



KEY POINTS

- Large institutional orders can be gamed by high-frequency traders, making it difficult for institutions to get orders filled on public exchanges without substantial price impact.
- As a defense, many institutions began using algorithmic trading to break up larger orders into smaller orders, but some HFT participants have gotten even more sophisticated and can “sniff out” these institutional algorithms.
- The J-shaped liquidity curve provides opportunities for savvy institutional traders to liquidate sizeable positions while reducing price impact.

J Turn

Can the J-shaped liquidity curve write a prescription for price impact?

BY DENNIS DICK, CFA

Toxic order flow on the public exchanges has driven many institutional market participants to the dark. In order to avoid being gamed by high-frequency traders, many institutions now transact their orders in dark pools or other off-exchange venues. Institutional traders still transacting on the “lit” exchanges use sophisticated algorithms to break up larger orders into smaller orders as they try to conceal their intentions from high-frequency trading (HFT) participants. But there are other alternatives that some institutions are exploring, and a greater understanding of the J-shaped liquidity curve could also provide assistance in the transacting of large institutional orders.

Fragmented Liquidity

In 2001, the U.S. markets changed from fractions to decimals, causing the minimum pricing increment to change from 1/16th (6.25 cents) to 1 cent. This event caused a dispersion in liquidity as the market went from 16 pricing increments per handle to 100 pricing increments per handle. Couple that increase with the fragmentation of the current U.S. market structure (15 lit exchanges and more than 40 dark pools) and you will find that liquidity is now very dispersed. The result is that large-sized institutional orders stick out like a sore thumb. Sophisticated HFT participants have taken advantage of this dispersion and “lean” on these large orders, while the more predatory HFT participants actually game these large orders.

For example, if an institution places a large-sized buy order in the “lit” market, HFT participants will see this order and immediately bid ahead of it by a penny. In effect, this practice gives the high-frequency traders a cheap look at the upside, because if they have to get out, they know they can sell to the large institutional order and still only lose a penny. This practice is known as “leaning” on the order. Some internalizing HFT participants can actually step ahead of the order by a sub-penny, giving them a virtually free look at the upside.

As a defense, many institutions now use algorithms to break up larger orders into smaller orders. But some HFT participants have gotten even more sophisticated and can “sniff out” these institutional algorithms.

Sal Arnuk, co-founder of Themis Trading, an institutional agency broker, knows these games all too well.

“Many HFT firms subscribe to enriched data feeds which contain order ID numbers, as well as information on order cancellations and order revisions,” he says. “With this information, the HFT firm can often ascertain when a large institution is buying or selling a stock.” Once the high-frequency trader detects an institutional order, it can run the price up, hoping the institution will chase the price. If the institution takes the bait, the high-frequency trader will then turn around and sell the stock to the institution at a higher price.

These predatory practices make it very difficult for institutions to get filled on the public exchanges without substantial price impact. As a result, many institutions use large crossing networks, such as Liquidnet or other dark pools, to avoid being gamed on the public exchanges.

So can institutions still transact on the public exchanges or will they have to move everything to the dark?

Understanding the types of participants that are trading at different times of the day is critical in answering this question. In the first few minutes of the market opening, there is a wide range of market participants trading on the public exchanges—fundamental traders, opportunistic traders, technical traders, overnight traders (closing out overnight positions), and high-frequency traders. They are all trading a variety of strategies, but with the rise in dominance of the high-frequency trader over the past couple of years, many of these other participants have scaled back their trading operations after the open.

“We do very little intraday trading anymore,” explains Chris Banyai, CFA, who manages his own trading company, Banyai Wealth Management. “Our intraday trading volume is down 90 percent from three years ago. We focus more on the open and the close and longer-term strategies. The vast majority of the intraday trading is done by just one participant now—the high-frequency trader.”

If one were to look only at the order book of various securities during the day, there would appear to be a substantial amount of liquidity, but the majority of this liquidity is not solid. Much of this liquidity is dependent liquidity based on the current price of the stock. HFT participants use a strategy called “enveloping” to take advantage of sudden price moves. They place sell-short orders above the NBO (national best offer) and buy orders below the

NBB (national best bid). These orders are often pegged to the NBBO, and as the price of the stock moves, these orders move as well. If an institutional trader tries to transact against this HFT-envelope liquidity, they will often be filled on only a portion of the displayed quantity, as the high-frequency trader quickly cancels the remainder of the order. “What good is a bid, if you can’t hit it?” asks Arnuk.

J-Shaped Liquidity Curve

If this HFT-envelope liquidity were removed, very little intraday liquidity would remain on the public exchanges.

In fact, if liquidity (leaving out the envelope liquidity) were plotted throughout the day, it would resemble a “J” shape. A number of different players are providing liquidity on the open, mostly just HFT liquidity after the open and during the middle of the day, and then the liquidity accelerates into the close, as the number of different types of market participants increases.

Leveraged ETFs must rebalance daily, and they do most of their rebalancing using MOC (market on close) orders, which transact on the closing print.

“As ETF usage has increased across both retail and institutional clients, MOC order flow has also increased as ETF managers want to match the day’s closing prices,” says Carter Lyons, CFA, a former managing director at BlackRock. “Major index changes and rebalancing take effect at the close as well, so index managers target the closing price and often use MOC orders as a way to reduce tracking error.”

For NYSE-listed issues, these MOC orders are sent to the designated market maker (DMM) on the floor. The DMM for the security will log all the buy MOC orders and all the sell MOC orders. At 3:45 p.m. EST, the DMM will post the regulatory imbalance for each individual security. The imbalance is simply the difference between the buy MOC orders and the sell MOC orders.

For example, if the DMM handling IBM gets 50,000 shares to buy MOC and 100,000 shares to sell MOC, he will post an imbalance of –50,000 shares. It is really an advertisement for other market participants to provide liquidity to the posted imbalance.

Banyai describes how an opportunistic trader can use this information: “If a stock has a large sell imbalance, a trader may short the stock at 3:45 p.m. and send a buy MOC order to offset the posted sell imbalance. The idea is that the stock should gap down slightly on the closing print if the sell imbalance holds. The trader would be able to make a small profit for providing the liquidity if this actually occurs. The strategy is not always that simple, however, as these imbalances can suddenly change. So the trader does have some risk when playing the imbalances this way.”

Another method that many HFT participants (and some opportunistic traders) use to play the imbalances is to envelope the closing price. Just like intraday envelopes, the trader places a sell-short order above the NBO, and a buy order below the NBB a few seconds before the market

closes. If the stock gaps up or down because of a sizeable imbalance, the trader will be filled with the gap. The idea is that the stock’s sudden move was caused by an order imbalance and not fundamental information, so the stock’s price should theoretically correct the next day, other things being equal.

Some savvy institutional traders can use the knowledge of this strategy to liquidate sizeable positions that otherwise would have significantly more price impact. A few seconds before the close, the majority of stocks (especially S&P 500 issues) get very thick as these high-frequency traders place their closing envelope orders. An institutional trader seeking liquidity could get out of a sizeable position with very little price impact in these last few seconds. The nearer the institution sends its order to the close, the less price impact it will have as many HFT participants send their envelope orders in the final second of the trading day. These envelope orders will absorb the price impact of the institutional order.

“Active managers know that the indexers will be there at the close as well. Overall, intraday liquidity is too thin. Trading at the close using MOC orders provides the best available liquidity to process client order flow,” says Lyons.

Institutions using MOC orders need to be aware of two inherent risks. The first being that the MOC order imbalance is published, and opportunistic traders as well as HFT traders may move the price away from the institutional order, making the institution pay more. Secondly, the MOC order is a market order, which will be executed at the best available price. This is kind of like writing a blank check and can sometimes result in getting filled at an undesirable price. Sending limit orders close to the end of the day may be a better alternative.

In any case, an institution looking to reduce the price impact of its orders should be aware of the J-shaped liquidity curve. Trading during the middle of the day can prove to be problematic as the majority of liquidity is provided by very informed high-frequency traders. Institutions should focus on transacting large orders toward the end of the trading day when liquidity is at its highest point and there is more diversity in the type of market participants providing this liquidity. ▀

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RECOMMENDED RESOURCES

“The Hidden Cost of ‘Sub-Pennying’”
CFA Magazine (January/February 2010)
(www.cfapubs.org)

“The Impact of High-Frequency Trading on Markets”
CFA Magazine (March/April 2011)
(www.cfapubs.org)

“Algorithmic Trading and FX Market Liquidity”
CFA Magazine (May/June 2011)
(www.cfapubs.org)