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European Equities Market Microstructure Survey

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Q4 2021

Summary

Welcome to the annual version of the 2021 survey of market volumes and fragmentation trends in European equities. If you are unfamiliar with the topic, you may want to first visit our website and read our **Microbites series** for an explanation of market microstructure. The terms we use are defined in the appendix.

Trading turnover in European equities in 2021 finished 6% lower than in 2020 following the strongest fourth quarter in four years under volatile conditions. Daily volume remains stubbornly anchored to the long term benchmark of €54B, with little upward movement since 2018 despite steadily rising prices.

The trend towards more end of day trading in the auctions accelerated by 2.3% of market share to a whisker under 20%, depriving the intraday order books of ever more liquidity. Meanwhile, dark trading gained 0.5% market share to its highest levels in four years, mainly due to Brexit and the regulatory divergence between the UK and the EU in this area. Perhaps the most remarkable feature of 2021 was the 27% reduction in off order book risk trading by systematic internalisers specifically in larger trades.

2021
Annual Volumes
-6%

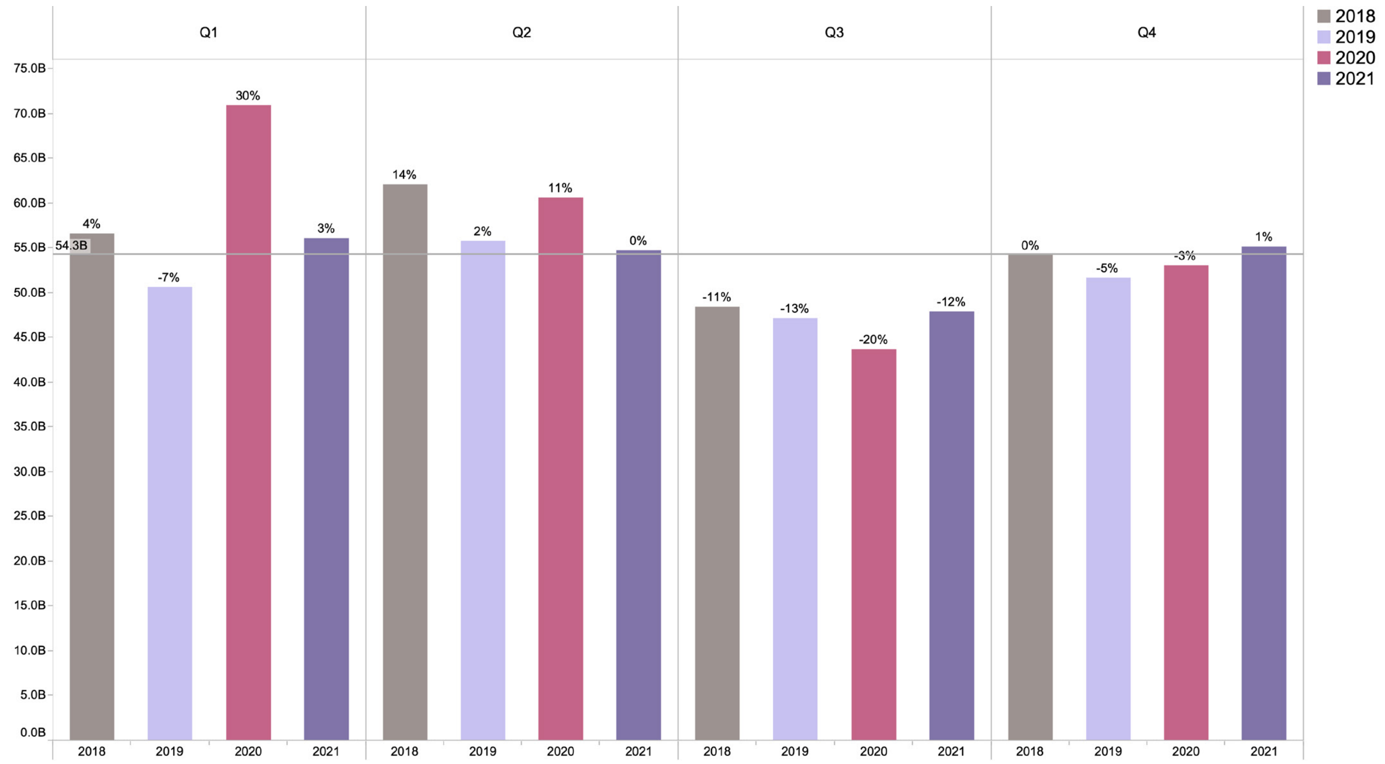
Q4 2021 +4%
vs
Q4 2020

Dec 2021 +16%
vs
Dec 2020

Auctions
Reach
20%
Market Share

Quarterly Market Volumes

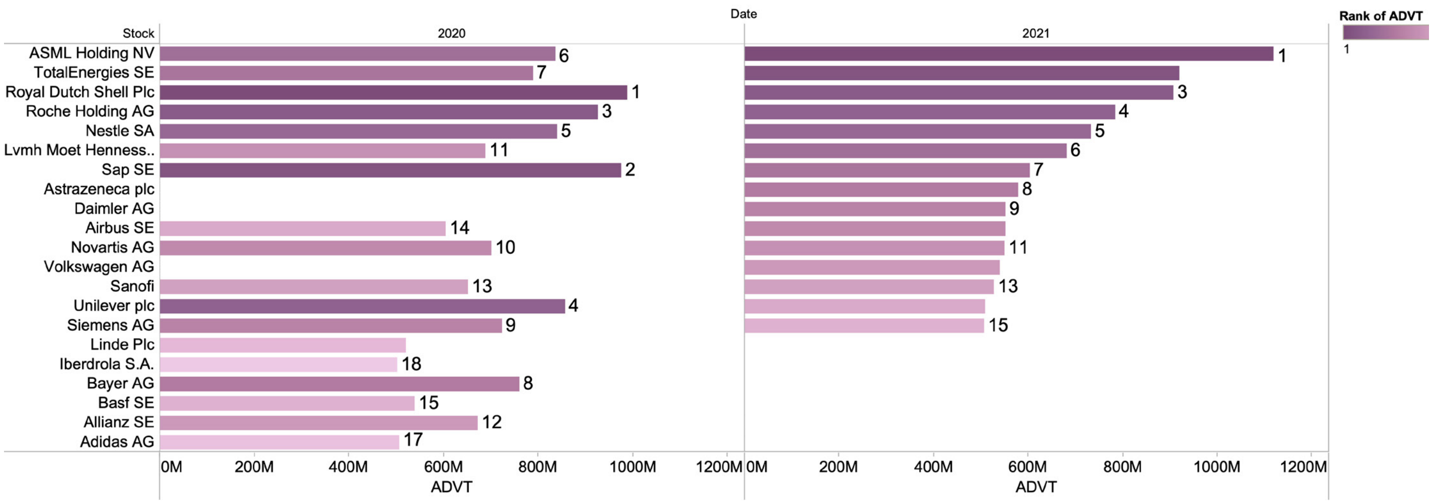
Market Overview - Quarterly ADV€



Q4 was a strong quarter which at €55B per day was more in line with a typical Q1. The increase was driven by two very large index events and renewed volatility that began in October. December proved to be the fifth most active month in the MiFID2 period, with €63B per day compared with €54B in the previous two Decembers.

The Major League

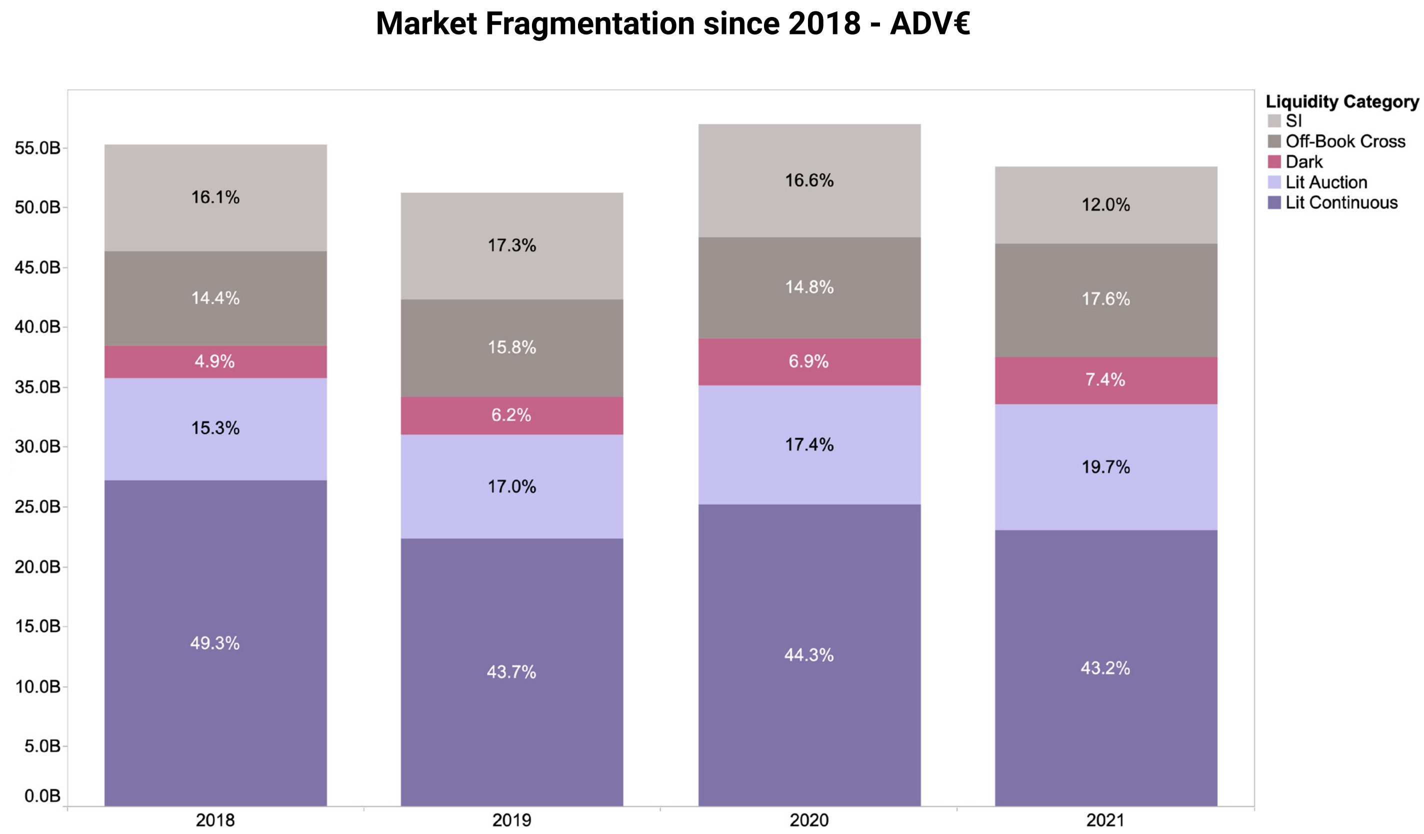
Stocks Above €500M Per Day



Our chart shows all companies whose shares have traded over €500M per day in 2020 and 2021. There were 18 in 2020, accounting for around 23% of market turnover, and there were 15 in 2021 with 19%. The most traded shares in Europe in 2021 were in Dutch listed semiconductor firm ASML NV, which climbed from sixth place as it enjoyed the tech ride to become the only name to trade over €1B per day at €1.12B (by comparison the US leader Tesla trades around €25B). Only Royal Dutch Shell Plc has breached this threshold previously, but faded to third place this year behind Total Energies SE for the first time.

Astrazeneca Plc joined the major league for the first time with German car makers Daimler AG and Volkswagen AG rejoining, having slipped from the table in 2020.

Market Fragmentation

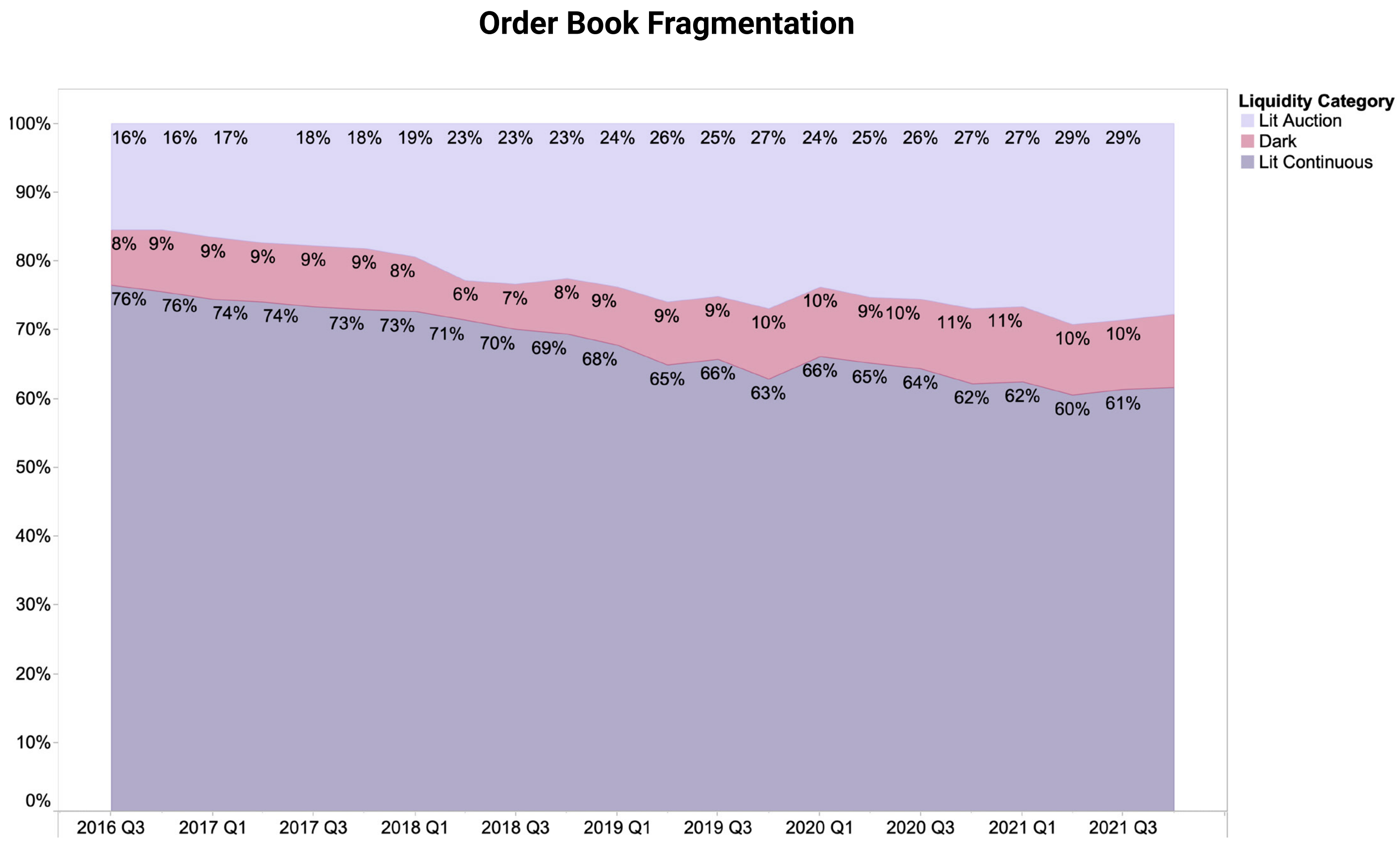


The battle for market share between trading mechanisms heated up this year. On the winning side, the auctions gained a further 2.3% brushing up to 20% of overall market share, while dark trading increased 0.5%, and in the UK pushed above 10%. Remarkably, off order book manual cross trading jumped by 2.8% having lost 1% in 2020, indicating a good year for sales traders.

Risk trading away from the order books in the SIs reduced by 32% in 2021 from 16.6% to 12% of market share, which by value is a drop from €9.5B to €6.5B per day. This trend began during the record volatility of Q1 2020, with SI trading reaching just 10.8% and 10.3% market share in Q3 and Q4 2021 respectively. Meanwhile the Lit Continuous intraday order books of the exchanges and MTFs reduced by 1% to 43.3%, the lowest in four years, reaching just 40% in Q2.

As capital commitment manifests itself in these two categories, there has clearly been a step back from risk trading in 2021.

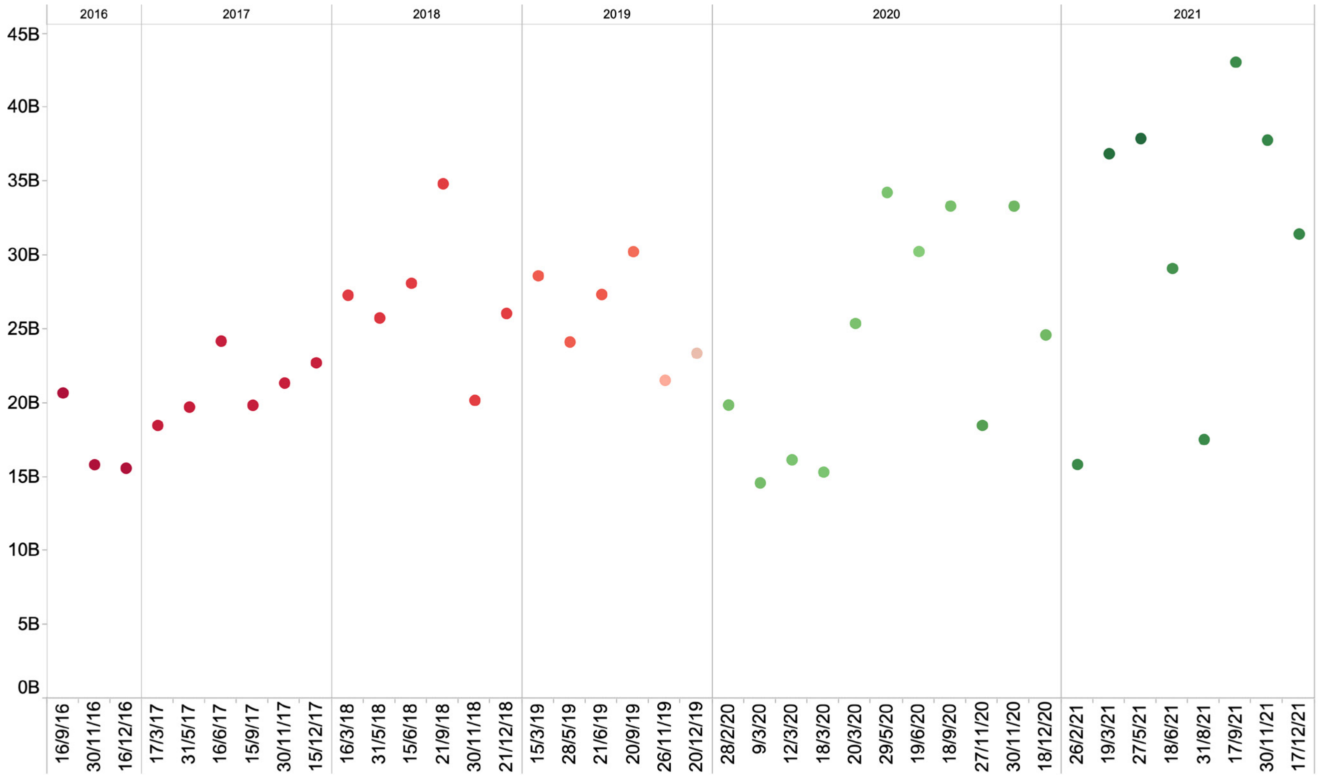
Inside the Order Book



In the chart we see how the auctions have nearly doubled as a proportion of electronic order book trading in the last five years, reaching highs of almost 30% in Q3 and Q4 2021 which is around €11B per day. Meanwhile, the lit continuous trading platforms have lost 15% of order book share, reaching some €24B per day. By looking exclusively at order book volumes and ignoring off order book trading, we can see that this trend was already well established before MiFID2 kicked in. This year, dark trading re-established and exceeded pre-2018 levels and grew both with and without the UK.

Steady Growth of Auction Trading

Top 40 Closing Auctions Since 2016

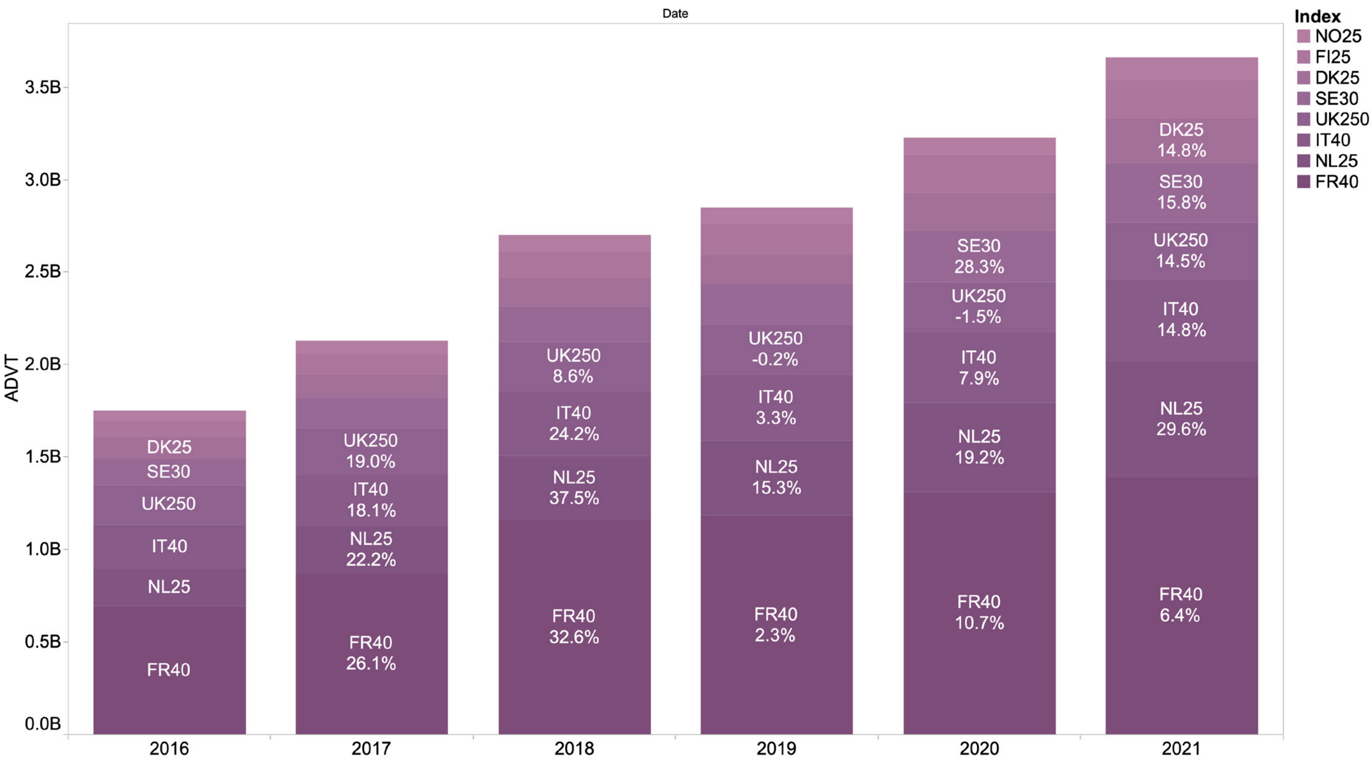


The main player in the story of the growth in auction trading is the closing auctions, with little change in the open, intraday and periodic categories. All but a handful of datapoints in our chart represent index reshuffle events that underpin this trend. Even those which are not, such as during the record setting few weeks of March 2020, were among the smallest of our top 40. 2021 saw the four biggest closing auctions probably of all time, with the peak at €43B in September. This single event was 3.5% of the month's total liquidity, or put another way, 50% of the month's entire dark trading.

The closing auctions are not just for index changes. On a daily basis they are used for processing cash inflows and outflows into funds and ETFs and for hedging overnight positions. The more liquid they become, the more flow they attract. It is clearly a symptom of the growth of passive investment but also a microstructure issue as liquidity is drawn away from intraday price formation.

Closing Auctions Growing at Different Pace

Fastest Growing Closing Auctions (%YoY)



Still on the subject of the closing auctions, it is noteworthy that the trend is nuanced. Growth in the large cap UK and German indexes is flat year on year in 2021, while other regional indexes have led the way. The outstanding relative growth in the Dutch large caps was pushed by several big corporate action events such as the Universal Music IPO (it joined the index in September), and trading in Prosus NV during a share swap with its sister company Naspers of South Africa. Note also the significant growth in the UK mid caps and the Scandies.

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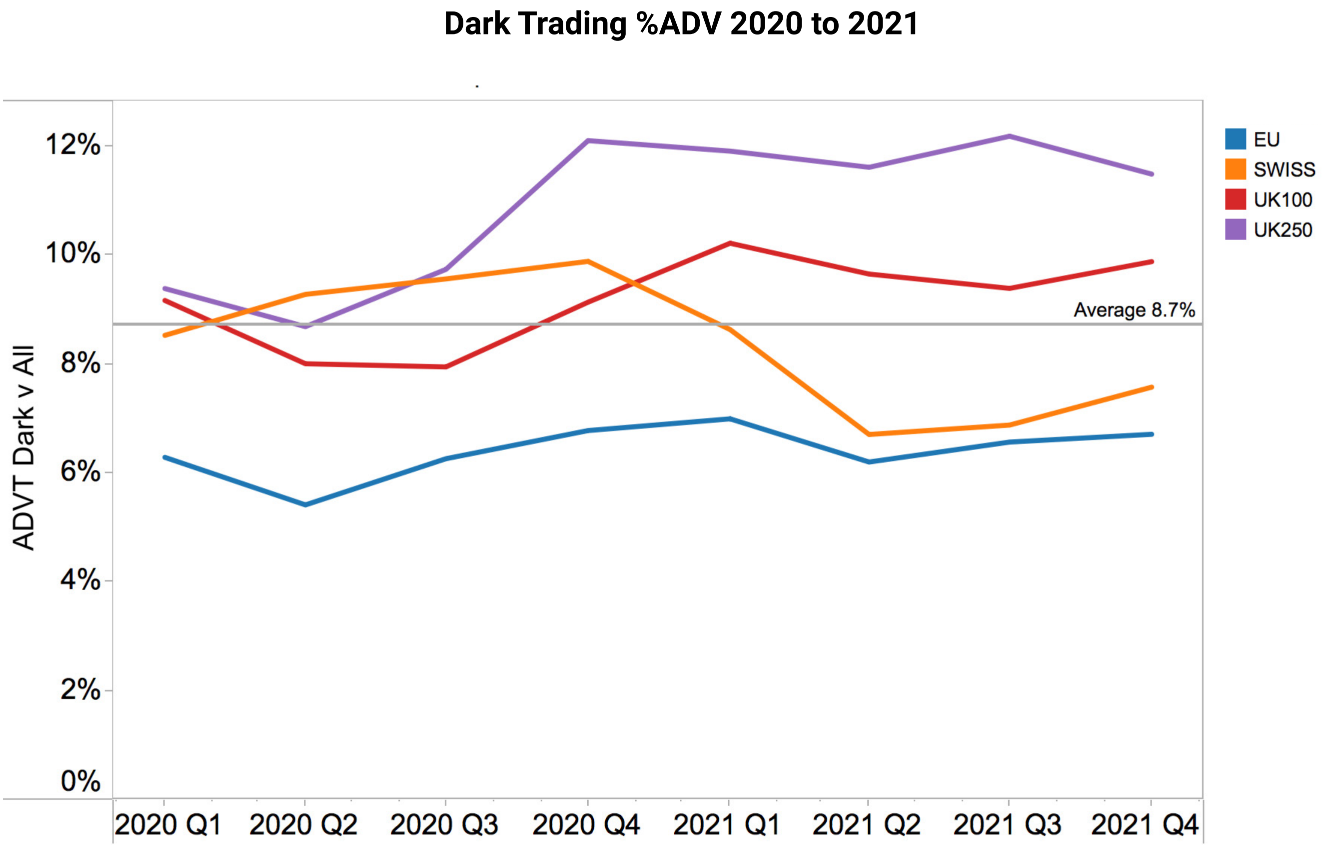
Dark Pool Trading on the Rise



Trading in dark pools in 2021 increased by a mild 0.5% of market share overall. However, the impact of the FCA's announcement in Q4 2020 to cease enforcement of the DVC mechanism had a substantial effect in the UK. Dark trading increased in mid cap names by over 50% to around 12% of daily value, with the UK100 index not far behind at 10%. These new levels were very stable throughout 2021, perhaps indicating the natural level for dark market share.

Whilst a clear pattern was forming in the UK there was a 10% increase in dark trading in EU countries and a 16% reduction in Switzerland. The latter resulted from the restoration of Swiss equivalence with the UK at the start of Q1. Since the end of equivalence in summer 2019, off order book cross trades reduced substantially from 15% market share to 3%, resulting in on order book trading of all types increasing market share. The Swiss at mid dark venue took up much of the slack, only for the position to reverse when equivalence with the UK was reintroduced at the beginning of 2021. The episode points to some interesting questions about the interaction between dark pools and off order book manual trading.

Mid Caps and Dark Pools

The Ebb and Flow of Dark Liquidity

The Ebb and Flow of Dark Liquidity

Index	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
UK250	9.4%	8.7%	9.7%	12.1%	11.9%	11.6%	12.2%	11.5%
UK100	9.2%	8.0%	7.9%	9.1%	10.2%	9.6%	9.4%	9.9%
DK25	9.3%	6.5%	7.4%	8.5%	9.2%	9.3%	9.0%	9.0%
CHM30	9.0%	8.6%	9.9%	11.1%	10.2%	8.4%	8.8%	8.9%
FRM20	9.8%	9.3%	9.2%	9.4%	9.7%	8.4%	8.2%	8.7%
DEM50	7.5%	6.0%	7.2%	7.4%	8.5%	6.8%	7.8%	8.2%
PT20	9.6%	10.0%	7.5%	8.7%	9.5%	5.6%	9.0%	8.1%
IE20	7.0%	6.9%	7.6%	8.9%	10.1%	8.7%	6.9%	7.9%
CH20	8.5%	9.3%	9.6%	9.9%	8.6%	6.7%	6.9%	7.6%
NLM25	5.9%	5.9%	6.7%	6.7%	8.2%	6.6%	6.3%	7.5%
BE20	6.6%	6.5%	7.8%	7.2%	7.7%	5.8%	6.9%	7.5%
SE30	7.8%	6.7%	6.9%	6.7%	7.2%	6.8%	7.4%	7.3%
FR40	6.8%	6.0%	6.7%	7.4%	7.3%	5.6%	6.5%	6.7%
FI25	7.5%	5.0%	5.6%	6.4%	6.5%	6.2%	6.9%	6.6%
NL25	6.8%	5.9%	6.3%	7.0%	7.3%	6.7%	6.3%	6.6%
AT20	8.2%	5.4%	6.2%	6.8%	6.9%	6.6%	6.2%	6.5%
DE40	4.4%	3.9%	5.2%	6.0%	6.1%	6.1%	6.0%	6.4%
NO25	7.4%	5.7%	6.7%	7.4%	7.3%	5.8%	6.5%	6.4%
ES35	5.0%	4.6%	5.1%	5.3%	5.9%	5.3%	5.5%	5.4%
IT40	4.1%	3.6%	4.5%	4.8%	4.7%	4.6%	4.7%	4.7%

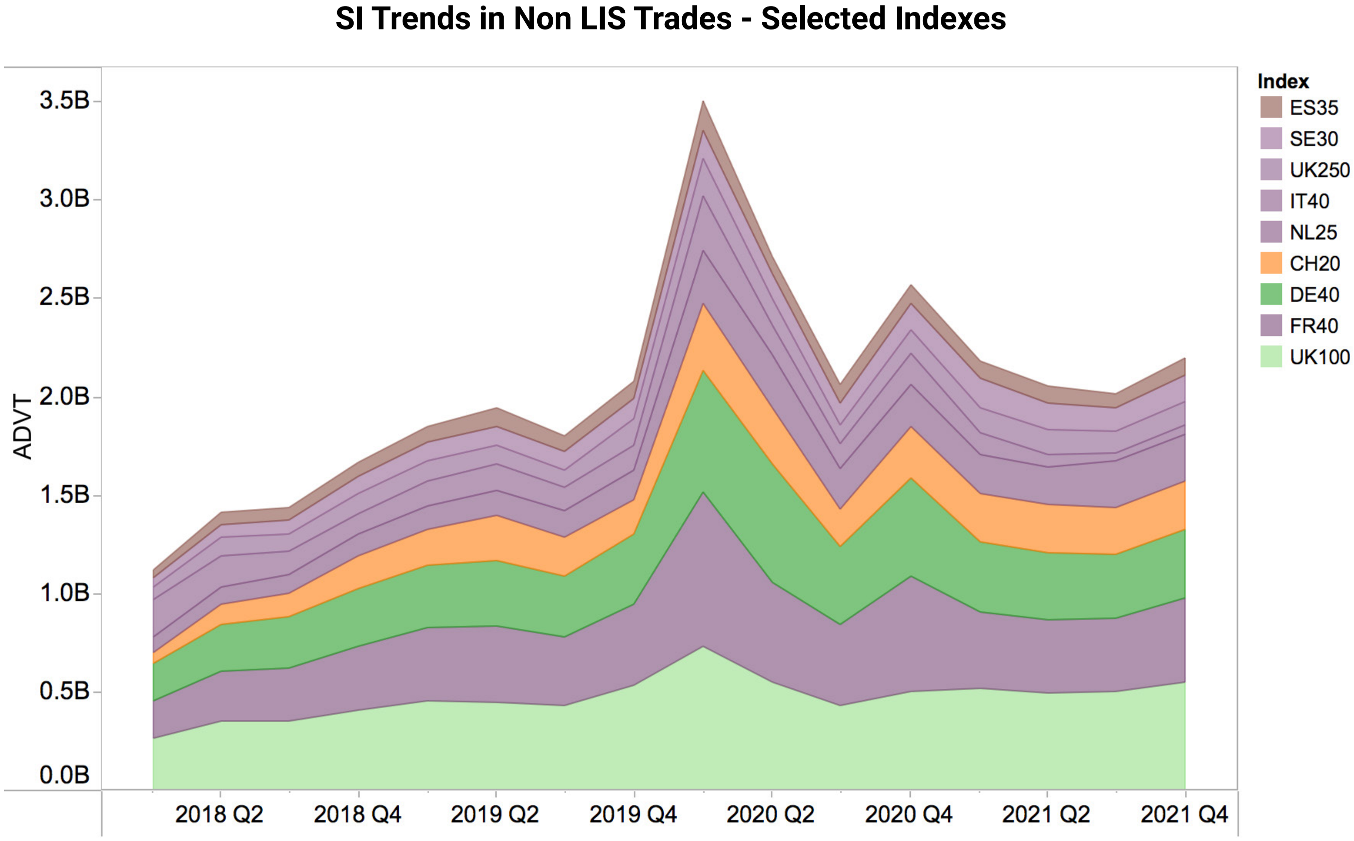
ADVT Dark v All
3.6%
6.0%
8.0%
12.2%

ADVT Dark v All
3.6% 12.2%

Mid caps everywhere tend to have a higher dark trading ratio than their more liquid counterparts, for example in the UK, Swiss, French and German mid-level indexes. When we look in more detail for a reliable pattern in the ratio of dark trading, we see that higher turnover names tend to trade relatively less in the dark, but there is not much of a pattern in lower turnover names.

There is certainly a mixture of factors behind this, including the randomness of finding blocks (that give a temporarily heavy weighting to the dark pools), and the ebb and flow action of the DVC mechanism that temporarily removes smaller trades for six month periods. It seems every stock has its own story and underlines the importance of reliable, daily, stock level data to track stock level fragmentation.

Systematic Internalisation Going Out of Fashion?



The most notable change in the microstructure in 2021 was outside of the order book. A substantial reduction of 32% in SI trading (or €3B per day) was only partly absorbed by an 11% increase in off order book cross trades, and the closing auctions. Remember that the annual overall reduction in traded value was 6%. There could be many factors behind this trend which began after the volatility of March 2020.

The major cause seems to be a pull back from capital commitment to large blocks. As shown in the chart, detailed analysis of the trade reporting conditions shows that smaller, mostly electronic trades are increasing in value and market share across all the most active indexes. As we noted in our post on SI trading on Day 6 of our 12 Days of Trading series, around 80% of bigger trades are executed outside of the spread compared with less than 20% of trades below the large in scale threshold (with around 15% offering price improvement). Overall the impression is that block risk trades are in rapid decline, whereas the market still regards electronic SI trades as a useful alternative.

Postscript

Spreads at €10k - UK 250

We now have 48 months of data on market volumes and fragmentation trends since the implementation of MiFID2 and MiFIR in January 2018, representing nearly 1,000 days and over a trillion data points with which to assess their impact on market quality. One can argue that never before has such a complete and colossal dataset been available to help us define and measure our trading success. In just 10 pages we cannot even begin to scratch the surface on what it tells us, but we hope that it demonstrates the power and accessibility of our toolkits.

For our final slide, we show the tightening of spreads in the UK mid caps at €10k of depth that coincides with the loosening of the dark cap rules. This is especially intriguing when viewed in the context of increased volatility which normally widens the spread.

The year was certainly an interesting one as the patterns evident in the microstructure continue to echo the crisis that continues to play out alongside other trends such as how the growth of passive investment continues to alter the trading landscape. We think it has never been more critical to integrate microstructure data into the investment, and trading process and we look forward to bringing you these capabilities in 2022.

Appendix: European Microstructure 101

All Types of Trading

On Book
Trades conducted electronically on an Exchange or MTF where all participants trade on equal terms (price, size and time).

Off Book
Trades negotiated 'bi-laterally' between a broker or market maker and their client; maybe either electronic or manual.

Lit Continuous

Intraday lit trading includes the continuous trading period on the Exchanges and Multilateral Trading Facilities, where the order book is published and excludes any type of auction.

Auction

Intraday Auctions include five main types: OPEN, CLOSE, MIDDAY, TRADING HALTS and PERIODICS.

Dark

Dark pools include MTF trading on both continuous and 'block' or 'Large in Scale' modes. Some Dark Pools offer conditional order types.

Systematic Internaliser

Systematic Internaliser trades include both phone-based and electronic trading platforms where price and size is negotiated between two parties, one of whom must be trading as principal.

Off Book Crosses

The rules permit some trades to be conducted away from an Exchange, MTF or SI, under certain defined circumstances known as the 'waivers'. They may not be automated, so these are usually manual trades. They are still considered to be 'On-Exchange'.

Over The Counter (OTC)

There are circumstances where trades may be reported as Off-Exchange, such as if they are technical in nature and not price forming. We ignore these for the purpose of this analysis.

About big xyt

big xyt provides independent smart data and analytics solutions to the global trading and investment community, enabling firms to process and normalise large data sets on demand and in real time, in order to analyse execution performance, comply with regulatory standards, and reduce the complexity and costs of technology and operational requirements.

Our clients include major global investment banks, buy-side firms (asset managers, hedge funds, pension fund and indexers), leading exchanges, trading venues, and regulatory bodies.

Navigating fragmented markets remains a challenge for participants needing easily digestible information on trading analysis. The big xyt analytics platform responds to these market challenges, and provides clients access to transparent, accurate and normalised data.

big xyt has created a global ecosystem for tick data analytics covering more than **120 trading venues**, across **Equities**, **ETFs**, **FX**, **Futures and Options**. Our unique technology normalises trade conditions of venues allowing consistent aggregations of trading volumes, comprehensive analysis, and delivery of results in a flexible and customisable format.

big xyt's innovative analytics solutions are relevant for a broad range of use cases including strategy development, performance trends and analysis, back testing, quantitative research, and regulatory changes. The platform delivers information through a convenient and interactive user interface, and can be easily connected to our cloud-based platform via APIs.

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