

## EURONEXT DERIVATIVES NOTICE

All Markets

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3 June 2019

### IMPLEMENTATION OF PRO-RATA FOR EQUITY OPTIONS

#### Executive Summary

Euronext will change the order prioritisation from price/time priority to pro-rata priority across its equity options markets. This change will be implemented in Production for Dutch and Belgian equity options on Monday 3 June and for French equity options on Monday 1 July.

Euronext will change the order prioritisation from price/time priority to pro-rata priority across its equity options markets.

Pro-rata has already been implemented for options on German underlying shares and options on ETFs, listed on the Amsterdam derivatives market.

#### DESCRIPTION OF PRO-RATA

- The pro-rata matching algorithm fills orders according to price, size and time. With the pro-rata algorithm, resting orders with the best price are matched first. For resting orders with the same price, a ratio is calculated by dividing the order quantity of each resting order at the best price by the total order quantity at that price. The volume of an incoming order is divided between the resting orders by multiplying the ratio of the resting order by the volume of the incoming order; this is called the “pro-rated volume” of a resting order.
- In a first step the incoming order is executed against the calculated pro-rated volume of the resting orders. Resting orders with the highest pro-rated volume are executed first. When there are resting orders with equal pro-rated volume, these resting orders are executed based on time of order entry on a First In, First Out (FIFO) basis.
- If the calculated pro-rated volume is greater than 1, the quantity is rounded down to the nearest integer; if the calculated pro-rated volume is less than 1, the quantity is rounded up to 1 lot. For example: if the unrounded allocation of a resting order is 2.8 lots, the rounded allocation will be set at 2 lots. If the unrounded allocation of a resting order is 0.3 lots, the rounded allocation will be set at 1 lot.
- If the incoming order has not been fully executed due to rounding effects of the pro-rated volume, the residual incoming order quantity is distributed over the remaining resting orders by recalculating the pro-rated volume per resting order. In this second step the original ratio of the first step is applied and

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the same priority rules are applied (resting orders with the highest pro-rated volume are executed first; when there are resting orders with equal pro-rated volume, resting orders are executed based on time of order entry).

- The pro-rata algorithm is only applied to resting orders. For aggressive orders, priority is still given on the basis of time.

Market maker preferencing as applicable to certain contracts will no longer be available with the implementation of pro-rata.

**Example**

An order book is comprised of four resting orders at an offer price of 100 for a total of 280 lots:

	Timestamp	Bid Quantity	Bid Price	Offer Price	Offer Quantity	Timestamp
				100	50	10:00:00
				100	150	10:00:01
				100	40	10:00:02
				100	40	10:00:03
Total					280	

An order is entered at a bid price of 100 for a total of 250 lots. For the incoming order pro-rata will result in the following fills:

Offer Price	Offer Quantity	Time stamp	Ratio	Pro-rated volume	Rounded pro-rated volume	Residual pro-rated volume	Rounded residual pro-rated volume	Allocated residual pro-rated volume	Fill
100	50	10:00:00	18% (50/280)	44.6 (18% x 250)	44	0.5 ((250-247) x 18%)	1	1	44+1=45
100	150	10:00:01	54% (150/280)	133.9 (54% x 250)	133	1.6 ((250-247) x 54%)	1	1	133+1=134
100	40	10:00:02	14% (40/280)	35.7 (14% x 250)	35	0.4 ((250-247) x 14%)	1	1	35+1=36
100	40	10:00:03	14% (40/280)	35.7 (14% x 250)	35	0.4 ((250-247) x 14%)	1	0	35
Total	280				247			3	250

Following execution, the order book is as follows, with allocation ratios amended:

Ratio	Timestamp	Bid Quantity	Bid Price	Offer Price	Offer Quantity	Timestamp	Ratio
				100	5	10:00:00	17%
				100	16	10:00:01	53%
				100	4	10:00:02	13%
				100	5	10:00:03	17%

## TARGET DATES

Change to pro-rata for Dutch and Belgian equity options in Current EUA (options listed on AO and BO exchanges)	<b>Wednesday 2 May 2019</b>
Change to pro-rata for Dutch and Belgian equity options in Production (options listed on AO and BO exchanges)	<b>Monday 3 June 2019</b>
Change to pro-rata for French equity options in Current EUA (options listed on PO exchange)	<b>Monday 27 May 2019</b>
Change to pro-rata for French equity options in Production (options listed on PO exchange)	<b>Monday 1 July 2019</b>

For further information in relation to this Notice, contact your relationship manager at [ccc@euronext.com](mailto:ccc@euronext.com) or contact:

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