The Swiss Stock Exchange

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Risks Associated with Closing Auction Liquidity Fragmentation

A summary of joint research findings

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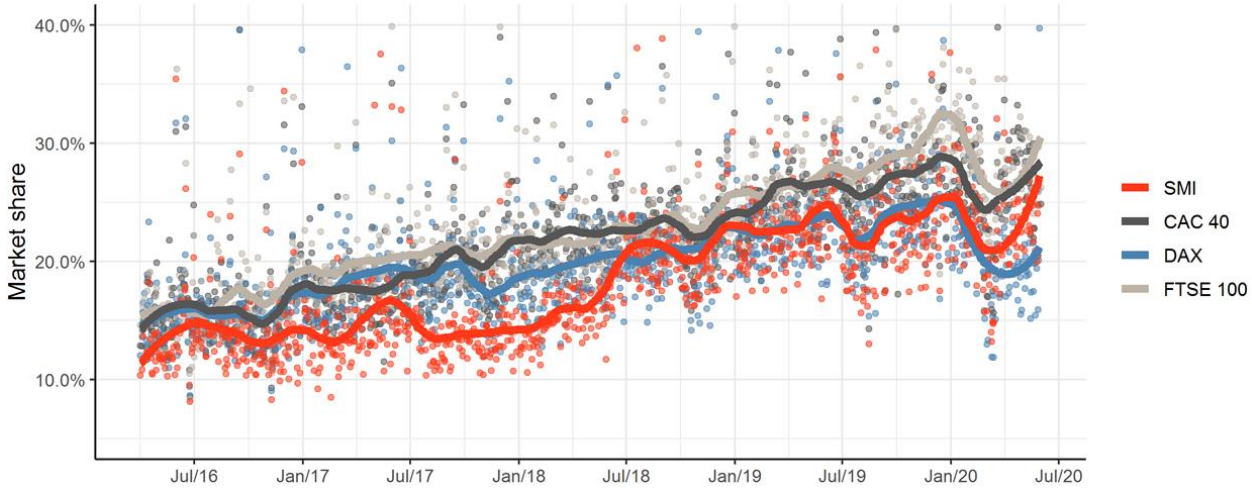
Over the past 5 years, the closing auction has become the most significant liquidity event in European equities, with over 25% of daily volumes being executed during the last 5-10 minutes of the trading day. The growth in volumes traded at the close cannot be attributed to a single factor, rather it is a product of multiple drivers including; (i) the rise of passive investment strategies and products, (ii) increased systematic trading during the closing auction period, and (iii) an increase in the utilisation of participation algorithms as an execution tool.

Figure 1 - Closing auction as % of total on-book liquidity. Source: CBOE Global Markets

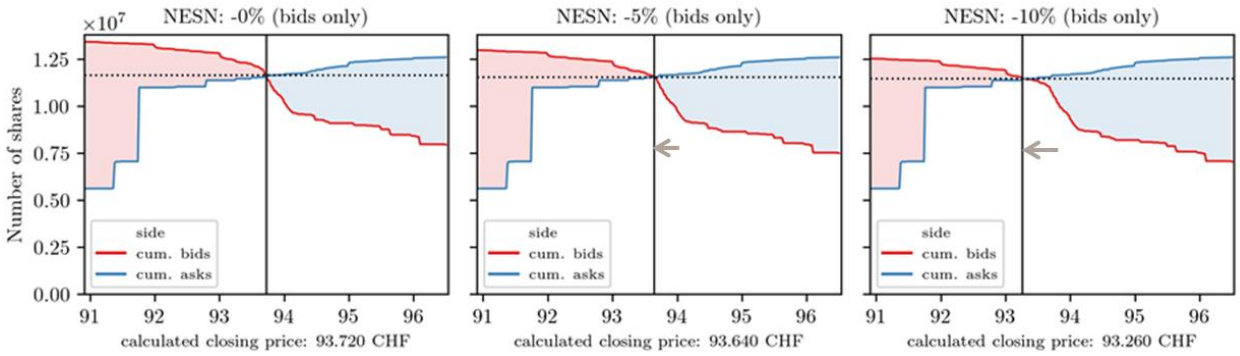


The closing auction commences with a call phase that accumulates orders and concludes with a single uncrossing event that determines the closing auction price for shares. This closing price serves as an official benchmark to many fund managers tracking indices as well as providing the basis for ETF NAV calculations and for portfolio valuations. In contrast to continuous trading where there are alternative matching facilities operating simultaneously, the closing auction is a unique event. Furthermore, it is challenging to operate an alternative, price-forming, closing event as diverging closing prices would present a challenge to the whole industry.

However, with the growth of closing auction liquidity, there are increased incentives for industry players to compete for a share of that business. For example, there has been a recent increase in brokers offering guaranteed close facilities– whereby the closing price is guaranteed on client orders which are then taken onto the broker's central risk book, with the risk position unwound across the trading day and typically without overreliance on the primary closing auction. Furthermore, some MTFs offer closing auction alternatives, either by pre-matching market orders or by offering post-close trading sessions –both allowing executions at the primary exchange's official closing price .

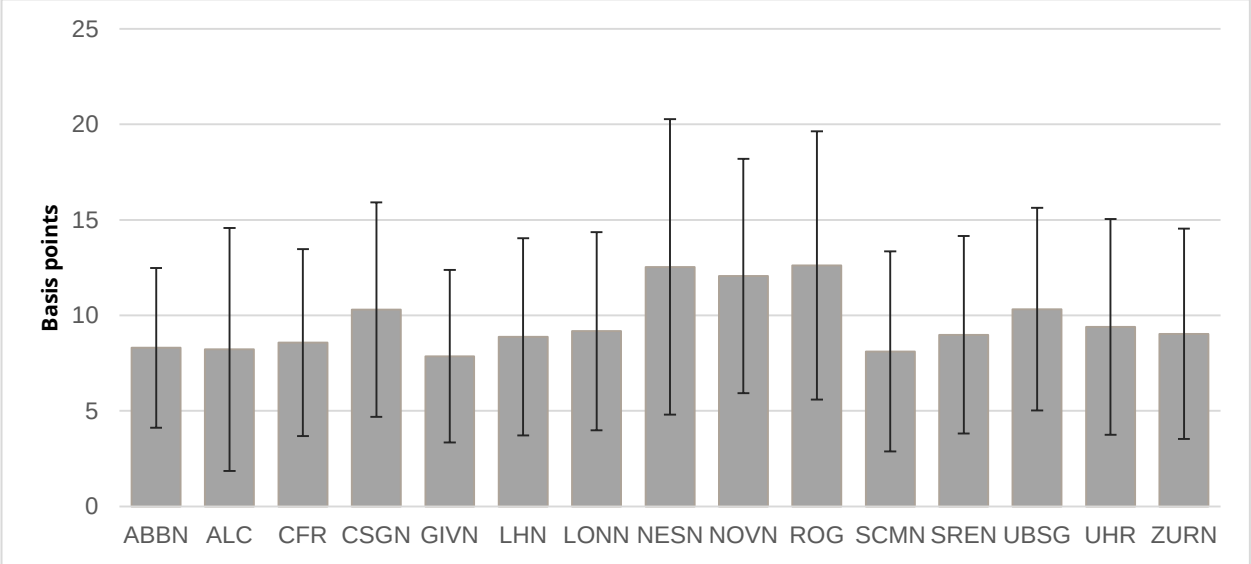
In many cases, competition leading to a reasonable level of fragmentation can result in positive outcomes for investors, as evidenced by fragmentation of continuous trading with MiFID I. However, it is not clear that fragmentation will drive similar positive outcomes if it is applied to the closing auction given that this event is a truncated, high volume trading session with price discovery concentrated over a few short minutes ahead of a single uncross. Therefore, our analysis focuses on the ramifications of fragmenting liquidity away from a single closing event. In this short summary, we discuss two main impacts of closing auction fragmentation – price dislocation and price discovery.

Figure 2 – Closing auction demand and supply curves in NESN: price dislocation following liquidity removal. Source: Internal database



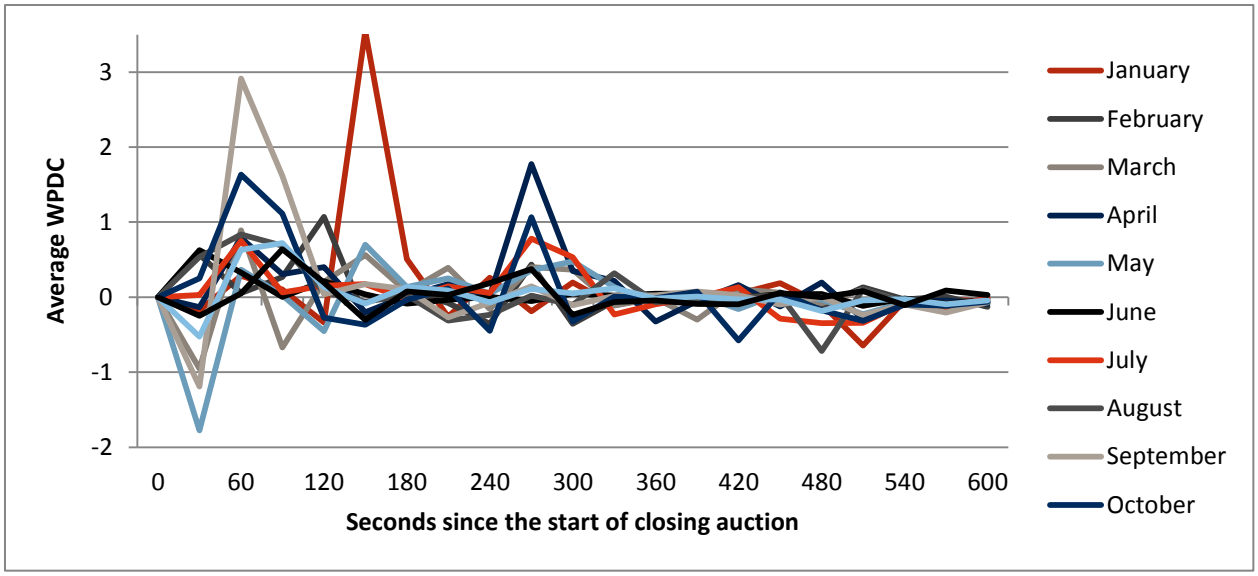
As demonstrated on figure 2, a removal of liquidity shifts the closing auction price. From the methodological perspective, we remove the liquidity from the executed volume. Thus focusing on orders that actually participate in the closing auction uncross and disregarding the ones priced further away from the market price. The removal of liquidity is quantified further on figure 3 where we see that a removal of 10% of the bid or ask liquidity dislocates the closing auction price between 8 and 12 bps across Blue Chip stocks. Price dislocation increases monotonically and almost linearly with the liquidity removal.

Figure 3 – Price dislocation in Swiss Blue Chips (2019): impact of removing 10% of closing auction bid/ask liquidity by stock (+/- 1 standard deviation). Source: Internal database



Furthermore, we find that in the call phase of the auction, participants are reacting to orders arriving in the book. This trend can be demonstrated by measuring the Weighted Price Discovery Contribution (WPDC) throughout the closing auction period. Figure 4 measures the WPDC during the closing auction in 30 second time buckets. The evolution of WPDC and the associated spikes, especially in the first half of the auction phase, illustrates that clients are reactive to incoming liquidity in the call phase. Therefore, fragmenting closing auction liquidity would result in a dilution of closing order interaction and a subsequent weakening of price discovery.

Figure 4 – Price discovery in Swiss Blue Chips (2019): average WPDC per 30-second interval. Source: Internal database



To summarize, the closing auction is an increasingly significant daily liquidity event that establishes an essential industry performance and valuation benchmark – the official closing price. As such, fragmentation of closing auction liquidity is likely to have more significant consequences than fragmentation of liquidity during continuous trading. Exploring the ramifications of this, our research indicates that removing as little as 10% of the liquidity from the closing auction results in significant price dislocations of over 8 bps. A key driver of this dislocation is the dilution of order book interactions during the call phase, with less reactivity to changes in the shape of the auction order book acting as an impediment to efficient price discovery.

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