

Cboe offers a robust set of patent-pending risk management tools to help your firm manage the risk of over-executions. Each tool can be used independently as needed or in its entirety based on your firm's risk management requirements. The following provides information on the Cboe Equities Risk Management tools including specific value-added features.

### Client Risk Categories

Risk settings can be established for each MPID, where risk parameters are enforced for the MPID regardless of how it is being used. There are three client categories where the risk management is employed:

- Direct – Logical ports that are directly owned by the firm where the port may support multiple MPIDs on a single port. The risk management parameters apply to the MPID regardless of whether the MPID is used on a single port or on a port with multiple MPIDs.
- Service Bureau – In a Service Bureau relationship, the Service Bureau owns the logical port, which will support multiple MPIDs on the single port. The firm who owns the MPID will be able to set risk parameters directly for the MPID. A firm may use multiple Service Bureaus with the same or different MPID. Risk settings can be different for each Service Bureau relationship, even if the MPID across two or more Services Bureaus are the same.
- Sponsored Access – Sponsored participants will own the logical port, but the sponsoring firm will be the owner of the MPID. Only the Sponsoring firm will be able to make changes to the risk settings for the MPID.

### Order-Based Restrictions

Firms may allow or prevent the ability to place certain orders based on the order type, order condition or trading session as well as the ability to prevent any new orders. Restrictions include the following:

- Intermarket Sweep Orders
- Directed Intermarket Sweep Orders
- Short Sales
- Pre-Market Trading
- Post-Market Trading
- New Orders

### Market Order Collars

With the exception of the Market On Open and Market On Close orders, any portion of a market order that would execute at a price more than \$0.50 or 5 percent worse than the NBBO at the time the order initially reaches the Exchange, whichever is greater, will be cancelled.

### Order Limits

Orders are rejected when the specified limit is exceeded. The following maximum limit checks are available:

- Maximum Quantity per Order
- Maximum Notional Value per Order

### Duplicative Order Protection

Firms can prevent duplicative orders that are entered with the same MPID, side, price, quantity and symbol within a configurable amount of time. The firm can reject the order or disable the logical port used to enter the duplicative orders.

### Single Order ADV Check

Orders are rejected if they exceed a specified percent for the 20-day ADV for a security.

### Port-Based Message Rate Limits

Threshold rate values can be entered reflecting the maximum number of messages that can be sent through a single port or a specific symbol. When either value is exceeded, new orders are rejected.

### Fat Finger Protection

Fat Finger Protection allows firm to have orders rejected if the limit price on the order is priced too aggressively through the NBBO. The following limit types are available:

- Percentage-based
- Dollar-based

Cboe has established ranges for percentage and dollar-based limits to provide firms with flexibility when setting the limits.

### Aggregate Credit Limits

Firms can receive warnings and in addition, reject orders based on selected cutoffs. Firms can configure the following cutoffs:

- Limit Order Notional Cutoff – All orders including limit orders are rejected when the risk measure is exceeded.
- Market Order Notional Cutoff – Market orders are rejected when the risk measure is exceeded.

### Easy to Borrow and Restricted Symbol Lists

Short sales can be restricted by symbol where easy to borrow symbol lists may be provided permitting short sale orders to be entered. Firms also have the ability to restrict a specific symbol due to an insider holding status or other SEC mandated regulation requiring the restriction.

### Order Kill Switch

Firms have multiple options when cancelling orders if necessary, including:

- Cancel on Disconnect, which can be configured by port
- Cancel All Open Orders, which is a cancellation of any and all open orders
- Cancel All Open Orders Excluding GTCs
- Cancel All Open Orders and Block New Orders

### New Functionality Introduced This Year

#### MPID-Level Risk Controls – Available Now!

Provides Members and Clearing Firms acting on their behalf the ability to manage risk at the MPID level through Gross and/or Net Notional Risk Thresholds, to subsequently receive notifications to signal when a Member is approaching its designated thresholds, and to authorize the Exchange to automatically block new orders submitted and cancel open orders upon threshold breaches.

#### Equity Purge Ports – Available Now!

Enables firms the ability to cancel a subset (or all) open orders across MPID(s), Symbol(s), or 'RiskGroupID(s)', across multiple logical ports/sessions.

#### Strategy Level Risk Controls – Available Now!

Allows Firms to manage risk at a more granular order-by-order level through applying RiskGroupID's to individual orders submitted. Orders tagged with a specific RiskGroupID may be subject to a 'RiskGroupID Risk Profile' created and defined by the Member to include Gross or Net Notional Risk Thresholds per order subset.

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