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White Rabbit
Canadian Market Structure Through the Looking Glass

HIGHLIGHTS

- Canadian costs continue to rise, and the marketplace evolves
- TMX's proposed changes to its market-making facility
- CSE's proposed changes to its market-making facility
- Additional functionality in the Canadian opening auction

The first quarter of 2017 saw the continued evolution of the Canadian equity trading landscape, with yet more proposals for intricate market-making facilities, new opening auction order types and newly proposed dark order types. We continue to believe the Canadian market is headed down a rabbit hole and will spend much of this periodical outlining the potential harm this ill-advised journey may have on investors.

Before we state our case, we will first sketch the major updates that have been introduced or proposed in the past quarter.

We start with the **Canadian Securities Exchange (CSE)** proposal to change its newly approved **Guaranteed Minimum Fill (GMF)** facility.[1] The original facility allows market makers to automatically fill orders (autofill) for the subset of orders that look very much like small micro-term uniformed retail flow. This facility was approved after the CSE argued the facility would result in "marketable orders (being) directed to the market, contributing to price discovery and liquidity" via visible quotes. The CSE has now proposed the facility be able to autofill retail-like flow, at the Protected Best Bid/Offer (PBBO) even when the CSE does not have a visible quote at that price level. This would allow market makers—chosen by the market—to trade in a dark fashion that is not allowed for natural longer term investors. We will further discuss our concerns about this and other proposals later.

Next, the **TMX Group** (TMX) proposed changes to its **market-making program.**[2] The revamped program will feature a number of notable updates:

- Two designated market makers on each stock, rather than the current single market maker
- The ability for non-market makers to compete with existing market makers for assignment
- The need for dealers to have Trader IDs pre-approved for Minimum Guaranteed Fill (MGF), to better ensure market makers are trading against only smaller non-recurring flow
- A variety of technical tweaks that will increase market maker participation with retail flow
- TMX will be moving many of the rules around the market-making facility from the TSX Rule Book to a public website, thereby enabling it to make later changes without requiring regulatory approval
- The proposal does note that a proposal to increase the maximum MGF size will follow

The proposal, like similar proposals from CSE and Aequitas, is aimed at better delivering retail flow to market makers. The TMX argues that increased market maker participation on illiquid stocks will more than make up for any increased market maker benefit in the most liquid securities, due to the requirement that market makers have a 1:4 ratio in assignments in liquid Tier A symbols and less liquid Tier B symbols. But this argument is challenged by the fact that market makers can increase their MGF size and participation rates on the lucrative tier A names without having to increase MGF size or participation rates on the tier B names. It also raises the age-old debate around cross-subsidization of market makers' liquidity in less liquid names.

[1] http://www.osc.gov.on.ca/en/Marketplaces_cnsx_20170302_nrc-commitments-performance.htm
[2] http://www.osc.gov.on.ca/documents/en/Marketplaces/tsx_20170406_rfc-notice-proposed-amendments.pdf

The TMX has also proposed changes to how the **TSX dark order types**[3] operate. The proposed changes include:

- TSX will add a variety of dark pegged order types: Primary Peg, Market Peg, Minimum Price Improvement Peg
- TSX will also introduce a new Seek Dark Liquidity active order type, which will trade only against resting dark liquidity
- The minimum quantity functionality will be tweaked such that the minimum no long needs to be equal to, or greater than, 20 board lots
- A new feature will allow for entry of iceberg orders where the size of the visible portion will be randomized on each refresh
- TMX will cease to grant priority to dark orders with a minimum size over similarly priced dark orders with no minimum

The pegged order types are industry standard, offered by a variety of marketplaces globally. The iceberg refresh is functionality that the dealer community has long asked for, to make refreshing iceberg orders less obvious. Randomizing the time of the refresh would make this feature even more attractive. The priority that historically has been granted to dark orders with a minimum has been highly controversial. Removing this priority will likely be applauded by most participants.

While there are some attractive features in the various proposals, in aggregate they are largely a continuation of the trend toward marketplaces delivering small retail-like flow more effectively to market intermediaries, to the detriment of liquidity-seeking longer term investors. The proposals by the TMX and CSE to allow market makers to trade at the NBBO without posting any visible liquidity is particularly troubling. To better explore this concern, we offer a quick history of dark trading in Canada.

Dark trading has long been a feature in the Canadian marketplace. The TSX reintroduced Iceberg functionality to its market in April 2002. Various dark markets have come and gone, including Block Book, POSIT Canada, Optimark, Lynx and Sigma X. The first successful pure dark facility was ITG's MATCHNow[4] product, launched in July 2007. In late 2010, Alpha introduced its more controversial IntraSpread facility. IntraSpread explicitly segmented the market by restricting the active side of each trade to retail participants. This was not the first segmentation in the Canadian market, but it was probably the most notable, and the genesis of much of what is going on today.

Over time, IntraSpread garnered significant market share, as market makers were willing to quote more aggressively in size to trade against the most desirable flow, and institutional players posted liquidity to participate with this retail flow. The stunning growth of IntraSpread market share fostered growing regulatory concern around the impact dark trading had on price discovery. In 2012, Canadian regulators imposed new dark rules to stem the growth of dark trading. While the rules were the same for all venues, it was clear at the time that the IntraSpread facility was a focus of the new regulation. While we were not fans of the retail segmentation in IntraSpread, it bears noting that the facility allowed all players to participate on the passive side of the trade, and the retail clients trading actively in IntraSpread were rewarded by price improvement from the NBBO. Under the new regime of market-making facilities (AEF, MGF and GMF), the passive side is limited to market makers; the retail client does not receive any price improvement, and in the case of both MGF and GMF, the market maker can trade at the NBBO without any visible quote on their market at that level. To put it another way, the regulators effectively killed a facility that let institutions participate against retail in a dark fashion, but are now contemplating facilities that let market makers participate against this flow, at the touch,

[3] https://www.tsx.com/resource/en/1510/toronto-stock-exchange-notice-of-proposed-amendments-and-request-for-comments-2017-04-27-en-2.pdf
[4] MATCHNow is operated by TriAct Canada Marketplace LP, wholly owned by ITG Canada Corp.

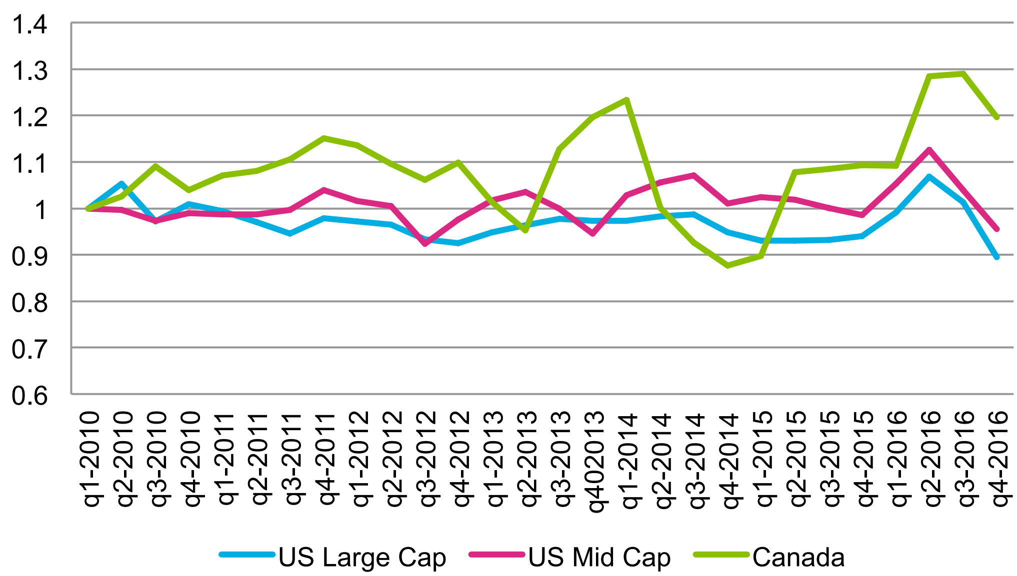
while institutional investors are shut out and the end retail investor, who often bears added execution risk associated with routing orders to a non-quoting venue, is not being rewarded with price improvement. This would appear to be a qualitatively worse market structure.

HOW IS THIS BETTER?

	Original Alpha IntraSpread	New AEF/GMF/MGF
Who can participate on the active side	Retail	Retail[i]
Retail client price improvement	10% of spread	Zero
Can institutional clients provide liquidity	Yes	No

Anecdotally, we have been struck by the number of International clients that have noted that Canada is now the most expensive developed market, or among the most expensive, where they trade. In particular, the first hour of trading in Canada is deemed to be incredibly expensive and difficult (we will address this point below). But what does the data show? Well, it appears to corroborate the anecdotal evidence. The chart below shows the three-quarter moving average trade costs, from ITG's Global Peer Database, for U.S. large-cap, U.S. mid-cap and Canadian trading, all normalized to costs observed in the first quarter of 2010.

Canadian vs. U.S. Peer Trading Costs

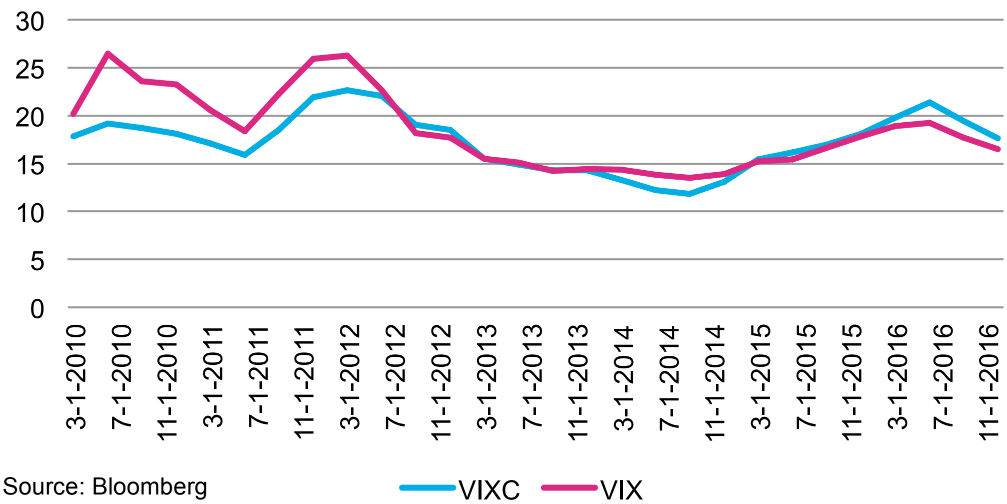


Source: ITG

We see that over the past several quarters Canadian trading costs have risen upwards of 20%, while U.S. costs have been trending down. There are myriad factors that play into transactions costs, including macro forces and structural ones. We are certainly not trying to ascribe this change entirely to structural issues. In fact, we can't say with absolute certainty that structural changes have had any impact on the trading cost increase. What we can do is look at the biggest historical drivers of trading costs and see how they might have changed over the observed period. Typically, the three factors most often considered when studying trading costs are volatility, spread and market volume. We will largely ignore spread, as it is typically influenced by the very structural changes we are considering.

As U.S. volatility has compressed, trading costs have come down. At the same time, as Canadian volatility has compressed over the past several quarters, institutional trade costs have risen. If we look at both Canadian and U.S. volatility—using the VIX and VIXC as proxies—we see that they have traded in lockstep in recent quarters.

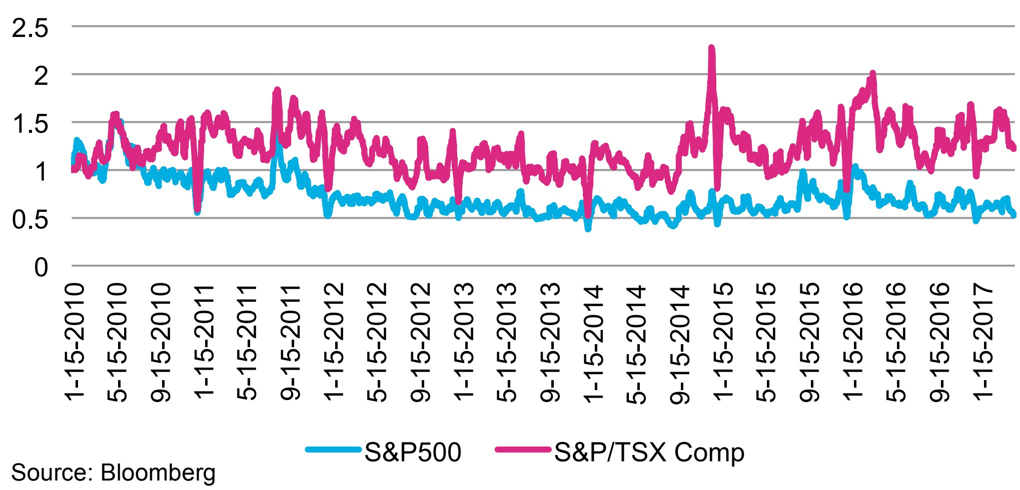
Canadian Implied Vol (VIXC) vs. U.S. Implied Vol (VIX)



Source: Bloomberg

At the same time, we see that Canadian volumes have actually grown slightly relative to U.S. volumes

TSX Composite Volume vs. S&P 500 Volume

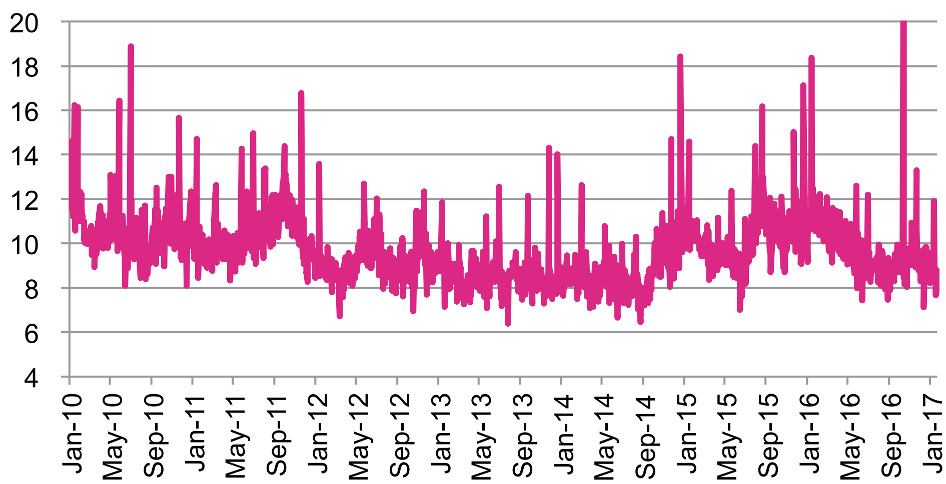


Source: Bloomberg

If Canadian volatility has traded in step with U.S. volatility, and Canadian volume has actually done slightly better than U.S. volume, then why is it that Canadian costs have risen relative to U.S. trading costs? We still can't say conclusively that the cause is structural, but the case is getting stronger.

We do take a quick look at Canadian spreads, lest anyone think we are hiding stats that argue against our main thesis.

Average Percentage Spread (bps)



Source: ITG

Spreads in Canada are lower than they were in early 2010. We note that spreads did widen in 2015, but compressed again in late 2016 as volatility declined.

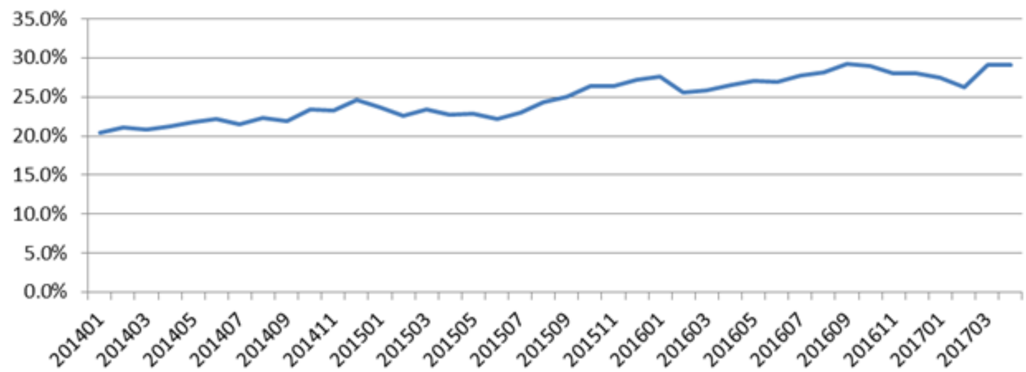
While the data is interesting, it is not airtight. So let's consider the logical argument behind our evolving structure's negative impacts on institutional trading costs. Beginning with the introduction of the Alpha speed bump, most of the innovation introduced into the Canadian equity markets has been aimed at offering retail brokers improved economics to route orders in a manner that greatly improves the chance of their matching up with new-age market makers, rather than natural longer term investors. The resulting increased intermediation, on its own, should logically result in higher costs for others. The intermediaries are not performing a service for free; they are extracting rents from the market, even when they are adding liquidity in names that already have ample liquidity for the vast majority of retail orders. As such, it logically follows that other liquidity seekers, facing greater competition on the quote, will be forced to cross spreads more often and see overall trading costs rise.

But perhaps the greatest driver of increased costs comes from the increased bifurcation of flow in the Canadian market, which amplifies the information value of many orders in the marketplace. If retail flow is routed in a different manner from an institutional order, then in the day of AI (artificial intelligence) that enables prop trading strategies, the identification of one versus the other becomes a trivial challenge—particularly if broker numbers are used on all orders. An order posted on venue X is likely retail, while an order multi-posted to several venues, in recurring ratios, is almost certainly institutional. Likewise for liquidity-taking orders.

One route makes you larger, and one route makes you small

This increase in informational impact of larger orders may go a long way to explaining the notable increase in use of the anonymous Broker 1 tag.

Anonymous Broker Market Share



Source: ITG

Over the past three years we have seen Broker 1 steadily grow from ~20% market share to just shy of 30%. While this number is fairly impressive on its own, it is even more impressive when you take a closer look. According to various IIROC studies, nearly 25% of the market is retail flow. We believe that very little of this flow is marked anonymous. Likewise, the vast majority of block and swap prints are tagged with a broker number. Such trades easily account for a further 10% of volume share. When we remove these trades from the equation, even by the most conservative estimates we conclude that greater than 50% of on-book institutional flow is traded anonymously. This is certainly consistent with what we are seeing and hearing from our clients.

The move to Anonymous comes with a variety of challenges for the street. The finding of natural contra side flow becomes more challenging; dealers that make extensive use of Broker 1 need to work hard to offset any negative perception created by declining visible market share; and, finally, trading anonymously eliminates the benefits of broker preferencing from the lit markets. Fortunately in today's market, the benefit of broker preferencing is most often being enjoyed by HFT players gaining queue priority on very liquid issues and, increasingly, large broker-dealers using priority to internalize medium-sized retail orders.

This increase in internalization may yet explain why the markets are all so driven to introduce new market maker facilities, or updates to long-standing programs. By doing so, they allow large dealers an opportunity to become market makers and create greater ability to direct flow toward themselves in a manner that satisfies existing regulation. Ironically, the very intermediaries that drove the development on IntraSpread and the Alpha speed bump, appear on the cusp of being disintermediated by the dealers' own prop desks. Such an arrangement would make it nearly impossible for institutional accounts to gain access to much of the retail flow, particularly on the most actively traded names.

COULD A BETTER OPEN HELP CANADA?

While our take on most of the marketplace proposals is somewhat unfavourable, we are fans of the **TMX Group's** proposal to add a **Limit on Open Order type (LOO)**[5] to the TSX book. When we look at trading globally, the cost of trading the first hour in Canada is

[5] https://www.tsx.com/resource/en/1508/toronto-stock-exchange-notice-of-proposed-amendments-and-request-for-comments-2017-04-27-en.pdf

a stunning outlier. If we look at trades done by ITG in the first hour for all of 2016, we see Canadian IS (implementation shortfall) costs that are 66% higher than U.S. IS costs for the same period. Notably, the cost of trading energy and mining stocks is roughly twice that of all other sectors in both markets. Much of this increased cost will be related to the impact that overnight news has on resource stocks, but we believe some of the first hour cost is associated with higher volatility and lower market participation rates during that time frame. Part of the cause of that volatility has historically been driven by an excessively volatile opening auction. Liquidity providers have long complained about Canada's lack of a LOO order, as they find placing regular limit orders into the opening auction can result in massive adverse selection on any fills in the first couple of milliseconds post the opening print, when they are trying to cancel.

Due to this increased adverse selection, such liquidity providers lower their participation in our open, or participate at less aggressive prices. Introducing an order type that allows stat arb-style players to participate in the opening auction, without underwriting the risk of a negative fill shortly afterward, should result in a more robust auction that will eventually attract even more participants. We believe this will create a virtuous circle and lend itself to less volatile trading in the first hour. While we often rail against markets catering to high-speed intermediaries, we do note that in some circumstances such players add invaluable liquidity that should be better serviced.

A QUICK LOOK AT Q2 VOLUME ODDITIES

We finish this quarter with a quick thought on odd trading volumes that will be witnessed in the second quarter. In March 2013, the late Jim Flaherty, then federal finance minister, brought in a budget that closed a tax loophole on so-called "character conversion" swap trades. We will save readers from the finer details of such instrument (but please call if you want to know). The timeline for unwinding such existing swaps has been delayed multiple times, but has finally come to pass. As such, since the March 2017 Liberal Budget, which did not grant a further extension of such trades, we are seeing significant unwinding of these trades in the market. The trades are being done in a variety of manners, some as a broker print in the pre-market, some as dealer-to-dealer prints in the CLOB (Central Limit Order Book) or MOC auction, and some as VWAP trades transacted over similar time horizons, but not specifically matched up, by differing dealers. Due to the myriad mechanisms to effect these unwinds, it is extremely difficult to accurately pick out these trades with high levels of certainty. No one in the market can give an accurate answer as to what portion of the tape is being driven by these unwinds, but most informed dealers are aware they are happening. This increased volume, that is largely a match-up and thus inaccessible to other investors, is likely to play havoc with liquidity models and transaction costs analytics for the next several weeks as the trades play out. We strongly suggest investors be wary of any appearance of added liquidity, particularly in TSX 60 names, over the next couple of months, as it may be more smoke than fire.

CONCLUSION

As our market continues to gain complexity, the importance of being informed and aware increases. We offer the final words this quarter from Grace Slick[6]:

When logic and proportion have fallen sloppy dead
And the white knight is talking backwards
And the red queen's off with her head
Remember what the dormouse said
Feed your head, feed your head

[6]https://play.google.com/music/preview/Twqx3ulivms2tp74jhdvr23p7ni?lyrics=1&utm_source=google&utm_medium=search&utm_campaign=lyrics&pcampaignid=kp-lyrics

DISCLAIMERS

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[i] While the markets will argue that technically institutional orders can interact with AEF/GMF and MGF facilities, in truth each has been designed to make that virtually impossibly logistically. In truth, retail flow will be interacting with these facilities.