

LONDON NOTICE No. 3292

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CHANGES TO THE TIME PRO RATA TRADE MATCHING ALGORITHM USED IN SHORT TERM INTEREST RATE (“STIR”) FUTURES CONTRACTS

Executive Summary

The Time Pro Rata trade matching algorithm currently used in Three Month Euro (EURIBOR) Interest Rate Futures, Three Month Sterling (Short Sterling) Interest Rate Futures and Three Month Swiss (Euroswiss) Interest Rate Futures Contracts will be updated, and applied to all NYSE Liffe Short Term Interest Rate (STIR) Futures.

The Time Pro Rata trade matching algorithm will continue to encourage the timely entry of volume into the order book. However, the mathematical approach used within the matching algorithm will be updated. The algorithm currently considers both the size of resting orders and the sequence of orders entered. Following the update, it will continue to consider the size of resting orders, but will consider where the orders on a lot-by-lot basis sit in the sequence of lots entered, rather than the sequence of orders themselves.

1. Introduction

- 1.1 Short Term Interest Rate (“STIR”) Futures Contracts are a key element of NYSE Liffe’s portfolio. The Exchange’s goal is to continue to develop its STIR Futures Contracts, and to offer its members the most effective and efficient market place for trading.
- 1.2 London Notice No. 2908, issued on 27 June 2007, informed Members of the introduction of the Time Pro Rata trade matching algorithm which was designed to increase opportunities for traders who add liquidity to the market by considering both the size of resting orders and the sequence of orders entered. The Time Pro Rata trade matching algorithm has been successful and the Exchange has developed the approach further - and the consequent opportunities for liquidity providers - by updating this algorithm so that it will consider both the size of resting orders and where the orders on a lot-by-lot basis sit in the sequence of lots entered. Consequently, it is the amount of volume preceding and following a resting order that will govern its position in the sequence rather than the number of other orders preceding or following the resting order.
- 1.3 The changes above will be implemented into the Customer Test Support Group (“CTSG”) test environments for all NYSE Liffe STIR Futures **on Tuesday 15 June 2010, and will be deployed into the ‘live’ market at a date to be confirmed in a subsequent Notice.** The Time Pro Rata trade matching algorithm will therefore be updated for the following contracts:- the Three Month Euro (EURIBOR) Interest Rate Futures Contract, the Three Month Sterling (Short Sterling) Interest Rate Futures Contract, the Three Month Swiss

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(Euroswiss) Interest Rate Futures Contract. In addition, the updated Time Pro Rata trade matching algorithm will be deployed in the following contracts: the Three Month Euroyen (TIBOR) Interest Rate Futures Contract, the Three Month Eurodollar Futures Contract, the One Month EONIA Indexed Futures Contract and the Three Month EONIA Swap Index Futures Contract. These contracts currently use the Pro Rata trade matching algorithm.

- 1.4 LIFFE CONNECT[®] will be upgraded to accommodate this update. This upgrade does not require any action from Independent Software Vendors or member developers as there will be no changes to the API associated with this release. However, Members who have developed specific trading tools that take account of the features of the current matching algorithm(s) may wish to modify these in light of the changes detailed in this Notice.

2. Priority Orders

- 2.1 The operation of priority status will remain unchanged. Priority status is given to the first order to enter the market at best price, providing the order is greater than a pre-determined volume (the “collar”). An order with priority status will receive all incoming volume up to a certain level (the “cap”), before Time Pro Rata volume allocation proceeds.

3. Updated Time Pro Rata Trade Matching Algorithm

- 3.1 The updated Time Pro Rata trade matching algorithm will govern the allocation of incoming tradable volume by considering both the size of resting orders and where the orders on a lot-by-lot basis sit in the sequence of lots entered. This will be achieved in the following manner.
- 3.2 The allocation volume A_n , for each resting order n against incoming business of volume L lots, is calculated as follows (and assumes that all Priority volume (see section 2 above) has traded):

$$A_n = \text{MIN}(v_n, f_n \times L)$$

Where:

$$f_n = \frac{(TV - VP_n)^2 - (TV - VP_n - v_n)^2}{(TV)^2}$$

The terms used above are defined as:

A_n	Allocation for resting buy (sell) order n
v_n	Volume of individual resting order n being considered
f_n	‘Time Pro Rata Factor’ calculated for resting buy (sell) order n being considered i.e. Percentage of incoming sell (buy) order allocated to order n
L	Incoming sell (buy) order volume
TV	Total Volume, eligible for matching, resting in the order book
VP_n	Volume Preceding individual resting order n being considered

- 3.3 If, following this process, any volume remains unallocated (for instance, as a result of rounding¹, or when the calculated allocation for an order is checked by the MIN function above), then further passes of the allocation process will occur.

¹ In the event that the algorithm initially results in fractions of a lot being allocated, all allocations above a single lot are rounded down and all allocations below a single lot are rounded up. Any residual unallocated volume would then be allocated through a subsequent pass of the algorithm.

- 3.4 In the table below five buy orders rest in the market at a price of 98.000, entered in the sequence shown. An incoming sell order for 200 lots at a price of 98.000 enters the market. The calculations performed for each resting order and the volume allocation awarded to each (“Time Pro Rata Volume”) are shown below.

Order	Sequence n	Volume v_n	Updated Time Pro Rata Volume A_n	Previous Time Pro Rata Volume	Previous Pro Rata Volume
T1	1	100	38	38	20
T2	2	200	64	62	40
T3	3	200	48	47	40
T4	4	200	32	30	40
T5	5	300	18	23	60

4. Operation of Implied Orders

- 4.1 The operation of implied orders remains unchanged. Members may wish to refer to Section 5, London Notice No. 2908, which sets out a detailed explanation of the operation of “aggregate” and “constituent” orders within the operation of implied orders.

5. Customer Technical Support

- 5.1 The updated Time Pro Rata trade matching algorithm will be available in the CTSG test environment from **Tuesday 15 June 2010**.
- 5.2 The Exchange strongly recommends that all users test and familiarise themselves with these changes in the CTSG test environment.

For further information in relation to this Notice, Members should contact:

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