

Dark Pools and Dark Liquidity

What is all the fuss about?

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Abstract

Over the last several weeks both the Securities and Exchange Commission (SEC) and European Commission (EC) have stated publicly that they are reviewing 'Dark Pools' and 'Hidden Liquidity' to ensure they are not negatively affecting market quality. In order to better understand the concerns the SEC and EC have we are taking this opportunity to review the history of dark pools and examine some of the more controversial practices currently taking place.

Our intent is to help readers better understand both the potential positive and negative characteristics of dark pools, such that they are better equipped to choose which venues they want to interact with and how they want that interaction to occur.

History of the Dark Pool

The first dark pool – Instinet’s After Hours Cross – was started in the fall of 1986. The cross allowed clients to enter orders into a blind book which would then run a match at 6:30 pm Eastern time using that day’s closing price for all trades. Clients would enter tradable orders into the auction, and at match time, an algorithm would match up buyers and sellers and print the resulting trades on a third market printing facility. The match allowed large buyers and sellers to transact without pre-trade transparency and potential information leakage. Unlike placing a bid on a public visible market, if you entered a buy order and didn’t receive a fill nobody was alerted to your presence in the marketplace.

By mid 1987 ITG had started up Posit, a series of intra-day crosses that matched stock at the mid-point of the NBBO in a very similar fashion to the Instinet cross.

The combination of size discovery and zero pre-trade information leakage proved to be popular with institutional clients and within a few short years both Instinet and Posit were trading tens of millions of shares everyday; with an average trade size many multiples of the visible trading venues.

As with all successful ideas, Instinet soon had many competitors, both in the U.S. and around the world. Firms like Nyfix, Pipeline and Liquidnet created their own block trading dark pools with various innovations to attract liquidity. The most successful competitor was Liquidnet, who worked with the OMS vendors to create a unique blotter sweeping technology that allowed the dark pool to see all of a buy-side trader’s uncommitted order flow.

In an attempt to achieve better fill rates in an increasingly competitive market, ITG introduced a ‘continuous match’, called Posit Now, in 2002. The continuous match allowed all ITG market bound orders – either from their trading desk or via its direct market access (DMA) pipes – to match up with Posit orders, giving some price improvement to the market bound order.

If for example Client A had an order in POSIT to buy 100,000 IBM and Client B sent a DMA order to sell 5000 IBM at the current bid price, the matching engine would match these orders at a price a fraction of a cent better than the current bid, giving the seller price improvement and allowing the buyer first chance to transact with the marketable order.

This continuous match incentivized institutions to keep a portion of large orders in the Posit Match to transact with ITG’s market bound flow, and by offering price improvement on matched orders made ITG’s DMA product more attractive to potential clients. On top of the benefits that continuous matching offered to the legacy call auction dark pool, it also helped ITG reduce their exchange trading fees where an internal match occurred and reduced latency giving quicker fills and greater certainty of execution.

By late 2004 the U.S. market had several block style crossing networks – including Instinet, ITG, Pipeline, Liquidnet, Millennium – which along with several continuous matches accounted for roughly 2% of all trading in the U.S. market. At this point two new technologies were introduced to the market causing an explosion in the growth of dark pool trading. The first of these were the new Smart Order Routers (SORs) that were capable of ‘pinging’ dark pools, in search of potential liquidity, without adding significant latency, as well as placing a slice of existing orders passively into various dark venues.

The second of these was the broker dealer internalization engine. Essentially this was an in house continuous dark pool implemented by bulge bracket dealers to internalize flow in order to create unique liquidity, save exchange fees and avoid the latency associated with legacy stock exchange matching engines. With the ability to route in an intelligent manner and internalize their own flows, the bulge bracket dealers were incented to trade as much stock as possible within their own dark pool. From 2% of market share in late 2004, dark pool market share grew to roughly 8% of all trading by early 2008.

As the market share of dark pools grew, the visible marketplaces introduced a variety of new dark order types and features to compete for this trading. Order types included fully submerged 'iceberg' order, pegged orders and most recently 'flash' orders where the exchange sends out short term IOIs notifying a small group of liquidity providers about the presence of certain orders before making them known to the public at large. Dark trading on visible marketplaces grew from a nominal amount (>1%) in the late 1990s to 5 – 10% of trading, depending on venue, today.

The European Experience

The history of dark pools in Europe has followed a very similar path. With Instinet and ITG introducing block crossing systems in the late 80's, followed by continuous matching in the early part of this century and finally broker / dealer internalization pools after the implementation of MIFID in November 2007. The various new and legacy visible books also introduced a variety of innovative new dark order types to compete with the dark pools.

The one area in which the European market has differed from the U.S. is in regulation. While the U.S. market has allowed virtually unlimited innovation in dark order types by dark pools, exchanges and ATSS, the FSA has set standards on what marketplaces are allowed to do. As a result Nyfix Millenium had to change their pricing mechanism, and several of the ATSS have had to set a minimum size level on certain dark order types.

So what is the SEC and EC concerned about?

As we have shown, dark pools and dark orders on visible markets were created to allow traders to achieve liquidity without excess market impact or pre-trade transparency. So why are the regulators now reviewing these order types and venues? What are their concerns? What are the concerns being expressed by market participants in general? (Note: we are only offering up concerns we have heard, we are not commenting on the validity of the concerns.)

- 1) Flash Order types. Several U.S. venues (including NASDAQ, BATS and Direct Edge) have implemented 'Flash' orders that some argue are giving a small group of market participants an unfair advantage over the rest of the marketplace. A flash order occurs when you send an order to a visible book at a price that is tradable elsewhere. Instead of re-routing instantly to the tradable market, the marketplace first send an IOI to a select group of liquidity providers,

hoping to keep the trade on their market, and then if they don't create a contra order they route away to the tradable market – assuming the quote hasn't moved away. Several market participants, including several senior executives at NYSE Euronext, have strongly condemned these orders arguing that the liquidity providers receiving the IOIs have no fiduciary duty to the end client and as such are not subject to rules preventing them from using this information to trade ahead of the end client.

- 2) **Sub Penny Quote Jumping.** The advent of the continuous dark pools that give subpenny price improvement to active orders that get matched has created the opportunity for arbitrageurs to use these dark pools to gain priority over the visibly posted best bid (offer) by bettering the quote by less than a standard tick. Several market participants have argued that this lowers the incentive for placing passive orders into the visible book. As these passive orders are the key to efficient price discovery, those opposed to this practice argue that it ultimately harms the price discovery process.
- 3) **Poor Post Trade Transparency.** Each of the various dark pools has implemented different volume reporting standards that make it very difficult to determine where liquidity is actually residing. Currently some dark pools double or even triple count their trade volumes. (Triple counting occurs when you route an order away to another venue and include any fills in your own venue's trade stats.) Currently if you sum up the reported trading volumes of all the various dark and visible trading venues you end up with a sum far greater than the total volume traded. This makes it difficult for clients to make accurate comparisons between various venues, and therefore sensible routing decisions.
- 4) **Order Signalling.** While we haven't seen overwhelming proof that this actually occurs, there are concerns that some market participants with faster connections, quotes and routing engines place single board lot orders into continuous dark pools to create an order signalling device. In this scenario, the arbitrageur would place single board lot orders into a continuous match and when filled would assume the active side has a larger order bound for the visible market. Due to their faster quotes and connections they would theoretically be able to use this information to trade ahead of the market bound order.

The Canadian Experience

Dark Pools have not experienced the same success in Canada as they have in the U.S. and Europe. Dark Pools like Optimark, Versus Lynx, Posit Canada and BlockBook have all tried and failed to bring dark trading to the Canadian marketplace. While many have offered up reasons for their lack of success, we would suggest it was a combination of several key reasons:

- 1) Dark pools were not well integrated into client work flow;
- 2) The Canadian market has been historically very well serviced by broker-dealer facilitation and agency desks;
- 3) A couple of Canadian dark pools have had information leakage issues that have tarnished the image of all dark pool;

- 4) The liquidity profile of the Canadian marketplace doesn't fit the dark pool sweet spot.
- 5) Broker attribution enables buy side traders to find natural liquidity more easily.

Currently we have two active dark pools in Canada – Match Now and Liquidnet – trading a combined total of roughly 1% of market share, with several others on the way. The vast majority of dark trading done in Canada occurs on the visible marketplaces (TSX, Chi-x and Alpha). We believe that dark trading on visible order books currently makes up roughly 5% of total trading in the Canadian market.

On the regulatory front Canada is actually in very good shape. The CSA started reviewing dark pool trading several months ago, well ahead of their U.S. and European counterparts, and are expected to release a comment paper later this summer. Our current regulations – specifically section 7 of rule ATS – should prevent the Flash Order style IOIs that are causing great concern in the U.S. And the recent creation of an Information Processor (IP) ensures we won't experience the lack of post trade transparency that has plagued the U.S. Of the four concerns listed above the only ones that relate to Canada are the Sub Penny Quote Jumping and Order Signalling.

The TSX is currently working on a variety of new dark order types that will likely be put out for comment after the CSA paper is released. We would hope to see them offer innovative orders that make existing iceberg orders more difficult to spot (randomizing size or refresh times) rather than orders that allow for dark orders to jump in front of visible ones by less than a full tick. Having said that with Match Now, Chi-X and Alpha all offering such order types, we would be hard pressed to offer up a logical argument for denying the TSX the right to offer these as well.

How do you distinguish between market venues?

As we have seen, dark pools were originally designed to allow for size discovery with zero or very limited pre-trade information leakage. Second generation dark pools had smaller average fills but made up for it with low latency, and cost efficiency. All of these ideals seem to be useful. So how does a trader go about determining what dark pools, or dark order types to use and how to use them? We would suggest that for each potential dark liquidity venue you start by asking the following questions.

- 1) What is the average trade size? (ie. am I achieving size discovery)
- 2) What if any information leakage occurs?
- 3) Is the dark pool cheaper to trade on than other markets? (More so for sell side prop traders)
- 4) What latency does the dark pool introduce?
- 5) What percentage of the time do active orders routed to the dark pool receive a nothing done?

Once you have answered these questions you should be able to determine what potential upside the particular dark pool offers to you. The next thing you want to determine is who you are likely to be

trading with, to help avoid liquidity pools largely populated by predatory flow. To determine the make up of dark pools liquidity we would suggest you ask them the following questions:

- 1) What percentage of all passive orders are cancelled within 2 seconds? 10 seconds? 1 minute? (High percentages will highlight pools that have significant high frequency flow that may be using the pool for signalling or quote jumping);
- 2) What percentage of active orders for 2 board lots or greater that receive some fill are filled on only 100 shares? (High percentages will highlight pools being heavily used for signalling reasons);
- 3) What anti-gaming logic does the dark pool have in place?

The answers to these questions should help you determine what pools have passive liquidity provided by traditional liquidity seeking institutions versus those that are driven by liquidity from high frequency traders that may be more likely to game orders or use dark pools for signalling and priority jumping.

Conclusion

At their best, dark pools allow traders to find large blocks of liquidity while greatly limiting order information leakage. Second generation internalization pools offset smaller average trade sizes with continuous fills, lower latency and lower trading costs. Unfortunately over the last 18 – 24 months dark pools and visible venues have added features and dark order types that have enabled arbitragers intent on gaming markets. This has negatively affected the market quality of some venues. In an increasing complex marketplace it has become increasingly more important to understand the venues that you are transacting on, and the potential for gaming on those venues. The hidden cost of transacting on heavily gamed venues can more than offset any potential liquidity gain.

The intent of this piece is to explain some of the recent comments made by various regulators concerning dark liquidity, and to provide an update on the state of dark trading in Canada. We hope we have offered up some valuable insights into how to compare and contrast various dark liquidity offerings so you can better determine what pools you wish to transact with, and how you want those transactions to occur.

If you have any questions regarding these changes please contact the BMO Quantitative Execution Desk at 416-359-5743

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