Dealing with fragmentation

Fragmentation of liquidity across European trading venues could make transaction cost analysis even more complicated than it is at present. But Robert Kay, md of GSCS Information Services, argues that this should not be the case.

About TCA

Trading is the implementation of investment ideas. The costs of implementation for institutional asset managers can be significant, often dwarfing commission costs, for example. Costs fall into three main categories. The first is the spread between the price at which the security can be bought (offer price) and the price at which it can be sold (bid price) at the same point in time. Second is the impact on the underlying price brought about by trading; pushing the price up on buying and down on selling. Finally there is the cost that arises from movements in price that occur between the time of the investment decision and the final completion of the trade. The contributions of each of these factors to the total cost of implementation are not independent of each other, making analysis complex.

Transaction cost analysis (TCA) supports asset managers by measuring each of these different costs in respect of their own transactions and also anonymously comparing their results with those of other managers completing similar orders. This analysis allows identification of patterns, whether by market, security, broker, trader or portfolio manager where trading costs are higher or lower than might be expected. Interpreted appropriately, these patterns can evidence a need to change behaviour in such a way that future overall transaction costs are reduced and portfolio returns thereby increased.

Traditional transaction cost analysis (TCA – see box) has a lot to answer for. First, the name has helped consign many buy-side traders into the realm of ‘cost centres’ rather than legitimate contributors to alpha generation. The description as ‘analysis’ has also encouraged non-specialist senior managers to believe that the review of data can lead to ‘actionable’ conclusions with measurable positive benefits. To meet this objective, vendors and broker-dealers – assisted by falling costs of data processing – have come up with ever more sophisticated ways to measure outcomes, while failing to differentiate effectively good from bad or merely from the much more common ‘indifferent’.

Something new

Into this mix is now added the growing fragmentation of liquidity in many...
The real effect is that fragmented liquidity has two implications for TCA – one real and important, the other much of less consequence. The key element that all parties need to understand is the extent of the impact of the real changes to trading and how the performance, whether the ‘correct’ figure has been measured after adjusting for the benchmark against which to assess execution performance is the TCA equivalent to the ‘absolute return’ approach of alternative asset managers. This methodology compares the price at which the trade was completed against the price at a specific point in time in the execution process (most usually when the trade is ‘released’ by the portfolio manager to the buy-side trader, or when the trade is in turn ‘released’ to the counterparty broker or market).

The problem with this approach is that success in beating the benchmark is heavily influenced by the nature of the portfolio for which the trades are being executed. If the portfolio is ‘momentum’ driven, then by definition it is going to be buying securities whose value is on an upward trend. Given the likely high cost of delay, this makes it virtually impossible to ‘beat’ the benchmark, because the portfolio requires little skill.

Chart 1 illustrates this problem by showing the breakdown of cost of delay effects based on the underlying momentum of the trade in question. The results come from the GSICS universe of data, covering millions of transactions involving more than 100 managers and 200 brokers.

As the chart shows, when executing trades with the most favourable momentum, the overall trade is executed at a price that is more than 20bp better than the price prevailing when the trade was released. Equally, when the momentum is most unfavourable (i.e. the manager is ‘chasing’ the market) the likely cost will be 80bp or more. Clearly the scale of this factor dominates any modest improvement in performance that can be achieved by a buy-side trader or the sell-side counterparty through superior judgment, trading skill or lower commission cost.

The ‘handicap’ system

To deal with this problem, brokers and vendors have tried to establish what the ‘handicap’ is, of which both have firm adherents and strong opponents. Interestingly, these two approaches parallel different approaches to the theoretical ‘absolute’ benchmark against which to assess performance. They may usefully be alluded to as ‘relative’ and ‘absolute’. Implementation does not always cost

European markets. Following the early success of Chi-X, recent months have seen the launch of Turquoise and NasdaqOMX, as well as the launch of many new, multilateral trading facilities (MTFs) – including some to be created by existing stock exchanges in direct competition with each other and their ‘upstart’ rivals. Table 1 highlights the liquidity fragmen-
tation already visible in a number of major listed sectors.

With more MTFs due to launch in the near future, and the potential for existing exchanges to launch MTFs of their own, the fragmentation is expected to increase. Some market commentators suggest that in due course consolidation will occur, but this is by no means certain. The cost of entry into the MTF business will continue to decline and the prospective returns are likely to attract additional new entrants.

Fragmentation of liquidity has two effects on TCA – one real and important, and one of much less consequence. The real effect is that fragmented liquid-
ty alters the way in which trades get executed. This is not simply a question of whether the execution venue on which the trades were completed should also be included in the different averages. The question for the future will be whether the execution venue on which trades were completed should also be included in the different averages. The question for the future will be whether the execution venue on which trades were completed should also be included in the different averages.

More complex as time goes on.

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Irrespective of the handicap used, TCA performance using implementation shortfall methodology is usually measured after adjusting for the theoretical ‘absolute’ performance back into a ‘relative’ performance assessment.

Fragmentation – handicap or excuse

The further problem that arises from liquidity fragmentation is that it will make it even harder to measure two key elements. First, in assessing the impact of changes at a point in time, it will be possible to include or exclude some or all execution venues. This will make a small difference to the actual result but will lead to different levels of debate about whether the ‘correct’ figure has been used to calculate the benchmark.

Table 2 illustrates some of the differences in quotes seen at the same time on different venues (exchanges, MTFs etc). Further proliferation of venues has the potential to make this more complex still.

The second much more important effect will be on the calculation of the appropriate ‘handicap’ that should be applied. Existing generic handicap systems suffer from the heterogeneous nature of the transactions that are included in the different averages. The question for the future will be whether the execution venue on which trades were completed should also be included in the different averages. The question for the future will be whether the execution venue on which trades were completed should also be included in the different averages. The question for the future will be whether the execution venue on which trades were completed should also be included in the different averages.
account of venues to which they are connected and weight more prominently results from the venues they use most. This will make it more difficult for clients to determine the most appropriate pre-trade cost estimates.

Generating consistency in an overall approach given this additional complexity will be virtually impossible. Without consistency, however, TCA becomes less and less useful as a means for determining whether traders or counterparty performance has improved.

The number of ‘excess’ for apparently ‘poor’ performance will grow in line with the growth in complexity in the process. Actionable analysis will become even harder to achieve.

Is everything relative?
The equivalent ‘relative’ approach in terms of TCA is the use of various volume weighted average price (VWAP) benchmarks. Usually these include Interval VWAP and Available VWAP.

In some cases, where only limited time-stamp data is available, the Daily VWAP may be used as a benchmark. This methodology is similar to traditional asset managers assessing their investment performance against the return achieved by a single market, regional or global index. The problem with this approach parallels that of the relative approach in fund management; it is possible to perform well against the benchmark while watching the price move dramatically against the interests of the portfolio. So delay in execution of a momentum-driven order would yield a poor execution price but be seen as providing adequate or in some cases good performance against the relevant VWAP measures. To many traders and portfolio managers these problems have rendered ‘relative’ measures unattractive as part of an execution process.

Unloved but still widely used Nonetheless, VWAP algorithms remain easily the most popular with traders and other ‘in-line’ execution strategies continue to be pursued by many buy-side traders. This in part reflects a desire to get many relatively small trades completed at a ‘reasonable’ price.

In addition, while not followed as an execution strategy, many traders, portfolio managers, compliance officers and clients like to confirm that their trades were done ‘as well as the market’. This means that VWAP measures, often in conjunction with implementation shortfall, remain a factor in the TCA process.

Charts 2 and 3 highlight performance within the GSCS universe of trades with different markets measured against the performance yardsticks that have been established.

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Interestingly, the much-deterred Daily VWAP measure produces similar mean performance results but shows an even higher standard deviation in performance.

Chart 4 shows the results of VWAP algorithms against the same benchmark. This data is taken from a study conducted by GSCS on behalf of TradingScreen, a major vendor of multi-asset class execution management systems to hedge funds and other asset managers around the world. This also shows mean performance comparable with the measures of ‘human trading’ in the GSCS universe, but with less standard deviation. Such comparisons will no doubt lead to a desire for further refinement in measures to allow more ‘excesses’ for apparently indifferent or relatively poor human performance.

Fragmentation will once again be a useful tool in further complicating an already obfuscated picture.

What really counts?
Table 3 shows some results of VWAP calculations for different securities on a number of execution venues, most notably Chi-X and Turquoise and the stock exchanges on which the primary listing exists. In this case the differences are again meaningful in terms of the performance yardsticks that have been established.

Fragmentation means that clients may want to limit the VWAP calculation to those exchanges in which they are able to participate, or alternatively to some other subset of the total level of activity. This is important as it may reflect a desire to choose a benchmark that is the easiest to beat or may have more honourable and justifiable motives. It is interesting to note that some MTFs are already finding ways to explain that their venue offers ‘superior’ execution to that achieved elsewhere, with limited detail on what the terminology means or the methodology used in the analysis.

Once again, however, fragmentation will mean that performance results can be influenced more by the selection of the benchmark than the actual contribution to the results achieved by the traders and counterparties.

Given that much TCA is made available by broker-dealers in support of their desire to demonstrate superior execution, this additional complexity runs the risk of making the analysis – whatever its true motives – appear to be simply a self-serving sales and marketing tool.

Where now?
Irrespective of the underlying methodology employed by traders and brokers using TCA and the precise performance benchmarks that are used, there are two clear conclusions that can be drawn in terms of the impact of fragmentation. First is that fragmentation could make much more complex the traditional processes that are used by all parties to ‘adjust’ performance to take account of transaction characteristics of the executions being evaluated. Second is that this complexity is likely to mean more time is spent debating the merits of the process than trying to determine actions that could be taken to actually improve performance.

These two conclusions, taken together, risk further undermining the viability and credibility of TCA as a business. In an environment where buy-side firms are under pressure to reduce expenses, this is dangerous.

The question that users and vendors alike should address in the near term is whether this additional complexity is
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either necessary or desirable and, if not, what should be the response of the industry to the challenge of fragmentation.

Fortunately, an elegant solution is available. However, as long as everyone has a potential self-interest in a customised approach, the elegant solution will be ignored. The question that needs to be considered is why has fragmentation occurred and what is its purpose? The European regulators who created the framework (under MiFID) for competition intended that national stock exchanges should no longer enjoy a monopoly in trading, so that costs would be reduced and performance improved. Similarly, those institutions that have launched and/or supported the new venues have done so in the expectation of their winning business by offering a superior product, possibly at lower prices than incumbent exchanges.

Finally, those institutions that are using the alternative venues are presumably doing so because they are better, cheaper or both. In all cases, however, there is nothing that requires participation in new venues unless they are superior. Participation is voluntary and therefore the only reason to participate in the new MTFs is because they deliver superior execution and/or lower costs.

The right answer
Given this rationale for participating in new venues, the right way to benchmark performance must be to compare the execution result achieved using a benchmark or benchmarks calculated based on the prices of trades done on the indigenous primary exchange. If new MTFs offer lower-cost execution, then the performance of those that use them will show up favourably against these ‘traditional’ benchmarks.

Such an approach has three obvious advantages over any other. First, it is cheaper as it does not involve any material change to existing processes and procedures. Second, it will show to all parties the extent to which they have improved their trading by using alternative venues. To the extent that many fund managers or brokers are satisfied that their execution performance is enhanced, whatever methodology they choose to measure it by, they will determine the long-term success or failure of the new MTFs. Finally, it reflects the reality of the fact that ‘price discovery’ still takes place on the primary exchange, which remains – even in the US where fragmentation is greater than in Europe – the location where the largest volume of business is conducted. The closure of the LSE for almost an entire day on September 8 highlighted the fact that without the ‘price discovery’ mechanism of the primary exchange, few market participants were willing to put liquidity into alternative venues.

Making improvements, not making excuses
To the extent that performance appears better or worse using alternative venues compared with using incumbent exchanges, then further more detailed analysis will definitely be required. This approach combines a surveillance role across all trades (“are we performing to a generally acceptable standard?”), with a more detailed multi-venue analysis of transactions that appear exceptionally good or bad.

The analysis will help ascertain whether the performance differential is the result of the characteristics of the transactions themselves, the skills of the traders and technology they use, or the underlying market microstructure, including costs. Such analysis has the potential to identify and quantify the benefits accruing to clients from fragmentation in ways that allow replication across more transactions and hence a progressive improvement in performance. This combination of surveillance and continuous enhancement of execution quality is exactly what TCA should be seeking to offer its clients.

If, over time, another venue assumes the mantle of majority of traded volume and locus of price discovery, then the ‘base’ benchmarks should reflect activity there. However, that eventuality is probably well into the future. For the benefit of the TCA business as a whole, everyone should recognise the value of using benchmarks of performance based on a single exchange/venue rather than trying to customise a solution that may make them ‘look better’ but ultimately will jeopardise the business. ■