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Academic Experience

Queen's University, Smith School of Business

Associate Professor, July 2016-Present.

- Distinguished Professor of Finance, July 2017–Present

Assistant Professor, July 2014-June 2016.

- Smith Faculty Fellow of Finance, July 2015-June 2017.

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

Assistant Professor, October 2012-June 2014.

- Finance Area Coordinator September 2013-June 2014

Karlsruhe Institute of Technology, Faculty of Economics and Business Engineering

Junior (Assistant) Professor, January 2011–September 2012. Post-Doctoral Researcher, January 2010–December 2010.

Visiting Positions

University of Mannheim, Mannheim, Germany

Visiting Researcher, February 2018-May 2018.

Visiting Researcher, June 2017-September 2017.

Bank for International Settlements, Basel, Switzerland

Visiting Researcher, June 2015–August 2015.

University of California at Berkeley, Haas School of Business

Visiting Scholar, January 2010-June 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.

Research

Publications

1. "Price Discovery Without Trading: The case of limit orders" (with Jonathan Brogaard and Terrence Hendershott), forthcoming at the *Journal of Finance*.

- 2. "Scarcity Effects of QE: A transaction–level analysis in the Bund market" (with Heiko Hofer, Kathi Schlepper and Andreas Schrimpf), conditionally accepted at the *Journal of Financial and Quantitative Analysis*.
- 3. "Uncertainty and Liquidity: Evidence from Hurricane Sandy" (with Dominik Rehse, Nico Rottke, and Joachim Zietz), accepted at the *Journal of Financial Economics*.
- 4. "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.
- 5. "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.
- 6. "**Trading Fast and Slow: Colocation and Market Quality**" (with Jonathan Brogaard, Björn Hagströmer, and Lars Norden), *Review of Financial Studies* 28 (2015), 3407–3443.
- 7. "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.
- 8. "News and International Stock Market Comovement" (with Markus Hoechstoetter, Stefan Meyer, and Andreas Storkenmaier), *Journal of Financial Research* 37 (4) (Winter 2014), 519 542.
- 9. "High-Frequency Trading and Price Discovery" (with Terrence Hendershott and Jonathan Brogaard), *Review of Financial Studies* 27 (August 2014), 2267–2306.
- 10. "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.
- 11. "Algorithmic Trading and the Market for Liquidity" (with Terrence Hendershott), *Journal of Financial and Quantitative Analysis*, 48 (August 2013), 1001–1024.
- 12. "**Latency, Liquidity and Price Discovery**" (with Andreas Storkenmaier), *Journal of Financial Markets* 15 (November 2012), 416–437.

Working Papers

"Carbon Risk" (with Görgen, Maximilian, Jacob, Andrea, Nerlinger, Martin, Rohleder, Martin and Marco Wilkens), to be presented at the European Finance Association Annual Meeting (2018).

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

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

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

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

Conference on the Industrial Organization of Securities Markets (2015, 2009), Finance Down Under 2015, University of Mainz 2015, Bank for International Settlements 2015, EFA 2014, NBER 2013 Market Microstructure, Banff International Research Conference (2013 - 2 papers), Western Finance Association (2016, 2014, 2013), American Finance Association (2016, 2013), Wilfrid Laurier University (2012), Northern Finance Association (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

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.

Media Coverage

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, September 2005 - May 2006

Risk - Manager, September 2005 - December 2005.

Trader in Equity Derivatives Products, January 2006 - May 2006.

Export Development Canada, Ottawa, ON, May 2003 - August 2003

Summer Student - Assistant Portfolio Manager.

Awards & Fellowships

2017 - Present, Distinguished Professor of Finance (\$30,000)

2015 - 2017, Distinguished Faculty Fellow of Finance (\$30,000)

2015, Smith School of Business New Researcher Award (\$30,000)

2015, Michael J. Brennan Best Paper Award for the best paper published in the Review of Financial Studies in 2014 (\$20,000)

2014, D.I. McLeod Term Research Assistantship Queen's School of Business (\$5,000)

2014, Philip Brown Award for best published paper using Thomson Reuters Data, (\$5,000 AUD) - for Algorithmic Trading and the Market for Liquidity.

2012, Northern Finance Association / CFA Toronto Chapter, best paper award in capital markets research (\$2,500) - for High Frequency Trading and Price Discovery.

2011, Lamfalussy Fellowship European Central Bank (10,000€) - for High Frequency Trading and Transitory Volatility project.

2009, Graduate School on Information and Management Engineering (IME) Ph.D. best paper prize (4,000 €) for Latency Liquidity and Price Discovery.

Teaching awards

2011 award for a top 10 lecture (eFinance) in the faculty of economics and business engineering.

2010 award for a top 10 lecture (eFinance) in the faculty of economics and business engineering.

2009 award for a top 10 lecture (eFinance) in the faculty of economics and business engineering.

Grants

2017–2022 Social Sciences and Humanities Research Council (SSHRC as co-PI) - Insight Grant (\$90,000).

2017-2020 Monieson Centre - Collaborative Research Grants (\$200,000).

2015-2020 Social Sciences and Humanities Research Council (SSHRC) - Insight Grant (\$80,000).

2014 Queen's School of Business Start-up Grant (\$60,000).

2013/14 Investment Industry Regulatory Organization of Canada (IIROC) grant to study high frequency trading and market integration (\$15,000).

2013/14 Investment Industry Regulatory Organization of Canada (IIROC) grant to study high frequency trading and short-selling (\$10,000).

2011 Start-Up Budget for High Frequency Trading Project - (20,000 €).

2010 Council for Research and Promotion of Young Scientists - 3 year grant (660,000 €) for a

Shared Research Group on Financial Market Innovation (1 untenured assistant professorship, 2 FT RAs).

2010 Karlsruhe House of Young Scientists - International Post-Doctoral Fellowship (for Haas/Berkeley).

2009/08/07 IME Graduate School travel scholarship.

Teaching

Queen's School of Business

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.

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

Editorial Board, Information Systems Review, FinTech Special Issue, 2018.

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.

Associate Editor for: Journal of Empirical Finance.

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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