

March 1st, 2019

The Secretary
Ontario Securities Commission
20 Queen Street West
22nd Floor
Toronto, Ontario M5H 3S8

Me Anne-Marie Beaudoin
Autorité des marchés financiers
800, rue du Square Victoria, 22e étage
C.P. 246, tour de la Bourse
Montréal (Québec) H4Z 1G3

BY ELECTRONIC MAIL: Comments@osc.gov.on.ca ; Consultation-en-cours@lautorite.gc.ca

RE: **CSA Staff Notice and Request for Comment 23-323 Trading Fee Rebate Pilot Study**, ("Proposed Pilot")
published on December 18th, 2018.

National Bank Financial Inc. ("NBF") appreciates the opportunity to comment on the following Proposed Pilot. We support the CSA's stated mission to provide a securities regulatory system that protects investors from unfair, improper or fraudulent practices and fosters fair, efficient, and vibrant capital markets.

NBF is part of the diverse National Bank Financial Group ("NBFG") which: (i) manufactures mutual funds, owns proprietary distribution channels and supplies services to third party distributors; (ii) operates a discount brokerage firm; and (iii) is an IIROC-regulated investment dealer across Canada. We take great interest in initiatives contained in the Comment Paper and their potential impact on investors, the mutual fund industry, the investment industry and financial intermediaries.

NBF would like to emphasize that we are one of Canada's leading market makers in both ETF's and listed equities, in addition to an integrated broker-dealer offering equity & ETF research, sales, and trading services to Canadian investors of all sizes. As such, we believe our perspective in market structure topics like this one to be a holistic one, balanced between these very different stakeholders.

Accordingly, our intention is to share our concerns regarding the initiatives contained in the Proposed Pilot and provide significant suggestions. We trust that our comments will be considered during the review process and will provide a productive contribution to the outcome of the Proposal.

NBF strongly supports this Pilot Study. We have long been proponents of reducing or eliminating rebates along with the high access fees (take rates) that enable them. We agree that, as the proposal points out, rebates introduce a handful of manageable but meaningful conflicts of interest to marketplace stakeholders. Their removal would simplify Canadian market structure significantly, improving the efficiency *and fairness* with which orders from liquidity providers and demanders can be matched.

We acknowledge that the CSA and the study designers have consulted heavily with industry stakeholders to draft this proposal as published. We will focus our comments here on the questions proposed in the Appendix II in the proposal to be as efficient as possible. Our largest focus will be in the 7th question concerning the inclusion of ETP's in the study where, in brief, we strongly believe they should be included.

Questions from Appendix II

1. We propose to define a security as medium-liquid if it trades at least 50 times a day on average and more than \$50,000 on average per trading day over the past month. Do you believe that this definition is appropriate? If not, please provide an alternative definition and supporting data, if available, to illustrate which securities your definition captures.

NBF agrees that this is a reasonable hurdle. By our measure, this puts approximately 360 names in the highly liquid bucket and another 300 in the medium bucket.

NBF would suggest, should the pilot agree to include ETFs, that the two buckets be combined as one, with approximately 200 ETF names included.

2. We propose to introduce the Pilot in two stages, with non-interlisted securities first, followed by interlisted securities. Do you believe that such staggered introduction will cause material problems for the statistical analysis and the results of the Pilot? If so, please describe your concerns in detail.

NBF sees no issue with the staged introduction, provided that it is coordinated with the SEC pilot (as has been widely discussed). It is already relatively common to support different routing profiles for these two groups, so we anticipate it will be relatively straightforward for participants to adapt to such an approach.

Regulators will need be cautious analyzing differences between interlisted vs non-interlisted market quality metrics. If they plan to implement separate rebate restrictions on these groups, any market disturbances that occur in one time period only should be recognized or simply discarded from the results.

3. Several Canadian marketplaces offer formal programs that reward market makers with enhanced rebates in return for liquidity provision obligations. On the one hand, such programs may benefit liquidity. On the other hand, one of the primary objectives of the Pilot is to understand if rebates cause excessive intermediation. In your opinion, should exchanges be allowed to continue using rebates or similar arrangements for market making programs during the Pilot? Do you believe any constraints on such programs during the Pilot to be appropriate?

While rebates and financial incentives toward liquidity provision have always been appreciated by our market making program, they have never been a key driver for us. Removing these rebates would not change how *much* liquidity we would be willing to offer. However, it would affect the price levels at which we would offer liquidity, as marketplace fees & rebates included in our pricing models. Taking these considerations into account, a no-rebate regime is fairer, in our opinion, in that the investor is paying for their liquidity rather than their agents.

It's a slippery slope to allow other non-rebate incentives, of course. Anything more nuanced than a strait prohibition is difficult to measure and police both during the pilot study and afterwards. So it would be *easier* for the pilot to rule out any other venues' regimes incentivizing or providing discounts for market makers. But, naturally, we would like some! Some suggestions to consider for non-rebate incentives are *free* trading to the market makers as well as reduced or zero cost infrastructure services like connectivity sessions.

4. We propose to compute price impacts at the one- and five-second horizons. Do you believe that we should consider other horizons? If so, which ones?

NBF has No objections to these suggestions. Longer horizons would be helpful, especially in the medium liquid bucket. Five seconds may be too long for highly liquid securities as it would introduce enough noise as to be not all that useful.

From the perspective of measuring the replenishment of liquidity provision, 5 seconds is plenty.

5. We propose to compute time-to-execution for limit orders posted at the CBBO prices or improving these prices. Do you believe that we should consider different price levels? If so, which ones? Please provide supporting data and analysis, if available, to demonstrate the empirical importance of order postings at other levels.

NBF agrees that CBBO or better is reasonable. Investors posting at levels outside the CBBO indicate an even lower urgency for "quick" execution; measuring time on an order in which time is not important seems counter-productive. In addition, please note that NBF believes the prevailing volatility regime will be a large influence on the results.

Measuring *size* outside the CBBO makes sense as it contributes to the overall liquidity picture, but time-to execution is only germane at the touch.

6. We propose a number of market quality metrics. Do you believe that we should consider additional metrics? If so, please outline these metrics and provide supporting data and analysis, if available, to demonstrate their empirical importance.

NBF proposes in Question 7 the inclusion of *investable dollar effective spread* as a metric to be considered for both matching and measurement. See below for elaboration.

7. Given the challenges that ETP matching presents, can the goals of the Pilot be achieved without including ETPs in the sample? If ETP inclusion is important, can you propose a way to construct a matched sample that addresses the concerns identified above?

NBF believes that omitting ETP's (ETF's) from this study would be a missed opportunity. As market makers, rebates do not influence at all how much liquidity we are willing to provide; but they do directly influence the prices we post. NBF also feels the elimination of rebates including ETPs will only serve to make markets more efficient and fair, supporting a cost regime much more in keeping with the overall ethos of the ETF structure: that investors pay their own way and enjoy overall lower costs as a result.

However, the Proposed Pilot's designers have cited a few problems regarding ETP/ETF inclusion: difficulties finding good matched pairs, possible substitution effects, and potential spillover effects from the ETF's underlying holdings containing pilot names.

These problems are not invalid. And yet NBF believes that solving these problems are worthwhile in the service of inclusion. It will be valuable to have good, empirical data on the potential effects of rebates to these issues across both ETPs and single issuers. The liquidity superstructure of ETPs is very different from listed equities, so it may be difficult to use the findings from the pilot informative if they are not included.

Our greatest concern in with their exclusion is the possibility that any resulting rule changes may not contemplate ETPs on account of lacking just this specific data.

Please find below a discussion from NBF on these problems and recommendations on how to adequately include ETPs in the overall study.

The Matching Problem

NBF has a few ideas about how suitable sets of matched pairs could be derived for Canadian listed ETPs. Please note that while including ETPs may be problematic, the Pilot would still be better off using the existing proposed framework on both listed equities and the ETP universe than not including them at all. NBF believe the CSA would still be able to glean interesting data points in such a scenario as to make it worthwhile.

NBF suggests a simple amendment to these proposed matching procedures for assigning Canadian-listed ETFs into the treatment and control groups of the Proposed Pilot. In the CSA proposed stock matching process, three metrics are used: trading volume, price, and market capitalization. NBF proposes a fourth metric: ***investable dollar effective spread (IDES)***.

Below is an explanation of this metric, which will be familiar to the ETF community (who simply call it "effective spread") but perhaps not to everyone. Following the explanation is a discussion as to the suitability of each of the four metrics.

Dollar Investable Effective bid/ask spread Ratio (IDES)

NBF defines the investable dollar effective bid ask spread at a single point in time to be the weighted average cost to fill an immediate round-trip order of certain notional amount, divided by the mid-price.

Note that IDES here is *not* the same as the Effective Spreads defined in the *Pilot IV. Empirical Measures and Analysis, page 15*. The former calculates spreads using quoted bid and ask prices, while the latter uses traded prices. (This is why we've had to make up the more complicated name!)

Notional amount is an important "input parameter" in calculating this investable dollar effective bid ask spread. If the notional amount is too small, say less than \$25,000, then one might calculate an IDES value that captures retail orders and/or other HFT orders quoting inside of the market makers. If the notional amount is too large, the resulting IDES might appear wider than would be experienced in a legitimate call for liquidity, failing to account for the market makers' ability to "replenish" their quotes. Generally, ETFs with similar underlying assets and/or similar implied liquidity typically have similar IDES.

At first glance, one might think the use of IDES in the matching procedure can introduce bias in the empirical analysis, which will evaluate different spread metrics to gauge the trading activity. However, we argue this will not be the case because our IDES reflects the depth of spread, which does not interfere with analysis of "change of spread" after introducing no-rebate treatment. Further, our IDES metric measures a "deeper level" of spread calculated using a larger notional amount, whereas the spreads in the empirical analysis are measured only from traded prices and top level (superficial level) quotes.

The average IDES can be calculated using intraday tick-by-tick IDES from all Canadian Marketplaces, and time-weighted for a period of time. ***We propose using a one-month average IDES for the notional amount of \$50,000 as an additional matching characteristic.*** The IDES at \$50,000 data is obtainable as it is a mandatory calculation as per the *CSA mandating a summary disclosure document for exchange-traded mutual funds and its delivery dated December 8, 2016*.

Comments on Matching Characteristics

NBF has tested several matching characteristics combined and separately, then used a combination of asset class, geography, and leverage/inverse indicators to assess the matching results. The best outcome came from using all four metrics: dollar trading volume, price, size, as well as spread (BAS at \$50,000 notional) as the ETF.

Below is a discussion of our results:

- **The Number of metrics used:** matching ETFs using just any one of the four metrics was not able to deliver satisfactory results. Of the four, spread and price have relatively better results while size gave the worst matching when used in isolation.
- **Investable Dollar Effective Spread:** As mentioned above, IBES is an important metric to include. It is a good gauge of an ETF's liquidity as reflected by its underlying asset. This can help to match ETFs with similar liquidity, and it can also help to match ETFs with similar underlying assets. We used the natural log of the spread in basis points (i.e. $\ln[\%spread * 10,000]$) in the calculation.
- **Price:** NBF agrees with using this metric. ETF prices are set by the issuers at the fund inception with considerations such as retail vs. institutional target (i.e. lower price for retail-focused ETFs), \$ trading cost sensitivity (i.e. more sensitive therefore higher price for lower return ETFs), etc. After inception, the price will be a function of market performance. Similar asset class tends to have similar performance. Therefore, the price is a meaningful metric for matching ETF characteristics. Also, since rebates are priced in \$/share it will harmonize the effects in pairs when bps are being measured.
- **Trading Volume:** NBF agrees with using this metric. ETFs are typically viewed as having two layers of liquidity: ETF's own liquidity (reflected by trading volume), and its underlying assets' liquidity (reflected using Effective Spread and, ultimately, primary market activity).

Trading volume metrics can help match ETFs with similar "top" layer liquidity. A higher trading volume often implies great natural two-way flow in an issue. It might also signal a higher level of unnecessary intermediation. Therefore, matching using this metrics can also help match ETFs with a similar levels of natural investor flow as well as "unnecessary intermediation".

Of note: When the match error is calculated (as defined in Pilot page 20) for individual characteristics, values are universally lower when using trading volume as opposed to other metrics such as Spread, Price, and Size. This reduces trading volume's influence in calculating the total match error. Therefore NBF proposes using $3 \times [(C_i - C_j) / (C_i - C_j)^2]$ to bring trading volume to a more comparable level. The difference is most noticeable when there are fewer 'characteristics' in calculating the total match error.

- **Size:** NBF agrees that size is not relevant when comparing ETFs with similar underlying assets. As mentioned previously, NBF found that size was the worst matching metric when used by itself. However, it has shown some merit when matching inverse and leveraged ETFs within the pool of highly liquid ETFs. Therefore, NBF recommend to **include size** if this is still a consideration.

ETF Asset Class Considerations

ETFs provide exposure to many asset classes, including Canadian Equity, U.S. Equity, Foreign Equity, Fixed Income, Commodities, Inverse/Leverage ETFs and more. *(Full list in Figure 1. below)*

Each asset class has different drivers for price returns. Events that might impact one asset class do not necessarily have a similar impact to another asset classes. This results in two possible implications worth considering:

When pairing ETFs, matching within the same asset classes is preferred. However, this might not be feasible as there are only a limited number of highly liquid ETFs in asset classes like Commodity and multi-asset. As such, in our matching proposal **we do not impose asset class restriction, but rather, mindfully include spread and price metrics**, which have some ability to match asset classes. In our test run, about 40% of the resulting matches fall under the same asset class.

When conducting statistical analysis: VIX might be a suitable control for U.S. Equity while the S&P GSCI Index might be suitable as an addition for Canadian equity ETFs, though neither might be suitable for other asset classes such as fixed income. **Other controls should be considered in these cases.**

On Spillover Effects

The Pilot mentioned two spillover effects. **The first spillover effect relates to** the possibility of an ETF's underlying basket being significantly affected. As mentioned above, ETFs provide exposure to many asset classes, including Canadian Equity, U.S. Equity, Foreign Equity, Fixed Income, Commodities, Inverse/Leverage ETFs and more.

During stage 1 of the Pilot, when only non-interlisted Canadian stocks are included, most ETFs will not be impacted at all since they do not hold Canadian stocks. Out of the 195 highly liquid and medium liquid ETFs, only 36 are Canadian-equity focused *(Figure 1)*.

Additionally, those stocks' impact to Canadian equity-focused ETFs will be relatively small. This is because the highly liquid and medium liquid non-interlisted stocks only represent ~25% of the S&P/TSX Composite Index, which is the selection universe for almost all Canadian equity-focused ETFs. Once the non-interlisted stocks are paired into groups, only about half of this list will be treated with no-rebate. So on average, only ~13% of each ETF's portfolio will be affected at all.

During stage 2 both Canadian and U.S. stocks will start the Pilot test. The spillover effect is possible on ETFs holding Canadian and/or U.S. stocks. Global-focused ETFs typically hold about 50% U.S. equities and 5% Canadian equities, so they might also be impacted. However, International Developed equity, Emerging Markets equity, Fixed Income, and Commodity ETFs will not have this concern. In sum, about half of the highly liquid and medium liquid ETFs might be impacted by the spillover effect originating from underlying stocks *(Figure 1)*.

The second spillover effect involves similar ETPs that might be viewed as substitutions. This substitution problem might be mitigated by the following two steps:

For selected highly liquid ETFs, we group all ETFs that track the same or very similar indices into one treatment/control group during the matching procedure. We select their matching pairs with the constraint of not tracking the similar index. For example, if all S&P/TSX 60 ETFs are grouped into the treatment group, each of these ETFs will be matched with an ETF that does not track the S&P/TSX 60s. In this way, there will be no incentive for someone to switch from trading one S&P/TSX 60 ETF to trading another S&P/TSX 60 ETFs for the purpose of getting a fee rebate.

ETFs that track the same index can have a wide range of size and liquidity. The Pilot only tests for highly liquid and medium liquid securities. A Less liquid ETF might not be included even though it tracks a similar ETF. In order to mitigate the substitution effect, NBF would apply the same treatment to these less liquid ETFs. However, they will not be paired and will not be included in the difference-in-difference analysis.

Sample Matching Procedure using Highly Liquid ETFs

1. Begin with a sample of 117 ETFs included in the High Liquid security list published by IIROC on Jan 15, 2019. (<http://www.iroc.ca/industry/rulebook/Pages/Highly-Liquid-Stocks.aspx>).
2. For each possible pair, estimate a match error using the formula proposed by CSA, where C_k are the following metrics as defined above, using one-month daily average
 - natural log of ETF price
 - natural log of ETF effective bid ask spread in basis points
 - three times the natural log of ETF dollar trading volume
 - natural log of ETF size
3. Remove possible pair combinations in which both ETFs track the same or have a very similar underlying index.
4. Sequentially select pairs with the lowest matching error until all stocks are allocated a pair. There are a total of 58 pairs.
5. For each pair, assign ETFs into the treatment or control group with the goal of placing all ETFs with a similar index into the same group. However, it was found in our test run that there are still 4 ETF pairs that cannot be grouped with their peer ETFs (i.e., they have group assignment conflicts). These 4 (out of 58) pairs are then broken into individual ETFs and are grouped into treatment or control groups with similar ETFs. Essentially the pairs that have assignment conflicts can still be grouped into treatment or control groups with similar ETFs, but they will not be used in for difference-in-difference analysis.

There will be more ETF pairs with assignment conflicts when including both highly liquid and medium liquid ETFs. However, this step and step 7 will help to reduce spillover effects mentioned previously.

6. For the pairs that have no assignment conflicts, randomly assign one ETF in each pair for treatment, retaining the other stock as a control.
7. For all ETFs in the treatment group, check to see if there are less liquid ETFs with similar indices. Include these less liquid ETFs in the treatment group in order to avoid the “ETF substitution effect”.

NBF has run a test sample and would be happy to share these results with the CSA and the study designers should they be seriously considering our recommendation to include ETP's in the Proposed Pilot.

Figure 1 - Canada-Listed ETFs Avg Daily Stats Full-year 2018

Asset Class	Assets* CAD \$M		Dollar Trading Volume \$M		Number of Trades		Number of ETFs		Num of Highly Liquid ETFs**		# High+Medium Liquid ETFs	
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
Canadian Equity	40,387	26%	483	35%	22,314	26%	97	12%	23	20%	36	18%
U.S. Equity	31,919	20%	209	15%	12,039	14%	160	20%	24	21%	30	15%
Global Equity	12,711	8%	52	4%	4,832	6%	112	14%	4	3%	12	6%
Other Equity	16,317	10%	120	9%	11,244	13%	138	18%	14	12%	27	14%
Bond: Cdn Aggr, Corp, and Govt	32,389	21%	188	14%	6,402	8%	89	11%	19	16%	34	17%
Bond: Pref, Convertible, Sub-I.G., & Foreign	19,405	12%	122	9%	5,512	7%	116	15%	13	11%	24	12%
Commodity	1,148	1%	4	0%	526	1%	20	3%	1	1%	5	3%
Multi-Asset	2,685	2%	27	2%	2,773	3%	34	4%	7	6%	9	5%
Leveraged & Inverse	903	1%	171	12%	19,003	22%	22	3%	12	10%	18	9%
All Canadian ETFs	157,864		1,377		84,645		788		117		195	

*Assets excludes dual-listed, or advisory class ETFs; ** Highly Liquid ETFs included in the IIROC Jan 15, 2018 file;

Source: National Bank, ETF providers in Canada and U.S., Bloomberg

Conclusion

NBF strongly supports this Proposed Pilot. Our comments above seek primarily to enhance its effectiveness.

NBF looks forward to participating in the proposed pilot. The costs to the pilot implementation are relatively small considering the wealth of data expected in pursuit of improved policy with regards to this complex debate.

NBF has included significant suggestions above; and would be happy to provide more detail or answer any further questions as required in order to improve the quality of this important Study.

Etienne Dubuc
Executive Vice President and
Managing Director,
Head-Equities
National Bank Financial Inc.

Martin Gagnon
Co-President and Co-CEO
National Bank Financial Inc.

Cc:

Judith Ménard, Vice-President and Chief Compliance Officer, National Bank Financial