

# Cumulative Quantity and Price Determination

## Determining Cumulative Quantity

The Indicative Opening Price is established by determining which price will match the most volume based on the current mix of bids and offers available in the order book. CME Globex examines all prices where Bids and Offers overlap. The Bid and Offer quantity available at each price in the overlapped price level is listed and the cumulative quantity total of all bids and offers is determined at each price.

Bid cumulative quantity is determined by summing the bid quantity at each price, starting from the highest price and cumulating down to the lowest price level. Offer cumulative quantity is determined by summing the offer quantity at each price, starting from the lowest price and cumulating up to the highest price level.

Cumulative Totals of Bids and Offers				
Cumulative Sum of Bids	Bid Quantity	Price	Ask Quantity	Cumulative Sum of Offers
10	10	51	30	357
30	20	50	100	327
60	30	49	1	227
100	40	48	25	226
150	50	47	1	201
220	70	46	100	200
320	100	45	90	100
321	1	44	4	10
351	30	43	6	6



If a Display Quantity order is on the book while the Indicative Opening Price is being calculated then the entire order size (not just the displayed book quantity) is included in the calculation.

## Price Examination for Matching

Once the cumulative quantities available at each price are established, each price can be examined to determine where the most orders can match.

At each price level, all cumulative bids can be matched at that price or better and all cumulative offers can be matched at that price or better.

For example, if a match is executed at price level 43, bids at 44 through 51 could also potentially be matched. The opposite is true for offers. If a match is executed at price level 51, offers at 50 through 43 could also potentially be matched.

- At price level 48, there are 100 cumulative bid instruments available and 226 cumulative offer instruments available. A match at price 48 would execute 100 leaving a quantity of 126 offer instruments remaining on the book at the moment of the market opening.
- At price level 47, there are 150 cumulative bid instruments available and 201 cumulative offer instruments available. At price level 47, the result would be 150 instruments executed.
- At price level 46, there are 220 cumulative bid instruments available and 200 cumulative offer instruments available. At price level 46, the result would be 200 instruments executed.
- At price level 45, there are 320 cumulative bid instruments available and 100 cumulative offer instruments available. At price level 45, the result would be 100 instruments executed.

The Indicative Opening Price would be price level 46 where the maximum quantity of 200 instruments could be matched.