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To:

British Columbia Securities Commission
Alberta Securities Commission
Financial and Consumer Affairs Authority (Saskatchewan)
Manitoba Securities Commission
Ontario Securities Commission
Autorité des marchés financiers
Financial and Consumer Services Commission (New Brunswick)
Superintendent of Securities, Department of Justice and Public Safety, Prince Edward
Island
Nova Scotia Securities Commission
Securities Commission of Newfoundland and Labrador
Superintendent of Securities, Northwest Territories
Superintendent of Securities, Yukon
Superintendent of Securities, Nunavut

To whom it may concern

Thank you for giving us the opportunity to comment on the “Proposed Amendments to National Instrument 23-101 *Trading Rules*.” In this letter, we provide our opinion on the pilot study on the prohibition of the payment of rebates by marketplaces.

Katya Malinova is an Assistant Professor of Economics and Andreas Park is an Associate Professor of Economics and Finance at the University of Toronto. We currently also hold visiting positions as Associate Professor and Professor at the Department of Finance at Copenhagen Business School, respectively. Over the past few years, we have been involved in a number of academic research projects (supported by the Social Sciences and Humanities Research Council of Canada) on Canadian equity markets; these projects cover the introduction of maker-taker pricing, the introduction and usage of dark orders on the TSX, and the impact of high-frequency trading in the context of the 2012 introduction of IIROC’s per-message fee.

Theoretical Models and Empirical Evidence on Maker-Taker Pricing.

There are two aspects of maker-taker pricing that academic researchers have studied. The first concerns the impact of maker-taker fees on the behavior of traders. The second concerns the conflicts of interest between brokers and their clients that maker-taker fees create.

Angle 1: Incentives for traders on single venues. Maker rebates aim to both improve liquidity, by rewarding its provision, and to increase trading volume. A number of theoretical studies, however, argue that rebates need not affect liquidity and that trading volume may, in fact, decline.

Angel, Harris, and Spatt (Quarterly Journal of Finance, 2011) argue that introducing a maker rebate that is financed by a taker fee should have no effect, because in competitive markets prices would adjust by the amount of the rebate. Colliard and Foucault (Review of Financial Studies, 2012) formalize the intuition of Angel, Harris, and Spatt, and they highlight the importance of distinguishing between changes in the net fee (taker fee minus maker rebate) itself and changes in the breakdown of the net fee into maker rebate and taker fee. They show that in the absence of market frictions, only changes in the net fee have an economic impact. Foucault, Kadan, Kandel (Journal of Finance, 2013) show that rebates can affect trading volume (positively or negatively, depending on the model parameters) when the minimum tick sizes prevent prices from neutralizing the effect of the maker rebate.

In practice, many traders do not pay maker-taker fees directly, but instead pay a flat commission to their broker and would thus ignore maker-taker fees in their order choice. When quoted spreads decline, these traders find marketable orders relatively cheaper and trade more. Brolley and Malinova (University of Toronto Working Paper, 2013) formalize this effect and show that an increase in the spread between taker fees and maker rebates generates a wealth transfer among traders who pay flat commissions (from limit order traders to market order traders).

As traders switch to marketable orders, their brokers have to pay higher fees to exchanges. Brolley and Malinova assume that brokers account for fee changes in their commissions. In reality, they may not, for instance, because of simplified pricing models (“\$7.99 per trade”) — which may explain why retail brokers in particular dislike maker-taker fees.

All the above papers are theoretical. In Malinova and Park (Journal of Finance, 2014), we complement this work with an empirical analysis of the 2005 introduction of maker-taker fees on the Toronto Stock Exchange. We observe that, as predicted, posted quotes did adjust after the change in fee composition, but the transaction costs for liquidity demanders that pay taker fees remained unaffected once fees were taken into account. However, as posted bid-ask spreads declined, traders (particularly retail) used aggressive

orders more frequently. Our conclusion was that, taken in isolation and applied to a single trading venue, maker-taker fees may indeed have positive effects.

Angle 2: The impact of maker-taker fees on broker routing decisions with multiple venues. Many traders do not choose which venue their order gets sent to but instead leave this decision to their broker. Since brokers commonly do not directly pass the exchange fees on to their customers, there may be a conflict of interest when brokers choose the venue based on fees rather than execution quality.

For marketable orders, the routing decision is primarily governed by the order protection rule in that marketable orders must be routed to the best price venue; if prices are the same at different venues, brokers would usually route to where they pay the lowest fees.

For limit orders, Battalio, Corwin, and Jennings (University of Notre Dame Working Paper, 2014) show empirically that four popular U.S. retail brokers make order routing decisions that “appear to maximize the liquidity rebates generated from limit order executions”. They further argue that these routing decisions are “not consistent with the objective of obtaining best execution for customer limit orders” because limit orders that trade on high maker rebate venues are exposed to high adverse selection risk and are less likely to trade.

In recent theoretical work, Cimon (University of Toronto Working Paper, 2014) (one of Andreas Park’s doctoral students) studies the routing decisions that maximize brokers’ profits. All else equal, brokers preferentially route marketable orders to venues with lower taker fees (and thus lower maker rebates). When routing non-marketable limit orders, brokers must choose between venues with high execution probability and low rebates and venues with low execution probability and high rebates. In principle, the broker’s and the client’s interest are aligned in that the broker earns the commission and the maker rebates only if the client’s order executes. However, if the fee schedules across venues are sufficiently different (e.g., one exchange charge high taker fee, the other a high maker fee), then brokers may prefer to route to the high rebate venue. In Cimon’s model, brokers then expose their clients to adverse selection risk because the marketable order flow that reaches the high taker fee (and thus high maker rebate) venue is more toxic.

Of course, profit maximization from rebates is not the only factor that governs brokers routing decisions. Cimon’s results imply that if brokers act solely in their clients’ interests, then maker-taker fees may have a negative effect on their profits, in particular if venues offer very heterogeneous fee schedules.

Summary. The three important factors about maker-taker fees that have been identified in the academic literature is (a) the level of the *net fee*, which is the difference between the taker fee and the maker rebate, (b) the maker-taker spread, which is the sum of the taker fee and the maker rebate, and (c) the heterogeneity of maker-taker spreads across

trading venues. To further clarify: if a venue charges a taker fee of 10 mils and a maker rebate of 8 mils, then its *net fee* is 2 mils (the difference of taker fee and maker rebate), and its *maker-taker spread* is 18 mils (the sum of taker fee and maker rebate). At this point, the maker-taker spread in Canada ranges from 20 to 65 mils, the net fees range from 3 to 5 mils.

What the pilot can and cannot accomplish.

First, banning rebates cannot eliminate the maker-taker spread or heterogeneity of venues' fee schedules. Historically, prior to the introduction of maker rebates in 2005, limit orders paid no fee and marketable orders paid a positive fee. Consequently, even at that time, there was a positive maker-taker spread. After the proposed ban, some venues may charge both makers and takers positive fees, others may charge only takers, and yet others may charge only makers.

The ban would, however, tighten the maker-taker spread because this spread would be constrained by the net fee. The ban would also reduce the heterogeneity of maker-taker spread across marketplaces.

The specific questions that the pilot can then address are whether the compressed maker-taker spread affects brokers' order routing decisions (alleviating possible conflicts of interest) and whether customers find better or worse trading conditions (for their market and limit orders).

Second, the interpretation of the pilot would differ for interlisted and non-interlisted securities. For the latter, the regulator can understand the impact of the maker-taker spread. For the former, the regulator can understand how a market with tight maker-taker spreads (Canada) competes with a market that allows large maker-taker spreads (the U.S.).

Critical Components of the Pilot.

The basic structure for a pilot is to apply a policy change (here, the ban on rebates) to a subset of securities and to use the remaining securities as a control for trends and marketwide movements. The former group is referred to as the *treated* or *treatment* group, the latter as the *control* group. In what follows we outline a number of issues that we believe require particular attention when designing the pilot.

1. Sample Size.

There are only between 200 and 300 stocks and 40-60 ETFs that trade sufficiently frequently to be useful in a statistical analysis. Generally speaking, the larger the sample, the higher is the statistical power. Moreover, the sample must be large enough so that market participants need to react to the pilot and cannot circumvent it. If the sample is too small, there may be a risk that important entities would avoid the sample securities or choose not to change their behavior.

2. Sample Selection.

Roughly half of the frequently traded stocks and ETFs should be selected into the treatment group, the other half will serve as the control group. The precise selection will be based on objective criteria (e.g., market cap, price level, index constituency, interlisting status) to ensure that each treated security has a meaningful control. The ultimate selection must be governed exclusively by statistical considerations and must not be influenced by business considerations of issuers or brokers.

3. Dealer Support.

It is absolutely critical that dealers support the pilot, whether or not they are for or against maker-taker fees.

4. Timing and length.

Assuming that the CSA will proceed with the proposed changes to the order protection rule, the maker-taker pilot should occur after the implementation of the OPR changes. Ideally, it would start no earlier than 6 months after the OPR change. Furthermore, the pilot should run for a sufficiently long period of time, because a long study period will ensure that the results are not significantly affected by traders speeding-up or delaying their trades (when the study period is long, one can correct for these effects). Our recommendation is to run the pilot for 6 months, so that it ends 12 months after the OPR changes.

5. Communication and Transparency.

A critical prerequisite of the pilot is that market participants can understand the economic implications. For instance, they must know the details of the new exchange fee schedules, including incentives that venues may offer to brokers or specific traders (such as market makers). It is also important that the respective sample constituents are very clearly communicated.

6. Potential confounding factors.

First, individual securities in the sample may experience events that render them inadmissible for the subsequent statistical analysis; examples for adverse events are stock splits, major changes in market capitalization through changes in capital structure, corporate actions, or M&A.

Second, all securities can be affected by major market-wide, confounding events. Examples are the failure of a major financial institution, a market crash in North America, or an adverse political event. While a control group and a sufficiently long pilot horizon alleviates some of the concerns regarding the impact of market-wide events, the CSA should reserve the right to extend the pilot or to delay the start of the pilot should exogenous events make this necessary.¹

¹A staggered introduction of a pilot can help avoid some pitfalls; however, we believe that the subgroups in a staggered introduction for this pilot would be too small, making it difficult to interpret the results.

Risks.

Since the introduction of maker-taker pricing in 2005/6, markets have changed fundamentally. In frequently traded securities, allegedly, electronic traders provide the lion's share of liquidity. If maker rebates are banned, then it is imaginable that (some of) these entities no longer find it worthwhile to supply liquidity in Canada or for treatment group securities, and it is not clear who would supply liquidity in their stead.

For interlisted securities there is a concern that brokers may send their order flow to the U.S., e.g., that they may send non-marketable orders to capture the higher rebates there. The CSA should develop a strategy to measure which fraction of Canadian order flow (active or passive) leaves the country.

Conclusion.

At the end of the day, a regulator can only engage in evidence-based policy making, if there is evidence. A carefully planned pilot study is the ideal way to gather evidence, and we very much hope that the CSA proceeds with the proposed pilot.

Sincerely,



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