

## ATSs in Europe: Post-MiFID Performance | Brandes, Domowitz



At the intersection of markets and technology, **Insights** provides ITG's global perspectives on market structure, analytics and research, and liquidity.

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### Introduction

Article 21 of the Markets in Financial Instruments Directive (MiFID) requires investment firms to *"assess, on a regular basis, whether the execution venues included in the order execution policy provide for the best possible result for the client or whether they need to make changes to their execution arrangements."* The first systematic research addressing this requirement with respect to alternative trading systems was published last year, based on data from 2009 trading activity across Europe.<sup>1</sup> The following note is a brief update with respect to that more comprehensive study.

The 2009 data demonstrate that alternative markets, and dark pools in particular, add value relative to primary markets, in the sense of lowering transaction costs. On average, costs in the primary markets are 71 percent greater than observed in dark pools and 20 percent greater than in the data for displayed MTFs. The qualitative nature of the result holds across countries of listing and market capitalization categories. The probability of slippage is greatest in primary markets, while lower costs of trading in the dark are accompanied by better certainty of outcome. These results are consistent with other studies.<sup>2</sup>

European equity markets in 2010 are different than they were in 2009. In particular, several new dark pools started in Europe. The Aite consulting group estimates that there were approximately 25 dark pools operating in Europe at the end of 2010.<sup>3</sup> Several of the new dark pools are operated by 'lit' MTFs, a new development in some cases. Over the last eighteen months, three major MTFs announced the launch of a dark pool, for example. In light of consolidation of venues, it also can be said that some dark pools are operated by registered exchanges. The NYFIX Millennium platform was incorporated into NYSE's SmartPool, for example, and Turquoise was acquired by the London Stock Exchange.

In the spirit of the 2009 study, we limit ourselves to a few questions related most closely to MiFID's best execution criteria.<sup>4</sup> Differentiating between dark pools, primary exchanges, and displayed ('lit') alternative venues, we ask

- Does trading in European alternative execution systems add value?
- Are there differences in execution quality across dark pool venues?
- Are there differences in execution quality across displayed MTFs?

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<sup>1</sup> Alternative Trading Systems in Europe; Trading Performance by European Venues Post MiFID, Summer 2010 - Journal of Trading, Yossi Brandes and Ian Domowitz

<sup>2</sup> See, for example, Domowitz, Finkelshteyn, and Yegerman. Cul de Sacs and Highways: An Optical Tour of Dark Pool Trading Performance, Journal of Trading, 2008.

<sup>3</sup> European Dark Trading: Who's Playing in Your Pool, December 2010, Aite, Simmy Grewal

<sup>4</sup> These criteria are proposed in Article 21 of the 2004/39/EC directive.

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Our 2010 data show that transaction costs in dark pools are 13% lower than those of regulated primary markets and 18% lower relative to those of 'lit' MTFs. MTF costs in turn are 5% higher than those of primary markets, reversing a finding from 2009.

There are significant differences in performance across dark pools. Average transaction costs among nine dark pools range from four to fourteen basis points, a slightly larger range than that reported in the 2009 paper. The performance range of displayed MTFs, however, shows a significant decrease relative 2009, at six to ten basis points.

Regulatory jurisdictions around the globe have launched initiatives aimed at dark pool trading on the grounds that proliferation of dark venues harms market quality. Yet, in this European sample, we find that primary exchanges appear increasingly efficient in the face of the growth in dark pool activity. The performance of alternative displayed markets, as measured by transaction costs, also has not suffered as a result. Such evidence is consistent with studies of market quality in the United States.

### One Firm's View of European Markets

This paper is based on order and execution data from ITG Europe, a leading liquidity aggregator.<sup>5</sup> We analyze nine dark pools, four displayed MTFs (henceforth, just MTF), and the registered exchanges over the first ten months of 2010. The data include 438,289 orders and 4.8 million trades. The data set is broken down by venue type, and illustrated in Figure 1.



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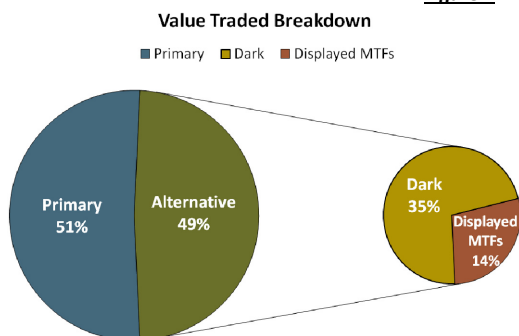
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**Figure 1**



There are differences between the general market statistics and the dataset used for the current study. Most of these differences are due to the over-sampling of dark pool activity, stemming from the liquidity aggregation emphasis of the data source. The split between primary markets and alternative markets (including displayed MTFs and dark pools) is similar to the overall split in volume in the markets for large cap securities. At the end of 2010, over 40% of the volume in FTSE 100 securities was executed on displayed MTFs. Adding dark pool volume to displayed MTF volume results in a breakdown that is very similar to that reported for our dataset.

While the over-sampling of alternative market activity makes this study possible in the first place, it is still useful to compare available market statistics to the sample. The European transaction reporting regime makes it difficult to determine exact statistics regarding dark pool volumes, but Tabb Group estimates that dark pools account for roughly 4% of the volume in Europe in 2010.<sup>6</sup> Aite suggests that dark pools comprise 2% of the FTSE 100 turnover and 3% of the FTSE 250. Aite also estimates that the volume traded in dark pools in Germany and France is lower than in the UK in percentage terms, but predicts that this gap

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<sup>5</sup> The relative novelty of alternative trading venues in Europe still precludes the use of a general transaction cost database for the purpose of obtaining granular trading data by venue.

<sup>6</sup> European Equity Trading 2010: Maneuvering in the Markets, October 2010, Tabb Group

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will close in 2011. Relative to overall volume, the percentage traded in the major MTFs is significantly higher. Over 20% of the turnover in Europe is traded in MTFs. Value traded by the Chi-X MTF in 2010 exceeded that of the London Stock Exchange, according to Thomson Reuters<sup>7</sup>. This fragmentation of liquidity requires market participants to have an in-depth understanding of the market structure, the mechanics of execution mechanisms, and the quality of execution achieved in the different venues. The results below suggest that market participants are meeting that challenge.



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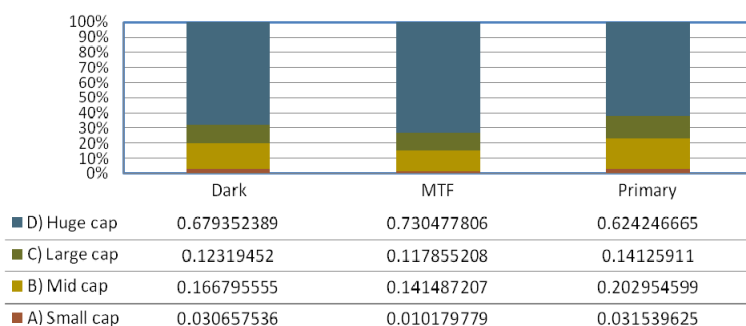
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**Figure 2**

### All Countries Breakdown by Value Traded in Alternative Venues



The distribution of value traded relative to market capitalization is presented in Figure 2. While the distribution across market capitalization categories has not changed among primary markets, it has changed among dark pools. The huge cap category now accounts for a larger percentage of the overall volume traded, relative to 2009. This change can be attributed to the addition of dark pools operated by displayed MTFs, including those that

might be considered exchange-operated, in which most of the trading volume involves large and huge cap securities<sup>8</sup>.

MTFs continue to lag in terms of value traded in small and mid cap securities. Dark pool activity in the small and mid cap securities also decreased relative to 2009 as a percentage of total activity. This again may be a result of the addition of dark pools operated by displayed MTFs. The decrease has a bearing on execution performance results, to which we now turn.

### Relative Performance of Execution Venue Types

Table 1 contains aggregate statistics for regulated markets, MTFs, and dark pools, providing an overview of transaction costs from an implementation shortfall perspective. Here and elsewhere in the paper, negative numbers represent losses relative to the benchmark, while positive values mark gains relative to the benchmark<sup>9</sup>. All cost figures are reported in basis points.

Consistent with the 2009 results, execution sizes are largest for dark pools. However, the average trade size for MTFs fell 20% from 1,154 shares to 959, while the average trade size

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<sup>7</sup> <http://www.thetradenews.com/trading-venues/mtfs-ecns/5555>

<sup>8</sup> 'Huge cap' refers to market capitalization of £10 billion or more, 'large cap' is £5 to £10 billion, 'mid cap' is £1 to £5 billion, and 'small cap' constitutes the remainder.

<sup>9</sup> Unless stated otherwise, the benchmark is the midpoint of the bid-ask spread at the time the order arrives in ITG systems. All costs are calculated based on the time the order is placed with the broker, since this is the most accurate available for calculating comparisons of alternative trading mechanisms, removing any delay on the part of the buy-side desk in transmitting the order.

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for dark pools fell 30% relative to 2009. The transaction costs for primary markets dropped from an average of 12 basis points in 2009 to 9.45 basis points, while the average transaction cost for MTFs remained roughly flat in 2010. The average transaction costs for dark pools rose slightly, to roughly 8.4 basis points.

**Table 1**

Category	Trades	Average Shares Per Trade	Cost
Dark	1,595,601	1,631	-8.39
MTF	905,951	959	-9.44
Primary	2,309,122	1,485	-9.45

The results provide a basic answer to our first question: dark pools add value relative to available execution alternatives, while MTF performance is about the same as that of primary exchanges. The salient difference is between dark and lit markets, as opposed to any advantages or disadvantages of an alternative system relative to a primary exchange.

There are two additional points that deserve special mention. First, the apparent decline in execution efficiency on the part of dark pools relative to 2009 stems largely from new entrants. We illustrate this point in our comparison of dark pools to follow, and trace a cause to the distribution of order flow by market capitalization. More importantly, the results across years address a piece of the regulatory debate. Regulatory jurisdictions around the globe have launched regulatory initiatives aimed at dark pool trading on the grounds that proliferation of dark venues harms market quality. Yet, in this European sample, primary exchanges appear increasingly efficient in the face of the growth in dark pool activity, which also has not harmed efficiency in alternative displayed markets. Such evidence is consistent with more comprehensive statistics relating to market quality in the United States.<sup>10</sup>

Aggregate results mask potential differences in performance across country of listing and market capitalization. The effects of MiFID were felt rapidly by the UK, Germany, and France, in the sense of number of execution venues that operate in these countries. A breakdown for those countries across market capitalization categories is provided in Table 2.

**Table 2**

Small Cap	Dark	MTF	Primary	Mid Cap	Dark	MTF	Primary
France	-6	-31	-19	France	-8	-16	-15
Germany	-4	-24	-28	Germany	-2	-16	-21
UK	-8	-27	-23	UK	-7	-14	-14

Large Cap	Dark	MTF	Primary	Huge Cap	Dark	MTF	Primary
France	-5	-13	-11	France	-10	-10	-9
Germany	-8	-7	-12	Germany	-8	-8	-7
UK	-8	-13	-14	UK	-10	-9	-7

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<sup>10</sup> See S. Buti, B. Rindi, and I.M. Werner, Diving into dark pools, working paper, Fisher College of Business, Ohio State University, 2010.



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There are no real surprises across countries relative to the aggregate results. Dark pools generally outperform displayed venues. There is rough parity between lit markets, regardless of registration status, with the exceptions of France in the small cap category, where the primary market shines, and for large cap stocks in Germany, for which the alternative market appears more efficient.

The breakdown by market capitalization reveals that the aggregate results are biased by the heavy concentration of stocks with market capitalization above 10 billion dollars. Dark pools add significant value in the small, mid, and large cap categories. Dark pools outperform MTFs by twenty basis points on average in the small cap category, by seven basis points in the mid cap category, and by five basis points in the large cap category. The results are similar when dark pools are compared to primary markets.

The results in the huge cap category seem to be reversed, however, as primary markets outperform dark pools in the aggregate. This is not the case across the board, as certain dark pools outperform regulated markets in the huge cap category while other dark pools do not. Underperformance is traceable largely to new dark pool entrants, operated by displayed markets, in which the concentration of trading activity is in the huge cap category. We now turn to an illustration of such performance differences across specific alternative execution venues.

### Trading Performance across Alternative Venues

A breakdown of the different dark pools reveals a similar picture to that reported in 2009. All dark pools are assumed to be equal in structure from the regulatory perspective, but some are clearly more efficient than others. The dark pool that performs best does significantly better than the dark pool with the worst performance, roughly 350% better.

We suggested earlier that the drag in performance on the part of dark pools relative to 2009 appears to come from either new entrants in late 2009 and early 2010, or from pools operated by otherwise displayed markets. The five worst performers fall into one of these categories. The difference in transaction costs between this group and the first four is economically substantial.

Analysis of the distribution of value traded in the best and worst performing dark pools sheds some light on the results. We illustrate this distribution in Figure 4. While 46% of the value

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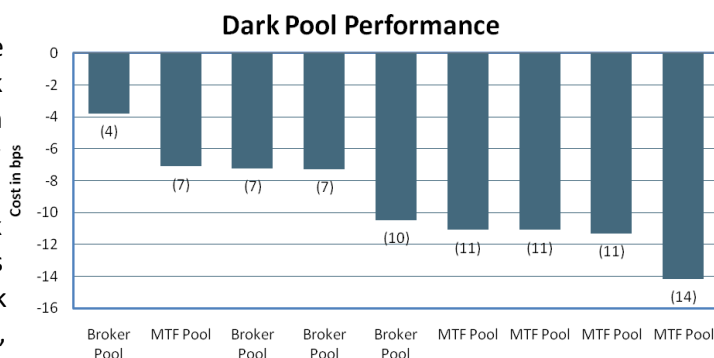
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Figure 3



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traded in the best performing dark pool was executed in shares with market capitalization lower than 10 billion dollars, the worst performing dark pool only executed 29% in the corresponding categories. The best performing dark pool executes almost twice as much in the small and mid cap categories as the worst performing dark pool.

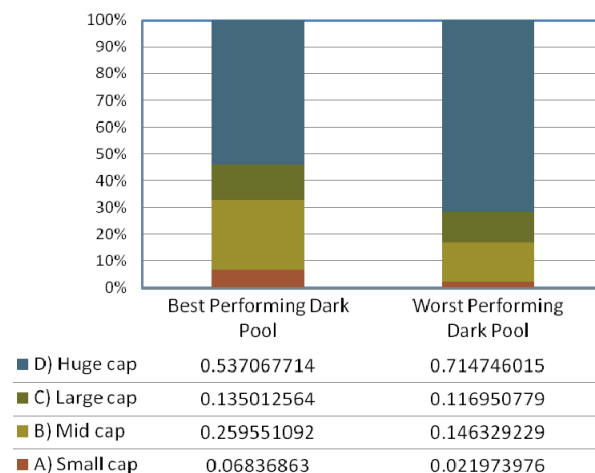
Table 3 shows that the best-performing dark Pools in the huge cap category are either doing better than the primary markets in that category or performing similarly. Five out of the nine dark pools examined in this paper are not performing as well as primary markets in the huge cap category. In all the other categories, small, mid, and large, the dark pools are outperforming their MTF and primary market counterparts.

**Table 3**

Dark Pools	A) Small cap	B) Mid cap	C) Large cap	D) Huge cap
Broker Pool	-5	-4	-4	-3
Broker Pool	-11	-7	-10	-7
Broker Pool	-15	-7	-4	-7
MTF Pool	-7	-5	-8	-8
Broker Pool	0	-10	-12	-11
MTF Pool	-10	-12	-9	-11
MTF Pool	3	-9	-9	-12
MTF Pool	-14	-8	-9	-12
MTF Pool	-21	-10	-9	-16
Top Three Performers				
Bottom Three Performers				

**Figure 4**

### Best and Worst Performing Dark Pools breakdown by value traded and market capitalization

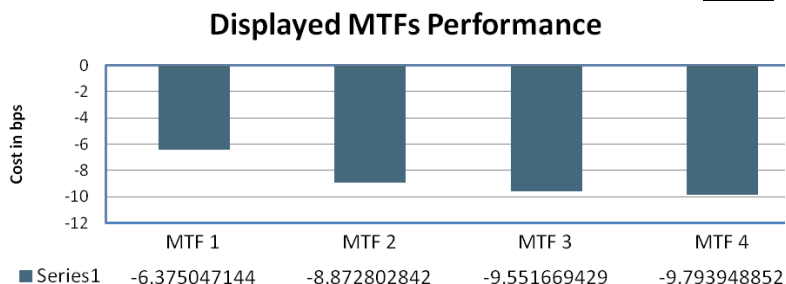


There is a smaller range of performance results between the various MTFs, illustrated in Figure 5. In most MTFs, more than 75% of the traded value is done in the large and huge cap category. In this sense, MTF trading is even more concentrated than on primary exchanges.

Overall, the performance across MTFs is similar from a transaction cost perspective, as are their distributions across different market capitalization groups. These distributions are illustrated in Figure 6, and the breakdown of transaction costs by market capitalization appears in Table 4. The competitive advantage of the MTFs, unlike the

dark pools, is likely due to their aggressive pricing models, as opposed to execution efficiency.

**Figure 5**



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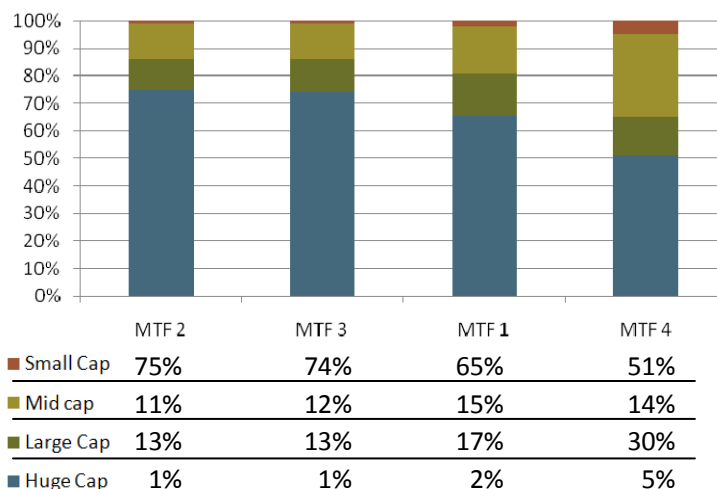
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**Table 4**

Displayed MTFs				
Category3	A) Small cap	B) Mid cap	C) Large cap	D) Huge cap
MTF 2	-26	-13	-10	-8
MTF 4	-26	-11	-12	-7
MTF 3	-29	-14	-13	-8
MTF 1	-32	-9	-10	-4
Top Performer				
Bottom Performer				

**Figure 6**

**Displayed MTFs**  
Breakdown by value traded and market capitalization



## Conclusions

Dark pools continue to add value relative to MTFs and primary markets in 2010, as measured by trading transaction costs. Dark pools provide significant added value for all market capitalization groups, with the exception of the most liquid securities. Breakdowns by country of listing do not change the qualitative nature of the results.

The difference in performance between dark pools and primary markets relative to 2009 has decreased, but remains substantial. One reason for the narrowing of performance across venues is improvement in trading efficiency at the primary exchanges. This suggests that proliferation of dark pool trading has not harmed liquidity provision in the primary markets, measured by the cost of liquidity in the trading process.

MTF performance, on the other hand, has stayed roughly the same as it was in 2009, as the primary markets improved. In 2009, MTFs outperformed exchanges, while in 2010 primary markets achieve rough parity with MTF performance.

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Aggregate results disguise substantial differences across dark pools. This suggests that venue-specific reports may add significant value regarding the strength and weaknesses of a venue. Such venue-specific reports can serve the order execution policy, as defined by Article 21 of MiFID, when routing decisions are made. Similar remarks may be made for displayed MTFs.

Differences in composition of liquidity appear to be a driver of significant differences in results across venues of the same general type. Dark pools are keeping their promise with respect to minimization of market impact, but the effect is strongest in small and mid cap names. We find that specific dark pools outperform the MTFs and regulated markets across all market capitalization categories, however, and add significant value across the board.

The findings here complement a growing number of studies on dark pool performance and the correlation of trading in dark venues with market quality.<sup>11</sup> The available empirical evidence points in two directions: dark pool trading is beneficial with respect to costs incurred by investors in the markets, and there is a positive association between dark pool activity and market quality. Although it is too early to conclude that dark pool trading contributes to better market quality in a causal sense, there is nothing to suggest the opposite. No empirical evidence based on dark pool data supports the idea that dark pool trading has a detrimental effect on the quality of market and executions. Each empirical study, such as this one, is only a piece of the overall puzzle, but evidence is accumulating that deserves the attention of regulators and market participants alike.

*This paper was included in ITG's response to the European Commission's Consultation on the review of the Markets in Financial Instruments Directive (MiFID II). Visit [itg.com/blotter](http://itg.com/blotter) to read our response letter and learn how this research is informing market regulation in the EU.*



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<sup>11</sup> A literature review is available in "Are We Missing the Evidence in the Global Dark Pool Debate?", in *ITG Insights*, Ian Domowitz, December 2010, covering ten studies.