# Ryan Riordan

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## Academic Experience

*Queen's University, Smith School of Business*

**Full Professor**, as of July 2021
**Associate Professor**, July 2016-June 2021
- Program Director **Master of Financial Innovation and Technology**, January 2020-Present
- Research Director for the **Institute for Sustainable Finance**, July 2019-Present
**Assistant Professor**, July 2014-June 2016.

*University of Ontario Institute of Technology, Faculty of Business and Information Technology*

**Assistant Professor**, July 2012-June 2015

*Karlsruhe Institute of Technology, Faculty of Economics and Business Engineering*

**W2 - Professor of Financial Market Innovation**, June 2010 - June 2012
**Post-Doctoral Researcher**, September 2009 - May 2010

## Education

Dr. in Business, Karlsruhe Institutue of Technology (KIT), 2009 (summa cum laude).
*Dissertation:* The Economics of Algorithmic Trading.
M.B.A. Sprott School of Business, Carleton University, Ottawa, Canada, 2005.
Bachelor of Commerce, Sprott School of Business, Carleton University, Ottawa, Canada, 2004.

## Select Industry Experience

*HSBC Trinkaus, Dusseldorf, Germany* — *September 2005 - May 2006*

**Trader in Equity Derivatives Products**
**Risk - Manager**

*Export Development Canada, Ottawa, Canada* — *May 2004 - August 2004*

**Summer Student - Assistant Portfolio Manager**

*Predictive Systems AG, Neu-Isenburg, Germany* — *November 1999 - August 2003*

**Senior IT-Consultant**

## Projects and Other Engagements

**Institute for Sustainable Finance** ($5,000,000) co-raised funds from Big 5 Canadian banks 2021–2026
**Payments Canada** - Payments Modernization Teaching Module 2021
**Global Risk Institute** - Carbon Risk Portfolio Analysis Tool ($120,000) 2020 - 2022
**National Pension Hub** - Carbon Risk for Alternative Assets ($100,000) 2020 - 2022
**Canadian Securities Institute Research Grant** - Portfolio Innovation ($30,000) 2020 - 2021
**Social Sciences and Humanities Research Council (SSHRC as co-PI)** - Insight Development Grant on Financial Networks ($65,000) 2018 - 2021
**Investment Industry Regulatory Organization of Canada (IIROC)** - Consultant 2018
**Social Sciences and Humanities Research Council (SSHRC as co-PI)** - Insight Grant on Automated Lending ($90,000) 2017 - 2022
**Monieson Centre** - Collaborative Research Grants on Financial Technology ($200,000) 2017 - 2020
**European Securities Market Authority** - Research Project on Computerized Markets 2017- 2019
**Bank of Canada** - Departmental Special Advisor 2017
**Toronto Markets Group (TMX)** - Consultant 2017
**Deutsche Bundesbank** - Advisor 2017 July and 2018 May
**Humboldt Foundation** - Research stay at University of Mannheim Project on Crytpocurrency Markets 2016 - 2017
**Social Sciences and Humanities Research Council (SSHRC as PI)** - Insight Grant on Faster Financial Markets ($80,000) 2015-2020
**Bank for International Settlements (BIS)** - Consultant 2015
**Queen's School of Business** - Start-up Grant ($60,000) 2014
**Investment Industry Regulatory Organization of Canada (IIROC)** - 2 projects, Consultant 2014 - 2016
**U.K. Government Office for Science** - Project on the Future of Computer Trading 2011 - 2012
**Deutsche Boerse** - Consultant 2011
**Karslruhe Institute for Technology (KIT)** - Start-Up High Frequency Trading Project - (20,000 €) 2011
**Stuttgart Exchange and KIT** - Shared Research Group on Financial Market Innovation (660,000 €) 2010 – 2013

## Academic Research

### *Publications*

1. "**How to Measure the Liquidity of Cryptocurrency Markets?**" (with Alexander Brauneis, Roland Mestel, and Erik Theissen), *Journal of Banking and Finance*, Forthcoming.

2. "**Price Discovery Without Trading: The case of limit orders**" (with Jonathan Brogaard and Terrence Hendershott), *Journal of Finance* 74 (4), (2019).

3. "**Scarcity Effects of QE: A transaction–level analysis in the Bund market**" (with Heiko Hofer, Kathi Schlepper and Andreas Schrimpf), *Journal of Financial and Quantitative Analysis*, 55 (1), (2020).

4. "**Uncertainty and Liquidity: Evidence from Hurricane Sandy**" (with Dominik Rehse, Nico Rottke, and Joachim Zietz), *Journal of Financial Economics*, 134 (2), (2019).

5. "**High Frequency Trading and Extreme Price Movements**" (with Jonathan Brogaard, Allen Carrion, Thibaut Moyaert, Andriy Shkilko, and Konstantin Sokolov), *Journal of Financial Economics* 128 (2), (2018), 235–265.

6. "**High Frequency Trading and the 2008-09 Short-Selling Ban**" (with Jonathan Brogaard and Terrence Hendershott), *Journal of Financial Economics* 124 (1), (2017), 22–42.

7. "**Trading Fast and Slow: Colocation and Market Quality**" (with Jonathan Brogaard, Björn Hagströmer, and Lars Norden), *Review of Financial Studies* 28 (2015), 3407–3443.

8. "**The Impact of Computerized Agents on Immediate Emotions, Overall Arousal and Bidding Behavior in Electronic Auctions**", (with Marc Adam and Timm Teubner), *Journal of the Association of Information Systems* 16 (10) (October 2015), 838-879
9. "**News and International Stock Market Comovement**" (with Markus Hoechstoetter, Stefan Meyer, and Andreas Storkenmaier), *Journal of Financial Research* 37 (4) (Winter 2014), 519 – 542.
10. "**High-Frequency Trading and Price Discovery**" (with Terrence Hendershott and Jonathan Brogaard), *Review of Financial Studies* 27 (August 2014), 2267–2306.
11. "**Public Information Arrival: Price Discovery and Liquidity in Electronic Limit Order Markets**" (with Andreas Storkenmaier, Martin Wagener and Sarah Zhang), *Journal of Banking and Finance* 37 (April 2014), 1148–1159.
12. "**Algorithmic Trading and the Market for Liquidity**" (with Terrence Hendershott), *Journal of Financial and Quantitative Analysis*, 48 (August 2013), 1001–1024.
13. "**Latency, Liquidity and Price Discovery**" (with Andreas Storkenmaier), *Journal of Financial Markets* 15 (November 2012), 416–437.

## *Working Papers*

"**Carbon Liquidity**" (with Nerlinger, Martin).

"**A High-Frequency Analysis of Bitcoin Liquidity**" (with Brauneis, Alexander, Mestel, Roland and Erik Theissen), Submitted.

"**The Anatomy of a Fee Change**" (with Brauneis, Alexander, Mestel, Roland and Erik Theissen), Revise and Resubmit and the Journal of Empirical Finance.

"**Efficient Cyber Risk: Security and Competition in Financial Markets**" (with David Cimon and Michael Brolley).

"**Preventing Information Leakage**" (with Jonathan Brogaard, Dan Li, and Matthew Lei), submitted.

"**Long-Term Trading on Information**" (with Corey Garriott), Reject and Resubmit at Management Science.

**The Social Internetwork and Stock Returns** (with Mohamed al Guindy).

"**Tweeting the Good News: Returns and Price Informativeness**" (with James Naughton and Mohamed al Guindy). Submitted.

"**Machine Learning Fundamental Value**" (with Evan Dudley, Luke Phelps, and Saad Khan).

"**Dealer Inventories, Repo Markets and Primary Market Issuance**" (with Adrian Walton).

"**Intraday Jump Dynamics: What Predicts Price Jumps?**" (with Saad Khan).

"**Carbon Risk**" (with Görgen, Maximilian, Jacob, Andrea, Nerlinger, Martin, Rohleder, Martin and Marco Wilkens), Revise and Resubmit at the Journal of Corporate Finance.

"**Do Retail Traders Suffer from High Frequency Trading?**" (with Andreas Park and Katya Malinova), presented at the 2013 WFA Annual Meeting, Revise and Resubmit at Management Science.

## *Work in Progress*

Crypto-currency price discovery: trades and orders.

Electronic Option Auctions (with Terrence Hendershott and Saad Khan).

Is the trading floor still useful? Evidence from Complex Options (with Terrence Hendershott and Saad Khan).

Classifying informed investors with machine learning.

Aggregating Long-Term Information.

## *Conferences Proceedings, and Lecture Notes*

"**Interactive Data: Technology and Cost of Capital**" *European Conference on Information Systems (ECIS)* (2012). Proceedings, Paper 153, with Sarah Zhang and Christof Weinhardt.

"**Participation, Feedback & Incentives in a Competitive Forecasting Community**" *International Conference on Information Systems (ICIS)* (2011). Proceedings, Paper 16, with Florian Teschner, Athanasios Mazarakis, and Christof Weinhardt.

"**Technology and Market Quality: The Case of High Frequency Trading**" *European Conference on Information Systems (ECIS)* (2011). Proceedings, Paper 16, with Sarah Zhang.

"**Mispricing and Exchange Market Systems: The Effect of Infrastructure Upgrades**" *43rd Hawaii International Conference (HICSS)* (2010). IEEE Computer Society, Proceedings, 259–269, with Dennis Kundisch, Fethi Rabhi, and Christof Weinhardt.

"**System Latency in Linked Sport and Futures Markets**" *Lecture Notes in Business Information Processing* (2009). 36, 231–245, with Martin Wagener.

"**Know the Flow: Sentiment Extraction from Retail Order Flow Data**" *Lecture Notes in Business Information Processing* (2009). 23, 31–46, with Matthias Burhardt.

"**The Effect of Automated Trading on Market Quality: Evidence from the New York Stock Exchange**" *Lecture Notes in Business Information Processing* (2009). 23, 11–30, with Andreas Storkenmaier.

## *Selected Academic Conference and Seminar Presentations*

Western Finance Association (2020, 2016, 2014, 2013), American Finance Association (2016, 2013), American Economics Association (2019), FIRN (2019), Conference on the Industrial Organization of Securities Markets (2017, 2015, 2009), Finance Down Under 2015, University of Mainz 2015, Bank for International Settlements 2015, EFA 2018, 2014, NBER 2013 Market Microstructure, Banff International Research Conference (2013 - 2 papers), Wilfrid Laurier University (2012), Northern Finance Association (2019, 2018, 2016, 2015, 2014, 2012, 2010, 2009, 2008), Symposium Oekonomikum Muenster (2011), German Finance Association (2014, 2010, 2009), University of Ottawa (2010), Erasmus Liquidity Conference, Rotterdam (2015, 2012, 2010), South Western Finance Association Conference, Houston (2010), University of Mannheim (2018, 2010), University of Toronto (2009), University of Toulouse (2009), London Business School - Transatlantic Doctoral Consortium (2009), Australasian Finance and Banking Conference, Sydney (2008). (Includes scheduled and some co-author presentations).

## *Practitioner Presentations*

Toronto Finance International (2020), Global Risk Institute 2020, Ernst and Young 2019), Bank of Canada (2018, 2017), Bundesbank (2016), CPPIB (2014), NASDAQ (2012), OSC Dialogue (2012), OSC (2014, 2012), IIROC (2015, 2013, 2012), Deutsche Boerse Captial Markets Education Event - Thinking Outside the Box (2011), Deutsche Boerse, Research Committee (2011), Stuttgart Stock Exchange, Research Event (2009).

## *Book Chapters*

"**The Impact of Economic News on Information and Liquidity in Electronic Futures Trading**" in: *Information Management and Market Engineering: Vol II. Studies on eOrganisation and Market Engineering* (2010). KIT Scientific Publishing, 37-54, with Andreas Storkenmaier, Rudi Studer and Christof Weinhardt.

## *Practitioner Journal*

"**Discount-Zertifikate an der Börse Stuttgart: Marktqualität und Preissetzung**" (2010). *Zeitschrift für das allgemeine Kreditwesen*, 63(11), 38-42. with Martin Wagener, Frank Scheuble, and Christof Weinhardt.

## *Selected Media Coverage*

Globe and Mail 2020/03, Globe and Mail 2019/10, The conversation 2019/10, Globe and Mail 2016/06, New York Times (2014/04), Bloomberg (2013/11), Financial Times (2013/11), Wall Street Journal (2013/11), CNBC (2013/11), Globe and Mail (2013/11) Central Banking (2013/11), eFinancial News (2013/11)

## Other Employment

*HSBC Trinkaus, Dusseldorf, Germany,* *2005 Sept. – 2006 May*

Risk - Manager, 2005 Sept. – 2005 Dec.
Trader in Equity Derivatives Products, 2006 Jan. – 2006 May.

*Export Development Canada, Ottawa, ON,* *2003 May – 2003 Aug.*

Summer Student - Assistant Portfolio Manager.

## Awards & Fellowships

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|---|---|
| Globe and Mail, Report on Business Change-maker Award | 2021 |
| Bank of Canada Governor's Award ($60,000) | 2019–2021 |
| Queen's Smith School of Business Research Excellence Award ($10,000) | 2018 |
| Queen's Smith School of Business Distinguished Professor of Finance ($30,000) | 2017 – Present |
| Queen's Smith School of Business Distinguished Faculty Fellow of Finance ($30,000) | 2015 – 2017 |
| Queen's Smith School of Business New Researcher Award ($30,000) | 2015 |
| Review of Financial Studies Michael J. Brennan Best Paper Award ($20,000) | 2014 |
| Queen's School of Business D.I. McLeod Term Research Assistantship ($5,000) | 2014 |
| Philip Brown Award for best paper using Thomson Reuters Data, ($5,000 AUD) | 2012 |
| Northern Finance Association / CFA Toronto Chapter, best paper award in capital markets research ($2,500 ) | 2012 |
| European Central Bank Lamfalussy Fellowship (10,000€ ) | 2011 |
| Federation of European Security Exchanges (FESE) de la Vega Prize (5,000 € ) | 2009 |
| Information and Management Engineering (IME) Graduate School Ph.D. best paper prize (4,000 € ) | 2009 |
| Teaching awards | |
| award for a top 10 lecture (eFinance) in the faculty of economics and business engineering | 2009\10\11 |

## Teaching

### *Queen's School of Business*

Winter Semester 2020 - (M.Fin.) Financial Technology and Innovation.
Fall Semester 2019 - (Ph. D.) Topics in Financial Technology and Innovation.
Fall Semester 2019 - (B. Comm. X 2) Financial Technology and Innovation.
Winter Semester 2019 - (M.Fin.) Financial Technology and Innovation.
Fall Semester 2018 - (M.B.A.) Financial Technology and Innovation.
Fall Semester 2018 - (B. Comm.) Financial Technology and Innovation.
Fall Semester 2018 - (Ph. D.) Capital Markets: Theory and Empirics.
Fall Semester 2018 - (M.B.A.) Advanced Portfolio Management.
Winter Semester 2017 - (M.Fin.) Financial Technology and Innovation.
Fall Semester 2016 - (M.B.A.) Investments.
Fall Semester 2016 - (Ph. D.) Capital Markets: Theory and Empirics.
Fall Semester 2015 - (M.B.A.) Investments.
Fall Semester 2015 - (Ph. D.) Capital Markets: Theory and Empirics.
Fall Semester 2014 - (B. Comm.) Investments and Portfolio Management.
Fall Semester 2014 - (Ph. D.) Capital Markets: Theory and Empirics.

### *Ph.D Advising*

Current – Saad Khan (HEC Montreal).
2017 – Mohamed al Guindy (Carleton University).

### *University of Ontario Institute of Technology*

Winter Semester 2014 - (B.Business) Fixed Income Securities, (B.Business) E-Trading and Exchanges.
Winter Semester 2014 - Rotman International Trading Competition (RITC) team mentor.
Fall Semester 2013 - (B.Business) Fixed Income Securities, (B.Business) Personal Finance.
Winter Semester 2013 - (B.Business) Derivative Securities, (B.Business) Fixed Income Securities.

### *Karlsruhe Institute of Technology*

Summer Semester 2012 - (M.Sc.) Empirical Asset Pricing, (B.Sc.) Financial Market Innovation.
Winter Semester 2011 / 2012 - (B.Sc.) eFinance: Informationswirtschaft für den Wertpapierhandel, (B.Sc.) Financial Markets.
Summer Semester 2011 - (Ph.D.) Empirical Research Methods.
Summer Semester 2011 - (M.Sc.) Empirical Asset Pricing, (B.Sc.) Financial Market Innovation.
Winter Semester 2010 / 2011 - (B.Sc.) eFinance: Informationswirtschaft für den Wertpapierhandel, (B.Sc.) Financial Markets.
Summer Semester 2010 - (M.Sc.) Empirical Asset Pricing, (B.Sc.) Financial Market Innovation.
Winter Semester 2009 / 2010 - (B.Sc.) eFinance: Informationswirtschaft für den Wertpapierhandel.
Winter Semester 2008 / 2009 - (B.Sc.) eFinance: Informationswirtschaft für den Wertpapierhandel.

### *Ph.D Advising*

2013 – Sarah Zhang (University of Manchester Business School).
2011 – Andreas Storkenamier (McKinsey Management Consulting).
2011 – Martin Wagener (Börse Stuttgart).

### *Business University of Vienna*

Winter Semester 2009 - (B.Sc.) eFinance: Informationswirtschaft für den Wertpapierhandel.

## Professional Activities

Co-chair, 5th European Retail Investment Conference, Stuttgart, Germany, 2019.
Editorial Board, Information Systems Review, FinTech Special Issue, 2018.
Associate Editor, Journal of Empirical Finance 2017 – Present.
Co-chair, 4rd European Retail Investment Conference, Stuttgart, Germany, 2017.
SSRHC Insight Grant Adjudication Committee 2016/17.
Co-chair, 3rd European Retail Investment Conference, Stuttgart, Germany, 2015.
Co-chair, 2nd European Retail Investment Conference, Stuttgart, Germany, 2013.
Co-chair, 12th Symposium of Finance, Banking and Insurance, Karlsruhe, Germany, 2011.
Co-chair, European Retail Investment Conference, Stuttgart, Germany, 2011.
Chair, FinanceCom, Frankfurt, Germany, 2010.

Referee for: Econometrica, Journal of Finance, Review of Financial Studies, Journal of Financial and Quantitative Analysis, Management Science, Journal of Banking and Finance, Journal of Financial Markets, MISQ, OR, Journal of Risk, EM, EFA, DGF, NFA.

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