US Equities Market Maker Specification

Version 1.2.4

January 31, 2020

Contents

1 Cboe Market Maker Registration Tool

Cboe, through its Customer Web Portal Market Maker Registration Tool, offers Registered Market Makers the ability to register symbols in which they wish to make a market. The Web Portal is accessed through the public website at http://www.markets.cboe.com/. Registration files must be uploaded prior to 9AM ET on the business day of the trading date they will be actively quoted on Cboe.

1.1 Cboe Customer Web Portal

Web Portal account administrators at Member firms can request logins for their firm personnel from the Cboe Trade Desk. After logging into their Web Portal account, users with appropriate access will be able to select the appropriate **Market Maker** link under Cboe Exchange Tools in the left menu of their account page.

The screen that follows allows Market Makers to view the current list of symbols they have registered in for the current and next trading session. Through this interface, Market Makers may also upload the list of symbols they wish to be registered in for the next trading session. Example syntax required for file uploaded is shown at the bottom of the active screen.

Once a symbol has been "ADDED", the Member will remain registered as a market maker in that symbol until a registration file is uploaded noting the symbol is to be "REMOVED". All files uploaded after 9:00AM ET will be processed and changes will be effective next day. Cboe does not automatically adjust any registrations due to corporate actions.

1.2 File Format

Each line of the registered securities upload file represents a rule containing a comma separated list of fields. The fields are defined as follows:

symbol,action

> ➢ symbol – The symbol, such as 'MSFT'.
> ➢ action – The action is one of the following two values:
>   1. ADDED: Add symbol to list of symbols for which you will be a market maker.
>   2. REMOVED: Remove symbol from list of symbols for which you will be a market maker.

2   Market Maker Peg Orders

To support Market Makers with their quoting obligations for registered securities, Cboe has created a Market Maker Peg order type. This order type essentially functions as a visible Peg order that will allow for quoting at an offset to a defined Reference Price as described below.

2.1   Reference Price

The Reference Price for a Market Maker Peg order will be the NBB for bids or NBO for offers; if there is no NBB or NBO, the Last Sale is used as the Reference Price. Note that in the absence of a Last Sale for the current trading day, the Market Maker Peg will wait to enter a quotation on that side until an execution occurs on the primary listing exchange.

The quote will be entered at a specified distance (the "Peg Price Percentage") away from the Reference Price as follows:

Limit Up-Limit Down Tier	Time Period	Peg Price Percentage
Tier 1	9:45AM – 3:35PM ET	8%
Tier 1	9:30AM – 9:45AM, 3:35PM – 4:00PM ET	20%
Tier 2	9:30AM – 4:00PM ET	28%

Orders with a limit price that is less aggressive than the Peg Price Percentage away from the Reference Price will be rejected. Orders that were originally priced within the Peg Price Percentage that later exceed the Peg Price Percentage because of market movements will be cancelled back.

2.2   Automated Quote Updates

Once the Market Maker Peg order has published a quote for a given security, the quote will not be refreshed until it falls outside of a band around its entered price. The band is presently defined to be 1% on the inside and 1.5% on the outside (these percentages are relative to the Reference Price):
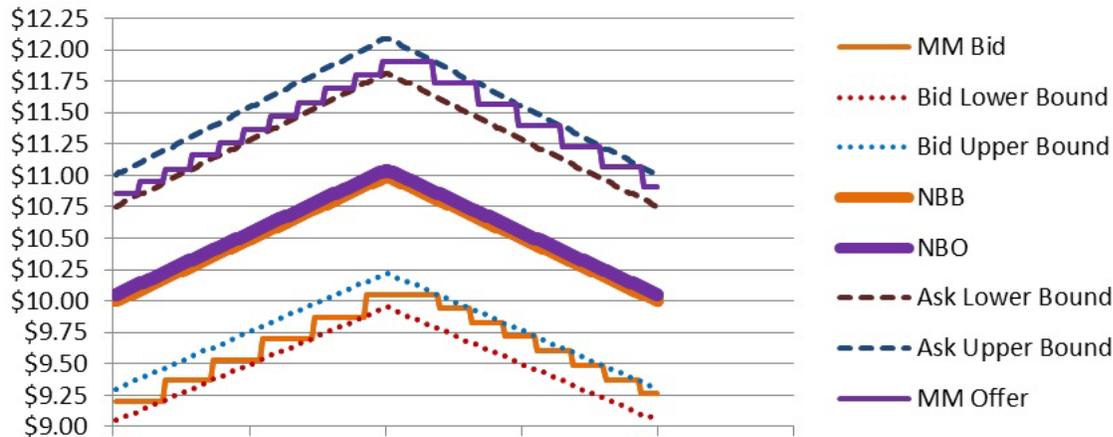
➢ A Market Maker Peg Bid in a Tier 1 NMS Stock under the Limit Up-Limit Down Plan will be automatically updated **during the 9:45AM – 3:35PM ET trading period** if it falls outside of the range (NBB x .905) to (NBB x .93).

➢ A Market Maker Peg Bid in a Tier 1 NMS Stock under the Limit Up-Limit Down Plan will be automatically updated **during all other trading periods** if it falls outside of the range (NBB x .785) to (NBB x .81).

➢ A Market Maker Peg Bid in a Tier 2 NMS Stock under the Limit Up-Limit Down Plan will be automatically updated **during the 9:30AM – 4:00PM ET trading period** if it falls outside of the range (NBB x .705) to (NBB x .73).

➢ A Market Maker Peg Offer in a Tier 1 NMS Stock under the Limit Up-Limit Down Plan will be automatically updated **during the 9:45AM – 3:35PM ET trading period** if it falls outside of the range (NBO x 1.07) to (NBO x 1.095).

➢ A Market Maker Peg Offer in a Tier 1 NMS Stock under the Limit Up-Limit Down Plan will be automatically updated **during all other trading periods** if it falls outside of the range (NBO x 1.19) to (NBO x 1.215).

➢ A Market Maker Peg Offer in a Tier 2 NMS Stock under the Limit Up-Limit Down Plan will be automatically updated **during the 9:30AM – 4:00PM ET trading period** if it falls outside of the range (NBO x 1.27) to (NBO x 1.295).

The following diagram and detailed example illustrate how price bands are used to determine when a quote refresh will occur. An NBBO update that causes an existing Market Maker Bid or Ask quote to fall outside of the price band results in a quote refresh as demonstrated in the diagram that follows.

Example: Consider an **NBBO at $10.00 X $10.01** in a Tier 1 NMS Stock under the Limit Up-Limit Down Plan (the "Security") at a time of 9:35AM ET.

A Cboe Market Maker Peg is entered to **buy for one round lot at $8.00** (10.00 x .8) (the "Market Maker Bid") and a Market Maker Peg is entered to **sell for one round lot at $12.01** (10.01 x 1.2) (the "Market Maker Offer") in the Security. The price of the orders will be calculated using a Peg Price Percentage of 20%, as set forth above.

Assume that the **NBBO for the Security moves to $10.09 X $10.10**. The current Market Maker Bid of $8.00 will not be re-priced because it will remain between the price bounds of the NBB (Lower Bound:

$10.09 x .785 = $7.921; Upper Bound: $10.09 x .81 = $8.173). The current Market Maker Offer of $12.01 will fall outside of the range of the price bounds of the NBO (Lower Bound: 10.10 x 1.19 = $12.019; Upper Bound: 10.10 x 1.215 = $12.272), so the **Market Maker Offer will be re-priced to $12.12** (10.10 x 1.2).

Assume that the **NBBO moves back to $10.00 X $10.01**. The Market Maker Bid ($8.00) will remain within the price bounds of the new NBB (Lower Bound: 10.00 x .785 = $7.85; Upper Bound: 10.00 x .81 = $8.10) and, thus, the **Market Maker Bid will not change**. Similarly, the current Market Maker Offer of $12.12 will still fall within the price bounds of the NBO (Lower Bound: 10.01 x 1.19 = $11.912; Upper Bound: 10.01 x 1.215 = $12.162) and, thus, the **Market Maker Offer will not change**.

At 9:45AM ET, the Peg Price Percentage moves to 8% and the Cboe Market Maker Peg order will **automatically re-price** the Market Maker Bid to **$9.20** (10.00 x .92) and the Market Maker Offer to **$10.81** (10.01 x 1.08).

Assume that the **NBBO for the Security moves to $9.89 X $9.90**. The existing Market Maker Bid of $9.20 will now fall outside the price bounds of the NBB (Lower Bound: 9.89 x .905 = $8.95; Upper Bound: 9.89 x .93 = $9.198), so the **Market Maker Bid will be re-priced to $9.10** (9.89 x .92). As the current Market Maker Offer of $10.81 will remain within the bounds of the NBO (Lower Bound: 9.90 x 1.07 = $10.593; Upper Bound: 9.90 x 1.095 = $10.841), the **Market Maker Offer will not change**.

Assume that the **NBBO now drops to $9.86 X $9.87**. The Market Maker Bid of $9.10 will remain within the price bounds of the new NBB (Lower Bound: 9.86 x .905 = $8.923; Upper Bound: 9.86 x .93 = $9.17) and, thus, the **Market Maker Bid will not change**. The Market Maker Offer of $10.81, however, will now fall outside the price bounds associated with the new NBO (Lower Bound: 9.87 x 1.07 = $10.561; Upper Bound: 9.87 x 1.095 = $10.808) and the **Market Maker Offer will be re-priced to $10.65** (9.87 x 1.08).

As the NBBO moves, the Peg Price Percentage of 8% will continue to be used to determine the lower and upper bounds until the end of the time period.

Assume the NBBO is $10.00 X $10.01 **at 3:35PM ET at which time the Peg Price Percentage of 20% goes back into effect**. At this point, the Cboe Market Maker Peg order will **automatically re-price** the Market Maker Bid to **$8.00** (10.00 x .8) and the Market Maker Offer to **$12.01** (10.01 x 1.2).

Note that all quote calculations will be rounded to the most aggressive displayable tick size.

2.3 Market Maker Peg Order Specifications

For complete details regarding order entry settings required for Market Maker Peg orders, please refer to the appropriate Cboe US Equities Specification:

➢ [Cboe US Equities FIX Specification Version 2](#)

- ➢ [Cboe US Equities BOE Specification Version 2](#)

3   Support

If you have any questions or would like to begin using Cboe Market Maker Registration Tool, please contact your Sales Account Manager or the Cboe Trade Desk:

Cboe Trade Desk
tradedesk@cboe.com
Phone: 913.815.7001

Revision History

Document Version	Date	Description
1.0.0	02/11/13	Initial Version 1.0.0 – replaces US Equities Market Maker Quoter Specification Version 1.0.4 due to deprecation of Market Maker Quoter.
1.1.0	02/19/16	Bats branding/logo changes.
1.2.0	05/16/16	Removed all references to SSCB as Single Stock Circuit Breaker NMS Plan was replaced by the Limit Up-Limit Down NMS Plan. Additional Bats branding changes.
1.2.1	07/05/17	Removed last reference to SSCB. Removed references to deprecated specifications.
1.2.2	10/17/17	Cboe branding/logo changes.
1.2.3	12/17/18	Updated Reference Price information table to include Tier 2 (price <$1.00) information.
1.2.4	01/31/20	References to "Designated Percentage" were replaced by "Peg Price Percentage" for clarification. Clarified handling of MM Pegs with limit prices exceeding the Peg Price Percentage.