

# Prof. Barry Quinn

Professor of Finance and Financial Technology

## Contact Information

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## Research Profile Summary

Professor Barry Quinn is Professor of Finance & Financial Technology at Ulster University Business School and Director of the Centre for Finance and Responsible Technology. The Centre is guided by three pillars: statistical rigour and intellectual humility; practical industry relevance; and responsible algorithmic innovation.

Barry is a Chartered Statistician and views econometrics as an applied statistical science. His work integrates econometrics, statistical learning, and computational methods to address problems in financial markets and institutions, risk measurement, and evidence for regulation and compliance. A core aim is to produce analysis that is transparent, reproducible, and auditible, and to keep conclusions proportionate to the strength of the evidence.

Before entering academia, Barry worked in financial markets, specialising in currency trading and liquidity management. He holds a PhD in Finance and an MSc in Artificial Intelligence (Distinction) from Queen's University Belfast. He actively collaborates with industry and policy partners to ensure his research delivers academic, societal, and public value.

**Research Interests:** AI applications in finance, causal AI, financial data science, market manipulation detection, systemic risk assessment, computational approaches to financial regulation, cooperative finance, sustainable finance, generative AI in capital markets.

## Education and Professional Qualifications

Qualification	Institution	Year	Research Relevance
Ph.D. Finance	Queen's University Belfast	2012	Thesis: Cooperative Financial Institutions
MSc Quantitative Finance	RMIT University Melbourne	2006	Advanced derivatives and risk management
MSc Artificial Intelligence (Distinction)	Queen's University Belfast	2025	Deep learning, NLP, computer vision
Advanced Data Science Professional	Royal Statistical Society	2023	Professional recognition in data science

Qualification	Institution	Year	Research Relevance
Chartered Statistician	Royal Statistical Society	2019	Professional statistical expertise
B.Sc.(Hons) Accounting and Finance	Queen's University Belfast	1995	First Class Honours

## Research Excellence

### Publication Record (h-index: Available upon request)

#### Peer-Reviewed Publications (14 total)

##### Recent High-Impact Publications:

- Liu, Weilong, Zhang, Yong, Liu, Kailong, Quinn, Barry, Yang, Xingyu, Peng, Qiao (2024). Evolutionary Multi-Objective Optimisation for Large-Scale Portfolio Selection With Both Random and Uncertain Returns. *IEEE Transactions on Evolutionary Computation* (**ABS4**)
- McKillop, Donal, Liu, Kailong, Quinn, Barry, Peng, Qiao (Forthcoming). Modelling and Predicting Credit Union Failures. *International Journal of Forecasting* (**ABS3**)
- Bouri, E., Quinn, B., Sheenan, L. & Tang, Y. (2024). Investigating extreme linkage topology in the aerospace and defence industry. *International Review of Financial Analysis* (**ABS3**)
- Quinn, Barry, Gallagher, Ronan, Kuosmanen, Timo (2023). Lurking in the shadows: The impact of CO2 emissions target setting on carbon pricing in the Kyoto agreement period. *Energy Economics* (**ABS3**)

#### Software Publications

- Time Series Econometrics (tsfe) (2022) - R Package for advanced time series analysis (DOI: 10.5281/zenodo.6376113)
- Financial Machine Learning (fml) (2020) - R Package for financial ML applications (DOI: 10.5281/zenodo.6376114)

#### Working Papers & Under Review

- Dai, Yongsheng; Quinn, Barry; Kearney, Fearghal; Wang, Hui (Submitted). *Amplifying Market Manipulation Detection Signals*. Submitted to *Economics Letters*. Manuscript EL66561.
- Dai, Yongsheng; Quinn, Barry; Kearney, Fearghal; Liu, Weilong; Spence, Ivor; Raf-ferty, Karen; Wang, Hui (Submitted). *Detecting Market Manipulation with Dual-branch Self-supervised Learning: A Unified Framework Integrating Frequency-informed Anomaly Synthesis and Domain-Specific Features*. Submitted to *Information Processing and Management*. Manuscript IPM-D-25-06138.
- Quinn, Barry (2023). *Explaining AI in Finance: Past, Present, Prospects*. arXiv preprint arXiv:2306.02773.
- Zhang, Ying (Veronica), Quinn, Barry, Sheenan, Lisa (2025). *Ownership Dynamics, Risk and Regulation in Chinese Banking: New Evidence*
- Kearney, Fearghal, Quinn, Barry, Pramanick, Abhishek (Under Review) *Innovation Signals and Strategic Exits: How Technological Readiness Shapes Outcomes in Computational Approaches to Financial Regulation*
- Hannon, James; French, Declan; Quinn, Barry; O'Hagan, Adrian (Submitted). *Geospatial modeling of vehicle crime in Northern Ireland using computer vision to identify environmental factors*. Submitted to *Insurance: Mathematics and Economics*. Manuscript IME-D-25-00419.

## Research Funding Track Record

Table 2: Research Grant Portfolio

Funding Body	Role	Period	Project Title	Value	Type
Department of the Economy NI	PI	2025	PhD Scholarship - Collaborative Doctoral Partnership with Pytillia	£120,000	PhD Scholarship
Department of the Economy NI	PI	2025	PhD Scholarship - Collaborative Doctoral Partnership with Napier AI	£120,000	PhD Scholarship
Department of the Economy NI	PI	2025	PhD Scholarship - Centre for Finance and Responsible Technology	£120,000	PhD Scholarship
Innovate UK	PI	2022-2023	E.S.G fair value analytics platform	£173,000	Research
Innovate UK	PI	2021-2023	Computational approaches to financial regulation and portfolio analytics	£173,000	Research
UKRI/InnovateUK	PI	2024-2025	AI regulatory compliance in Investment Management	£100,000	Research
DofE CAST Award NI	Co-I	2023	Welfare Cost of Cultural Displays using AI	£70,000	Research

**Total Research Income:** £1,435,000+ (direct awards as PI/Co-I)

**Success Rate:** High success rate in competitive funding schemes

**Industry Leverage:** Strong track record of industry co-funding and partnerships, including collaborative doctoral partnerships with local firms

## Research Impact and Knowledge Transfer

### Industry Collaborations

- **Pytillia** - Collaborative Doctoral Partnership (PhD scholarship, £120K, 2025)
- **Napier AI** - Collaborative Doctoral Partnership (PhD scholarship, £120K, 2025)
- **Funds Axis Ltd** - Computational approaches to financial regulation and compliance solutions (ongoing)
- **Citigroup Belfast** - Market manipulation detection (2022-2023)
- **Pearl AI Ltd** - Advanced retail analytics (2017-2019)
- **Financial Conduct Authority** - Tech Sprint Mentor (2023-present)

### Research Supervision Excellence

#### Completed PhD Supervisions (6)

1. **Dr. Jiadong Liu** (2018): *Momentum in Empirical Asset Pricing* - Now research scientist
2. **Dr. Ashleigh Neil** (2019): *Law and Financial Stability* - Now policy analyst
3. **Dr. Colm Kelly** (2021): *Machine Learning in Empirical Asset Pricing* - Now quant researcher
4. **Dr. Qiao Peng** (2021): *US Credit Union Mergers* - Now assistant professor
5. **Dr. Kevin Johnson** (2019): *Industrial Consolidation* - Now senior analyst
6. **Veronica Zhang** (2024): *Capital Policy in Chinese Banking* - Graduating

#### Current PhD Supervisions (6)

- **Fei Li**: Sustainable Investing and Gender Diversity (QBS scholarship)

- **Abhishek Pramanick:** AI and Future of Financial Regulation (QBS scholarship)
- **Dongwei Li:** Economics of AI Patents in Finance (DofE scholarship)
- **Yuqi Ding:** Economics of Generative AI in Finance (QBS scholarship)
- **Yongsheng Dai:** Market Manipulation Detection (PWC scholarship)
- **Brandon Cochrane:** Economic Cost of Cultural Displays (DofE CAST scholarship)

## International Research Network

- **Visiting PhD Supervisors:** Students from China (SYSU), Ireland (UCD), France (UPEC Paris)
- **International Collaborations:** Active research partnerships across Europe, Asia, and North America
- **Conference Presentations:** Regular invited speaker at major international conferences

## Research Infrastructure and Capabilities

### Technical Expertise

- **Advanced Statistical Methods:** Time series econometrics, machine learning, deep learning
- **Programming Languages:** R (expert), Python (advanced), SQL, MATLAB
- **Specialized Software:** Bloomberg Terminal, Reuters, specialized financial databases
- **High-Performance Computing:** Experience with cluster computing and big data analytics

### Research Facilities

- **Queen's Business School Remote Analytics Lab Platform** (Lead Developer, 2021-2024)
- **Finance and AI Research Lab** (Co-director, 2022-2024)
- **Ulster University Centre for Finance and Responsible Technology** (Director, 2024-present)

### Training & Capacity Building

- Design and delivery of graduate teaching in Financial Data Science and causal AI, with applications in trading, market microstructure, and policy analysis
- Supervision and mentoring across econometrics, machine learning, and computational finance, including industry-partnered projects
- Emphasis on reproducible research (versioned data pipelines, model governance) and rigorous statistical standards for evidence-based decision-making

## Future Research Directions

### Emerging Research Themes

1. **Generative AI in Capital Markets:** Applications and regulatory implications
2. **Explainable AI for Financial Regulation:** Transparent algorithmic decision-making
3. **Systemic Risk in Digital Finance:** Cryptocurrency and DeFi risk assessment
4. **Sustainable Finance Analytics:** ESG integration and climate risk modeling

### Methodology Innovation

- Integration of large language models with traditional econometric approaches
- Development of hybrid AI systems for financial decision-making
- Advanced causal inference methods for policy evaluation

# Professional Recognition and Service

## Academic Leadership

- **Director**, Centre for Finance and Responsible Technology (2024-present)
- **Programme Director**, MSc Quantitative Finance (2018-2022)
- **Organizer**, Major symposiums on AI and Financial Regulation

## Professional Recognition

- **Chartered Statistician**, Royal Statistical Society (2019)
- **1st Place**, CFA European Quantitative Finance Awards (2018)
- **Advanced Data Science Professional**, Royal Statistical Society (2023)

## Editorial and Review Activities

- Regular reviewer for major finance and technology journals
- Conference program committee member
- Grant review panels (available upon request)

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**Research Philosophy:** Bridging cutting-edge quantitative methods with practical financial applications, maintaining statistical rigor while ensuring real-world relevance and regulatory compliance.