



RESEARCH@BESTEXRESEARCH.COM

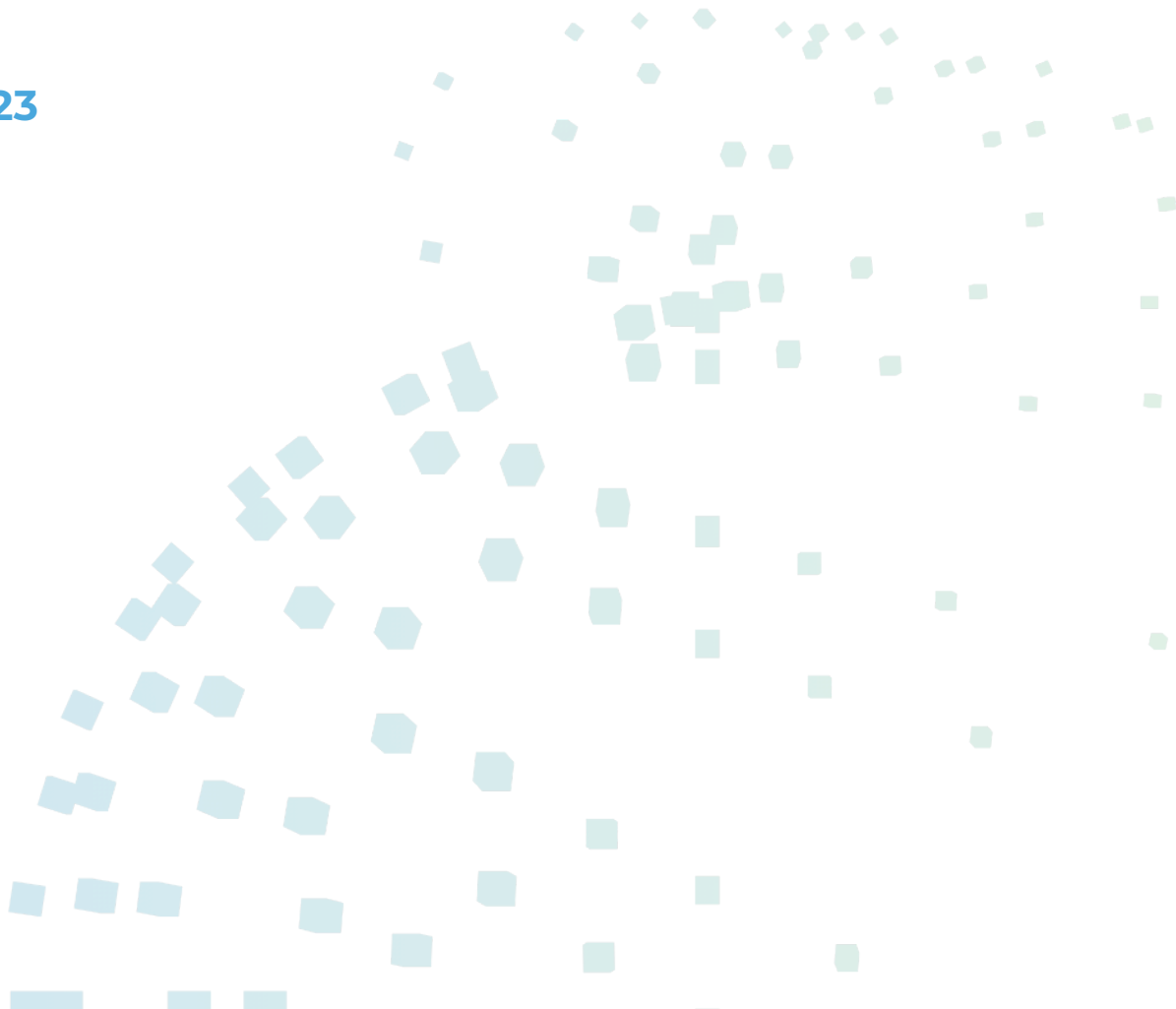
BESTEXRESEARCH.COM

IS THE ORDER COMPETITION RULE A WINDFALL FOR INVESTORS?

JANUARY 5, 2023

Hitesh Mittal

Founder & CEO



The SEC's proposed Order Competition Rule aims to increase competition in the market for retail investor orders. Currently, wholesalers can buy order flow from retail brokers and provide a fill within the National Best Bid and Offer (NBBO) without exposing the order to open market competition. The proposed rule basically allows marketable retail orders to be segmented on exchanges just as wholesalers currently do. Moreover, it “forces” retail brokers/wholesalers to expose these orders to competitive auctions where institutional investors and other market participants will be able to interact with and provide price improvement over the NBBO in return for lower adverse selection costs (or access to liquidity).

We've pored over the details of the proposed rule to provide a summary of the proposed changes, analysis of the impact on retail and institutional investors, and our interpretative commentary and suggestions in the sections below.

The Proposed Auction Mechanism

The SEC's proposal includes auctions for retail orders, triggered by a retail broker or wholesaler sending a retail order to an approved auction location at any time.

- Practically speaking¹, only exchanges will be able to operate the proposed auctions, and to qualify, an exchange must execute more than 1% of the average daily market volume in four of the preceding six months.
- Retail brokers or their wholesalers must submit orders to an exchange or an auction, with the exception of orders that can be filled at the midpoint price or better.
- Retail orders may be segmented by broker name to allow liquidity providers on exchanges to estimate the adverse selection associated with orders from specific brokers and provide appropriate price improvement in competition with each other.
- When an auction is about to occur, information such as size, price, exchange, venue, and order flow segment will be provided through the consolidated feed. After the auction, complete post-trade information will be available.
- The auctions will be blind, best-price auctions with no time priority for submitted orders, lasting between 100 and 300 milliseconds.
- Exchanges cannot charge more than 5 mills for access to the auctions; they are expected to offer a 3 mill rebate to retail brokers and charge a 5 mill fee to auction liquidity providers, netting 2 mills per share.
- The price increment will be 10 mills per share for stocks above \$1. All orders submitted to the auction as well as orders that already exist (whether displayed or hidden) on the exchange are pooled together and the winning order is determined based on the best price for the retail order.
- If there are multiple orders at the same winning price, there is a complex set of rules to determine the winning order (or orders). First, displayed orders that were resting in the book will have top priority. But that obviously means that no hidden order exists between the NBBO and no auction order submitted was better than the NBBO because price priority trumps display priority. So among the orders that are improving the price, auction orders will have priority over hidden orders that were already resting in the exchange's book.
- There is another interesting—and unprecedented—rule; orders submitted on behalf of a broker dealer's “customers” will have priority over the broker dealer's proprietary orders. The SEC believes that will reduce intermediation even further.

¹ ATSS can host auctions as well, but several requirements—including the need to have a displayed order book through the mechanism defined by the SEC—make it challenging for an ATS to implement such auctions.

Projected Impact on Retail Investors

The SEC analyzed Consolidated Audit Trail (CAT) and data from 605 reports and found that retail investors would receive an additional net benefit of \$1.12 billion to \$2.35 billion per year if their orders were exposed to open market competition.

The SEC's economic analysis aligns with our 2021 paper [“Payment for Order Flow: The Good, The Bad, and The Ugly”](#). In our paper, we used a combination of TAQ (trade and quote) data and 605 report data for our analysis. The SEC analysis had the benefit of differentiating retail order flow from the rest by the identification of the broker in their CAT data, whereas we used heuristics to classify retail order flow in TAQ data.

There are some differences between our analysis and that of the SEC that we want to be sure to highlight, but the results of the two analyses are remarkably similar. The SEC focused on "realized spreads", which are the spreads earned by liquidity providers after subtracting the adverse selection costs they experience. Our paper similarly focused on these measures, but considered the ratio of spread earned to adverse selection experienced. The SEC used a one-minute time horizon following each trade to estimate adverse selection, while we used a 30-trade horizon (resulting in a longer time horizon for less liquid stocks). Our data is from December 2020, while the SEC's data is from Q1 2022. The results of both studies are shared in Table 1 for comparison.

	SEC CAT data Entire US equity universe	SEC 605 data Entire US equity universe	BestEx Research TAQ, 605 data Russell 3000 universe
Spread to adverse selection (Exchanges)	72.3%	82.3%	82.0%
Spread to adverse selection (Wholesalers)	167%	154.1%	213%

Table 1. Summary of key findings in the SEC’s economic analysis of current market conditions in their proposed Order Competition Rule and comparison to our 2021 study published in our paper [“Payment for Order Flow: The Good, The Bad, and The Ugly”](#).

The key metrics are very similar. The ratio of spread to adverse selection defines the level of competition in a given market structure. The first observation from this analysis is that wholesalers charge a higher spread per unit of adverse selection costs faced. While wholesalers do provide tighter spreads than NBBO spreads to retail investors, when their spreads are normalized by the adverse selection costs they experience, wholesalers are not as competitive as liquidity providers on exchanges. Exchanges are, on average, 2.3 times more competitive than wholesalers.

The second (surprising) observation is that the ratio of spread to adverse selection on exchanges is less than 100%, meaning that realized spreads are negative. In a scenario of perfect competition, we would expect realized spreads to be zero (no loss or gain experienced for a single trade). So why would liquidity providers

trade at a loss? Liquidity on exchanges is provided by both market makers and liquidity-seeking traders, including institutional investors. While market makers seek profit from providing liquidity, institutional investors use limit orders to reduce their costs in seeking liquidity. For institutional investors, as long as realized spreads are higher than negative 50% of quoted spread, it is more profitable to provide liquidity than to cross the spread.

In our original paper, we calculated the effect on NBBO spreads if retail flow moved to exchanges. We found that if retail flow moved to exchanges (without segmentation), the weighted average adverse selection on exchanges would decrease with the addition of this new, less toxic flow. From the ratio of spread to adverse selection, we calculated the new expected spread on exchanges, estimating that bid-offer spreads would decline by approximately 25%.

To achieve this effect, the SEC would have had to adopt rules similar to those in other global markets that ban payment for order flow (PFOF). This would mean that retail investors would benefit from increased competition for their flow, and all investors—including institutional investors—would benefit from narrower spreads. However, retail investors would not receive narrower spreads than institutional investors despite their flow being less toxic.

The SEC wants retail investors to be able to enjoy the benefits of segmentation while also exposing their flow to greater competition in an all-to-all market structure with this new rule. So, the question is how much this new proposed structure will save retail and institutional investors (in terms of spread, basis points, and dollars).

Since retail flow will remain segmented, we can assume that their adverse selection costs will not increase. And since all investors and market makers will be able to compete for this flow, we can assume that the ratio of spread to adverse selection will remain the same as it is on current exchanges. We will revisit these assumptions later. But with them, we can estimate the savings for retail investors.

	Using SEC data CAT data, all US equities	Using BestEx Research data TAQ data, R3000 only
Current half spread paid by retail investors (bps)	2.11	2.11
Adverse selection costs created by retail investors (bps)	1.26	0.99
Projected half spread paid by retail investors if rule is implemented	0.91	0.81

Table 2. Summary of savings based on the SEC’s economic analysis of the projected impact of the Order Competition Rule on retail investors’ trading costs based on CAT data; our original analysis from May 2021 using TAQ data appears for comparison. The results of the study using different data sources, methodologies, and time periods are similar.

Our estimates and those of the SEC lead to very similar spread cost projections for retail investors, as shown in Table 2. Using the SEC data, the total spread savings are 1.2 basis points, a 57% savings on their current

trading costs, amounting to \$1.57 billion in savings annually. In our 2021 study, the savings was measured to be 1.3 basis points, a 61% savings totaling \$1.70 billion annually—remarkably similar. The reproducibility of the results supports both studies, conducted independently using different data sources, different methodologies, and different time periods.

Projected Impact on Institutional Investors

The \$1.57 billion savings estimate from the SEC only applies to retail investors, but institutional investors are likely to save even more in reduced price impact and spread costs from interacting with retail order flow. Currently, only intermediaries (wholesalers) can interact with the retail order flow most of the time. With the newly proposed auction mechanism, institutional investors will be able to participate in these auctions and interact with retail liquidity through broker algorithms and smart orders routers. In fact, the rule prioritizes institutional investors' orders over other market makers' orders if they are at the same price.

Even if we assume no savings from reduced price impact, institutional investors' trading costs would decline substantially when interacting with retail order flow when compared to crossing the spread. Using the SEC's analysis, half of the spread on exchanges is currently 3.18 basis points. Rather than paying the half-spread of 3.18 basis points, institutional investors would earn some of the spread in retail auctions—albeit not as large—the 0.91 basis points the SEC projects retail investors would pay on average once the new rule is implemented. This would make institutional investors' total savings over paying the full spread 4.09 basis points. Of course, this must be adjusted for the adverse selection costs they would face in retail auctions, estimated by the SEC to be 1.26 basis points, yielding a total savings of 2.83 basis points on average.

We believe it is reasonable to assume that retail investors' orders will interact with institutional investors 50% of the time through this mechanism. Then, based on the SEC's value of total retail volume at \$13.1 trillion annually, the total expected annual savings for institutional investors is \$1.86 billion.

In total, our analysis shows that this new rule could result in annual savings of \$3.56 billion for both retail and institutional investors, which is significantly higher than the SEC's estimate of \$1.12 to \$2.35 billion per year.

Critique of the Auction Mechanism

Our analysis of savings from the proposed auction mechanism makes two large assumptions. First, we assume that all retail flow moves to exchanges through this competitive mechanism. And second, the ratio of spread to adverse selection remains the same as exchanges (72%), but this is largely dependent on how competitive this auction mechanism is.

There are several elements that make the proposed auction more competitive than exchanges. For example, liquidity providers responding to the auction do not need to guess where orders will arrive, as is required in limit order books on exchanges. This reduces the challenge described in our paper [*"Queue-Jumping & Strategic Limit Order Routing"*](#), and naturally increases the likelihood of execution. Additionally, the use of batch auctions instead of time priority reduces adverse selection risk for slower responders and strictly favors better prices.

However, the proposal also has some shortcomings in our view. For example, the proposal makes exceptions that can impact the estimated savings negatively. The SEC included an exception that allows wholesalers to bypass the auction if they are willing to execute the order at the midpoint price, which gives them an advantage and leaves the remaining, more toxic flow for the auctions. This violates the assumption that the flow in

auctions would be less toxic than what wholesalers experience today, and it is difficult to predict adverse selection as costs will vary based on how much flow wholesalers internalize.

Aside from the exceptions above, it is not clear whether it will be possible to submit resting orders against potential auction orders. Allowing investors to submit resting orders to exchanges with a "retail price improvement" option may increase the probability that retail investors find liquidity in auctions. For example, a liquidity provider may set a NBB at 10.20 with a retail price improvement of 50% of the spread. This means that they will not interact with traditional midpoint orders on that exchange but would be willing to interact with retail order flow if that exchange receives it. Of course, an auction may occur on a different exchange, in which case the liquidity provider may or may not cancel their order and submit to the other exchange's auction. Overall, providing continuous liquidity provision orders may help ensure that the competitiveness of liquidity provisioning for auctions is at least as strong as it currently is on continuous limit order books.

In addition to allowing a new resting order type to provide liquidity to retail orders, we suggest an additional improvement to the auction mechanism that incorporates those orders. We suggest that exchanges run continuous batch auctions rather than event-based auctions. For example, if Exchange A runs a batch auction every 50 milliseconds, all retail orders arriving at Exchange A within those 50 milliseconds would be grouped. At the end of 50 milliseconds, the exchange would publish the information about all retail orders waiting to be matched to the SIP feed. The exchange would then begin accumulating liquidity providers' orders for the upcoming auction and as well as eligible orders from its continuous limit order book. The auction would cross after an additional 50 milliseconds of order accumulation time. This kind of an auction mechanism, along with the retail price improvement orders from other market participants, would minimize the number of cancellations liquidity providers have to do (e.g., canceling an order posted on a different exchange that did not receive the retail order). Smaller auction sizes, longer duration and no guarantee of fill could drive a decision not to participate in retail auctions for some algorithm providers. Allowing resting orders to be integrated with auctions (which the SEC already has provided a provision for) but with an option to provide price improvement for interaction with retail flow (which the SEC has not provided a provision for) would encourage more participation from execution algorithms in these auctions.

Finally, we believe that 300 milliseconds is too long a duration for auctions. We believe that 100 milliseconds is sufficient for most algorithmic trading firms to respond to an auction. The longer the auction duration, the higher the likelihood that quotes on exchanges may fade, limiting the intended benefit of these auctions for all investors.

Conclusion

The SEC's proposed Order Competition Rule aims to increase competition in the market for retail investor orders by requiring that they be exposed to open market competition through auctions. The auctions will be conducted by exchanges and will be blind, best price-auctions with no time priority, lasting 100 to 300 milliseconds. Retail brokers or their wholesalers must submit orders to an exchange or an auction, with the exception of orders that can be filled at the midpoint price or better.

The SEC's analysis found that retail investors would receive an additional net benefit of \$1.12 billion to \$2.35 billion per year if orders were exposed to open market competition. Similarly, our analysis found that retail investors could save 61% on average, or \$1.7 billion per year if their orders moved to exchanges. Institutional investors could save an additional \$1.86 billion per year through their interaction with retail investors in the auctions. Overall, the total savings for both retail and institutional investors could be \$3.56 billion per year.

While the proposed savings to both retail and institutional investors is convincing, we point out potential issues with the proposed auction mechanism, including the midpoint execution exception provided to wholesalers which could lead to higher than expected toxicity on exchanges. We also suggest updates to the proposal including allowing resting retail-liquidity-provisioning orders from other market participants and including them in the proposed auctions.

Overall, we support the SEC's proposal, as it directly benefits all investors at the expense of reduced intermediation. We believe that adopting some of our suggestions will help the proposed rule achieve its intended outcome. We encourage our readers to participate in this debate and provide their feedback to the SEC via comment letters.