

Global Market Structure – Europe

Execution Excellence

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MiFID II: What is new for the buy side? Algorithmic Trading and Direct Electronic Access

Topic 4, Update 1

Newly inserted text is underlined.

In our published document on Topic 4, we highlighted to you the problem created by conflicting Level 1 and Level 2 definitions of Direct Electronic Access (DEA) and the uncertainty clouding future practice. ESMA's latest Q&A seek to offer a harmonious interpretation of the two definitions within the spirit of the Level 1 provisions and, for example, to clarify the phrase "exercise discretion regarding the exact fraction of a second of order entry". Also provided are timelines for assessment of High Frequency Trading (HFT) activity and authorisation requirements for HFT firms.

This document replaces previously published document on Topic 4 to reflect legislative developments since its publication.

Algorithmic Trading

What is Algorithmic Trading?

Algorithmic Trading is defined in Article 4(1)(39) of MiFID II as trading in financial instruments where computer algorithms make decisions regarding various parameters of an order such as timing, price, quantity and post trade processing, with no human intervention. Algorithms which only route orders to one or more trading venues (Automated Order Routers or "AOR") are outside the definition of algorithmic trading.

What information about algorithms has to be provided by investment firms?

Investment firms have to provide the following information about involvement of algorithms in trade and transaction reports:

1. *Transaction Reports: Article 26, MiFIR supplemented by Articles 8 and 9, RTS 22*

Transaction reports are sent to regulators daily and are among other things, designed to aid them in identifying market misconduct. For each transaction, the Transaction Report will need to



include:

- Algorithm identifier if an algorithm within the Investment Firm is responsible for the **Investment Decision** (field 57)
- Algorithm identifier if an algorithm within the Investment Firm is responsible for the **Execution** (field 59)
- “ALGO” flag on trades resulting from algorithmic trading (on and off exchange) (Annex 1 Table 2 field 63)

2. Trade Reports: Article 20, MiFIR supplemented by Annex I- Table 4 of RTS 1

Trade reports are real time feeds of trade data which contribute to price formation and transparency. For each trade, the Trade Report will need to include:

- “ALGO” flag for each transaction executed as a result of algorithmic trading (on and off exchange)

What is an “Investment Decision”?

RTS 22, Article 8 defines an investment decision as a decision to “*acquire or dispose of a specific financial instrument*”. For further clarity Recital 5 in RTS 6 describes Investment Decision Algorithm as an algorithm which “*makes automated decisions by determining which financial instrument should be purchased or sold*”.

What is the meaning of “Execution”?

RTS 22, Article 9 describes execution as determining which trading venue to access or “*any conditions related to the execution of an order*”.

Recital 5 of RTS 6 clarifies that “*Order Execution Algorithms optimise order-execution processes by automatic generation and submission of orders or quotes, to one or several trading venues once the investment decision has been taken*”.

High Frequency Trading

High Frequency Trading (HFT) is a focus of regulators’ attention and the extensive regulation surrounding it stands testimony to that fact. To tackle the risks associated with HFT, the drafters of MiFID II have cast a broader net to catch proprietary HFT firms which were not regulated until now.

Essentially, HFT is a type of algorithmic trading which is characterised by the presence of low latency infrastructure, minimal to no human intervention and a high message intraday rate. Given HFT is defined as a subclass of algorithmic trading, it is implicit that HFT will be subject to the same rules as algorithmic trading. Additionally, HFT firms will need to conform to separate order record keeping standards for their submitted orders.

What is High Frequency Trading (HFT)?

HFT is defined as a subset of algorithmic trading in Article 4(1)(40) of MiFID II and is characterised by the presence of all of the following:

- **Infrastructure to minimise latency:** at least one of the following- a) co-location, b)proximity or c) high speed DEA;
- **No human intervention:** Order initiation, generation, routing or execution should take place without any human intervention for individual orders or trades; and
- **High message intraday rate:** A high message intraday rate is defined as either: a) an average of at least 2 messages per second per instrument per trading venue or b) an average of at least 4 messages per second for all instruments on a trading venue. Messages include orders, quotes or cancellations.

What should you consider to determine whether your trading would be considered as having a high message intraday rate?

Messages included in calculating the message intraday rate are those that relate to dealing on own account in liquid instruments.

Messages submitted by DEA clients should be excluded, as they do not relate to dealing on own account.

What are the order record keeping obligations for HFT firms?

HFT firms are required to maintain records for their submitted orders in accordance with Article 28, RTS 6. For all transactions, information such as details of the person or algorithm involved in the Investment Decision and Execution, buy sell indicator, Legal Entity Identifiers (LEI) of relevant firms have to be included.

The full list of details to be recorded can be seen [here](#).

How should firms make assessments about their HFT activity?

ESMA in their latest Q&A clarify a number of aspects about identification of, and authorisation for, HFT activity. Criteria to determine whether algorithmic activity qualifies as HFT are provided in Article 19 of the Delegated Regulation. ESMA advise that firms should self assess at least on a monthly basis whether they need to be authorised as MiFID II investment firms as a result of their HFT activity in the relevant period.

Trading venues will have to release, upon request, an estimate of the message frequency of their members and participants within two weeks of the end of the previous calendar month to assist member firms in their assessments. However, the onus remains on firms to ensure that the estimates provided by the trading venues accurately reflect their actual trading activity.

When do firms have to make their first assessment?

Calculations to assess HFT are to be performed on the basis of data from the preceding 12 months; although trading venues are only obligated to provide this data for trading from January 2018. ESMA clarify that this does not mean that firms should conduct their first assessment after February 2019 (when trading venues will first be able to provide 12 months of historical look-back data) - instead, as of January 3rd 2018, firms engaging in algorithmic trading are responsible for their own self-assessment.

Trading venues may provide message frequency estimates starting January 2018 provided their records allow them to do so. ESMA emphasise that the data provided by trading venues are only estimates which needs to be refined according to the firm's own records of the messages sent.

What are the authorisation requirements for HFT firms?

Where a firm engages in HFT but is not authorised under MiFID II, it must seek authorisation as a MiFID II investment firm immediately. Determination of HFT will have to be based on data of the preceding 12 months. Further, HFT firms are required to notify their HFT activity to their home regulator and the regulator of the trading venue being accessed.

Proprietary trading firms can no longer seek exemption from MiFID II obligations and will need to be authorised if they meet the requirements of HFT (See Article 2(1)(d)(iii), MiFID II).

Can DEA users also qualify as HFT firms?

Yes, if DEA users meet the requirements of the definition of "high frequency algorithmic trading" in Article 4(1)(40) of MiFID II and the thresholds in Article 19 of the Delegated Regulation, they may be classified as HFT firms. In order to perform assessment of HFT activity, DEA users may contact their DEA providers for data relating to their message frequency.

However, the onus is on DEA users to verify that the estimates of the DEA provider only include the user's own proprietary trading activity in liquid instruments taking place on a trading venue.

Self Assessment

What is Self Assessment?

MiFID II requires investment firms engaging in algorithmic trading to perform annual self assessment and validation process to ensure compliance with rules on algorithmic trading. To that effect, firms have to conduct annual reviews to ensure that their algorithmic trading systems and strategies, governance and controls framework, business continuity arrangements and all other necessary arrangements are compliant with the rules and suitable for conducting algorithmic trading.

What criteria are required to be considered by firms while performing self assessment?

Annex 1 of RTS 6 lists down the criteria to conduct self assessment. These include:

- Regulatory status of the firm and its DEA clients, if any
- Firm's role in the market, whether market maker, dealing on behalf of client or dealing on own account
- Types of strategies employed by firm and the risks associated with them
- Latency sensitivity of the firm strategies

A complete list of criteria is reproduced in the appendix.

Direct Electronic Access

What is DEA?

DEA¹ is an arrangement whereby a client (DEA client) is allowed to electronically transmit orders to a trading venue using a venue member's (DEA provider) trading code. There are two types of DEA: Direct Market Access (DMA) - where the DEA user utilises the DEA provider's infrastructure; and Sponsored Access (SA) - where the DEA user does not use the provider's infrastructure.

DEA providers are responsible for the trading of their clients availing DEA service; therefore they are required to establish comprehensive policies and procedures to ensure that DEA user trading is compliant with the trading venue rules and monitored via appropriate pre and post trade controls.

What are the obligations on DEA providers?

Firms intending to provide DEA are required to adhere to strict requirements and undertake additional due diligence procedures including:

- Notifying competent authorities of the DEA provider status and relevant trading venues
- Assessing suitability of clients in terms of their systems and controls, intentions, capabilities, financial resources and trustworthiness
- Ensuring a binding written agreement covers the provision of the DEA service
- Reporting trading infringements to regulators
- Preventing clients from exceeding pre set trading thresholds and subjecting them to proper risk controls
- Carrying out review of the client's risk control systems where necessary

¹ Article 4(1)(41), MiFID II: 'Direct Electronic Access' means an arrangement where a member or participant or client of a trading venue permits a person to use its trading code so the person can electronically transmit orders relating to a financial instrument directly to the trading venue and includes arrangements which involve the use by a person of the infrastructure of the member or participant or client, or any connecting system provided by the member or participant or client, to transmit the orders (direct market access) and arrangements where such an infrastructure is not used by a person (sponsored access).

What is not considered DEA?

The following have been excluded from the definition of DEA:

- Arrangements where client orders are intermediated through members of trading venues where the client does not have the ability to exercise discretion regarding the exact fraction of a second of order entry and the lifetime of orders within that timeframe
- Online brokerage arrangements where clients have direct electronic access to trading venues
- Arrangements where client orders are submitted by venue members through arrangements for optimisation of order execution processes
- Arrangements where orders are submitted through Smart Order Routers (SORs) embedded in member's infrastructure

Why was there confusion about the definition of DEA?

In the [Delegated Regulation](#), the definition of DEA was further refined and this created much confusion within the industry. According to this definition, a person shall not be said to have DEA unless they have '*discretion regarding the exact fraction of a second of order entry and the lifetime of the order within that timeframe*'.

Essentially, this definition conflicts with the definition of DMA in the level 1 text. In DMA, the DEA provider's infrastructure is used to transmit orders to the venue. Before a client order is sent to a trading venue, it has to pass the mandatory pre-trade controls and risk filters instituted by the DEA provider within its infrastructure causing inevitable time lapse. Effectively, this hinders the DMA user's capability to exercise discretion regarding the exact "*fraction of a second of order entry*". Therefore, DMA could be argued to not be DEA at all. In light of this conflict certain German venues had gone as far as stating that they don't support DEA².

Sponsored Access ("SA") does not present any such difficulty as DEA users do not use DEA provider's infrastructure to route orders to the trading venue, but route orders directly to market.

What is the meaning of "exercise discretion regarding the exact fraction of a second"?

In the latest Q&A, ESMA reminded the industry that one of the key benefits of accessing a venue via DEA is the ability of the DEA user to exercise greater control over the timing of order submission.

Use of DEA without passing through appropriate controls/filters of the DEA provider and trading venues is not permitted under MiFID II. ESMA acknowledged that such filters/controls add minimal, yet a finite amount of delay to the order reaching the matching engine of the trading venue and stated that this should not be read to mean that the DEA user is not able to "exercise discretion regarding the exact fraction of a second."

The captioned phrase should be read in a manner such that it references the ability of the DEA user to exercise discretion regarding *sending an order* and not the exact time of an order subsequently reaching the matching engine of the trading venue. ESMA comment that this is a natural interpretation of the phrase, given that current technology cannot provide certainty for the order to reach the matching engine with the said precision.

² Sponsored Access is not permitted in Germany.

Global Market Structure- EMEA

Stephen McGoldrick
stephen.mcgoldrick@db.com
+44(20)754-75552

Gargi Purandare
gargi.purandare@db.com
+44(20)754-70168

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- [Topic 5 MiFID II](#) – Research Unbundling
- [Topic 6 MiFID II](#) – Impact on Non-Equities
- [Overview](#) – An Overview
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Appendix

Table 1- Criteria to be considered in investment firm's self assessment under Article 17(1), MiFID II and Article 9, RTS 6

1. When considering the nature of its business, an investment firm shall consider the following, where applicable:
 - a. the regulatory status of the firm and, where applicable, of its DEA clients, including the regulatory requirements to which it is subject as an investment firm under Directive 2014/65/EU, and other relevant regulatory requirements;
 - b. the firm's roles in the market, including whether it is a market maker and whether it executes orders for clients or rather only trades on its own account;
 - c. the level of automation of trading and of other processes or activities of the firm;
 - d. the types and regulatory status of the instruments, products and asset classes that the firm trades in;
 - e. the types of strategies the firm employs and the risks contained in these strategies for the firm's own risk management and for the fair and orderly functioning of the markets; the firm shall consider in particular the nature of these strategies, such as market making or arbitrage, and whether those strategies are long-term, short-term, directional, or non-directional;
 - f. the latency sensitivity of the firm's strategies and trading activities;
 - g. the type and regulatory status of trading venues and other liquidity pools accessed and in particular whether the trading activity on those trading venues and other liquidity pools are lit, dark or over-the-counter trading;
 - h. the connectivity solutions of the firm and whether it accesses trading venues as a member, as a DEA client or as a DEA provider;
 - i. the extent to which the firm relies on third parties for the development and maintenance of its algorithms or trading systems and whether these algorithms or trading systems are self-developed, co-developed with a third party, or purchased from, or outsourced to, a third party;
 - j. the firm's ownership and governance structure, how it is structured organisationally and operationally, and whether it is a partnership, subsidiary, publicly traded company, or otherwise;
 - k. the firm's risk management, compliance, audit structure and organisation;
 - l. the date of establishment of the firm and level of experience and competency of its personnel and whether it is recently established.

2. When considering the scale of its business, an investment firm shall consider the following, where applicable:
 - a. the number of algorithms and strategies running in parallel;
 - b. the number of individual instruments, products, and asset classes traded;
 - c. the number of trading desks operated and individual trading identifiers of the natural persons and algorithms responsible for order execution used;
 - d. the messaging volume capacities and in particular the number of orders submitted, adjusted, cancelled and executed;
 - e. the monetary value of its gross and net positions intraday and overnight;
 - f. the number of markets accessed either as a member or participant or via DEA;

- g. the number and size of the firm's clients and notably the firm's DEA clients;
- h. the number of co-location or proximity hosting sites to which the firm has connectivity;
- i. the throughput size of connectivity infrastructure of the firm;
- j. the number of clearing members or CCP memberships of the firm;
- k. the firm's size in terms of number of traders and front-office, middle-office and back-office staff employed as full-time equivalent;
- l. the number of the firm's physical locations;
- m. the number of countries and regions in which the firm is undertaking trading activities;
- n. the firm's annual earnings and profits.

3. When considering the complexity of its business, an investment firm shall consider the following, where applicable:

- a. the nature of the strategies carried out by the firm or by its clients, to the extent that these strategies are known by the firm and, in particular, whether these strategies imply algorithms initiating orders related to correlated instruments or on several trading venues or liquidity pools;
- b. the firm's algorithms, in terms of coding, inputs upon which the algorithms are reliant, interdependencies, and the rule exceptions contained in the algorithms, or otherwise;
- c. the firm's trading systems in terms of diversity of trading systems employed, and the extent to which the firm has control over setting, adjusting, testing, and reviewing its trading systems;
- d. the structure of the firm in terms of ownership and governance and its organisational, operational, technical, physical, or geographical set up;
- e. the diversity of the firm's connectivity, technology or clearing solutions;
- f. the diversity of the firm's physical trading infrastructures;
- g. the level of outsourcing undertaken or offered by the firm and in particular where key functions are being outsourced;
- h. the firm's provision or usage of DEA, whether it is DMA or sponsored access, and the conditions under which DEA is offered to clients; and,
- i. the speed of trading by the firm or its clients.

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