Regulating Automated Trading: Eurex's Response to the German HFT Act

By Randolf Roth and Miroslav Budimir

The German law for the prevention of risks and abuses in high frequency trading, the High Frequency Trading Act, came into effect in May 2013. The law introduced new requirements for algorithmic and high frequency trading firms that are active in German securities and derivatives markets.

Of these requirements, three are particularly important for Eurex and its members:

- license requirement for high frequency traders,
- introduction of order-to-trade ratios and excessive system usage fees, and
- flagging of algorithmically generated orders.

The law provided a period of time for the marketplace to transition to the new requirements. The OTR and ESU requirements went into effect in December 2013, for example, and the algo flagging requirement will take effect in April 2014.

In response, Eurex has taken several steps to enhance its trading platform so that the exchange and its customers can comply with the requirements. In particular, it has introduced new mechanisms to track order-to-trade ratios and system usage levels. Eurex also has developed new procedures to disclose this information to its members so that they can monitor and adjust their trading activity to avoid exceeding the thresholds and incurring the fees.

The flagging of algorithms is the responsibility of all direct exchange participants, not merely those that use HFT. To help its members comply with this requirement, Eurex has worked with the authorities to address a number of practical issues. Eurex also has created a new field in its trading system for members to use in identifying their algorithms.

While the law only applies to markets in Germany, similar requirements are being considered at the European level to address the perceived risks of HFT. In this context, the experience of Eurex and its members may serve as a laboratory for the future regulation of automated trading in Europe as a whole.

License Requirement for HFT firms

According to BaFin, the German supervisory authority, firms are defined as HFT when they perform proprietary trading and meet all three of the following criteria:

- the use of infrastructure intended to minimize latency (e.g., co-location, proximity hosting or high-speed direct electronic market access over a 10 gigabits per second line);
- system determination of order initiation, generation, routing or execution without human intervention; and
- a high number of intra-day message rates (i.e., more than 75,000 per day on average).

Under the law, a firm that meets this definition needs authorization to conduct HFT operations in a Germany-regulated exchange. This requires a license under the German Banking Act.

In practical terms, this means that Eurex members engaged in HFT must have an office in Germany that is registered with BaFin. Foreign firms that do not already have such a license have until Feb. 14 to submit an application to BaFin.

Alternatively, firms that are licensed in other parts of the Eu-

ropean Union can passport their MiFID-status to Germany and do not need to obtain authorization for HFT trading from BaFin. In certain cases, e.g. U.K. locals, BaFin may grant an exemption from the licensing requirement, provided their regulatory oversight is comparable to the one required by the HFT law.

Order-to-Trade Ratios

As of Dec. 1, direct participants of Eurex are obliged to ensure an appropriate ratio between their order volumes, including entries, changes and cancellations, and the traded volumes that they actually carry out. The purpose of the OTR is to counteract a behaviour where market participants generate a high number of orders which are subsequently deleted very quickly. Such practices can undermine market integrity.

A member that violates this requirement by exceeding a defined OTR may be subject to sanctions, including a reprimand, fines up to €250,000, a temporary exclusion from trading, and even the revocation of the admission to trading. Any sanction is decided upon by the Sanction Committee of the Eurex Exchange Council.

By law, the OTR needs to be calculated monthly for each product for each trading participant on the basis of actually ordered and traded contracts. The law does not specify, however, how the ratios should be calculated; that level of detail is left to Eurex.

When designing the OTR, Eurex needed to address various potential unintended consequences. For example, in order to develop liquidity in newly listed or less liquid products, there is a need for market makers. By definition, those products hardly trade and therefore even the best market makers will have a very high order-to-trade ratio.

A second unintended consequence would be if a trading participant sends a very small number of orders in a particular product and does not trade. He would have an infinitely high OTR. For this reason, Eurex has included a floor parameter in the implementation of the OTR requirement.

As soon as the HFT Act became law, Eurex started to analyze and identify which trading participants would be at risk of violating the OTR in certain products and met with them to discuss how to change their behaviour. In October, Eurex began disseminating information to members about their order-to-trade ratios. This gave members a two-month testing period and allowed them to adjust and calibrate their systems ahead of the deadline.

Excessive System Usage Fee

The goal of this provision is to prevent excessive system load from harming system stability and market integrity. The Act requires German exchanges to levy fees for excessive use of their electronic data processing systems, and specifically a disproportionately high number of order entries, changes and cancellations. The Act does not specify the threshold for excessive usage, however; it is up to the exchanges to determine how to apply this requirement.

As with OTR, the ESU fee was introduced on a test basis in October and November and took effect on Dec. 1. The ESU thresh-

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olds are defined per trading firm, per product and per trading day, with a different set of thresholds applying to market makers. As in the case of OTR, daily reports are available, making the accumulated 'month-to-date' fees fully transparent to the member.

Eurex has worked closely with participants that may be at risk to violate the ESU limits in order to change their behaviour. The exchange also distinguishes between accidental and systematic violations of the limits, and grants waivers for unintended violations.

Algo Flagging

The HFT Act obliges direct exchange participants to identify all orders generated by trading algorithms by adding a flag to the order message as it is transmitted to the exchange. Each algorithm must have a unique identifier and all order messages generated by that algorithm, including modifications and cancellations, must include that identifier. After an appropriate transition period, the obligation to flag algorithms becomes effective on April 1, 2014.

It is important to emphasize that this provision does not apply only to HFT firms but rather to all firms with trading algorithms. The objective of this provision is the detection of algo footprints so that the market surveillance department can identify manipulative or erroneous algorithms. This obligation applies only to direct exchange participants, regardless of whether they send their orders directly to the exchange or via order routing.

The orders and quotes generated by algorithms have to be flagged in the numeric four–byte field provided in the Eurex trading system. Flagging of the specified quotes and orders and the identification of the used trading algorithms has to be comprehensible, definite and consistent. Members are obliged to provide further information on their trading algorithms on request.

Additional guidelines on the interpretation of this requirement were issued by the Supervisory Authority of the State of Hesse in October 2013. The guidance defined a trading algorithm as containing a "well-defined, executable sequence of instructions" to perform trading and stated that the obligation to identify an algorithm applies to the "entire sequence of calculation steps" rather than the individual elements, even if these elements could be considered as an independent algorithm. The guidance also stated that smart order routing systems would be considered trading algorithms under this definition, provided that they are designed to determine the timing, size and price of the trade without human intervention.

First Experiences with the Act

First, the German authorities have recognized that automated trading is not undermining securities markets and that it should not be unduly restricted. For example, calls for minimum order resting times were removed during the legislative process, and reasonable HFT definition criteria were established by BaFin.

Second, the introduction of OTR and ESU fees is a direct response to the changed world of trading. In the past, human traders were physically not capable of producing a very large amount of intraday messages. This changed with the advent of

automated trading. Once programmed and set in motion, an automated trading system can generate a very large number of order messages, which can put a heavy burden on the system resources of the exchanges. For this reason, the introduction of fees is a reasonable way to address the challenge of excessive system resource usage.

Third, the automation of trading has made surveillance more challenging. The incoming order data is highly aggregated and cannot be appropriately disaggregated. For example, several trading strategies can originate from one physical machine, and several indirect participants can use the exchange code of one member. The requirement to flag algorithms used by individual trading strategies enables the exchange surveillance office to appropriately establish cause-and-effect relationships, thus improving its ability to detect market abuse and market manipulation.

Finally, the rules implemented by Germany are also in the scope of the review of the MiFID directive of 2007. This legislative proposal is currently being finalized and is not expected to come into force before 2017. It includes new provisions to regulate algorithmic and high frequency trading. In this regard the German financial markets can serve as a laboratory for the future trading framework in the EU.

For example, it is already clear from the experience of Eurex that it is beneficial for the authorities to provide a transitional period so that trading venues and market participants can modify their systems and adjust their trading behaviour. Second, it is important to provide trading venues with the responsibility for determining how to apply any new requirements. The order-to-trade ratio of a market maker, for example, should be treated differently than other types of trading firms, and the trading venues are best positioned to make this type of differentiation.

The jury is still out on the long term impact of the new measures on liquidity. For some non-EU firms, the requirement to have a physical presence in the EU/Germany may prove to be a significant disincentive for trading on Eurex. As European policymakers develop the MiFID framework for automated trading, it will be important to consider the global dimension of derivatives markets and work out practical solutions for the oversight of trading that originates from outside of Europe.

Like other leading international derivatives exchanges, Eurex has taken many actions to improve the stability and reliability of its trading system and adapt system robustness and its methods of surveillance to the modern age of automated trading. Eurex also has worked with the authorities to promote a better understanding of the risks of automated trading and the appropriate means for managing these risks. Eurex has consistently expressed the view that the overall effect of algorithmic and high frequency trading on market quality is quite positive, and the exchange will continue to work with the authorities to establish a regulatory framework that avoids any unnecessary negative effects on market quality. **fi**

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