MiFID II
Algorithmic and high-frequency trading for investment firms

2016

Key Points

- MiFID II introduces closer regulation of algorithmic and high-frequency trading

- Algorithmic traders engaging in market making activity will be subject to specific requirements under MiFID II

- Firms providing direct electronic access must have effective systems and controls

- Firms that are involved in algorithmic trading must issue a notification to their national regulators

- General clearing members will be subject to systems and controls requirements, and will be required to have in place a written agreement with trading venues

This note contains matters relating to the impact of MiFID II on investment firms that engage in algorithmic and high-frequency trading. For the impact of MiFID II on trading venues that permit algorithmic and high-frequency trading on their systems, please see our separate briefing note on the Market Infrastructure and Trading Venues.

Definitions and scope

MiFID II introduces the concept of algorithmic trading and, as a subset of that, high frequency algorithmic trading ("**HFT**"). MiFID II seeks to ensure that all HFT trading firms are authorised as investment firms.

Algorithmic trading is defined in the MiFID II Directive 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)."[1]

HFT is also defined in the Directive. According to the Directive, a "high-frequency algorithmic trading technique" is a form of algorithmic trading where a trading system analysis data from the market at high speed and then sends or updates large numbers of orders within a short time frame as a result of that analysis. Under the MiFID II definition it is characterised by:

- 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;

- system-determination of order initiation, generation, routing or execution without human intervention for individual trades or orders; and

- high message intraday rates which constitute orders, quotes or cancellations.[2]

Under MiFID I, persons engaging in algorithmic trading on their own account could take advantage of exemptions for persons dealing on own account.[3] However, MiFID II will remove the availability of this exemption where a person engages in HFT techniques. The consequence of this is that, unless another exemption applies, the HFT trader will need to become authorised.[4]

ESMA was invited to provide technical advice on the distinction between algorithmic trading and HFT, and to ensure a uniform application of the authorisation requirements. ESMA's Technical Advice of December 2014 makes the following clarifications to the scope of algorithmic trading:

- automated trading decisions and the optimisation of order execution processes by automated means are included in the definition;

- it will be considered algorithmic trading if the system makes independent decisions at any stage of the processes on either initiating, generating, routing or executing orders (including quotes);

- the definition excludes automated order routers that only determine the venue(s) where the order should be submitted without changing any other parameters of the order.[5]

For the purposes of distinguishing HFT, ESMA's Technical Advice recommends one of three measures for the identification of high message intra-day rates should be applied to proprietary orders in liquid instruments:

- *Absolute threshold per instrument*: the average (within a rolling 12 months) number of messages sent per trading day to any single liquid instrument traded on a venue is above 2 messages per second;

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[1] Article 4(1)(39), MiFID II Directive.

[2] Article 4(1)(40), MiFID II Directive.

[3] Article 2(1)(d), MiFID I Directive.

[4] Article 2(1)(d)(iii), MiFID II Directive.

[5] ESMA, Final Report: Technical Advice to the Commission on MiFID II and MiFIR, 19 December 2014 (ESMA/2014/1569) (the "**Technical Advice**"), chapter 5.1, p. 338.

- *Absolute threshold per trading venue and per instrument*: submission of at least 4 messages per second with respect to all instruments across a venue or 2 messages per second traded with respect to any single instrument traded on a venue;

- *Relative threshold*: the median daily lifetime of its modified or cancelled orders falls under a threshold below the median daily lifetime of all the modified or cancelled orders submitted to a given trading venue, on an annual basis.[6]

Although this represents a change to ESMA's original proposal, respondents generally considered these numbers to be low volume.

Systems and controls requirements

Under MiFID II, firms engaging in algorithmic trading must have in place effective and resilient systems, as well as appropriate risk controls. Firms must ensure these systems are tested, and that they have in place business continuity arrangements. There must be appropriate order limits to prevent erroneous orders and orders that could create a disorderly market from being entered.[7]

Under MiFID II, firms must also have controls in place which automatically cancel any orders that the relevant trader is not permitted to make or that exceed the firm's risk thresholds. Firms must also monitor their systems and have in place procedures to identify those algorithms that could cause a disorderly market. As part of this, the firm must have the capacity to cancel all outstanding orders at all trading venues (the "kill switch").

In September 2015, ESMA published its final regulatory technical standards ("**RTS**") in respect of these requirements.[8] The RTS sets out detailed requirements in relation to, for example:

- Pre-trade controls (i.e. controls that should operate before an instruction is submitted to a trading venue), such as automatic execution throttles that prevent trading being undertaken

in line with a particular investment strategy more than a certain number of times.

- Monitoring of trading activity with real-time alerts identifying signs of disorderly trading or breaches of pre-trade limits.

- Testing of trading systems and algorithms, including, for example, testing of the ability of the algorithm or strategy to work effectively in stressed market conditions ("stress testing").

- Segregation of trading, middle office and back office staff.

- Minimum requirements for business continuity arrangements.[9]

ESMA has made a number of changes and clarifications to these requirements in its recent RTS release compared with its earlier Consultation Paper in December 2014.[10] For example, ESMA has:

- allowed for a firm's compliance function to operate the "kill switch" itself;

- replaced specific training requirements on algorithmic training with a more general focus on knowledge and competence;

- maintained its previous proposal for the segregation of trading functions, middle office and back office, but clarified that this is in relation to a firm's governance of its algorithmic trading systems;

- clarified that a number of these requirements (such as some of the testing requirements) do not apply to pure investment decision algorithms which do not make order execution decisions;

- clarified that the requirement to segregate testing and production environments does not require duplicate physical systems or infrastructures;

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[6] ESMA, Technical Advice, chapter 5.1, p. 338.

[7] Article 17(1), MiFID II Directive.

[8] In accordance with Article 17(7), MiFID II Directive.

[9] RTS 6 in ESMA, Regulatory technical and implementing standards: Annex I, MiFID II/MiFIR, 28 September 2015. See also ESMA, Final Report, Draft regulatory technical and implementing standards on MiFID II/MiFIR (the "**Final Report**"), 28 September 2015.

[10] ESMA, Consultation Paper, Regulatory technical standards on MiFID II/MiFIR, 19 December 2014.

- made amendments to the stress testing obligations that firms have, including limiting the number of mandatory test scenarios to two;

- made changes to the pre-trade control framework, including reducing the number of mandatory pre-trade controls prescribed; and

- made changes to the business continuity requirements to add flexibility. For example, the prescribed list of disruptive scenarios initially provided has been replaced by a general requirement to have appropriate business continuity arrangements in place. ESMA has also clarified that it no longer requires all firms to resume trading after an event —there may be scope for firms to wind down their operations instead.

Market making strategy

MiFID II imposes obligations on algorithmic traders when they pursue a market making strategy. A person engaged in algorithmic trading will be considered to pursue a market making strategy when its strategy (when dealing on its own account) involves the firm, simultaneous posting of two-way quotes of comparable size and at competitive prices relating to one or more financial instruments on a regular and frequent basis.[11]

A person pursuing such a strategy must:

(a) except under exceptional circumstances, carry out this market making continuously during a specified proportion of the trading venue's trading hours;

(b) enter into a binding written agreement with the trading venue specifying its market making obligations; and

(c) have in place systems and controls to ensure its compliance with the agreement in (b).[12]

Further requirements have been set out in RTS 8 of ESMA's September 2015 RTS release[13] in relation to when an investment firm will be deemed to pursue a market making strategy, minimum obligations to be

specified in the agreement, and detail on the "exceptional circumstances" in (a). ESMA made a number of changes to its approach compared with its December 2014 Consultation Paper. In particular, ESMA changed its view on when an investment firm will be considered to be pursuing a market making strategy, which triggers the requirement to sign a market making agreement.

Direct electronic access

MiFID II seeks to ban the provision of direct electronic access to markets by investment firms for their clients where such access is not subject to proper systems and controls.[14]

Under 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)."[15]

Under such arrangements, clients are permitted to enter orders on an intermediary's internal electronic system, which then automatically places an order on a trading platform using the intermediary's ID or the intermediary allows clients to transmit orders electronically and directly to the trading platform using the intermediary's ID without being routed through the intermediary's internal electronic systems.

The own account dealing exemption is removed for persons who have direct electronic access.[16]

ESMA was invited to provide technical advice to clarify the definition so as to capture all types of arrangements that might be covered by this definition. The ESMA Technical Advice makes the following clarifications for the purposes of direct electronic access:

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[11] Article 17(4), MiFID II Directive.

[12] Article 17(3), MiFID II Directive.

[13] ESMA, Regulatory technical and implementing standards: Annex I, MiFID II/MiFIR, 28 September 2015. See also ESMA, Final Report, 28 September 2015.

[14] Article 17(5), MiFID II Directive.

[15] Article 4(1)(41), MiFID II Directive.

[16] Article 2(1)(d)(iii), MiFID II Directive.

- the key characteristic of direct electronic access is the ability to exercise discretion regarding the exact fraction of a second of order entry and the lifetime of the orders within that timeframe;

- where a client order is effectively intermediated by the member or participant of the trading venue or a system that simply allows clients to transmit orders to an investment firm in an electronic form, this would be outside the scope of direct electronic access (provided the client does not have discretion as to the exact timing of the book entry or an ability to react to market data);

- Smart Order Routing ("**SOR**") is a type of algorithm concerned with the execution of an order, and not where the order should be executed. The algorithm will split a large order into smaller orders. SORs come within the definition of "algorithm trading". If client orders are routed via a SOR that is embedded in the market member/participant's routing system and not in the client's order generating system then this will be outside the scope of direct electronic access as the client does not have the requisite control over the time of submission of the order and its lifetime;

- Automated Order Routing or ("**AOR**") is a system used by an intermediary to allow a client to place an order on the market under the client's ID. The use of the ID allows the intermediary to monitor and stop any trades if necessary. AOR does not necessarily fall in or out of the definition of direct electronic access however, if the client does not have discretion as to how the order is executed, it will not come within the definition of direct electronic access.[17]

The new MiFID II system and controls requirements for providers of direct electronic access are as follows:

- a proper assessment of the suitability of all users;

- pre-set trading and credit thresholds;

- pre-trade controls in place to allow the automatic cancellation of a trade, where there

is a risk that a trade could contribute to a disorderly market; and

- monitoring of client's trading activity on a real time basis to allow the trading venue to adapt such pre-trade controls where necessary.[18]

The September 2015 RTS release includes requirements in respect of systems and controls and particularly, due diligence of direct electronic access clients, on-going review of direct electronic access clients, and pre- and post-trade controls.[19] A person providing sponsored access must have equivalent controls in relation to sponsored access users.

ESMA recommends that unique identification numbers are assigned to all users of direct electronic access,[20] to allow a firm to identify a user, and subsequently suspend or terminate the user's direct electronic access where there is a risk of disorderly trading. This should then be reported to the relevant national competent authority ("**NCA**").

Member state notification

A firm engaging in algorithmic trading must notify its NCA. It must keep records of all key compliance and risk controls it has in place, along with its algorithmic trading strategies and any relevant limits. It must provide such information and records to its NCA on request.[21]

A person providing direct electronic access must notify its NCA, and where applicable notify its trading venue. It must keep records all key compliance and risk controls it has in place and provide such information and records to its NCA on request.[22]

General clearing members

A firm that acts as a general clearing member must:

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[17] ESMA, Technical Advice, chapter 5.2, pp. 343-4.

[18] Article 17(5), MiFID II Directive; and RTS 13 in ESMA, Consultation Paper, 19 December 2014.

[19] RTS 6 in ESMA, Regulatory technical and implementing standards: Annex I, MiFID II/MiFIR, 28 September 2015.

[20] RTS 6 in ESMA, Regulatory technical and implementing standards: Annex I, MiFID II/MiFIR, 28 September 2015.

[21] Article 17(2), MiFID II Directive.

[22] Article 17(5), MiFID II Directive.

- enter into a written agreement with the trading venue which specifies its market making obligations; and

- have in place systems and controls to ensure its services are only applied to suitable persons.[23]

The September 2015 RTS release includes requirements for firms acting as general clearing members in respect of systems and controls, determination of suitable persons, position limits, and client disclosures.[24]

Timescales for implementation

The MiFID II Directive and MiFIR came into force on 3 July 2014. Most of their provisions are currently stated to come into effect in member states from 3 January 2017, with Member states having until July 2016 to transpose the MiFID II Directive into national law.

However, following discussions between ESMA and the European institutions, it is now expected that the implementation of MiFID II will be delayed until January 2018.

ESMA submitted draft technical standards to the Commission on 28 September 2015. In principle, the Commission has had three months to consider whether to endorse the technical standards (i.e. by 28 December 2015). However, in the context of ongoing uncertainty regarding the legislative timetable, the Commission has not met this deadline.

The European Commission is also drafting delegated acts on the basis of the Technical Advice received from ESMA in December 2014.

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[23] Article 17(6), MiFID II Directive.

[24] RTS 6 in ESMA, Regulatory technical and implementing standards: Annex I, MiFID II/MiFIR, 28 September 2015.

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