

CurveGlobal Markets

Trading Services Description

Version 9.3
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1. REVISION HISTORY

Date	Version	Notes
4 January 2021	9.3	MiFID II references updated following Brexit. CRO added among available SEP actions.
21 September 2020	9.2	Clarification on the required format of the TVTIC published by CurveGlobal Markets
20 July 2020	9.1	Amendments related to the listing of Butterfly Diffs.
13 December 2019	9	Re-branded.
6 December 2019	8.3	Re-write to ensure all LSEDM / IOB specific functionality / references removed. Plus, updates to reflect new enhancements with SOLA release 14.
29 July 2019	8.2	Amendments related to finer tick functionality for ICS.
29 July 2019	8.1	Amendments related to SOLA 13 and launch of One-Month SONIA futures.
24 June 2019	8	Rebranded to CurveGlobal Markets and removed all references to IOB derivatives.

Table 1: Revision History

2. INTRODUCTION

2.1 SCOPE AND READERSHIP

This document provides Member Firms and independent software vendors (ISVs) with the functional and technical details required for accessing and trading on CurveGlobal Markets.

The document provides the most up to date overview of: how to access the market, including the interfaces that can be used and the support services available; the typical Trading Day; Membership and Clearing considerations; the mechanics of the Trading platform, including the Order Types and the allocation algorithms configured for each of the listed products.

It is an essential source for Member Firms and ISVs to help inform the functional design of their applications and their interfaces with SOLA. Market Participants who require further technical details may refer to the Technical Specifications which are available in the 'Technical Specifications' section of the [CurveGlobal Markets Document Library](#).

2.2 RELEVANT EXCHANGE COMMUNICATION CHANNELS

Trading CurveGlobal Markets requires a Front-End trading application which interfaces with the CurveGlobal Markets Trading System, SOLA. There is a choice of message protocols for the submission and management of orders (and their responses) and Market Data is disseminated via a separate proprietary message protocol.

The SOLA Access Information Language (SAIL) API is the native protocol offered by the CurveGlobal Markets trading system for the management of orders and quotes.

The Financial Information eXchange (FIX) API is the messaging standard interface developed specifically for the real-time electronic exchange of securities transactions. FIX is a public-domain specification owned protocol, maintained by FIX protocol Ltd. The SOLA platform supports order messages in FIX 4.2 message format.

The High Speed Vendor Feed (HSVF) is the SOLA native market data dissemination feed. It is a high-speed transmission protocol which broadcasts real-time trading and market statistics from SOLA, including information on trades, quotes, market depth, strategies, bulletins, and summaries. HSVF uses standardised message formatting and is available via Transmission Control Protocol (TCP) or User Datagram Protocol (UDP) broadcast interfaces over the Internet Protocol (IP).

3. SYSTEM ARCHITECTURE

The CurveGlobal Markets Trading System is based on the SOLA trading software application and a dedicated technological infrastructure. It provides all the information and communication services supporting the functioning of CurveGlobal Markets.

The logical architecture of the CurveGlobal Markets Trading System is depicted in Figure 1 below, and includes the SOLA Trading Platform, and its interconnected systems.

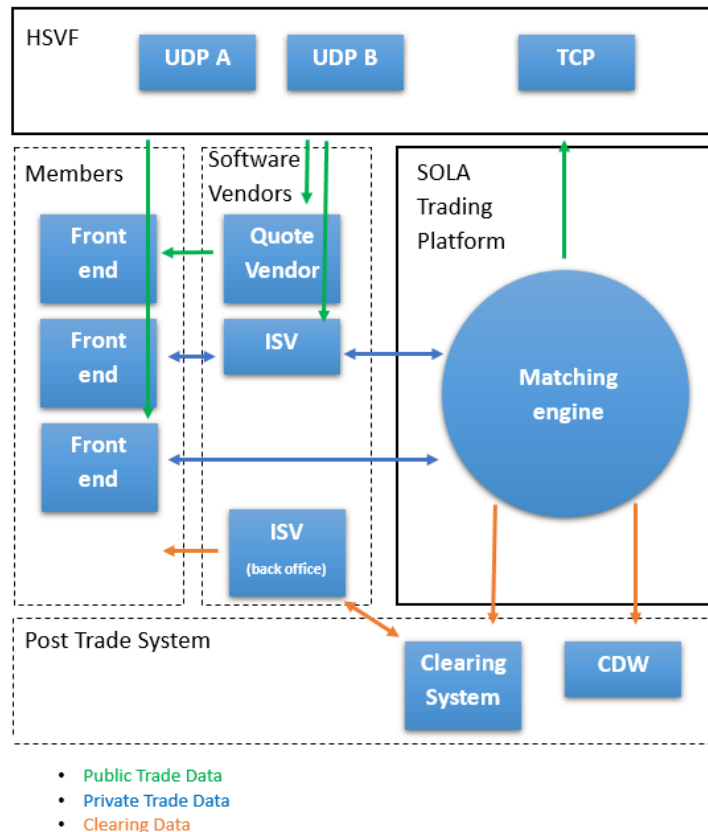


Figure 2 - Logical Architecture Diagram of the CurveGlobal Markets Trading Platform

The SOLA Trading Platform provides matching functionalities and allows access to such matching functionalities for authorized Market Participant

3.1 THE SOLA TRADING PLATFORM

The SOLA Trading platform consists of several distinct components.

The Matching Engine processes orders and requests submitted by Member Firms through peripheral system components that interface with client front-end applications. The Matching Engine contains the internal trading functionality (e.g. automatic matching of orders, management of the market trading phases etc.). Moreover, it disseminates real-time information of the Central Limit Order Book. This includes a range of messages, including general and execution notification messages.

SOLA manages the Central Limit Order Book and all trading related services. It supports the Schedule Management functionality and it generates the feeds required by other "down-stream" functions such Post Trade reporting, Market Data dissemination as well as monitoring applications / systems management etc.

Member Firms access the trading functionalities of SOLA and receive public market data either directly (through SAIL/FIX and HSVF protocols, respectively) or via Independent Software Vendors (ISVs) and independent Quote Vendors (QVs).

In summary the main SOLA system components members can access can be viewed as falling into 3 categories:

- **Order Management:** SOLA supports order management functionalities (through SAIL or FIX protocols) or via ISVs. Note with FIX the order management front-end translates inbound user messages to the SAIL protocol and outbound messages to the FIX protocol.

- **Market Data:** SOLA disseminates anonymous market information to connected CurveGlobal Markets Market Participants via gateways, which broadcast real-time trading information and market statistics via the HSVF message protocol.
- **Post Trade:** SOLA contains processes to pass trade information, including reference data, trade reports, settlement prices and delivery baskets to the Clearing System and Clearing Members can access post trade information through LCH's Synapse system.

The other three main components of SOLA (System Monitoring and Management, SOLA Surveillance System and Market Operation Control) are internal processes providing real time and historical data to teams involved in the analysis and reconstruction of market events.

3.2 TRADING PROTOCOLS

3.2.1 SAIL Protocol

The SOLA Access Information Language (SAIL) protocol is the native proprietary protocol for SOLA.

The SAIL protocol is a message-based protocol using predefined syntax and formatting and includes both technical messages and messages carrying business-related data content.

Trading applications can connect to the SOLA trading platform using the SAIL protocol.

For the complete list of messages and functionalities supported by the SAIL protocol please refer to the Technical Specifications in the CurveGlobal document library (www.lseg.com/derivatives/document-library).

3.2.2 FIX Protocol

CurveGlobal Markets also supports a FIX 4.2 trading interface which trading applications can use to connect to the SOLA trading platform.

Note that market participants who intend to use the Bulk Quote functionality must use the native SAIL protocol.

For the complete list of messages and functionalities supported by the FIX protocol please refer to the Technical Specifications in the CurveGlobal document library (www.lseg.com/derivatives/document-library).

3.2.3 Drop Copy

The drop copy feature allows drop copy participants to receive a copy of all order acknowledgements and trade notifications that belong to a specific Member.

CurveGlobal Markets provide a SAIL and a FIX version of drop copy.

Drop copy messages can be received using the SAIL or FIX protocol, despite which protocol is being used for order management (i.e. a Member Firm using SAIL for order management is able to use FIX drop copy, and vice versa).

Drop copy messages included in the SAIL and FIX versions are detailed in the table below:

Message types	Protocol	
	SAIL	FIX
Order Acknowledgement	KE	35=8
Order Modification Acknowledgment	KM	35=8
Order Cancellation Acknowledgment	KZ	35=8
Leg Execution Notice	NL	35=8
Execution Notice	NT	35=8
Update Order Notice	NU	35=8
Execution Cancellation Notice	NX	35=8
Leg Execution Cancellation Notice	NY	35=8
Order Cancellation Notice	NZ	35=8

Table 2: Drop Copy messages included in SAIL and FIX

For more information on drop copy functionality please refer to the [CurveGlobal Markets Document Library](#).

3.3 MARKET DATA PROTOCOL

3.3.1 HSVF

The High Speed Vendor Feed (HSVF) is the native protocol for market data distribution. HSVF is broadcast over IP as either a TCP Unicast feed or a UDP Multicast feed. Messages are ASCII text messages and each message type is fixed in format,

and common to both broadcast versions. The Market data distribution feeds have been configured to reduce latency and provide resilience:

- With SOLA the TCP/IP messages are “non-blocked” (i.e. the SOLA Trading Platform does not wait for acknowledgement before sending the next message). Retransmission of data is available over TCP.
- With UDP Multicast there are two independent feeds (A and B) carrying identical content, for resiliency purposes. Client applications using UDP Multicast are encouraged to use the HSVF TCP feed for recovery and for back-filling any missed messages.

HSVF messages consist of a standard message header followed by the message body which varies in format according to the message type. Messages transmitted by HSVF include:

- Trades
- Request for Quotes
- Orders / Quotes
- Trade Cancellations
- Bulletins
- Reference information
- Heartbeat messages

For HSVF via TCP/IP additional administration messages covering connectivity are also included.

For more information on HSVF please refer to the [CurveGlobal Markets Document Library](#).

3.4 POST TRADE

The SOLA trading platform incorporates a Clearing Gateway which performs a number of functions linking trading with clearing.

At the core of the Post Trading System lies the clearing system which provides:

- Clearing and settlement technology
- Risk management services in the form of a margin system at LCH

All products listed on CurveGlobal Markets are cleared at LCH using Synapse. Synapse is a derivatives clearing platform which provides members with comprehensive Back Office functionalities including net position verification, trade allocation services, position transfers, give-ups, take-ups, close-outs and information on margin calls, fees etc., and Access to Synapse is through FIXML industry standard messaging.

More information on the CCP services (e.g. the Synapse system) is available from LCH can be found on the CurveGlobal Markets website: <https://www.lseg.com/markets-products-and-services/post-trade-services/ccp-services/lch>.

Clearing members wishing to clear CurveGlobal products should contact: listedratesmembershipsales@lch.com.

3.5 MARKET CONNECTIVITY

Member Firms may connect to SOLA during service times set out in Section 2.2. The following paragraphs describe how connections to the trading system are managed by SOLA.

3.5.1 Membership

Member Firms are provided with dedicated profiles to access the SOLA System. These profiles are assigned according to the membership profile and User category requested by the Member Firm via the Member Portal. Each Member Firm is assigned a unique identification code (Member Mnemonic).

3.5.2 User categories (for front-end Users)

Front-end users (“Users”) can apply for the following User categories to access the trading system:

- Standard User
- Additional User
- Risk Manager User
- Drop Copy User

Each User is associated to:

- i) a Connection Type
- ii) a specific capacity limit in terms of the maximum number of allowed transactions per second (tps) and

iii) trading privileges.

A Member Firm can apply for several Users according to the conditions defined in the 'Connectivity Charges' document in the [CurveGlobal Markets Document Library](#).

User Category	Connection Type	Capacity Limit	Description
Standard User	MT (Master Trading - SAIL) or FX (FIX) connections types	Max 250 (single order) tps	Profile assigned to the first five sessions allocated to any Market participant.
Additional User		Max 100 (single order) tps	Profile assigned to the sessions allocated to any Market participant after the fifth.
Risk Manager User	RM (Risk Manager)		Allows a Member Firm ("Risk Manager") to set up and manage Pre-Trade Validations controls (described in Section 9.2.9) to constrain the trading activity of its controlled "Managed Entity".
Drop Copy User	DC (Drop Copy)		Allows Member Firms to receive all orders and trades sent by all the traders of the Member Firm.

Table 3: SOLA User Categories

3.5.3 Connection Types

Available Connection Types are:

- MT: available to all member Firms to enter, cancel, modify single orders and mass quotes and to submit requests for quotes;
- FX: available to all Member Firms to enter, cancel, and modify orders via FIX;
- RM (Risk Manager): available to all Member Firms on request. Allows Member Firms ("Risk Managers") to control Pre-Trade Validation functions (in section 9.2.9) including the set-up of dedicated trading limits and trading controls of the "Managed Entity";
- DC (Drop Copy): available to all Member Firms. Provides receipt of all the orders and trades sent by all traders of the Member Firm, or TraderID, via either SAIL Drop Copy or FIX Drop Copy.
- Each User is associated with a specific Connection Type, allowing use of a specific set of Message Types, as identified in the following table:

Message Types	MT	RM	FX
Order Entry	OE		D
Order Modification	OM		G
Order Cancellation	XE		F
Cross Entry	OX		s
Request For Quote	RQ		R
Bulk Quotes	RP, BD, Qi		
Global Cancellation (for orders / quotes / both)	GC		
Risk Limits Configuration		MK, MQ	
Risk Limits Usage Notice		MN	
Risk Master Switch (for orders and quotes)		RT	
Order Mass Status Request			AF
List of Securities Request			c

Table 4: Connection Types to SOLA, refer to Appendix H

Any message not supported by the Connection Type of the selected User will receive an "Error" message reporting the associated error code.

3.5.4 Identification of Users

Each Member ID is associated with one or more pairs of User IDs and Passwords (one pair of User ID and password for each connection). The format of a User ID is the following:

[9] + [Member ID] + [Incremental User Identifier] + [Connection Type]

where:

- '9' for users
- Member ID is the Member Firm's Mnemonic;
- Incremental User Identifier is a unique incremental number for each User attributed to a Member Firm, starting at 01 for each Member ID;
- Connection Type is a two-letter acronym identifying the Connection Type in section 2.2 (e.g. MT for a Standard User).

Each Member Firm will be attributed up to five Standard Users (associated with the MT/FX Connection Type, allowing for order entry, order cancellation, order modification and RFQs)

3.5.5 Throttling

A throttling mechanism is implemented in SOLA in order to avoid system overload in case of peaks of transactional activity. Accordingly, each User category is assigned a maximum number of transactions per second ("tps"). The maximum number of tps allowed for each User category is described in the User Category Table 3: SOLA User Categories

. All messages exceeding the max. number of tps will be parked and queued (default) or cancelled (configurable).

3.6 PRODUCT OFFERING

CurveGlobal Markets operates Interest Rate derivatives. A full product list and contract specifications are available in the [CurveGlobal Markets Document Library](#).

4. MARKET STRUCTURE

4.1 INSTRUMENTS AND GROUPS

An Instrument represents an individual product expiry in the SOLA Trading Platform. An Instrument is identified by its Instrument ID and the Instrument Group ID of the Instrument Group (the product) to which it belongs. An Instrument ID is represented by a 4 character alphanumeric code that is unique within the Instrument Group to which the Instrument belongs.

An Instrument Group is a set of Instruments governed by the same trading rules, according to the CurveGlobal Markets Rules. Each Instrument Group is identified by an Instrument Group ID. The list of the Instrument Groups and Instrument Group IDs can be retrieved via the market reference data messages disseminated via HSVF protocol and also available in the Reference Data File available via SFTP or the Exchange website.

For example, Three Month Sterling Futures and CurveGlobal® Three Month SONIA Futures are Instrument Groups. The December 2020 expiry identifies two different instruments in the Three Month Sterling Futures and CurveGlobal® Three Month SONIA Futures Instrument Groups.

4.2 MARKET REFERENCE DATA

4.2.1 Reference Data via HSVF

HSVF Summary (N/NF/NS) and Instrument Keys (J/JF/JS) messages disseminate CurveGlobal Markets reference data. These messages are sent in the following circumstances:

- Summary messages (N/NF/NS):
 - at the beginning of the day to list the tradable instruments for the current day. These messages contain trading relevant data such as Previous day Settlement Price and Closing Prices;
 - after a trade cancellation. These messages will contain some statistics such as High, Low, Volume, Last Price;
 - at calculation of the settlement prices. These messages contain the previous day Open Interest value;
 - at the end of the evening session. These messages will contain trading statistics (High, Low, Last, Volume) including relevant data for the next day such as Closing Price calculated by SOLA, as well as Settlement Prices and the previous day Open Interest calculated by the Clearing House;
 - during the day if a new instrument is added.
- Instrument Keys (J/JF/JS) messages:
 - at the beginning of the trading day;
 - during the day if a new instrument is added;
 - during the day whenever the Instrument control price is being changed.

These messages contain minimum and maximum price thresholds.

For further details, please refer to the 'HSVF Market Data Technical Specification' in the [CurveGlobal Markets Document Library](#).

4.2.2 Reference Data via .csv File

Reference data is disseminated via the HSVF Market Data feed. For applications that do not require real-time Market data updates an alternative mechanism offering static reference data in csv format is also available. CurveGlobal Market Reference data files are generated daily and posted on the CurveGlobal web site and made available via a SFTP (Secure File Transfer Protocol) service (access for which will be provided by the Exchange on request).

These daily files include the list of all Instruments that are available for trading for the current trading day, including strategies and their definitions, opening times for the day, trading parameters (including maximum and minimum order sizes), block trade parameters and previous day's settlement prices, etc.

For further details, please refer to the 'Reference Data File Technical Specification' in the [CurveGlobal Markets Document Library](#).

4.3 INSTRUMENT GROUP STATES

Each Instrument Group is associated, in each moment of the day, to a specific Instrument Group State. Available Instrument Group States are below.

4.3.1 Trading Session information

Regular Trading Session

<i>Times may vary depending on market conditions</i>	Products						
Trading Phase <i>(all times are London times)</i>	CurveGlobal® Three Month Euribor® futures	CurveGlobal® Three Month Sterling futures	CurveGlobal® One and Three Month SONIA futures	CurveGlobal® Schatz futures	CurveGlobal® Bobl futures	CurveGlobal® Bund futures	CurveGlobal® Long Gilt futures
Start of Consultation	06:00	06:00	06:00	06:00	06:00	06:00	06:00
Opening Auction¹							
- Pre-Opening	06:30 - 07:00	06:30 - 07:30	06:30 - 07:30	06:30 - 07:00	06:30 - 07:00	06:30 - 07:00	06:30 - 08:00
- Validation	07:00	07:30	07:30	07:00	07:00	07:00	08:00
- Opening	07:00 ²	07:30	07:30	07:00	07:00	07:00	08:00
Continuous Trading	07:00 - 21:00	07:30 - 18:00	07:30 - 18:00	07:00 - 21:00	07:00 - 21:00	07:00 - 21:00	08:00 - 18:00
Manual Trade Reporting (Basis Trades / Exchange of Future for Swap transaction only)	07:00 - 20:30	07:30 - 18:00	07:30 - 18:00	07:00 - 20:30	07:00 - 20:30	07:00 - 20:30	08:00 - 18:00
Electronic Trade Reporting (Block Trades only)	07:00 - 21:00	07:30 - 18:00	07:30 - 18:00	07:00 - 21:00	07:00 - 21:00	07:00 - 21:00	08:00 - 18:00
Surveillance Intervention	21:00	18:00	18:00	21:00	21:00	21:00	18:00
Send Reference price	21:15	21:15	21:15	21:15	21:15	21:15	21:15
End of Consultation	21:15:30	21:15:30	21:15:30	21:15:30	21:15:30	21:15:30	21:15:30

Table 5: Instrument Group States

¹ Opening Auction is not available for Strategies.

² Refers to exact time i.e. no random period set (valid for all products).

Half Day Trading Session

<i>Times may vary depending on market conditions</i>	Products						
Trading Phase <i>(all times are London times)</i>	CurveGlobal® Three Month Euribor® futures	CurveGlobal® Three Month Sterling futures	CurveGlobal® One and Three Month SONIA futures	CurveGlobal® Schatz futures	CurveGlobal® Bobl futures	CurveGlobal® Bund futures	CurveGlobal® Long Gilt futures
Start of Consultation	06:00	06:00	06:00	06:00	06:00	06:00	06:00
Opening Auction¹							
- Pre-Opening	06:30 - 07:00	06:30 - 07:30	06:30 - 07:30	06:30 - 07:00	06:30 - 07:00	06:30 - 07:00	06:30 - 08:00
- Validation	07:00	07:30	07:30	07:00	07:00	07:00	08:00
- Opening	07:00 ²	07:30	07:30	07:00	07:00	07:00	08:00
Continuous Trading	07:00 - 12:00	07:30 - 12:00	07:30 - 12:00	07:00 - 12:00	07:00 - 12:00	07:00 - 12:00	08:00 - 12:00
Manual Trade Reporting (Basis Trades / Exchange of Future for Swap transaction only)	07:00 - 11:30	07:30 - 11:30	07:30 - 11:30	07:00 - 11:30	07:00 - 11:30	07:00 - 11:30	08:00 - 11:30
Electronic Trade Reporting (Block Trades only)	07:00 - 12:00	07:30 - 12:00	07:30 - 12:00	07:00 - 12:00	07:00 - 12:00	07:00 - 12:00	08:00 - 12:00
Surveillance Intervention	12:00	12:00	12:00	12:00	12:00	12:00	12:00
Send Reference price	12:15	12:15	12:15	12:15	12:15	12:15	12:15
End of Consultation	12:15:30	12:15:30	12:15:30	12:15:30	12:15:30	12:15:30	12:15:30

SOLA notifies all Market Participants when an Instrument Group switches to a different Trading Phase by indicating a

Table 6 - Instrument Group States (Half Day)

change to the Instrument Group Status. This is done by sending a GROUP STATUS CHANGE NOTICE message which indicates the Instrument Group ID and the Instrument Group's new Status:

- SAIL: message NG;
- FIX: message NG;
- HSVF: messages GR, GS and GC.

Should trading be interrupted for all of the CurveGlobal Markets, Market Participants will receive one INSTRUMENT GROUP STATUS CHANGE NOTICE for each Instrument Group.

4.3.2 Start of Consultation

SOLA does not notify Market Participants of the switch of Instrument Groups to the "Start of Consultation" Phase. The Market Services team only can operate on Instrument Groups with this Status. In particular, order entries are not allowed, and Market Services can perform order deletions for a specific Instrument Series or global deletions of a specific Member Firm's orders.

4.3.3 Pre-Opening

Orders entered during this phase contribute to Theoretical Opening Price (TOP) calculation. No trade execution is performed during this phase and Member Firms are only allowed to enter, modify and cancel orders and quotes (cross orders and strategy orders are not available).

SOLA notifies all Market Participants via HSVF with one message for each Instrument Group that switches to the Pre-Opening state. In case there is one bid and one ask at the same price in the Order Book during the Pre-opening phase or Instrument in the reserved state³:

- the first level displays the TOP as an aggregated price level;
- if there are market orders in the Order Book, the TOP level is split as follows:

³ "Reserved status" of an Instrument refers to an intra-day auction.

- the side(s) of the Order Book with market order(s) contributing to the TOP level displays the aggregated market order price(s) in the second level
- subsequent level display aggregated limit order(s) contributing to TOP;
- subsequent levels display the additional prices that would not match TOP.

4.3.4 Theoretical Opening Price calculation

TOP is calculated and disseminated in real-time. In particular TOP calculation is based on the following steps:

Step 1: Maximisation of traded volume

TOP is the price at which it is possible to execute the highest number of contracts.

Step 2: Minimisation of surplus

If there are still several prices available after Step 1, TOP will be equal to the price that leaves the minimum non-tradable quantity in the Order Book, in relation to both buy and sell orders with prices equal or better than TOP.

Step 3: Minimisation of variation against the last traded price / reference price

If there are several prices left after Step 2 and many of these prices are left without a surplus, Step 3 will define a tradable price range and determine TOP within that range, minimizing the variation against the last traded price, if available, or the reference price, if the last trade price is not available.

In particular, with regards to tradable price range determination, if multiple prices are left after Step 2, the system defines a range of valid opening prices based on the following rules:

- if the market unbalanced quantity includes market orders, the range is set at the best limit order on the same side up to the instrument limit price (please note that the price must respect both Step 1 and 2). If best limit order price does not maximise the traded volume or minimised the unfilled quantity, then TOP range start at the first price meeting Step 1 and 2 criteria;
- if the market unbalanced quantity includes limit orders:
 - if buy is the unbalanced side, then the range lower boundary is determined with the highest buy limit order that would remain unfilled at TOP price (included in the unbalanced quantity);
 - if sell is the unbalanced side, then the range higher boundary is determined with the lowest sell limit order price that would remain unfilled at TOP price (included in the unbalanced quantity).

If at opening, an instrument series has no last trade price and no reference price or it is set to 0 and the Pre-Opening book shows only market orders on both sides, the instrument series will be set to “reserved” status.

The following example illustrates the definition of a price range:

Reference Price		€100.415			
Order Book during pre-opening phase					
Buy			Sell		
Order #	Quantity	Price	Price	Quantity	Order #
1	100	MKT	€100.405	50	1
2	50	€100.395			

Table 7: Example of Price Range

- the initial price range is €100.405 (Order 1 on the Sell side) to infinite (the market order (MKT) on the Buy side)
- the engine validates the price if the Reference Price is located within the range
- if the Reference Price is €100.415, the opening price will be set at €100.415
- the remaining quantity of the market order will be booked at €100.415

4.3.5 Validation

At this phase SOLA does not accept new orders or modifications / cancellations of existing ones and verifies the validity of TOP according to specified price limit variations.

4.4 OPENING

For each Instrument Group that switches to the Opening state, SOLA notifies all Market Participants with one message.

If last TOP is validated, trades for each instrument are executed at that price, otherwise a volatility auction starts with each series assigned the “Reserved” status.

4.5 CONTINUOUS TRADING

SOLA notifies all Market Participants via HSVF with one message for each Instrument Group that switches to the “Continuous Trading” State.

Orders are matched and trades executed in real-time, according to the prevailing matching rules.

All actions on orders (see Section 5 on Order Management for further information including internal/committed cross orders) and quotes (including Request for Quotes) are available to Market Members on Instrument Groups in “Continuous Trading” State.

4.6 SURVEILLANCE INTERVENTION

Market Participants may receive certain messages during this phase (e.g. Group or Instrument State change notices).

During this Phase, Market Members, Market Operations are entitled to perform Order cancellations on Instrument Groups.

4.7 END OF CONSULTATION

Marks the end of a trading day. Member Firms will be unable to perform actions on the Order Book after this Phase.

4.8 MINI BATCH (CLEARING CLOSE)

Orders whose validity date has expired are deleted. Statistics for each Instrument are automatically reset by the system (high, low, volume). Notifications of expired orders are sent to Member Firms (or upon next connection).

The Mini Batch marks the end for post-trade transactions. Hence, no more actions are available on Instrument Groups after “Mini Batch” Phase and no more updates will be sent to the Clearing System.

4.9 FORBIDDEN

SOLA notifies all Market Participants via HSVF with one message for each Instrument Group that switches to the “Forbidden” State. Market Supervision may decide to move a group in the “Forbidden” Phase.

4.10 INTERRUPTED

SOLA notifies all market participants via HSVF with one message for each Instrument Group that switches to the “Interrupted” Phase.

No action is available on Instrument Groups in the “Interrupted” Phase.

Instrument Groups are set to the “Interrupted” Phase following a decision by Market Supervision and is normally triggered when an Instrument Group is to be temporarily suspended from trading.

4.11 INSTRUMENT STATES

States of Instruments normally follow the Phases of their respective Instrument Groups. Market Supervision may, however, assign a specific State to an Instrument, independently of its Instrument Group.

The following Instrument States can be put in place during the trading day:

- Normal: States follow the Phases of its Instrument Group;
- Forbidden: *see description above*;
- Reserved: this Instrument State is automatically activated in case the Opening Price cannot be determined or is invalid;
- Suspended: this Instrument State is automatically activated in case a Circuit Breaker is triggered.

Modifications of Instrument States are disseminated via INSTRUMENT STATE CHANGE NOTICE (NI) message specifying, amongst other parameters, the new Instrument Status of the Instrument, as well as the type of action which triggered this change.

Standard schedule (for Instrument Groups)	Orders				Quotes			Strategy	
	Entry	Modify	Cancel	Cross / Committed	Entry	Modify	Cancel	Enter / Modify	Cross / Committed
Start of Consultation	NO	NO	NO	NO	NO	NO	NO	NO	NO
Preopening*	YES	YES	YES	NO	YES	YES	YES	NO	NO
Continuous trading	YES	YES	YES	YES	YES	YES	YES	YES	YES
Surveillance Intervention	NO	NO	YES	NO	NO	NO	NO	NO	NO
End of Consultation	NO	NO	NO	NO	NO	NO	NO	NO	NO
Mini Batch	NO	NO	NO	NO	NO	NO	NO	NO	NO
Exceptional States									
Instrument Hidden	NO	NO	NO	YES	NO	NO	NO	NO	NO
Forbidden	NO	NO	NO	NO	NO	NO	NO	NO	NO
Interrupted	NO	NO	NO	NO	NO	NO	NO	NO	NO
Instrument Suspended	NO	NO	YES	NO	NO	NO	YES	NO	NO
Instrument Reserved*	YES	YES	YES	NO	YES	YES	YES	YES	YES
Closing*	YES	YES	YES	NO	NO	NO	NO	NO	NO

Table 8: Instrument Group Status and Available Actions

4.11.1 Strategies' Instrument State

The Instrument State for a Strategy is dependent on the Instrument States of its legs. If any of the legs of the Strategy is in a non-trading State, SOLA automatically modifies the Strategy Instrument State to "Suspended".

The Instrument State for a Strategy will return to "Continuous Trading" as soon as its legs have switched back to that status.

4.12 COMMUNICATION OF EXCEPTIONAL CIRCUMSTANCES (EC)

SOLA can disseminate messages via HSVF to indicate to market participants that the market has entered "Exceptional Circumstances" (EC). This is pursuant to the extraordinary circumstances that are declared in the 'CurveGlobal Markets Rulebook' and directives under MiFID II⁴.

Under these conditions the Exchange may apply relaxed obligations for Designated Liquidity Providers or even remove them.

For full details please see the 'Obligations of Liquidity Providers and Market Makers' document on the [CurveGlobal Markets Document Library](#).

Trading applications are notified of Exceptional Circumstances through free text messages disseminated via HSVF BULLETIN (L) (HSVF Bulletin Type = 1). They are applied at Instrument Group Level.

4.13 INSTRUMENT GENERATION AND SYMBOLOGY

The following symbology applies to the Futures derivatives available for trading on CurveGlobal Markets.

4.13.1 Standardised Codes

Each outright instrument is identified by a string of five characters. The rules that drive the creation of the unique symbols can be summarised as follows:

- Three characters designate the Underlying instrument or Index
- one character designates the Expiration Year
- one character designates the Expiration Month

⁴ As applied in the UK pursuant to the European Union (Withdrawal) Act 2018 (and as amended by any relevant statutory instruments or powers exercised under such statutory instruments) following IP Completion Day (as defined in the European Union (Withdrawal Agreement) Act 2020).

For example:

- EUI3H: Three month Euribor Future March 2023
- STL4U: Three month Sterling Future September 2024

Expiration Month Codes:

Month	Month Code
January	F
February	G
March	H
April	J
May	K
June	M
July	N
August	Q
September	U
October	V
November	X
December	Z

Table 9: Futures Expiration Month Codes

Month Code convention for backward-looking, setting-in-arrears rate Futures

A dedicated naming convention has been adopted for futures products which have a compounded, backward-looking, setting-in-arrears rate with a correspondingly defined Accrual Period (e.g. CurveGlobal® One month and Three month SONIA). In particular, the “Year” and “Month” included in the Series Code refer to the start of the Accrual Period rather than to the Last Trading Day of the instrument (please refer to CurveGlobal Markets Contract Specifications for more details).

For example:

- “SON0M” is the series code for the Three month SONIA future where: i) Accrual Period is from 17 June 2020 (IMM) to 15 September 2020 (IMM - 1); ii) Last Trading Day is 16 September 2020 (IMM);
- “SON0U” is the series code for the Three month SONIA future where: i) Accrual Period is from 16 September 2020 (IMM) to 15 December 2020 (IMM - 1); ii) Last Trading Day is 16 December 2020 (IMM).
- “OSN0M” is the series code for the One month SONIA future where i) Accrual Period is from 17 June 2020 to 14 July 2020; ii) Last Trading Day is 15 July 2020.

Relevant dates are disseminated in the HSVF reference data (both via HSVF and the Reference Data File) as follows:

- fields “Maturity Date”, “Maturity Month” and “Maturity Year” indicate the day, the month and the year related to the start of the Accrual Period;
- fields “Expiry Date”, “Expiry Month” and “Expiry Year” indicate the day, the month and the year corresponding to the Last Trading Day of the contract, as per all other contracts available for trading on CurveGlobal Markets.

5. ORDER MANAGEMENT

5.1 ORDER ENTRY AND CANCELLATION

On order entry by way of the Trading System, a Member shall provide the following information:

- the Series, Type/Style, Class and the Listed Product in question;
- the Expiration Month;
- whether order is to buy or to sell;
- the order price;
- the order volume;
- whether it is a Limit order, Market order or a Combination order;
- the Clearing Account to which the transaction, if executed, is to be allocated;
- if appropriate, the identification code of the Client for whom the order has been placed;
- lifetime of order (see Section 5.3);
- additional parameters as set out in Section 5.3.

With regards to order entry in the Order Book, Members should ensure that the order volume does not exceed the maximum permitted limit for the Contract in question, Members should note that any order placed on the Order Book which exceeds the applicable maximum permitted limit shall be rejected. Members will receive a message stating this. Price and Quantity controls are detailed in Appendix A - Controls The Tick size applicable for trading on the Order Book and for orders to execute Bilaterally Negotiated Trades (BNTs) is described in Section 5.13.

An order will remain valid and effective until an instruction to cancel is given by the Member which placed the order, or the order automatically expires as defined by its Duration type parameter. A Member may contact Market Operations to cancel an order entered on the Trading System with the relevant order details (instrument, price, quantity, time etc.). Members wishing to remove all their orders from the Order Book in one go should contact London Market Services, who can perform this action. Such requests must always be made by a Registered Person. Alternatively, Risk Managers can remove all orders at member level through the Pre-Trade Validation service. For more information see Guide to Pre-Trade Validation Service User Manual in the [CurveGlobal Markets Document Library](#).

5.2 TICK SIZES

Order prices of CurveGlobal Markets derivatives contracts can change according to the tick tables summarized below. For further details please refer to the CurveGlobal Markets Contract Specifications and Section 6.13 for Bilaterally Negotiated Trades.

Market data protocols disseminate the identifier of the applicable tick size for each instrument series in field “Tick Increment Table” of “Instrument Keys” messages “JF” (for futures).

Instrument Type	Tick size
CurveGlobal® Three Month Euribor® futures	0.005
CurveGlobal® 0.5 Million Three Month Sterling futures	0.005
CurveGlobal® 1 Million Three Month Sterling futures	0.005
CurveGlobal® 0.5 Million Three Month SONIA® futures	0.005
CurveGlobal® 1 Million Three Month SONIA® futures	0.005
CurveGlobal® 1.5 Million One Month SONIA® futures	0.005
CurveGlobal® 3 Million One Month SONIA® futures	0.005
CurveGlobal® Schatz futures	0.0025
CurveGlobal® Bobl futures	0.005
CurveGlobal® Bund futures	0.005
CurveGlobal® Long Gilt futures	0.005
Inter Commodity Spreads	
Yield Curve ICS (buy One Month SONIA® futures, sell Three Month SONIA® futures)	0.001
Cross Product ICS (buy Three Month SONIA® futures, sell Three Month Sterling futures)	0.001

Table 10: Tick Sizes for CurveGlobal Products

5.2.1 Finer Price Ticks

When the minimum tick size configured for ICS instruments is smaller than the one configured for the outright legs, implied-out orders generated on the legs' order books can be at prices that are not aligned to their tick table. These orders will be executed in the same way as all implied orders, i.e. preserving price-time priority across the order book.

The existence of such finer tick implied orders will be signalled to the market through a new implied price level in the "Market Depth" messages of the HSVF protocol. For further details, please refer to the HSVF protocol specification document in the [CurveGlobal Markets Document Library](#).

5.3 ORDER MODIFICATION

Unless cancelled, an order will remain valid and effective until an instruction to modify is given by the Member which placed the order.

5.3.1 Products based on Price-Visibility-Time priority algorithm (FIFO)

Under the Price-Visibility-Time priority model, any modification of an Order involving its price, or a volume increase is treated as the cancellation of the original Order and the submission of a new Order. Time priority of such Order shall be determined by reference to the time at which the modified Order is entered on the Order Book.

Where the Order modification involves only a reduction in its volume, the ranking of original Order is not affected.

Modification	Price priority	Time priority
Quantity decrease	Maintained	Maintained
Quantity increase*	Maintained	Lost
Price change*	Lost	Lost

Table 11: Order Modification for Products based on FIFO

5.3.2 Products based on Pro-Rata priority algorithm

Under the Pro-Rata model, any modification of an Order involving its price or an increase in the volume of an Order is treated as the cancellation of the original Order and the submission of a new Order.

For "Progressive" and "Age" Pro-rata algorithm (see section 5.15), the timestamp used to determine the weight attributed to the time priority of such Order shall be determined by reference to the time at which the modified Order is entered onto the Order Book.

Where the order modification involves only a reduction in its volume, the ranking of the original order is not affected when the "Progressive" Pro-rata algorithm is implemented. Note however that priority would be lost under the "Age" pro-rata algorithm and any modified order will get a new timestamp effectively putting it to the back of the queue.

The "Best Price Setter" attribute of an Order, where applicable (see section 5.16), is re-evaluated at any modification of the order, except in case of quantity reduction for Order that already gained "Best Price Setter" status.

Modification	Price priority	Time priority	
		"Progressive" Pro-rata	"Age" Pro-rata
Quantity decrease	Maintained	Maintained	Lost
Quantity increase*	Maintained	Lost	Lost
Price change*	Lost	Lost	Lost

Table 12: Order Modification for Products based on Pro-Rata Priority Algorithm

Modification	Best Price Setter (BPS) status	
	Orders w/ BPS status	Orders w/o BPS status
Quantity decrease	Maintained	Re-evaluated
Quantity increase	Re-evaluated	Re-evaluated
Price change	Re-evaluated	Re-evaluated

Table 13: Order Modification and BPS

5.3.3 Cancellation on Disconnection

Members should be aware of the following:

- When conducting the login procedure, SOLA allows for the Member to specify an "inactivity interval" which indicates the number of system "heartbeats" that must be missed before the Member is considered disconnected. If the inactivity interval is set to "0" then the user is never considered to be disconnected;

- In case of member disconnection due to technical issues, all orders with Duration type parameter “While Connected” will be cancelled. Please note that “Good Till Day” and “Good Till Cancelled” orders will not automatically cancel on disconnection.

CurveGlobal Markets therefore strongly recommends the use of “While Connected” orders for Members that are concerned about cancellation on disconnect.

5.4 ORDER MESSAGES AND ACKNOWLEDGEMENT

SOLA assigns a unique identification number to each order (“Order ID”) at order entry. Such Order ID is unique by Instrument and by day, and it is recorded along the life of the order, following order modifications and up to trade execution or cancellation. This way, the entire history of any order entered into SOLA is traced and can be reconstructed, if necessary.

Order Entry is performed by Member Firms through the ORDER ENTRY (OE) message. The OE message is used both for Instruments and Strategies with the sole exception of Cross Orders (OX Message).

To enter an order, the client sends an OE message. This message contains the Client’s User Sequence ID.

Key parameters available in the OE message are reported in the table below. Please also refer to Appendix F for regulatory information to be specified at order entry regarding reporting obligations to trading venues introduced by MiFID II⁴. For a full description of all the parameters available in the OE message, please refer to the Technical documentation available on the [CurveGlobal Markets Document Library](#).

SOLA performs validation on the parameters of the OE message received.

If validation fails, SOLA sends an ERROR MESSAGE (ER/TE) rejecting the message received and indicating the code for the first error detected and the message type for the message generating the error along with its User Sequence ID.

If validation is successful, SOLA accepts the message received and populates an Order ID to the order entered. This ID is unique by instrument (e.g. ISIN) and by day. SOLA sends the client an acknowledgement for the order entered via an ORDER ACKNOWLEDGEMENT (KE) message. The ORDER ACKNOWLEDGEMENT message will contain the unique Order ID. It also contains the User Sequence ID which enables the client to reconcile the acknowledgment to the original message entered.

An ORDER ACKNOWLEDGEMENT indicates that the order has been:

- Entered on the Order Book (Status = “ ”, (blank) status also applies to partly executed orders)
- Eliminated (Status = E)
- Executed in full, or Partially for IOC orders (Status = X)

If an order is either partially or fully executed, the Member receives, immediately after the ORDER ACKNOWLEDGEMENT message, one or several EXECUTION NOTICE (NT) messages providing additional information related to the transaction that took place.

If the order was on a strategy instrument, the client also receives LEG EXECUTION NOTICE (NL) messages providing additional information related to the price and quantity at which each of the individual legs of the strategy instrument traded.

If the order is stored on the Order Book, the client will automatically receive one of the following messages after order elimination / trade execution:

- One or more EXECUTION NOTICE messages;
- When a strategy trades several LEG EXECUTION NOTICE (NL) messages are disseminated in addition to the EXECUTION NOTICE. Each of these NL messages can be linked to the parent strategy trade (EXECUTION NOTICE on the strategy instrument) message by the ‘Strategy Instrument ID’, ‘Strategy Group’ and ‘Strategy Trade Number’ fields;
- An ORDER ELIMINATION (NZ) message.

All messages related to an order (execution notice, cancellation notice, order acknowledgement) contain the current Order ID and the Original Order ID. The User Sequence ID is set to zeroes.

Parameter	Available values	Comments	Corresponding FIX Tag(s)
<i>Instrument ID</i>		Instrument identification within a Group and Group ID	55 (Symbol)
<i>Side</i>	B; S	Buy or Sell	54 (Side)
<i>Price Type</i>	“L”: Limit “O”: at Opening price “M”: Top Order	See section 5.5	40 (OrdType)

	"W": Market Order "C": Committed "B": Basis Trade /Exchange of Futures for Swap " " [blank]: Unknown		
<i>Price</i>		To be defined if the Price Type is set to "Limit" or "Committed". See section 5.5	44 (Price)
<i>Quantity</i>		Number of contracts or shares	38 (OrderQty)
<i>Minimum Quantity</i>		Includes 2 sub-fields. See section 5.5	110 (MinQty)
<i>Quantity Term</i>	Minimum	(Optional)	Not Available
<i>Duration Type</i>	<ul style="list-style-type: none"> • Day; • Good Till Day; • Good Till Cancellation; • Immediate; • Good While Connected 	See section 5.5	59 (TimeInForce)
<i>Stop</i>		For Stop Orders only. See section 5.5	40 (OrdType) set to '4': Stop Order '3': Stop Market Order 'W': Stop U.S Marker Order
<i>Additional Price</i>		(Optional)	99 (StopPx)
<i>Special Price Term</i>	<ul style="list-style-type: none"> • Stop; • Stop on Bid; • Stop on Ask; • If Touched; • If Touched on Bid; • If Touched on Ask 	(Optional)	5255 (StopPxCondition)
<i>Clearing Data</i>		Includes 2 sub-fields. See section 5.10	1 (Account), 8001 (Account Profile)
<i>Position</i>	Open; Close	Determines whether positions will be held gross or, where feasible, be netted with positions in the same instrument and sub-account.	77 (Open/Close)
<i>Account Type</i>	House; Client; Matched Principal		47 (Rule80A)
<i>Owner data</i>		Includes 2 sub-fields. See section 5.11	58 (Text)
<i>Client Order ID</i>		(Optional). Free-text field (24 characters)	First 24 characters of 58 (Text)
<i>Client Reference ID</i>		(Optional). Free-text field (26 characters) Used for fee scheme recognition	Last 26 characters of 58 (Text) First 16 characters must correspond to agreed Client reference value for correct fees to be charged
<i>Deferred Publication</i>	" " [blank]: No request to defer publication "D": Deferred publication request	(Optional). See section 5.12	1390

Table 14: Key Parameters available in the SAIL OE message

5.5 PRICE TYPE PARAMETERS

The following values can be specified for the "Price Type" parameter:

- "L": Limit Orders;
- "O": at Opening price;
- "W": Market Orders;
- "M": Top Orders5 (or "at best opposite price");

⁵ From a regulatory perspective, a Top Order is a Market Order with a particular execution algorithm.

- “C”: Committed Orders⁶;
- “B”: Basis Trade, Exchange of Future for Swap.

5.5.1 Limit Orders

Limit Orders are submitted by setting the Price Type field of the OE message to “L”.

Limit Orders entered into the Order Book are executed at the indicated price or at a better price, if compatible orders are available on the opposite side of the Order Book. Unless the Time Validity Parameter of the Limit order is set to “Immediate”, the residual volume after a partial execution of a Limit Order is retained on the Order Book, until it is withdrawn or traded.

Limit Orders can be entered on Instrument Series in “Pre-Opening” or “Continuous Trading” State.

Limit Orders entered during the “Pre-Opening” Trading Phase are executed at the Opening Price - if possible, according to the procedure described in paragraph Theoretical Opening Price calculation during the “Opening” Trading Phase.

Unexecuted (partially or completely) Limit Orders at the end of the “Opening” Trading Phase, unless the Time Validity Parameter of the Limit order is set to “Immediate” (IOC), are automatically transferred to the “Continuous Trading” Trading Phase, maintaining their original Price and time priority. In case the Time Validity Parameter of the Limit order is set to “Immediate” (IOC), the unexecuted quantity is cancelled.

5.5.2 Market Order

Market Orders are submitted by setting the Price Type field of the OE message to “W”.

Market Orders are executed against all the available orders on the opposite side of the Order Book, sorted by price-time priority, until: i) the total quantity of the Market Order has been traded, or; ii) all the available volume on the opposite side of the Order Book has been traded.

In case of partial execution of the Market Order (happening when all the volume on the opposite side of the Order Book has been traded) and unless the Time Validity Parameter of the Limit order is set to “Immediate” the residual Quantity of the Market Order is automatically converted to a Limit Order, at the last price at which the traded part of the Market Order has been executed.

Market Orders can be entered during the “Pre-Opening” and “Continuous Trading” Trading Phases.

Market Orders entered during the “Pre-Opening” Trading Phase are executed at the Opening Price if possible, during the “Opening” Trading Phase. Unexecuted (partially or completely) Market Orders, unless the Time Validity Parameter of the Limit order is set to “Immediate” (IOC), are converted to Limit Orders at the Opening Price and transferred to the “Continuous Trading” Trading Phase. In case the Time Validity Parameter of the Limit order is set to “Immediate” (IOC), the unexecuted quantity is cancelled.

5.5.3 Top Order (or “at best opposite price”)

Top Orders are submitted by setting the Price Type field of the OE message to “M”. Top Orders are executed only against the orders available at the best price on the opposite side of the Order Book.

In case of partial execution of the Top Order (when all the volume at the best price on the opposite side of the Order Book has been traded), the residual volume of the Top Order is automatically converted to a Limit Order, at the price at which the traded part of the Top Order has been executed.

Top Orders are available for Instrument Series in “Continuous Trading” State only. So, they cannot be entered when the Instrument State is set to “Pre-Opening”.

Top Orders on a strategy instrument entered into the Order Book are also executed at the best available price in the market for the total quantity available from contra orders. However, if there are implied limits which offer a better price than the opposite real limits in the strategy book, the incoming Top Strategy order will trade at each of the implied limits until there is no more remaining quantity. If the Top Strategy order is partially filled after being matched with the implied orders, the remaining quantity will then trade against contra orders at the best executable price in its own (strategy) book. Any residual volume left after all trades (implied and own-book trades) will be booked as a limit order at the last executed price.

5.5.4 Committed Cross Orders

“Committed Cross Orders” are a special order type dedicated to Bilaterally Negotiated Trades and are submitted by setting the Price Type field of the OE message to “C”.

5.5.5 Basis Trade, or Exchange of Future for Swap Transaction

Matching facility to support reporting of Bilaterally Negotiated Trades consisting of the simultaneous execution of a derivative against an offsetting equivalent amount of a related underlying instrument in a quantity that meets a

⁶ Cross Orders are executed with a specific message type (“OX”).

minimum volume threshold between different members for the purpose of trade publication and clearing. Members must specify the intended counterparty and orders do not interact with the anonymous Order Book.

Both sides must enter a cross order setting the Price Type parameter of the OE message to “B” with opposing buy and sell sides, same price, same quantity and the correct counterparty or the trades will not match.

Trades not matched by the end of the trading session are automatically deleted.

5.6 PRICE PARAMETERS

The Price parameter must be specified for Limit Orders and for Bilaterally Negotiated Trades (it remains blank in the case of Market and Top Orders). For Limit Orders, it indicates the lowest (for sell orders) or highest (for buy orders) price at which the Member Firm is willing to have the order executed. For Bilaterally Negotiated Trades, it indicates the pre-arranged price at which the Bilaterally Negotiated Trade will be executed.

The inserted Price must be consistent with the relevant tick size for the instrument.

5.7 QUANTITY TERM AND ADDITIONAL QUANTITY PARAMETERS

The following values can be specified for the “Quantity Term” parameter:

- Blank (no minimum quantity);
- “M”: for Minimum Quantity.

In case the Quantity Term parameter is set, the Additional Quantity parameter must also be indicated. The value specified in the Additional Quantity parameter cannot be higher than the value in the Quantity parameter.

If the Quantity Term parameter is set to “M” the Duration Term parameter can only be set to either “J” (“Day”) or “E” (“Immediate”). See section 5.8 for more details.

5.7.1 Minimum Quantity

If the Quantity Term is set to “minimum” (Quantity Term parameter set to ‘M’), the order has to be executed at least for the quantity specified in the Additional Quantity parameter. If this is not possible, the order is rejected.

“Fill or Kill” orders are implemented by setting the Additional Quantity parameter equal to the total Quantity of the Order.

For a strategy order with a Minimum Quantity, the Trading Engine evaluates if the order can be executed against opposite orders in the same strategy book, otherwise the order is rejected. Strategy orders with Minimum Quantity do not trade against implied orders.

5.8 DURATION TYPE PARAMETERS

The following values can be specified for the “Duration Type” field of the OE message:

- “J”: for “Day”;
- “D”: for “Good Till Day”;
- “F”: for “Good Till Cancelled”; (till expiration)
- “E”: for “Immediate Orders”;
- “W”: for “While Connected Orders”.

OE messages for Strategies can be inserted with Time validity parameter set to “J”, “D”, “F” and “W”.

5.8.1 Day Order

A Day order is submitted by setting the Duration Type field of the OE message to ‘J’. Orders designated as ‘Day’ will remain on the Order Book until the order is:

- executed, or;
- cancelled, or;
- automatically cancelled at the end of the current trading day.

5.8.2 Good Till Day (“GTD”)

A GTD order is submitted by setting the Duration Type field of the OE message to “D”. GTD orders require setting the “GTD Date” field to the date upon which the order must expire.

Orders designated as “Good Till Day” will remain on the book until the order is:

- executed, or;
- cancelled, or;
- automatically cancelled at the end of the day specified in the “GTD Date” field.

5.8.3 Good Till Cancelled (“GTC”)

A GTC order is submitted by setting the Duration Type field of the OE message to “F”. Orders designated as “Good Till Cancelled” will remain on the book until the order is:

- executed, or;
- cancelled, or;
- automatically cancelled at the end of the last trading day of the Instrument Series of the order.

5.8.4 Immediate Orders (“IOC”)

An Immediate order (also known as “Immediate or Cancel”) is submitted by setting Duration Type field of the OE message to “E”.

IOC Orders are immediately executed against any existing orders on the opposite side of the Order Book, at the specified Limit Price or better up to the total Quantity of the IOC Order. Any residual volume after the partial execution of an IOC Order is automatically deleted.

5.8.5 FAK (“Fill and Kill”) and FOK (“Fill or Kill”)

A Time Validity parameter set to “E” (“Immediate”) can be associated to the Quantity Term parameter in order to implement FOK and FAK orders:

FOK orders are implemented associating an “Immediate” order with the Quantity Term parameter set to “M” (“Minimum Quantity”) and defining an “Additional Quantity” equal to the total quantity of order.

FAK orders are implemented associating an “Immediate” order with the Quantity Term parameter set to “M” (“Minimum Quantity”) and defining an “Additional Quantity” equal to the “Minimum Quantity” desired.

5.8.6 While Connected Orders

A “While Connected” order is submitted by setting the Duration Type field of the OE message to ‘W’. Orders designated as “While Connected” will remain in the Order Book until the order is:

- executed, or;
- cancelled, or;
- automatically cancelled following a Participant disconnection, or;
- automatically cancelled in the event of a SAIL Front End failure, or;
- automatically cancelled at the end of the current trading day.

“While Connected” orders are valid only for the current trading day (as for Day orders).

5.9 STOP PARAMETERS

SOLA provides a centralised management of the “Stop Loss” functionality. The Stop Loss functionality is activated specifying some additional parameters in the OE message. For the purposes of this paragraph, orders submitted with an activated “Stop Loss” functionality will be referred to as “Stop Orders”.

5.9.1 Processing of Stop Orders

SOLA checks the Triggering Condition of the Stop Order only once the incoming order that has modified the price of the Stop Instrument has been completely processed. Stop Order is not triggered when the incoming order has activated a Circuit Breaker, because the order rejected changes the status of the Stop Instrument to “Suspended”.

SOLA processes Stop Orders using, for each Instrument Series, a separate Order Book that is not visible to Member Firms (the “Stop Order Book”). All orders triggered following a change of the price of the Stop Series are sorted by time priority and sequentially submitted in the instrument Order Book. Stop Orders remain inactive in the Stop Order Book of the Instrument Series until the price (“Stop Price”) is reached.

5.9.2 Limitations

SOLA allows Members to enter Stop Orders with the following limitations:

- the Stop Series must coincide with the Order Series;
- Stop Order functionalities are available for Single Orders only;
- the Time Validity parameter for Stop Orders can be set as “Day”, “While Connected” or “GTC” (refers to the order that enters the Order Book in case the price condition is triggered).

Inactive or unexecuted Stop Orders at the close of the current trading day are automatically cancelled.

5.9.3 Additional order parameters for Stop Orders

The following additional parameters must be specified in the OE message in case of a Stop Order:

Additional Price: it is the value that the price of the Stop Series must reach in order to trigger the activation of the Stop Order;

Special Price Term: it indicates the condition to be fulfilled for the Stop Order to be activated. Combines two elements: i) the relevant market price to be compared to the Stop Price (this can be chosen by the Member Firm among the last price of the Stop Series, the best buy or the best bid available in the Order Book for the Stop Series), and; ii) the condition that must be created between the market price of the stop series and the Stop Price, in order to trigger the activation of the Stop Order (higher or equal, lower or equal).

The following six values are available:

Value	Order triggered when (Triggering Condition):		
		for Buy orders	for Sell orders
"S" (Stop)	Last Price	>= Stop Price	<= Stop Price
"E" (Stop on Bid)	Best Bid Price	>= Stop Price	<= Stop Price
"I" (Stop on Ask)	Best Ask Price	>= Stop Price	<= Stop Price
"T" (If Touched)	Last Price	<= Stop Price	>= Stop Price
"F" (If Bid Touched)	Best Bid Price	<= Stop Price	>= Stop Price
"H" (If Ask Touched)	Best Ask Price	<= Stop Price	>= Stop Price

Table 15: Additional Order Parameters for Stop Orders

5.10 CLEARING DATA

5.10.1 Position Parameter

Member Firms are required to define, by means of the Position parameter, if the order entered in the trading system is related to:

- the creation of a new position ("Open") - O, or
- the closing of a previously opened position ("Close") - C.

When the Position parameter is not specified, the system automatically attributes the value "Open" to the Position parameter for Client accounts. All orders in House accounts will be assigned a "Close" position parameter.

5.10.2 Account Type parameter

Member Firms are required to indicate, at order entry level and by means of the Account Type field, the trading capacity of each order, according to one of the following values:

- own account: "House" or "Market Maker"
- Client account: "Client", or
- Principal account: "Principal".

5.10.3 Client Code parameter (Clearing Instruction)

Member Firms are required to define, by means of the Client Code parameter (Clearing Instruction), a clearing sub-account number, according to the codes available in the Clearing House systems.

5.11 OWNER DATA

The "Owner Data", composed by two sub-fields (the "Client Order ID" and the "Client Reference ID"), is a parameter available at order entry level as two free-text sub-fields (with a length respectively of 24 and 26 characters) allowing storing the order date, a proprietary order identification number or any other information considered relevant by the Member Firm.

5.11.1 Client Reference

For fees (see Section 10) it is necessary for firms to make use of the Client Reference value (max 16 alphanumeric characters) to identify the tariff scheme that should be applied. Firms must always use an agreed Client Reference value in orders or post trade transactions to ensure the correct fees are applied. Standard fees will be applied should the Client Reference field contain a different or blank value.

5.12 DEFERRED PUBLICATION (DP)

The Deferred Publication (DP) field supports the possibility to defer the publication of trade details in the market data feed, on request by any counterparty involved in a Bilaterally Negotiated Trade only, as per MiFIR / MiFID II⁴ post-trade transparency regime.

In particular, the deferral request by at least one counterparty (out of two, for single leg trades; out of n counterparties for strategy trades) is sufficient to defer the publication of BNT details at the end of the trading day⁷, provided that:

- the DP is enabled on the instrument, and
- the BNT size is above the minimum required size for DP (defined in number of standard lots) as set out in the 'CurveGlobal Markets BNT and DP Threshold Parameters' document in the [CurveGlobal Markets Document Library](#).

Immediately after BNT execution and independent of the deferred publication of trade details in the market data feeds:

- executed trades are sent to the clearing system, and
- Members receive technical messages confirming trade execution and indicating:
 - whether BNT details have been published immediately or deferred to the end of the trading day
 - the reason of the outcome of the DP request
 - whether DP has been granted under MiFID II⁴ "LIS" or "illiquid instrument" post-trade deferral
 - a new Trade Status ("Approved and Deferred") marking BNTs that have been executed, but whose publication of trade details in market data feeds has been deferred at the end of the trading day.

Moreover, as per MiFIR / MiFID II⁴ requirements, deferred trades are marked with a specific post-trade flag in the market data feed ("Deferral flag" field in HSVF), i.e. "LRGS" for liquid instruments and "ILQD" for "not liquid" instruments.

5.12.1 Deferred publication for strategy trades

For trades deriving from strategy orders to execute BNTs (Strategy Negotiated Orders, SNOs), DP is possible when:

- it is enabled on all legs of the SNO, and;
- with regards to leg minimum sizes:
 - at least one leg has a size above the minimum required for DP, for strategy trades executed under the pre-trade "Package order" waiver;
 - for any other strategy trade, the size of each leg is above its DP minimum required size.

In case the DP is not enabled for all legs of the strategy trade, the order will be rejected. In case the size conditions above are not fulfilled, trade details will be published immediately.

In case of a successful DP request, all trades that are part of the strategy transaction will be published at the end of the trading day.

The deferral request must be submitted by at least one of the counterparties of the SNO.

5.13 BILATERALLY NEGOTIATED TRADES (BNTS)

A Bilaterally Negotiated Trade (BNT) is a transaction that is negotiated off-exchange and subsequently reported to the exchange for execution. Members that transact BNTs must comply with provisions laid out in the Bilaterally Negotiated Trade Guidance Document and section 5.13 of the Rules.

BNTs may be trade reported to CurveGlobal Markets during the times laid down in the Contract Specifications. Trade reporting can take place:

- via direct entry by the Member into the SOLA platform using the ("Internal" or "Committed") Cross Order or Bundled Order functionality
- where permitted, manually using pre-defined templates (available on the CurveGlobal Markets Derivatives Trade Reporting section of the website)

through a Reporting Broker who reports the trade on behalf of multiple counterparties (Third Party orders).

Post Trade details of BNTs are disseminated at trade execution. Trade execution messages of BNTs include a Special Trade Indicator field which shows that the trade has been executed as a BNT.

BNTs do not update either the last trade price data or any price statistic report but are counted in quantity statistics.

5.13.1 Block Trades

A Block Trade is a BNT in a single or multiple instruments which is negotiated off-exchange and subsequently reported under the Rules of CurveGlobal Markets. A Block Trade can be reported (i) electronically or (ii) manually.

A Block Trade can be executed between two different Members ("Committed Cross") or with a single Member representing themselves on both sides of a trade ("Internal Cross").

⁷ Trade details are published at the beginning of the last "mini-batch" trading phase configured for each instance of the SOLA Trading System.

Block trades contribute to quantity, but do not update price statistics of the Market Data Feed.

Block trades must be:

- above a minimum⁸ and below a maximum volume threshold;
- within price and risk control parameters, whereby the price controls refer to the best Bid and Offer (BBO) or last available trade / reference price

A summary of minimum block thresholds and price controls for Block Trades on a product basis is provided in **Appendix A – Price and Quantity Controls**. Further information on Risk controls is provided in Section 9.

5.13.2 Internal cross order

The internal cross order allows executing a trade where the two counterparties are represented by a unique Member Firm. An internal cross order is submitted by such Member Firm through the “OX” message.

For internal cross orders, since the two counterparts are represented by the same Member Firm, a two-sided order (by the OX message) must be inserted to complete the BNT. The BNT is immediately executed, given that the price validation controls described in Section 9.1.3 are fulfilled. The price validation control is performed at order entry.

5.13.3 Committed Cross order

The Committed Cross order allows executing a trade where the counterparties are pre-determined. A Member Firm must indicate, amongst all other relevant parameters that define the order, the Firm ID of his counterparty. A Committed Cross order is submitted by setting the Price Type field of OE message to “C”.

For Committed Cross orders, both counterparties of the BNT must submit orders corresponding to their side of the BNT. SOLA keeps the first order received in a dedicated private archive until the corresponding order of the BNT has been submitted by the other counterparty. If the two orders fully match and the quantity, notional value and price controls described in the following paragraph are fulfilled, the trade is executed. The price validation controls are performed two times, at order entry of the BNT, by each counterparty.

5.14 STRATEGY ORDER MANAGEMENT

5.14.1 Strategy instruments

For Order Book traded products, CurveGlobal Markets automatically make available for trading a pre-defined set of strategy instruments. Please refer to Appendix C for the list of available standard combinations and their related characteristics.

5.15 MATCHING ALGORITHMS AVAILABLE ON CURVEGLOBAL MARKETS

CurveGlobal Markets Order Book operates two different matching algorithms:

- Price-visibility-time priority, and
- Pro-rata matching.

A summary of the matching algorithms applied to each product traded on CurveGlobal Markets is provided in the below table.

Products	Description	Parameters
STIRs	Progressive pro-rata matching algorithm, with Best Price Setter	<p>Progressive pro-rata allocation apportions volume to matching resting orders according to their relative sizes adjusted by a time weighting factor which increases the allocation of volume to older orders in the Order Book. In particular, the current product configuration is set to:</p> <p>Three Month Sterling futures / CurveGlobal® One Month SONIA futures / CurveGlobal® Three Month SONIA futures:</p> <p>Best Price Setter: Enabled</p> <p>Min = 50; Max = 500</p> <p>Allocation = 100%</p> <p>First pass allocation:</p> <p>Collar = 1; Cap = 9999; Split = 100%</p> <p>Time Weight = 3</p> <p>Residual Policy:</p> <p>Re-sort = None</p> <p>Method: FIFO</p>

⁸ Minimum threshold complies with Large-In-Scale (LIS) thresholds for pre-trade transparency waivers of Regulation (EU) No 600/2014.

		Three month Euribor® futures: Best Price Setter: Enabled Min = 50; Max = 500 Allocation = 100% First pass allocation: Collar = 1; Cap = 9999; Split = 100% Time Weight = 1 Residual Policy: Re-sort = None Method: FIFO
LTIRs	Price-visibility-time priority	N/A

Table 16: Summary of matching algorithms applied to each instrument group

All executed trades on the CurveGlobal Markets Order Book will contribute to price and quantity updates in the Market Data Feed (HSVF).

5.15.1 Pro-rata Matching Algorithm

The Pro-rata matching algorithm is run in three steps:

- (where applicable) a specified quantity of the incoming order is allocated to the “Best Price Setter” resting order, on the basis of the parameters described under “Best Price Setter” above;
- the remaining quantity of the incoming order is allocated to resting orders on a pro-rata basis - orders at best price levels are allocated first; in case total quantity at one price level is more than the available remaining quantity of the incoming order, a pro-rata allocation is applied among all the available resting orders at that price level - with the pro-rata allocation policy determined on the basis of the parameters described under “First pass allocation” above;
- any residual quantity of the incoming order (if any) is allocated based on the “Residual policy” configured and its related parameters.

5.16 BEST PRICE SETTER (BPS)

The “Best Price Setter” status is assigned to an incoming order which determines the new best price level (in bid or offer) of the Order Book. The quantity of an incoming order allocated to the Best Price Setter is determined based on the following parameters:

- **Min** = represents the minimum quantity that can be allocated to a BPS order. In case this quantity cannot be satisfied, BPS status is not assigned to the order and all the residual quantity is sent to the First Pass Allocation;
- **Max** = represents an absolute maximum quantity (in lots) that can be allocated to a BPS order;
- **Allocation** = represents the maximum quantity (in % of the incoming order quantity) that can be considered for allocation to a BPS order.

5.17 FIRST PASS ALLOCATION

In the First Pass allocation, the policy to allocate residual quantity can be “FIFO” or “Pro-rata”:

- under “FIFO”, resting orders are fully filled based on their time priority, until no resting quantity remains. In this case, the “Residual policy” step is not necessary;
- with the First Pass “Pro-rata” allocation policy, the quantity to be allocated is determined based on the following parameters:
 - **Collar** = represents the minimum incoming quantity that must be available to allocate via the First pass. In case this quantity cannot be satisfied, all the residual quantity will follow FIFO allocation;
 - **Cap** = represents the maximum quantity (in lots) that can be allocated during the First Pass;
 - **Split** = represents the maximum quantity (in % of the tradable quantity) that can be allocated during the First Pass;
 - **Time weight** = is the parameter governing a time-based component in the allocation policy during the First pass.
 - when set to **0**, no weight is attributed to the time-priority component;
 - when given a numerical value (**1.5**), the higher the parameter, the greater the weighting for allocation given to resting orders that have a higher time-priority (“**Progressive pro-rata**”);

- If set to “**A**” this will implement the “**Age pro-rata**” allocation whereby allocation to each applicable resting order is determined by both the unallocated quantity of the incoming order and the age of the order (length of time present in the Order Book) in comparison with the oldest eligible order that is still present in the book at that price level.

5.18 RESIDUAL POLICY

In the Residual policy pass, the policy to allocate any residual quantity can be configured to be “FIFO” or “Residual Pro-rata”.

- under “FIFO”, resting orders are fully filled based on their time priority, until no resting quantity remains;
- with the Residual “pro-rata”, resting orders are filled sequentially, in proportion to their residual unexecuted quantity.

Note that the allocation of any residual quantity under the “Residual pro-rata” is determined on the basis of the “re-sort” parameter. At the end of the “First pass allocation”, the resting orders can be re-sorted before the allocation of any residual quantity. It is possible to:

- maintain the original time priority (no re-sort);
- re-sort by size (orders with biggest unexecuted quantity after the first pass allocation are ranked first), or;
- re-sort by allocation (orders with lower allocated quantity after the first pass allocation are ranked first).

6. QUOTE MANAGEMENT

6.1 BULK QUOTING

Members that have conformed to the CurveGlobal Markets SAIL API are also able to send Bulk Quotes to the CurveGlobal Markets Order Book through their conformed trading applications. Bulk quotes may contain up to 280 separate quotes with CurveGlobal Markets validating each quote within the message. Throttles apply as per rates described in the SAIL technical specification. Bulk Quoting is a more efficient way of sending quotes to the Trading System as only a single message is required as opposed to multiple cancellations and resends of order messages.

Bulk quotes are only valid for the current trading day and not available for strategies. Members can remove quotes on disconnection by sending the Disconnection Instruction message. It is not possible to amend an existing Bulk Quote; any changes have to be made by replacing the existing Bulk Quote with a new one, which results in a loss of time priority.

Protections for Members using Bulk Quotes are described in Section 9 on Risk Controls. Before the Opening, an "Intervention Period" allows Bulk Quote users to enter Bulk Quote data which would be used to retrieve the quote ID. The Intervention Period is only available for specific products. Members can continue to cancel orders during this period.

6.2 MARKET MAKERS AND THEIR OBLIGATIONS

Member Firms pursuing a "market making strategy", as defined in CDR (EU)2017/578/UE, are required to sign a dedicated "market making agreement". Furthermore, Member Firms can apply to join Market Making Programmes or Designated Liquidity Provider Schemes (as defined in the CurveGlobal Markets Rule Book in the CurveGlobal Markets Document Library). For further information with regards to available Market Making capacities, schemes and incentives please refer to the Market Making Obligations document in the CurveGlobal Markets Document Library.

Participants that have signed such an agreement, or that have joined such a Programme and/or Scheme are subject to pre-defined spread, quantity and time presence obligations linked to particular Instrument Group and are offered specific pricing structures for their trading activity. Market Supervision will monitor the fulfilment of each participant's obligations with the terms laid out in the respective agreements.

Specific TraderIDs are assigned to all market makers allowing submission of orders and/or quotes on the instruments associated with their committed obligations. Order flow submitted under Member Firm's market making agreement must be channeled through these specific TraderIDs. The following schemes are available on CurveGlobal Markets:

Capacity	Obligations
Market Maker	Market Maker pursuant section 4.3.1 of the CurveGlobal Markets Rule Book providing liquidity may use either orders or quotes to fulfil their obligations.
Designated Liquidity Provider (DLP)	Participants in Liquidity Provider Programmes are requested to comply with their liquidity provider obligations by sending either orders or quotes.

Table 17: Market Maker and DLP Obligation Summary

CurveGlobal Markets reserve the right to terminate the agreement if a Member fails to meet its obligations. CurveGlobal Markets also reserve the right to withhold or cancel any incentives in the event that the Member fails to meet its obligations or terminates its agreement early.

6.3 REQUEST FOR QUOTE (RFQ)

Any member can broadcast a message to the whole market requesting other market participants to publish price updates in a particular instrument via the HSVF market data feed. Subsequently Market Makers that are part of a scheme or programme, as part of their agreement with CurveGlobal Markets, have an obligation to reply by entering a quote into the Order Book for that specific instrument.

Such requests will include:

- Instrument
- Instrument ID Code
- Quantity (not mandatory)

The requests are entered in SOLA with the SAIL message REQUEST FOR QUOTE (RFQ).

If the message is valid, the client receives a STANDARD ACKNOWLEDGEMENT (KO) message. If the RFQ message is not valid, SOLA sends an ERROR (ER/TE) message indicating the error code for the first error detected.

7. CONNECTIVITY AND ACCESS

The following table summarises the connectivity options available to customers.

		Trading	Clearing	Market Data	
API and Connectivity	Customer Managed Connectivity (CMC)	SAIL API FIX API	LCH Synapse	HSVF API	
	Extranex				
	Colocation: Exchange Hosting				
	Third parties (NSPs/VANs)				
	Internet VPN				
Application	Solutions	ISV* or Member In-House GUI	ISV or Member In-House provided GUI*	ISV* or Member In-House GUI	ISV or Member In-House GUI and Market Data Vendor* System or GUI

Table 18: Available connectivity options for CurveGlobal Markets participants

* See the LSE website for a full list

Please refer to the Connectivity section in the CurveGlobal Markets Document Library for further details on connectivity options listed below.

7.1 PHYSICAL CONNECTIVITY

7.1.1 Customer Managed Connectivity (CMC)

Customer Managed Connectivity (CMC) provides customers with additional choice and flexibility, when directly accessing the Exchange. Utilizing an optimized network infrastructure, engineered for low latency, resiliency and scalability, Members are able to access LSE markets by procuring point to point circuits to LSE datacenters from a number of Accredited Connectivity Partners. A list of Accredited Connectivity Partners can be found at the following link: <http://www.lseg.com/cmc>.

7.1.2 Extranex

Extranex provides our customers with a managed connectivity service at a range of speeds for access to LSEG.

7.1.3 Colocation: Exchange Hosting

Members may choose to house their servers in LSEG's datacentre in close proximity to the CurveGlobal Markets servers. For further information on this connectivity option please contact hosting@lseg.com.

7.2 THIRD PARTY CONNECTIVITY: NETWORK SERVICE PROVIDERS (NSPS)

As an alternative to connecting directly to the LSE services, clients are able to connect via third party accredited Network Service Providers (NSP). Members contract with the NSP for provision of network connectivity but sign agreements directly with the CurveGlobal Markets for access to our trading and information services.

Clients using an NSP connection will have individual service enablement's set up on our trading, clearing and information systems. The data and trading feeds (APIs) are in exactly the same format as those received by a direct customer and are subject to the same testing requirements.

A list of all current NSPs for LSE can be found within the NSP section of the LSE website.

7.3 THIRD PARTY CONNECTIVITY: VENDOR ACCESS NETWORKS (VANS)

VANs provide an end-to-end solution comprising network connectivity and pre-conformed software applications through which their clients can interface with the CurveGlobal Markets.

7.4 INTERNET VPN

Clients can access CurveGlobal Markets using a local internet connection. Clients can choose from a managed or client managed VPN service. For further information on connectivity options please contact connectivity@lseg.com.

7.5 VENDOR SOFTWARE SOLUTIONS

7.5.1 MDVs, ISVs and VANs

A full list of CurveGlobal Markets conformed Front, Middle and Back Office Independent Software Vendors (ISVs), Market Data Vendors (MDVs) and VAN providers can be found on LSE website at the following link: <http://www.londonstockexchange.com/products-and-services/connectivity/software-houses/software-houses.htm>

7.5.2 Reporting Broker Platform Providers

This service for accredited CurveGlobal Markets Reporting Broker Platform Providers (RBPP) to connect to and interface with the Third Party Execution functionality on CurveGlobal Markets for the electronic reporting of block trades.

Member Firms who utilise RBPPs to report their Third Party Executions must be Derivatives Market registered in the capacity of "Reporting Broker".

RBPPs are required to undergo an accreditation process to ensure they meet the Exchange's requirements for functionality, security and resilience. For further information on how to become a RBPP on CurveGlobal Markets, please contact: connectivity@lse.com.

8. MARKET OPERATIONS & CLEARING

8.1 TRANSACTION REPORTING AND MARKET IDENTIFIER CODE (MIC)

Every unique instrument on CurveGlobal Markets has an associated ISIN code. This ISIN is a unique identifier that can be used for transaction reporting purposes.

Each instrument can also be identified by its unique code, described in section 3.5.4 (symbology).

A single segment Market Identifier Code (MIC) is affixed to the post trade transparency data feed.

For products trading on CurveGlobal Markets the Market Identifier Code (MIC) is XL0D, while the Exchange ID is "R".

For the purposes of MiFID II⁴ transaction reporting the relevant Segment MIC Code for all trades on CurveGlobal Markets is "XL0D".

CurveGlobal Markets uses the LEI for London Stock Exchange Plc: 213800D1E14B9WTWWD28.

In order to assist Members with their MiFID II⁴ transaction reporting obligations execution notices for trades on CurveGlobal Markets will contain:

- TVTIC (Trading Venue Transaction Identifier Code)
- Pre-Trade Waiver Flag

Third-country members will be required to assist CurveGlobal Markets with their transaction reporting obligations under MiFID II⁴. Full details can be found in the LSEG Transaction Reporting Guide for third-country Firms available in the [CurveGlobal Markets Document Library](#).

8.2 CENTRAL COUNTERPARTY PROTECTION

All Future Contracts traded or reported on CurveGlobal Markets will have LCH acting as Central Counterparty.

CurveGlobal Markets contracts operate under an open offer arrangement, details of which are described in the CurveGlobal Markets rulebook.

8.3 MARGINING AND POSITION CONTROLS

8.3.1 Initial Margin (IM) methodology

The IM methodology is based on an historic value-at-risk (HVAR) simulation and forms part of LCH's harmonised Portfolio Approach to Interest Rate Scenarios (PAIRS) model for estimating margin across its clearing services.

8.3.2 Product Coverage

The products listed below are categorised into two distinct groups, namely STIR futures and Government Bond futures.

Underlying	Instrument
<i>STIRs</i>	CurveGlobal® Three Month Euribor® futures CurveGlobal® Three Month Sterling futures CurveGlobal® Three Month SONIA futures CurveGlobal® One Month SONIA futures
<i>Government Bonds</i>	CurveGlobal® Schatz futures CurveGlobal® Bobl futures CurveGlobal® Bund futures CurveGlobal® Long Gilt futures

Table 19: CurveGlobal Product Coverage

8.4 PRICING METHODOLOGY

Underlying LCH's approach to pricing the various products listed above is the principle of forward pricing. Specifically, STIR futures are priced in accordance with the relevant underlying forward interest rate, while Government Bond futures are priced in accordance with the relevant underlying cheapest-to-deliver (CTD) bond, i.e. as evaluated on a forward basis. Each class of product has a specific (closed form) pricing function as detailed below. Relevant Risk Factors:

- Index Curves
- Sovereign Discount Curves
- Repo / General Collateral (GC) Curves
- Foreign Exchange Rates

Index curves are used to estimate / project forward interest rates, which are in turn used to price the range of Three month STIRs (Short Term Interest Rates) futures. The sovereign discount and repo / GC curves are used to forward-price the various CTD bonds that underlie the range of Government Bond future contracts.

8.5 GIVE UPS

When one side of the trade needs to be given up to another Clearing Member, it is the responsibility of the reporting member to request that both the buy and sell side of the trade go onto their own account; they will then be required to manage any give ups with their General Clearing Member (GCM) directly.

8.6 ACCOUNT STRUCTURE

Members can request the following types of account from Membership through a request to membership@lseg.com:

- Client account;
- House account;
- Market Maker account (for Member Firms registered as Market Makers);
- Principal

Membership will supply the Member Firm with a "Static Data Form" which should be used to specify account set up requirements. The member can segregate business as required. The account type is also used to indicate trading capacity. Orders sent to execute a Bilaterally Negotiated Trade (internal cross order) will not be accepted by the trading system if the Account Type field on buy vs. sell side is:

- House vs. House, or
- House vs. Matched Principal, or
- Matched Principal vs. House, or
- Matched Principal vs. Matched Principal.

Through LCH, CurveGlobal Markets currently offer Clearing Members:

- Omnibus Segregated Accounts (OSAs) - accounts held by the Clearing Member for the purposes of holding positions for one or more Clients (which may or may not be known by the Clearing House);
- Individual Segregated Accounts (ISAs) - accounts held by the Clearing Member for the purposes of holding positions for a single named client;
- Gross Omnibus Segregated Accounts (GOSAs) – accounts offered for clearing arrangements of Indirect Clients.

8.7 CLEARING REPORTS

The Synapse clearing system provides Clearing Members with a set of daily intraday and end-of-day reports and data extracts.

Clearing Reports are available to Clearing Members in PDF and CSV format within Synapse and can be downloaded from Member Web portal (where they are available for 15 days) or SFTP. Banking reports are available via Member Web portal.

Data extracts can be downloaded from Member Web portal in XML format (content specification details can be found in the XML Specification Document).

8.8 SETTLEMENT

8.8.1 Cash Settled Contracts

Three month Euribor® futures, Three month Sterling futures and CurveGlobal® One and Three month SONIA futures are cash settled contracts as specified in the CurveGlobal Markets contract specifications. Cash settlement is debited from or credited to the relevant Proprietary account or Client account.

8.8.2 Physically Delivered Contracts

Euro-Schatz, Euro-Bobl, Euro-Bund and Long Gilt futures contracts are physically delivered contracts, settled by physical delivery of the underlying at the Final Settlement Price, as determined according to the contract specifications available in the [CurveGlobal Markets Document Library](#).

8.8.3 Synapse - Clearing Component

At the time of expiry of a futures contract, the Synapse Clearing Component will mark the relevant instruments as 'Tendered', calculate the Final Variation Margin and convert any open futures into Delivery Positions.

The Clearing Component will provide the Delivery Component with the delivery positions. The positions will remain as unsettled until the bonds have been delivered in the Central Securities Depository (CSD) and LCH operations have marked the positions as settled. Contingent Variation Margin (CVM) will be calculated by the clearing component whilst positions remain as unsettled.

8.8.4 Synapse - Delivery Management Component

The Delivery Component will co-ordinate the physical settlement of bonds. The Delivery Component will allow the Sellers to enter the necessary details to facilitate the delivery process. This will include the entry of static data, the receipt of the delivery basket details made available by CurveGlobal Markets and the nominations of bonds from the delivery basket.

The Delivery Component will perform the following functions:

- Accept the Delivery Basket (the list of eligible instruments and price factors) from CurveGlobal Markets from 10 days before the start of the delivery period and then on a daily basis until the end of the delivery period;
- Obtain Delivery positions and associated Final Settlement prices from the Clearing Component. These delivery positions will be maintained in the Delivery Component until settlement confirmation has been received;
- Clearing Member (sellers) must enter their seller notifications nominating specific instrument(s) from the eligible basket against the futures contract they wish to provide to fulfil their delivery obligations;
- Once notifications have been authorised the Delivery System will then perform an allocation of Sellers bonds to the Buyers;
- Produce an Invoice and Account Sale and Delivery Instruction report for the Clearing Members;
- Pass any positions in Delivery to the Risk Management Service for calculation of Initial Margin;
- Provide delivery instructions to the appropriate CSD in order to initiate settlement;
- LCH operations will monitor the settlement confirmations from the CSD and update the associated delivery positions as settled within Synapse.

Note there will not be any capability for a Clearing Member to nominate a transferee/transferor for the Delivery process.

9. RISK CONTROLS

CurveGlobal Markets Trading System embeds two sets of Risk Controls in order to support CurveGlobal Markets in maintaining the regular and orderly functioning of the market:

- Exchange level controls;
- User defined controls.

9.1 EXCHANGE LEVEL CONTROLS

9.1.1 Maximum order quantity checks (for order and quotes)

The Trading System conducts a check on the value of the quantity parameter of an order. If the traded quantity of an order exceeds the maximum quantity parameter specified for the contract the order will be rejected. Maximum Quantity parameters can be found in Maximum notional value checks (for orders and quotes)

The Trading System conducts a check on the notional value of an order. The order notional value is the amount of the derivatives contract considering the quantity, the size and the price as follows:

$$\text{Futures} = \text{Number of contracts} * \text{contract notional (as per Contract Specifications)}$$

Maximum notional values can be found in Appendix A Controls

9.1.2 Automatic price controls

Circuit Breakers will activate and trigger suspension of trading when a trade occurs at a price level deemed to be an unacceptably large deviation away from static or dynamic control prices defined by CurveGlobal Markets.

Product	Duration of suspension of trading following Circuit Breakers
Interest Rate derivatives	5 seconds

Table 20: Circuit Breaker Summary

CurveGlobal Markets have different Circuit Breakers configured against the reference control prices with respect to both orders and trades. In particular market conditions, CurveGlobal Markets may modify during a trading session, with reference to markets, categories of financial instruments or individual instruments, the maximum price variation limits, the reference price, the dynamic price and other trading conditions.

Definitions of control prices are as follows:

- **Reference control price** – dynamically assessed and updated market reference price, as determined by CurveGlobal Markets;
- **Dynamic control price** – the last traded price in the current session.

Levels set by CurveGlobal Markets are detailed in Appendix A.

For Stop Loss and If Touched orders, the incoming order price cannot be outside the price control thresholds detailed in Appendix A. Additionally, if, when triggered, the order price violates the control parameters, the incoming order is cancelled, and the Circuit Breaker suspension is triggered. In the event that the Circuit Breaker will continue to persist due to a member's order(s) that is outside the static or dynamic thresholds and CurveGlobal Markets have taken reasonable action to contact the Member in relation to that order and the Member has not responded, CurveGlobal Markets reserve the right to delete the order to resume continuous trading.

9.1.3 Price and Quantity Controls on Block Trades

9.1.3.1 Block trades trade reported using SOLA available functionalities

Block trades submitted to CurveGlobal Markets are not subject to the price and quantity controls for trades executed on the Order Book and are not captured by automatic controls described in the previous chapter. Instead, they are subject to the following Block trade-specific system controls or controls established by Market Supervision:

- Minimum and maximum quantity controls;
- Price-quantity controls to allow trades to be reported either within the Order Book bid and ask or within the allowable deviation from the Order Book bid and ask. In case no Best Bid Offer (BBO) spread is available on the Instrument order book, the price of the block trade must be:
 - i. within the allowable deviation from the last trade price, where available, otherwise
 - ii. within the allowable deviation from the last reference price.

Block Trades that do not meet either of the conditions outlined above, will not be accepted by the trading system or cancelled by Market Supervision. Product specific settings are detailed in the Appendix A.

9.1.3.2 Block Trades trade reported through a manual process (where applicable)

Block trades sent to Market Supervision for Trade Reporting using pre-defined templates are subject to price-quantity controls by Market Supervision and must comply with the same conditions outlined for trades that are submitted electronically.

9.1.4 Fair value validation

Trade adjustment and cancellations are subject to fair value review by CurveGlobal Markets Market Supervision. Futures contracts value ranges are available in Bilaterally Negotiated Trades and Deferred Publication Thresholds

Short Term Interest Rate Products

Contract		Minimum Size for Negotiated Transactions	Minimum size for "outside BBO"	Allowable % from bid/ask for BNTs "outside BBO"	Minimum size for Deferred Publication
CurveGlobal® Three Month Euribor® Ticker: EUI	Serial	10	10	+-10.0%	25
	White	10	10		25
	Red	10	10		25
	Green	10	10		25
	Blue	10	10		25
	Gold	10	10		40
	Purple	10	10		40
CurveGlobal® Three Month Sterling Ticker: 0.5M - STL 1M - STG	Serial	20	20		50
	White	20	20		50
	Red	20	20		50
	Green	20	20		50
	Blue	20	20		50
	Gold	20	20		50
	Purple	20	20		50
CurveGlobal® Three Month SONIA Ticker: 0.5M - SON 1M - SNA	Aqua*	20	20		50
	White	20	20		50
	Red	20	20		50
	Green	20	20		50
	Blue	20	20		50
	Gold	20	20		50
	Purple	20	20		50
CurveGlobal® One Month SONIA Ticker: 1.5M - OSN 3M - OSA	Aqua*	20	20	50	
	White	20	20	50	

Table 23: STIRs BNT & DP Thresholds

Long Term Interest Rate Products

Underlying	Underlying Ticker	Minimum Size for negotiated Transactions	Minimum Size for "outside BBO"	Allowable % bid/ask for BNTs "outside BBO"	Minimum Size for Deferred Publication
CurveGlobal® Schatz	SCH	50	50		250

CurveGlobal® Bobl	BBL	50	50	+/-10.0%	250
CurveGlobal® Bund	BND	50	50		250
CurveGlobal® Long Gilt	GLT	50	50		250

Table 24: LTIRs BNT & DP Thresholds

Appendix B – Futures Contracts Fair Value Ranges.

In assessing the Fair Value, the Exchange will also consider the following factors:

- i. The quantity executed;
- ii. The quantity and prices of trades, as well as bids and offers, in the relevant listed product(s);
- iii. The quantity and prices of trades;
- iv. Any other circumstance the Exchange deems relevant to the deal, including the particular circumstances of the participants or general market conditions.

9.2 USER DEFINED CONTROLS

9.2.1 Automatic cancellation of orders and quotes in case of disconnection

Orders with Duration type “While Connected” will be automatically cancelled in case of disconnection from the SOLA System.

9.2.2 Global Cancellation (for orders / quotes / both)

Global Cancellation (GC) of orders, quotes or both allows Member Firms to remove i) all resting orders in the Order Book, or ii) all resting quotes placed with the Bulk Quote (Qi) message related to a specific TraderID and on all Instrument Series in the same Instrument Group⁹, or iii) both.

9.2.3 Kill Switch functionality

The Kill Switch (KS) functionality enables Member Firms to i) prevent entering or modifying any order or quote in the Trading System, and ii) remove all resting orders (including orders to execute Bilaterally Negotiated Trades) and quotes at the same time.

The Risk Master Switch message is available on RM user only and, subject to RM user configuration, KS functionality may allow to disable a TraderID or a predefined Group of TraderIDs.

Following KS triggering, in order to re-activate a TraderID or a predefined Group of TraderIDs, a Member Firm is required to contact Derivatives Market Operations.

9.2.4 Bulk Quoting Protection (BQP)

Bulk quoting protection is a functionality provided by CurveGlobal Markets that will result in an automatic cancellation of all quotes in a particular instrument class under certain conditions.

The feature protects Bulk Quote users against any “excessive” trades due to the following:

- Technical problems at participant’s end preventing normal market updates
- Quoting errors at participant’s end due to erroneous underlying price information
- Unintentionally being “swept” by another participant

9.2.5 Bulk Quoting Protection Types

BQP applies to each trader ID for an underlying instrument group. Users may opt for one of two types of bulk quoting protection:

- **Standard protection:** If protection is triggered on an instrument class, quoting will be restarted and counters (detailed below) reset the next time a bulk quote message is sent to any instrument in the class.
- **Advanced protection:** If protection is triggered on an instrument class, any subsequent quote update is rejected, and quoting can only be resumed after a new “Protection subscription” (RP) message is sent.

Once protection is triggered, CurveGlobal Markets will automatically cancel all quotes posted by the trader on all instruments in the class and send a “Notice of cancellation of all quotes” (NP) message.

9.2.6 Protection counters

BQP is active on all quotes sent using the Bulk Quote message functionality.

CurveGlobal Markets provide five protection counters which can be set by Firms using bulk quotes in a specific instrument. Any number of counters can be activated simultaneously. Traders must define a “Time Interval”. The protection counters are reset if the time elapsed (in number of seconds) between any two trades is longer than the user defined “Time Interval”.

Protection counters are listed and described in the table below:

Counter type	Counter change condition (applies to all trades in any instrument of the class)	Trigger for bulk quoting protection
--------------	------------------------------------------------------------------------------------	-------------------------------------

⁹ In order to identify the Quotes to be cancelled via the GC, the TraderID and the instrument Group ID must be specified.

<i>Trade count (of Min Lot Size)</i>	Increases by 1 with each execution of a trade of at least N lots (where N is a user defined number). Max number of trades = Count (Trade where volume ≥ Minimum Trade Volume)	CurveGlobal Markets default threshold OR User defined number of trades of at least N lots in size
<i>Volume count</i>	Increases by the trade volume of every execution	CurveGlobal Markets default threshold OR User defined volume
<i>Value count</i>	Increases by the trade value of every execution Max Value = $\sum (\text{Volume} \times \text{Price} \times \text{Contract Size} \times \text{Tick Value})$	CurveGlobal Markets default threshold OR User defined value

Table 21: Protection Counter Summary

9.2.7 Default protection and ranges

CurveGlobal Markets provide default thresholds for the protection counters within the Trading System (see Appendix D). CurveGlobal Markets set the default to ensure adequate protection for bulk quote users. Bulk quote users may define their own customised thresholds. When defining their thresholds, users must adhere to the minimum and maximum configuration ranges in the tables in Appendix D.

If a value outside the relevant minimum or maximum is selected, CurveGlobal Markets will reject the message and users will be unable to set up their customised protection thresholds. The protection must be activated before the start of each trading day by sending an “RP message” to select the type of protection (Standard or Advanced). For each trader ID, bulk quote users need to send a “bulk quote” message (BD) to begin their quoting activity with the user defined thresholds (including the Time Interval, Maximum Volume and Value limits, and Maximum Delta Volume and Value limits).

If the values of the thresholds are not user defined, then the CurveGlobal Markets default thresholds are selected, as in Appendix D. For further information on the Bulk Quoting Protection functionality, please refer to the Bulk Quoting Protection Description document on the CurveGlobal Markets Document Library.

9.2.8 Self-Execution Prevention (SEP)

CurveGlobal Markets trading platform offers Self-Execution Prevention (“SEP”), with the purpose of helping market participants to prevent execution when an order crosses an opposite-side order sent by the same trading Firm on the Order Book (i.e. “self-matching”). SEP on SOLA is user-configurable, allowing for each market participant to specify which Trader IDs of its Member Firm will or will not be able to interact. SEP applies during continuous trading for Limit, Market, Top, Stop (loss) and If-Touched orders.

Basic functionality:

Market participants can define between one and twenty-six Self-Execution Prevention Groups (“SEP Group”) for their Trader IDs. Members can set up their SEP Groups by contacting their Technical Account Manager at londontam@lseg.com:

- A SEP Group will contain one or more TraderIDs from a particular Member Firm. A SEP Group cannot include TraderIDs from multiple Member Firms. A TraderID will be allowed to be associated only to one SEP Group.
 - Orders submitted from TraderIDs within the same SEP Group will not be allowed to interact with each other;
 - Orders submitted from TraderIDs in different SEP Group will be allowed to interact with each other.
- SEP will take effect upon aggression of the order (before execution) and not on order entry or replenishment.

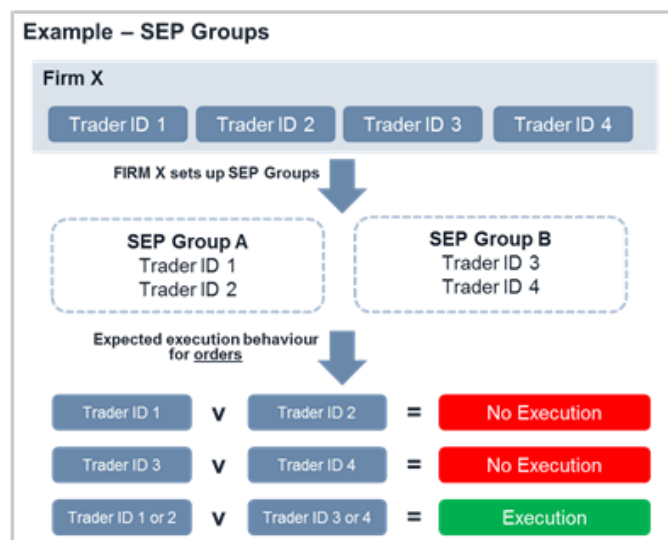


Figure 1 - The diagram above explains how the interaction between TraderIDs / SEP Groups works on SOLA.

SEP Rules regulate the interaction of orders from a Member Firm and are defined at the TraderID level. Different rules can be applied to TraderIDs included in the same SEP Group. The SEP rule of the incoming order (i.e. the aggressive order) will regulate the interaction between two orders which are part of the same SEP Group.

SEP behaviour is managed differently in relation to the matching algorithm in use by the product:

- for products based on Price-Visibility-Time priority, assessment of SEP rules is done before the potential execution of every individual trade triggered by the incoming order;
- for products based on Progressive Pro-rata matching algorithm, SEP is evaluated at each relevant price level, before starting the allocation process described in Appendix B.

The following actions are available for each TraderID within a SEP group:

- **Cancel Incoming Order (CIO)**. The resting order is left (in the case of products based on the Pro-Rata matching algorithm all resting orders at the relevant price level - and belonging to the same SEP group – will remain) while the incoming order will be rejected.
- **Cancel Resting Order(s) (CRO)**¹⁰. All the resting orders belonging to a TraderID in the same SEP group as the one of the incoming order and resting at the price level(s) matched by the incoming order are cancelled. The incoming order is allowed to execute other resting orders or rest on the book.

Exceptions to SEP Rules:

- If a self-execution match is identified involving a quote (as a resting or aggressive order), the SEP Rule configured for the incoming TraderID will be ignored and the following rules will apply:
 - When the opposite side is an order (i.e. it is not a quote), the quote will survive while the order (incoming or resting) will be cancelled;
 - When the opposite side is a quote (e.g. two quotes submitted by two different TraderIDs of the same market participant), no SEP rules will be applied i.e. the trade will be executed.
- Strategies: SEP will only apply for orders with potential executions in the “Strategy v Strategy” scenario, i.e. if a strategy instrument could execute against another (resting) strategy instrument, SEP will prevent this execution. SEP will not apply in the Strategy vs. Legs case, i.e. when a strategy instrument could execute against orders on the Order Book, the trade will be executed.
- Minimum quantity orders: SEP will not apply to execute minimum quantity orders, including “Fill Or Kill” and “Fill And Kill” orders.
- “Internal” cross orders: SEP will not apply to cross orders with the same counterparty on both sides.

9.2.9 Pre-Trade Validation Service (PTVS)

PTVS provides a tool for:

- General Clearing Members (GCMs) to manage the cleared risk exposure generated by the trading activity of their Non-Clearing Participants (NCPs);
- LSE Members offering Direct Market Access (DMA) to control the risk related to the trading activity of their DMA clients;
- LSE Members to monitor the risk associated to their own trading activity.

PTVS allows the Risk Manager (controlling entity) to set pre-trade controls for a specified Managed Entity (i.e. a single TraderID or a group of Trader IDs associated with a Firm) and at different levels, in particular:

- Firm / Group of Trader IDs / Instrument Group / Instrument
- Firm / Group of Trader IDs / Instrument Group
- Firm / Instrument Group / Instrument
- Firm / Instrument Group

Before setting up pre-trade validation controls, the Risk Manager should inform the Managed Entity that these will be implemented; if in doubt, the Managed Entity should check with its Risk Manager whether pre-trade validation controls are applied to its orders.

The following limits can be configured by the Risk Manager via SAIL or a dedicated GUI:

- Max Order Quantity limit for orders and quotes;

¹⁰ Available in production from 22 February 2021.

- Max Order Quantity limit for Bilaterally Negotiated Trades;
- Max Notional Value limit for orders and quotes;
- Max Notional Value limit for Bilaterally Negotiated Trades;
- Price Collar limit allowing to automatically reject orders and quotes not meeting a set of price interval parameters defined at Instrument level, in addition to Exchange-based dynamic price deviation controls. In particular, for each Instrument, the Risk Manager will be able to define a reference price and a maximum upward/downward divergence by this (expressed in percentage points);
- Position limit¹¹ on executed trades (net long/short position) during the day, expressed in quantity terms:
 - the trade triggering the limit's breach is executed
 - the breach of the net long threshold triggers the cancellation of all buy orders and all quotes (and vice versa for the net short threshold);
- Exposure limit¹¹ on open orders (excluding quotes) plus executed trades (net long/short position) during the day, expressed in quantity terms:
 - the incoming order that would breach the net long threshold triggers cancellation of all buy orders and all quotes (and vice versa for the net short threshold);
- Kill Switch functionality, allowing to cancel all orders (BNTs included) and quotes for a TraderID and to disable the TraderID / Firm (see section 9.2.3);
- Access to the Bulk Quoting Protection to control quoting activity of Managed Entity. Since the protection is available to both Market Makers and their Risk Managers, in case two sets of limits are applied to the same Managed Entity, the most restrictive configurations will apply. For more details see section 9.2.4

Based on configurations defined by the controlling entity, SOLA will perform real-time checks before allowing each order and quote to enter the Trading System; configured limits can be updated real-time with immediate effectiveness.

SOLA will disseminate messages related to the "usage" of the predefined Position and Exposure limits ("Risk Limits Usage Notice") via both SOLA APIs and GUI (Graphical User Interface):

- anytime a defined limit approaches the threshold, an alert is disseminated according to a 10% interval
- alerts are disseminated when the available thresholds "used" are at 50%, 60%, 70% etc. of its total.

These messages are available for SAIL protocol, while FIX protocol only disseminates error codes. For further details on PTVS, please refer to the Guide to Pre-Trade Validation Service available in the [CurveGlobal Markets Document Library](#).

¹¹ For the purpose of calculating Position and Exposure limits for Interest Rate derivatives cross/bundled/third party orders and trades are out of scope.

10. TARIFF MODEL

CurveGlobal Markets operate all products with a number of different fee schemes, details of which can be found in the 'CurveGlobal Markets Fee Schemes and Billing Process' document available in the [CurveGlobal Markets Document Library](#).

CurveGlobal Markets base their fee schemes on a per lot model.

Products using this system simply apply one universal fee to each side of the trade based on the number of contracts traded.

At present CurveGlobal Markets operate a choice of 4 fee schemes for market participants:

- i. Standard per lot fee;
- ii. Designated Liquidity Provider (DLP) scheme (zero trading and clearing fees per lot for eligible traders);
- iii. Principal Trading (PT) scheme (reduced trading and clearing fees for eligible traders);
- iv. Pre-Paid scheme (PP) scheme (free trading fees, normal clearing fees for eligible traders).

Firms need to apply to participate in any scheme other than the Standard fee per lot scheme. (Quoting obligations may apply).

Fees are assessed based on the Client Reference value submitted to SOLA within the orders or set post-trade through the back-office system.

All fees are charged to the Clearing member.

11. CONTACTS

11.1 CURVEGLOBAL

For **CurveGlobal** support please contact:

Product Development	+44 (0) 20 7797 1055	products@curveglobalmarkets.com
Business Development	+44 (0) 20 7797 1055	sales@curveglobalmarkets.com
Membership	+44 (0) 20 7797 1900	membership@lseq.com
London Market Services (Operations)	+44 (0) 20 7797 3617	etd.operations@lseq.com
London Market Services (Supervision)	+44 (0) 20 7797 4632	CurveGlobalMarketsSupervision@lseq.com
Technical Account Management		
Functional Queries, Client On-Boarding, Technical Advice	+44 (0) 20 7797 3939	londontam@lseq.com
Client Support Team		
Incident Management (Live Service and CDS)	+44 (0) 20 7797 1500	support@lseq.com

11.2 LCH

For **LCH** enquiries please contact:

General Enquiries	+44 (0) 207 426 7651	rates.clientservices@lch.com
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12. APPENDIX A – PRICE AND QUANTITY CONTROLS

12.1 ORDER PRICE AND QUANTITY RESTRICTIONS

Table 22: Price and Quantity Restrictions Price and Quantity Restrictions

Colour Code ¹¹		Order Book Price Control		Block Trade Price Control	Order Book Quantity control			Block trade quantity control			
		X Validation (Order Price vs. Static control price – in ticks ¹²)	Y Validation (Order Price vs. Static control price – in ticks ¹²)	Min quantity for outside the spread	Allowable % from bid/ask ¹³	Max Single Order Notional	Max Single Order Lots	Max combo order	Min size	Max size	
										Notional	Lots
CurveGlobal® Three Month Euribor®	Serial	2,000	20	<i>Refer to the "CurveGlobal Markets BNT and DP Threshold Parameters" document</i>	+/- 10%	€20 bn	20,000	40,000	<i>Refer to the "CurveGlobal Markets BNT and DP Threshold Parameters" document</i>	€99.999 bn	99,999
	White	2,000	20		+/- 10%	€20 bn	20,000	40,000		€99.999 bn	99,999
	Red	2,000	20		+/- 10%	€20 bn	20,000	40,000		€99.999 bn	99,999
	Green	2,000	20		+/- 10%	€20 bn	20,000	40,000		€99.999 bn	99,999
	Blue	2,000	20		+/- 10%	€20 bn	20,000	40,000		€99.999 bn	99,999
	Gold	2,000	20		+/- 10%	€20 bn	20,000	40,000		€99.999 bn	99,999
	Purple	2,000	20		+/- 10%	€20bn	20,000	40,000		€99.999 bn	99,999
CurveGlobal® Three Month Sterling	Serial	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	White	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Red	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Green	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Blue	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Gold	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Purple	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
CurveGlobal® Three Month SONIA Futures	Aqua	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	White	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Red	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Green	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Blue	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Gold	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
	Purple	2,000	20		+/- 10%	£10 bn	20,000	40,000		£49.9995 bn	99,999
CurveGlobal® One Month SONIA Futures	Aqua	2,000	20	+/- 10%	£30 bn	20,000	40,000	£149.9985 bn	99,999		
	White	2,000	20	+/- 10%	£30 bn	20,000	40,000	£149.9985 bn	99,999		
CurveGlobal® Schatz	All months	4,500	40	+/- 10%	€2 bn	20,000	40,000	€9.9999 bn	99,999		
CurveGlobal® Bobl	All months	2,500	90	+/- 10%	€2 bn	20,000	40,000	€9.9999 bn	99,999		
CurveGlobal® Bund	All months	3,200	210	+/- 10%	€2 bn	20,000	40,000	€9.9999 bn	99,999		
CurveGlobal® Long Gilt	All months	2,500	210	+/- 10%	€2 bn	20,000	40,000	€9.9999 bn	99,999		

12.2 BILATERALLY NEGOTIATED TRADES AND DEFERRED PUBLICATION THRESHOLDS

Short Term Interest Rate Products

Contract		Minimum Size for Negotiated Transactions	Minimum size for "outside BBO"	Allowable % from bid/ask for BNTs "outside BBO"	Minimum size for Deferred Publication
CurveGlobal® Three Month Euribor® Ticker: EUI	Serial	10	10	+-10.0%	25
	White	10	10		25
	Red	10	10		25
	Green	10	10		25
	Blue	10	10		25
	Gold	10	10		40
	Purple	10	10		40
CurveGlobal® Three Month Sterling Ticker: 0.5M - STL 1M - STG	Serial	20	20		50
	White	20	20		50
	Red	20	20		50
	Green	20	20		50
	Blue	20	20		50
	Gold	20	20		50
	Purple	20	20		50
CurveGlobal® Three Month SONIA Ticker: 0.5M - SON 1M - SNA	Aqua*	20	20		50
	White	20	20		50
	Red	20	20		50
	Green	20	20		50
	Blue	20	20		50
	Gold	20	20		50
	Purple	20	20	50	
CurveGlobal® One Month SONIA Ticker: 1.5M - OSN 3M - OSA	Aqua*	20	20	50	
White	20	20	50		

Table 23: STIRs BNT & DP Thresholds

Long Term Interest Rate Products

Underlying	Underlying Ticker	Minimum Size for negotiated Transactions	Minimum Size for "outside BBO"	Allowable % bid/ask for BNTs "outside BBO"	Minimum Size for Deferred Publication
CurveGlobal® Schatz	SCH	50	50	+-10.0%	250
CurveGlobal® Bobl	BBL	50	50		250
CurveGlobal® Bund	BND	50	50		250
CurveGlobal® Long Gilt	GLT	50	50		250

Table 24: LTIRs BNT & DP Thresholds

13. APPENDIX B – FUTURES CONTRACTS FAIR VALUE RANGES

Product	Colour code	Value Ranges (ticks from fair value)
CurveGlobal® Three Month Euribor®	Serial	16
	White	16
	Red	36
	Green	40
	Blue	52
	Gold	60
	Purple	80
CurveGlobal® Three Month Sterling	Serial	16
	White	16
	Red	36
	Green	40
	Blue	52
	Gold	60
	Purple	80
CurveGlobal® Three Month SONIA Futures	Aqua	16
	White	16
	Red	36
	Green	40
	Blue	52
	Gold	60
	Purple	80
CurveGlobal® One Month SONIA Futures	Aqua	16
	White	16
CurveGlobal® Schatz	All months	30
CurveGlobal® Bobl	All months	70
CurveGlobal® Bund	All months	120
CurveGlobal® Long Gilt	All months	80

Table 23: Futures Contracts Fair Value Ranges

14. APPENDIX C – STANDARD COMBINATIONS

14.1 LIST OF EXCHANGE-GENERATED STRATEGIES

Table 26: Summary of Exchange Generated Strategies

Strategy	Profile	Description (Long position)	STIRs	LTIRs
<i>Calendar Spread</i>	+1 -1	Buy the near month future and sell the far month future. The gap between the months do not have to be consecutive.	✓	✓
<i>Butterfly</i>	+1 -2 +1 <i>from:</i> +1 -1 -1 +1	Buy Calendar Spread and sell next overlapping Calendar Spread, where the result is buy the near month future, The months must always be quoted with the nearest to expiry first and the longest dated expiry month last. The gaps between the months do not have to be consecutive.	✓	
<i>Condor</i>	+1 -1 -1 +1 <i>from:</i> +1 -1 -1 +1	Buy Calendar Spread and sell next non-overlapping Calendar Spread, where the result is buy the near month future, sell the next two months futures and buy the last month future. The months must always be quoted with the nearest to expiry first and the longest dated expiry month last. The gaps between the months do not have to be consecutive.	✓	
<i>Butterfly Diff</i>	+1 -3 +3 -1 <i>from:</i> +1 -2 +1 -1 +2 -1	Buy Butterfly and sell next Butterfly, where the result is buy the near month future, sell the next month future three times, buy the following month future three times and sell the last month future. The months must always be quoted with the nearest to expiry first and the longest dated expiry month last. Only Butterfly Diffs with consecutive quarterly expiries are made available by the Exchange.	✓	
<i>Inter-Commodity Spread (ICS)</i>	+1 -1	Products ICS: Buy CurveGlobal® Three Month SONIA futures and sell Three Month Sterling futures Yield ICS: Buy CurveGlobal® One Month SONIA futures and sell CurveGlobal® Three month SONIA futures	✓	
<i>Packs</i>	+1 +1 +1 +1	Buy four consecutive quarterly futures, with the same volume for each leg. Packs are not available for CurveGlobal® One Month SONIA futures.	✓	

Block Trades and Deferred Publication functionalities are available for strategy instruments. Price and Quantity Controls for those are derived from the legs of the strategy.

14.2 PACKS

Packs are sequences of 4 consecutive expiries, starting from the “front” (first) quarterly expiry. For a futures product with 24 quarterly expiries available for trading, 21 packs are available. The sequences of 4 consecutive expiries starting from one of the next four expiries are known as “White” Packs (“White”, “White 1Q forward”, “White 2Q forward”, “White 3Q forward”), followed by four “Red”, “Green”, “Blue”, “Gold” and “Purple” packs.

Packs are quoted according to the “Average Difference Change” (ADC) convention. Under the ADC convention, order prices on a “Pack” strategy represent the average difference, compared to the previous day settlement prices of each leg.

Implicit leg prices are calculated as follows. A factor of 100 and the number of legs in the Pack (4) is used to convert the inserted order price into “basis point increments”. For example, a Pack price of 3.125 is translated into: $(3.125 / 100) * 4 = 0.125$ “basis point increments”. The “basis point increment” is then expressed as the corresponding number of leg ticks and equally allocated to each leg. With a tick size of 0.005, the “basis point increment” would be translated into $(0.125 / 0.005) = 25$ “tick increments”. These are equally distributed to each leg with the residual allocated from the back to the front month future series. The residual for each leg is added to the previous settlement price to generate execution prices for each leg.

Pack trade price = 3.125 (Pack Strategy tick size: 0.125; Leg tick size = 0.005)

Number of tick increments = $[(\text{Trade price} / 100) * \text{Number of legs}] / \text{Leg tick size} =$

$$= [(3.125 / 100) * 4] / 0.005 = 25$$

Legs	T-1 Settlement price	Allocated tick increments	Price for leg trade execution
<i>June '18</i>	99.565	6	99.595
<i>September '18</i>	99.64	6	99.67
<i>December '18</i>	99.785	6	99.815

<i>March '19</i>	99.41	7	99.445
	Total: 25		

Table 24: Pack Trade Price Example

This pricing convention is automatically applied by the matching engine to generate: (i) trade prices for the four legs of a pack strategy; (ii) “implied-in” order prices.

Reference data disseminated via HSVF in the “Strategy Instrument Keys” message (field “Strategy Pricing) can be used to identify strategy instruments with ADC price convention. For more information please refer to the HSVF Technical Specifications, available in the [CurveGlobal Markets Document Library](#).

15. APPENDIX D – BULK QUOTING PROTECTION: DEFAULT THRESHOLDS AND USER CONFIGURABLE RANGES

The following default thresholds / ranges are used:

Protection type	Default threshold	Minimum configuration	Maximum configuration
<i>Time Interval</i>	10 seconds	10	31200
<i>Trade count (of Min Lot size)</i>	10 (1)	1 (1)	99999 (NA)
<i>Volume count</i>	99999	1	9999999
<i>Value count</i>	9999999	5000	99999990000
<i>Delta volume count</i>	9999999	1000	9999999
<i>Delta value count</i>	999990000	999990000	999990000

Table 25: Default Thresholds/ranges

16. APPENDIX E – SPECIFYING REGULATORY INFORMATION IN ORDER MESSAGE ENTRY MESSAGES

16.1 ALGO TRADING FLAG AND DEA FLAG

Market participants are required to report to the trading venue, for each order entered in the trading system, whether the order is being inserted: i) using an algorithm; ii) using Direct Electronic Access (DEA), as defined in Article 4(1) of Directive (EU) 2014/65. The following two fields are available in SOLA trading protocols in order to provide this regulatory information.

Field	Format	SAIL possible values	Notes / Error codes	FIX relevant Tag(s)
Algo flag	1 alphanumeric code. Can be 'blank', 'null' or 'empty' (interpreted as 'False')	The following values can be used: 'Y': Yes 'N': No	No error codes based on the value of this field	2594 (OrderAttributeType) 2595 (OrderAttributeValue)
DEA flag	1 alphanumeric code. Can be 'blank', 'null' or 'empty' (interpreted as 'False')	The following values can be used: 'Y': Yes 'N': No	No error codes based on the value of this field	

Table 26: Algo Flag and DEA flag information

16.2 IDENTIFIERS AND QUALIFIERS

Market participants are required to report to the trading venue, for each order entered in the trading system, information regarding the identity of: i) the client on whose behalf the order is being submitted to the trading venue; ii) the person or algorithm within the member that is responsible for the investment decision in relation to the order; iii) the person or algorithm within the member that is responsible for the execution of the order (e.g. order entry in the trading system).

This information must be indicated in SOLA messages the format of "Identifiers" (as 'Short Codes' 12) and "Qualifiers" (specifying the 'nature' of the Identifier i.e. the identifier represents a legal entity, a natural person, or an algorithm). For full information regarding the format of these fields in SOLA protocols, please refer to Technical Documentation. Please note that:

- only 10 digits numeric values between 4 and 4,294,967,295 will be accepted as a Short Code;
- in case the user enters 'Blank' / 'Null' / 'Empty' or '0' value for an Identifier, but he specifies a Qualifier at the same time, the order will be rejected with the error message "Client Identification Code not supported";
- in case a Short Code is specified for an Identifier, the corresponding Qualifier must be populated with one of the available options ('L', 'P' or 'A', where available). Otherwise, the order will be rejected.

Field	Format	SAIL possible values	Notes / Error codes	FIX relevant Tag(s)
Client ID Code	10 numerical code. Can be 'blank', 'null' or 'empty' (interpreted as '0': NONE).	The following values can be used: Blank / Null / Empty '0': NONE '1': PNAL (reserved value) '2': AGGR (reserved value) Short Code	Whenever the user specifies the reserved value '3': CLIENT, the order will be rejected with error code "Client Identification Code not supported"	452 (PartyRole) 448 (PartyID)
Client ID Qualifier	1 alphanumeric code. Can be 'blank', 'null' or 'empty' (interpreted as '0': NONE)	Possible values are: Blank / Null / Empty '0': NONE 'L': Legal Entity Identifier 'P': Natural Person	Any other value different from "Blank / Null / Empty", '0', 'L' or 'P' will cause the rejection of the order with the error code "Syntax Error: Client ID Qualifier"	2376 (PartyRoleQualifier)
		If the Client ID Code is: '0': 'NONE' (or interpreted as '0'): the Client ID Qualifier must be '0': NONE (or interpreted as '0').	Error code "Syntax Error: Client ID Qualifier not supported".	

¹² Members are required to provide the full format of the Identifier, requested by MiFID II⁴, for each 'Short Code', outside of the trading system and by the end of the trading day. See 'Member Portal User Manual' in the [CurveGlobal Markets Document Library](#) for more information.

		Otherwise, the order will be rejected		
		a Short Code: the Client ID Qualifier must be valued as 'L' or 'P'. Otherwise, the order will be rejected	Error code: "Syntax Error: Client Identification Qualifier not supported"	
Investment Decision ID Code	10 numerical code. Can be 'blank', 'null' or 'empty' (interpreted as '0': NONE)	The following values can be used: Blank / Null / Empty '0': NONE (reserved value) Short Code	Whenever the user specifies one of the reserved values '1': PNAL, '2': AGGR or '3': CLIENT, the order will be rejected with error code "Syntax Error: Investment Decision ID Code not supported"	452 (PartyRole); 448 (PartyID)
Investment Decision ID Qualifier	1 alphanumeric code. Can be 'blank', 'null' or 'empty' (interpreted as '0': NONE)	The following values can be used: Blank / Null / Empty '0': NONE 'A': Algorithm 'P': Natural Person	Any other value different from "Blank / Null / Empty", '0', 'A' or 'P', will cause the rejection of the order with the error code "Syntax Error: Investment Decision ID Qualifier"	2376 (PartyRoleQualifier)
		If the Investment Decision ID Code is:		
		'0': 'NONE' (or interpreted as '0'): the Investment Decision ID Qualifier must be '0': NONE (or interpreted as '0'). Otherwise, the order will be rejected	Error code "Syntax Error: Investment Decision ID Qualifier not supported"	
		a Short Code: Investment Decision ID Qualifier must be valued as 'A' or 'P'. Otherwise, the order will be rejected	Error code: "Syntax Error: Investment Decision ID Qualifier not supported"	
Execution Decision ID Code	10 numerical code. Cannot be 'blank', 'null' or 'empty'	The following values can be used: '3': CLIENT (reserved value) Short Code	Whenever the user leaves the field 'blank', 'null' or 'empty', the order will be rejected with error code "Syntax Error: Execution Decision ID Code cannot be blank". Whenever the user specifies reserved values '0': NONE, '1': PNAL or '2': AGGR, the order will be rejected with error code "Syntax Error: Execution Decision ID Code not supported"	452 (PartyRole); 448 (PartyID)
Execution Decision ID Qualifier	1 alphanumeric code. Can be 'blank', 'null' or 'empty' (interpreted as '0': NONE).	The following values can be used: Blank / Null / Empty '0': NONE 'A': Algorithm 'P': Natural Person	Any other value different from "Blank / Null / Empty", '0', 'A' or 'P', will cause the rejection of the order with the error code "Syntax Error: Execution Decision ID Qualifier"	2376 (PartyRoleQualifier)
		If the Execution Decision ID Code is:		
		'3': 'CLIENT' (or interpreted as '0'): the Execution Decision ID Qualifier must be '0': NONE (or interpreted as '0').	Error code "Syntax Error: Execution Decision ID Qualifier not supported"	

		Otherwise, the order will be rejected	
		a Short Code: Execution Decision ID Qualifier must be valued as 'A' or 'P'. Otherwise, the order will be rejected	Error code "Syntax Error: Execution Decision ID Qualifier not supported"

Table 27: Identifier and Qualifier code summary

A summary of inconsistent combinations of Identifiers and Qualifiers, leading to order entry rejection, is reported in following tables.

		Client Code Qualifier				
		Blank / Null / Empty	0	A	L	P
Client Code ID	Blank / Null / Empty	Accepted	Accepted	Rejected	Rejected	Rejected
	0	Accepted	Accepted	Rejected	Rejected	Rejected
	1	Accepted	Accepted	Rejected	Rejected	Rejected
	2	Accepted	Accepted	Rejected	Rejected	Rejected
	3	Rejected	Rejected	Rejected	Rejected	Rejected
	short code	Rejected	Rejected	Rejected	Accepted	Accepted

Table 28: Client Code ID and Client Code Qualifier

		Investment Decision Code Qualifier				
		Blank / Null / Empty	0	A	L	P
Investment Decision Code ID	Blank / null / empty	Accepted	Accepted	Rejected	Rejected	Rejected
	0	Accepted	Accepted	Rejected	Rejected	Rejected
	1	Rejected	Rejected	Rejected	Rejected	Rejected
	2	Rejected	Rejected	Rejected	Rejected	Rejected
	3	Rejected	Rejected	Rejected	Rejected	Rejected
	short code	Rejected	Rejected	Accepted	Rejected	Accepted

Table 29: Investment Decision Code ID and Investment Decision Code Qualifier

		Execution Decision Code Qualifier				
		Blank / Null / Empty	0	A	L	P
Execution Decision Code ID	Blank / null / empty	Rejected	Rejected	Rejected	Rejected	Rejected
	0	Rejected	Rejected	Rejected	Rejected	Rejected
	1	Rejected	Rejected	Rejected	Rejected	Rejected
	2	Rejected	Rejected	Rejected	Rejected	Rejected
	3	Accepted	Accepted	Rejected	Rejected	Rejected
	short code	Rejected	Rejected	Accepted	Rejected	Accepted

Table 30: Execution Decision Code ID and Execution Code Qualifier

17. APPENDIX F – TRADING VENUE, INSTRUMENT, ORDER AND TRADE IDENTIFIERS

Reference Data, Acknowledgments and Execution Notice messages distributed by SOLA protocols provide participants with identifiers of instruments, orders and trades that participants can use in order to fulfil their regulatory obligations (e.g. record keeping, transaction reporting). For a full description of the structure and format of these fields and related messages please refer Technical Specifications section of the [CurveGlobal Markets Document Library](#).

17.1 TRADING VENUE IDENTIFIER

SAIL Protocol	FIX Protocol	Format	Description	Comments
<i>Exchange ID</i>	Not available. Please note that the first letter of the SICO ¹³ code can be used for deriving Exchange ID	2 alphanumeric code	Unique identifier of the trading venue where the instrument is traded. “R” for Interest Rate derivatives.	Available in HSVF Trade and Reference Data (“Instrument Keys”) messages
<i>MIC Code</i>	Not available	4 alphanumeric code	Segment MIC code of the trading venue where the instrument is traded. A single segment MIC is affixed to the post trade transparency data feed For all products trading on CurveGlobal Markets the MIC is XLOD.	Available in HSVF Post Trade messages

Table 31: trading Venue Identifier Overview

17.2 INSTRUMENT IDENTIFIERS

SAIL Protocol	FIX Protocol	Format	Description	Comments
<i>Group¹⁴</i>	17 (Order Acknowledgment message)	2 alphanumeric code	Unique identifier of the Group to which the individual financial instrument belongs in the trading systems.	Available in all Acknowledgment, Execution Notice and HSVF Reference Data (“Instrument Keys”) messages
<i>Instrument¹⁴</i>	17 (Order Acknowledgment message)	4 alphanumeric code	Unique identifier of the individual financial instrument in the trading systems. Unique per Group.	Available in all Acknowledgment, Execution Notice and HSVF Reference Data (“Instrument Keys”) messages
<i>ISIN</i>	Not available	12 alphanumeric code	ISIN code of the individual financial instrument.	Available in HSVF Reference Data (“Instrument Keys”) messages. Chaining of: 'Instrument' 'Group' is uniquely associated to an ISIN code
<i>Instrument External Code</i>	It can be retrieved from Security Definition message by concatenating the following Tags: 55, 167, 200, 205, 206, 201, 202	30 alphanumeric code	Descriptive code of the instrument. See Product/Underlying code, see section “Market Overview - Standard Contracts”)	Available in HSVF Reference Data (“Instrument Keys”) messages. Uniquely associated to an ISIN code.
<i>Symbol root</i>	55 (Security Definition message)	6 alphanumeric code	See Product List available in the CurveGlobal Markets Document Library.	Available in HSVF Reference Data (“Instrument Keys”) messages.
<i>Underlying Symbol Root</i>	311 (Security Definition message)	10 alphanumeric code	Symbol root for the underlying security	Available in HSVF Reference Data (“Instrument Keys”) messages

Table 32: Instrument Identifier Overview

¹³ SICO code = (Instrument ID + Group ID).

¹⁴ As concerns specific messages dedicated to strategies, equivalent Group and instrument Identifiers are available for the strategy instrument ('Strategy Group' and 'Strategy Instrument ID' fields) and for each leg of the strategy ('Leg Group' and 'Leg Instrument' fields).

17.3 TRADE IDENTIFIERS

SAIL Protocol	FIX Protocol	Format	Description	Comments
Trade number	17 (Execution Report)	8 alphanumeric code	Unique per financial instrument and per trading day.	Available in Execution Notice messages.
Strategy trade number (NL message only, via Drop Copy only)	527 (Execution Report)			
Match Number	Not available	8 alphanumeric code	Unique ID to link all trades generated from a strategy-order match. Format GGxxxxx GG = Group of strategy instrument x = numeric	
Trading venue transaction identification code (TVTIC)	1903 (Execution Report)	16 alphanumeric code		Available in Execution Notice messages. This unique trade identifier across all instruments of the trading venue and for the trading day is created by concatenating information in the following fields ¹⁵ : <ul style="list-style-type: none"> • 'Instrument' • 'Group' (decoded from base 62 to base 10) • 'Trade number'

Table 29: Trade Identifier Overview

TVTIC field for Member Firms' Transaction Reporting obligations

Member firms must use the transaction identifier supplied by the venue to satisfy TVTIC reporting standards mandated under Commission Delegated Regulation (EU) 2017/590. The TVTIC field must be populated by investment firms submitting transaction reports to their relevant competent authority.

Member firms must use the transaction identifier supplied by the venue in the transaction report for specific trades. The TVTIC submitted in a transaction report must be in Base 10 numbering system i.e. the universe of permitted characters is 0123456789.

The transaction identifier is supplied to the member firm in alphanumeric form, in both SAIL and FIX protocols (same format). In all cases, a member firm providing the transaction identifier in a subsequent transaction report to its national competent authority must take care of converting it in Base 10 numeric form. The necessary conversion performed as follows:

Base 10	ASCII	Base 10	ASCII	Base 10	ASCII	Base 10	ASCII	Base 10	ASCII	Base 10	ASCII
0	0	11	B	22	M	33	X	44	i	55	t
1	1	12	C	23	N	34	Y	45	j	56	u
2	2	13	D	24	O	35	Z	46	k	57	v
3	3	14	E	25	P	36	a	47	l	58	w
4	4	15	F	26	Q	37	b	48	m	59	x
5	5	16	G	27	R	38	c	49	n	60	y
6	6	17	H	28	S	39	d	50	o	61	z
7	7	18	I	29	T	40	e	51	p		
8	8	19	J	30	U	41	f	52	q		
9	9	20	K	31	V	42	g	53	r		
10	A	21	L	32	W	43	h	54	s		

¹⁵ This chained identifier, unique across all instruments of the trading venue and for the trading day, is also disseminated as Field "Transaction Identification Code" in HSFV messages.

17.4 ORDER IDENTIFIERS

SAIL protocol	FIX Protocol	Format	Description	Comments
Order ID	Tag 37 (OrderID)	8 alphanumeric code	Unique per financial instrument and per trading day	Available in Order Acknowledgment messages. A unique order / quote identifier across all instruments of the trading venue and for the trading day can be created by chaining information in the following fields: <ul style="list-style-type: none"> • 'Instrument' • 'Group' • 'Order ID'
Quote ID	Not available	8 alphanumeric code	Refers to the identifier of a Bulk Quote. Unique per financial instrument and per trading day	Available in Bulk Quote Acknowledgment messages. A unique quote item identifier across all instruments of the trading venue and for the trading day can be created by chaining information in the following fields ^{Error! Bookmark not defined.} : <ul style="list-style-type: none"> • 'Instrument' • 'Group' • 'Side' • 'Quote ID'
Original Order ID	Not available	8 alphanumeric code	Represents the first 'Order ID' assigned to the order by the trading system	Available in Order Acknowledgment messages
Reference ID	Tag 37 (OrderID)		References either the Order ID of the traded order or the Quote ID of the quote that has been traded	Available in Execution Notice messages
Original reference ID	Not available	8 alphanumeric code	References either the Original Order ID of the traded order or the Quote ID of the quote that has been traded	Available in Execution Notice messages

Table 34: Order Identifier Overview

In addition to timestamps and order parameters described in the "Order Entry" section, the following additional information is also available in Acknowledgments, Execution Notice or Reference Data messages and can be used by market participants to fulfil their regulatory obligations (e.g. record keeping, transaction reporting). For a full description of the structure and format of these fields and related messages please refer Technical Specifications section of the [CurveGlobal Markets Document Library](#).

17.5 ADDITIONAL INFORMATION IN ACKNOWLEDGMENTS OR EXECUTION NOTICE MESSAGES

Field	Format	Description	Comments	FIX protocol
Trader ID	8 alphanumeric code	Identifies the Trader ID used to submit the order to the trading system: first 4 characters: Firm Identifier last 4 characters: Trader Identifier ¹⁶	Available in Order Acknowledgment and Execution Notice messages. The specific Trader ID naming convention is described in section 6.2	Not available
Liquidity status <i>(available via SAIL and FIX Drop Copy only)</i>	1 alphanumeric code	Possible values are: (blank): None M: Maker T: Taker	Available in Execution Notice messages. On execution, indicates whether the order was resting on the order book and providing liquidity (passive, or 'maker') or the order initiated the trade and thus took	Tag 1057 (AggressorIndicator)

¹⁶ Available also as 'Short Trader ID' in messages where the Firm Identifier is already present.

			liquidity (aggressive, or 'taker')	
Notional Amount	16 numeric	Nominal amount or notional amount traded	Total amount traded expressed in units of currency. (i.e. quantity * price * contract size)	Tag 381 (GrossTrdAmt)
Waiver indicator flag	1 alphanumeric code	Possible values are: Null 0: LRGS 1: ILQD 2: SIZE	Available in Execution Notice messages. Indicates whether the transaction was executed under a pre-trade waiver in accordance with Article 9 of Regulation (EU) 600/2014	Whenever the tag 2669 (TrdRegPublicationType) is set to '0', tag 2670 (TrdRegPublicationReason) can assume one of the following values: 4 / 5 / 6
Quantity traded	8 alphanumeric code	Traded quantity at execution of an order or quote	Available in Execution Notice messages	Tag 32 (LastShares)
Remaining quantity	8 alphanumeric code	Refers to the unexecuted quantity (including hidden quantity) after partial execution of an order or quote	Available in Execution Notice messages	Tag 151 (LeavesQty)
Displayed quantity	8 alphanumeric code	Refers to the quantity displayed in the order book after partial execution of an order or quote	Available in Execution Notice messages	Tag 210 (MaxShow)
Currency / Price currency	3 alphanumeric code	Currency in which the futures price / option strike price is expressed	Available in HSVF Reference Data ("Instrument Keys") and Post Trade messages	Not available
Price notation	1 alphanumeric code	Indicates whether the price and strike price are expressed in monetary value, percentage, yield or basis points. Possible values: 'M': MONE (monetary) 'P': PER (percentage) 'Y': YIEL (yield) 'B': BAPO (basis points)	Available in HSVF Reference Data ("Instrument Keys") and Post Trade messages	Not available

Execution Notice messages also include the information, specified by the market participant at order entry, described in Appendix 1:

Algo flag

DEA flag

Client code ID

Client code ID Qualifier

Investment Decision Code ID

Investment Decision Code ID Qualifier

Execution Decision ID Code

Execution Decision ID Code Qualifier

Table 30: Additional Information available in acknowledgments or execution notice messages

18. APPENDIX G – SAIL AND FIX BUSINESS MESSAGES

18.1 SAIL

Message Type	Message Name	Comment/Description
<i>BD</i>	Bulk Quote Data	Contains clearing and protection data that will be used for further Bulk Quotes by the same Market Maker.
<i>BO</i>	Bundle Order	Used for inserting pre-arranged trade(s) with multiple counterparties.
<i>GC</i>	Global Cancellation	Sent by participants when he wants to cancel his quotes.
<i>MK</i>	Risk Limits Configuration	Used by risk managers to set risk limits for their managed entities.
<i>OE</i>	Order Entry	Used to enter a regular order in the system.
<i>OM</i>	Order Modification	Used to modify a regular order entered through an OE
<i>OX</i>	Cross Entry	Used to enter a cross order (involving the same firm on both sides)
<i>Q<i></i>	Bulk Quote	Set of messages used to enter bulk quotes.
<i>RP</i>	Market Maker Protection Subscription	Used to specify to the trading system what kind of market maker protection should be enabled and reactivate quoting when advanced market maker protection has been triggered.
<i>RQ</i>	Request for Quote	Sent by the participant to broadcast an indication of interest to trade messages to other participants.
<i>RT</i>	Risk Master Switch	Sent by risk manager with intent of disabling a managed entity and removing all its orders and quotes.
<i>XE</i>	Order Cancellation	Sent by the participant to cancel an order present on the book.

Table 31: SAIL Message Types

For more information refer to the SAIL protocol specifications published in the [CurveGlobal Document Library](#).

18.2 FIX

Message Type	Message Name	Comment/Description
AE	Trade capture report	Used for pre-arranged trade(s) with multiple counterparties.
AF	Order Mass Status Request	Execution report are returned for each active order belonging to the participant
AR	Trade Capture Report Acknowledgment	Used for accepting or refusing pre-arranged trade(s) with multiple counterparties.
D	New Order – Single	Used to enter a new order.
G	Order Cancel/Replace Request	Used to cancel an existing order or replace it.
F	Order Cancel Request	Used to cancel a request.
R	Quote Request	Used to broadcast a request for quote on a particular instrument.
c	Security Definition Request	Used to query a list of all securities in the exchange.
s	New Order Cross	Used to enter a cross order.

Table 37: FIX Message Types

For more information refer to the FIX protocol specifications published in the [CurveGlobal Document Library](#).

19. APPENDIX H – ACRONYMS

- ADC – Average Difference Change
- API – Application Programming Interface
- BBO – Best Bid Offer
- BNT – Bilaterally Negotiated Transaction
- BPS – Best Price Setter
- CMC – Customer Managed Connectivity
- CSD – Central Securities Depository
- CTD – Cheapest to Deliver
- CVM – Contingent Variation Margin
- DC – Drop Copy
- DLP – Designated Liquidity Provider
- DMA – Direct Market Access
- DP – Deferred Publication
- EC – Exceptional Circumstances
- FAK – Fill and Kill
- FIFO – Price-Visibility-Time priority algorithm (First In First Out)
- FIX – Financial Information eXchange
- FOK – Fill or Kill
- GCM – General Clearing Member
- GOSA – Gross Omnibus Segregated Account
- GTC – Good Till Cancelled
- GTD – Good Till Day
- GUI – Graphical User Interface
- HSVF – High Speed Vendor Feed
- HVAR – Historic Value-At-Risk
- IM – Initial Margin
- IOC – Immediate Orders
- IP – Internal Protocol
- ISA – Individual Segregated Account
- ISIN – International Securities Identification Number
- ISV – Independent Software Vendor
- KS – Kill Switch
- LCH – London Clearing House
- MDV – Market Data Vendor
- MIC – Market Identifier Code
- MT – Master Trading
- NCP – Non-Clearing Participant
- NSP – Network Service Provider
- OSA – Omnibus Segregated Account
- PAIRS – Portfolio Approach to Interest Rate Scenarios
- PP – Pre-Paid Scheme
- PT – Principal Trading
- PTVS – Pre-Trade Validation Service
- QV – (Independent) Quote Vendors
- RBPP – Reporting Broker Platform Provider
- RFQ – Request for Quote
- RM – Risk Manager
- SAIL – SOLA Access Information Language
- SEP – Self Execution Prevention
- SFTP – Secure File Transfer Protocol
- SONIA – Sterling Over Night Index Average
- STIR – Short Term Interest Rate
- TCP – Transmission Control Protocol
- TOP – Theoretical Opening Price
- tps – Transactions Per Second
- TVTIC – Trading Venue Transaction Identifier Code
- UDP – User Datagram Protocol
- VAN – Vendor access Networks

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