

## Guidelines

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

(§ 16 sub-para. 2 no. 3 of the *Boersengesetz* (henceforth referred to as 'Exchange Act') § 33 sub-para. 1a of the *Wertpapierhandelsgesetz* (henceforth referred to as 'Securities Trading Act'), § 72a of the *Boersenordnung* (henceforth referred to as 'Exchange Rules') for the *Frankfurter Wertpapierboerse* (henceforth referred to as Frankfurt Stock Exchange), § 17a of the Exchange Rules for Eurex Deutschland and Eurex Zurich)

§ 16 sub-para. 2 of the Exchange Act was supplemented due to the introduction of the law on the prevention of risks and abuses relating to high frequency trading with effect from 7 May 2013 (*Hochfrequenzhandelsgesetz*, henceforth referred to as 'High Frequency Trading Act'). 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 *Hessische Boersenaufsichtsbehoerde* (henceforth referred to as 'Exchange Supervisory') on the interpretation of the named statutory provisions and regulations in the Exchange Rules. The bodies of the exchange, in particular the *Handelsueberwachungsstellen* ('Trading Surveillance Offices', henceforth referred to as TSO) 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.

The entire sequence of calculation steps (decision path) is to be identified as trading algorithm 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 calculation steps and not to their individual elements, even if the latter could separately be considered as an independent algorithm.

The following has to be labelled:

- Orders which are subject to an algorithm in use that completely or partially decides on certain aspects (price, volume or point in time of the order entry into the trading system of the exchange including its change or deletion) of the order without human interference.
- Orders (entry, change and deletion of orders) that are automatically generated and/or decide on their execution due to the underlying algorithms in use, while buy and sell signals are generated by an automated evaluation of market data and news, which are automatically implemented by the respective orders and are automatically entered into the trading system.

Smart-order-routing-systems (SORs), quote machines of market makers and specialists (binding quotes), or electronic eyes are according to this definition considered as trading algorithms.

## **2. 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.

## **3. Labelling obligation**

§ 72a of the Exchange Rules of the Frankfurt Stock Exchange and § 17a of the Exchange Rules of Eurex Deutschland and Eurex Zurich require to label this trading algorithm (these trading algorithms) in its (their) entirety. Individual elements of the trading algorithm are not to be labelled even if they could be individually considered as independent trading algorithms.

## **4. Impact of parameters for the distinction of algorithms**

The recording and labelling of algorithms is required to be conducted in consideration of the respectively feasible parameterization. **Parameters** specify which sequence of algorithms and which sequence of instructions could be executed within an algorithm. Parameters have to be distinguished according to the following properties:

- **Value type of the parameters:** a distinction has to be made between categorical (nominal scaled or ordinal scaled parameters including few values) and continuous parameters.
- **Time period of the parameters:** this classifies whether parameters are in effect static or whether they may be subject to dynamic changes. As far as parameters are concerned that are passed on to an algorithm when invoked, it is continually decisive whether the range of value is a priori known and reasonable and it may be assumed that it will remain largely unchanged over time with/despite the different business activities. Furthermore, a distinction is required to be made as to whether parameters which will be added when an algorithm is invoked may change during the course of the operating instructions of the algorithm.
- **Neutral parameters** are considered to be those parameters which do not change the sequence of instructions within an algorithm, or change the sequence of an algorithm in use, but determine the **location**, the time and subject of a running algorithm or running algorithms only. Hence, typical neutral parameters are products or product groups or product types (futures, option, ETFs).

In this process, the algorithm to be labelled is resulting from the potential combinations (algorithm times values of a parameter). A consideration of the parameters for the differentiation and consequential separate labelling of an algorithm is to be made in case quasi-static, a priori known categorical (call-)parameters are involved which do not change within a running instance of the algorithm anymore, without discontinuing the algorithm or a specific instruction sequence in this process. As far as the labelling is concerned, changes in neutral parameters are **not** to be considered. This also applies to categorical parameters that do not change the instruction sequence of an algorithm.

Algorithms the instruction sequence of which is usually resulting from or changing due to a dynamic parameterization must not be differentiated from one another with regard to the change in the instruction sequence. This particularly applies to changes in parameters of the continuous value type.

## 5. Examples re. item 1 - 4

- a. A trading participant operates an execution-algorithm which tracks e.g. a TWAP or VWAP, depending on the parameters. Those parameters steering whether instruction sequences for a TWP (e.g. parameter A with value 1010) or VWAP (e.g. parameter A with value 2020) are to be applied, have to be considered when invoking and labelling the calculation chain. Thus, the trading participant has two algorithms being subject to labelling. Typical parameters in the case of TWAP/VWAP, e.g. min/max % volume and 'I would price' do not require a differentiation and labelling as individual algorithms since in this case continuous parameters are involved.
- b. A trading participant operates a quotation algorithm e.g. for a stock having a more liquid domestic market that is still closed in the morning. In case the domestic market is not open, futures markets will be taken into account for the quotation. The parameter

steering the basis of a quotation, is to be included in the tracking and labelling since also in this case the relevant characteristics (e.g. domestic market is open yes/no) is in effect static and the value type is predictable in advance. Parameters steering e.g. the involvement of order book depth, updating intervals and the quotation volume must not be considered in the differentiation for labelling.

- c. 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', since it may not be assumed that - prior to each order - a dynamic verification is carried out as to whether an order is entered, changed or deleted in order to conduct statistic arbitrage or for market making purposes. 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. If 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.
- d. 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.
- e. A trading participant operates an execution service which is based on up to two algorithms (algorithm A and B) that may cooperate until the underlying order is executed. In this context the decision path is determined in view of the implemented systems and not within the meaning of an 'order audit trail'. Even if several or recurring changes of an order are available, the combination A&B as decision path is to be transmitted only.
- f. A trading participant operates a 'Stop-Order-Algorithm' that defines a particular type as threshold value depending on the parameters. Thus, the bid, ask or the last traded price may be defined as threshold value. Although being categorical parameters, these parameters do not change the sequence of the instructions within one algorithm and consequently must not be considered in the labelling,. Hence, the parameters are neutral since the instruction sequence remains unchanged.

## 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.

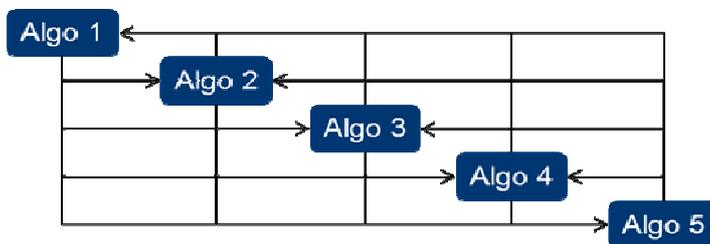
The numeric identification key is required to remain **unchanged over the course of time**, provided that the algorithm remains unchanged. In particular, dynamic and non-manual parameter changes (please see below) are not considered to be as decisive changes. In addition, material changes as a result 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

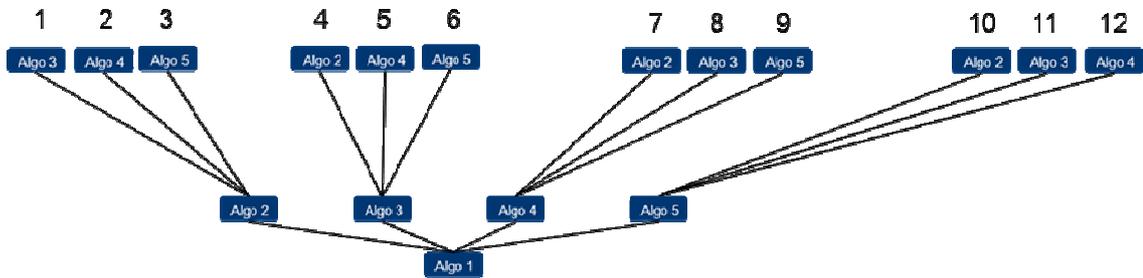
The responsibility of the modus operandi of the labelling of trading algorithms, i.e. the logics applied to the encoding of the respective calculation chain, is assumed by the direct trading participant. Various possibilities are hereinafter introduced however the list is not exhaustive. The direct trading 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). 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'.



- b. A trading participant has for instance five algorithms again (see graph). 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 par-

ticipant 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'.



- c. A trading participant has for instance five algorithms in use again (see graph). 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'.



### 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 partici-

pant which identifies the trading participant as the originating party of the order routed to the trading system of the exchange via a third party.