

IIROC NOTICE

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IIROC Study of High Frequency Trading – Completion of Final Phase

Summary

IIROC has completed the final phase of its study of High Frequency Trading (“HFT”) activity on Canadian equity marketplaces (the “study”). The results of the Study did not reveal any concerns that warranted a regulatory response beyond measures already implemented by IIROC. These measures include the implementation of the Electronic Trading Rules and requirements respecting third-party electronic access to marketplaces, and the issuance of additional guidance relating to manipulative and deceptive trading practices. IIROC will continue to monitor any developments relating to HFT behavior and practices.



The Study

The study consisted of three phases:

- Phase I – the identification of a study group for Phase II;
- Phase II – a detailed descriptive statistical analysis of the trading activity of the study group on Canadian equity marketplaces; and
- Phase III – a series of independent academic studies that examined HFT and related trading behaviours from multiple perspectives. Among other things, the academic papers examined HFT behavior in terms of market making, intermediation and trading in the dark and the impacts of these behaviours on market quality and integrity.

On December 12, 2012, IIROC published “The HOT¹ Study”² which summarizes the results of Phases I and II of the HFT Study. The HOT Study did not attempt to define HFT. Rather, Phase I statistically identified an outlier group of trader user IDs with a high order-to-trade ratio (one of the key characteristic commonly associated with HFT activity) to establish the “HOT Group”.

In November 2013, IIROC published “Market Quality in a Changing Environment”, a presentation given at the 2013 OSC/IIROC Market Structure Conference which provided both an update on IIROC’s approach to identifying HFT, and some preliminary insights into three market structure issues: (1) intermediation by HFT; (2) the impact of the repeal of the short sale tick test; and, (3) the impact of the new Dark Liquidity Rules introduced on October 15, 2013.

Phase III

In response to a request for assistance, IIROC selected 5 academic teams to study the impact of HFT activity on the Canadian equity marketplace. Five independent academic papers³ were completed by different academic teams comprised of both domestic and foreign academics. The papers are summarized below:

1. *High Frequency Market Making to Large Institutional Trades* (Robert Korajczyk/Dermot Murphy)

¹ HOT refers to “high order-to-trade” ratio.

² See IIROC Notice 12-0373 - Administrative Notice – General – UMIR - *The HOT Study: Phases I and II of IIROC’s Study of High Frequency Trading Activity on Canadian Equity Marketplaces* (December 12, 2012).

³ The five academic papers referred to are available in their entirety on the IIROC website ([HFT Academic Papers](#)).



The paper examines the behaviour of HFT firms during times of market stress using the execution of large institutional trades as a proxy for times of market stress. The authors compare the behaviour of HFT firms and traditional Designated Market Makers (“DMMs”).

2. *Price Discovery without Trading: Evidence from Limit Orders* (originally titled *Market Integration and High Frequency Intermediation*) (Jonathan Brogaard/Terrence Hendershott/Ryan Riordan)

The paper examines the nature of price discovery for stocks in modern fragmented markets.

3. *The Impact of the Dark Trading Rules* (Carole Comerton-Forde/Katya Malinova/Andreas Park)

The paper examines the effects of the introduction of new requirements regarding the execution of dark orders on the functionality of Canadian securities markets.

4. *The Market Quality Effects of the 2012 UMIR Amendments to the Short Selling Rules in Canada* (Andriy Shkilko/Ryan Riordan)

The paper examines the effects of the relaxation of short sale restrictions on the functionality of Canadian securities markets.

5. *Liquidity Provision and Market Making by HFTs* (Katya Malinova/Andreas Park)

The paper examines the market-making behaviour of high frequency traders. It describes how high-frequency market makers submit quotes relative to posted prices and analyzes how they react to trades.

Additional Related IIROC Publications

In September 2014, IIROC published a further study entitled “Identifying Trading Groups – Methodology and Results”⁴ which outlines IIROC’s recently-developed approach, using a “supervised machine learning” method, to identifying distinct groups trading on the Canadian equity markets.

HFT Forum

On October 9, 2015, IIROC, in collaboration with the Capital Markets Institute at the Rotman School of Management, hosted an HFT forum where the academic teams were given the opportunity to present their work and the conclusions reached in their papers. In addition to the independent academic papers, the HFT forum also featured a paper produced by IIROC’s analytics team⁵ and the results of research completed by the British Columbia Securities

⁴ See [Identifying Trading Groups – Methodology and Results](#) (September 9, 2014).

⁵ See [Impact of the Dark Rule Amendments](#) (May 7, 2015).



Commission⁶ relating specifically to HFT in the venture market. The full video cast of this event is available on the IIROC website ([HFT Forum](#)).

Summary of Results of the Study

It is clear from the papers that the presence of HFT has impacted Canadian equity markets and those who invest on those markets differently. The majority of the papers highlighted the positive impacts of HFT:

- HFTs generally provide more liquidity;
- HFTs contribute in a substantial way to price discovery;
- the majority of passive orders entered by HFT either improve the best price or match the prevailing best prices; and,
- there is little evidence that HFTs take advantage of slower non-HFTs or front-run non-HFTs.

A few of the papers also indicated that the trading activity of HFTs has resulted in increased costs for both institutional and retail clients.

However, on balance IIROC believes that the benefits outweigh the costs. None of the papers demonstrated any issues that would require a regulatory response beyond what IIROC has already implemented. Accordingly, IIROC believes that it would be inappropriate to take any regulatory steps specifically addressing HFT at this time.

Prior Regulatory Steps Taken

Since the IIROC study of HFT commenced, requirements that address the risks of electronic trading and in particular, third-party direct electronic access, have been implemented.⁷ IIROC has also issued guidance confirming their position that employing certain trading strategies that may be considered manipulative and deceptive trading practices for the purposes of UMIR are prohibited whether they are conducted manually or electronically.⁸

Each of these IIROC initiatives directly affects the supervision and regulatory oversight of electronic trading, including HFT, whether as agent through a third-party electronic access arrangement with a Participant or as principal directly for the interest of the Participant itself.

⁶ See [Research on HFTs in the Canadian Venture Market](#) (October 2015).

⁷ See [Rules Notice 13-0184](#) – Rules Notice – Notice of Approval “Provisions Respecting Third-Party Electronic Access to Marketplace” (July 4, 2013).

⁸ See [Rules Notice 13-0053](#) – Guidance Note – “Guidance on Certain Manipulative and Deceptive Trading Practices” (February 14, 2013).



Next Steps

IIROC will continue to be proactive in strengthening the oversight and regulation of trading in a manner that fosters fair and efficient markets and protects investors. Specifically, we will:

- keep abreast of developments in trading technology and market structure that affect the ways in which HFT trades on Canadian equity markets; and
- continue to monitor all Canadian equity trading activity for compliance with UMIR, including the trading activity associated with HFT.

As part of its mandate, IIROC will continue to look for opportunities to further enhance our regulation of trading and the integrity of our capital markets through our ongoing market regulation oversight, Participant feedback and evidence-based policy development.