Dr. Barry Quinn

Senior Lecturer in Finance, Technology and Data Science

Contact Information

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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 ethical 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.

Teaching

Academic Leadership

- Programme Director, MSc Quantitative Finance, Queen's Business School, 2018–2022
- Programme Director, MSc Computational Finance & Trading, Queen's University Belfast, 2014–2018
- Co-Founder, Queen's **Real Money** Student Managed Fund, 2012–
- Director of Finance and AI Research Lab
- Member of the CSE

Areas of Teaching Expertise

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

1. **Quantitative Finance**: Delivering advanced courses on financial modeling, risk management, and portfolio optimization. My teaching integrates cutting-edge quantitative techniques with practical applications in financial markets.
2. **Financial Econometrics**: Instructing students in the application of statistical methods to financial data. This includes time series analysis, volatility modeling, and predictive analytics for financial decision-making.
3. **AI and Machine Learning in Finance**: Pioneering courses that explore the intersection of artificial intelligence and finance. Topics include machine learning for 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, 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.

Awards and Recognition

- Teaching Fellow of Higher Education Authority (2012)
- QUB Teaching Award (2016)
- 1st place in CFA European Quantitative Finance Awards (2018)

Research

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 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*$^{\text{ABS 4}}$
- Bouri, E., Quinn, B., Sheenan, L. & Tang, Y. (2024) Investigating extreme linkage topology in the aerospace and defence industry. *International Review of Financial Analysis*$^{\text{ABS 3}}$
- 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$^{\text{ABS 3}}$
- Liu, Jiadong, Papailias, Fotis, Quinn, Barry (2021). Direction-of-change forecasting in commodity futures markets. *International Review of Financial Analysis*$^{\text{ABS 3}}$
- Gallagher, Ronan, Quinn, Barry (2020). Regulatory own goals: The unintended consequences of economic regulation in professional football. *European Sport Management Quarterly*$^{\text{ABS 3}}$

- 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*ABS 3
- 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*ABS 2
- McKillop, Donal G, Quinn, Barry (2017). Irish credit unions: Differential regulation based on business model complexity. *The British Accounting Review*ABS 3
- Ayadi, Rym, Naceur, Sami Ben, Casu, Barbara, Quinn, Barry (2016). Does Basel compliance matter for bank performance?. *Journal of Financial Stability*ABS 3
- Glass, J, McKillop, Donal, Quinn, Barry (2015). Modelling the Performance of Irish Credit Unions, 2002-2010. *Financial Accountability & Management*ABS 3
- McKillop, Donal G, Quinn, Barry (2015). Technology adoption by Irish credit unions: Performance implications. *Annals of Public and Cooperative Economics*ABS 2
- 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*ABS 3
- Quinn, Barry, McKillop, Donal (2009). Cost performance of Irish credit unions. *Journal of Cooperative Studies*ABS 2

Key Research Projects

1. **Understanding and Enhancing regulatory compliance in the Investment Management industry using generative AI** (2024-present)
   - Principal Investigator (with Co-I in computer science)
   - Funded by UKFin+ (UKRI)
   - Developing AI models with enhanced reasoning capabilities for regulatory content generation
   - Collaborating with industry partners to ensure practical applicability
2. **Anomaly detection of large heterogeneous trading transaction and commmunication data** (2021-present)
   - Finance expert collaborator in QUB CSIT and Citi Belfast Research Project (directly funded by Citi)
   - Co-supervision of PhD student (with Computer Science colleagues)
   - Developing novel algorithms for real-time detection of market manipulation

Research Impact and Knowledge Transfer

- Previously, I was the lead academic on three Knowledge Transfer Projects:
  - **AI and Advanced Retail Analytics** with Pearlai Ltd and Dr Byron Graham (ended 2019)
  - **E.S.G Fair Value Analytics** with Research Associates, Dr. Lisa Sheenan, Dr. Byron Graham. (ended 2022)
  - **Tail Risk Analytics, Stress Testing and Scenario Analytics** with Funds Axis Ltd, Dr Fearghal Kearney, and Dr Colm Kelly. (ended 2023)
- **Financial Conduct Authority** Tech Sprint Mentor (2023-present)

- Organised and delivered the first Finance and AI research lab Symposium (2023) in QBS.

Completed PhD Supervisions (Principal Supervisor)

1. Dr. Jiadong liu (graduated 2018): "Momentum in Empirical Asset Pricing"
2. Dr. Ashleigh Neil (graduated 2019): "Law and Financial Stability"
3. Dr. Colm Kelly (graduated 2021): "Machine learning in Empirical Asset Pricing"
4. Veronica Zhang (graduating 2024): "Capital policy and State sponsorship in Chinese banking"

Co Supervised

4. Dr. Kevin Johnson (graduated 2019) "A Case Study in Industrial Consolidation: The Irish Credit Union Sector"
5. Dr. Qiao (Olivia) Peng (graduated 2021) "US Credit Union Mergers: Causes and Consequences"

Current Supervisions (Principal Supervisor)

1. Fei Li "Sustainable Investing, Report and Gender Diversity" (fully-funded by QBS scholarship)
2. Abhishek Pramnanick "AI and the future of financial regulation" (fully-funded by QBS scholarship)
3. Dongwei (Jeffery) Li "The Economics of AI patents and Fintech Productivity" (fully-funded by DofE scholarship)
4. Yuqi Ding "The Economics of Generative AI in Finance" (fully-funded by QBS scholarship)

Co-Supervisions:

1. Yongshei Dai "Market Manipulation and Financial Anomaly Detection" (fully-funded by PWC scholarship)
2. Brandon Cochrane "Economic Cost of Cultural Displays in Northern Ireland" (fully-funded by DofE CAST scholarship)

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"

Selected Conference Proceedings

- *The unintended systemic risk consequences of regulatory compliance.* Proceedings of 2nd International Workshop on Financial System Architecture and Stability (2018).
- *Teaching open science analytics in the age of financial technology* Annual Conference of Royal Statistical Society (2022).
- *Towards Responsible Statistics in Economics: Combining Effect Sizes and Economic Significance.* Annual Conference of Royal Statistical Society (2023)

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^Impact Factor 6.2^).
- 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^ABS 3^).
- 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

Research Income

Source	My.Role	Start	End	People	Title	Amount	Type
UKFin+ (UKRI funded)	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	100000	Research
Department of the Economy NI	Co-I	2023	NA	Declan French	PhD investigation of the economic costs of cultural displays in Northern Ireland	70000	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	173000	Research
Innovate UK	PI	2021	2023	Fearghal, Kearney	Regulatory technology and portfolio analytics using state-of-the-art econometrics and financial machine learning	173000	Research
Innovate UK	PI	2018	2021	Byron, Graham	Designing and deploying a retail analytics platform using advanced analytics and machine learning	165000	Research
Department of the Economy NI	Co-I	2021	NA	Donal McKillop	PhD investigation into how AI innovation affect a highly valued financial service provision experience	70000	Research
Phoenix Natural Gas Ltd	PI	2014	2015	Alan Hanna Fotis Papilias	Forecasting daily demand for natural gas in Northern Ireland	15000	Consulting

Source	My.Role	Start	End	People	Title	Amount	Type
Department of the Economy + Department of Argiculture Enviromental and Rural Affairs	Co-I	2016	2018	Donal McKillop Declan French	Landscape review of Northern Ireland	32000	Consulting
InvestNI	Co-I	2018	NA	Byron Graham	Review of state-of-the-art machine learning in the context of retail analytics and monitoring	5000	Consulting
InvestNI	Co-I	2019	2019	Byron Graham	Review of AI and web analytics for price comparision	5000	Consulting
InvestNI	Co-I	2021	2021	Fearghal Kearney	Review of Value at Risk analytics at the intersection of econometrics and machine learning	5000	Consulting
Centre for Irish Business Economics and Policy	PI	2016	2019	Institute of Directors	Estimation the costs and benefits of to corporation tax policy change in Northern Ireland	3500	Research

Corporate Engagement

Industry Collaborations

- FCA Mentor for Tech Sprint on market manipulation (2023-present)
- Lead academic on knowledge transfer projects with Fund Axis Ltd and Research Affiliates Inc (2022-present)
- Collaboration with Citigroup on AI applications for detecting trading anomalies (2021-2024)

Professional Experience

- Currency Trader and Liquidity Manager, Janus Henderson Investors, London (1998-2004)
- Financial Adviser, City Financial Partners, London (1995-1998)

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

Conference Organization

- Symposium on AI and the Future of Financial Regulation, Queen's University Belfast, November 2023
- Chair, Panel debate on "Digital Regulation: Shaping digital markets and safeguarding consumer rights in Northern Ireland", Northern Ireland Competition Forum, May 2024

Professional Memberships

- Chartered Statistician, Royal Statistical Society (2019)

Public Engagement

(Include any relevant public lectures, media appearances, or community outreach activities here)

Awards and Honours

- EEECS Scholarship for AI MSc (2023)
- European CFA Quant Award (1st) (2018)
- Associate Research Fellow, QUB Momentum One Zero (formerly Global Innovation Institute) (2021)

Education and Professional Qualifications

Degree	Institution	Year
B.Sc.(Hons) Accounting and Finance	Queen's University Belfast	1995
MSc Quantitativeref 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

Employment History

Years	Position	Institution
2020 – –	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

Academic Leadership

- **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–.

Awards and Honours

Year	Award
2023	EEECS Scholarship for AI MSc
2012	Teaching Fellow of Higher Education Authority
2016	QUB Teaching Award
2018	European CFA Quant Award (1st)
2021	Associate Research Fellow, QUB Momentum One Zero (formerly Global Innovation Institute)

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

Research

Since 2012, I have authored 28 papers and reports on topics in econometrics and data science, state-of-the-art efficiency and productivity analysis, risk implications of policy actions in banking and climate finance, and association football economics.

Industry Collaboration

- FCA Mentor for Tech Sprint on market manipulation (2023-present)
- Lead academic on knowledge transfer projects with Fund Axis Ltd and Research Affiliates Inc (2022-present)
- Collaboration with Citigroup on AI applications for detecting trading anomalies (2021-2024)

Organized Conferences and Symposia

- Symposium on AI and the Future of Financial Regulation, Queen's University Belfast, November 2023
- Chair, Panel debate on "Digital Regulation: Shaping digital markets and safeguarding consumer rights in Northern Ireland", Northern Ireland Competition Forum, May 2024

Current Interdisciplinary Research Projects

- AI system for regulatory compliance in global investment management (2024-present)
  - Principal Investigator (with Co-I in computer science)

  - Funded by UKFin+ (UKRI)
  - Developing AI models with enhanced reasoning capabilities for regulatory content generation
- Market manipulation theory and practice (2021-present)
  - Finance expert collaborator in QUB - Citigroup Market Intelligence and Data Science team
  - Co-supervision of PhD student (with Computer Science Colleagues)

Major 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

Publications

Journal Articles

Bouri, Elie, Quinn, Barry, Sheenan, Lisa, Tang, Yayan (2024). {Investigating extreme linkage topology in the aerospace and defence industry}. International Review of Financial Analysis.

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.

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

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

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.
McKillop, Donal G, Quinn, Barry (2015). Web adoption by Irish credit unions: Performance implications. Annals of Public and Cooperative Economics.
Ayadi, Rym, Naceur, Sami Ben, Casu, Barbara, Quinn, Barry (2016). Does Basel compliance matter for bank performance?. Journal of Financial Stability.
McKillop, Donal G, Quinn, Barry (2017). Irish credit unions: Differential regulation based on business model complexity. The British Accounting Review.
Gallagher, Ronan, Quinn, Barry (2020). Regulatory own goals: The unintended consequences of economic regulation in professional football. European Sport Management Quarterly.
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.
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.
Liu, Jiadong, Papailias, Fotis, Quinn, Barry (2021). Direction-of-change forecasting in commodity futures markets. International Review of Financial Analysis.
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.
Liu, Kailong, McKillop, Donal, Quinn, Barry, Peng, Qiao (2022). Modelling and Predicting Credit Union Failures. Centre for Responsible Banking and Finance Working Paper Series, St Andrew's University.

Conference Proceedings

Ayadi, Rym, Nacuer, Sami Ben, Casu, Barbara, Quinn, Barry (2016). The unintended systemic risk consequences of regulatory compliance. Proceedings of 2nd International Workshop on Financial System Architecture and Stability.
Quinn, Barry (). Teaching open science analytics in the age of financial technology. Annual Conference of Royal Statistical Society.
Quinn, Barry (). Statistical Principles and Econometrics: Combining Effect Sizes and Economic Significance in Finance. Annual Conference of Royal Statistical Society.

Technical Reports

Bryon Graham, Barry Quinn (2019). Price comparison and web analytics. .
Bryon Graham, Barry Quinn (2017). Machine learning and retail analytics. .
Fearghal Kearney, Barry Quinn (2020). The theoretical foundations of value at risk modelling. .
French,Declan, McKillop, Donal, Quinn, Barry (2018). Landscape review of Northern Ireland credit unions. .

Software

Quinn, Barry (2022). Time Series Econometrics R Package. . https://github.com/quinfer/tsfe
Quinn, Barry (2020). Financial Machine Learning R package. . https://github.com/quinfer/fml

Unpublished Work

Dai, Yongsheng, Wang, Hui, Rafferty, Karen, Spence, Ivor, Quinn, Barry (2024). TDSRL: Time Series Dual Self-Supervised Representation Learning for Anomaly Detection from Different Perspectives. . https://ideas.repec.org/p/zbw/qmsrps/202403.html
McKillop, Donal G, Quinn, Barry (2013). Cooperative traits of technology adoption: website adoption in Irish Credit Unions. Available at SSRN 2253403.
McKillop, Donal G, Quinn, Barry (2015). A Sustainable Business Model Strategy for Irish Credit Unions: Does One Size Fit All?. Available at SSRN 2667505.
Gallagher, Ronan, Kuosmanen, Timo, Quinn, Barry (2017). Lurking in the Shadows: Testing For Shadow Price Differences with Applications in Economic Regulation. Available at SSRN 3072863.