



Issues linked to Crossing Engines (internal order crossing systems) can only be properly understood after a review of the new landscape that emerged following MiFID. We witnessed a destructuring of the market, which has resulted in a war of tick sizes and the emergence of a new category of entrants favoured by the pricing set up by exchanges. During this period, traditional players saw their costs soar, a factor that could lead to the exit of the weakest players without sufficient financial wherewithal to cope with the expenses resulting from MiFID. Pre-transparency, which was one of the major vectors of MiFID, has deteriorated, and liquidity on the lit markets has become an illusion. It is precisely the deterioration of the quality of the lit side that has driven participants to increase their use of dark venues (dark part of MTFs and Crossing Engines) in order to protect the interests of clients wishing to access all liquidity pools. Concerns that subsequently rose regarding price formation mechanisms cannot be lifted by regulating dark pools indiscriminately but rather by restoring the quality of the lit world.

■ I) The market has been profoundly destructured by the competition opened up by MiFID.

The war of tick sizes

The most obvious means available to MTFs to attract flows when starting up was to offer lower tick sizes than the primary markets. This enabled arbitrageurs to position themselves within the spread in order to try to capture part of it. The development of SORs (Smart Order Routers) and their broader use thus guaranteed that an arbitrageur placed just within the bid/ask spread would be executed systematically as soon as an aggressive order was sent via a SOR. One of the limitations that reduced room for manoeuvre for primary markets was also linked to the inability of some major retail networks to handle orders beyond two decimal places. Nearly two years were needed for this war to come to an end and for market players to reach agreement on a shared tick-size table. In the meantime, the average tick size was reduced to one-tenth its original size, and volumes present within the spread were considerably reduced due to this decrease. The relative depth of markets, weighted by the volumes present at a given time by n basis points, deteriorated in the same proportions (academic research groups exist on this subject, such as the microstructure workshop organised jointly by CA Cheuvreux, HEC and Institut Europlace de Finance at the Collège de France). The table of tick sizes retained organises the market in such a way that the very low viscosity of spreads means that liquidity is difficult to maintain, while we know that the more finely liquidity is fragmented, the faster it evaporates.

Stock exchanges' drive to develop the volumes from arbitrageurs

Once the microstructure of a market favours arbitrageurs, it becomes vital for stock exchanges to attract them, as platforms consider them the sole vector for the transit of orders from one market to another and thus for generating trades. All of the pricing implemented was thus structured to favour arbitrage. Placing and modifying orders, which originally were billed, are now free. MTFs have all used the same "maker/taker" model, in which the passive order (which is placed on the market but not executed immediately) is remunerated and the aggressive order (which crosses the spread for immediate execution) billed. NYSE Euronext has even gone as far as putting into place differentiated pricing in which proprietary orders have preferential rates compared to client orders. Agreements have also been signed with liquidity providers to try to continuously offer shares at the spread levels offered by other exchanges. This policy, originally led by the MTFs, and in this case based on their maker/taker model, has proven to be so much of a threat for primary markets that the latter have been obliged to follow suit. It is in fact essential for stock exchanges to ensure, as much as possible, constant presence on the best bid/ask so that SORs hit/lift them. We thus have the following paradox: the liquidity crossing the spread, which is billed and bears virtually all of the cost (price of the spread plus passive pricing) is definitively the most valuable as it guides the price formation process and a high proportion of it comes from end investors.

One of the other factors – equally important – that ensures the success of this policy favouring arbitrageurs is to offer co-location. This enables the players carrying out inter-exchange arbitrage to position their computers and arbitrage software as close to the market as possible and thus to benefit from a decisive advantage in capturing liquidity. In principle, an agency broker going to trade on more than one market cannot co-locate everywhere because it would be at too much of a disadvantage on exchanges where it does not co-locate. It thus must place its SOR at the centre of gravity of the different exchanges and finds itself systematically at a competitive disadvantage to the co-hosted arbitrageurs. The latter can moreover opt to intervene on only a limited number of instruments.

This emphasis on co-location has a resulting effect. In an environment in which primary markets are competing against each other, it becomes essential for them to lighten the controls carried out: it is commercially difficult to have circuit breakers that suspend the market while competitors do not have so many restrictions. We have thus observed a transfer of control responsibilities from market exchanges to market players. As the controls represent technical restrictions (slowdown of flows) and commercial restrictions, the player offering the fewest restrictions thus gains a commercial advantage. Consequently, we witness, whether at exchanges or at brokers, a race to the bottom in terms of market protection. When we consider that the controls carried out by regulators are increasingly difficult to do due to the increase in the number of execution venues and the absence of consolidated data, we notice that one of the aims of MiFID, i.e. to protect investors more, is far from being achieved.

An explosion in costs

An initial factor to take into account was the necessity to automate the transaction process on markets. It is impossible to have efficient access to all venues without an SOR and electronic connections to all venues. Moreover, the speed at which markets function also implies processing a maximum number of transactions using trading algorithms and automated trading systems. It also became necessary to put in place complex systems for verification and follow-up of the quality of execution, namely TCA (Transaction Cost Analysis). These costs represented a significant portion of the investments brokers have had to make over the past two years.

The change in the microstructure of markets resulting from this electronification and all arbitrage, inter-exchange and high-frequency activities, led to the ATS (Average Trade Size) being reduced by two-thirds in two years. The correlative increase in explicit trading costs was only partially offset by the drop in the tariffs of exchanges and clearing houses. This is why, for CA Cheuvreux, due to the increase in the number of transactions and the drop in ATS, while the costs of lit markets in basis point terms decreased by 30% and settlement-delivery costs were down 47%, transaction costs rose 24% between 2007 and 2009.

At the same time, implicit costs also skyrocketed. Intra-day volatility, which might have been considered linked to the effect of the financial crisis on markets, has not gone back down and, combined with the reduction in liquidity, has ultimately increased the impact retransmitted to the market. This is how building any position of significant size implicitly became more costly.

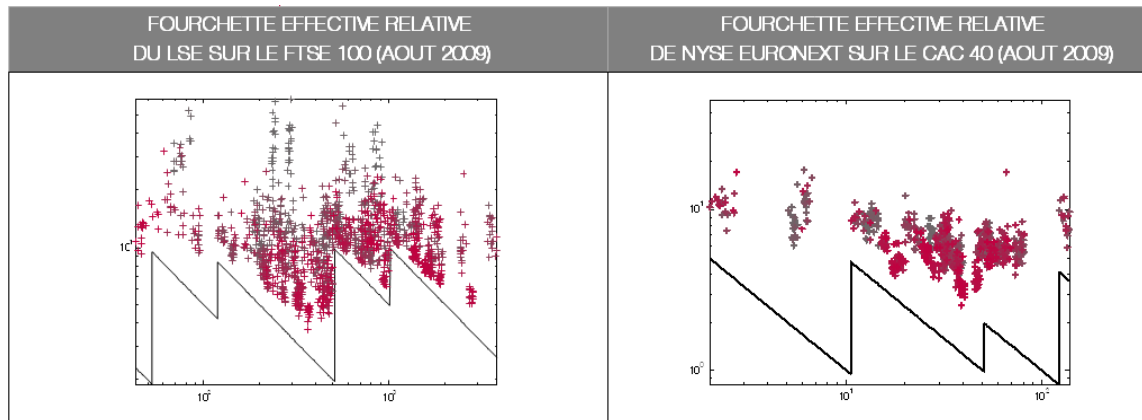
“Pre-transparency” devalued.

One of the main goals of MiFID was to organise pre-transparency by creating the MTF and Systematic Internaliser regimes. We note that the Systematic Internaliser regime did not fulfil the legislator’s expectations and that the information contained in the price generated by primary markets and MTFs has lost its pertinence. For instance, in the following example, a large portion of orders on the market is attributable to arbitrageurs. Actual density only begins at tick-1 (in this case, the pre-MiFID range) and orders within this two-tick spread do not offer genuine liquidity. Notably, how should we interpret the offer for one share? We can either consider this order to be a lure aimed at attracting a buy order or at shifting the range so that the EBBO (European Best Bid Offer) is 0.25 lower.

The screenshot displays several windows from a trading terminal, all showing data for CREDIT AGRICOLE. The windows include:

- TOPBATS/ACA [FR000045072]**: Shows a list of orders with columns for rank, price, volume, and time. The top order is at 12.8850 with a volume of 500.
- TOPCAC/ACA [FR000045072]**: Shows a list of orders with columns for rank, price, volume, and time. The top order is at 12.885 with a volume of 500.
- TOPCHEX/CAGR.1 []**: Shows a list of orders with columns for rank, price, volume, and time. The top order is at 12.8800 with a volume of 1923.
- TOPBATS/ACAp []**: Shows a list of orders with columns for rank, price, volume, and time. The top order is at 12.8800 with a volume of 2765.
- IDN_SELECTFEED/CAGRpa.NQX [FR000045072]**: Shows market statistics including Last price (12.91), %Chg (-5.08), Volume (253.84K), and Turnover (3.3684M).

In the following charts, we can also see that the current tick size regime represents a weaker market constraint on NYSE Euronext than on the LSE, and that the available space thus remaining favours order book manipulations. Automatically, a coercive tick size increases the weighting of passive orders and limits small orders aimed at manipulating the market. Furthermore, as the order book density is higher, the amount needed to deform the order book is higher. This results in higher risk and thus a higher investment. Pricing, with no minimum per order placed or executed (passive = credit and aggressive = debit), also makes market manipulations less costly: the marginal cost of a passive order for one share trends towards zero.



NB: These figures show the relationship between the price of a share (horizontal axis) and its spread in basis points (vertical axis). Each red point is a volume weighted average spread (VWAS) for a share for one day; the more liquid the share, the deeper the colour of red. The spread in bp automatically cannot be lower than the tick size in bp, which is represented by the black line: the gross tick size depends on the price (hence the "jumps" in the black line) and the relative tick size depends on the price (hence the fall in the curve between two jumps). (Source: Crédit Agricole Cheuvreux Quantitative Research)

The drawback of illusionary liquidity

A very sharp increase in the number of proprietary trades has been noted, and these transactions now represent an estimated 70% of the total. But what is the quality of this liquidity obtained through these own-account transactions? This all depends on the investment timeframe. In the case of high-frequency trading or arbitrage, as arbitrageurs have a policy of taking on the lowest possible overnight risk, their inventories are either reduced or hedged as completely as possible. In this respect, the liquidity that they can extract from the market at a given instant is simply shifted, as it will very rapidly return to the market but at a different price (i.e. adjusted for the arbitrageur's profits). Most of these trades are carried out in an investment timeframe not longer than a day, and the same quantity of shares may appear on the market several times as the arbitrageur endeavours, within the limits of his/her risk budget, to maximise the number of turns in order to generate profits. Thus, liquidity is neither added nor withdrawn. It is also important to note that arbitrageurs, unlike market makers, have no qualitative or quantitative requirements to be present on markets. They therefore can choose the most opportune times and adjust their spreads according to volatility. Despite the decline observed in overnight volatility over the past few months, the persistently high intra-day volatility despite the increasing number of high-frequency trades shows that they do not contribute to stabilising the market's price formation process. They are thus able to extract value without improving the intrinsic quality of the market. Note that circuit-breaker mechanisms that were historically implemented by stock exchanges have been removed and share price aberrations represent opportunities for arbitrageurs to play the market. As the main argument in favour of the advantages granted to such high-frequency traders was that their presence reduced market aberrations, we can question whether a market in which 70% of total volumes corrects the aberrations of 30% of total volumes is still a viable market in its current definition. This observation prompts us to paraphrase Gresham's Law: "Bad liquidity drives out good liquidity".

Thus, we see very clearly that MiFID did not have the expected effects, as the information available is increasingly less pertinent for investors. Furthermore, current trends have an extremely negative impact on agency brokers and final investors, as the major beneficiaries are the so-called "liquidity providers", high-frequency arbitrageurs and other market makers whose activity is largely financed by levies on agency orders via the maker/taker pricing system implemented by MTFs.

These changes are prompting the disadvantaged players – the agency brokers – to adopt solutions to best serve the interests of final investors.

■ The emergence of dark markets is attributable to the deterioration in lit markets.

The search for pools of liquidity

This search began long before MiFID and is not as a result of the Directive. Trying to find counterparties for stakes on behalf of clients is one of the original purposes of intermediation. The resulting transactions have always been processed OTC with the regulated market intervening only to satisfy reporting requirements. The considerable recourse in recent years by brokers to capital in the case of facilitation is just an aspect of intermediation that makes transactions more immediate. Access to capital was and still is discretionary and is not offered to all clients, thus making it possible to keep predators outside the system. Therefore, it is accurate to say that liquidity is disappearing into dark markets in this case? In the case of facilitation, the arrival of liquidity on the lit market is very often merely deferred and the market impact of orders is passed on to the broker instead of the market. When a block of shares is cross-traded between two end clients, the liquidity that they find in dark markets is effectively the liquidity that they would have sought in lit venues if they hadn't found it in dark venues. The long-established reporting requirement is designed to ensure that the transaction is made known so that no one can say that it "disappeared".

Extending this to small transactions

The change in market microstructure has led to the creation of internal crossing systems (crossing engines) which are designed to cross increasingly small orders, thus following the trend imposed by the reduction in ATS. A broker's crossing engine is thus designed to cross all flows coming into the engine: retail orders, child-level orders for institutional clients, limit orders, algorithmic orders, etc. The principles that apply to these small transactions are exactly the same as those for larger orders: discretion regarding the participants in the crossing engine with a view to keeping predators at bay, liquidity that is deferred only in the event of facilitation, and a reporting requirement to ensure that transactions are made public.

However, it is clear that the post-transaction domain must be efficient in order for the statement of transactions to be so. The post-transaction domain is currently facing difficulties as a result of the deterioration in lit markets, and it is up to the regulator to succeed in achieving in this domain what it failed to achieve with pre-transparency. Note that this is really only restrictive for agency brokers given MiFID's proof of best execution requirement and not for proprietary traders who can blur things as much as they like (with flash orders, IOIs, etc.).

It is only in restoring the quality of lit markets that the regulator will succeed, and not in trying to limit a broker's crossing engine to specific frameworks defined by MiFID for exchanges or systematic internalisers (SIs): these frameworks were not defined for this purpose. In this sense, the regulator's indications aimed at establishing a framework for how a crossing engine must trade within the EBBO (i.e. either at the boundaries or in the middle of the range) are nothing more than additional and unnecessary constraints. The regulator's only concern should be to ensure that transactions below a certain size are realised within the EBBO, but it should not introduce further constraints regarding the exact price used within the EBBO.

The price formation mechanism

The contribution of volume to the price formation depends on the uncertainty surrounding the latter. If the degree of uncertainty is too strong, then volumes dry up:



On 27 October 2009, volumes traded in ING stock collapsed and the price hardly moved after Euronext suspended trading on the stock following a technical incident (excessive order flows on the stock caused the Euronext trading system to malfunction). There were nonetheless good reasons to trade in ING shares on that day (significant news and very high volatility) for those looking to seize opportunities, but nobody wanted to stray from the last price traded on the primary market.

We can therefore assume that investors are mature enough to decide for themselves, in a period of strong volatility, to let their volumes participate in the price formation, and a sizeable order on ING, at that time, would have had a visible impact. Conversely, in a period of low volatility, investors do not hesitate to send their volumes to dark markets as they have no concerns over the validity of the price. Hence we see that the validity of the price formation is not affected by what is happening in dark markets. However, dark market transactions are sharply affected by the price formation process in lit markets and any deterioration in lit markets has a detrimental effect. Moreover, as we have seen, the quality of the lit markets has declined and they can be manipulated far more easily.

Restoring the quality of lit markets

It is therefore clear that MiFID must not be revised by introducing an excessively restrictive framework for the dark market, but by restoring the quality of the lit market. First of all, the regulator must ensure that post-transparency quality is faultless, and this can be achieved by creating a consolidated reporting tool, that is as detailed as possible, to be used by all parties involved (use of a mandatory MIC code for all transactions, including those realised in a crossing engine) through which transactions must be reported immediately. The type of party involved (proprietary trader or broker acting on behalf of a client) would be indicated for each transaction, thus making it possible to take into consideration any reporting delays authorised by current legislation. The issue of revenue sharing that arises from these coveted data must be addressed and a utility type organisation be implemented.

In order to restore the quality of the lit markets, it would then be necessary to introduce friction to the current functioning of the market. Several means exist for introducing such friction, e.g., imposing a minimal lifecycle for orders or charging for their insertion. The simplest means, and the one which, in our view, the regulator should adopt, consists of establishing a framework for tick sizes and making them more coercive. This would have the twofold effect of slowing the markets down and reducing opportunities for manipulation.

It is essential to ensure that there is no market distortion generated by a pricing that unduly favours some players. There is no justification for players acting on behalf of third parties (i.e. brokers) being disadvantaged vis-à-vis proprietary traders, and the regulator must establish a framework for the pricing models in lit markets.

In conclusion, we call upon the regulator, in revising MiFID, to:

- Create a single detailed, consolidated reporting tool, ensuring the necessary post-transaction quality;
- Establish a pan-European regulation for tick sizes, thus giving the regulator a rapid, simple and efficient adjustment tool;
- Ban pricing models that favour proprietary traders over players trading on behalf of third parties and maker/taker models in order to ensure fair and equal competition.