



The Swiss Stock Exchange

Trading InfoSnack #03: Closing Auctions: What's Hanging in the Balance?

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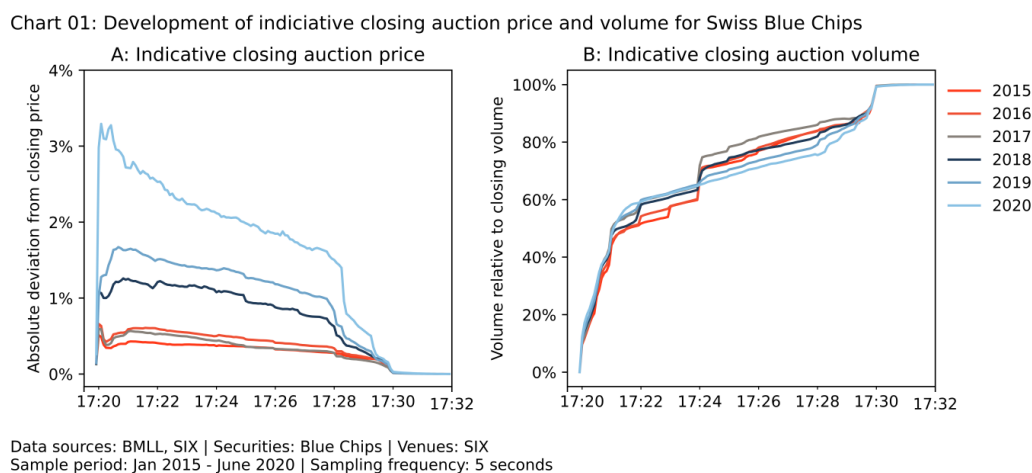
Whilst the growth story of closing auction liquidity in Europe is clear to see, and analysis of growth drivers abound, the technical ramifications of increased closing activity has remained less clear. Analysing for evolution in closing auction price deviation, volume development and order imbalance we find evidence of more active auction participation strategies driving enhanced efficiency in the closing auction mechanism.

The closing auction has become a highly important liquidity event across European equity markets over the past 5 years, with the proportion of daily turnover executed in the closing auction now representing over 20% of volume across major European equity indices / markets¹. Whilst the shift in liquidity toward the closing auction has been a widely analysed topic, the order-book level implications of increased closing auction liquidity and strategic focus have been less clearly articulated.

In order to explore this, we analyse price deviation, volume development and the closing auction imbalance in Swiss Blue Chip securities from 2015 to 2020 – the period corresponding to the growth in liquidity executed in the closing auction.

Chart 01 shows the development of the indicative closing price (expressed as the % deviation from the actual closing price) and volume (expressed as a % proportion of the actual closing volume) during the closing auction session (time in CET) over consecutive periods between 2015 and 2020.

Analysing the respective price and volume development curves we note the following step change from 2018 onwards: (i) price deviation increases significantly; (ii) volume development flattens through the middle of the auction session; and (iii) significantly more price and volume development occurs within the last 2 minutes of the auction. This is suggestive of auction participation strategies generally becoming more active/reactive across the entire auction session (as opposed to passive 'set-and-forget' auction participation strategies).



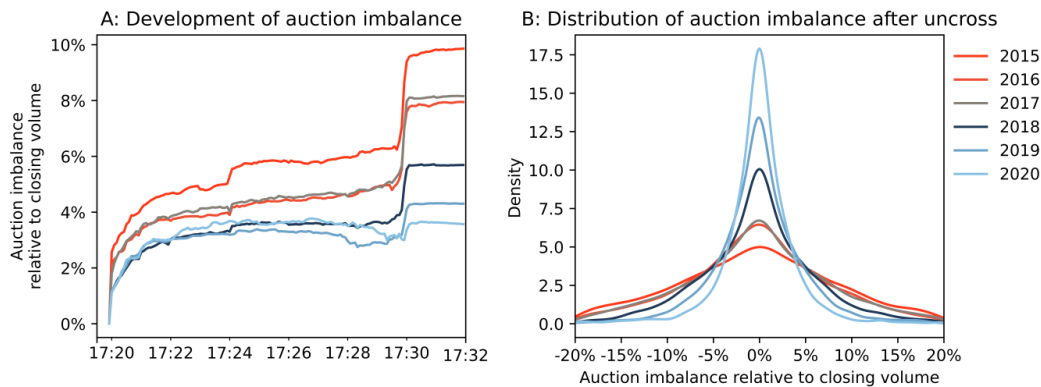
Following on from the above, in **Chart 02** we analyse how the closing auction imbalance², expressed as a proportion of the actual closing auction volume, has changed since 2015. In **Chart 02-A** we observe that historically there has been a significant jump in the size of the imbalance just prior to the auction uncross, however both the magnitude of this jump and the absolute size of the the average auction imbalance has reduced significantly from 2015 to 2020.

¹ Rosenblatt Securities. 2019. Making Sense of Closing-Auction Competition in Europe. Trading Talk - Market Structure Analysis.

² The net residual of unexecuted buy and sell orders after the closing auction uncross

Furthermore, when we examine the distribution of the average auction imbalance (as in **Chart 02-B**) we can see a significant narrowing of the distribution curve and an increase in the frequency of auctions with little or no imbalance after the uncrossing. This suggests that active auction participation strategies are reacting to price and volume development and improving the balance of buy and sell orders participating in the closing uncross - which helps to minimise the signalling of open unexecuted positions to the market.

Chart 02: Closing auction imbalance for Swiss Blue Chips



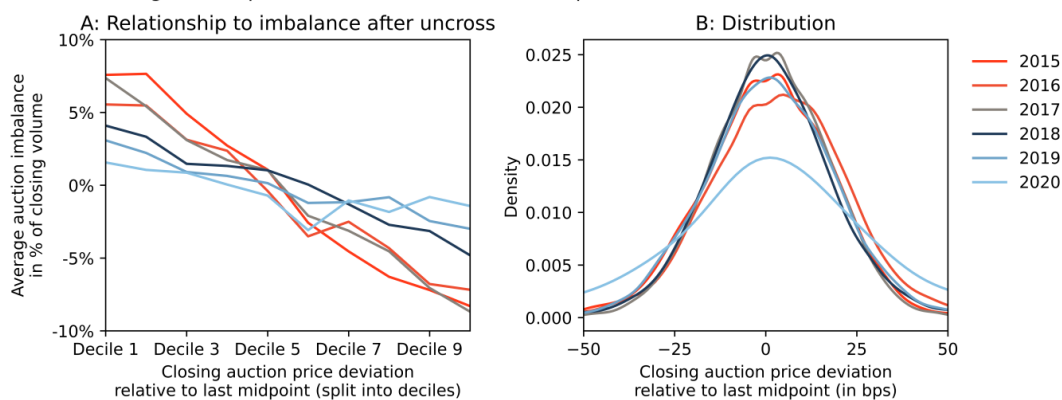
Data sources: BMLL, SIX | Securities: Blue Chips | Venues: SIX
 Sample period: Jan 2015 - June 2020 | Sampling frequency (left figure): 5 seconds

In **Chart 03**, we explore how the closing auction price deviates from the last mid-point in continuous trading over time and how this price deviation relates to the average auction imbalance. In **Chart 03-B**, the distribution of closing auction price deviations (in bps), with the exception of 2020³, has remained largely unchanged across time.

However, when comparing the direction of closing auction price deviations to the direction of the average auction imbalance (as per **Chart 03-A**) we can see an inverse relationship (i.e. where positive closing price deviations are related to negative closing auction imbalances), that has weakened since 2018.

This illustrates that whilst deviations between the closing auction price and the last mid-point in continuous trading appear to be an important factor in the shape of the auction imbalance, such price deviations are driven more by market conditions.

Chart 03: Closing auction price deviation for Swiss Blue Chips



Data sources: BMLL, SIX | Securities: Blue Chips | Venues: SIX
 Sample period: Jan 2015 - June 2020

³ During which there was significant market turmoil and volatility due to the COVID-19 pandemic

Bringing the strands of the above analysis together, we find evidence that there has been an evolution in closing auction activity with:

- (i) significantly more price and volume development occurring deep into the closing auction session;
- (ii) an improvement in the balance of buy and sell orders participating in the closing uncross; and
- (iii) the theoretical auction closing price deviation (relative to the last traded mid-point) being a key determinant of the shape of the auction imbalance.

All of these are suggestive of an increase in active auction participation strategies, driving a reduction in closing auction imbalances and delivering an overall efficiency gain in trading at the close (or in post-close trading sessions) with less signalling of open unexecuted positions.

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