



MiFID II: The Data Conundrum

The core objective of MiFID II is to improve the efficiency and integrity of European capital markets. Covering all types of trading across all manner of financial services anywhere in the European Union, MiFID II's final regulatory impact will reverberate far beyond Europe's borders. From brokers to asset managers to custodians and third-party data providers, the far-reaching requirements will fundamentally re-engineer market infrastructure. All aspects of a trade, from initiation and client facilitation to final settlement, the need to accumulate, assimilate and evaluate data will be multi-dimensional, cross-asset and cross-regional. Buy side or sell side, large or small, confidence in meeting MiFID will hinge on access to reliable and accurate data.

Yet the financial services industry already produces massive amounts of data daily. Firms can spend millions on capturing and storing every aspect of an individual transaction. The granularity of data available potentially allows for a mine of intelligence to be created. In and of itself, data is of little value. The questions are what data to collect and when, where, why, and how to use it. Answers to these questions will provide the edge in both compliance and competitive analysis.

Rethinking how to engage and use data to a firm's advantage will provide firms with the most effective solution to the MiFID II data conundrum.

Anthony J. Perrotta & Rebecca Healey
V14:039
June 2016

Table of Contents

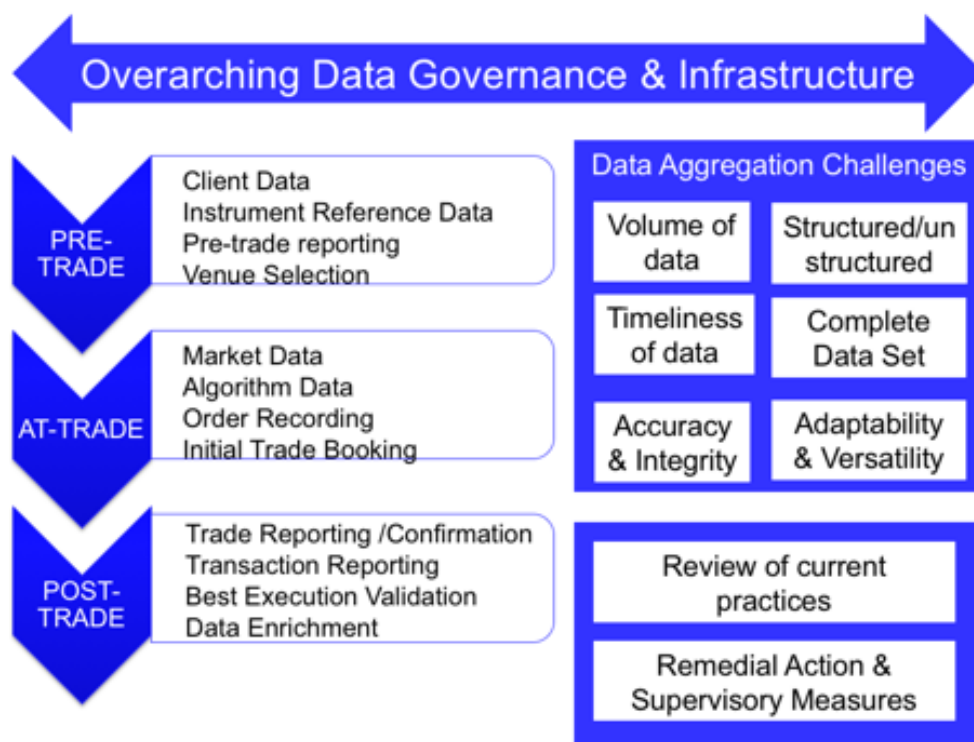
DATA, DATA, DATA	3
TRADE DATA TODAY	5
BEST-EX DATA OBLIGATIONS	7
THEN AND NOW	8
PRE-TRADE	9
THE DISCLOSURE — RTS 27 & 28	9
BEYOND REGULATION	11
INDEPENDENT VERIFICATION	12
FIXED INCOME COMPLEXITY	13
CONCLUSION	16
ABOUT	18
TABB GROUP	18
THE AUTHOR	18

Data, Data, Data

The recent announcement to delay the implementation of MiFID II highlights the extent to which regulators intend to rely on the provision of accurate and reliable data. The European Commission and Parliament’s approval spells out the need to collect data in an efficient and harmonized manner; any absence of which would prohibit the successful implementation of MiFID II. Thus the need to delay for a year while the European Securities Markets Authority completes the implementation of its new data infrastructure¹.

Trading and execution venues, the members who use them and the National Competent Authorities responsible for monitoring them will be required to provide and use data more effectively to deliver a more transparent, robust and efficient market. From operating conditions to organizational and reporting requirements, every investment firm and relevant service provider will be impacted across multiple business lines. To successfully manage the increasing volume and complexity of data across individual firms and industry-wide will require wholesale change to policies and procedures as well as greater harmonization of standards. The challenge now is not only the management of data, but how participants will generate true value from the deluge of data they will now be under.

Exhibit 1:
Impact of MiFID II on Data



Source: TABB Group

¹ 2016/0033 (COD) Proposal for a Directive of the European Parliament and of the Council amending Directive 2014/65/EU

Today's information overload requires that investment firms collect, collate, store, retrieve, analyse and interrogate data constantly in order to derive value from the multiple sources of information available. Although storing trade data is nothing new, the trading environment is now more complex, global and multi-asset. Data no longer means just structured exchange-traded data streams, but incorporating unstructured data streams across multiple trading platforms and architectures to establish historic trends as well as overlaying predictive analysis on current activity.

In addition, the eco-structure of the market is changing. The roles and obligations of participants within it are rapidly evolving; no more so than in the provision of best execution. With the management of liquidity formation shifting from the sell side to the buy side, MiFID II extends responsibility of best execution to the buy side as well as across asset classes, necessitating a new approach to the use of data in the delivery of best execution.

Selecting the right method of execution yet retaining flexibility to respond to market conditions will create the competitive edge. In an environment of declining access to traditional - information flows, the ability to interact seamlessly between automated and voice trading workflows, when and where liquidity is available will be vital. Access to reliable, accurate and timely data will be what ensures successful implementation of best execution policies as the buy side battles market forces resulting from reduced protection from traditional client facilitation (see Exhibit 2).

Exhibit 2:
Impact of MiFID II on Best Execution



Source: TABB Group

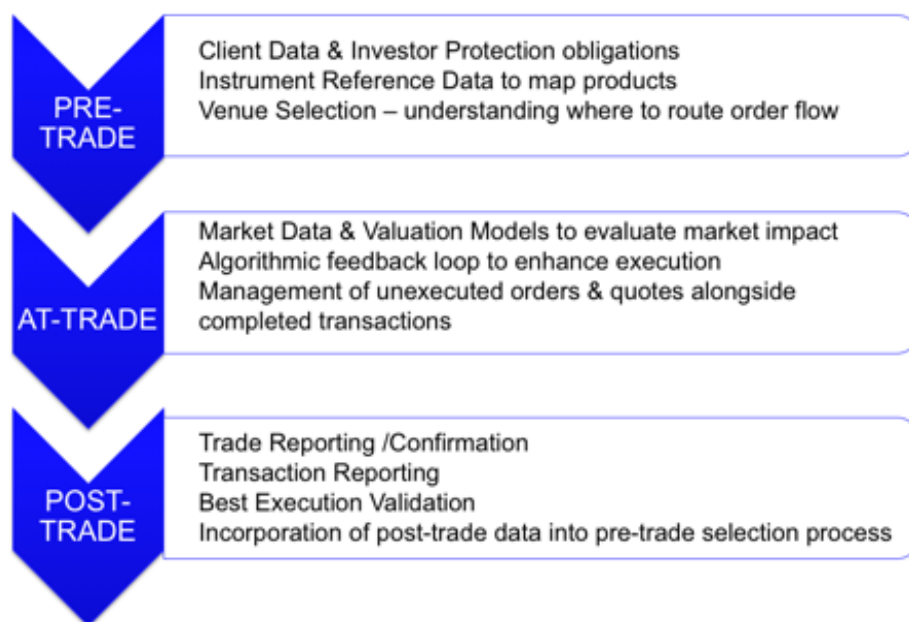
Trade Data Today

As electronic trading strategies seek liquidity across multiple execution venues, each child transaction produces data now considered necessary by some to review and tweak trade execution quality under RTS 27 and 28. Stored historical trade data can assist real-time trading decisions and deepen predictive analysis. Better informed decisions lead to reduced trading costs. But any change to a trading decision or switch to a new algorithm or venue connection will also now require justification, possibly even recertification under new organisational requirements under RTS 6, which could lead to wider ramifications than any single change over execution selection.

Current freedom to use trial and error, to tweak as and when required, is no longer as viable as it once was. Dealing desks must remain empowered to adjust trading instructions and alter algorithm performance to ensure optimum delivery of best execution, or the firm potentially reduces the value it can provide. Yet any review procedures must be managed and controlled within a tight framework, not least of which include obligations under Order Data and Record Keeping (RTS 24) and Trade and Transaction Reporting (RTS 26) to ensure sufficient monitoring and review of execution processes, rather than merely restricting the ability to take decisions. Knowing what to ask of your data to interrogate and analyse execution processes correctly will be critical — pre-, at- and post-trade (see Exhibit 3).

Exhibit 3

Trade Lifecycle Data Workflows



Source: TABB Group

Once a decision to trade has been made, firms must capture additional data related to each individual transaction. While RTS 22 (Order Data and Record Keeping) has a total of 65 fields, not all of them will be filled per transaction. For example, a seller or a buyer is either a legal entity or a natural person so it will not be necessary to have both the LEI of the buyer and the first name, last name, national identification of the buyer.

Other requirements under RTS 28 (Best Execution) will need to be captured at each transaction/order level, such as the percentage of passive/aggressive/directed orders; which will need to be stored for future recall if necessary. The data must then be mapped and attached to every order for reporting purposes. To maintain the data's accuracy and reliability, consistent management and control will also be required. This controlled data can then be fed into various post-trade feeds for allocations, confirmations, affirmations and surveillance or global order and risk monitoring. Post-trade information then has to be made public as close to real time as technically possible. This requirement translates into stricter deadlines under MiFIR where, in exceptional circumstances, the publication should take place within one minute of the transaction, as opposed to three minutes currently. This shorter deadline may prove challenging for the publication of each constituent transaction of portfolio trades when a firm's systems are not fully automated.

All of these requirements emphasize the need to ensure the provision of the right data, in the right place at the right time. The ramifications under Central Securities Depositories Regulation² (CSDR) will also make incorrect reporting and settlement fails very costly at a time when every firm is looking to monitor costs.

Attempting to link different order management systems, silo'ed by asset class, potentially replicated across different regions and business lines, uncovers complex and tangled chains of data —different sources of data storage and complex event processing as well as gaps of partial data. Here the key is not only coping with the sheer magnitude of data but also being able to recognize when data is inaccurate or missing and who is obligated to provide the missing or amended data.

But all of this activity will only add value if the right data is disseminated in a timely manner. There is zero benefit in transparency without accuracy. In order to facilitate improved data analysis, firms will need to implement a comprehensive data strategy that is harmonised across the entire organization establishing what data analysis is a necessary expense versus what is an expendable luxury, and what requires the implementation of automated processes across the lifecycle of a trade. However, the regulatory mandate offers no guarantee of success. While many firms have endeavored to tackle this issue over recent years, few have sufficient technological and budgetary resources to succeed.

² <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0909&from=EN>

Best-Ex Data Obligations

Regulators stress that the primary objective of best execution is the creation of robust policy and process around procedures. Rather than having the industry focus on data collection, regulators want to ensure improved disclosure over dealing policies and the way firms choose to review current practices. Different approaches to procedures are acceptable provided there is adequate evidence to demonstrate why decisions were made.

However, throughout the latest delegated regulation from the European Commission, multiple references to data requirements and the ability to analyze data to review policies are peppered through the text. While data is not contingent on the provision of best execution, it appears essential to verify that best execution has been provided. For example:

*The best execution obligation under Directive 2014/65/EU requires investment firms to take all sufficient steps to obtain the best possible result for their clients. The quality of execution, which includes aspects such as the speed and likelihood of execution such as fill rate and the availability and incidence of price improvement, is an important factor in the delivery of best execution. **Availability, comparability and consolidation of data related to execution quality provided by the various execution venues is crucial in enabling investment firms and investors to identify those execution venues that deliver the highest quality of execution for their clients. In order to obtain best execution result for a client, investment firms should compare and analyse relevant data**³.*

The debate for the buy side has centered around the level of obligation on the depth of “appropriate” information to be provided and analysed. As general consensus is that RTS 27 is deemed not to apply to the buy side, the focus has switched to providing the top five entities for each class of financial instruments of clients orders under RTS 28 and what information (data) should be provided to demonstrate execution quality.

It is important to note that no type of trading is excluded. Best execution obligations apply to all financial instruments, irrespective of whether they are traded on trading venues or over-the-counter. For example, investment firms will now need to gather relevant market data to check whether the OTC price offered for a client is fair and delivers best execution, and this is where the complications start.

Responsibility for execution cannot be outsourced. While regulators permit investment firms transmitting or placing orders with other entities for execution to select a single entity for execution only, that’s only if the firm is able to demonstrate that it has achieved the best possible result for its clients on a consistent basis — and **“where they can reasonably expect that the selected entity will enable them to obtain results for clients that are at least as good as the results that they reasonably could expect from using alternative entities for execution. This reasonable expectation should be supported by relevant data.”**

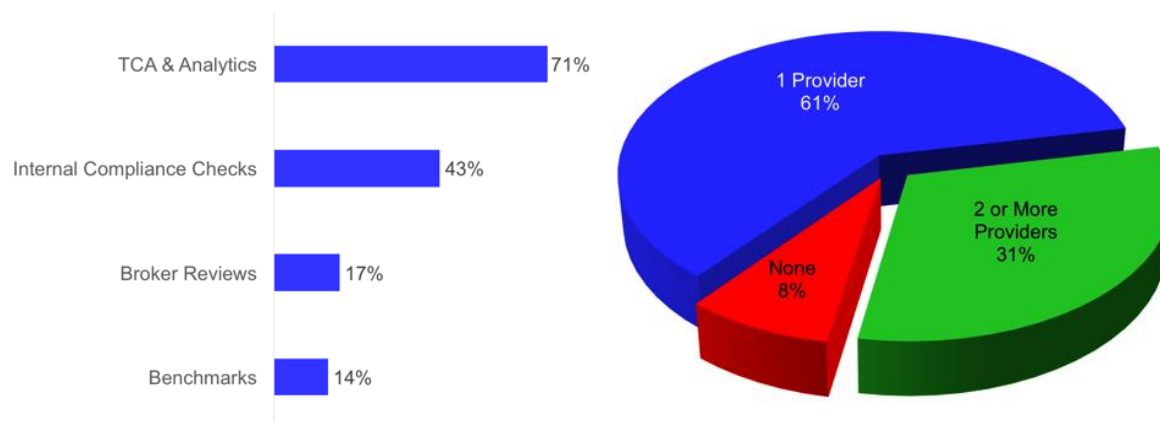
³ Delegated Regulation, April 2016

Then and Now

Historically the provision of best execution data has centered around the use of transaction cost analysis (see Exhibit 4); yet changes are already underway. Where firms may have had one, maybe two TCA providers, increasingly they are considering multiple third-party providers to assess who can best meet their needs going forward, particularly when looking to extend TCA provision across asset classes (see Exhibit 5).

Exhibits 4 and 5

Current Methods of Measuring Best Execution /Number of Trade Analysis Providers Per Firm



Source: TABB Group

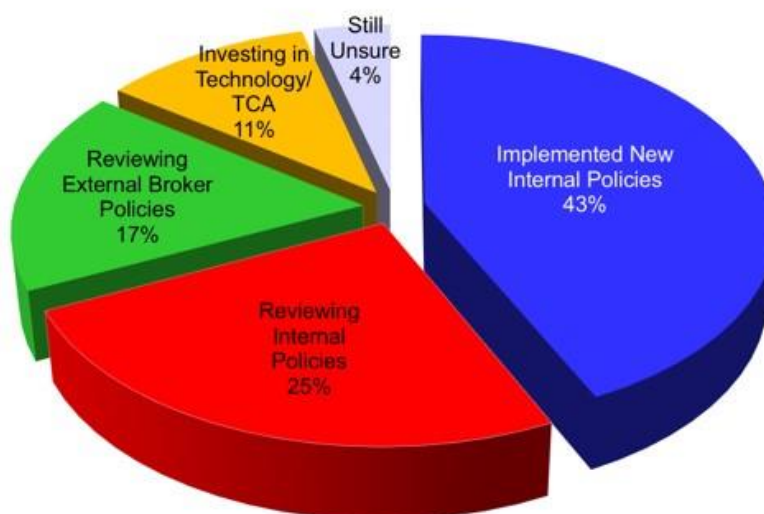
It is important to note the use of TCA is not mandated by regulators under Article 27 of MiFID II. ESMA notes that best execution is broader than “best price,” with additional costs, such as the cost of credit, counterparty risk or urgency to trade (all of which can negatively impact overall execution performance) under consideration.

However while the regulatory requirement for investment firms is to focus on the implementation of overall policy together with procedures necessary to meet that policy to ensure that best execution is achieved for underlying clients. Firms will need to demonstrate the fidelity of their process to make informed choices based on sound rationale as well as indicate how a firm rectifies sub-optimal outcomes.

This requirement creates challenges in creating a policy sufficiently robust to meet regulatory requirements but not so restrictive as to prevent the ability to respond to natural liquidity when it is available. If policies are too prohibitive, dealers can end up boxed into stricter requirements such as needing to obtain a certain number of quotes ahead of placing a trade, which may inadvertently incur market impact through unnecessary information leakage. And it also requires ensuring data is provided to evidence the rationale behind decisions taken.

This extension of best execution policies from obtaining the best price or tracking benchmarks to a more in-depth policy based on procedures to ensure optimal outcomes for end clients is what is calling into question current practices for many firms. Nearly three quarters of the participants are either implementing new policies or reviewing current policies and procedures (see Exhibit 6, next page)

Exhibit 6
Strategy for Meeting Best Execution Obligation under MiFID II



Source: TABB Group

Pre-Trade

The motivation for the trade must be recorded at the time of trade in order to monitor aspects of the execution such as speed and its order of priority. Dealing desks will need to understand each broker's strength to monitor any deviation in TCA. For this to be viable, it has to be sourced from a sufficiently sized statistical dataset. The risk is that the extent to which dealers need to collate information on the underlying broker behaviour may lead to a contraction of the lists. The big question is: without the proper documentation, is it sufficient to alter routing decisions alone? Again, more than one method of execution will require multiple scenarios to be reflected in the execution policy. For example, rather than concentration of broker lists, minimum execution requirements can be put in place for brokers to receive working orders versus those brokers who may receive orders on the back of natural liquidity alone.

The Disclosure — RTS 27 & 28

RTS 27 disclosure applies to venues including systematic internalisers, market makers and 'other liquidity providers' (RFQ). If an investment firm conducts activity such as internal crosses, it would be subject to MTF regulations and RTS 27 would apply — this potentially includes any buy-side firm that internally crosses, but has yet to be confirmed. In addition, as the regulation currently stands, the proposed RTS 27 will include unexecuted orders and quotes, not just executed transactions, which will force the production, dissemination and consumption of a large amount of (unnecessary) data. This will create noise around the true levels of liquidity or trading interest, making it harder for firms to utilize TCA in its current form.

RTS 28 focuses on the receipt of best execution. Users of execution venues are required to publish annual information on the top five venues that they used, assessing the execution

quality obtained for their clients. The information required is outlined in RTS 28, Article 2.4, and includes “an explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when making assessments of the quality of execution.”

In addition, there is no clean break between buy and sell side in terms of responsibilities. In certain circumstances, scenarios emerge in which the sell side could be responsible for both RTS 27 and 28 reports; similarly, where the buy side could also be responsible for RTS 27 (see Exhibit 7).

Exhibit 7
Best Execution Reports – Scenarios for Equities



Source: FTC – Best Execution Bite Size May 2016

In attributing data requirements for analysis of best execution, the ability to distinguish between not only the different types of participant or venue may require a further level of granularity to establish what is subject to the trading obligation, versus what is not. The list of variables is seemingly endless. However, until the requirement can be identified, the individual/venue responsible cannot be identified, nor what is required from the underlying data and by whom.

This shift to intangible implicit costs is not only more complex to calculate but requires multi-faceted analysis. The different in price between when a decision is made and the executed trade may be impacted by size, momentum, spread and volatility – either individually or cumulatively. Hence the industry needs to identify the correct questions before being able to interrogate data effectively to achieve best execution.

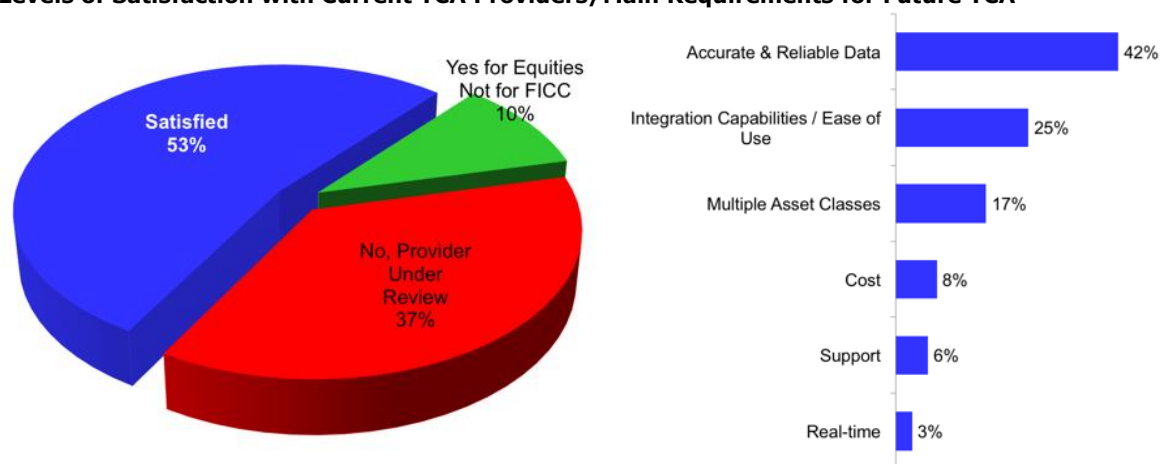
Beyond Regulation

As unbundling takes hold, firms now need to assess and select counterparties on the basis of execution alone rather than using historic bundled offerings. However the fiduciary obligation not to favour one fund or set of clients above another means firms are looking beyond the regulation.

To date European best execution has focussed in the main on vanilla equity offerings. As firms look to efficiently demonstrate best execution in traditionally opaque OTC markets where data is less readily available, the reality is that many participants still do not receive all the data required. When they do receive information, it may be provided in multiple conflicting formats, or even be inaccurate. Even when the all the correct data is provided, not all buy-side firms have the capability to consume the data, let alone conduct sufficient analysis. As a result, dissatisfaction with current TCA offerings is on the rise, (see Exhibit 8). Firms are looking for better access to accurate and reliable data, with improved integration capabilities across multiple asset classes with which to review execution policies (see Exhibit 9).

Exhibits 8 and 9

Levels of Satisfaction with Current TCA Providers/Main Requirements for Future TCA



Source: TABB Group

If best execution has historically meant measuring performance against a single benchmark, firms are now reviewing not only whether the correct benchmark has been chosen, but whether single or multiple benchmarks are required — or even if a benchmark is the appropriate measurement. Delivery of true “best execution” requires full understanding of the trading objective rather than blindly benchmarking trades against the rest of the market. Firms must now ask themselves what information needs to be measured to achieve best execution provision, and how reliable is the data input to create valuable output?

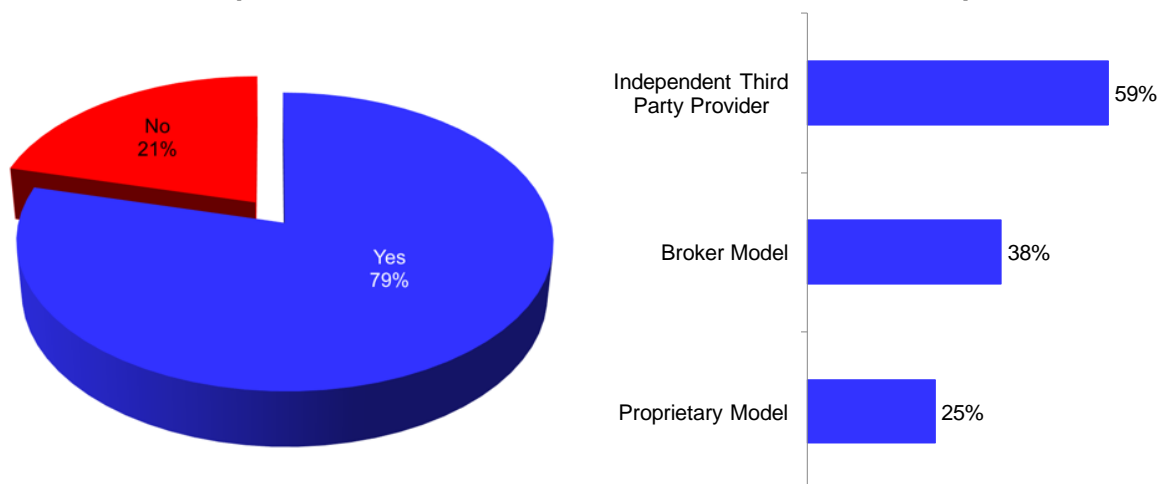
While the majority of firms continue to review daily liquidity statics, more are choosing to interrogate the post-trade information they receive to input this into their pre-trade selection process. By simulating trading outcomes of orders placed by trading strategies

with some kind of short-term inventory or risk model, firms can gain valuable intelligence based on a variety of potential pre-trade measurements.

Daily post-trade back testing enables firms to compare each order execution — including venue costs — against other alternative venues where the execution could have occurred. This data can then be incorporated into the equity review process to further enhance execution decisions and investigate any underperforming areas. As such, nearly 80% of participants are now looking at analytics above and beyond TCA (see Exhibit 10).

Exhibits 10 and 11

Use of Increased Analytics to Review Execution / Preferred Provider of Trade Analytics



Source: TABB Group

Independent Verification

The need to integrate various sources of data faster and more effectively requires ever more complex data architectures and high-speed enterprise data platforms. From increased reporting obligations to better risk management and operational efficiency, every firm needs to access and process increasing amounts of accurate structured and unstructured data. Rather than maintaining their position in the technology arms race, firms increasingly use third-party providers instead of broker or proprietary models (see Exhibit 11).

While new data standards for storing and retrieving data will minimize risk, data discovery tools and solutions can enable IT to control data exposure. Self-service piecemeal options such as data packages without the complexities of data residing in scattered and conflicted entities also minimizes any unnecessary corruption of data.

Fixed Income Complexity

While improvements are being made in the trade analytics for equities; the first challenge to be addressed for fixed income is determining how best execution should be interpreted given the lack of available or reliable data.

Several TCA providers are already attempting to adapt equity offerings to alternative asset classes, but a number of key issues remain:

- Whether Multi-Asset Capability overrides the need for additional synthetic price feeds for fixed income products
- Definition of comparable products for customised swaps
- Changing definitions of liquid instruments impacting the liquidity profile of individual bonds
- Time stamping in a non-exchange environment and keeping this in sync with the exchange environment, especially for non-EU trading venues
- Execution policies require execution venues to issue execution quality reports currently not available for non-equity under MiFID Level 1

For the sell-side ensuring publication of accurate quotes, data must be amalgamated upfront to create the necessary information ahead of the trade. These rules require access to accurate data and the efficient storage and management of that data in the workflow. Connecting disparate sources of quote information will meet regulatory requirements, but also increases the risk of exposure under a pre-trade transparency regime.

Exhibit 12 Fixed Income Challenges in Provision of Best Execution



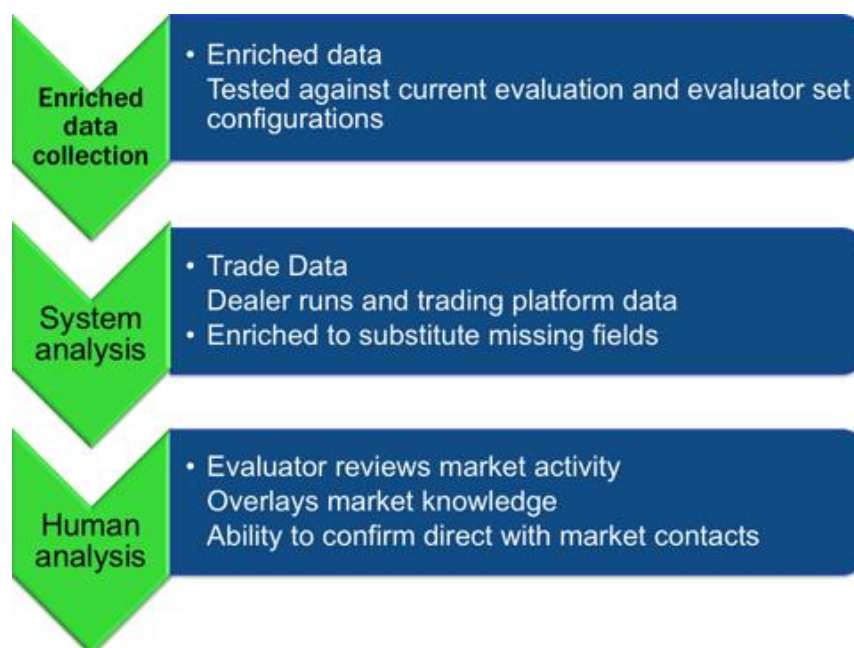
Source: TABB Group

The accumulation of accurate data is the greatest concern for buy and sell side alike. Challenges such as using alternative default instrument identifiers and prices when the reference price of the underlying instrument is not available add additional layers of complexity.

The difficulties of incorporating silo'ed OTC and RFQ systems are also problematic. Incorporating order reception, market data, historical transactions, inventory, order book liquidity and trade execution on the same screen and from comparable data sources will require a rethink of many existing vendor offerings.

Data fluidity between systems will be essential for dealer inventory to be auto-matched to orders, or to search for "like for like" bonds rather than matching ISIN codes. With access to liquidity already constrained, the temptation is to connect to every possible venue, but liquidity cannot be guaranteed to be equal across all venues and nor should it be. Different venues will attract different order flows according to execution and counterparty requirements. As these requirements evolve and liquidity formation shifts over time some venues may fall by the wayside.

Exhibit 13
Triple Analysis



Source: TABB Group

To meet best execution, data will need to be repurposed in multiple formats to build quasi-exchange models. By comparing execution performance against a range of price sources, firm market quotes and trades, peer data and intraday pricing for similar products can be created where an individual reference price may not be available, or which may not trade for weeks or months (see Exhibit 13).

The combination of enriched data capture with improved analysis and human oversight provides powerful real-time predictive analytics that can harness artificial intelligence. As more data is stored, the greater the opportunity for analytics, but only if the data can be safely accessed in its entirety. The more that is outsourced, the more a robust data governance strategy is also required to connect and integrate the relevant data efficiently. At that point investment firms will be free to focus on value creation through efficient analysis with intellectual input.

Harnessing the vast array of data passing through an organisation may be a technological challenge fraught with difficulty but the effort creates a significant competitive advantage. As the challenges over the volume and accuracy of data grow, the more important the value derived from the data will be in meeting the MiFID II data conundrum.

Conclusion

The immediate knee-jerk response towards data requirements for MiFID II has focused on reporting obligations; whether firms should become Approved Publication Arrangements themselves rather than rely on their brokers; ensuring accurate reporting and monitoring for any inconsistencies or inaccuracies. The recent announcement to delay the implementation of MiFID II highlights the extent to which trading and execution venues, the members who use them and the National Competent Authorities responsible for monitoring them will be required to provide and use data more effectively to deliver a more transparent, robust and efficient market.

However, as complicated these data management issues are, they are a mere sideshow in relation to best execution requirements. The challenge now is not only the management of data, but how participants will generate true value from the deluge of data they will now be under.

Today's information overload requires that investment firms collect, collate, store, retrieve, analyse and interrogate data constantly in order to derive value from the multiple sources of information available. Storing trade data is nothing new, but the trading environment is now more complex, global and multi-asset. Data also is no longer just structured exchange-traded data streams, but incorporating unstructured data streams across multiple trading platforms and architectures to establish historic trends as well as overlaying predictive analysis. But big datasets alone are insufficient. Firms need to be smarter with data, which also requires firms to look at data contextually to interpret the vast quantity of data sourced across the industry to validate decisions made.

In an increasingly competitive environment, selecting the right method of execution yet retaining flexibility to respond to market conditions will create the edge. As access to quality information flows declines, the ability to interact seamlessly between automated and voice trading workflows, when and where liquidity is available will be vital. The ability to demonstrate not only to regulators, but also end clients, that they are trading at the right time and in the correct manner to meet not only their regulatory obligations but also to maximise returns and minimise potential losses.

As best execution moves across the asset classes, it becomes increasingly evident just how monitoring price alone will be insufficient in the provision of best execution. The increased shift to managing intangible implicit costs is not only more difficult to calculate but requires multi-faceted analysis. The difference in price between when a decision is made and the executed trade may be impacted by size, momentum, spread and volatility, individually or collectively. Hence the industry needs to identify the correct questions before interrogating data effectively. Once questions around what constitutes an order, an arrival time or what price points should be used can be agreed then analysis can be effective enough to achieve fair comparison.

The core of the successful provision of Best Execution will be to provide a consistent approach backed up by a statistical dataset across the liquidity spectrum and different

methods of execution. The backbone of access to reliable, accurate and timely data will be what ensures successful implementation of best execution policies as the buy side battles market forces as a result of reduced protection from traditional client facilitation. Only then will industry participants be capable of effectively answering the MiFID II Data Conundrum.

About

TABB Group

TABB Group is a financial markets research and strategic advisory firm focused exclusively on capital markets. Founded in 2003 and based on the methodology of first-person knowledge, TABB Group analyzes and quantifies the investing value chain from the fiduciary, investment manager, broker, exchange, and custodian. Our goal is to help senior business leaders gain a truer understanding of financial market issues and trends so they can grow their businesses. The press regularly cites TABB Group members, and members routinely speak at industry conferences and gatherings. For more information about TABB Group, go to www.tabbgroup.com.

The Author

Anthony J. Perrotta, Jr.

A financial markets industry veteran, Anthony Perrotta is a partner at TABB Group, responsible for directing the Global Research Alliance and Consulting practices, which serve institutional investors in the capital markets. The practices focus on the areas of market structure, regulatory affairs, compliance, trading, clearing, technology, and data issues affecting equities, fixed income, listed, and OTC derivatives. Mr. Perrotta presents at a wide range of industry conferences and his thought leadership regularly appears in financial publications such as the *Wall Street Journal*, *Financial Times* et al. Mr. Perrotta joined TABB Group in 2014. His career includes roles as the Head of Credit and OTC Derivatives Trading for both Tradeweb Markets LLC and MarketAxess Corp., in addition to trading and sales management positions with Barclays, Lehman Brothers and Morgan Stanley in the US and Asia. Since 2013, he has been an advisory board member for SenaHill Partners, a merchant bank serving the financial services technology sector.

Rebecca Healey

Rebecca joined TABB Group in March 2011, bringing more than 15 years' experience in e-trading and financial services. Rebecca has held various sales and trading positions with Bankers Trust, Goldman Sachs and, most recently, Credit Suisse, where, as vice president, she was instrumental in launching the successful AES product to hedge funds from its inception in 2002 until 2008. Prior to this, she was the first electronic trader at Credit Suisse to be registered for all electronic European cash equity markets and covered sales trading into Asia and then Europe between 1997 and 2000. More recently, Rebecca was based in the Middle East from 2008 to 2010. There she was employed by the British Embassy in Bahrain, where she successfully launched the UK government's financial services strategy and set up the Bahrain Financial Services Roundtable, which remains a key source of information for the UK government today, especially in relation to Islamic finance. At TABB Group, Rebecca has authored *Dark Matters*; *One Touch, One World: The Future of Investment Banking*; *FX in Transition: Taking The Quantum Leap*; *MiFID II and Fixed-Income Price Transparency: Panacea or Problem?*; *Market Surveillance in Europe: Under Starter's Orders*; *European Equity Trading 2011/12: Looking for Allies in the Face of Adversity*; and *European Algorithms: The Evolution*; and *Trading in the Middle East: the Road to Mecca*.



www.tabbgroup.com

New York

+ 1.646.722.7800

Westborough, MA

+ 1.508.836.2031

London

+ 44 (0) 203 207 9477