Dear Chairman Gensler, Commissioner Crenshaw, Commissioner Lizarraga, and SEC review staff:

Thank you for the opportunity to comment in support of proposed rule S7-31-22, 'Order Competition Rule'.

Commissioner Peirce and Commissioner Uyeda:

Although you both said that you looked forward to reading public comments on the proposed rules, and then voted against opening them up for public comment, I hope you will nonetheless read the comments with an open mind and vote to adopt the rules.

I want to start with a quick thought experiment. Imagine if the NYSE specialists had been able to act like wholesalers: If they could have backed away from quotes, picked and chosen which orders to execute, sent orders they didn't like to other exchanges, bought on plus ticks and sold on minus ticks for their own book, and placed their orders ahead of others' orders. How long would the investing public put up with that behavior?

I encourage the SEC to ban payment for order flow and unexposed internalized flow outright. The notion that paying for 'Right or First Trade' is legitimate is extremely disappointing. It is a discretion that no registered dealer with a fiduciary duty would be allowed. The ability to pay to see the order first, take or decline that order, and then use the aggregate information from seeing so much order flow first to front run that aggregate order flow for one's own account is outrageous.

Commissioner Peirce asked about the danger of concentrated order flow that drives the price unidirectionally. I respond that right now the wholesalers send those orders to the lit market because they can choose not to stand up for the other side, and so we already have the worst-case stress test of unidirectional order flow, one driven by the huge information advantage that 'Right of First Trade' engenders.

Another thought experiment: how about forcing PFOF dealers to stand up for NBBO pricing. How long would Citadel or Virtu remain solvent against unidirectional Ape buying in non-institutionally owned thin names in a closed PFOF market? Imagine if FTD timelines were enforced in this case?

Here's the problem with PFOF/internalization for lit markets.

Wholesalers pay for order flow to:

1) Decide if they will provide counter party execution having seen the order first, and more importantly seeing in real time a large percentage of the retail order flow in correlated names.
2) Gather information about the aggregate order flow in the market.

Wholesalers use their bought and paid for order flow information asymmetry advantage to:

1) Provide liquidity for high probability winning trades.
2) Front run order flow by executing on ATS/lit markets.
3) Avoid high probability losing trades by sending those to ATS/lit markets for forced execution.

Wholesalers' order flow information asymmetry information creates adverse selection to lit market quotes through lit market order flow toxicity, front running resting limit orders, and trading through hidden orders and odd lots on lit markets.

This combination of order flow information asymmetry and the inability to back away from lit quotes, makes lit quotes much riskier than PFOF and internalized execution. This risk has the effect of widening the NBBO spread.

Perversely, wider spreads are even better for the profits of wholesalers and this virtuous feedback loop builds on itself: wider spreads engender more PFOF/internalization to capture wider profits and even more order flow information asymmetry against lit quotes.

Adverse selection to lit quotes driven by order flow information asymmetry is the cause of wider quotes on the lit markets. If the goal is to tighten the lit quoted effective spread and provide better overall execution for marketable orders to 'promote competition as a means to protect the interests of individual investors and to further the objectives of an NMS' [1], particularly retail orders, any order-by-order competition solution should provide protection for lit quotes at the NBBO, whether round-lot or odd-lot, hidden or broadcast. The competition rule should obviously also protect odd-lot resting orders and hidden resting orders inside the NBBO on lit exchanges.

Any kind of auction price improvement mechanism should provide a meaningful price improvement over the lit quote to receive execution given the higher risk of on-demand counter party execution. Flash quote front running of resting quotes should not be rewarded for near-riskless front running of lit NBBO quotes. Mid-point auctions for retail orders should also include better priced odd-lots and hidden limit order on lit exchanges, rather than be allowed to trade through them.

However, simply replacing heavily concentrated payment for order flow/internalizer execution with concentrated high frequency market making that provides de minimis front running price improvement over the lit NBBO will not solve information asymmetry or the toxicity of adverse selection and response times to advertised auctions need to be thought about.

Execution quality suffers in the dark:

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[1] https://www.sec.gov/rules/proposed/2022/34-96495.pdf page1

In addition to arguing for a PFOF ban, I want to address execution quality in the equity market, and especially the execution quality between the lit and dark markets. There are (error-filled) studies that show that dark markets offer better price execution than lit markets, and this forms the basis for a lot of the defense of Internalization and Payment for Order Flow as legitimate execution options.

However, there is a very large shortcoming in most studies that look at price improvement and execution quality in equities: most studies use a sample set of hyper-liquid tick constrained stocks, or they use a large dataset where the aggregate volume is dominated by hyper-liquid tick constrained stocks.

Hyper-liquid tick constrained stocks trade in penny increments on lit exchanges, and in sub-penny increments on dark markets. These are different data populations and cannot be compared. The dark market structurally must have better prices because in hyper-liquid tick constrained stocks, dark execution occurs between the minimum tick size spread and in lit markets, it cannot. Thus, all those studies are heavily flawed as they compare different data populations as though they were the same.

Instead of using these flawed studies, I present a study[2] that allows for an apples-to-apples comparison of execution quality in the same names on both lit and dark markets. I achieve this by closely approximating the same population for both markets by using stocks that are thinly traded where the NBBO spread dwarfs the price improvement offered by sub-penny quoting on dark markets.

The population of stocks in this study is screened for prices between $10 and $50 that trade between 5,000 and 25,0000 shares/day over the preceding 7 days. These thinner, less liquid, mid-price ranged stocks have wider spread and so the de-minimus price improvement offered on dark markets is dwarfed by the NBBO spread. This thin wide-spread profile fits the kinds of stocks that individual investors buy such as REITS, ETFs, Exchange traded debt, closed end funds etc—thinly quoted with widish NBBO spreads.

STUDY METHOD: In this dataset, FINRA reported trade are executions reported from dark pools, internalized flow, and payment for order flow (PFOF). Every other lit market/ATS participant is identified by exchange/ATS name. The study uses all trade reported on the consolidated tape. These were chosen with a market screener for prices between $10 and $50 and daily volume between 5000 and 25000 shares.

Each trade records the price, the volume of the trade, the NBBO, and the exchange of the trade.

The procedure for the study is:

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[2] Data (.csv), study code (Python) and paper (.pdf) are here https://github.com/jaredalbert/SEC_Comment_Letters

1) For each trade find the smallest absolute value of its price difference from the National Best Bid (NBB) and the National Best Offer (NBO). I used the standard assumption that trades closer to the offer are buys, while those closer to the bid are sells. The absolute value allows me to sum them.

2) Group the sum of these difference off the NBBO by exchange and sum the total volume grouped by exchange. Divide the sum of the differences by the sum of the total volume by exchange to get the weighted per share price improvement off the NBBO for each exchange. For example, a 0 price improvement would be all trades occurred at either the NBB or the NBO with no price improvement—the bigger the price improvement, the better the quality of the fill.

3) Compare them: We can see from the output table that FINRA reported trades are $.0055 worse than NYSE, $.024 worse than ISLD, and a staggering $.056 worse than IEX per share.

Using this much fairer apples-to-apples approach for the study, we see very clearly from this table how badly wholesalers and other dark market centers (FINRA reported) trades do. They offer the 4th worst price improvement of any market center. It's worth pointing out that the actual performance of the wholesalers is worse, because the FINRA trade improvement benefits from the large midpoint trades on the institutional dark pools that also report FINRA and whose orders pull the average away from the NBBO.

Exchange	Trade count	Total Volume	Improvement Off NBBO
AMEX	110	5599	0.064
DRCTEDGE	987	46701	0.084
BEX	173	2878	0.093
BYX	300	6702	0.094
FINRA	3006	211549	0.105
NYSE	210	7090	0.110
PEARL	20	876	0.118
PSX	39	821	0.121
BATS	675	14702	0.122
CHX	56	3036	0.124

NYSENAT	59	1206	0.124
ARCA	1102	33934	0.126
MEMX	244	8701	0.128
ISLAND	3999	146967	0.128
IEX	997	41783	0.162
EDGEA	244	5786	0.167

There are at least two main reasons that the lit markets/ATS offer better prices than the dark markets:

1) The odd lots that exist between the NBBO, but are not part of the NBBO quote, are nonetheless executed against on lit markets, while dark markets trade through them and offer 'price improvement' to their cheated customers.

2) A large amount of the volume is hidden orders on lit exchanges, which again are only uncovered when orders route to lit markets with hidden orders, while dark markets trade through them and offer 'price improvement' to their cheated customers.

Although I think joining the bulk of the OECD by banning PFOF and all internalization that is not first exposed to lit markets, instituting an intermarket sweep 'trade-at' rule, and passing through all access fees to the end user instead of changing caps on the various marketplaces would be a better, albeit a more litigious set of rule changes; given the current broken state of the equity markets, I fully support the SEC proposals for rule S7-31-22, 'Order Competition Rule'.

Thank you for your time and consideration on this matter.

Kind regards,

Jared Albert