Hidden Costs

The Hidden Costs of Locked Markets

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Abstract

The Canadian ATS landscape is changing at a rapid pace with a number of new entrants joining the field in the last two years. Each ATS is jockeying for position in the Canadian marketplace by incenting market participants to trade with them.

This paper will examine one such incentive, the passive rebate on orders, and discuss some of its consequences imposed on the marketplace. Providing passive rebates is a common practice in exchanges across the globe but without regulation, there can be unintended consequences detrimental to an efficient marketplace.

With both the NYSE and Chi-X Canada announcing new liquidity rebate programs in the past 48 hours, we thought it would be timely to look at the consequences of such programs on the marketplace as a whole. In particular we take a look at the cost to the street of Passive Rebate Arbitrage (PRA) strategies that are largely incented by these rebate programs. This, as we shall argue, is adding a hidden 'tax' on the market participants in the form of higher trading and infrastructure fees. Furthermore, due to the phantom liquidity generated by the Electronic Liquidity Providers (ELPs), there are tertiary costs to the investment community in the form of distorted trading models that rely on liquidity parameters.

We will examine the trading fee structures in the various ATSs in Canada and try to calculate the indirect cost imposed on market participants. We will discuss what other marketplaces have done to curb the PRA phenomenon.

Trading Fee Model

We start with a quick outline of how exchange pricing currently works. For several years the TSX has used what is referred to as a 'Provider / Seeker pricing model'. In this model, commonly used in the U.S., the exchange charges the aggressive (liquidity-seeking) side of each trade and rebates a fee to the passive (liquidity-providing) side of each trade. This model is currently used by all of the visible trading marketplaces in Canada (TSX, Pure, Omega, Chi-X & Alpha).

As the U.S. marketplace discovered several years ago, when multiple marketplaces all adopt this style of pricing model there is a natural incentive for each to inflate the passive rebate – thereby attracting passive flow – and offset the cost of this by inflating the aggressive side fee. The SEC was forced in late 2003 to set rules (SEC 2003-128 later rolled into REG NMS) limiting this inflation, as it was quickly spiralling to the detriment of the market. (You can imagine a marketplace with strong trade-through regulation, a market center that offered a .5 cent rebate for all passive orders and then charged .6 cents for all aggressive orders would quickly earn all the passive orders if all other markets were giving smaller rebates. This would result in other marketplaces giving higher rebates, and then others going higher still. Soon the cost to the liquidity-seeking side of the trade would be prohibitive, and would result in market players looking towards other marketplaces to achieve alpha. This would create a drag on the marketplace as a whole – not unlike the drag that stamp taxes have placed on U.K. markets. After much discussion, the SEC decided to continue allowing passive side rebates, but placed a hard cap of .3 cents/ share on the liquidity- taking side of trades for all marketplaces. This forced market venues to compete on innovation, technology, service and net price (difference between passive rebate and aggressive charge) rather than on size of rebate.

Recently several of the Canadian ATSs (and the TSX) have openly courted international ELPs by offering pricing that is advantageous for the passive side of their trades. This pricing model is particularly evident on low priced stocks. Currently only TSX and Alpha differentiate pricing levels for lower priced stocks. (See chart below).

With rebates as high as .36 cents per share, low cost electronic trading firms are incented to implement trading strategies that capture these rebates, even if the actual purchase and sale take place at the same price. This has lead to the growing phenomena in Canada of Passive Rebate Arbitrage (PRA).

Trading Fee Schedule

Trading Venue	Starting Rate		Best Rate	
	<$1	>$1	<$1	>$1
Alpha				
Passive	-0.0001	-0.0029	-0.0001	-0.0029
Aggressive	0.0007	0.0035	0.0007	0.0035
Chi-X				
Passive	N/A	-0.0025	N/A	-0.0025
Aggressive	N/A	0.0029	N/A	0.0029
Omega				
Passive	N/A	-0.0036	N/A	-0.0036
Aggressive	N/A	0.0039	N/A	0.0039
Pure				
Passive	N/A	-0.0027	N/A	-0.0027
Aggressive	N/A	0.0037	N/A	0.0037
TSX Regular				
Passive	-0.0001	-0.0027	-0.0003	-0.0031
Aggressive	0.0008	0.0037	0.0006	0.0033
TSX ELP				
Passive	N/A	-0.0033	N/A	-0.0035
Aggressive	N/A	0.0035	N/A	0.0033

Passive Rebate Arbitrage (PRA) strategy

In passive rebate arbitrage, the ELP is attempting to buy and sell stock at the same price while capturing the passive rebates paid out by the TSX and the competing ATSs (Pure, Alpha and Chi-X). They do this by placing passive orders on very liquid names, and once filled, placing a similar passive order on the other side of the market at another trading venue, locking the market.

For example, if BBD.b is trading at $4.71 – $4.72 with multiple players on each side, the ELP might place a 'passive' order on the TSX to buy 5,000 shares at $4.71. When they receive a fill, they then proceed to place a 'passive' offering on another marketplace that does not have a bid at $4.71, thus locking the market:

		Bid	Offer		
TSX	**5,000**	**$4.71**	**$4.71**	**5,000**	**Pure**
TSX	**10,000**	**$4.70**	**$4.72**	**15,000**	**TSX**

The ELP is counting on one of the bidders on the TSX moving their order to Pure and buying their stock. The ELP has bought stock at $4.71 and sold stock at $4.71 and earned a passive rebate of roughly a quarter cent on each side. This strategy adds little, if any natural liquidity or price discovery to the marketplace.

In an attempt to better understand the cost of PRA on the street, we looked at a subset of trading data for 4 days and projected it out for a full year. The data set we decided to look at was the ten most active names, by volume, on Pure from January 28th – February 2nd. We zeroed in on Pure in the belief that the PRA players are doing the majority of their offsetting trades on Pure for 2 key reasons; 1) Pure was the first ATS to market. 2) Pure has one of the higher rebates on stocks trading below a dollar. (Omega has a significantly higher rebate, but has far fewer subscribers to date. Chi-X's new month long rebate program announced recently will give them a higher rebate level for the month of March).

The 10 most active stocks on Pure each day traded a total of 34,318,400 shares, between 9:30 and 4:00. This represents roughly 90% of Pure's volume. Of that volume 18,320,300 shares were traded on Pure during a period when the TSX and Pure quotes were locked – this accounts for 53.38% of the trades on these names. We then did a calculation of the total passive credit that would have been achieved by the PRA(s) if they had first traded stock on TSX passively and then locked the market on Pure and sold passively.

If we use the most conservative assumption on rebate rates – that is a rebate of 0.0001 per share on stocks below a dollar on TSX, 0.0033 on stocks over $1 (lowest ELP rate), and 0.0027 on all Pure trades – we see a minimum passive credit of $15,129.40 for February 2nd. Assuming 250 trading days we have a total passive credit of $3.78 million. If we go to the opposite end of the spectrum and use the highest passive rate possible – 0.0003 on TSX below $1, 0.0035 on TSX above $1, and 0.0031 on all Pure we see a daily rebate of $17,569.06 for an annual number of $4.39 million. We believe the actual number is roughly 25% at the lower level and 75% at the higher end – this assumption gives us an annual rebate of $4.3 million – using the lowest number of the 4 days examined. .

We remind you that these numbers are calculated based on just trading on just 10 stocks, and examining just 1 ATS. We believe this number significantly underestimates the total value of PRA currently taking place in Canada. As our numbers are based on just 10 stocks trading on one venue we are comfortable suggesting that the total annual take from these strategies is currently running around $10 million. With adoption of the various trading venues increasing, and these venues starting to trade Venture stocks with similar pricing models we believe this run rate will double within the year – UNLESS the regulators ban this practice.

Trying to calculate the cost to brokers involves making a number of assumptions that aren't easily backed up. While it is safe to assume that the cost to the street is greater than the passive rebate created by the ELPs, without a complete grasp of what percentage of trades would have traded actively on the TSX and what percentage would have been placed passively into the TSX book, we cannot fully discern the cost. We did however calculate that the active sides of the 4.7 million shares that traded below $1.00 had active fees that are $11,512.08 higher than had these trades taken place on the TSX (using the lowest active rate possible for Pure and the highest for TSX) – this works out to an annualized number of $2.8 million. (And this is just a small subset of the trades under $1 that take place on Pure daily). We would note that this only considers the trading fee cost of this strategy. It shouldn't be forgotten that this strategy creates significant tick data further stressing dealers systems and often resulting in costly upgrades.

Of note, Pure announced last Tuesday that they are adding TSX-V names shortly with the same pricing schedule – roughly 3.5 times the active fee of TSX on stocks under $1. We have identified 87 names trading on the venture that trade over 250k shares a day, and below $1. These stocks have a combined average daily volume of 29 million shares. If we use the same rate of ELP crossing that we saw in the top 10 names yesterday – 10% - we will see another 2.9 million shares of PRA daily, resulting in another $1.7 million annually for the ELP players.

The PRA players argue that the systematic locking of markets is a good thing, suggesting that a locked market provides the tightest possible spread. They further defend their trading strategy by claiming to add liquidity to the marketplace. We would counter these arguments in the following manner.

PRA tightens spreads and adds liquidity. The PRA players systematically place bids and offers into the book only when they book is deep and the spread is tight. They specialize in stocks like Nortel or Oilexco – penny stocks that are well bid and offered and have a ½ penny to penny spread. They place order of a size that they can offset their position within seconds. Typically they will place a bid or offer for 3,000 – 5,000 shares when the current book is good for 50,000 or more. While technically they do add liquidity, it is done in such a way as to provide the greatest opportunity to unwind the position within a few seconds, at the same price. This is very different from a typical market maker who either joins a bid (offer) for such size as to be significant, or improves the prevailing bid (offer).

Locked markets are efficient. The PRA players argue that a locked market is the most efficient market as buyers and sellers can transact at the same price. In fact a locked market suggests that a trade should occur, but has not. In a truly efficient market a buyer willing to pay X will trade with a seller will to sell at X. If buyer and seller agree on price but don't trade, the market cannot be called truly efficient. In reality a locked market, where one player will only transact if they get the passive rebate, has a hidden spread.

Arbitrage strategies are commonplace in the market, and generally believed to be beneficial to all participants. Traditional arbitrage strategies connect markets – either in various instruments or currencies – and result in tighter spreads in each instrument. By way of example, index arbitragers place bids (offers) on index related products (futures, options, ETFs) based on the current market of the underlying stocks. These bids and offers typically tighten the market for the derivatives. As more competitors play in the strategy the arbitragers must play for smaller profits, thus further tightening the spread. The arbitrage results in tighter spreads and greater liquidity. This is true of all the traditional arbitrage strategies – Index Arb, Interlisted Arb, Stat Arb or Risk Arb.

In PRA greater competition doesn't result in greater efficiency, in fact it results in less efficient markets. As more arbitragers join the game there is no room to tighten the spread. As a result more players will post bid or offers solely with the intent of locking the market once filled on the initiating trade. This will result in even more locked markets, and even great non-natural volume and higher active trading fees for legitimate market participants. The real danger is that PRA results in higher active trading percentages for natural liquidity-adding arbitrage strategies, thus increasing their costs and forcing them to widen their spreads in an effort to remain profitable. The arbitrage strategy, if popular enough, would likely result in wider spreads, not narrower ones, and less linkage of related markets.

The Global Experience

Given Canada's limited experience with these issues, it is worth looking at how other jurisdictions have handled them.

On the locked market front, most jurisdictions ban the systematic locking of markets. The U.S. has included such a ban in Reg NMS. (It should be noted that markets will still lock on occasion due to systematic latencies. I may send an order to Alpha at what appears to be mid-market, but in the 2 or 3 milliseconds that it takes for that order to get to the Alpha book, Pure may post an offering at the same price. Locked markets will always be a part of any multi marketplace environment, but the intentional or systematic locking of markets has been banned.)

As mentioned earlier, the U.S. markets – as part of Reg NMS – have set a cap on what exchanges (ATSs) can charge on aggressive trades. This cap is set at 30 mills (.30 cents), a level that is currently lower than the trading fees for most Canadian venues. By capping the active trading fee, the exchanges aren't able to offer inflated passive rebates to attract flow. It should be noted that most U.S. trading venues do not have a separate fee schedule for lower priced stocks due to the limited number of lower priced stocks listed. In the U.K., where lower priced stocks are more common, exchange trading fees are based on value. (The LSE currently has a starting charge of .75 basis points.) This avoids the situation where the passive rebate on a stock is a significant portion of the stocks trading price. In Canada it is currently possible to get a rebate of 0.36 cents per share on Nortel, which is trading at 11 cents – this equates to 327 basis points. Allowing passive rebates that are such a large percentage of the underlying stock price incents traders to develop strategies to capture this rebate with little or no concern for the market in general.

The other key differentiator between the Canadian and U.S. is the existence of an information processor (IP). In the U.S. the IP consolidates exchange quotes and sells the data to the marketplace. The fees derived from this data are then split, after paying the IPs costs, by the various marketplaces based on formula attempting to quantify each venue's contribution to overall liquidity. This allows venues trying to attract liquidity to share the data revenue with liquidity providers without having to ratchet up the costs for liquidity takers. In Canada we currently don't have an IP (resulting in grossly inflated data costs, but that is another story) and don't appear to be headed down the path of revenue-sharing based on liquidity provision.

Conclusion

We are aware that most of the material in this abstract is technical in nature, and may be of little interest to many traders. We took the time to highlight these issues as we believe it is important for traders to understand the evolving makeup of market liquidity, and to better appreciate the cost drivers that contribute to broker pricing levels. Arbitrage strategies that distort liquidity, drive up dealer costs and lock markets are a tax on all market participants. The perpetrators of these strategies thrive on the notion that the vast majority of traders won't notice or care about their activities.

We believe that Canadian market participants should demand the following of our regulators:

- A reasonable pricing cap on trading fees. Without this we are going to witness continued trading fee inflation as market venues raise passive rebates – and active fees alongside – in an unending quest to attract passive flow. This cap should be tiered to ensure reasonable trading fees for lower priced stocks.

- An outright ban on the systematic locking of markets. This strategy is predatory in nature, and is already costing the street millions of dollars a year. As we see the growing emergence of ELPs we can project growth in the volume and cost of such strategies if left unfettered by our regulators.

- An independent Information Processor that allocates data fees based on liquidity provided to the marketplace. The current system, without the benefit of an IP, has resulted in data costs soaring without a corresponding increase in natural liquidity.

We always enjoy engaging in thoughtful debate of any market related issues. If you have any questions or comments on this piece or any market microstructure issues please give us a call at 416-359-5743.

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