Banning Payment for Order Flow May Benefit No One

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Increased regulations could result in reduced market liquidity and a negative impact on retail traders.

The intensity of retail trading has **dropped slightly** since its pandemic peak – when individual investors, flush with stimulus cheques and looking for a way to spend their money amid global lockdowns, poured into the stock market. Yet, retail investors still make up a robust segment of **the equity market**, at times **accounting for a third** of all stock trading in the United States in 2021.

Retail investors have their pick of brokers, many of which offer attractive perks such as sign-up bonuses, zero trading commission and waiving custodial charges. But payment for order flow (PFOF), a controversial practice used by many brokers to generate revenue, and in turn provide the aforementioned perks to their clients, has been facing regulatory scrutiny.

Our research looks particularly at how eliminating PFOF would affect market quality. By accounting for the business model of market makers, and the

various factors they consider when executing trades, we show how banning PFOF could have negative, far-reaching consequences for all market participants, including retail investors.

How PFOF works

When retail investors place orders through their brokers, many of these go through a process known as PFOF. In doing so, brokers effectively sell these orders for a fee to heavyweight market makers such as Citadel Securities or Virtu Financial. Acting as wholesale intermediaries, the market makers then execute these trades against their own balance sheets.

Market makers can offer a better price compared to on-exchange trading, allowing brokers to fulfil their fiduciary duty to get the best price for their clients. Meanwhile, the market makers make a profit by charging bid-ask spreads better than the best on-exchange quotes (a "price improvement”) and share a percentage of this with brokers for routing the orders to them.

PFOF is popular in many countries and has even become the main source of revenue for some brokers. For instance, Robinhood reportedly obtains **about 80 percent** of its revenue from PFOF. But some worry that brokers may be incentivised to sell their customers’ orders to the highest bidder, rather than getting the best deal for their clients.

In fact, PFOF is prohibited in the United Kingdom, where it’s been outlawed since 2012, Australia and Singapore, and is **heavily restricted in Canada**. It’s currently under review in the European Union, with certain lawmakers calling for a **total clampdown** on the practice. And in the United States, the Securities and Exchange Commission is looking into regulating PFOF, with chair Gary Gensler previously disclosing that an **outright ban** was on the table (though this appears to have been **put off** for now).

What makes market makers tick?

Much previous research into how PFOF benefits market makers has focused on its effect on their revenue. Each time a market maker executes a retail trade, they scoop up revenue from the price-improved bid-ask spread. The more trades they execute, the higher their revenue. Market makers are thus incentivised to load up their books with retail orders.

Our study focuses on the other half of the picture: market makers’ inventory cost to provide liquidity. Besides accumulating revenue, market makers also

need to manage the inventory sitting on their balance sheets. To best avoid risk, they ideally want to maintain an inventory that's as close to zero as possible at the closing bell. This is because excess inventory makes market makers vulnerable to after-hours developments, such as earnings releases or news reports, that could affect share values.

A focus on inventory cost

We set out to investigate how **off-exchange orders** such as PFOF help market makers manage the inventory aspect of their business model. We found that PFOF can in fact allow market makers to better manage their inventory risk.

For starters, different types of investors will often trade in opposite directions. A prime example would be **the GameStop saga** of 2021, when retail traders purchased shares of the video-game company en masse by coordinating through Reddit and Twitter. Their main objective was to short squeeze several institutional investors who attempted to short sell GameStop in the first place. More generally, for our mechanism to be at play, it suffices to have different investors, be it retail or institutional, *possibly* trading in different directions.

Such non-overlapping trading needs of retail investors and institutions create diversification benefits for market makers. By calibrating their inventory exposure to these two different types of investors, market makers can minimise, in expectation, their end-of-day inventory levels while maintaining their expected revenue from earning the bid-ask spreads.

But market makers can't tailor their exposures if order flows are entirely anonymous, which is the case for exchange markets. There is simply no telling the amount of retail vs. institutional orders they can expect during exchange trading hours. This is where PFOF comes in: By purchasing retail orders directly from brokers, market makers can attain more control over their inventory exposure.

PFOF therefore provides a way for market makers to diversify their order flows by scooping up additional retail orders through brokers, so they can execute the ideal proportion of retail-to-institutional orders based on their best judgement of the composition of orders originating from the exchange.

What if PFOF were banned?

If PFOF were banned, all orders would be routed to the exchange, and market makers would be cut off from drawing on pure sources of retail orders to devise their ideal order composition. With less knowledge on the types of orders they are executing, they would essentially be trading in a blindfolded and random way. This lowers their ability to proactively select their optimal exposure to order flows running in different directions and gives them less control over their inventory.

Market makers hence experience **greater inventory risk**. This may make them less motivated to receive as many orders as possible, as the revenue from these trades may not be attractive enough to offset the inventory cost.

If this happens, market makers will end up providing less trading liquidity. Fewer investors will opt to trade, meaning that gains from trading may be reduced for both retail and institutional investors alike. Additionally, retail investors will be forced to trade entirely on-exchange and will not be able to access the more advantageous prices that market makers can often provide.

From the perspective of inventory management, our model suggests that a PFOF ban always hurts aggregate welfare and can make trading harder and more costly for retail investors. While we acknowledge the other issues that surround the practice, our findings on how PFOF affects market makers' inventory management add an often overlooked dimension to the debate. It is a factor worth including when considering any future PFOF regulations.

Find article at
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About the research

"Siphoned Apart: A Portfolio Perspective on Order Flow Fragmentation" is a working paper.