Dr. Barry Quinn

Senior Lecturer in Finance, Technology and Data Science

Contact Information

- Address: Queen's Business School, Queen's University Belfast, BT9 1NN, N. Ireland
- Phone: +44 787 238 2074
- Email: b.quinn@qub.ac.uk
- GitHub: quinfer

Personal Statement

As a Senior Lecturer in Finance, Technology, and Data Science at Queen's University Belfast, I bridge the gap between academic research and industry innovation. My work focuses on applying advanced statistical and machine learning techniques to complex problems in finance, with a particular emphasis on regulatory technology, systemic risk, and responsible AI development in financial services.

I am passionate about fostering interdisciplinary research collaborations that push the boundaries of what is possible in the field of finance. My goal is to equip the next generation of finance professionals with the knowledge and tools they'll need to succeed in a rapidly evolving digital landscape, while also instilling values of ethical decision-making and continuous learning.

Through my teaching, research, and industry engagements, I strive to contribute to the advancement of financial technology and data science, always with an eye towards practical applications and societal impact.

Education and Professional Qualifications

Degree	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
MSc Artificial Intelligence	Queen's University Belfast	Graduating 2025

Teaching

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

1. **Quantitative Finance**: My teaching integrates cutting-edge quantitative techniques with practical applications in financial markets.

2. **Ethical Econometrics**: Instructing students in econometrics as an applied statistics discipline, avoiding the statistical cavaliering that plagues the econometric publication playbook.

3. **AI and Machine Learning in Finance**: Pioneering courses that explore the intersection of artificial intelligence and finance. Topics include machine learning for rule-based algorithmic trading, asset pricing, algorithmic trading, and AI-driven risk assessment.

Teaching Philosophy

I help students prepare for the future of finance and technology by teaching essential skills like analysing data, making evidence-based decisions under uncertainty, and applying advanced statistical techniques to real-world financial problems. My goal is to equip them with the knowledge and tools they'll need to succeed in a rapidly evolving job market, while also fostering qualities like resilience, humility, and intellectual curiosity.

Research

I have published thirteen peer reviewed internationally acclaimed academic papers (1 ABS4, 10 ABS3s, and 2 ABS2s), three commission research reports, and two statistical software research packages. My research lies at the intersection of finance, economics, and data science, with a focus on developing innovative analytical approaches to address complex issues in financial markets, regulation, and sustainability. My work is characterised by the application of advanced statistical, econometric, and machine learning techniques across a diverse range of financial and economic contexts.

Selected Recent 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]

- 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). Technology 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). Cost performance of Irish credit unions. Journal of Cooperative Studies[ABS2]

Research Impact and Knowledge Transfer

1. *Understanding and Enhancing regulatory compliance in the Investment Managent industry using AI* with Funds Axis Ltd and Momentum 1.0 (Funded by UKFin+ and UKRI Nov 2024 - Nov 2025)
2. *Anomaly detection of large heterogeneous trading transaction and commmunication data* with Citigroup Belfast and Momentum 1.0 (2022-2023)
3. *AI and Advanced Retail Analytics* with Pearlai Ltd and Dr Byron Graham (KTP 2017-2019)
4. *E.S.G Fair Value Analytics* with Research Associates, Dr. Lisa Sheenan, Dr. Byron Graham. (KTP 2021)
5. *Tail Risk Analytics, Stress Testing and Scenario Analytics* with Funds Axis Ltd, Dr Fearghal Kearney, and Dr Colm Kelly. (KTP 2021 -2023)
6. *Financial Conduct Authority* Tech Sprint Mentor (2023-present)
7. *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 (graduating 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 Pramnanick *AI and the future of financial regulation* (fully-funded by QBS scholarship) **(Principal Supervisor)**
3. Dongwei (Jeffery) Li *The cconomics 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. Yongshei Dai "Market Manipulation and Financial Anomaly Detection" (fully-funded by PWC scholarship) **(Co Supervise)**
6. Brandon Cochrane "Economic Cost of Cultural Displays in Northern Ireland" (fully-funded by DofE CAST scholarship) **(Co Supervise)**

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 under and enhance Insurance Pricing"
3. Birem Abderraouf 2025 (From UPEC Paris) "Generative AI in Capital Markets"

Conference presentations

- 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

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

- Dai, Yongsheng, Wang, Hui, Rafferty, Karen, Spence, Ivor, Quinn, Barry. TDSRL: *Time Series Dual Self-Supervised Representation Learning for Anomaly Detection from Different Perspectives* (2nd R&R IEEE Internet of Things).

- Liu, Kailong, McKillop, Donal, Quinn, Barry, Peng, Qiao. *Modelling and Predicting Credit Union Failures.* Centre for Responsible Banking and Finance Working Paper Series, St Andrew's University (2nd R&R International Journal of Forecasting[ABS3]).

- McKillop, Donal, Quinn, Barry, Peng, Qiao *Predicting Credit Union Merger Activity using Gaussian Process*

- Quinn, Barry, Abhishek Pramanick *Regulatory Technology: Predicting Future Trends in the context of FinTech*

- Quinn, Barry, Ronan Gallager *Great Expectations: Managerial Turnover and Market Expection 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 unions.(Commissioned by Northern Ireland Department of Communities and Rural Affairs)

Table 3: Research Grant Income

Source	Role	Start	End	People	Title	Full Economic Costs (£)	Type
(UKFin+/ESPRC)		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 Papilias	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

Source	Role	Start	End	People	Title	Full Economic Costs (£)	Type
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
InvestNI	Co-I	2019	2019	Byron Graham	Review of AI and web analytics for price comparision	£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	Estimation the costs and benefits of to corporation tax policy change in Northern Ireland	£3,500	Research

Citizenship

Academic Service

- **Co-director**, Finance and AI Research lab, Queen's University Belfast, 2022–.
- **Lead Developer**, Queen's Business School Remote Analytics Lab Platform (Q-RaP), 2021–.
- **QUB Academic Lead**, Steering group for Northern Ireland global centre in secure connected intelligence for regulatory technology in finance.
- **Programme Director**, MSc Quantitative Finance, Queen's University Belfast, 2018–2022.
- **Programme Director**, MSc Computational Finance & Trading, Queen's University Belfast, 2014–2018.
- **Co-Founder**, Queen's Student Managed Fund, 2012–.
- **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, Alliance of Data Science Professional (2024)

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)

Table 4: Professional Experience

Period	Position	Institution
2020 - Present	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

- Advanced statistical modeling and machine learning
- Ethical econometrics
- AI applications in finance and trading
- Economics of AI and machine learning
- Financial risk management and systemic risk analysis
- Data science and big data analytics in finance
- Interdisciplinary research leadership