Hessisches Ministerium
für Wirtschaft, Energie, Verkehr und Landesentwicklung

HESSEN

Guidelines

to the adherence to the requirement of the labelling of trading algorithms

§ 16 sub-para. 2 no. 3 Exchange Act (*Börsengesetz*), § 33 sub-para. 1a Securities Trading Act (*Wertpapierhandelsgesetz*), § 72a Exchange Rules for the Frankfurter Wertpapierboerse (*Börsenordnung für die Frankfurter Wertpapierbörse)*, § 17a Exchange Rules for Eurex Deutschland and Eurex Zurich (*Börsenordnung für die Eurex Deutschland und die Eurex Zürich*)

As of September 22, 2014

§ 16 sub-para. 2 of the Exchange Act was supplemented due to the Act on the prevention of risks and abuses relating to high frequency trading - High Frequency Trading Act (*Hochfrequenzhandelsgesetz*) with effect from 7 May 2013. According to this law, the Exchange Rules are now required to incorporate regulations relating to the labelling of orders generated by algorithmic trading including the respective trading algorithms in use by the trading participants. § 33 sub-para. 1a of the Securities Trading Act includes a legal definition of the term 'algorithmic trading'.

The provision regulating the 'identification of algorithmically generated orders and of trading algorithms' is incorporated in § 72a of the Exchange Rules of the Frankfurt Stock Exchange as well as in § 17a of the Exchange Rules of Eurex Deutschland and Eurex Zurich. The requirements resulting from these regulations for trading participants will apply with effect from 1 April 2014.

This announcement contains information of the Exchange Supervisory Authority of the State of Hesse (*Hessische Börsenaufsichtsbehörde*) on the legal interpretation of the named statutory provisions and regulations in the Exchange Rules. The bodies of the exchanges, in particular the Trading Surveillance Offices (*Handelsüberwachungsstellen*), will also apply the regulations corresponding to these interpretations.

1. Trading algorithm

A trading algorithm is an EDP-operated algorithm containing a well-defined, executable sequence of instructions with a finite length to perform trading, i.e. containing the definition of the order parameters as well as the entry, change and deletion of orders while a continued human interference is not required for this purpose.

As trading algorithm has to be identified the entire sequence of calculation steps (decision path), which effects that an order or its change or deletion at a respective point in time and in its respective form is entered into the trading system of the

exchange. Thus, the identification obligation is referred to a sequence of instructions and not to its individual elements, even if the latter could separately be considered as independent algorithms.

Components of one specified trading algorithm within the meaning of the Exchange Rules are all instructions defining, changing, or deleting one or several of the following parameters of an order (please refer in particular to section 5, example a.):

1. Financial instrument
2. Buy or sell
3. Quantity
4. Order type
5. Price (limit)
6. Trading venue
7. Point in time of the transmission to the trading venue

Accordingly, a trading algorithm is defined as a specified sequence of instructions determining the aforementioned order parameters and is to be distinguished from any other sequence of instructions in view of the required labelling.

According to this definition, e.g. smart-order-routing-systems (SORs), quote machines of market makers and specialists (if they generate binding quotes), or electronic eyes are considered as trading algorithms.

2. Labelling obligation

§ 72a of the Exchange Rules for the Frankfurter Wertpapierboerse and § 17a of the Exchange Rules for Eurex Deutschland and Eurex Zurich require to label these trading algorithms as such.

Each trading algorithm (the definition is stated in section 1) in use requires an individual labelling.

A trading algorithm is changed in case one or various underlying sequences of instructions are changed in a way that the new version shows a different procedure vis-à-vis the previous version.

Trading algorithms may be consisting of a great number of (sub-)algorithms that are consecutively activated in order to implement a particular trading strategy. Each possible sequence of instructions that may be processed by these (sub-)algorithms (decision path, as set out in section 1) is required to be identified and to be labelled individually (please refer to the examples in section 7).

Orders of a trading participant which have not been generated by a trading algorithm are prohibited to be labelled because orders generated by this trading participant by means of trading algorithms could not be clearly identified as such.

3. Orders

Orders that are entirely or partially generated algorithmically are subject to the labelling obligation only. An order is a binding order, which is executable against other orders in line with the conditions of the respective trading model. They must be differentiated from merely indicative, hence non-tradable orders or quotes, e.g. the indicative quotes of a specialist in the specialist model in the continuous auction on the Frankfurter Wertpapierbörse (§ 65 sub-section 2 of the Exchange Rules of the Frankfurter Wertpapierbörse). This does not refer to orders within the meaning of the Exchange Act; indicative quotes, even if generated algorithmically, are required to be labelled. This also applies to quotes that are entered into the trading system for the purpose to determine an assessment price without turnover (e.g. § 101 sub-section 2 or § 107 sub-section 1 Exchange Rules of the Frankfurter Wertpapierbörse).

4. Systems designed for the routing of orders to one or several trading venues only

Systems which are designed for ‘the routing of orders to one or several trading venues or for their confirmation only’ are not considered as algorithmic trading according to § 33 sub-para. 1a sentence 1 of the Securities Trading Act. This includes only those systems and their underlying algorithms which do not independently decide on the trading venue or on criteria such as the volume, limit or point in time. ‘Plain vanilla order routing systems’ which are routing orders to a trading venue only on account of the client’s decision and due to his stipulated criteria - potentially subsequent to a preliminary plausibility assessment or a verification of sufficient account coverage - are exempted from the definition of algorithmic trading.

5. Examples re. sections 1 - 4

a. The below graph 1 portrays the impact of the sequence of the determination of the order parameters on the labelling of trading algorithms (please refer to the above stated section 1).

   In case i. all seven parameters are automatically determined. In this process, the sequence of instructions for all seven parameters has to be labelled as the trading algorithm in use.

   In case ii. the first parameter is determined manually (e.g. the ISIN or the trading venue), any other parameters are determined automatically. In this case, the instruction sequence of the remaining six order parameters is required to be labelled as the trading algorithm in use.

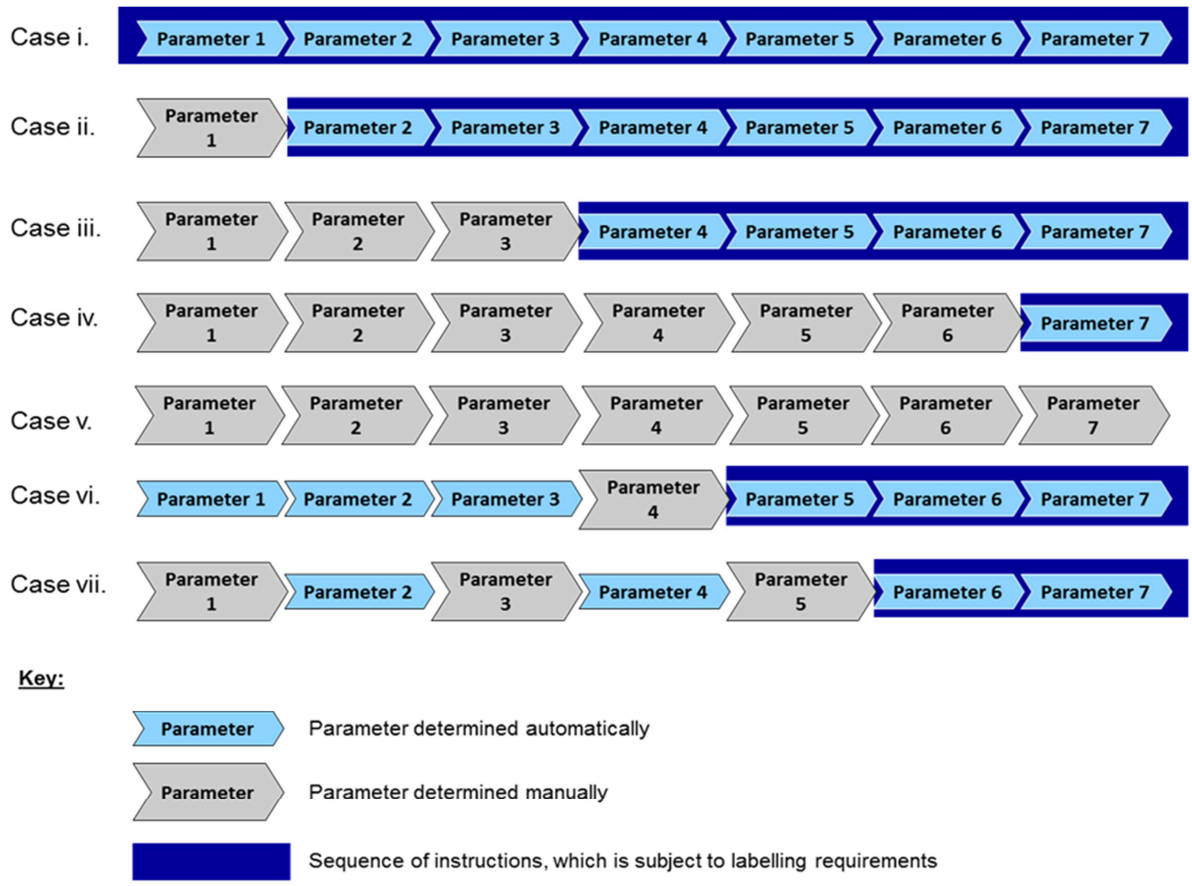
In case iii. the first three parameters are determined manually (e.g. ISIN, buy and quantity), any other parameters are determined automatically. In this process, the remaining four order parameters are required to be labelled as the trading algorithm in use.

As far as case iv. is concerned, all parameters but the last parameter are to be determined manually (e.g. ISIN, buy, quantity, order type). For instance, the ISIN, the buy side and the quantity is initially selected automatically. Subsequently, the trader determines the limit price manually. Accordingly, the remaining three parameters (order type, trading venue and time) will be determined automatically. In this case, the instruction sequence of the remaining three order parameters is required to be labelled as the trading algorithm in use.

As far as case v. is concerned, all parameters are determined manually (e.g. ISIN, buy, quantity, order type, limit price, trading venue and time of the order entry to a trading venue), none of the parameters is determined automatically. In this case an algorithmic trading is not involved and a labelling is not required.

In case vi. all parameters but the fourth parameter is determined automatically. For instance, the ISIN, the buy side and the quantity is initially selected automatically. The trader thereafter determines e.g. the limit price manually. Accordingly, the remaining three parameters (order type, trading venue and time) will be determined automatically. In this case, the instruction of the remaining three parameters is required to be labelled as the trading algorithm in use.

In case vii. the trader decides on the ISIN manually, the trading algorithm subsequently decides on side (e.g. buy side). Accordingly, the trader intervenes manually again and determines the order type (e.g. limit order) manually. Hence, the trading algorithm determines the price automatically. The trader intervenes manually again and determines the quantity of the order. From this point in time, the remaining parameters (e.g. trading venue and time of the order entry to a trading venue) are automatically determined. In this case, the instruction of the remaining two parameters is required to be labelled as the trading algorithm in use.



Graph 1: Impact of the sequence of order parameters on the labelling obligation

b. A trading participant operates an execution-algorithm that is able to track e.g. a TWAP or VWAP. This involves two different trading algorithms within the definition of section 1. The two trading algorithms are required to be labelled differently.

c. A trading participant operates a quotation algorithm e.g. for a stock having a more liquid domestic market. In case the domestic market is open, the quotation is based on the prices determined in that market. In case the domestic market is still closed, the quotation is based on the futures market. The instruction sequences are consequently different in both cases, thus two different trading algorithms are required to be labelled.

d. A trading participant operates a quotation algorithm comprising business news, e.g. the value of an index as an input. This piece of information could derive from different sources (e.g. from different data vendors). The trading algorithm subject to labelling remains it's labelling even if the source of information is different, since the trading algorithm remains unchanged.

e. A trading participant operates a system called ‚my trading' that conducts automated market making and statistic arbitrage. Thus, such a system consists at least of two algorithms even if the two business areas are programmed in 'one system'. As a consequence, one part of the instructions in the system continuously

apply to market making only - and vice versa - one part of the instructions constantly apply to statistic arbitrage only. Insofar as the trading participant labels the system ‘my trading’ for each trading activity and as one single algorithm only, the requirement for the individual labelling of differentiating algorithms is not fulfilled.

f. A trading participant operates a ‚Smart-Order-Routing-System‘ that decides to place an order in its entirety or in part to one or several trading venues while considering the current order book situations to realise an order execution at the best price currently offered. Since the trading algorithms subject to the system are not designed for order routing purposes to a trading venue only, but automatically decide on the point in time, the volume and limit of the individual partial executions of the order in consideration of current market data without human interference, algorithmic trading is involved. The orders placed and the trading algorithms used are subject to the labelling requirement.

6. Identification key

In this process, the labelling of a trading algorithm has to be unequivocal, and the numeric identification key in use for this purpose must not be changed over the course of time in case the same sequence of the implemented decisions applies, i.e. provided that the trading algorithm remains unchanged. This is required in order to enable a discernibility of the individually implemented trading algorithms by means of the labelling. Should the modus operandi change as to **how** a decision is taken within a trading algorithm, a labelling change is required as well.

The labelling is designed to differentiate the different nature of algorithmic trading. The labelling of a recorded algorithm is required to be unequivocal, i.e. it is required to **differ** from the labelling of another algorithm in use by the trading participant.

The numeric identification key is required to remain **unchanged over the course of time**, provided that the algorithm remains unchanged. In addition, non-material changes as a result of necessary maintenance, bug fixes and release updates must not be considered.

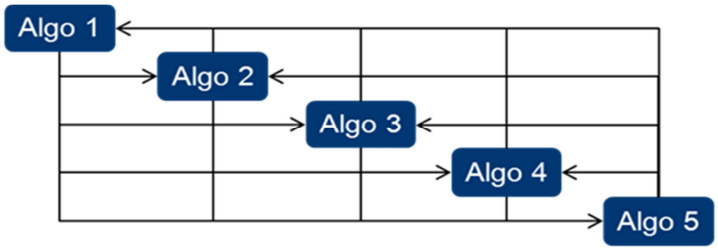
In case a trading participant intends to resume an identification key of an algorithm no longer in use, the required unambiguousness and discernibility of the allocation is provided in case the new use takes place at least 3 months after the most recent use for another algorithm or in case the trading participant informs the Trading Surveillance Office on this matter prior to the resumption of the identification key.

7. Modus operandi of the labelling

The responsibility of the modus operandi of the labelling of trading algorithms, i.e. the logics applied to the encoding of the respective calculation chain, is assumed by the direct trading participant. Various possibilities are hereinafter introduced however the

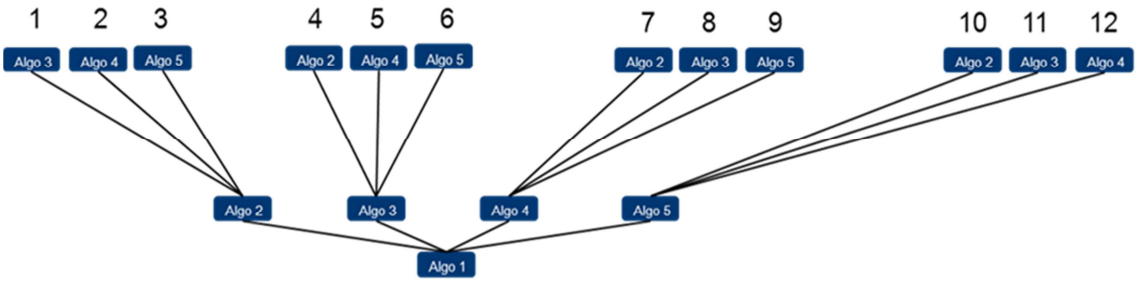
list is not exhaustive. The direct trading participants should suggest opportunities only as to which methods meet the current requirements and may accordingly be used.

a. A trading participant has for instance five algorithms (see graph 2). Algorithms are invoked or changed with regard to example 1-5. Hereafter, an order is placed by algorithm 1, yet will be changed during the course of algorithms 2, 3, 4 and 5 prior to its entry on XETRA or EUREX. The order may however also be initially generated by algorithm 5 and in the following be changed by the algorithms 2, 3, 4 and 1 prior to its entry on XETRA or EUREX. The first chain would receive the labelling ‘12345’ while the second chain would receive the labelling ‘52341’.



Graph 2

b. A trading participant has for instance five algorithms again (see graph 3). The order is initially generated by algorithm 1 and hereinafter changed by algorithm 2. In the next step, the order is tackled again and respectively changed by algorithm 4. Yet the order could also initially be changed by algorithm 3 followed by algorithm 4. The trading participant has to allocate an unequivocal identification key to the decision chain. The chain algorithm 1 + algorithm 2 + algorithm 4 would according to this example receive the identification ‘2’, while the chain algorithm 1 + algorithm 3 + algorithm 4 would receive the identification ‘5’.



Graph 3

c. A trading participant has for instance five algorithms in use again (see graph 4). Orders are e.g. generated by algorithm 1 and 5, however depending on the situation, different chains of decisions will chronologically be made arising from the respective instructions. Thus, two different options for labelling arise. The trading participant is required to supply the unequivocal identification key for the respective decision chain with the order entry, change or deletion. The chain algorithm 1 + algorithm 3 + algorithm 2 and algorithm 4 as trading algorithm would thereby receive the identification key ‘1’, while the chain algorithm 5 + algorithm 2

+ algorithm 3 and algorithm 1, as separate trading algorithm would receive the identification ‘2’.

Graph 4

8. Trading of direct trading participants via third parties

In case a direct trading participant (‘ORS-user’) enters, changes or deletes orders in the trading system of the exchange via another direct trading participant (‘ORS-supplier’) via order routing (also defined as ‘direct market access’), the ORS-user is required to ensure that the ORS-supplier contributes to the adherence to the labelling obligations of the trading participant involved in an appropriate manner in order to ensure an unequivocal allocation of the selected labelling. This may for instance be achieved if the trading participant – in addition to the self-selected labelling – provides an abbreviation of the trading participant which identifies the trading participant as the originating party of the order routed to the trading system of the exchange via a third party.

Should an ORS-provider use algorithms for his part that determine or change one or more parameters (please refer to section 1 above) of an order submitted by an ORS-user, the ORS-provider is required to label his algorithms in use. In this case, the requirement of the user to label his algorithms is omitted since this case is not subject to order routing within the meaning of the Exchange Rules.