Prof. Barry Quinn

Professor of Finance and Financial Technology

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Personal Statement

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 pil-

lars: 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. In practice, that means making assumptions explicit, quantifying uncertainty, stress-testing results, and being clear about limits—so we can say plainly when evidence does (and does not) support confident conclusions. He values work that is transparent, reproducible, and useful to those making decisions.

His research sits at the intersection of finance, statistical learning, and responsible use of algorithms, with a focus on markets and institutions, risk measurement, and evidence for regulation and compliance. He works collaboratively across disciplines and with external partners, aiming to reduce avoidable complexity and produce analysis that stands up under operational and regulatory scrutiny.

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 teaches across quantitative finance, econometrics, and AI applications in finance, emphasising ethical practice, reproducibility, and critical thinking.

Education and Professional Qualifications

Qualification	Institution	Year
B.Sc.(Hons) Accounting and Finance	Queen's University Belfast	1995
MSc Quantitative Finance	RMIT University Melbourne	2006
Ph.D. Finance	Queen's University Belfast	2012
Chartered Statistician	Royal Statistical Society	2019
Advanced Data Science Professional	Royal Statistical Society	2023
MSc Artificial Intelligence (Distinction)	Queen's University Belfast	2025

Teaching

I prepare students to reason carefully about finance and technology—teaching them to make assumptions explicit, quantify uncertainty, and be honest about what evidence does and does not support. My goal is to develop analysts who are technically capable, intellectually honest, and able to produce work that is transparent and reproducible. These qualities—rigour, humility, and critical thinking—equip students for roles where decisions carry real consequences.

I have extensive teaching experience at both undergraduate and postgraduate levels, specialising in:

1. **Algorithmic Trading and Investment**: A postgraduate course grounded in the López de Prado framework for machine learning in financial markets. Covers the full pipeline from financial data structures and feature engineering to portfolio construction, backtesting, and strategy evaluation—with emphasis on avoiding the methodological pitfalls (backtest overfitting, data snooping, and leakage) that plague practitioner and academic research alike.

2. **Financial Econometrics**: Taught as an applied statistical science rather than a recipe book. Students learn to treat econometric models as tools for quantifying uncertainty and stress-testing assumptions—not as black boxes that produce publishable numbers. The course confronts the replication crisis and the statistical practices that drive it, asking students to be explicit about what their models can and cannot establish.

3. **FinTech and Data Science** (Ulster University): The disciplined study of variation and uncertainty in financial data—covering return predictability, volatility modelling, factor models, and ML for cross-sectional analysis. Emphasises distinguishing signal from noise, proper model validation, and intellectual humility about the limits of prediction in noisy markets. Supported by an open companion textbook, *Statistical Science for Finance: Rigorous Methods for Technology-Enabled Markets*.

4. **Trading Principles** (Queen's University Belfast): A postgraduate learning-by-doing course in market microstructure, built around approximately 18 live in-class trading simulations using UpTick technology integrated with Bloomberg Terminal data. Students assume distinct industry roles—market maker, speculator, liquidity trader—and their collective decisions endogenously determine prices and liquidity, making core concepts such as the law of one price, price formation, market efficiency, and event arbitrage directly observable consequences of their own behaviour. Simulation performance counts toward the final grade, removing the gap between doing and understanding. The course pairs foundational academic work (Kyle 1985; Glosten-Milgrom 1985) with industry research to bridge theory and practice.

Teaching Philosophy

Teaching Publication

- Quinn, Barry (2026). *Statistical Science for Finance: Rigorous Methods for Technology-Enabled Markets.* Open educational resource and companion textbook for FIN306, Ulster University Business School. https://quinfer.github.io/financial-data-science/

- Quinn, Barry, Hanna, Alan, Gallagher, Aine (2018). Queen's Student Managed Fund: Investing in the student Experience. Reflections, 27, p16-17

Research

I have published fourteen peer-reviewed academic papers (1 ABS4, 11 ABS3s, and 2 ABS2s), three commissioned research reports, and two statistical software packages. My research sits at the intersection of finance, statistical learning, and responsible use of algorithms—with a focus on markets and institutions, risk measurement, and evidence for regulation and compliance. The work is collaborative, crossing disciplines and industry boundaries, and aims to reduce avoidable complexity: producing analysis that is transparent, reproducible, and stands up under operational and regulatory scrutiny.

Peer-Reviewed Publications

- Wang, Hui, Dai, Yongsheng, Spence, Ivor, Rafferty, Karen, Quinn, Barry, Huang, Ji (2025). TD-SRL: Time Series Dual Self-Supervised Representation Learning for Anomaly Detection from Different Perspectives. IEEE Internet of Things Journal

- McKillop, Donal, Liu, Kailong, Quinn, Barry, Peng, Qiao (Forthcoming). Modelling and Predicting Credit Union Failures. *International Journal of Forecasting* (ABS3)

- 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)

- 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 CO_2 emissions target setting on carbon pricing in the Kyoto agreement period. *Energy Economics* (ABS3)

- Liu, Jiadong, Papailias, Fotis, Quinn, Barry (2021). Direction-of-change forecasting in commodity futures markets. *International Review of Financial Analysis* (ABS3)

- Gallagher, Ronan, Quinn, Barry (2020). Regulatory own goals: The unintended consequences of economic regulation in professional football. *European Sport Management Quarterly* (ABS3)

- McKillop, Donal, French, Declan, Quinn, Barry, Sobiech, Anna L, Wilson, John OS (2020). Cooperative financial institutions: A review of the literature. *International Review of Financial Analysis* (ABS3)

- Quinn, Barry, Hanna, Alan, MacDonald, Fred (2018). Picking up the pennies in front of the bulldozer: The profitability of gilt based trading strategies. *Finance Research Letters* (ABS2)

- McKillop, Donal G, Quinn, Barry (2017). Irish credit unions: Differential regulation based on business model complexity. *The British Accounting Review* (ABS3)

- Ayadi, Rym, Naceur, Sami Ben, Casu, Barbara, Quinn, Barry (2016). Does Basel compliance matter for bank performance? *Journal of Financial Stability* (ABS3)

- Glass, J, McKillop, Donal, Quinn, Barry (2015). Modelling the Performance of Irish Credit Unions, 2002-2010. *Financial Accountability & Management* (ABS3)

- McKillop, Donal G, Quinn, Barry (2015). Web adoption by Irish credit unions: Performance implications. *Annals of Public and Cooperative Economics* (ABS2)

- Glass, J Colin, McKillop, Donal G, Quinn, Barry, Wilson, John (2014). Cooperative bank efficiency in Japan: a parametric distance function analysis. *The European Journal of Finance* (ABS3)

- Quinn, Barry, McKillop, Donal (2009). Internet banking and Irish credit unions. *International Journal of Cooperative Management* (ABS2)

- Quinn, Barry, McKillop, Donal (2009). Cost performance of Irish credit unions. *Journal of Cooperative Studies* (ABS2)

Software Publications

Table 2: Software Publications

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

Working Paper

- Birem, AbderRaouf, Abidi Perier, Zineb, Quinn, Barry, Kearney, Fearghal (Under Review). *Transformer-Based Sentiment Analysis for Stock Market Crash Risk.* Under Review at *European Journal of Operational Research.* Manuscript EJOR-S-26-00902.

- 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, Rafferty, 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.* Centre for Responsible Banking & Finance Working Paper Series, WP No. 25-017.

- Kearney, Fearghal, Quinn, Barry, Pramanick, Abhishek (Under Review at Journal of Business Venturing) *Innovation Signals and Strategic Exits: How Technological Readiness Shapes Outcomes in Computational Approaches to Financial Regulation*

- Hannon, James (Corresponding Author), 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.

- Quinn, Barry, Gallagher, Ronan *Great Expectations: Managerial Turnover and Market Expectation in Association Football*

Research Reports

- Bryon Graham, Barry Quinn (2019). *Price comparison and web analytics.* (Commissioned by InvestNI)
- Bryon Graham, Barry Quinn (2017). *Machine learning and predictive analytics in the mall retail business.* (Commissioned by InvestNI)
- Fearghal Kearney, Barry Quinn (2020). The theoretical foundations of value at risk modelling. (Commissioned by InvestNI and Funds Axis Ltd)
- French,Declan, McKillop, Donal, Quinn, Barry (2018). *Landscape review of Northern Ireland Credit Union Sector.*(Commissioned by the NI Department of Communities and Rural Affairs)
- McKillop, Donal, Quinn, Barry (2012)Report of the Irish Commission on Credit Unions (4* REF2014 Impact Case): An Efficiency Study

Research Impact and Knowledge Transfer

1. *Three PhD Scholarships - Centre for Finance and Responsible Technology* (Funded by Department of the Economy NI, £360K, 2025) - Including two collaborative doctoral partnerships with local firms: Pytillia and Napier AI
2. *Understanding and Enhancing regulatory compliance in the Investment Management industry using AI* with Funds Axis Ltd and Momentum 1.0 (Funded by UKFin+ and UKRI Nov 2024 - Nov 2025)
3. *Anomaly detection of large heterogeneous trading transaction and communication data* with Citigroup Belfast and Momentum 1.0 (2022-2023)
4. *AI and Advanced Retail Analytics* with Pearlai Ltd and Dr Byron Graham (KTP 2017-2019)
5. *E.S.G Fair Value Analytics* with Research Associates, Dr. Lisa Sheenan, Dr. Byron Graham. (KTP 2021)
6. *Tail Risk Analytics, Stress Testing and Scenario Analytics* with Funds Axis Ltd, Dr Fearghal Kearney, and Dr Colm Kelly. (KTP 2021 -2023)
7. *Financial Conduct Authority* Tech Sprint Mentor (2023-present)
8. *AI and the Future of Financial Regulation* with Fearghal Kearney and Abhishek Praminick published in The Economic Observatory (2023)

Completed PhD Supervisions

1. Dr. Jiadong Liu (graduated 2018): *Momentum in Empirical Asset Pricing* (**Principal Supervisor**)
2. Dr. Ashleigh Neil (graduated 2019): *Law and Financial Stability* (**Principal Supervisor**)
3. Dr. Colm Kelly (graduated 2021): *Machine learning in Empirical Asset Pricing* (**Principal Supervisor**)
4. Veronica Zhang (2024): *Capital policy and State sponsorship in Chinese banking* (**Principal Supervisor**)
5. Dr. Kevin Johnson (graduated 2019) *A Case Study in Industrial Consolidation: The Irish Credit Union Sector* (**Co Supervised**)
6. Dr. Qiao (Olivia) Peng (graduated 2021) *US Credit Union Mergers: Causes and Consequences* (**Co Supervised**)

Current PhD Supervisions

1. Fei Li *Sustainable Investing, Report and Gender Diversity* (fully-funded by QBS scholarship) **(Principal Supervisor)**
2. Abhishek Pramanick *AI and the future of financial regulation* (fully-funded by QBS scholarship) **(Principal Supervisor)**
3. Dongwei (Jeffrey) Li *The Economics of AI patents and productivity in finance* (fully-funded by DofE scholarship) **(Principal Supervisor)**
4. Yuqi Ding *The Economics of Generative AI in Finance* (fully-funded by QBS scholarship) **(Principal Supervisor)**
5. Yongsheng Dai "Market Manipulation and Financial Anomaly Detection" (fully-funded by PWC scholarship) **(Co Supervisor)**
6. Brandon Cochrane "Economic Cost of Cultural Displays in Northern Ireland" (fully-funded by DofE CAST scholarship) **(Co Supervisor)**

Visiting PhD Supervision

1. Weilong Liu 2022 (From Lingnan University College of Yat-sen University (SYSU) in Guangzhou, China) "Market Manipulation and AI Anomaly Detection"
2. James Hannon 2023 (From UCD) "Leveraging Computer Vision to understand and enhance Insurance Pricing"
3. Birem Abderraouf 2025 (From UPEC Paris) "Generative AI in Capital Markets"

Conference presentations

- Invited Speaker, "Dynamic Signal Weighting of Performance Signals for Managerial Turnover Decisions: Evidence from Professional Footbal", INFINIT Conference, Edinburgh Napier University, Jun 2025
- Invited Talk, *Rethinking Research Impact: Combining Effect Sizes and Economic Significance in Finance*, Royal Statistics Society Annual Conference, Brighton UK, Sep 2024
- Keynote Speaker, *Estimating Systemic Risk*, Irish Finance Association, Maynooth University, Ireland, April 2023
- Invited Talk, *Teaching data science in the age of FinTech*, Royal Statistics Society Annual Conference, Aberdeen UK, Sep 2022
- Invited Talk, *Carbon pricing and machine learning*, Multidisciplinary Workshop on Fintech, Islamic Finance and Sustainability (online), Hamad Bin Khalifa University, Qatar, Nov 2022
- Invited Speaker, *Understanding fintech and financial stability*, International Workshop on Financial System Architecture and Stability, Bayes Business School, London, Sept 2018
- Invited Speaker, *Systemic Risk and Basel Compliance*, British Accounting and Finance Association Annual Conference, London, April 2018
- Invited Speaker, *Differential regulation of Irish credit unions: Does one size fit all?*, 2nd Conference on Contemporary Issues in Banking, Centre for Responsible Banking and Finance, St Andrews, Dec 2017
- Invited Speaker, *Business model diversity, efficiency and productivity of cooperatives*, European workshop in efficiency and productivity analysis, Aalto University, Finland, Jun 2017
- Invited Panelist, *Statistical inference and credibility in finance*, Emerging Scholars in Banking and Finance, Bayes Business School, London, Dec 2016
- Invited Speaker, *Capital regulation compliance and the performance of European banks*, International Workshop on Financial System Architecture and Stability, HEC Montreal, Aug 2016
- Participant, *Bloomberg Annual Educational Symposium*, Bloomberg London HQ, Sep 2015

Research Grant Income (Selected)

Table 3: Research Grant Income

Source	Role	Start	End	People	Title	Full Economic Costs (£)	Type
(Department of the Economy NI)	PI	2025	NA	Pytillia Napier AI	Three PhD scholarships to support the Centre for Finance and Responsible Technology (including two collaborative doctoral partnerships)	£360,000	Research
(UKFin+/EPSRC)	PI	2024	2025	Jesus Del Rincon Martinez Abhishek Pramanick Darren Burrows (CEO of Funds Axis)	Leveraging AI to understand and improve regulatory compliance in the Investment Management Industry	£100,000	Research
DofE CAST Award NI	Co-I	2023	NA	Declan French	Exploring the Welfare Cost of Cultural Displays in Northern Ireland using multimodal Generative AI	£70,000	Research
Innovate UK	PI	2022	2023	Lisa Sheenan Byron Graham	E.S.G fair value analytics platform: using state-of-the-art financial data science and business analytics to design a fair-value ESG prediction engine	£173,000	Research
Innovate UK	PI	2021	2023	Fearghal, Kearney	Regulatory technology and portfolio analytics using state-of-the-art econometrics and financial machine learning	£173,000	Research
Innovate UK	PI	2018	2021	Byron, Graham	Designing and deploying a retail analytics platform using advanced analytics and machine learning	£165,000	Research
DofE CAST Award NI	Co-I	2021	NA	Donal McKillop	PhD investigation into how AI innovation affect a highly valued financial service provision experience	£70,000	Research
Phoenix Natural Gas Ltd	PI	2014	2015	Alan Hanna Fotis Papailias	Forecasting daily demand for natural gas in Northern Ireland	£15,000	Consulting
DofE	Co-I	2016	2018	Donal McKillop Declan French	Landscape review of Northern Ireland Credit Unions	£32,000	Consulting
InvestNI	Co-I	2018	NA	Byron Graham	Review of state-of-the-art machine learning in the context of retail analytics and monitoring	£5,000	Consulting

(continued)

Source	Role	Start	End	People	Title	Full Economic Costs (£)	Type
InvestNI	Co-I	2019	2019	Byron Graham	Review of AI and web analytics for price comparison	£5,000	Consulting
InvestNI	Co-I	2021	2021	Fearghal Kearney	Review of Value at Risk analytics at the intersection of econometrics and machine learning	£5,000	Consulting
QBS CEBR	PI	2016	2019	Institute of Directors	Estimating the costs and benefits of corporation tax policy change in Northern Ireland	£3,500	Research

Citizenship

Academic Service

- **Director**, Centre for Finance and Responsible Technology, Ulster University Business School, 2025 -
- **Co-founder**, Finance and AI Research lab (with Dr Fearghal Kearney), Queen's University Belfast, 2022–2024.
- **Lead Developer**, Queen's Business School Remote Analytics Lab Platform (Q-RaP), 2021–2024.
- **QUB Academic Lead**, Steering group for Northern Ireland global centre in secure connected intelligence for regulatory technology in finance, 2022–2024.
- **Programme Director**, MSc Quantitative Finance (formerly MSc Computational Finance & Trading), Queen's University Belfast, 2014–2022.
- **Founder**, Queen's Student Managed Fund.
- **Organiser** of Symposium on AI and the Future of Financial Regulation, Queen's University Belfast, November 2023
- **Organiser** of Symposium on Safety and Assurance in Finance. Queen's Business School, November 2024
- **Chair**, Panel debate on "Digital Regulation: Shaping digital markets and safeguarding consumer rights in Northern Ireland", Northern Ireland Competition Forum, May 2024

Professional Accreditations

- Chartered Statistician, Royal Statistical Society (2019)
- Advanced Data Science Professional, Royal Statistical Society (2023)

Awards and Recognition

- Teaching Fellow of Higher Education Authority (2012)
- QUB Teaching Award (2016)
- 1st place in CFA European Quantitative Finance Awards (2018)
- EEECS Scholarship for AI MSc (2023)
- Associate Research Fellow, QUB Momentum One Zero (formerly Global Innovation Institute) (2021–2024)

Table 4: Professional Experience

Period	Position	Institution
2024 - Present	Professor of Finance and Financial Technology	Ulster University Business School
2024 - Present	Director, Centre for Finance and Responsible Technology	Ulster University Business School
2020 - 2024	Senior Lecturer in Finance, Technology and Data Science	Queen's Management School
2010 - 2020	Lecturer	Department of Finance, Queen's Management School
2009 - 2009	Teaching Fellow	Business School, Ulster University
2005 - 2005	Teaching Fellow and Quantitative Researcher	Department of Finance, RMIT University Melbourne
1998 - 2004	Currency Trader and Liquidity Manager	Janus Henderson Investors, London
1995 - 1998	Financial Adviser	City Financial Partners, London

Professional Experience

Skills and Expertise

- **Econometrics as applied statistical science**: explicit assumptions, uncertainty quantification, and stress-tested inference for finance
- **Financial statistical learning**: time-series ML, anomaly detection, and decision support in markets and trading settings
- **Causal analysis for policy and practice**: treatment-effect estimation and causal ML for evaluation and decision-making under uncertainty
- **Risk analytics**: tail risk, stress testing, and scenario analysis for financial institutions and portfolios
- **Reproducible financial data science**: end-to-end pipelines (ETL), feature engineering, and governance for models used in operational contexts
- **Responsible algorithmic methods**: interpretability, validation/controls, and attention to bias/fairness and privacy where relevant
- **Cross-disciplinary and industry collaboration**: translating research into practice with partners across finance, computing, and policy