (BFWG) 2019, Queen Mary University, London, 6-7 June, 2019. Title of the paper: *Non-consequential Reasoning in Investment Choice: Experimental Evidence from a Portfolio game*. (with E. Haven).
- Experimental Finance Conference, University of Heidelberg, 20-22 June, 2018. Title of the paper: *Non-consequential reasoning and state dependence in investment choice: experimental evidence from a ‘Portfolio Game’*. (with E. Haven).

### University and Professional Services

- 2023-** Member of the editorial board for the Journal of Quantum Economic and Finance (QEF)
- 2022** Member of the local Organizing Committee for the IFABS (International Finance and Banking Society) Conference, Naples, 7-9 September, 2022. Organized by the University

of Naples Federico II, Bank of England, European Central Bank, University of Leicester School of Business.

**2022-2022** Head of the Finance Curriculum Committee, Economics, Finance and Accounting Department.

**2021-2022** Member of the Economics and Finance Recruitment Committee, Economics, Finance and Accounting Department.

**2019-2022** Member of the Finance Curriculum Committee, Economics, Finance and Accounting Department.

**2019-2020** Member of the Finance REF Review Panel, Economics, Finance and Accounting Department, University of Leicester.

**2018-** Member of the Advisory Board for the “Asian Journal of Economics and Banking”, (AJEB).

**2018-** Representative for the Finance Division at the School of Business Staff Committee.

**2018-2019** Member of the Jury for the ‘Young Enterprise Competition Project’, March, 2018.

**2018** Member of the interview panel for job interviews in Accounting and Finance Divisions, August, 2018.

**2017-** Participation in the Open Day events, University of Leicester.

**Reviewer for the Journals:** Journal of Behavioural and Experimental Finance, Review of Accounting and Finance; Review of Behavioural Finance, Artificial Intelligence Review, Journal of Open Innovation Technology and Market Complexity, Journal of Mathematical Psychology, Physica A: Statistical Mechanics and its Applications, Philosophical Transactions of the Royal Society A, Economic Modelling, Sustainability.

## **Grants, honors & awards**

**2023-2024** Collaboration grant with the Department of Mathematics (host: Prof. Fabio Bagarello), University of Palermo, Italy. Grant amount awarded: € 1500

**2019-2022** BA/Leverhulme Small Grant Scheme. Grant awarded to conduct experiments related to financial decision making. Grant amount awarded: £ 6500.

**2019** Fellow of the Higher Education Academy, (FHEA).

**2011-2016** Graduate Teaching Assistant Fellowship, (GTA).

## **Professional Affiliations**

- EFA (European Finance Association)
- SEF (Society for Experimental Finance)
- BAFA (British Accounting and Finance Association)