X-pand into the Future

Eurex Risk Management Roadmap and Pre-Trade Protection

July 15th, 2008
Global Markets Advisory Committee
Washington

Substantial changes in electronic trading have been observed in recent times

Trends in electronic trading

- **Automated trading**
  Exchanges report a 50%* increase in program trading and significantly increased activity of high frequency, algorithmic traders.
- **New trading strategies and products**
  Enhanced trading strategies and new products will significantly increase quote and order volumes.
- **New customers and rising demand for market information**
  Sophisticated trading strategies and automated trading are resulting in the need for more market & price data to be disseminated. New customer groups such as hedge funds require specialized service offerings in electronic markets.

Requirements

- **System performance**
  Continuous need for system tuning and more bandwidth of the exchange network
- **Differentiation in service**
  Eurex will provide more differentiated data and bandwidth due to high diversity in customer requirements.
- **Review cycles**
  High pace of technological change requires tighter review cycles

Building Blocks for the Eurex Technology Roadmap

*Basis: 2006 On Exchange Trading Volumes

Customer requirements have been considered during the implementation of the Eurex Technology Roadmap

Timing

Latency and Throughput

- Reduction of latency for order and quote transactions, especially in peak situations
- Introduction of Persistent and Non-Persistent Orders
- Increase overall system capacity

Broadcast

- Real-time market data
- Every change to the order book
- Enhanced Broadcast Solution (EBS)

Functionality

Risk Management/ Market Surveillance

- Real-time risk monitoring to protect clearing firms
- Pre-Trade Risk measures
- Stop Button

Member Access/ Connectivity

- Lean API or socket without server requirements
- Protocol to lower entry barrier
- Enhanced Transaction Solution (ETS)
- Extension of the Eurex Network Connection Portfolio

Efficient RM relies on close cooperation and interaction between Clearing House and Clearing Member

- RM from Clearing House towards Clearing Member
  - Risk Controlling of Clearing Members
  - Provision of sufficient and timely information
- RM from Clearing Members towards internal & external clients
  - Risk Controlling of own propriety business
  - Risk Controlling of client business (NCM) based on Clearing House information and own information
- Close cooperation required to ensure
  - That sufficient and right information is provided by the Clearing House
  - Seamless integration of the risk information in the in-house systems of the Clearing Members
  - Appropriate risk controlling of trading participants

Several components are required to be prepared for future growth and build a leading risk management system

Intra-Day Risk Management System

- Eurex Clearing AG runs an intra-day risk management system to calculate Total Margin Requirement and Margin Coverage per CM
- The system runs on 15 minutes batch cycles
- The system triggers intra-day margin calls
- IRIS provides the calculation results via Email
- IRIS reports are offered for free to clearing members

Enhanced Risk Management with Eurex Release 10

- Introduction of new real-time pre-trade limits to improve Clearing Members' risk controls for their NCMs
- Pre-Trade Limit functionality is also available to NCMs to control the risk of single traders / trading machines
- Enhanced Emergency Processing allows CMs to trigger a stop-action for their NCMs
- Intra-day risk management cycles has been reduced to 10 minutes

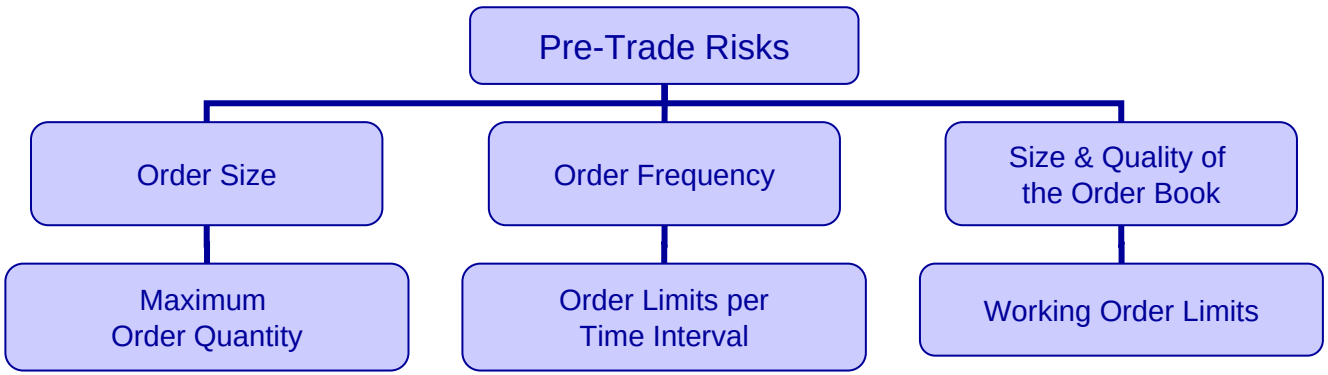
Ongoing future developments

Eurex investigates a future oriented and flexible risk management architecture with basically three core components:

- Event-driven risk architecture to calculate total margin requirements
- Flexible tool box to analyze risk positions, detect new risks and create new alerts
- Member information via alerts

Eurex offers Pre Trade Risk measures to better control the risk of machine trading

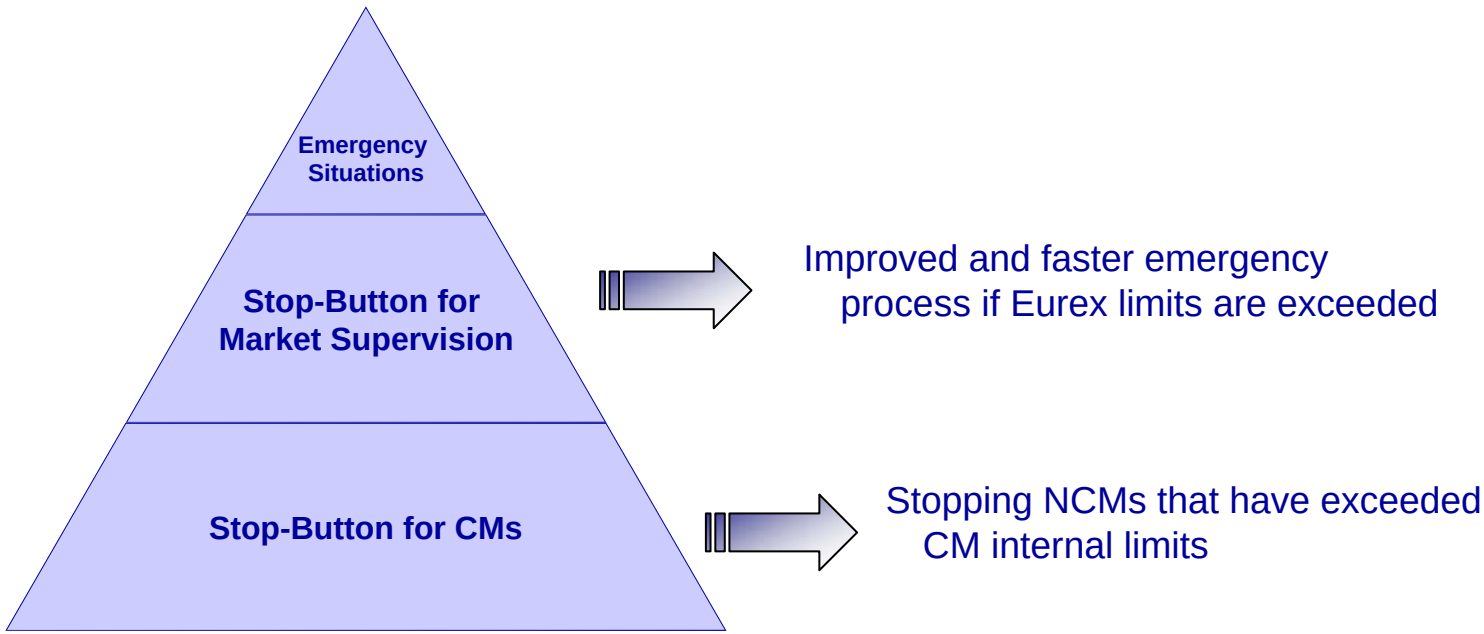
- Traditional trading firms, routing their orders via the Clearing Member‘s order routing system, can be controlled by Clearing Member internal risk measures
- „Pure DMA“ firms depend on high-speed access to the exchange and thus utilize direct exchange access, delays caused by pre-trade risk filters are unacceptable for them
- Eurex has introduced a number of pre-trade validations that can be utilized by the GCM to control its NCMs. At the same time, the pre-trade validations are designed in a way so that they do not compromise the trading strategies and speed of NCMs
- At the same time, NCMs may utilize the limits to control their trader/trader subgroups



Stop Button

To reduce the reaction time in case of emergency, CMs will be able to use the Stop-Button

In times of algorithmic trading, it is necessary to react fast and efficient to emergency situations. Therefore, the existing emergency concept has been enhanced and manual process steps will be reduced.



Stop Button for Trading Members

- As requested by trading members, Eurex will extend the stop-button functionality introduced with Release 10 also for trading members.
- Using the Stop-Button, a trading member can temporarily disconnect a specific trader subgroup from on-exchange and OTC-markets.
- For the specific trader subgroup the Stop-Button triggers an automatic deletion of all orders/quotes, prohibits new order/quote entries, and prohibits the entry and ratification of OTC transactions.
- Implementation is realized via the existing Risk Monitoring Maintenance window and respectively via VALUES API.
- The functionality aims at stopping dedicated trading machines that cause problems. In assigning machine trading IDs, the trading member should therefore differentiate single machines by different subgroups. For example “AT1” to “AT9” could be used to differentiate algorithmic trading engines. Eurex Circular 159/07 will be updated accordingly to allow for efficient usage of technical user IDs.

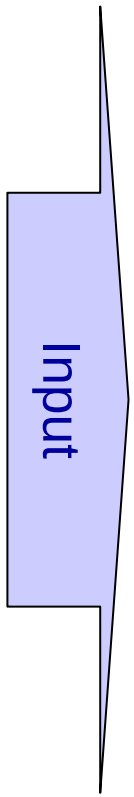
Planned Post Trade Mechanisms: Event Driven Risk Calculation is supplemented by a flexible alert tool box

Event-Driven architecture

- Calculate Margins event driven
- Events that trigger a re-calculation are
  - Change of position
  - Change of underlying price
  - Change of series/contract prices
  - Change of other input variables, e.g. margin parameters, volatilities, haircuts

Real time Collateral Updates

- Intra-Day Posting and Releasing of Collaterals
- Real-time evaluation of Collaterals
- Support of multiple Collateral Locations



Clearing House Analysis and risk controlling

- Real-time and ex-post analysis
- Tracking via Traffic Light Logic
- Ad-hoc alert definition by Eurex
- Alert Generation for emerging risk situations

Flexible Risk Alert Broadcast for Members

- Information via Traffic Light Logic
- Members should be able to define individual alert threshold parameter
- Alerts should be provided in (near) real-time to the members