
NYSE American Options

Customer Best Execution (“CUBE”) Mechanism

Frequently Asked Questions

GENERAL INFORMATION

1. What is CUBE?

CUBE is NYSE American Options’ (the “Exchange”) electronic crossing price improvement auction mechanism. CUBE is available for single-leg orders (“Single-Leg CUBE”) and complex orders (“Complex CUBE”), and offers exchange participants (“Participants”) the ability to seek price improvement on paired orders of any size.

2. What does it mean that is CUBE for “Paired Orders”?

Paired orders are comprised of an ‘Initiating order’ and an accompanying ‘Contra order’. A CUBE order must contain both the Initiating order and the Contra order to be considered eligible to begin an auction. The Contra order guarantees execution to the Initiating order (within allowable execution ranges) and may be facilitated by principal interest or interest solicited from a third party.

3. At a high level, how does the CUBE auction operate?

Upon receipt of a valid CUBE order, the auction will be broadcast via a Request for Quote (“RFQ”) message to subscribers of the NYSE American Options’ market data (“XDP”) feeds. A CUBE Timer (“Timer”) will begin during which time interested Participants may submit responses to interact with the Initiating CUBE order. Upon the conclusion of the Timer, responses will be evaluated and allocated.

Participants should refer to Exchange rules for details about the specifics of each mechanism (See NYSE American Rules 971.1NY (Single-Leg CUBE) and Rule 971.2NY (Complex CUBE).

4. Is there a size minimum for CUBE orders?

No. There is no minimum size for the Initiating order portion of CUBE orders. (Note: For order entry purposes, Participants should specify ‘F’ for orders that are 50 or greater, and ‘P’ for orders less than 50. Participants should refer to system specification documents for additional details.)

5. How are CUBE RFQs broadcast and what information do they contain?

RFQ messages are broadcast over the corresponding XDP market data feeds depending on the order type. RFQs broadcasting Single-Leg CUBE messages are disseminated in the Top of Book XDP feed, while RFQs broadcasting Complex CUBE messages are distributed over the Complex XDP feed. RFQ messages include the initiating price, series/complex strategy, side, and size of the CUBE order.

6. What is the duration of the CUBE Timer?

Currently, for each CUBE auction, the CUBE Timer will conclude after a random duration of between 500 and 750 milliseconds, unless a qualifying event causes an early conclusion to the auction. Early conclusion scenarios are described in further detail in subsequent sections of this document. If the Exchange makes any changes to the duration of the CUBE Timer, such change will be announced via a Trader Notice.

7. Is there a restriction on which Participants may submit a CUBE order?

No. Any Participants seeking to employ a price improvement auction mechanism for their orders may utilize the CUBE functionality.

8. Can the Initiating or Contra side of a CUBE order be submitted for a Participant of any clearing capacity?

The Initiating order for a CUBE may be submitted on behalf of any clearing capacity (Customer, Firm, Market Maker, etc.). However, the Contra order may be submitted for any clearing capacity *except* for Customer.

9. Can the Initiating or Contra side of a CUBE order be modified or cancelled?

No. The Contra order portion of a CUBE order guarantees execution for the Initiating order portion and therefore such orders cannot be modified or cancelled. CUBE auction functionality operates to provide Participants the opportunity to seek price improvement for the Initiating order. If there is no eligible interest to improve the price guaranteed by the Contra order, the Initiating order will trade in its entirety with the Contra order.

10. Is there any restriction on which Participants may respond to a CUBE order?

No. Any Participant that would like to interact with the Initiating CUBE order may respond to an RFQ with a GTX order. Note that certain non-GTX interest that is eligible to interact with an Initiating CUBE order will do so even if not submitted as a GTX order.

11. What is a GTX order?

A GTX order has a Time-in-Force designation for the duration of, and is submitted as a response to, a CUBE auction. GTX orders may only be submitted on the opposite side of the Initiating order portion of a CUBE order and may be entered in \$0.01 increments. After the CUBE Order is allocated in full, any remaining quantity of a GTX order may trade (if eligible) with existing interest in the Exchange's Consolidated Book and any unexecuted portion will then cancel.

12. Are responses to CUBE auctions disseminated on XDP or OPRA?

It depends. Responses that are sent in the form of GTX orders are not disseminated on either XDP or OPRA. However, any interest that is received during a CUBE auction that is eligible to trade with the CUBE order (but is not designated as a GTX order) will be broadcast on XDP and OPRA in accordance with normal processing rules for the specific interest.

13. Can responses to a CUBE auction be modified or cancelled?

Yes. GTX orders submitted to interact with a CUBE order may be cancelled or modified. Other interest that is eligible to interact with the CUBE order that is received during an auction can also be modified or cancelled.

14. What if a response to a CUBE auction is for a larger size than the interest in auction?

Interest that is eligible to interact with the CUBE order, including GTX orders, will be capped at the size of the CUBE order for the purpose of pro-rata execution allocations.

15. How is the Initiating order portion of a CUBE order allocated?

Upon conclusion of the CUBE Timer, Customer responses will take first priority at each price point to trade with the Initiating order portion of a CUBE order on a pro-rata basis, followed by other interest at each price point (on a pro-rata basis) up to the price(s) at which the Contra order guaranteed the execution of the CUBE order.

The Contra order will trade with 40% of the initiating portion of the CUBE order at the guarantee price(s) unless more than 60% of the initiating portion of the CUBE order can be price improved by other Participants/eligible interest received during the auction (i.e., the Contra order will yield priority at a given price once the 40% entitlement is satisfied). Participants should refer to Exchange rules for details about the order allocation for each mechanism (See Rule 971.1NY (Single-Leg CUBE) and Rule 971.2NY (Complex CUBE).

16. Can multiple CUBE auctions in the same auction mechanism (i.e., in the Single-Leg CUBE or the Complex CUBE) take place concurrently for the same series/complex strategy?

No. If the Exchange receives an order to start a Single-Leg CUBE for a single option series while a Single-Leg CUBE is in process for that same series, the initial CUBE Auction will end early. Similarly, if the Exchange receives an order to start a Complex CUBE for a complex strategy while a Complex CUBE is in process for that same complex strategy, the initial CUBE Auction will end early.

17. Can a CUBE Auction conclude early?

Yes. CUBE auctions may end early (prior to the conclusion of the random Timer) as a result of certain events that would otherwise disrupt the priority of interest in the Consolidated Book. The early conclusion events are discussed in further detail below.

18. What happens when a CUBE Auction concludes early?

In the event of an early end to a CUBE auction, an allocation is conducted with the responses that exist at the time the auction ends. Allocations of executions are applied in accordance with the CUBE priority rules and the Exchange's allocation algorithm.

19. Are there limits on when CUBE auctions may be commenced?

Yes. CUBE auctions may only occur during the Exchange's core trading hours, provided there is sufficient time to process the CUBE auction (i.e., at least one second before the end of Core Trading Hours). Orders submitted for a CUBE auction outside of Core Trading hours will be rejected.

20. Are orders processed in CUBE auctions subject to the same transactions costs as other non-CUBE orders?

No. Executions in CUBE auctions are subject to separate fees/credits. Participants should consult the [NYSE AMERICAN OPTIONS FEE SCHEDULE for](#) Information regarding such fees/credits.

21. What changes do Participants need to make to employ in CUBE auctions?

Participants currently utilizing the Single-Leg CUBE Mechanism do not need to make any changes to continue its use. New Participants wishing to submit CUBE orders must make changes as detailed in the FIX and/or UGW order entry interface specifications. Participants that would like to receive CUBE broadcast messages must program to read NYSE's market data feeds per the XDP system specifications. Participants wishing to respond to Single-Leg CUBE auctions may do so with quotes or orders, and complex orders for Complex CUBE auctions.

System specification documents have been updated and may be reviewed for additional details on CUBE functionality:

[XDP Options Client Specification](#)

[NYSE Arca FIX Gateway Specification](#)

[UGW Binary Gateway Specification](#)

22. How can Participants obtain additional information regarding CUBE functionality?

Single-Leg CUBE and Complex CUBE are available for testing on the NYSE's Enhanced Certification Testing environment. For assistance with the testing please contact Technology Member Services at Firmtesting@nyse.com. For any additional questions please contact the NYSE Relationship Management Team at rmteam@nyse.com.

ADDITIONAL INFORMATION FOR SINGLE-LEG CUBE

23. What are the Single-Leg CUBE Auction Start Price Rules?

The permissible initiating price for a Single-Leg CUBE auction depends on the order type and size:

Single-Leg Orders Smaller than 50 contracts - may start at the NBBO if the Exchange is not already part of the NBBO. Alternatively, the Initiating CUBE order must be \$0.01 inside the NBBO if the Exchange is already part of the NBBO.

Single-Leg Orders 50 contracts or Greater - may start at the NBBO, except if there is Customer interest on the Book on the Initiating side BBO. In instances where Customer interest exists, the Initiating CUBE order must improve the Exchange's local same- side BBO by at least \$0.01.

The accompanying Contra must be executable with the Initiating side order and indicate one of the following three execution limits:

Single stop price that guarantees the execution at the initiating price or better;

Auto-match limit to indicate the contra firm will match other auction respondents' volume at every improved price up to a limit; or

Auto-match to indicate the contra firm will match other auction respondents' volume at every improved price.

24. What Type of Interest can interact with Single-Leg CUBE?

Participants wishing to interact with a Single-Leg CUBE order may submit orders, including GTX, and/or quotes as responses to a Single-Leg CUBE auction.

25. What can cause Single-Leg CUBE auctions to terminate early?

CUBE auctions will conclude early and the Initiating order will be filled if, in the same series as the current auction:

- a) A new Single-Leg CUBE order in the same series arrives;
- b) A new BBO on the same side as the Initiating CUBE order improves the initiating price;
- c) A market order, marketable quote, or marketable limit order arrives (on either side);
- d) Sufficient interest to fill a resting AON order is received during the auction. In this scenario the auction will conclude early and the CUBE Order will execute with priority; the AON order will then fill if sufficient size still remains.

ADDITIONAL INFORMATION FOR COMPLEX CUBE

26. What are the CUBE Auction start price rules?

To begin a Complex CUBE auction, the price for the Initiating Complex CUBE order must improve both the Initiating side derived Complex BBO by at least \$0.01 times the smallest leg ratio and the initiating side Complex BBO by at least \$0.01.

The accompanying Contra order must be executable with the Initiating side order and indicate an execution preference of a *Single stop price* that guarantees the execution at the initiating price or better or *Auto-match limit* to indicate the contra firm will match other auction respondents' volume at every improved price up to a limit. The Contra order must also improve both the contra side Derived BBO by at least \$0.01 times the smallest leg ratio and the contra side Complex BBO by at least \$0.01.

27. What type of Interest can interact with a Complex CUBE order?

Any complex orders that arrive while a Complex CUBE auction is in progress (including GTX orders) are eligible to trade with the initiating portion of the CUBE order. Single-leg orders and/or quotes are not eligible to interact in a Complex CUBE.

28. What can cause Complex CUBE auctions to terminate early?

CUBE auctions will conclude early and the Initiating order will be filled if, in the same complex series as the current auction:

- a) A new Complex CUBE order in the same complex order strategy arrives;
- b) The Initiating CUBE order side boundary updates to a price better than the initiating price;
- c) The Exchange receives any interest that adjusts the Initiating CUBE order side boundary to cross any RFQ Responses;
- d) The Exchange receives any interest that adjusts the Initiating CUBE order side boundary to cross the single stop price specified by the initiating Participant. (This early end scenario would not apply to instances where the initiating Participant specified an auto-match limit price);
- e) The Exchange receives interest that crosses the Initiating CUBE order side boundary;
- f) The Exchange receives interest in the leg market that causes the contra-side boundary to be better than the stop price or auto-match limit price.

29. How does Complex Order Auction "COA" and CUBE differ?

Similar to CUBE, COA is a mechanism on the Exchange designed to offer price improvement to Complex Orders, however COA is not a paired order mechanism and does not guarantee an execution. Because only one auction may occur in a complex strategy at a given time, a COA in progress will end upon receipt of a better-priced Complex CUBE during the COA.