

# NEWS RELEASE

*For immediate release*

*For further information, please contact:*

Karen Archer  
Senior Media and Public Affairs Specialist  
416-865-3046  
[karcher@iiroc.ca](mailto:karcher@iiroc.ca)

June Yee  
Manager, Corporate Communications  
416-943-6921  
[jyee@iiroc.ca](mailto:jyee@iiroc.ca)

---

*Experts to study HFT impact on market quality and integrity*

## **IIROC announces Academics for HFT impact analysis**

**April 23, 2014 (Toronto, Ontario)** – The Investment Industry Regulatory Organization of Canada (IIROC) today announced the selection of two project teams to assess the impact of high frequency trading (HFT) and related activity on Canadian equity marketplaces as part of the final phase of its HFT Study.

The two project teams are comprised of several professors, at renowned educational institutions across North America, who have extensive experience studying, teaching and publishing reports about HFT, algorithmic trading and other market structure issues internationally.

The first project team will focus on the impact of HFT in cross-market liquidity provision, risk management and information transmission. In focusing on these areas, the team will try to better understand if HFT firms are integrating markets and whether or not their activities are beneficial.

The second project team will focus on the effects of short-selling by HFT and other market participants on market liquidity, stability, price efficiency, and price discovery on Canadian securities markets.

“We believe it’s important to address identified regulatory concerns relating to HFT using empirical data and objective study to better understand its impact on market integrity and quality, as well as overall investor confidence,” said Susan Wolburgh Jenah, IIROC President and Chief Executive Officer. “This research, combined with IIROC’s ongoing work, will help to inform any further policy making or regulatory interventions.”

This impact analysis is the third phase of IIROC’s HFT Study. It follows the publication of the first two phases of the [study](#) in December 2012 which objectively identified a study group of traders and offered a detailed, statistical analysis of their activity. The teams will, as part of their research, have access to secure and “masked” data for the period of January 1, 2012 to June 30, 2013.

IIROC’s request for [assistance](#) for the impact study phase generated significant international interest. IIROC selected the two teams after reviewing 19 comprehensive projects submitted by seven respondent groups and negotiating terms to ensure protection and confidentiality of all data. IIROC expects to announce other teams to join in this review in the near future.

IIROC expects to have the final phase of the three-part study completed by the end of 2014.

This Study will complement other initiatives already adopted by IIROC to govern high frequency and algorithmic trading. In particular, in 2013 IIROC issued [guidance](#) on manipulative and deceptive trading. Surveillance alerts have been implemented and IIROC is actively monitoring to detect these rule violations.

\*\*\*

## **Background on Project Teams**

### **Project One**

*“Market Integration and High Frequency Intermediation” – Jonathan A. Brogaard, Terrence Hendershott and Ryan Riordan*

#### **Brief Description:**

This team will examine the role of High Frequency Trading (HFT) firms in integrating fragmented markets. This includes their role in transmitting information, liquidity provision, contagion and risk (inventory) management across multiple trading venues. Recently, fragmented markets appear to behave as being integrated. Even with a binding national best bid and offer (NBBO), exchanges rarely deviate much in their listed prices of stocks. For instance, when informed traders trade on one market the information is quickly reflected in the prices of the same and related securities on other trading venues.

This proposal is centered on the following topics:

1. HFT’s role in cross-market liquidity
2. Cross-market risk (inventory) management
3. Understanding how information is transmitted across exchanges

Each question is an important factor in the liquidity demand and supply dynamics across exchanges as well as the price discovery process. By answering these questions we will be one step closer to understanding the role of HFT and the role of fragmentation in market quality. Ultimately we will be better able to understand if HFT firms are integrating markets and whether or not their activities are beneficial.

## Backgrounds:

Terrence Hendershott:

- Cheryl and Christian Valentine Chair and Associate Professor at the Haas School of Business, University of California, Berkeley
- Ph.D., Operations, Information and Technology, Graduate School of Business, Stanford University, 1999
- B.S., Mathematics and Statistics, Miami University, 1989
- Teaches High-Frequency Finance, Analytic Decision Modeling Using Spreadsheets, Information Technology Strategy among other topics
- Recent/Forthcoming publications:
  - High Frequency Trading and Price Discovery, Accepted for publication at the *Review of Financial Studies*.
  - “Levelling the Trading Field” (with David Easley and Tarun Ramadorai), *Journal of Financial Markets*, forthcoming.
  - “The Intended and Collateral Effects of Short-Sale Bans as a Regulatory Tool” (with Ethan Namvar and Blake Phillips), *Journal of Investment Management*, forthcoming.
  - “Algorithmic Trading and the Market for Liquidity” (with Ryan Riordan), *Journal of Financial and Quantitative Analysis*, forthcoming.
  - “Informed Trading and Portfolio Returns” (with Alex Boulatov and Dmitry Livdan), *Review of Economic Studies* 80 (January 2013), 35-72.
  - “Automation, Speed, and Stock Market Quality: The NYSE’s Hybrid” (with Pam Moulton), *Journal of Financial Markets* 14 (November 2011), 568-604.

Jonathan A. Brogaard:

- Assistant Professor of Finance, Michael G. Foster School of Business, University of Washington, Seattle
- Ph.D. in Finance, Kellogg School of Management, Northwestern University, 2012
- J.D., Northwestern University School of Law, 2012
- B.A., Economics, Politics, Occidental College, Los Angeles
- Research interests: High Frequency Trading, Law and Finance, Financial Regulation, Empirical Asset Pricing
- Recent/Forthcoming Publications:
  - High Frequency Trading and Price Discovery, Accepted for publication at the *Review of Financial Studies*.
  - Brogaard, Jonathan, Joseph Engelberg, and Christopher Parsons, “Network Position and Productivity: Evidence from Journal Editor Rotations”, *Journal of Financial Economics*, forthcoming.
  - “High-Frequency Trading and the Execution Costs of Institutional Investors”, UK Government Office for Science, The Future of Computer Trading in Financial Markets – Foresight Driver Review (09/2012) (with Terrence Hendershott, Stefan Hunt, Torben Latza, Lucas Pedace, and Carla Ysusi).
  - Regulatory Impact Assessment, UK Government Office for Science, The Future of Computer Trading in Financial Markets - Foresight Driver Review (03/2012).

- High Frequency Trading: What We Have Learned and Where We're Headed, World Federation of Exchanges (03/2011).

Ryan Riordan:

- Assistant Professor, University of Ontario Institute of Technology, Faculty of Business and Information Technology
- Dr. in Business, Karlsruhe Institute of Technology (KIT), 2009 (summa cum laude)
- 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 interests: Market Microstructure, Algorithmic and High-Frequency Trading, Retail and Institutional Trading, Empirical Asset Pricing, Trading Systems, NeuroIS, Electronic Auctions/Exchanges, Big Data
- Recent/Forthcoming Publications:
  - High Frequency Trading and Price Discovery, Accepted for publication at the *Review of Financial Studies*.
  - "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*, accepted.
  - "Algorithmic Trading and the Market for Liquidity" (with Terrence Hendershott), *Journal of Financial and Quantitative Analysis*, Forthcoming.
  - "Latency, Liquidity and Price Discovery" (with Andreas Storkenmaier), *Journal of Financial Markets* 15 (November 2012), 416-437.
  - "Price Efficiency in Futures and Spot Trading: The Role of Information Technology" *Electronic Commerce Research and Applications* 2010, 9(5), 400-409, with Martin Wagener, Dennis Kundisch, Fethi Rabhi, Philip Hermann and Christof Weinhardt.

## **Project Two**

*"Short-selling, Intermediation and HFT" – Andriy Shkilko and Ryan Riordan*

### **Brief Description:**

This team will study how short selling affects the functionality of Canadian securities markets. They expect to use recent changes in short-selling regulation to shed light on the effects of short selling by various market participants (e.g. high frequency traders (HFT) and other institutions) on market liquidity, stability, price efficiency and price discovery.

In October 2012, IIROC implemented amendments to the Universal Market Integrity Rules (UMIR) that repealed the tick test. The amendments may make it easier for intermediaries to provide liquidity and for arbitrageurs to manage risk in the process of mitigating pricing inefficiencies. Given the importance of short selling in trading strategies of informed traders, arbitrageurs and liquidity providers, elimination of the barriers to short selling may have impacted price discovery, market efficiency and liquidity.

## **Background:**

Andriy Shkilko:

- Associate Professor of Finance, Wilfrid Laurier University, Waterloo
- Ph.D. in Business Administration, Finance, The University of Mississippi, Oxford, MS
- B.B.A. in Managerial Finance (summa cum laude), The University of Mississippi, Oxford, MS
- Recent Publications:
  - “Information transfers and learning in financial markets: Evidence from short selling around insider sales” (with B. Chakrabarty), 2013, *Journal of Banking and Finance* 37, 1560-1572 (lead article in the regular issue).
  - “Short sales, long sales, and the Lee-Ready trade classification algorithm revisited” (with B. Chakrabarty and P. Moulton), 2012, *Journal of Financial Markets* 15, 467-491.
  - “Short selling and intraday price pressures” (with B. Van Ness and R. Van Ness), 2012, *Financial Management* 41, 345-370.

Ryan Riordan: (see above)

\*\*\*

IIROC is the national self-regulatory organization which oversees all investment dealers and trading activity on debt and equity marketplaces in Canada. Created in 2008 through the consolidation of the Investment Dealers Association of Canada and Market Regulation Services Inc., IIROC sets high quality regulatory and investment industry standards, protects investors and strengthens market integrity while maintaining efficient and competitive capital markets.

IIROC carries out its regulatory responsibilities by creating and enforcing rules regarding the proficiency, business and financial conduct of dealer firms and their registered employees and through the creation and enforcement of market integrity rules regarding trading activity on Canadian marketplaces.

-30-