

Quarterly Alternative Trading System (ATS) Overview Q2 2009

August 2009

Highlights

- **ATS Volume surged during the second quarter of 2009 to 13.8% of total Canadian market volume.**
- **Alpha’s market share has more than doubled this quarter and is now approximately 8% of equity trading in Canada. 31% of this volume is in up-stairs crosses, compared to 57% last quarter.**
- **The five most fragmented names this quarter were BBD/B, UUU, IFC, UTS, and PWF. There is no clear ATS winner—connectivity and intelligent Smart Order Routing are essential to access available liquidity.**
- **As electronic liquidity providers gain prevalence, fee structures are becoming crucial determinants of ATS volume. We provide a review of the fee schedules at the various venues.**
- **The evolution of Smart Order Routing technology should result in greater market share growth for ATS’s due to more liquidity being posted by parallel spray routers on multiple venues.**
- **Extended hours trading is causing issues surrounding price discovery and benchmarking. We review the current state of the extended hours market in Canada and make some recommendations.**

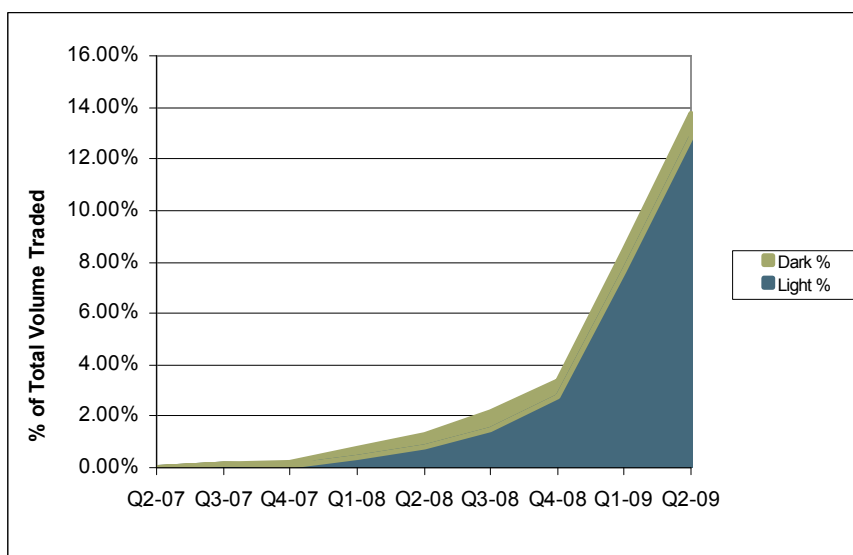
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Figure 1: Canadian ATS Market Share by Venue Type



Both light and dark markets continue to gain volume share versus the TSX.

Market Share Trends

The second quarter of 2009 has seen a rapid expansion of ATS market share in Canada to over 13% for the quarter.

Both Light and Dark markets gained share, with Light markets rising to 12.84% of volume and Dark rising to 0.95% of total Canadian equity volume (Figure 1). Alpha was the big gainer with sharply rising market share and a declining proportion of blocks. Chi-X has also seen strong market share growth (Table 1).

Table 1: Percentage Marketshare by Volume

Volume	Q2/09	Q1/09	Q4/08	Q3/08	Q2/08	Q1/08	Q4/07
TSX	86.21%	91.49%	96.44%	97.83%	98.70%	99.23%	99.82%
Light Markets	12.84%	7.70%	2.90%	1.49%	0.84%	0.38%	0.05%
Alpha	7.97%	3.61%	0.53%	0.00%	0.00%	0.00%	0.00%
Pure	1.75%	2.23%	1.57%	1.06%	0.82%	0.38%	0.05%
Chi-X Canada	3.02%	1.72%	0.71%	0.38%	0.01%	0.00%	0.00%
Omega	0.09%	0.15%	0.08%	0.05%	0.00%	0.00%	0.00%
Dark Markets	0.95%	0.82%	0.66%	0.68%	0.47%	0.39%	0.13%
MATCH Now SM	0.86%	0.70%	0.57%	0.48%	0.31%	0.23%	0.11%
LiquidNet Canada	0.09%	0.12%	0.08%	0.13%	0.12%	0.13%	0.01%

ATS Volume has now grown to over 13% of total equity volume in Canada.

Table 2 shows the market capitalization breakdown for each ATS. The polarization between market cap groups observed in prior quarters has subsided somewhat, with Omega and Chi-X showing a lower concentration of trading in small and large cap names this quarter. Omega's dramatic shift is likely due to their fee schedule change which has attracted connectivity from a larger number of brokers.

Table 2: ATS Market Share by Market Cap (% Share Volume)

	SMALL	MID	LARGE
TSX	47.35%	27.99%	24.66%
Alpha	42.99%	36.58%	20.43%
Pure	59.99%	27.78%	12.23%
Chi-X Canada	35.65%	15.84%	48.51%
Omega	48.64%	46.31%	5.05%
MATCH Now	15.75%	47.22%	37.04%
Liquidnet Canada	24.45%	37.99%	37.57%

Note: Large Cap is defined as total capitalization greater than \$5 billion CAD, Mid Cap is defined as capitalization of \$500 million CAD and less than \$5 billion CAD. Small cap is defined as capitalization less than \$500 million CAD.

Light market trade sizes fell on Alpha, Pure, and Omega but increased on Chi-X (Table 3). This is likely due to the increased incidence of hidden order executions on Chi-X (discussed below). Omega has eliminated passive rebates and thus rebate arbitrage is not attracted to the venue. Passive rebate arbitrage was focused on penny stocks and thus the average trade size on Omega has grown.

Table 3: Average Trade Size

	# Trades	Total Volume Traded	Average Trade Size	Q1 Average Trade Size
Light Markets	8,097,987	4,917,165,650	607	548
Alpha	2,025,466	3,059,020,990	1,510	2,668
Pure	647,039	645,138,545	997	1,136
Chi-X Canada	5,362,498	1,177,943,915	220	163
Omega	62,984	35,062,200	557	2,397
Dark Markets	913,672	366,762,300	401	397
MATCH Now	913,228	331,788,000	363	339
Liquidnet Canada	444	34,974,300	78,771	97,465

Hidden Trades on Chi-X

In Q2, 9.4% of traded volume on Chi-X was interaction with hidden orders. Hidden orders represent 10% of the shares on the Chi-X order book. As Chi-X market share increases, this will become increasingly significant:

- Algorithms need to send Immediate or Cancel (IOC) orders to Chi-X to search for hidden liquidity.
- Placing hidden orders on Chi-X gives traders an opportunity to access liquidity anonymously using a dark order type.

Block Trading Trends

Alpha has shown a large reduction in the proportion of volume comprised of upstairs block trading. Last quarter 57% of their volume was in upstairs crosses compared to 31% this quarter (Table 5). Nevertheless, the proportion of blocks traded on alpha is almost three times that on the TSX.

Across the other venues, block volume both upstairs and downstairs has risen slightly in the second quarter. For a more detailed analysis of current and historical Block Trading Trends, please refer to our Quarterly Block Trends report.

Table 4: Percentage of Block Activity

	% of Upstairs Blocks by Volume	% of Upstairs Blocks by Value	% Downstairs Blocks by Volume	% Downstairs Blocks by Value
TSX	11.01%	9.68%	3.38%	3.16%
Alpha	31.75%	53.06%	2.24%	3.53%
Pure	17.27%	19.02%	0.58%	0.67%
Chi-X Canada	n/a	n/a	0.58%	0.32%
Omega	n/a	n/a	0.00%	0.00%
MATCH Now	n/a	n/a	9.29%	7.54%
Liquidnet Canada	n/a	n/a	99.23%	99.42%

31% of Alpha's volume is in upstairs crosses.

Note: We define blocks as single trades of 10,000 shares or more with at least \$100,000 in value. Upstairs blocks are identified as broker to broker crosses, excluding after hours trading and trades done during futures expiry (Must be Filled or MBF sessions). Downstairs blocks include trades between two different brokers and anonymous crosses as well as dark trading.

Market Fragmentation

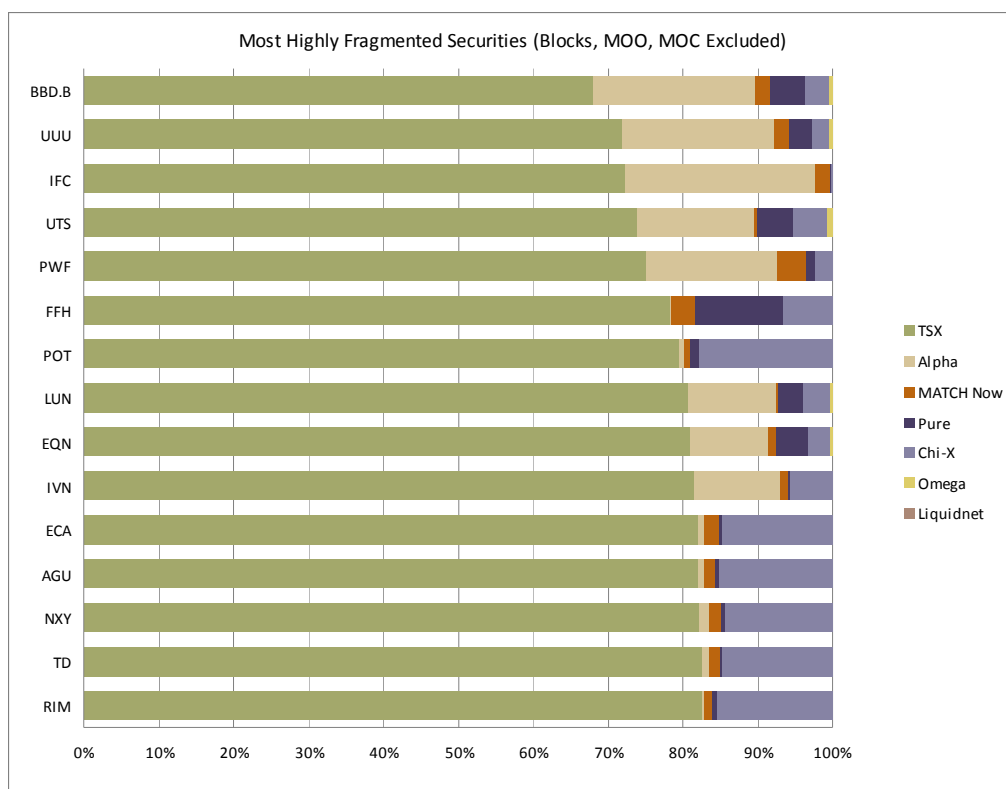
With the emergence of a significant ATS presence in Canada it is now possible for the trading of a security to become fragmented across multiple venues, a development which can impact the availability of liquidity to any broker who is not accessing all marketplaces.

Figure 2 shows the 15 most fragmented securities in the TSX Composite index during the second quarter of 2009, excluding upstairs block trades, market on open and market on close trades to focus on tradable liquidity. We define fragmentation as the % of volume traded off the primary exchange (in this case, the TSX).

The results indicate that in many names more than 15% of the volume is trading on venues other than the TSX. We also see that there is no clear winner amongst the ATS's. Depending on the name, Alpha, Chi-X, Liquidnet, MATCH Now, and Pure have significant market share. These results highlight the need to access all possible execution venues in order to maximize truly tradable liquidity.

Smart Order Routing that posts on multiple venues and dynamically responds to liquidity and price events is essential to address fragmentation in Canada.

Figure 2: Top 15 Fragmented Securities, excluding Upstairs Blocks, MOO, MOC



Traders of BBD/B, UUU, IFC, UTS, and PWF this quarter needed to look at the consolidated tape and access multiple venues to ensure best execution.

Fees

With the increased prevalence of electronic liquidity providers in the Canadian marketplace, trading costs are increasing for broker-dealers due to increases in the proportion of trades in which they are forced to play an active (liquidity taking) rather than passive (liquidity providing) role. As a result, fee schedules have become a primary focus of the ATS's as they compete for market share (Table 5). Some recent highlights include:

- Pure and Chi-X are due for fee schedule reviews as their active take fees are high for low priced stocks. Chi-X focuses on the large cap names and has been gaining market share steadily this quarter so the issue is minimal from their perspective. Pure, however, has an explicit focus on the smaller capitalization names and its market share has suffered due to this high active rate in low priced names.
- Pure and Chi-X have the lowest take rates on stocks greater than \$1. Once they adjust their low-priced fees, both should be set to gain ground.
- Omega's pricing is attractive to dealers but they continue to struggle to gain market share. Connectivity to the venue is increasing but low and the passive rebates offered by other venues mean that passive orders are not attracted to Omega.
- If there were a regulatory cap on fees and rebates such as in the U.S., the issue of locked markets would be partially addressed as rebate arbitrage would be contained.

Table 5: Fee Schedule as of August 1, 2009 (mils per share)

	TSX	Alpha	Pure	Chi-X	Omega	MATCH Now	Liquidnet Canada
Active > \$1	33-37	35	27	28-29	7 cents per trade	> \$5 10 to \$10 max/trade	2 cents/share charged to buy side
Passive > \$1	-29 - -31	-31	-32	-25	0	> \$5 10 to \$10 max/trade	2 cents/share charged to buy side
Active < \$1	6-8	5	26	28-29	7 cents per trade	< \$5 5 to \$10 max/trade	2 cents/share charged to buy side
Passive < \$1	-3 - -1	-1	-22	-25	0	< \$5 5 to \$10 max/trade	2 cents/share charged to buy side

Note: This schedule ignores access fees, application fees, and differential pricing for the closing auction, printing, and odd lot trades. The Fee schedule applies to highest volume brokers and may vary for TSX & Chi-X depending on a broker's trading volume. One mill is equal to \$0.0001.

The evolution of SOR technology to a true best-execution environment should result in greater market share growth for ATS's.

Smart Order Routing

Most Smart Order Routers (SORs) in use are fulfilling best price obligations but are posting nonmarketable orders almost exclusively on the TSX and Alpha (in the case of Alpha's owners). These SORs are known as serial spray SORs as they check venue by venue for liquidity. The alternative to the serial spray SOR is the parallel spray SOR which targets multiple venues simultaneously. These currently include ITG, Credit Suisse, and Goldman's SORs. Parallel spray SORs also dynamically respond to changes in available liquidity and price to help ensure each order receives the best price available at the time of execution. As more brokers move from fulfilling best price obligations to a true best execution environment where all available liquidity is sourced, posting on the alternative venues will increase, attracting more flow-through (best price obligation) liquidity and increasing ATS market share overall. The light competitors are working hard to attract larger allocations in broker's routing tables.

Example:

Broker X trades 20 million shares per day and puts Chi-X on their routing matrix at a level of 10% (less than 10% entails virtually no posts due to rounding).

Let's assume that half of the broker's flow is marketable and half is limit orders. Of the limit order half, 10% will be posted on Chi-X. 10% of 10 million shares leads to a minimum of 1 million shares posted on Chi-X by Broker X on an average day. If fills are received on Chi-X, a good SOR will then move more shares to be posted on that venue, responding to the available liquidity. On the other hand, orders for less than 1000 shares will not post at all on venues at 10% or less on the routing table due to rounding.

As this example shows, a small change in the routing table of a mid to large sized broker can have a significant impact on the market share of the light ATS's. As these changes occur, look for ATS market share to grow and for competition to heat up between the light offerings in terms of latency, liquidity, functionality, and fees. These changes will give the ATS's the chance to follow through on their claims of existing liquidity and will separate viable venues from non-viable ones.

Extended Hours Trading

As ATS activity increases, the question of what is trading where becomes increasingly important. Table 6 details the hours and nature of trading on each of the ATS's outside of the 9:30 AM to 4:00 PM trading hours during which all venues are open for business. Note that even though there is no trading on many venues pre-open, there is a price discovery mechanism which works towards determining the opening price.

Table 6: Canadian ATS Trading Hours

	Pre-Open Hours	Pre-Open Pricing	Post-Close Hours	Post-Close Pricing
Alpha	No trading	N/A	4:15 – 5:00 PM	At Alpha Last
Chi-X Canada	8:30 – 9:30 AM	Continuous Auction	4:15 – 5:00 PM	Continuous Auction
Pure	9:00 - 9:30 AM	Continuous Auction	4:15 – 5:00 PM	Continuous Auction
Omega	No trading	N/A	No Trading	N/A
TSX	No trading	N/A	4:15 – 5:00 PM	At TSX Last
Liquidnet Canada	6:00 – 9:30 AM	Regular Trading	4:15 – 5:00 PM	Regular Trading
MATCH Now	No trading	N/A	No Trading	N/A

Issue #1—Price Discovery

Canadian equity traders should be aware of that ***Chi-X and Pure operate continuous auction markets while the TSX is closed.*** These markets offer a displayed quote price discovery mechanism. Figures 3 and 4 show the daily shares traded before and after trading hours on Pure and Chi-X. Volumes vary widely from day to day, with Pure trading most of the extended hours volume. When news occurs during these periods (8:30-9:30 AM and 4:15 – 5:00 PM) traders should be aware of the following:

- Outstanding orders sent to a smart order router or algorithm may trade on Chi-X or PURE.
- Indications of where a name is set to move can be gleaned from extended hours activity.
- Liquidity may be available at your price outside of regular trading hours.

Previously, traders could leave day orders outstanding at the TSX last price knowing that they would be cancelled at 5:00 PM. We suggest this is no longer the best approach since in a news situation these trades can be run over. We suggest cancelling all orders unless they are being watched as they would be during regular trading hours.

Figure 3: Pre-Open Volumes

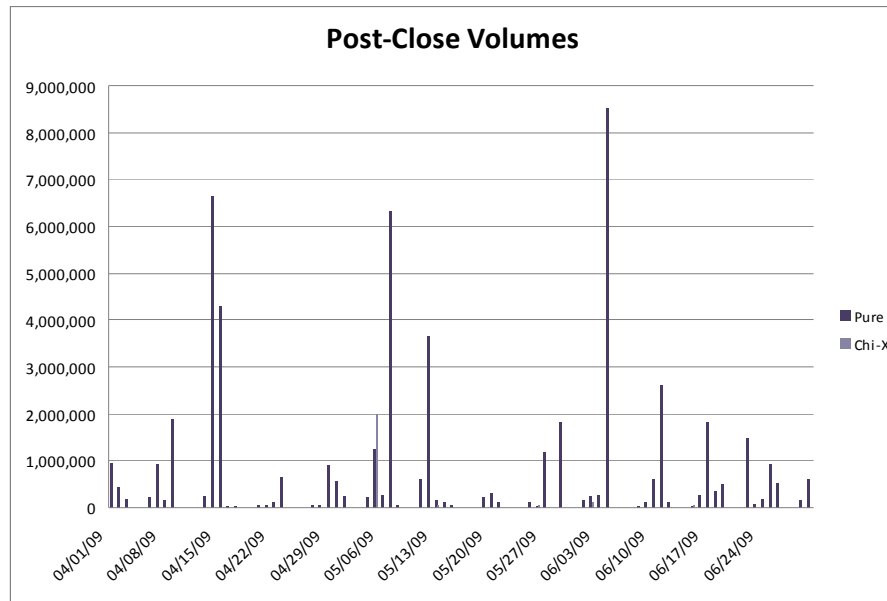
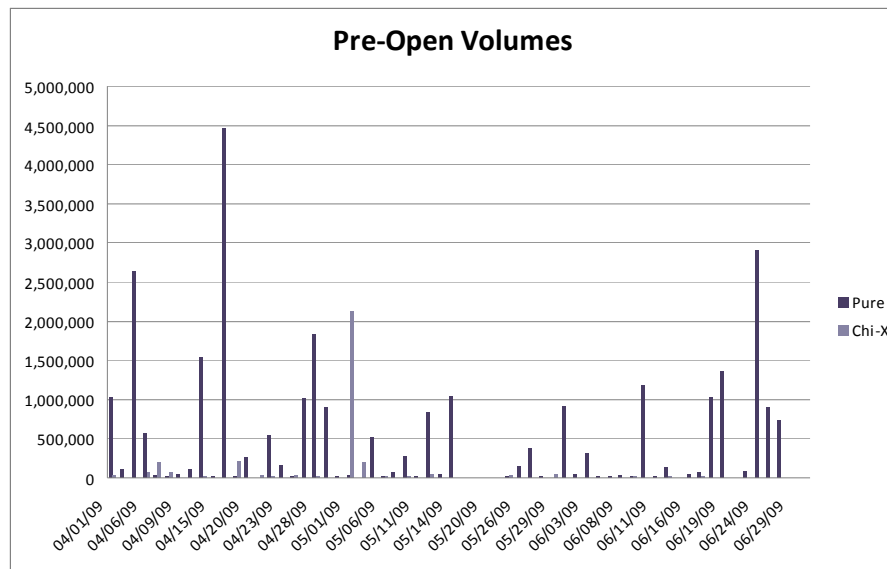


Figure 4: Post-Close Volumes



Issue #2—Benchmarking

Benchmarking becomes an issue when opening and closing prices differ between venues and when trading occurs outside of the trading hours of the primary exchange. Traders and portfolio managers need to be sure that their VWAP and Arrival Price benchmarks are based on consolidated data (i.e. data that includes all trading venues). Traders also need to monitor the opening and closing facility on Alpha. There are times when the more appropriate benchmark may be a non-TSX venue. Conversations between brokers, traders, and portfolio managers are becoming more complex and all three parties need to be familiar with how to determine what an appropriate benchmark may be for a particular trade.

Alpha is working to limit the variability of their market on open facility relative to the TSX. Currently, however, the variance remains, and traders should watch the pre-open session carefully and discuss appropriate benchmarks internally.

Final Thoughts

- There is talk of Canadian brokers following the U.S. case and setting up their own internalization mechanisms. If the markets pick up steam, look for developments on this front.
- Also top of mind is the SEC's investigation of dark trading in the U.S. Remember: ***there is no post-trade reporting requirement in the U.S. as there is in Canada*** and thus the suspicion surrounding dark in the U.S. does not apply equally to Canada. In Canada, dark fills are posted immediately to the tape and can be seen by all market participants in real-time.
- The understanding of best execution varies widely between brokers. Institutions should be looking at the standings of the brokers on the various ATS's and understanding why various brokers have chosen to participate or not in each venue. The issues are nuanced but it is up to institutions to ensure that they are getting access to all available liquidity in the most intelligent way possible.
- Exchange Traded Fund (ETF) and Index Products are getting a lot of attention. Look for the ATS's to begin to compete in this space.

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