



Clearpool Review

# TICK SIZE PILOT INSIGHTS

The Securities Exchange Commission (SEC) approved the implementation of the Tick Size Pilot (TSP) to evaluate whether or not widening the tick size for securities of small-cap companies would positively impact trading, liquidity and market quality of those securities. The program rolled out on October 31, 2016 and will run for two years.


The TSP **methodology** was designed to apply distinct conditions to three test groups of about 400 securities each and compare their performance with a Control Group of about 1,200 securities.

In the **Control Group**, there is no change in the way securities are quoted and traded, or the way orders are accepted.

Securities in **Test Group 1 (G1)** are quoted in \$0.05 increments, but they'll continue to trade at current price increments, including penny increments at or within the spread. Most brokers and trading centers will only accept limit orders priced in \$0.05 increments, while trading centers will cross, execute or fill orders at any price.


Securities in **Test Group 2 (G2)** are quoted and traded in \$0.05 increments. Most brokers and trading centers will only accept limit orders priced in \$0.05 increments, while trading centers will only cross, execute or fill orders at \$0.05 increments. There will be exemptions allowed for midpoint, benchmark contingent and retail trades.

Securities in the **Test Group 3 (G3)** are subject to the same requirements as the second test group. However, orders are subject to a "trade at" requirement, meaning hidden orders cannot trade at the bid or offer without first fulfilling the displayed liquidity at the same price and size in all lit venues. There is an exemption for block orders equal to or greater than 5,000 shares or \$100,000.



**We've analyzed our data to assess microstructure changes as a result of the pilot, and we've analyzed how our algorithms are performing.**

From our perspective:

- Impact costs have improved
  - Spreads & quotes have increased
  - Market center volumes have shifted
- 

With penny increments, liquidity can become highly fragmented. But with a **minimum tick size of \$0.05** imposed by the TSP, we're finding that liquidity is **consolidating at fewer price points**, and **quote sizes have gotten larger**. These two factors are ultimately driving the observed shift in market center volume.



Clearpool's algorithms are dynamically adapting to market structure changes, resulting in an improvement in impact cost.



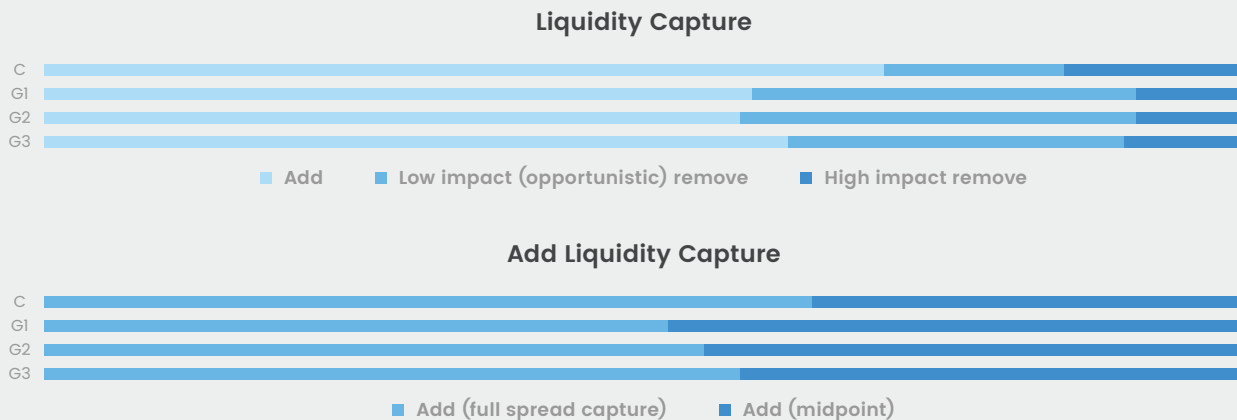
## Impact costs have improved

Clearpool's strategies are designed to dynamically adapt to source liquidity wherever it may move. Unlike other brokers, we do not have to manually or fundamentally make any reactive changes. The adaptive nature of our logic has helped mitigate the increased trading costs that other providers have cited in their analysis of the tick size pilot – some as high as 50%<sup>1</sup>. However, Clearpool strategies delivered improved trading costs.

Attributing to this success, is our algorithms' ability to source liquidity at the most opportune times and venues.

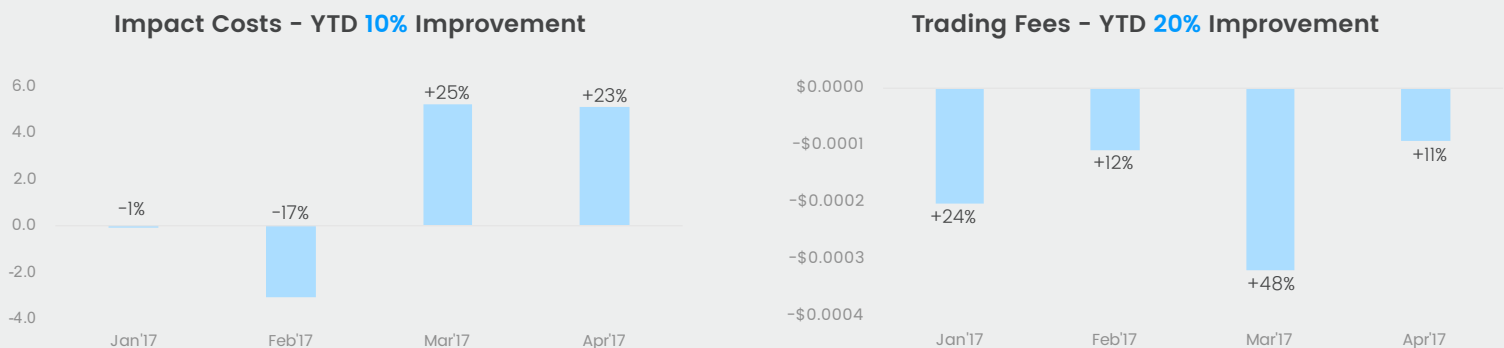
Our analysis indicates, as passive trading becomes more competitive and orders take longer to complete, Clearpool's algorithms are able to identify and maximize opportunities to remove liquidity with minimal impact.

In addition to sourcing low impact opportunistic liquidity removal, when the opportunity to effectively add liquidity arose, we were also able to source more mid-point liquidity as competition increased and it became more difficult to capture the full-spread.



Control & Groups 1-2-3 each had approx. 14K orders, 60M+ executed shares & \$2B executed notional, across scheduled strategies.

Our effectiveness in capturing liquidity contributed to our improved impact costs and trading fees in spite of the significant shifts in microstructure. We anticipate as the pilot continues costs will continue to improve as the algorithms continue to adapt.

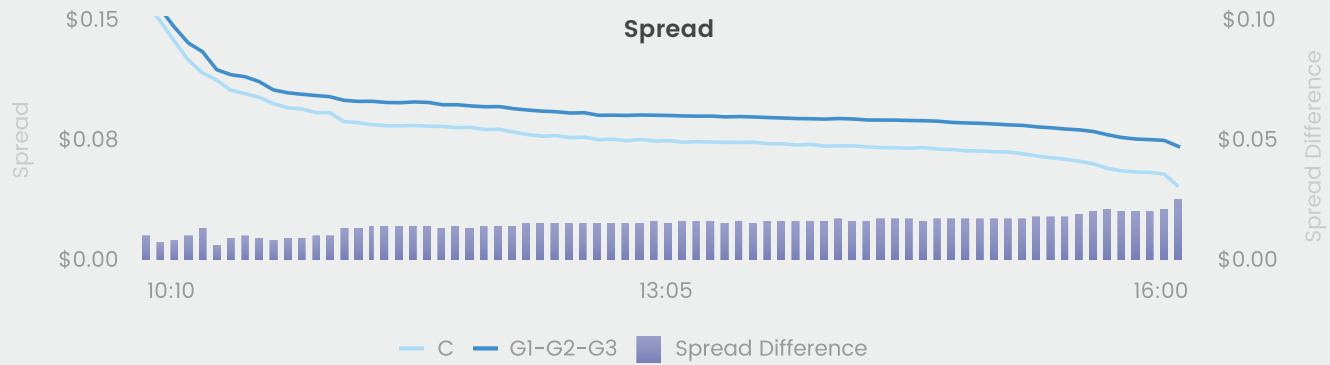


Measured in basis points aggregated test group data over control  
Control & Groups 1-2-3 each had approx. 14K orders, 60M+ executed shares & \$2B executed notional, across scheduled strategies.

Measured in fees per share aggregated test group data over control  
Control & Groups 1-2-3 each had approx. 14K orders, 60M+ executed shares & \$2B executed notional, across scheduled strategies.

<sup>1</sup> <https://securitytraders.org/itg-tick-pilot-update/>





SIP Market Data

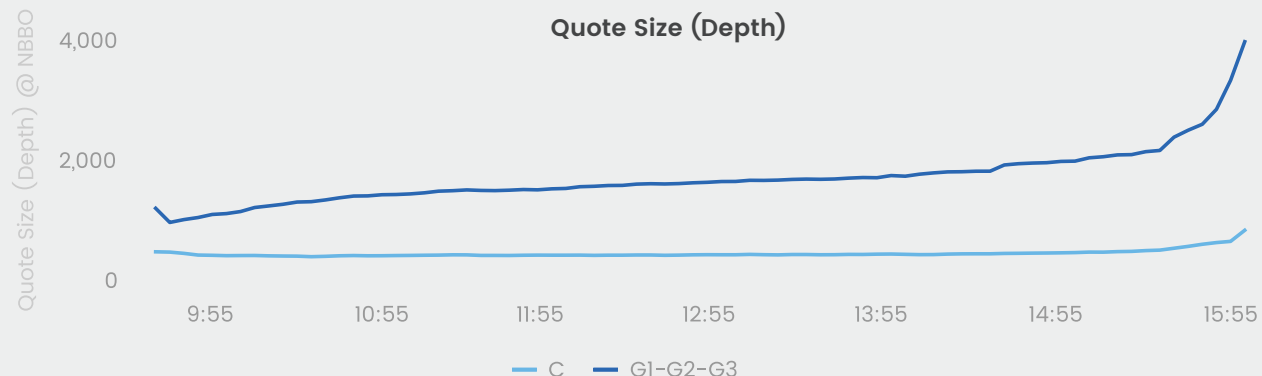
## Spreads have increased

Our analysis reveals that spreads for the test groups widened compared to the Control Group, with the most notable difference in spread as markets approach the close.

Spreads and quotes are extremely volatile and wide between 9:30 am and 10:00 am. However within that 30-minute period, the data is not representative of the average spread over the day. In the chart above, you'll notice that after 10:00 am, the spreads in the Control Group decrease versus the Test Groups and goes below \$0.05 as it nears the close. The aggregated spread for G1-G2-G3 appeared to stabilize throughout the day at the \$0.05 increment as a result of the pilot. Yet significantly, there's almost a \$0.02 difference in the spread over the course of the day across all stocks.

## Quote sizes have increased

As spreads widened and liquidity consolidated at fewer price points, we observed increased quote size (or depth of book) for the aggregated data of G1-G2-G3 throughout the day, and a significant increase in depth of book prior to the close. Subsequently, we observed a shift in market center volumes as the increased competition at a given price point is leading investors to seek out liquidity at alternate market centers.



SIP Market Data



## Volume has shifted

One reason the SEC decided to conduct the TSP was due to their concern about the increase in the volume of trading in dark pools. As market center volumes shifted during the pilot, the chart on the left shows that Test Group 3 in particular is shifting out of off-exchange venues and into exchanges.

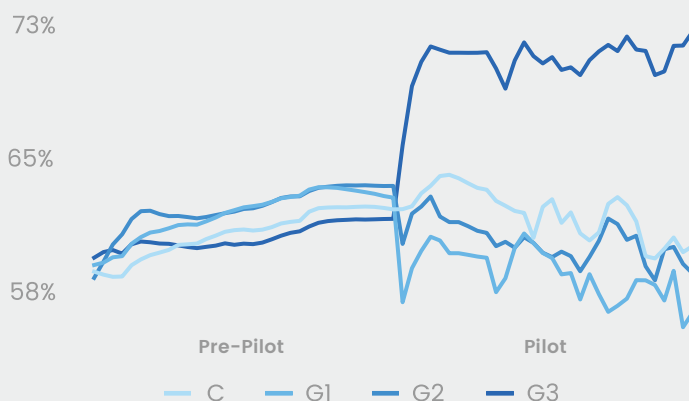
Remember that securities in Test Group 3 have a trade-at requirement. Participants who want to buy these shares in an off-exchange venue must first buy all the shares offered at the same price across all the “lit” exchange venues. As a result, the “lit” exchange volume increased 10% to 12% for securities in this test group.

However, our analysis indicates that more volume has actually shifted to dark venues for Test Groups 1 and 2. In fact,

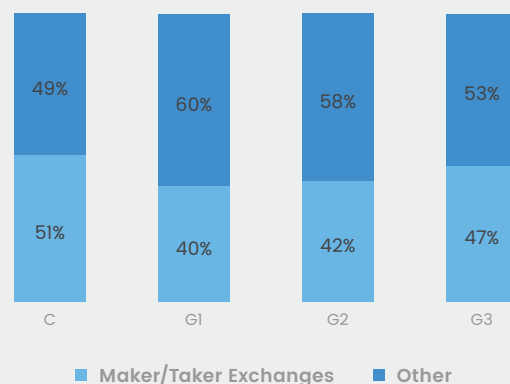
Test Group 2 volume executed in the dark increased more than Test Group 1.

The chart on the right displays the overall shift out of maker/taker venues that we have also observed since the start of the pilot. On maker/taker exchanges providing liquidity is generally more competitive as participants get paid to make a market, and they pay to take liquidity. On inverted venues, participants pay to make a market and get paid to take liquidity, so there is generally less of a queue and higher fill rates for adding liquidity. We observed that volumes grew during the pilot in the non-maker/taker venues when investors sought liquidity capture in less competitive venues as quotes consolidated and the depth of book grew in the maker/taker exchanges.

“Lit” Volume %

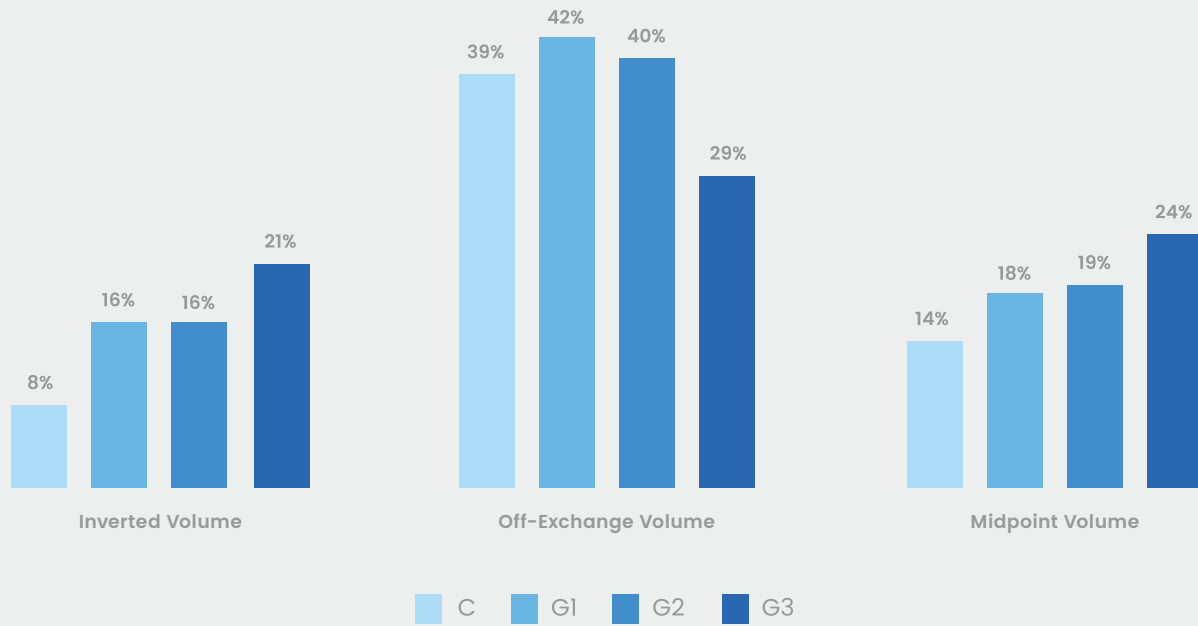


Maker/Taker Volume





## Volume Shift



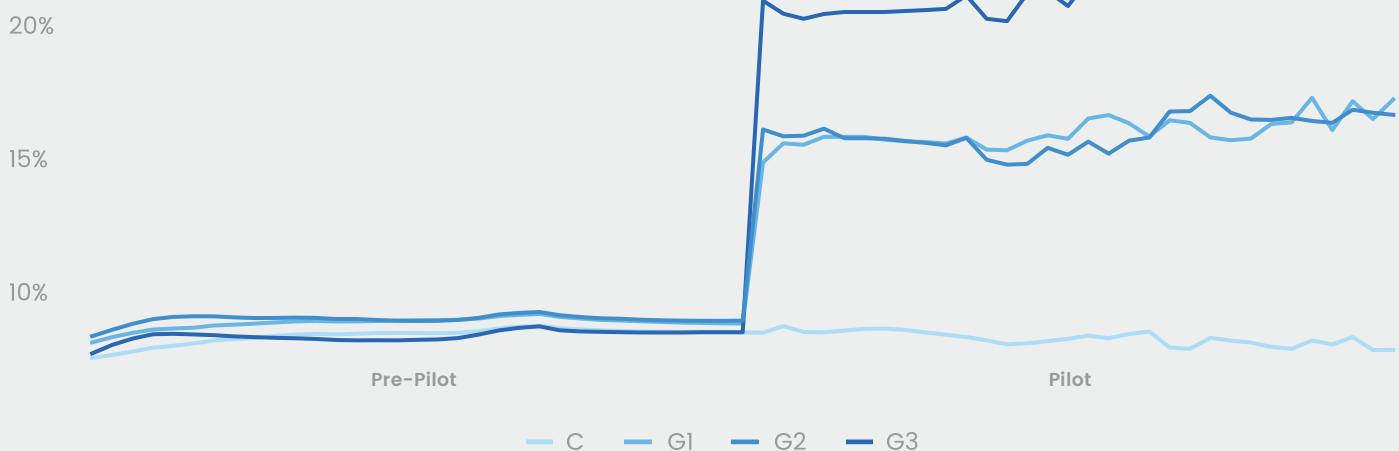
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Inverted volume has increased for all test groups compared to the Control Group, as shown below. As displayed in the chart above Off-exchange volume has increased for Test Groups 1 and 2, but for Group 3 we've seen a decrease.

After the pilot launch, we observed increased liquidity on inverted exchanges in reaction to increased

competition and depth of book on maker/taker venues. As a probable tactic to maintain fill rates, investors are trying to jump the queue on inverted exchanges where they pay to provide liquidity. Midpoint volume has increased overall, most significantly for Group 3, due to the trade-at rule.

## Inverted Volume %



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## Our key takeaways

Industry assessments of the TSP generally found that impact costs have increased as the spreads widened<sup>1</sup>; however, we're not observing the same result. Clearpool's algorithms are dynamically provisioned to add or take liquidity at opportune times mitigating impact on performance. They are constructed to maximize passive liquidity capture. To the extent passive liquidity capture is insufficient, they seek to utilize a combination of low impact (opportunistic) liquidity removal and high impact liquidity removal tactics.

In response to the increased competition in the maker/taker exchanges from pre-pilot to pilot, the algorithms have automatically adapted and sourced liquidity from midpoint and inverted exchanges to maintain fill rates and maximize spread capture. In addition, when our strategies do need to cross the spread, they can adapt and benefit from the shift to inverted exchanges by maximizing low impact liquidity capture.

Because our algorithms can leverage passive liquidity and low impact liquidity removal, we have observed a decrease in high impact liquidity removal versus the Control Group, which has aided in improved impact costs. As a result we are crossing the spread, in a manner that reduces impact. Additionally, our unbiased order routing allows us to source liquidity across all venues and adapt to market microstructure changes to maximize liquidity capture.

Our initial observations of the changes in market microstructure may be showing signs of improved liquidity capture for institutional investors who wish to trade small cap stocks. We will continue to measure and report results of the pilot as it continues.

**Questions about TSP or to learn more about Clearpool**

Contact sales at [sales@clearpoolgroup.com](mailto:sales@clearpoolgroup.com)