



FIA AND FIA EUROPE SPECIAL REPORT SERIES: ALGORITHMIC AND HIGH FREQUENCY TRADING

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This Special Report is the fourth in the FIA and FIA Europe's series covering specific areas of the European Securities and Markets Authority's ("ESMA") consultation process for the implementation of the recast Markets in Financial Instruments Directive (the "MiFID II Directive") and Regulation ("MiFIR"), which together are referred to as "MiFID II". On 19 December 2014, ESMA published Final Technical Advice to the European Commission, together with a Consultation Paper. This Special Report provides an overview of ESMA's final Technical Advice ("TA") to the European Commission and draft Regulatory Technical Standards ("RTS") on the subject of algorithmic and high frequency trading ("HFT").

HFT and algorithmic trading have been the subject of considerable global regulatory attention in recent years and the regulation of this area has been one of the most contentious areas in the MiFID II policy making process so far. MiFID II aims to develop considerably stronger rules concerning HFT and algorithmic trading and aims to ensure that firms conducting these activities are subject to appropriate controls and oversight, as well as being obliged to follow a consistent set of rules regarding governance and software- and risk-management. MiFID II requires that persons who are dealing on their own account and who are using what it refers to as a "high-frequency algorithmic trading technique" must be authorised and subject to regulatory supervision, in common with other investment firms falling within the scope of MiFID II. Once an investment firm is authorised, certain on-going compliance requirements will apply to it where it is engaging in HFT or algorithmic trading. These requirements include an obligation to store in an approved form and make available to the firm's regulator on request, accurate and time-sequenced records of all the orders placed by the firm.

LEGISLATIVE DEFINITION OF ALGORITHMIC TRADING AND HFT

Algorithmic trading and HFT are defined broadly in Articles 4(1)(39) and 4(1)(40) respectively of the MiFID II Directive. Algorithmic trading is defined as:

Trading in financial instruments where a computer algorithm automatically determines individual parameters of orders such as whether to initiate the order, the timing, price or quantity of the order or how to manage the order after its submission, with limited or no human intervention, and does not include any system that is

only used for the purpose of routing orders to one or more trading venues or for the processing of orders involving no determination of any trading parameters or for the confirmation of orders or the post-trade processing of executed transactions.

A "high-frequency algorithmic trading technique" is defined as an algorithmic trading technique that is characterised by:

- (a) infrastructure intended to minimise network and other types of latencies, including at least one of the following facilities for algorithmic order entry: co-location, proximity hosting or high-speed direct electronic access;
- (b) system-determination of order initiation, generation, routing or execution without human intervention for individual trades or orders; and
- (c) high message intraday rates which constitute orders, quotes or cancellations.

INITIAL VIEWS ON HFT DEFINITION

In an earlier consultation paper published in May 2014, ESMA asked for public feedback on ways to arrive at a more precise definition of HFT. ESMA suggested two options for defining HFT: one based on the type of technology infrastructure and an absolute measure of trading activity and the other on a relative measure of trading activity.

Option 1 - Infrastructures to Minimize Latency and Increase Capacity

Under Option 1, a firm would be deemed to be a high frequency trader if there were evidence of the following infrastructures, designed to minimise latency and increase the capacity to transfer data to a trading venue:

1. The server on which the order messages are initiated, generated, routed, executed, amended or cancelled is directly proximate to the trading venue's matching engine; or
2. The use of high bandwidth infrastructure to enable a large volume of data to be transferred to the matching engine.
3. A trading frequency of two messages per second on average, measured on a daily rolling basis, based on the previous 12 month period. On this basis, ESMA considers that an average volume of 75,000 messages or more per trading day should be considered as HFT activity.

Option 2 - Ability to Cancel and Replace Orders

This approach to defining HFT assumes that an important aspect of HFT activity is that orders are cancelled and replaced at a very rapid rate in order to ensure that the trading strategy is in line with market conditions. Accordingly, under this option trading venues would be required to establish the median daily

lifetime of all submitted orders that have been modified or cancelled. Firms with a median daily lifetime that is below the median for the entire market would be classified as HFT firms. ESMA comments that for these purposes, the phrase “daily lifetime of orders” means that orders that have a lifetime longer than one day should not be included in the calculations.

INITIAL FEEDBACK FROM RESPONDENTS

Most respondents to ESMA’s May Consultation Paper preferred Option 1 as they believed that the proposal was more straightforward, similar in fact to the current rule in Germany (which has been proved workable) and because the proposal was based on the activity of investment firms, rather than depending on the activity of other market participants. There were, however, a number of criticisms of Option 1, including arguments that:

1. Option 1 included a qualitative criterion, which respondents believed would be open to arbitrary interpretation;
2. the quantitative thresholds proposed could become obsolete due to technological changes and so would need to be revised frequently;
3. the number of daily transactions could be circumvented relatively easily; and
4. the reference to a high bandwidth should be substituted by a reference to the speed of the connection available, as the key for high-frequency traders is speed rather than capacity.

Option 2 also had its supporters amongst respondents to the May Consultation Paper. The main arguments used by respondents in support of Option 2 included:

1. the focus on relative metrics (“Median Order Duration”), which respondents believed remain applicable as technology evolves;
2. that Option 2 could not be circumvented easily; and
3. that Option 2 could be calculated by the trading venues without input needing to be provided by investment firms.

Criticisms of Option 2 focused on five main areas:

1. the need for a “floor”, without which every trading venue would have HFT participants, leading to a situation where non-algorithmic participants with the lowest median daily lifetime of orders in non-algorithmic trading venues would be considered as HF traders;
2. as the calculation is based on a relative criterion, it would be strongly impacted by the speed and behaviour of other market participants trading on the same trading venue. Respondents believed that this also makes this criterion difficult to implement,

maintain and administer, because its parameters are not easy to predict;

3. firms would be required constantly to assess their HFT status and this could result in a number of participants falling in and out of the HFT definition from time to time, so making the HFT obligations very difficult to implement;
4. it would be relatively easy to increase the median by entering orders that would remain longer in the book; and
5. it could be difficult to implement the option in all trading venues and thus, could require a "harmonised technical implementation".

ESMA PROPOSES THREE OPTIONS FOR DEFINING HFT

Despite the feedback on the May consultation, ESMA did not reach a conclusion on how to define HFT. Instead, the Technical Advice issued in December offers up modified versions of the two options suggested in the May consultation and adds a third option. This leaves it up to the European Commission to decide which option, if any, to use in developing its Delegated Acts.

ESMA summarises the three options as follows:

1. Absolute threshold per instrument: a participant or member would be deemed to have a "high message intraday rate" where the average number of messages sent per trading day related to any single liquid instrument is above two messages per second.
2. Absolute threshold per trading venue and per instrument: a participant or member who submits an average of at least four messages per second with respect to all instruments across a venue, or two messages per second traded with respect to any single instrument traded on a venue, would be deemed to have a "high message intraday rate".
3. Relative threshold: a participant or member would have a "high message intraday rate" where the median daily lifetime of its modified or cancelled orders were to fall under a threshold below the median daily lifetime of all the modified or cancelled orders submitted to a given trading venue. ESMA recommends setting the threshold between the 40th and the 20th percentiles of the daily lifetime of modified or cancelled orders from all members or participants on a trading venue.

Whichever option is eventually adopted by the European Commission, ESMA points out that the definition would still contain another element – having infrastructure intended to minimise network and other types of latencies, including the stated facilities for algorithmic order entry set out in the MiFID II definition (Article 4(1)(40)).

In identifying HFT, ESMA believes that only proprietary order flow should be considered. So, if an investment firm is classified as an HFT firm, this classification may be challenged by the firm if they believe that this is a direct result of their non-proprietary messaging flow. MiFIR contains an obligation (Article 25) to maintain records and to keep these for five years. These records should include data relating to all orders and all transactions in financial instruments carried out by the firm, whether on its own account or on behalf of a client. ESMA suggests that investment firms should analyse these records to determine the level of messaging activity which is attributable to the proprietary activities of the investment firm and the level which is attributable to the clients of the firm. This information should be summarised and provided to the firm's regulator. The relevant regulator in the firm's own Member State would then determine whether the firm had been incorrectly identified as exhibiting a "high intra-day message rate".

ESMA CLARIFIES ALGO DEFINITION

In the December Technical Advice, ESMA provides additional "clarifications" with regard to the definition of algorithmic trading, as follows:

1. "Where a computer algorithm automatically determines individual parameters of orders such as whether to initiate the order, the timing, the price or quantity of the order or how to manage the order after its submission" means that automated trading decisions and the optimisation of order execution processes by automated means are included in the definition of algorithmic trading.
2. "With limited or no human intervention" means that arrangements are considered as algorithmic trading if the system makes independent decisions at any stage of the processes on either initiating, generating, routing or executing orders. ESMA states that the reference to "orders" also includes "quotes".
3. "Does not include any system that is only used for the purpose of routing orders to one or more trading venues or for the processing of orders involving no determination of any trading parameters" excludes automated order routers that only determine the venue(s) where the order should be submitted, without changing any other parameters of the order.

OTHER CONSIDERATIONS

The European Commission's request to ESMA for technical advice refers only to the provision of "technical advice to further specify on the definition of what should be considered algorithmic trading as opposed to high frequency algorithmic trading technique to ensure a uniform application of the authorisation requirement for persons that engage in high frequency algorithmic trading technique taking into account the need to capture all genuine high frequency traders". However, during the consultation period, ESMA received a number of responses to its consultation, which raised a number of other issues, each of which is considered by ESMA. These are the limitation of the scope; timing of calculations; order flow to be considered for identifying HFT; whether a

firm caught by the HFT definition for one instrument in one venue should be considered as such for other instruments or venues; and how market makers should be considered for these purposes.

LIMITATION OF THE SCOPE

ESMA comments that MiFID II does not contain any limitation in terms of the scope for the determination of HFT and its effects. However, whilst ESMA acknowledges that HFT strategies may be implemented in illiquid instruments, it observes that the evidence suggests that there is more HFT activity in very liquid stocks with high market values ("blue chip stocks"). For this reason, ESMA recommends that the identification of HFT should be focused on liquid instruments only, at least initially. ESMA also believes that this would address the concerns of respondents that mentioned the need for a "floor" in order to avoid the situation where in non-algorithmic trading venues the non-algorithmic participants with the lowest median daily lifetime of orders would be considered as HFTs.

THE POSITION OF ORDER FLOW AND THE SITUATION OF MARKET MAKERS WITH RESPECT TO THE IDENTIFICATION OF HFT

Concerns were raised by some respondents that aggregating messaging activity at the level of the trading venue would incorrectly identify firms acting on behalf of a large number of clients as being high frequency traders. Firms which engage in algorithmic trading are required under Article 25 of MiFIR to retain relevant data relating to all orders and all transactions in financial instruments which they have carried out, whether or not that is on their own account, or on behalf of a client. ESMA proposes that if an investment firm is classified as HFT, that firm may challenge the classification by providing data to the relevant competent authority if it believes this is a direct result of its non-proprietary messaging flow. The relevant competent authority would then determine on the basis of the data supplied whether the investment firm should remain within the HFT definition or not.

ESMA is also recommending limiting the identification of HFT to liquid instruments, at least in the short term. As a result, firms engaged in market making obligations in illiquid instruments, who are subject to a Continuous Quoting Obligation by virtue of a binding written agreement, would be excluded from classification as HFTs. However, firms engaging in market making in liquid instruments will be caught by the HFT definition immediately.

In addition, ESMA mentioned the concern of a large number of respondents regarding firms which run "market making strategies", as this is one of the most typical HFT strategies. Article 17(4) of the MiFID II Directive, in defining "market making strategies", states that "an investment firm that engages in algorithmic trading shall be considered to be pursuing a market making strategy when, as a member or participant of one or more trading venues, its strategy, when dealing on own account, involves posting firm, simultaneous two-way quotes of comparable size and at competitive prices relating to one or more financial instruments on a single trading venue or across different trading venues, with the result of providing liquidity on a regular and frequent basis to

the overall market". Firms that engage in "market making strategies" will be obliged to sign a "market making agreement", in accordance with Articles 17(3), 17(4), Article 48(2) and Article 48(3) of the MiFID II Directive.

ESMA believes that market makers should not be excluded from these more formalised requirements as this would limit the scope of the provisions and provides two reasons for that decision. Firstly, ESMA points out that the purpose of MiFID II is to impose additional controls on firms which exploit HFT techniques. Therefore, it addresses market participants which have not previously engaged in the market making or liquidity provision scheme with a trading venue. Secondly, market making strategies are just one of a number of typical strategies exploited by HF traders.

THE SCOPE OF THE DEFINITION

In the May Consultation Paper, ESMA proposed that a firm classified as HFT in one trading venue should be similarly classified in all trading venues across the European Union. The majority of respondents were not in favour of ESMA's solution, although some respondents did welcome the simplicity of the proposed approach, which would decrease the burden of having multiple classifications for the same entity.

ESMA disagrees with the respondents who were not in favour of a firm classified as HFT in one trading venue being similarly classified in all trading venues across the European Union. ESMA points out that either a firm is considered an HFT firm - or it is not. Where a firm meets the definition of HFT, this requirement will apply right across the firm, regardless of the fact that HFT strategies are employed within a part of that firm, or that they are employed only on certain venues to which the firm has access. Thus, the consequences of being classified as HFT would not change, whether such determination is made on a per instrument, per symbol or per contract basis, rather than on a per venue basis.

ESMA further considers that the scope of the qualified record-keeping obligations of firms that engage in HFT techniques would not be affected by whether or not it was classified as being HFT. The records that firms are required to keep should allow the national competent authorities to carry out their supervisory responsibilities under MiFIR, the Market Abuse Directive and the Market Abuse Regulation. This will mean that firms will need to store all necessary information to be able to understand and monitor these firms' trading activity. ESMA points out that the only difference between the record-keeping obligations of a non-algorithmic investment firm and a HFT is the format prescribed for HFTs under Article 17(2) and 17(7)(d) of MiFID II. Accordingly, ESMA believes that the identification of a firm as HFT should not be limited in the scope of instruments, or in relation to the consequences.

MAINTAINING RECORDS OF ORDERS

ESMA discusses the requirement to maintain records of orders for firms engaging in high-frequency algorithmic trading techniques in its Consultation Paper. In addition, it has published draft RTS on the requirement (RTS 35).

Article 17 of the MiFID II Directive provides that investment firms engaging in algorithmic trading are subject to specific and additional requirements in order to ensure that their trading systems are resilient and have sufficient capacity for the purposes of the orderly functioning and integrity of financial markets. Article 17(2) provides that investment firms engaging in high-frequency algorithmic trading techniques have to “store in an approved form accurate and time-sequenced records of all its placed orders, including cancellations of orders, executed orders and quotations on trading venues and shall make them available to the competent authority upon request”.

ESMA is required by Article 17(7)(d) of the MiFID II Directive to draft regulatory technical standards to specify the content and format of the approved form of the records that must be maintained and the length of time for which such records must be kept by the firm.

ESMA is proposing that as a general rule, investment firms engaged in a high-frequency algorithmic trading technique will be required to record time at the level of detail of a microsecond. However, where investment firms are members or participants of trading venues where the gateway-to-gateway latency is measured in less than one microsecond, those investment firms will be required to record time at the same level of detail as the trading venue.

ESMA believes that every investment firm engaging in a high-frequency algorithmic trading technique should at all times maintain records of information relating to each and every placed order, including quotations, so as to enable the competent authority of the firm’s home Member State to fulfil its supervisory duties under MiFID II, the Market Abuse Directive and, the Market Abuse Regulation. The competent authority in the firm’s home Member State should communicate such information to the national competent authority of the trading venue at which the investment firm is a member or participant. ESMA has dropped its proposals that HFT firms should store details of each algorithm parameter and market data messages, as it has decided that this would create a disproportionate burden on HFT firms, relative to the benefit that would be gained.

ESMA proposes that firms engaging in high-frequency algorithmic trading techniques should maintain the records they are required to keep under the MiFID II Directive for five years.

ESMA asks stakeholders to comment on its record-keeping proposals, in particular, the proposed content and format for records of orders; whether there are additional key pieces of information that an investment firm engaging in a high-frequency algorithmic trading technique has to maintain in order to comply with its record-keeping obligations under the MiFID II Directive; and whether stakeholders agree with the proposed record-keeping period of five years.

NEXT STEPS

The final Technical Advice has now gone to the European Commission and will assist the European Commission in drawing up its own implementing rules, known as Delegated Acts. ESMA’s Consultation on the RTS and ITS is currently open and will close on 2 March 2015. ESMA has also announced that it will hold

an open hearing on the consultation on 19 February 2015. Additional information on the open hearing is available [here](#).

UPCOMING SPECIAL REPORTS

In the coming weeks, FIA and FIA Europe will issue additional special reports on the topics addressed in the Consultation Paper:

1. Open Access;
2. Transactions Reporting;
3. Commodity Derivatives (including ancillary activities);
4. Definitions and Exemptions; and
5. Safeguarding of Client Assets.

For more information about these reports contact Will Acworth at FIA (wacworth@fia.org) or Emma Davey at FIA Europe (edavey@fia-europe.org)

Additional MiFID II/MiFIR documents are available [here](#).

Disclaimer: This report was drafted by the London office of [Covington & Burling LLP](#) on behalf of FIA and FIA Europe. The report is part of a series of reports intended to provide factual summaries of MiFID/MiFIR on certain topics of interest to the members of FIA and FIA Europe. The reports are provided for general informational purposes only. They do not constitute legal or regulatory advice and should not be relied upon for this purpose.

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