

# PRETRADE RISK CONTROLS



**FUNDAMENTAL  
INTERACTIONS**

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## EQUITIES RISK MANAGEMENT IMPLEMENTATION

The 15c3-5 risk controls for equities is categorized into Pre-acceptance, intraday controls, pattern detections, and regulatory controls

### PRE-ORDER ACCEPTANCE CONTROLS

“Pre Order Acceptance” risk controls are typically applied on receipt of the order, prior to an acknowledgement being generated. If an order passes these initial risk checks.

#### MAXIMUM ORDER LIMIT VALUE NOTIONAL

This control establishes the maximum size of an order, as measured by the order’s number of units (shares), that a Sponsored Participant may submit in a single order. This control is validated by entering an order that exceeds the threshold. If the order is blocked or rejected, the control is adequate.

- It is measured by the total dollar value of the order.
- Market orders can be configured to use one of the following prices:
  - Midpoint (1 / Midpoint) ○ Previous close (2 / PrevClose)
  - If this control is breached, the order is rejected

#### MAXIMUM ORDER SIZE NOTIONAL AMOUNT

This control establishes the maximum size of an order, as measured by the total dollar value of the order a Sponsored Participant may submit in a single order. This control is validated by entering an order that exceeds the threshold. If the order is blocked or rejected, the control is adequate.

- Notional value is defined as (price \* order quantity) • Market order value will be determined using the NBBO.
- It is measured by the order’s share amount.
- If this control is breached, the order is rejected

#### PERCENTAGE FROM INSIDE PRICE

This control establishes the maximum price deviation allowed for each order. This control is validated by entering an order whose price is more than 8% away from the current market price for the security. If the order is blocked or rejected, the control is adequate.

Either the “previous closing price” can be used or a snapshot of the inside price can be used.

For sales, the bid price is used, for buys the ask price is used. In terms of the “Previous Closing Price”, FI has the records, and it can be loaded daily. FIND will push NBBO price/previous closing price/average trade volume to server.

- It is measured by comparing the order’s price to the NBBO for that instrument.
- Buys orders are checked against the offer; sell orders are checked against the bid.
- If this control is breached, the order is rejected

## PERCENTAGE OF AVERAGE DAILY TRADING VOLUME (ADTV)

Percentage of Average Daily Trading Volume Restriction is a single order check which prevents any single order from exceeding X% of the ADTV. Average Daily Trading Volume (ADTV) is calculated by dividing the number of shares traded during a specified time by the length of the period. The period used as a benchmark is 20 days.

- This control establishes the maximum size of an order.
- It is measured by comparing the order's share amount against a percentage of that instrument's average daily trading volume over the previous twenty days.
- If this control is breached, the order is rejected

## NON-OPEN PERCENTAGE FROM INSIDE PRICE

Maximum price deviation from current NBBO – This pre-trade risk check is for during pre-open and after hours as opposed to “Percentage from inside price”, which is for regular hours.

## INTRA-DAY CONTROLS

Intra-Day Risk Controls are typically applied to working orders that have passed the initial pre order acceptance control checks.

### MANUAL TRADING BLOCK

- This control restricts the ability to enter messages.
- If this control is triggered, the ability to submit orders, amends and cancels is affected instantly.
  - Selecting ‘Block’ disables all trading.
  - Selecting ‘Unblock’ enables trading.

### POSITION SHARE LIMIT

- This control restricts the share of positions.
- It is measured by the position's share amount.
- If this control is breached, one of the following actions take place:
  - Allow Close & Cancels: Only cancel or orders to offset positions are allowed.

### POSITION NUMBERS

- This control restricts the number of positions.
- It is measured by the number of positions per account
- If this control is breached, one of the following actions take place:
  - Allow Close & Cancels: Only cancel or orders to offset positions are allowed.

### POSITION CONCENTRATION

A concentrated position is created when the market value of one position is greater than the equity in the account. Concentration Requirements are calculated based on the size of each position in relation to the other positions in an account.

The individual value of each position in an account would be divided by the total value of the account to calculate its requirement, when a position comprises a certain percentage of the value in the account, that position will be considered concentrated. A firm should have an option to prevent a concentrated position from exceeding a certain threshold percentage value of the total market value of the account.

- Position that less than 30% of the total market value
- market value
- Positions that make up 50% of total market value
- Positions with a value greater than 50% of your total market value

## POSITION SHARE LIMIT

- This control restricts the total shares of positions.
- It is measured by the position's share amount.
- If this control is breached, one of the following actions take place:
  - Allow Close & Cancels: Only cancel or orders to offset positions are allowed.

## POSITION NUMBER

- This control restricts the number of positions.
- It is measured by the number of positions per account
- If this control is breached, one of the following actions take place:
  - Allow Close & Cancels: Only cancel or orders to offset positions are allowed.

## MAXIMUM TOTAL VALUE NOTIONAL

This control establishes the maximum size a Sponsored Participant's account is allowed to reach, measured in total dollar value. It is actual dollar value for trades for the day. To calculate this value use Total Value of Buy orders plus Total Value of Sell and Sell Short orders. Total Value is equals to sum of values\* of all orders on same side

- The value of the order is equals to shares of that order multiply by limit price specified on the order or market price derived from either the limit of the order and Market Data at the time of order entry.
- This control establishes the maximum notional value traded on a daily basis.
- It is measured by the total notional amount traded daily.
- This is the sum of all buy, sell, short orders and trades. (orders + executions)
- If this control is breached, one of the following actions take place:
  - Subsequent orders are rejected when 'Block When Daily Limits Exceeded'

## NET TOTAL VALUE

- Total sell value – Total buy value

## MAXIMUM GROSS QUANTITY

- This control establishes the maximum number of shares traded on a daily basis.

- It is measured by the total number of shares traded daily. (buys + sells + shorts)
- If this control is breached, one of the following actions take place:
  - Subsequent orders are rejected when 'Block When Daily Limits Exceeded'

## MAXIMUM OPEN ORDERS

- This control restricts the maximum number of orders that can be open at a given moment

## BUYING POWER

Buying Power is the total additional dollar amount of securities that one can buy or sell short today. Buying Power is used during trading hours including pre-open and post close. Buying Power should only be calculated for orders entered to the market (Placed, Child orders and Inbound Auto).

- Formula to calculate Buying Power:
- $\text{Buying Power} = \text{Cash} \times \text{BP Multiplier}$

Buying Power can be entered either as a total value or as a combination of an Excess Equity and a BP Multiplier where the Excess Equity is the amount of available cash in the account. The Excess Equity, Multiplier, and Buying Power, values can be either manually input to the database or automatically loaded each morning as part of the morning upload process. It can be calculated by multiplying the Excess Equity by the BP Multiplier. For instance, a trader whose account has an Excess Equity of \$25,000 and a BP Multiplier of 4 will have an effective day buying power of \$100,000.

## INTRA-DAY BUYING POWER CALCULATIONS

- Buy Order Example - If a user has a Buying Power of \$60,000 and an open order to Buy 1000 shares at \$25 with dollar value of \$25,000 is placed, that user will then have remaining buying power of \$35,000. If the order is canceled, the available Buying Power for that user goes back to the initial \$60,000.
- Sell Short Order Example - If a user has a Buying Power of \$60,000 and an open order to Sell Short 1000 shares at \$25 with dollar value of \$25,000 is placed, that user will then have remaining buying power of \$35,000. If the order is canceled, the available Buying Power for that user goes back to the initial \$60,000.

## PATTERN CONTROLS

### MAXIMUM ORDER RATE

- This control establishes the maximum number of messages a client can send within a specific period of time
- It is measured by the amount of messages (new order and amend) within a specific period of time set in seconds.

- If this control is breached any additional orders are rejected for a specified lockout period of time set in seconds.

## DUPLICATE ORDER CHECK

This control seeks to limit the ability of a Sponsored Participant to enter into an endless loop of submitting the same order. A duplicate order exists when a Sponsored Participant submits more than 250 consecutive orders within one second that contain the same symbol, same side, same venue, and same price. This control is validated by entering at least 300 consecutive orders within one second that matches the above criteria. If the 251st order and each subsequent order that meets the aforementioned criteria is blocked or rejected, the control is adequate

The logic for “Duplicate Order Check” is the following:

- Duplicate orders are checked for orders generated for the same symbol, side, price, and venue.
- The algorithm checks the number of orders (N) during a period of time (T). If the number (N) of orders for the same symbol, side, quantity, price, and venue exceeds the limitation during a period of time (T), then any further orders for that symbol with the same characteristics are rejected for a penalty period (P). The penalty period (P) is duration of time set by the sponsoring broker.

This control limits the ability to send duplicate orders.

- A duplicate order exists when consecutive orders are submitted within a period of one second that contains the same symbol, side, quantity and price.

## WASH SALE CHECK

Wash Sale checks only occur at or near the NBBO (National Best Bid Best Offer). Clients will place orders that are not marketable that will be far from the NBBO.

The Wash Sale checks can be performed on a firm or user level.

The following is the logic for checking for Wash Sales

- Buys placed 1% below the NBBO should be permitted, no check
- Sells Placed 1% above the NBBO should be permitted, no check
- Market Orders (buy or Sell) always check against off-setting orders rule to permit order
- Buy order above the NBBO within 1% check per firm and/or per user
- Sell order below the NBBO within 1% check per firm and/or per user

Orders that violate the rule will be rejected.

## TRADING HALTS

This control must systematically be able to reject orders for securities that are subject to a trading halt. This control is validated by entering an order for a security that is subjected to a trading halt. If the system blocks or rejects the order, the control is adequate.



When trading on the primary market is halted either on a regulatory basis or as the result of an order imbalance all orders received during the halt will be rejected immediately. FI processes trading halt messages from the consolidated market data feeds, CQS/CTS & the UTP market data feeds. FI normalizes the different types of halts. FIND will push halt/reopen status in real time to remote instances.

## REGULATION SHO

FINRA Regulation SHO refers to a set of rules established by the Financial Industry Regulatory Authority (FINRA) regarding short selling and the borrowing of securities. It is intended to prevent abusive short-selling practices and to promote market transparency. Regulation SHO is part of a broader set of rules originally adopted by the Securities and Exchange Commission (SEC) to update the regulatory framework concerning short selling and address issues such as naked short selling.

Key aspects of Regulation SHO include:

1. **Rule 201 (Short Sale Price Test Circuit Breaker):** This rule generally prevents traders from short selling a stock at a price lower than the current best bid when a stock's price has dropped more than 10% in one day. It's aimed at preventing short selling that might exacerbate a decline in the stock's price.
2. **Rule 203 (Borrow and Delivery Requirements):** This rule requires that before executing a short sale, brokers must have reasonable grounds to believe that the security can be borrowed and delivered on the date delivery is due. This is to prevent "naked" short selling, where the seller does not borrow the security in time to deliver it to the buyer.
3. **Rule 204 (Close-out Requirement):** This mandates that participants of a clearing agency must deliver securities by settlement date or take immediate action to close out failure-to-deliver positions by purchasing or borrowing securities. This rule is designed to reduce the number of fails-to-deliver in the market.

## ENFORCING REGULATION SHO ON A DIRECT MARKET GATEWAY

Direct Market Access (DMA) gateways provide traders with direct access to exchanges and ECNs, allowing them to execute trades without going through a broker's traditional trading desk. Enforcing Regulation SHO on a DMA gateway involves several technical and procedural safeguards:

1. **Real-time Monitoring and Filters:** Implement real-time monitoring systems and filters on the DMA gateway to automatically detect and prevent potential violations of Regulation SHO, such as attempts to execute short sales in violation of the price test rules or without ensuring borrow availability.
2. **Pre-trade Compliance Checks:** Integrate pre-trade compliance checks into the DMA system to verify that all short sales comply with Regulation SHO requirements, including checking against a list of securities that are currently under a short sale restriction and ensuring that there is a reasonable basis to believe the security can be borrowed.

3. **Automatic Borrowing Arrangements:** Establish automatic arrangements with custodians or third parties to ensure the borrowing of securities for short sales, where possible, before executing the trade.
4. **Reporting and Record-Keeping:** Maintain detailed records of all trades and compliance checks related to Regulation SHO. This includes documenting the basis for reasonable belief that securities could be borrowed for short sales and reporting fails-to-deliver to regulatory authorities as required.
5. **Training and Policies:** Provide comprehensive training to traders using the DMA gateway on the requirements of Regulation SHO and develop clear policies and procedures for compliance. This helps ensure that users of the DMA system are aware of their obligations under the regulation.

Enforcement of Regulation SHO on a DMA gateway requires a combination of advanced technology, strict procedures, and thorough training to ensure that all trades comply with the regulation and that the integrity of the market is maintained.

## REG SHO POSITION ENFORCEMENT AND LOCATE REQUIREMENTS

This control checks against the broker supplied available locate list prior to allowing short sale orders. If a short sale order is placed for a security that is not on the list, the system rejects the order. This control is validated by entering a short sale order for a security that is not on the available to locate list. If the order is blocked or rejected, the control is adequate. This control is set on the Firm level.

The client clearing firm will supply FI with an FTP website containing either an Easy to Borrow (ETB) or Hard-To-Borrow (HTB) list for daily upload into the system. If an ETB list is supplied, any symbol that is not on the list is classified as HTB, and a locate flag is required.

If the clearing firm supplies an HTB list, then any symbols that are not on the list are assumed to be ETB and a locate is not required. If the security it is on the HTB list, then a locate is required.

Firms capable of supplying an easy to borrow list will be required to supply the file prior to start of the trading day. The system will read the file and set the appropriate fields in the system.

- A new list of securities each day
- A list of securities to be added or deleted on a daily basis.

### Pre-Locate List

- This control restricts the ability to submit sell short orders in certain instruments.
- If a sell short order is submitted for an instrument on this list and the share amount is greater than the amount specified in this list, the order is rejected by Fundamental Interactions.
- The share amount available to sell short is not replenished if the position is closed intra-day.

### Pre-Borrow List

- This control restricts the ability to submit sell short orders in certain instruments.

- If a sell short order is submitted for an instrument on this list and the share amount is greater than the amount specified in this list, the order is rejected by the trading system.
- The share amount available to sell short is replenished if the position is closed intra-day.

#### Restricted List

- This control restricts the ability to submit any orders in certain instruments.
- If an order is submitted for an instrument on this list, the order is rejected by Fundamental Interactions.

#### Penalty List

- This control restricts the ability to submit any sell short orders in certain all or certain instruments.
- If a sell short order is submitted for an instrument on this list, the order is rejected by Fundamental Interactions.
- If the root symbol is on the restriction list, then the options are rejected.

### REG SHO ORDER MARKING – REG NMS AND OTC SECURITIES

This control validates each order to verify proper order marking. This control considers current positions and resting open sell orders. This control is validated by several scenarios: Entering a sell-long order in a security with no long position; Entering a short sale order for a quantity larger than the long position; Entering a short sale order when a long position exists. If each of the above orders are blocked, rejected, or the order is modified to reflect the proper marking, prior to submitting to the marketplace.

### SHORT SELLING

The controls will block the ability to sell short any security.

### POSITION ENFORCEMENT

Enforce Short Sale – Enforce Short Sell configuration can be enabled or disabled.

### PREVENT

- If the sale order is greater than the current position, prevent entering order.
- For example, user enters order to sell 2,000 of shares of MSFT and current MSFT position in his/her blotter is long 1700 shares. User will need to put a sell that does not exceed current position.
- For Example, user is long 2,000 MSFT and places an order to sell 2,000 MSFT at a price. Then the user enters the following order to sell another 2,000 shares at a price or market, this order should either be rejected or flipped to short.

## FLIP-TO-SHORT

- The other option is to flip the order to a short, if the order qty exceeded the position.