# Regulating Dark Trading:

## Order Flow Segmentation and Market Quality

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## A Non-Technical Summary

Financial markets have changed dramatically over the last decade. Traditional equity exchanges replaced their physical trading floors with server rooms, and a multitude of new, electronic-only trading venues emerged so that today the same security often trades on multiple markets that employ a variety of trading models. One particular trading-feature that has drawn much attention in recent years is so-called dark trading, a situation when a trade occurs in the absence of visible liquidity. Dark trading is not a new phenomenon: for instance, trades of large blocks of shares between institutional investors have historically been arranged outside of the public markets where the willingness to trade (via posted orders) is visible. The new development of the last decade are trading venues that operate similarly to public markets in that they are electronically accessible and trade both large blocks and smaller-sized orders. However, these venues do not display quotes and they derive prices from public, visible markets. In addition to these new venues, public exchanges have also adopted order types that allow an order to be placed on the exchange's order book without being visible.

Over the last decade, the share of this dark trading has increased dramatically, and regulators worldwide are grappling with the question of whether or not the rise in dark trading threatens the efficacy of capital markets. It is generally believed that for the smooth functioning of an economy that its financial markets are transparent and that they efficiently aggregate all available information. Arguably, if all trade happens in the dark, it becomes very difficult for investors to know the "right" price, and in the absence of market transparency and efficiency, investors may require unreasonably high returns on their investments. Companies will then find it expensive to finance new projects, and it will be harder for them to create jobs and economic growth.

In 2011, the International Organization of Securities Commissions (IOSCO) set out some principles of dark trading that should maintain the integrity of the market. One important principle is that at the same price, dark orders should have lower execution priority than visible orders. One particular feature of dark markets that has drawn criticism is that marketable orders on dark markets often trade at tiny, sub-penny improvements over the visibly posted prices of lit markets, making it marginally more attractive to trade on dark venues. The concern is that quotes on visible markets can only be posted in fixed-tick increments (usually 1-cent) and

thus, arguably, sub-penny price improvements on dark markets disadvantage the posters of visible quotes who cannot post such prices.

Recognizing the concern, on October 15, 2012, the Investment Industry Regulatory Organization of Canada (IIROC) amended its rules on dark liquidity and, in particular, introduced UMIR 6.6, titled "Provision of Price Improvement by a Dark Order." UMIR 6.6 requires that dark orders improve upon the national best bid and offer prices by at least one trading increment, or by half an increment if the bid-ask spread is one trading increment, thereby eliminating sub-penny pricing of dark orders (except for situations when the bid-ask spread is 1 cent).

The introduction of the price improvement rule dramatically impacted dark trading in Canada. In the weeks following the introduction of the rule the share of dark activity declined sharply, from 9.3% to 5.4% of dollar trading volume (excluding pre-arranged block trades, which were unaffected by the new regulation). Before the change in regulations, about three quarters of all dark dollar volume was executed in two dark pools. After the change, one of these dark pools, which we refer to as market Ad, experiences a significant decline in its volume share from 4.6% to 0.8%, whereas volume on the other dark pool, which we refer to as market D, remains unchanged at 2.5%.

There are several important institutional differences between the two dark pools. Most non-marketable and marketable orders on market D stemmed from institutional traders, and it thus appears that the new dark rules did not affect their willingness to trade with one another. The other dark pool, Market Ad, on the other hand, accepted marketable orders only from retail investors. Moreover, most liquidity in Ad was provided by traders who generally acted as de facto market makers. These two characteristics together closely resemble the features of so-called retail internalization undertaken by OTC markets in the US. Indeed, an empirical fact, not well known outside market microstructure circles, is that retail orders in US equity markets are typically executed away from stock exchanges. These orders are routed to wholesale market makers where the orders receive small fractions of price improvements over the visible market quotes. This practice is commonly referred to as retail internalization. Rosenblatt Securities estimates that retail internalization currently accounts for approximately 16 percent of consolidated US equity market volumes.

In Comerton-Forde et al., these institutional features of market Ad in combination with the drop in trading in market Ad were exploited to expand the understanding of retail internalization. Specifically, the paper examines the order flow segmentation that occurs in the market Ad to illustrate the impact of retail internalization on market quality. After the introduction of the minimum price improvement rule, all non-marketable orders on market Ad had to be priced at the mid-point of the bid-ask spread, making it impossible for market makers to earn a profit. Not surprisingly, market makers all but stopped posting on market Ad and thus retail orders there would no longer be filled. These orders had to go somewhere, and it turns out that almost all of them were routed to a single lit venue, which we refer to as market Al. In fact, the drop in liquidity provision in market Ad and the re-routing to lit market Al were both predictable for market participants at the time. This predictability suggest that the observed changes in liquidity on market Al provides insight into the impact of the internalization of retail order flow.

There was a significant improvement in liquidity on market Al: posted depth increases by about 17%, and for the most liquid securities, market Al is at the national best bid and offer (NBBO) 4% more of the time. In contrast to market Ad, where posted liquidity is accessible only for retail traders, the posted liquidity on market Al is available for all traders. The implication of this insight is that the current practice of retail order flow internalization in the U.S. and Europe harms market quality. However, retail traders benefitted from the presence of being able to trade on market Ad: after the rule change retail traders received less price improvement, and they, or their brokers had to pay higher exchange fees.

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