Dr. Barry Quinn

Senior Lecturer in Finance, Technology and Data Science

Contact Information

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Personal Statement

As a Senior Lecturer at Queen's University Belfast, I have developed a robust academic and industry-oriented profile in financial technology. My work focuses on regulatory technology, systemic risk, and ethical AI applications in finance, aligning with the goals of centres such as Ulster University's Centre of Financial and Regulatory Technology. I aim to enhance research impact, teaching excellence, and interdisciplinary collaboration, advancing institutional profiles in REF and beyond.

I have successfully supervised six PhD students to completion, with ongoing supervision of five more, reflecting my commitment to developing the next generation of researchers in financial technology and regulatory compliance.

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 commissioned 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.

Peer-reviewed 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 CO2 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]
- Quinn, Barry, McKillop, Donal (2009). Internet banking and Irish credit unions. International Journal of Cooperative Management[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]

Software Publications

Package	Year	Description	Repository
Time Series Econometrics (tsfe)	2022	R Package for time series analysis	GitHub
Financial Machine Learning (fml)	2020	R Package for financial ML	GitHub

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)

Research Impact and Knowledge Transfer

1. *Understanding and Enhancing Regulatory Compliance in the Investment Management Industry Using Generative AI* with Funds Axis Ltd and Momentum 1.0 (UKFin+ and UKRI, 2024-2025).
2. *Anomaly Detection in Large Heterogeneous Trading 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 and Stress Testing* with Funds Axis Ltd, Dr. Fearghal Kearney, and Dr. Colm Kelly (KTP, 2021-2023).

Current PhD Supervisions

To date, I have supervised six PhD students to completion, with ongoing supervision of six projects addressing cutting-edge topics in FinTech, ESG analytics, and generative AI. My current students include:

1. Fei Li: *Sustainable Investing, Report and Gender Diversity* (QBS Scholarship).
2. Abhishek Pramnanick: *AI and the Future of Financial Regulation* (QBS Scholarship).

3. Dongwei (Jeffery) Li: *The Economics of AI Patents and Productivity in Finance* (DofE Scholarship).
4. Yuqi Ding: *The Economics of Generative AI in Finance* (QBS Scholarship).
5. Yongshei Dai: *Market Manipulation and Financial Anomaly Detection* (PWC Scholarship).
6. Brandon Cochrane: *Exploring the Welfare Cost of Cultural Displays in Northern Ireland using multimodal Generative AI* (CAST Scholarship).

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)**

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"

Research Income

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

Table 3: Research Grant Income *(continued)*

Source	Role	Start	End	People	Title	Full Economic Costs (£)	Type
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
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

Professional Accreditations

- Chartered Statistician, Royal Statistical Society (2019).
- Advanced Data Science Professional, Alliance of Data Science Professionals (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).

Professional Experience

Years	Position	Institution
2020 - Present	Senior Lecturer in Finance, Technology and Data Science	Queen's University Belfast
2010 - 2020	Lecturer	Queen's University Belfast
2009	Teaching Fellow	Ulster University
2005	Teaching Fellow and Quantitative Researcher	RMIT University, Melbourne
1998 - 2004	Currency Trader and Liquidity Manager	Janus Henderson Investors, London
1995 - 1998	Financial Adviser	City Financial Partners, London

Skills and Expertise

- Advanced statistical modelling and machine learning.
- AI applications in finance and trading.
- Financial risk management and systemic risk analysis.
- Interdisciplinary research leadership.