



Andriy Shkilko, Associate Professor
Lazaridis School of Business and Economics (Finance)
Canada Research Chair in Financial Markets
519-884-0710 ext. 2462 or ashkilko@wlu.ca

Kevin Crowley, Director
Communications & Public Affairs, Wilfrid Laurier University
519-884-0710 ext. 3070 or kcrowley@wlu.ca

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Laurier study uses effects of weather to challenge high-frequency trading strategies

WATERLOO – Weather can be an unexpected equalizer. In modern markets, where trading firms spend generously to gain a speed advantage over their rivals using high-frequency trading strategies, some traders become faster than others. But is this kind of marketplace optimal?

A study by Andriy Shkilko, associate professor of Economics at Wilfrid Laurier University's Lazaridis School of Business and Economics, and PhD candidate Konstantin Sokolov, uses detailed weather data to examine the impact of disrupting microwave networks on the stability and trading costs of the market: "[Every Cloud has a Silver Lining: Fast Trading, Microwave Connectivity and Trading Costs.](#)"

The study demonstrated that even the slightest precipitation resulted in temporarily removing the speed advantages of the fastest traders by disrupting their microwave networks. These "shocks" to the network were noted to happen at least twice a day over the year of the study.

During these weather episodes, adverse selection declined, thereby creating a more equal playing field, while also improving market liquidity and stability. Limiting these "speed differentials" – unequal access to high-frequency trading strategies – between traders showed positive market outcomes that regulators could use in the future to create a more stable, liquid market.

"Empirical research has shown high-frequency trading nets a positive impact on the market; however, with high-frequency trading there are different strategies that are good and bad," said Shkilko. "Our study demonstrates how speed differentials can be bad for the market by increasing trading costs and decreasing market stability."

While high-frequency trading has garnered bad publicity over the past few years, Shkilko emphasizes that there are many positives to high-frequency trading and automation in the marketplace, but that some strategies have to be looked at critically and carefully.

"The issue is very complex and the solution that seems obvious, hasn't necessarily resulted in the expected outcomes," said Shkilko.

The study has already received the Best Paper of Market Microstructure award from the Northern Finance Association and will be presented at the National Bureau of Economic Research Conference, the leading nonprofit economic research organization in America, before being submitted to a peer-reviewed journal.