EURONEXT DERIVATIVES MARKETS

NYSE LIFFE.

# LONDON NOTICE NO. 3714

Issue Date:                                                   18 April 2013

Effective Date:                                               29 May 2013

**CHANGES TO THE TIME PRO RATA TRADE MATCHING ALGORITHM IN THREE MONTH SHORT STERLING AND THREE MONTH EUROSWISS INTEREST RATE FUTURES CONTRACTS**

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**Executive Summary**

This Notice informs Members of changes to the Time Pro Rata trade matching algorithm in Three Month Sterling (Short Sterling) and Three Month Euro Swiss Franc (Euroswiss) Interest Rate Futures Contracts.

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**1.       Introduction**

1.1       Short Term Interest Rate ("STIR") Futures Contracts are a key element of NYSE Liffe's product range. The Exchange's goal is to continue to develop its STIR Futures Contracts, and to offer Members the most effective and efficient market place for trading.

1.2       London Notice No. 3292, issued on 11 June 2010, and London Notice No. 3317, issued on 4 August 2010, informed Members of changes to the Time Pro Rata trade matching algorithm for the Three Month Euro (EURIBOR), Three Month Sterling (Short Sterling) and Three Month Swiss (Euroswiss) Interest Rate Futures Contracts.

1.3       This Notice informs Members of further changes to the Time Pro Rata trade matching algorithm in Three Month Sterling (Short Sterling) and Three Month Swiss (Euroswiss) Interest Rate Futures Contracts (the "Contracts") which have the effect of increasing the weighting of the Time element in the algorithm. For the avoidance of doubt, no changes will be made with respect to Three Month Euro (EURIBOR) Interest Rate Futures.  A summary of current operation is set out in Section 2 below, and the changes are described in Section 3 below.

1.4       The changes to the Time Pro Rata trade matching algorithm in the Contracts will be made available for Members in the CTSG testing environment on and from **30 April 2013** and will be implemented in the 'live' markets on and from **29 May 2013** (the "Effective Date").

1.5       The Exchange strongly recommends that all users test and familiarise themselves with these changes in the CTSG test environment.

1.6       The Exchange undertakes regular reviews of its markets, and welcomes feedback and comment from Members regarding market quality. With respect to STIR Futures contracts specifically, the Exchange's continuing aim is to maximise market quality by optimising the balance of elements in the trade matching algorithm. The Exchange will monitor the effectiveness of this change and may

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in future make further changes to the Time Pro Rata matching algorithm, or other product features, in order to further enhance market quality.

**2.    The  Current Time Based Pro Rata Matching Algorithm**

2.1    The Time Pro Rata trade matching algorithm considers both the size of the resting volume (the Volume element) and the sequence of its entry (the Time element) when awarding incoming volume to resting orders.

2.2    In the current Time Pro Rata implementation used in Three Month Euro (EURIBOR), Three Month Sterling (Short Sterling) and Three Month Swiss (Euroswiss) Interest Rate Futures Contracts, the allocation of volume $A_n$, for each resting order n against incoming business of volume L lots, is calculated as follows. It is assumed that all Priority volume (see paragraph 2.4 below) has traded.

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

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. Proportion 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

2.3    If, following this process, any volume remains unallocated (for instance, as a result of rounding[1], or when the calculated allocation for an order is checked by the MIN function above), then further passes of the allocation process will occur.

2.4    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. The approach described in this Section 2 will remain entirely unchanged for the Three Month Euro (EURIBOR) Interest Rate Futures Contract.

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[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.    Changes for Three Month Sterling (Short Sterling), and Three Month Swiss (Euroswiss) Futures**

3.1    For Three Month Sterling (Short Sterling) and Three Month Swiss (Euroswiss) Futures only, the allocation of volume $A_n$, for each resting order n against incoming business of volume L lots, will be changed so that it is calculated as follows on and from the Effective Date. Again, it is assumed that all Priority volume (see section 2.4 above) has traded.

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

Where:

$$f_n = \frac{(TV - VP_n)^4 - (TV - VP_n - v_n)^4}{(TV)^4}$$

The definition of the terms used above remains:

$A_n$    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. Proportion 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


3.2    The operation of rounding (see Section 2.3 above) and Priority (see Section 2.4 above) will remain unchanged.

3.3    In the example below, eight buy orders rest in the market at a price of 98.000, entered in the sequence shown.  An incoming sell order for 250 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 in the following table:

| Order | Sequence n | Volume $v_n$ | Updated Time Pro Rata Volume $A_n$ | Previous Time Pro Rata Volume |
|:---:|:---:|:---:|:---:|:---:|
| T1 | 1 | 50 | 14 | 7 |
| T2 | 2 | 100 | 28 | 14 |
| T3 | 3 | 100 | 24 | 14 |
| T4 | 4 | 200 | 43 | 27 |
| T5 | 5 | 200 | 35 | 24 |
| T6 | 6 | 200 | 28 | 23 |
| T7 | 7 | 1000 | 68 | 90 |
| T8 | 8 | 1500 | 10 | 51 |

**4.     Implied Orders**

4.1     Note that the operation of implied orders remains unchanged for all contracts.  Members may wish to refer to Section 5 of London Notice No. 2908, issued on 27 June 2007, which sets out a detailed explanation of the operation of "aggregate" and "constituent" orders within the operation of implied orders.

**5.     Further Information**

5.1     For information in relation to testing and test environment access for this change, Members should contact CTSG. For questions regarding Fixed Income products, Members should contact  Fixed Income Derivatives.


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