

**Market Model**  
**NASDAQ OMX Nordic and**  
**NASDAQ OMX Baltic**  
**Genium INET Fixed Income**  
**NASDAQ OMX Nordic Market Model FI 2.2**  
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## Definitions

The official definitions are in the NASDAQ OMX Nordic Member Rules (NMR).

Automatic Order Matching	The process in the order book whereby sell and buy orders are matched automatically when price, volume and other specifications for a given order correspond with order(s) previously entered in the order book.
American Auction	The equilibrium price is calculated to be the price where the volume that can be traded is maximized. The prices of the individual trades will however equal the individual bid prices, i.e. a multiple price auction.
BBO	Best Bid Offer of an order book.
Buy Back	An offer made by or on behalf of the issuer of an instrument admitted to trading to buy back all or part of the outstanding amount on conditions specified in the offer.
Call	Auction process to facilitate price formation with two distinct parts: the first part is an order management phase and the second part is a matching process for all eligible orders. The matching process is called an uncross (because it removes all orders with crossing prices).
Call, Opening	The Opening Call is the first call of the day and produces the first auto matched trades of the order book (if there are eligible orders available for matching).
Dutch Auction	The equilibrium price is calculated to be the price where the volume that can be traded (tradable volume) is maximized. The prices of the individual trades will equal the equilibrium price, i.e. single price auctions.
Internal trade	A manual trade between a Member and its client or between the Member's clients.
Issuing	An offer made by or on behalf of the issuer to issue an amount in a new bond or an additional amount in an existing bond (tap issue) on the conditions specified in the particular issue
Limit Order	A Limit order stipulates a maximum purchase price or minimum selling price.
Market Order	A market order is an order to sell or buy an instrument at the current market price.
On Exchange Trade	A trade that is automatically matched in the order book in accordance with the NASDAQ OMX Nordic Member Rules or executed outside the order book in accordance with the NASDAQ OMX Nordic Member Rules and reported to the exchange as a manual trade.
Post-Trading Session	The period during the Trading Session after the Trading hours, where orders can be cancelled, and in some markets order updates with no trade impact can be conducted.

Reserve Order	In a Reserve order, a certain portion of the total volume of an order is not displayed in the order book (a.k.a. Iceberg order).
Round Lot	The minimum volume for an instrument which is used for certain statistics and calculations.
Time of Agreement	The time that states when the trade was agreed. Can be used at registration of manual trades.
Time of Trade Execution	The time at which an automatically matched trade is matched or a manual trade has been entered.
Time of Trade Publication	The time the trade was disseminated, i.e. when the trade was made public. For trades where dissemination is not delayed, this is equal to the Time of Trade Execution.
Trading Hours	Trading Hours for each market segment are found in Chapter 3 and Appendix 1 of this document.  Trading Hours start from the Uncross of the opening call and end at the transition to the Terminating session.
Trading Session	The period during an exchange day which includes the Pre-Open session, Trading hours and the Post-Trading session. The Pre-Open session includes the Opening call up to, but not including, the Uncross.
Uncross	A call ends with an Uncross where price determination and share allocation together with order and trade information dissemination take place. Uncross lasts a short time, usually a fraction of a second.

# 1 Introduction

This document describes the functionalities for trading fixed income and related instruments on the regulated markets of NASDAQ OMX Nordic and NASDAQ OMX Baltic. Please note that this Market Model does not comprise NASDAQ OMX Reykjavik, because the Icelandic fixed income products are traded in INET. Thus, the document covers functionalities that apply to fixed income trading in Copenhagen, Helsinki, Stockholm, Tallinn, Riga and Vilnius.

Chapter 2 describes the market structure, instrument types traded and trading methods. Chapter 3 presents an overview of trading sessions. Chapter 4 describes the registration of manual trades and OTC-trades. In chapter 5 you find a presentation of order types and order functionality (insertion, modification and deletion).

Finally in the appendices you find descriptions of calls, matches, price concepts, trading schedules etc.

While the document has been prepared on the basis of the best information available, the exchange accepts no liability for decisions taken, or systems work carried out by any party, based on this document. This document does not form part of the contractual documentation between the individual exchange and its customers. The content of this document may also be subject to discussions and in some cases approval from relevant authorities.

While NASDAQ OMX Nordic Member Rules (NMR) and corresponding Rules of the Baltic Exchanges: NASDAQ OMX Tallinn Member Rules, NASDAQ OMX Riga Member Rules and NASDAQ OMX Vilnius Membership and Trading Rules (BMR) are all legally binding documents between members and the respective exchanges, the purpose of this Market Model document is to provide additional guiding information for trading members.

Additional documents referenced in this documentation can be found on the official websites of NASDAQ OMX Nordic and NASDAQ OMX Baltic as well as on the Member Extranet.

## 2 Overview of Nordic and Baltic Fixed Income Markets

### 2.1 Market structure for Nordic and Baltic fixed income

The markets for Nordic and Baltic fixed income consist of fixed income instruments listed and/or admitted to trading on NASDAQ OMX Copenhagen, NASDAQ OMX Helsinki, NASDAQ OMX Stockholm, NASDAQ OMX Vilnius, NASDAQ OMX Riga and NASDAQ OMX Tallinn.

On the NASDAQ OMX Nordic and Baltic exchanges it is possible to list and invest in a wide variety of fixed income products. The fixed income business is on a high level divided into three separate services:

- The exchange market
- Dissemination of indicative quotes
- The OTC publication service

A large part of the exchange market is formed through trade reporting. Moreover, the exchanges offer trading through continuous matching in some products.

The exchanges conduct issuing and buy back auctions. In addition, NASDAQ OMX Stockholm provides fixing services for its market.

Depending on the configuration of the order book (called Instrument Series in Genium INET) trading is performed in price or yield.

#### 2.1.1 Fixed income instrument types traded

The list below outlines the different types of fixed income cash products currently traded on NASDAQ OMX Nordic and Baltic:

Type	Sub Type	SE	DK	FI	BA
Bill	Nominal	X	X	X	X
Bond	Nominal – fixed Coupon	X	X	X	X
Bond	Nominal – Floating Coupon	X	X	X	X
Bond	Index Linked	X	X		
Bond	Lottery/Premium	X	X		
Bond	Convertible	X	X	X	
Bond	Structured	X	X	X	

In addition, a number of fixing products are defined that are used for the following fixing procedures in Stockholm and Copenhagen:

- STIBOR fixing
- SEK swap fixing
- F/X fixing
- Treasury bond fixing
- Mortgage rates
- CIBOR Fixing
- DKK Swap Fixing

The Stockholm market also offers forwards and futures defined for indicative quoting.

The products listed in the table above can be divided into subgroups depending on their characteristics:

**Bills**

- Treasury bills
- Certificates

**Bonds (fixed/floating)**

- Government bonds
- Mortgage bonds
- Corporate bonds
- Other bonds

**Index Linked Bonds**

- Government index linked bonds
- Mortgage index linked bonds

**Lottery Bonds**

- Government lottery bonds

**Convertibles**

- Convertibles

**Structured Products**

- Structured products
- Credit certificates

**Fixed income Derivatives**

- Government forwards
- Mortgage forwards
- Swap future
- Riksbank future
- Forward rate agreement
- Mortgage bond future

**2.1.2 Markets**

In order to cater for the needs of different market participants, the same instrument can be traded on different markets with different trading characteristics. A list of the different markets on each exchange is detailed in Appendix 1.

**2.2 Market participants**

Market participants on the Nordic and Baltic exchanges are members, issuers, exchanges, and non-members reporting trades for publication.

Each participant takes part in the trading activity with one or several unique participant identification codes. To each participant users are connected. NASDAQ OMX Nordic and Baltic exchanges grant access to participants to trading on certain markets and products.

The individual user must possess authorization to trade as stipulated in NMR or BMR section 4.4.

Exchange personnel manage information relating to participants and their users' access. On participant level access to trading certain products or order books is granted. The users of a particular participant can be given the same rights as the participant, or may be given individual and limited access rights.

NASDAQ OMX has, however, decided that the trading rights are only set on participant level and then fully inherited on user level. This means that users connected to the same participant have the same trading rights and these trading rights determine which products the user have access to trade. Two exceptions do however exist: One exception is that issuers will have specific users with type 'issuer' who is able to initiate an auction. Another exception is that 'INDB-users' will only have reporting rights, i.e. they do not have the right to do any order management.

NASDAQ OMX then authorizes the participant only and users will not have separate access rights registered in Genium INET. The participant itself has to keep track on who should be granted access to manage orders and trade reports on its behalf in Genium INET. In other words NASDAQ OMX has chosen to use the same access model for fixed income trading in Genium INET as is used for equity trading in INET. The derivatives market in Genium INET already uses this access model.

Non-members are financial firms who trade in financial instruments without holding a membership of the NASDAQ OMX Nordic exchanges. Non-members use the NASDAQ OMX Nordic OTC Publication Service to inform the market about their trading activities, cf. section 4 'Registration of manual and OTC trades and Trade Cancellation'.

Note that NASDAQ OMX Helsinki, NASDAQ OMX Tallinn, NASDAQ OMX Riga and NASDAQ OMX Vilnius do not offer an OTC trade publication service, i.e. members can only report and, thus, publish manual trades on these markets.

Issuers like the Danish Mortgage Banks normally only use the issuing auction functionality in Genium INET.

### **2.3 On-behalf functionality**

Genium INET provides functionality to support on-behalf operations on orders and trade reports. On-behalf is a transaction performed by one party on behalf of another party. Transactions pertaining to on-behalf operations contain additional information about the owner of the order. For audit purposes, the identity of the participant who sends the on-behalf transaction is kept and logged by the system.

The on-behalf function is available, and configurable, on the following levels:

- Between participants
  - A participant can be granted the right to do on-behalf orders and trade reports for another participant.
- Same participant
  - A trader may be authorized (default) to issue on-behalf transactions for other traders operating under the same participant.

## 3 Trading Sessions

### 3.1 Session states:

The table below shows the session states used by NASDAQ OMX Nordic and Baltic Exchanges on normal trading days. For more information please see Appendix 1. In the appendix you also find information about session schedules on half days.

Exchange	Pre-trading	Trading	Terminating	Post-trading	Closed
Stockholm	08:00	07:30 – 09:00	16:15 – 17:00	16:25 – 17:02	18:00 – 18:30
Copenhagen	06:59 – 07:00	07:00 – 08:30	16:20 – 17:00	17:20 – 17:21	16:45 – 18:00
Helsinki	07:30	09:00	17:20	17:30	18:00
Vilnius	09:00	10:00	16:00	16:05	16:30
Riga	09:00	10:00	16:00	16:05	16:30
Tallinn	09:00	10:00	16:00	16:05	16:30

All times are local.

On some exchanges, the schedules differ between the individual markets. For these exchanges the times of the session states are expressed as time intervals. In e.g. Stockholm some markets enter into Trading at 07:30 while others enter Trading at 09:00.

Trading calendars and schedules are available on:  
<http://nordic.nasdaqomxtrader.com/trading/tradinghours/>

Below is a description of the individual session states and the actions allowed during each of the session states.

#### 3.1.1 Pre-trading

During pre-trading, participants can insert, modify or cancel orders. It is also possible to report manual trades and OTC-trades executed off-order book during off-hours (trades executed outside opening hours).

Pre-trade information is not public, and members are only able to see their own orders. Reported trades will be published immediately.

#### 3.1.2 Trading

Trading in the order book in accordance with NMR and BMR results in on exchange trades. During (continuous) trading, manual trades can be registered with the trade report types specified in chapter 4, and OTC-trades can be reported and published with the OTC trade report types specified in chapter 4.

Trading often starts with an opening call, i.e. an uncross, in the transition from pre-trading to (continuous) trading.

During (continuous) trading, each incoming order is immediately checked for execution against orders on the opposite side of the order book<sup>1</sup>. Orders can be executed in full or in part in one or more steps.

Orders in the order book will be matched according to the priority rules:

1=price; 2=internal and 3=time.

**Note:** The Baltic exchanges use: 1=price and 2=time priority.

Buy or sell orders entered with the same price as a corresponding buy or sell order in the order book will be matched into a trade.

Buy orders entered into the order book with a higher buy price than the sell order with the lowest price (crossing prices), will be matched into one or more trades depending on the volume of the incoming order and the volume and the price of the sell order(s). The match price is determined by the price of the order already residing in the order book (the passive order). The matching process will try to fill as much as possible of the volume in the incoming buy order until the limit of the crossing prices is passed.

If the incoming order is a sell order, it will be matched into one or more trades in a similar way.

An order that is stored on the book will be ranked according to the price and time.

For instruments traded on yield, ranking is inverted because the lower the bid price is, the higher the ranking of the bid, and vice versa for the ask prices.

Orders are made public during trading. Some orders may have hidden volumes, cf. reserve orders in chapter 5. Order information will be available both as Market-by-Order (MBO) information and as Market-by-Level (MBL) information. MBO information enables participants to see the individual order in an order book. MBL information enables participants to see the accumulated volume and prices for a number of price levels configured by the exchanges. NASDAQ OMX Nordic and Baltic will as a standard use the top five price levels.

Trades are usually published trade-by-trade in real-time depending on the configuration of the individual market; publication of trades can be deferred.

### **3.1.3 Terminating**

This session is primarily used to close down the market in an orderly manner and to create end-of-day trading statistics.

During termination, orders can neither be cancelled nor changed, and trade reporting is not allowed. Only cancellation of trades is possible. By the end of this session closing prices and other trade statistics from that trading day is finalized.

Pre- and post trade information is publicly available.

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<sup>1</sup> In auction markets orders are not matched on a continuous basis but registered in the order book. At uncross orders with better prices than the equilibrium price will be matched whereas orders at the equilibrium price may be matched – according to the allocation principle used on that particular market.

**3.1.4 Post trading**

During post trading, members are allowed to do a limited set of order management, i.e. members may delete orders and make changes that do not affect the ranking of the order, e.g. volume reductions.

During Post-trading session information is in most markets public and members are then able to see all valid orders. There is no post trade information as trade reporting is not allowed.

The Stockholm market allows trade reporting in markets with indicative pricing during the post trading session. This reporting is done in aggregated form and more details are found in Appendix 6 under the "Market information & price concepts on the Swedish Fixed Income Market"

**3.1.5 Closed**

Participants have no access to the markets in the closed session.

**3.2 Trading and matching halts**

Trading may be suspended by the NASDAQ OMX Nordic or Baltic exchanges either for technical reasons or for regulatory reasons. Suspensions are regulated in NMR and BMR respectively.

Technical suspension means that trading is suspended when the order book(s) becomes inaccessible for technical reasons. In this case a trading halt will be imposed.

Regulatory suspension means that the order book(s) is suspended due to rules and regulations. In this case a trading halt or a matching halt will be imposed.

The exchange shall provide its members with information on trading and matching halts via suitably accessible information technology. In practice this means that NASDAQ OMX publish a system message and/or an exchange notice.

**3.2.1 Suspension for technical reasons (trading halts)**

Technical disruptions are regulated in NMR and BMR. Trading shall be suspended if a technical disturbance causes the majority of members (market shares) to lose connection to the markets.

**3.2.2 Resuming trading after trading halts**

After a trading halt, trading shall be resumed as soon as the circumstances which caused the closing no longer exist and the conditions once again exist to maintain properly functioning exchange operations.

Resume trading must not take place earlier than 10 minutes after the notice thereof, unless all exchange members have received reasonable notice of an earlier re-opening. During the period prior to re-opening, the exchange trading system will be accessible for order cancellation.

**3.2.3 Suspension for regulatory reasons (trading or matching halt)**

Where trading in an instrument is to be suspended, the exchange may impose a trading halt (auto match as well as reporting of manual trades will be stopped) or a matching

halt (auto match will be stopped but reporting of manual and OTC trades is still possible).

**3.2.4 Resuming trading after a suspension (trading/matching halt)**

When a suspension ceases, trading is resumed and the restrictions on order entry and trade reporting are lifted.

**3.2.5 Lottery bonds, Sweden**

Regarding lottery bonds listed on NASDAQ OMX Stockholm, trading is halted five business days prior to the record date unless otherwise stated by the issuer. The record date is the business day prior to the drawing date (unless otherwise stated in the prospectus or other applicable general terms). Trading is resumed on the business day after the drawing date. The trade halt is, therefore, seven business days unless otherwise stated.

## 4 Registration of Manual Trades, OTC Trades, and Trade Cancellations

### 4.1 Registration of manual trades

For trading on exchange, members can execute trades in the order book or off-order book. In both cases the trades must be in accordance with NMR and BMR.

Manual Trades are trades that are entered into off-order book and in accordance with NMR. Such trades must be reported to the exchange where the instrument is listed.

Manual trades entered outside normal opening hours must be reported and published as soon as possible, i.e. in the morning during pre-trading on the following trading day.

Only members are allowed to report manual trades.

For more information on trade reporting in bonds listed in Denmark, please see the guidelines for trading and trade reporting on:

<http://nordic.nasdaqomxtrader.com/trading/fixedincome/Denmark/>

### One-party trade reporting

Each member reports their leg of the trade for matching in Genium INET. When both parties have reported their leg, and the required data match, the trade is accepted.

When the first leg is received by the system, a trade report notification message will be sent to the participant specified as the counterparty in the trade report transaction.

### Two-party trade reporting

One member reports both legs of a trade. This is usually the case for client trades.

### Unmatched trade report transactions

Members or the exchange can cancel trade reports that are not matched. Unmatched trade reports will be cancelled by the system at the end of the day on which the reports were submitted (when the market enters the post trading session).

### 4.2 Registration of OTC-trades

Registration of OTC-trades is carried out in the same way as described for manual trades in section 4.1. OTC-trades must carry one of the OTC trade report types stated in section 4.3.

OTC-trades can be registered by members as well as non-members. Non-members usually report their trades through a third party, i.e. a data centre.

Note that NASDAQ OMX Helsinki, NASDAQ OMX Tallinn, NASDAQ OMX Riga and NASDAQ OMX Vilnius do not offer an OTC trade publication service, i.e. members can only report and, thus, publish manual trades on these markets.

### 4.3 Trade report types

The following trade report types are available for manual trades and OTC trades:

Trade report type	Standard (S)/non-standard (NS)	Definition
Standard trade	S	A trade concluded on standard market terms in respect of price, time of the trade, and with standard delivery and settlement schedule
Derivatives related trade	NS	Exercise or expiration of options, forwards or futures contracts that imply an exchange of securities or a trade that relates to a derivatives trade and forms an unconditional part of a combination together with a derivative trade.
Non-standard settlement	NS	A trade that deviates from the standard settlement and delivery period
Portfolio trade	NS	A transaction in more than one security where those securities are grouped and traded as a single lot against a specific reference price.
Volume weighted average price trade	NS	A trade that is based on more orders, and a number of sub-trades settled at an average price
Exchange granted trade	NS	A trade pursuant to an individual or general authorisation from NASDAQ OMX Nordic or Baltic
Repurchase agreement	NS	Agreement between two parties that regulates the lending and return of the same nominal amount of instruments
<b>OTC-trade type</b>		
OTC standard trade	S	A trade concluded on standard market terms in respect of price, time of the trade and with standard delivery and settlement schedule
OTC non-standard trade	NS	A trade with conditions that deviate from current market conditions.
<b>Turnover reporting type</b>		
STAT Turnover Reporting	S	Used for turnover reporting in certain Swedish markets

On NASDAQ OMX Baltic markets only Standard trade and Exchange granted trade report types are allowed. More detailed description can be found in BMR Tallinn section 6.2.1, BMR Riga sections 6.2.1 and 6.2.2 and BMR Vilnius section 6.6.7.

NASDAQ OMX Nordic uses the same trade report types for both on-hours (trades executed during opening hours) and off-hours trades. However for "technical" reasons we define separate "sets" of trade report types for the pre-trading session (off-hours) and the trading session (on-hours). Trade report types are connected to trade report classes which are connected to instrument class (to have effect on order book), participant type and sessions.

Via the API users can get a list of all available trade report types. There is a field (authorized\_c) that shows whether the user is allowed to use the trade report type and

information about which trade report class or classes the trade report type belongs to. In the query DQ122 (instrument class information) you can see the trade report classes valid for the different instruments. It is however not possible in the API to get information about which trade report class is connected to which session state.

#### **4.4 Trade cancellation**

Trades may be cancelled by NASDAQ OMX Nordic or Baltic or by the trading parties themselves. Cancellation rules are specified in NMR section 6.7, and the BMR Riga 6.6 and BMR Vilnius section 6.7.

As a general rule, a cancellation request must be received by the relevant exchange within 10 minutes from time of execution.

On the Danish fixed income markets, the participants themselves are allowed to cancel a trade within the above mentioned time limit using the external trade cancel transaction. This functionality is also used for auto matched trades. All other Nordic fixed income markets require the participants to submit to the relevant exchange a cancellation request by phone or e-mail using a special form. This form shall be used by Danish fixed income members when submitting cancellation requests later than 10 minutes from time of execution. In case of a late request the exchange may decline the cancellation request.

## 5 Orders

### 5.1 Lot types, order types, validity and ranking

The following lot types, attributes and validities are available on the fixed income markets of NASDAQ OMX Nordic and Baltic.

#### 5.1.1 Lot types

Two lot types will be used:

- Round lots
- Odd lots

These lot types can be matched with each other according to certain rules described in Appendix 3. All order books do not use Odd lots and these order books only use Round lots

#### 5.1.2 Order types

##### 1. Limit order

A limit order stipulates a maximum purchase price or minimum selling price. If not fully matched, the remainder of the order is stored in the order book in descending buy-price order or ascending sell-price order and joins the queue of orders having the same price according to time priority. For order books traded in yield, ranking is reversed.

If the price specified by a limit price is not valid according to the allowed tick sizes (cf. Appendix 5), it will be rejected. It will only execute at prices equal to or more generous than its specified limit price.

Stored limit orders are also valid in call auctions.

Limit orders can be matched in part or in its entirety unless an all-or-none condition is attached in which case the order must match in full or not at all.

##### 2. Market order

A market order is an order to sell or buy at the best available price and is therefore entered without a price. During continuous trading the time in force for a market order is always fill-or-kill (the order is matched in full or not at all) or immediate-or-cancel (any remaining quantity will be cancelled). The order is never registered in the order book.

Note that a market order will trade through the order book until the entire quantity is filled. This means that as long as there is an order on the opposite side of the order book there will be a match no matter the price level.

Market orders with the time in force "FOK" cannot be placed during call auctions.

Market orders with the time in force "IOC" can be placed during call auctions and are stored; but if not traded always cancelled after the uncross.

### **3. Market-to-limit order**

Market-to-limit order is an order to sell or buy at the best possible price. If the order is partly matched, the remainder is converted into a limit order priced at match price. In comparison with a normal market order, the market-to-limit order only executes at the best price level and, therefore, does not trade through the order book.

During continuous matching, a market-to-limit order is immediately cancelled if no match can be executed, e.g. if no order exists on the opposite side of the book.

Market-to-limit orders entered in a non-matching session state are treated as market orders, they form part of the uncross at equilibrium price, and if any quantity remains after the uncross they will be stored in the order book at the equilibrium price.

### **4. Linked orders**

Linked orders provide the functionality to enter more than one order and to state that you want to buy e.g. either 500 lots of Bond X at price A OR 500 lots of Bond Y at price B, OR a combination thereof. The linked order corresponds to a number of single orders with an exclusive OR-condition on the maximum volume level. When a trade takes place in one of the legs, the volume of the other legs will immediately be reduced proportionally, so there will be no risk of "double trading".

- The maximum number of orders that can be linked is 10.
- All legs in a linked set of orders must contain the same multiple of lot sizes.

See Appendix 3 for guiding examples.

### **5. Indicative quotes**

NASDAQ OMX Nordic and Baltic provide dissemination of indicative quotes in certain markets. Indicative quotes are used to display price levels on certain instruments, and they do not provide matching of interest. Genium INET indicative quotes can be inserted either with a price or with a yield depending on the configuration of the order book.

#### **5.1.3 Time in force**

##### **1. Day order (day)**

A day order is valid until the market closes. A day order is active for the trading day, and any non-executed portion will be cancelled at the end of the business day, i.e. when the market enters into post-trading.

##### **2. Good till date (GTD)<sup>2</sup>**

A GTD order is valid until a specified date in the future. If the order is not matched during the day it will be inserted again in the order book the next morning when the system opens. A GTD order will retain its original chronological order based on original entry time into the system.

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<sup>2</sup> The good till date (GTD) validity is for technical reasons configured for the auction markets, but should NOT be used. Only good till cancel (GTC) should be used in the auction markets. For this reason we have configured the minimum number of days to 30 for the GTD orders in the auction markets.

For markets with an upper limit for the number of days that an order can be valid (e.g. 8 days) the order will automatically be cancelled when it has been in the order book for that number of days, inclusive of the day it was entered.

### **3. Good till Session (GTS)**

A GTS order specifies the session type until which the order shall remain in effect. The GTS order will be cancelled in the transition to a session different from the specified session. If you e.g. enter a GTS order in the pre-trade session and this order is not traded in the opening call, it will be cancelled automatically when the market enters into the trading session.

If you enter a GTS order during the Trading session setting the validity session to pre-trade the order will be valid and tradable until end of day, i.e. until the system enters post-trading session, as such orders have a maximum time-in-force of current day.

### **4. Fill-or-Kill (FOK)**

A FOK order is never stored in the order book. If a FOK order is not matched in full on entry, the order is cancelled. FOK orders can only be entered during continuous trading.

### **5. Immediate or cancel (IOC)<sup>3</sup>**

An IOC order is never stored in the order book during continuous matching. If an IOC order is not matched in full or in part on entry, the remaining part of the order is cancelled. IOC orders placed during a call auction will be stored in the order book, whereas any remaining part of the order will be cancelled after uncross.

### **6. Good till Cancelled (GTC)**

Genium INET supports GTC (Good till Cancelled) orders in markets that have no specified limit to the maximum number of days an order is allowed to stay in the book. All Nordic Fixed Income markets with automatic matching have such a limit and thus do not allow GTCs. Issuing Auction markets however do allow GTC orders (remaining orders are cancelled after the auction is executed) – in fact GTC is the only order type allowed in auction markets<sup>4</sup>. Note that indicative quotes are day “orders”, indicative markets in general do not support any time-in-force conditions. The only exceptions is the XSTO Mortgage Rates market that requires indicative interest to be expressed using orders as the mortgage rates are relatively seldom changed – thus GTCs are allowed.

### **All-or-None Condition (AoN)**

All-or-None orders can be entered if configured for the order book. The AoN condition is an instruction to the match engine to fill the order completely or not at all. In that way it is very similar to the Fill-or-Kill orders with the exception that AoN orders remains in the order book if not matched on entry.

---

<sup>3</sup> Immediate-or-cancel (IOC is the same as Fill-and-Kill (FAK))

<sup>4</sup> The good till date (GTD) validity is for technical reasons configured for the auction markets, but should NOT be used. Only good till cancel (GTC) should be used in the auction markets. For this reason we have configured the minimum number of days to 30 for the GTD orders in the auction markets.

AoN orders may be bypassed in matching of incoming orders if their conditions cannot be fulfilled.

AoN conditions will be configured for all order books on the Danish Cash Bond Trading and Electrobroker markets.

### **Reserve Condition**

#### **Reserve orders (hidden volume)**

In a reserve order, a certain portion (shown volume) of the total volume of the order is displayed in the order book. Both the displayed and non-displayed portions of the reserve order are available for potential execution against incoming orders.

In addition, when the displayable portion of the order is completely executed within the book, the non-displayable portion of the order is decremented (retaining time priority) and a new displayable order is sent to the order book (with new time priority).

Stored (during continuous trading) reserve orders are valid, and new such orders can be placed during call auction. Their total quantity is used for the equilibrium price calculation and the uncrossing. Their total quantity is displayed in market by price.

The matching rule, according to appendix 3, is met. When reserve orders are matched the presentation of trades is bundled. See matching example in Appendix 3.

## **5.2 Order modification**

The priority of a stored order is retained if the volume is reduced, if the time validity is extended, and if the identity of the customer is changed. Other changes such as increase of the quantity or change of the price are equivalent to cancellation of the order and the placing of a new order with a new ranking time stamp.

## **5.3 Ranking of Orders**

The main rule for ranking of orders is based firstly upon best price/net price and secondly by the longest storage time.

## **5.4 Tick sizes**

Tick size is the smallest allowed price movement and, thereby, is the smallest possible difference between the buy and sell price in an order book.

Example of the tick sizes can be found in Appendix 5. For current tables please see [http://nasdaqomx.com/digitalAssets/66/66727\\_tick\\_sizes\\_for\\_saxess\\_intruments\\_february\\_8\\_2010.pdf](http://nasdaqomx.com/digitalAssets/66/66727_tick_sizes_for_saxess_intruments_february_8_2010.pdf)

## Revision History

<b>Date</b>	<b>Revision</b>	<b>Change Description</b>
June 16, 2011	1.9	Initial version for NASDAQ OMX Nordic
August 22, 2011	2.0	Correction in the spread definition for Danish Bonds
November 04, 2011	2.1	Added user-type INDB-user

## Appendix 1 Session States for markets

The Nordic and Baltic Fixed Income markets consists of 6 exchanges

- NASDAQ OMX Copenhagen
- NASDAQ OMX Helsinki
- NASDAQ OMX Riga
- NASDAQ OMX Stockholm
- NASDAQ OMX Tallinn
- NASDAQ OMX Vilnius

In the tables below you find information about session schedules for each individual market. In some markets not all the sessions are relevant, i.e one or more sessions are not needed, this is marked by 'n/a'. If for example there is no difference in the functionality/transactions that can be used in post-trading and closed sessions, there is no need for a post-trading session and that will be marked putting 'n/a' in the post-trading column.

### NASDAQ OMX Copenhagen Market Sessions

	Market	Pre-trading	Trading	Terminating	Post-trading	Closed
1	CPH Cash Bond Trading	07:00	08:30	17:00	17:20	18:00
2	CPH Fixed Income Derivatives	07:00	08:30	17:00	n/a	17:20
3	CPH Auctions	07:00	n/a	16:30	n/a	16:45
4	CPH Electrobroker	n/a	08:30	17:00	17:20	18:00
5	CPH Fixing	n/a	08:30	n/a	n/a	18:00

### NASDAQ OMX Helsinki Market Sessions

	Market	Pre-trading	Trading	Terminating	Post-trading	Closed
1	HEL Structured Products Retail	08:30	10:00	18:20	18:30	19:00
2	HEL Structured Products Tailor Made	08:30	10:00	18:20	18:30	19:00
3	HEL Corporate Bonds	n/a	10:00	n/a	18:30	19:00
4	HEL Government Bonds	n/a	10:00	n/a	18:30	19:00
5	HEL Convertibles	n/a	10:00	n/a	18:30	19:00

## NASDAQ OMX Stockholm Market Sessions

	<b>Market</b>	<b>Pre-trading</b>	<b>Trading</b>	<b>Terminating</b>	<b>Post-trading</b>	<b>Closed</b>
<b>1</b>	Corporate Bonds	n/a	07:30	n/a	16:20	18:30
<b>2</b>	Government Bonds	n/a	07:30	n/a	16:20	18:30
<b>3</b>	Mortgage Bonds	n/a	07:30	n/a	16:20	18:30
<b>4</b>	Municipalities	n/a	07:30	n/a	16:20	18:30
<b>5</b>	Commercial Papers	n/a	07:30	n/a	16:20	18:30
<b>6</b>	Fixed Income Derivatives	n/a	07:30	n/a	16:20	18:30
<b>7</b>	EIM Super Benchmarks	n/a	08:30	17:00	17:02	18:00
<b>8</b>	Structured Products	08:00	09:00	16:15	16:25	18:00
<b>9</b>	Retail Bonds	08:00	09:00	16:15	16:25	18:00
<b>10</b>	Lottery Bonds	08:00	09:00	16:15	16:25	18:00
<b>11</b>	Credit Certificates	08:00	09:00	16:15	16:25	18:00
<b>12</b>	Tailor Made Products	08:00	09:00	16:15	16:25	18:00
<b>13</b>	Retail Corporate Bonds	08:00	09:00	16:15	16:25	18:00
<b>14</b>	Fixing	n/a	08:30	n/a	n/a	18:00
<b>15</b>	Other Financial Instruments	n/a	07:30	n/a	16:20	18:30
<b>16</b>	Mortgage Rates	n/a	08:30	n/a	n/a	18:00

NASDAQ OMX Stockholm **Half-day** Market Session

	<b>Market</b>	<b>Post-trading</b>	<b>Closed</b>
<b>1</b>	Corporate Bonds	12:30	18:30
<b>2</b>	Government Bonds	12:30	18:30
<b>3</b>	Mortgage Bonds	12:30	18:30
<b>4</b>	Municipalities	12:30	18:30
<b>5</b>	Commercial Papers	12:30	18:30
<b>6</b>	Fixed Income Derivatives	12:30	18:30
<b>7</b>	EIM Super Benchmarks	13:02	17:00
<b>8</b>	Structured Products	12:10	12:30
<b>9</b>	Retail Bonds	12:10	12:30
<b>10</b>	Lottery Bonds	12:10	12:30
<b>11</b>	Credit Certificates	12:10	12:30
<b>12</b>	Tailor Made Products	12:10	12:30
<b>13</b>	Retail Corporate Bonds	12:10	12:30
<b>14</b>	Fixing	n/a	17:00
<b>15</b>	Other Financial Instruments	12:30	18:30
<b>16</b>	Mortgage Rates	n/a	12:30

### NASDAQ OMX Riga Market Sessions

	<b>Market</b>	<b>Pre-trading</b>	<b>Trading</b>	<b>Terminating</b>	<b>Post-trading</b>	<b>Closed</b>
<b>1</b>	RSE Bonds	n/a	10:00	16:00	n/a	16:30
<b>2</b>	RSE Bonds Auto match	n/a	10:00	16:00	16:05	16:30
<b>3</b>	RSE FI New Issue	09:00	Per Request	16:00	n/a	16:30
<b>4</b>	RSE FI New Issue Yield	09:00	Per Request	16:00	n/a	16:30
<b>5</b>	RSE Equity IPO	09:00	Per Request	16:00	n/a	16:30

### NASDAQ OMX Tallinn Market Sessions

	<b>Market</b>	<b>Pre-trading</b>	<b>Trading</b>	<b>Terminating</b>	<b>Post-trading</b>	<b>Closed</b>
<b>1</b>	TSE Bonds	n/a	10:00	16:00	n/a	16:30
<b>2</b>	TSE Bonds Auto match	n/a	10:00	16:00	16:05	16:30

### NASDAQ OMX Vilnius Market Sessions

	<b>Market</b>	<b>Pre-trading</b>	<b>Trading</b>	<b>Terminating</b>	<b>Post-trading</b>	<b>Closed</b>
<b>1</b>	VSE Bonds	n/a	10:00	16:00	n/a	16:30
<b>2</b>	VSE Bonds Auto match	n/a	10:00	16:00	16:05	16:30
<b>3</b>	VSE FI New Issue Yield	09:00	Per Request	16:00	n/a	16:30
<b>4</b>	VSE FI New Issue Yield Non	09:00	Per Request	16:00	n/a	16:30
<b>5</b>	VSE Equity Public Sales	09:00	Per Request	16:00	n/a	16:30
<b>6</b>	VSE Equity Tender Offer	09:00	Per Request	16:00	n/a	16:30
<b>7</b>	VSE Equity TO Competitive	09:00	Per Request	16:00	n/a	16:30
<b>8</b>	VSE Equity IPO	09:00	Per Request	16:00	n/a	16:30

## Appendix 2 Markets and Trading Functionality – an Overview

Exchange and Market	Opening Call <sup>2</sup>	Auto Matching	Issuing Auction	Reporting Manual Trades	Reporting OTC-trades	Turnover reporting	Limited Access <sup>1</sup>	Indicative Quotes
Copenhagen								
CPH Cash Bond Trading	X	X		X	X			
CPH Fixed Income Derivatives				X	X		X	X
CPH Auctions			X	-	-		X	
CPH Electrobroker		X <sup>5</sup>		-	-		X	
CPH Fixing							X	X
Stockholm								
Corporate Bonds						X		X
Government Bonds						X		X
Mortgage Bonds						X		X
Municipalities						X		X
Commercial Papers						X		X
Fixed Income Derivatives						X		X
EIM Super Benchmarks		X						
Structured Products	X	X		X	X			
Retail Bonds	X	X		X	X			
Lottery Bonds	X	X		X	X			
Credit Certificates	X	X		X	X			
Tailor Made Products	X	X		X	X			
Retail Corporate Bonds	X	X		X	X			
Fixing								X
Other Financial Instruments						X		
Mortgage Rates								X

<sup>5</sup> The minimum amount for orders are 50 mDKK and orders must be a multiple of 1 mDKK, i.e. orders can be of size 50, 51, 52, 53, etc mDKK. Members active in the market are also required to use the All-or-None condition on the orders.

Exchange and Market	Opening Call <sup>2</sup>	Auto Matching	Issuing Auction	Reporting Manual Trades	Reporting OTC-trades	Turnover reporting	Limited Access <sup>1</sup>	Indicative Quotes
Helsinki								
Structured Products Retail	X	X		X	X			
Structured Products Tailor Made	X	X		X	X			
Corporate Bonds		X		X	X			
Government Bonds		X		X	X			
Convertibles				X	X			X
Riga								
RSE Bonds				X				X
RSE Bonds Auto match		X		X				
RSE FI New Issue			X			X		
RSE FI New Issue Yield			X			X		
RSE Equity IPO			X			X		
Tallinn								
TSE Bonds				X				X
TSE Bonds Auto match		X		X				
Vilnius								
VSE Bonds				X				X
VSE Bonds Auto match		X		X				
VSE FI New Issue Yield			X			X	X	
VSE FI New Issue Yield Non			X			X	X	
VSE Equity Public Sales			X			X		
VSE Equity Tender Offer			X			X		
VSE Equity TO Competitive			X			X		
VSE Equity IPO			X			X		

1) Access may be limited to members only, market makers only, or to other kinds of specific groups of participants

2) The opening call will start 15 minutes before the time of Trading – with only Market-by-Level order book information

## Appendix 3 Trading Functionality

### Appendix 3.1 Auto match (continuous trading)

Auto matching is automatic matching of buy and sell orders in the order book. Incoming orders are matched against the opposite side of the order book.

The ranking in the order book is subject to price and time prioritization while matching prioritization on NASDAQ OMX Nordic is based on price – internal – time. NASDAQ OMX Nordic and Baltic fixed income markets offer trading based on either price or yield. For instruments traded in yield the order book ranking is 'inverted price' and time.

#### Lot type handling

The size of the lot type is the minimum quantity allowed to be traded in a partial execution.

NASDAQ OMX Nordic and Baltic fixed income markets support splitting one order book into two different lot types. The Round lot type is specified as the primary lot size. This is where the majority of the trading takes place and where prices are produced (e.g. the BBO). The other lot size is called odd lot and is used for orders that are smaller or not a multiple of the round lot. Odd lot is therefore used for orders that are a combination of the round lot and odd lot. All order books do not have Odd lots configured and in those cases the round lot will be the minimum quantity and multiples of the round lot can be traded.

Below are examples of round lots and odd lots:

Lot Type Name	Lot Size	Min Quantity	Max Quantity
Odd lot	1	1	-
Round lot (Primary)	100	100	-

#### Order book with Odd lot configured

An order with a quantity of 150 will be seen as an odd lot order entered in the odd lot order book. An order with a quantity of 200 will be seen as a round lot order and entered in the round lot order book, and it will only be traded in multiples of the lot size (100). The fixed income markets support integration of orders between different lots by aggregating quantity from the smaller lot type to match orders with a larger lot type.

Price – internal and time<sup>6</sup> are used as the matching priorities for integration across lot types. Then the following rules are applied for matching and allocation:

- *Best order on book "teams up" with other orders on the book* - If this best order has a smaller lot size than the aggressive one, it "teams up" with other small

<sup>6</sup> NOTE: The NASDAQ OMX Baltic exchanges always use price – time matching priorities.

orders to fill the aggressive order. This could mean that the other small orders at the same price could be matched before larger orders with a better time. This is to avoid bypassing the best order.

- *Incoming order "teams up" with orders on the book* - If the best order on the book has a larger lot size than the aggressive one, the incoming order "teams up" with orders in the same side of the order book to try to match the best, larger order. If it is not possible to match it anyway, second best order is considered instead, etc.

### Order book with only Round lot configured

The minimum quantity of an order that can be entered is the round lot (100). Only multiples of the round lot can be entered and executed i.e. 200, 300 and so forth. If an order of 150 is entered it will be rejected.

### Matching examples

The following examples assume this configuration:

<u>Lot Type Name</u>	<u>Lot Size</u>	<u>Min Quantity</u>	<u>Max Quantity</u>
Odd lot	1	1	-
Round lot	100	100	-
Block lot	1000	1000	-

We have included the block lot in these examples to show the general rule of lot integration – even though we will not introduce block lots in the first version of Genium INET for fixed income on the Nordic and Baltic markets.

Ranking is Price / Time and matching is "One by One".

Buy Side				Sell Side			
Lot Type	ID/Time	Price	Qty	Lot Type	ID/Time	Price	Qty
OL	13 / 09:16	105	55	BL	3 / 09:10	105	2000
OL	9 / 09:13	104	55	RL	5 / 09:11	105	400
BL	10 / 09:14	104	1000	BL	8 / 09:13	105	1000
BL	12 / 09:15	104	2000	RL	11 / 09:14	105	800
RL	2 / 09:10	103	200	RL	1 / 09:09	106	200
RL	4 / 09:11	103	800				
RL	6 / 09:12	102	300				

Below are some examples of incoming orders, and how they would match. The examples are independent of each other.

### Matching between OL and BL is prevented

RL Buy 200 @ 106	<ul style="list-style-type: none"> <li>- cannot match first order on the sell side (requires 1000, i.e. one block lot)</li> <li>- matches against order 5 (200) @ 105</li> </ul>
OL Buy 75 @ 106	<ul style="list-style-type: none"> <li>- "teams" with order 13, matches 100 against 5 @ 105, rest (30) is stored</li> </ul>
BL Sell 1000 @ 103	<ul style="list-style-type: none"> <li>- bypasses order 13 and 9 (BL does not match OL)</li> <li>- matches against orders 10 @ 104</li> </ul>
BL Buy 3000 @ 105	<ul style="list-style-type: none"> <li>- matches against order 3 (2000) @ 105</li> <li>- matches order 5 and 11 @ 105</li> </ul>
RL Sell 100 @ 104	<ul style="list-style-type: none"> <li>- matches against order 13 and 9 @ 104</li> </ul>
RL Sell 1000 @ 103	<ul style="list-style-type: none"> <li>- matches against order 13 and 9 (100) @ 103 (as RL determines the price)</li> <li>- matches against order 2 @ 103 (200). This bypasses orders 10 and 12, as these ones require more volume (1000)</li> <li>- matches against order 4 (700) @ 103</li> </ul>

Example below explains how a mix of reserved orders and non-reserved limited orders are matched at the same price, during two sided auctions and at continuous trading.

Buy Side					Sell Side				
Order no	Member	Reserved Qty	Displayed Qty	Price	Price	Reserved Qty	Displayed Qty	Member	Order no
					100	50000	10000	AAA	S1
					100	10000	10000	BBB	S2
					100	10000	10000	AAA	S3
					100	50000	1000	BBB	S4
					100	50000	10000	CCC	S5
					100	10000	10000	DDD	S6

Then a bid is entered by by member BBB: Buy 150000 @ 100

After matching, the result is displayed according to the left table and the remaining orders in orderbook are displayed in updated priority order according to the right table below.

```

===== TRADES =====
Buyer / Seller Qty @ Price
BBB / BBB 10000 @ 100
BBB / BBB 50000 @ 100
BBB / AAA 40000 @ 100
BBB / AAA 10000 @ 100
BBB / CCC 30000 @ 100
BBB / DDD 10000 @ 100

```

```

===== Order book =====
Order no / Member / Res Qty / Displ Qty @ Price
S5 / CCC / 20000 / 10000 @ 100
S1 / DDD / 10000 / 10000 @ 100

```

=====

The matching of orders is run internally prior to publication (showed above), according to the matching rule – as showed below.

```

... Round 1
B1/A2 10000 @ 100 (Internal prio)
B1/A4 50000 @ 100 (Internal prio)
B1/A1 10000 @ 100 (from this line the rest of the orders are matched in priority order according to
B1/A3 10000 @ 100 visibility and time)
B1/A5 10000 @ 100
B1/A6 10000 @ 100
... Round 2
B1/A1 10000 @ 100
B1/A5 10000 @ 100
... Round 3
B1/A1 10000 @ 100
B1/A5 10000 @ 100
... Round 4
B1/A1 10000 @ 100

```

**Appendix 3.2 Call auction (two-sided auction)**

The fixed income markets on NASDAQ OMX Nordic that make use of auto match have an opening auction in the morning of each trading day. NASDAQ OMX Baltic does not use opening auctions.

The opening auction collects orders on both sides of the order book for a period of time and then execute all matching orders at a single price (the equilibrium price) that maximizes the executable quantity and minimizes the surplus. The last part is called uncross because it removes all crossing prices in the order book. The uncross takes place in the transition between pre-trading and (continuous) trading.

The equilibrium price (EP) algorithm has the following price selection rules:

Step 1

The prices used in the selection of EP are all existing prices between the highest and the lowest price where limit orders exist, extended with one tick up from the highest and one tick down from the lowest price. Choose the price or prices that maximize the quantity traded.

Step 2

When more than one such price exists, i.e. there are several candidates as a result from step 1; the surplus quantity shall be minimized.

Step 3

When more than one such price exists, i.e. there are several candidates as a result from step 2, the market pressure shall decide

Step 4

When more than one such price exists, i.e. there are several candidates as a result from step 3, use the EP reference price to decide.

It is not possible to calculate an EP when:

- No crossing orders exist.
- Only market orders exist in the order book.

Included in the Equilibrium Price Calculation are:

- Limit orders in the primary lot type.
- Market orders in the primary lot type.
- Reserve orders (using their entire specified quantity).

Excluded from the Equilibrium Price Calculation are:

- Orders of alternate lot types (e.g. odd lot orders).
- AON Orders.
- Fill or Kill Order.

The excluded orders are however not deleted but remain in the order book. Right after the uncross and just before entering into (continuous) trading the match engine will match as many of the excluded orders as possible using the equilibrium price. Eligible orders are excluded orders with prices equal to the equilibrium price or better prices.

### Appendix 3.3 Issuing auction (one-sided auction)

NASDAQ OMX Nordic and Baltic support issuing and buy-back auctions in instruments that are traded on price or on yield.

Issuing auctions are used by members and issuers to issue new debt (issuing auction) or buy back debt from the market (buy-back auction). It is also used for equity IPOs on the Baltic exchanges. The following allotment models are supported on the fixed income markets:

- FIFO, first in first out, where orders are matched given their price and time priority
- Total (proportional) pro rata allocation where orders are matched according to price and size and allocated volume on a pro rata basis

One sided auctions will be initiated by the issuer submitting an auction request, stating start, stop, and uncross times for the auction. In the request the issuer also states the settlement date (if not standard settlement), the type of auction (issuing or buy-back). The issuer also decides whether the auction is to be uncrossed using the Dutch method or the American method<sup>7</sup>:

- The Dutch method executes all executable orders at a single price (i.e. a single price auction)
- The American method executes all executable orders at their specified price (i.e. a multi-price auction)

The following example shows the Total Pro Rata model:

Buy Side >>					
Tot	Qty	Price	Allotment in round1	Qty left from round 1	Allotment in round 2
30	30	100.20	5	25	1
50	20	100.20	3	17	1
65	15	100.20	2	13	8)
80	15	100.20	2	13	1)
95	15	100.20	2	13	1)

The total bid volume (qty) is 95 and the issuer submits an order to sell 18.

The orders are then allocated volume according to their size, giving:

- the largest order is allocated  $30/95 \cdot 18 = 5.684$  which is rounded down to 5
- the second largest order is allocated  $20/95 \cdot 18 = 3.789$  3
- the remaining bids are allocated  $15/95 \cdot 18 = 2.842$  which is rounded down to 2 and the total allotted volume is now  $5+3+2+2+2 = 14$ .
- the remaining 4 lots (18-14) are allocated to one lot each to the two highest ranked orders and  
2 of the remaining 3 orders are then allocated one lot each in a random order.

<sup>7</sup> This is however not stated directly in the auction request but by choosing the order book having Dutch or American allotment. The allotment method is configured on the order book by NASDAQ OMX. NASDAQ OMX Copenhagen has only configured order books with Dutch allotment as the American allotment method is not used today.

<sup>8</sup>) Last 2 allocated at random between these three orders.

Non-standard settlement date is supported and is specified by the initiator of the auction. The issuer also states if the auction is open or hidden. For an open auction market information is distributed during the order entering session and information from the uncross is also public. In a hidden auction no market information is public; only the initiator is able to see the aggregated order book.

For an issuing auction only the initiator may submit sell orders; all other participants may only submit buy orders and vice versa for a buy-back auction. Depending on the configuration of the order book the initiator can also enter orders on the opposite side of the order book i.e. buy orders in an issuing auction. NOTE: The initiator (issuer) can only submit **one** sell-order (buy-order if buy-back auction). If the initiator wants to change the price or amount issued (bought back) he/she must change the initial order or delete it and then enter a new order.

Depending on the exchanges' configuration, the auction can move into an IPMO (Issuer Position Modification) phase where only the initiator can update orders and maybe (depends on the configuration of the market) also cancel other participants' orders.

An issuing auction typically consists of the following periods:

1. Auction period: Investors' orders as well as the issuer's order are entered. All orders can be updated or canceled. Details of the auction (prices, orders, and predicted results) can be private to the auction initiator (a hidden auction) or publicly displayed (open auction). An issuer can always see all orders, optionally with identities. This period may be up to 3 months.
2. (Optional) Issuer Position Modification (IPMO) period: Issuer can enter, update or cancel his order. Depending on configuration the issuer may be allowed to cancel other participants' order(s).
3. Order book is uncrossed at a unified Equilibrium Price (Dutch method), or at the investors individual order prices (American method).

The table below shows the standard issuing auction configuration on the different markets at NASDAQ OMX Nordic and Baltic

Exchange & Markets	FIFO	Total Pro Rata	IPMO	Price	Yield	Dutch	American	Hidden	Open
<b>Copenhagen</b>									
CPH Auctions		X	X	X	X	X		X	
<b>Riga</b>									
RSE FI New Issue		X	X	X			X	X	
RSE FI New Issue Yield		X	X		X		X	X	
RSE Equity IPO	X	X	X	X		X	X	X	X
<b>Vilnius</b>									
VSE FI New Issue Yield		X	X	X	X		X	X	
VSE FI New Issue Yield Non		X	X	X	X	X		X	
VSE Equity Public Sales	X	X	X	X		X	X		X
VSE Equity Tender Offer, VSE Equity TO Competitive		X	X	X		X			X
VSE Equity IPO	X	X	X	X		X	X	X	

### Appendix 3.4 Trading Price concepts

#### NASDAQ OMX Copenhagen

	<b>Market</b>	<b>Clean Price</b>	<b>Yield</b>	<b>Dirty Price</b>
<b>1</b>	CPH Cash Bond Trading	X		
<b>2</b>	CPH Fixed Income Derivatives	X		
<b>3</b>	CPH Auctions	X	X	
<b>4</b>	CPH Electrobroker	X		
<b>5</b>	CPH Fixing		X	

#### NASDAQ OMX Helsinki

	<b>Market</b>	<b>Clean Price</b>	<b>Yield</b>	<b>Dirty Price</b>
<b>1</b>	HEL Bonds	X		
<b>2</b>	HEL Structured Products Retail	X		
<b>3</b>	HEL Structured Products Tailor Made	X		
<b>4</b>	HEL Corporate Bonds	X		
<b>5</b>	HEL Government Bonds	X		
<b>6</b>	HEL Convertibles	X		

NASDAQ OMX Stockholm

	<b>Market</b>	<b>Clean Price</b>	<b>Yield</b>	<b>Dirty Price</b>
<b>1</b>	Corporate Bonds		X	
<b>2</b>	Government Bonds		X	
<b>3</b>	Mortgage Bonds		X	
<b>4</b>	Municipalities		X	
<b>5</b>	Commercial Papers		X	
<b>6</b>	Fixed Income Derivatives		X	
<b>7</b>	EIM Super Benchmarks		X	
<b>8</b>	Structured Products	X		
<b>9</b>	Retail Bonds	X	X	
<b>10</b>	Lottery Bonds	X		
<b>11</b>	Credit Certificates	X		
<b>12</b>	Tailor Made Products	X		
<b>13</b>	Retail Corporate Bonds		X	
<b>14</b>	Fixing		X	
<b>15</b>	Other Financial Instruments		X	
<b>16</b>	Mortgage Rates		X	

### NASDAQ OMX Riga

	<b>Market</b>	Clean Price	Yield	Dirty Price
<b>1</b>	RSE Bonds			X
<b>2</b>	RSE Bonds Auto match		X	X
<b>3</b>	RSE FI New Issue			X
<b>4</b>	RSE FI New Issue Yield		X	X
<b>5</b>	RSE Equity IPO	-	-	-

### NASDAQ OMX Tallinn

	<b>Market</b>	<b>Clean Price</b>	<b>Yield</b>	<b>Dirty Price</b>
1	TSE Bonds			X
2	TSE Bonds Auto match		X	X

### NASDAQ OMX Vilnius

	<b>Market</b>	Clean Price	Yield	Dirty Price
<b>1</b>	VSE Bonds			X
<b>2</b>	VSE Bonds Auto match		X	X
<b>3</b>	VSE FI New Issue Yield		X	X
<b>4</b>	VSE FI New Issue Yield Non		X	X
<b>5</b>	VSE Equity Public Sales	-	-	-
<b>6</b>	VSE Equity Tender Offer	-	-	-
<b>7</b>	VSE Equity TO Competitive	-	-	-
<b>8</b>	VSE Equity IPO	-	-	-

### Appendix 3.5 Linked orders

Linked orders increase the possibility for a trader to fill his order by trading different securities. An example: A trader wishes to buy/sell a 10 year bond but is indifferent with respect to which bond. He submits a linked order that stipulates trading either 100 of bond A or 100 of bond B or a combination of the two.

Note: all legs in a linked set of orders must contain the same multiple of lot sizes.

If one order is executed in full, the other(s) is cancelled. If one order is executed partially, the other(s) is decreased proportionally.

#### Example: Linked order traded in full

Buy instrument A, Qty 40, limit 11.50

or

Buy instrument B, Qty 50, limit 16.00

Assume lot size is 1 for both legs

Order Book A			
80	\$11.40	\$11.50	30
50	\$11.30	\$11.80	100

Order Book B			
40	\$15.60	\$16.00	110
20	\$15.50	\$17.00	100

Start matching first leg.

30 of A will be bought at 11.50 (inside the given price).

The second leg must be decreased accordingly by calculating the proportion to regard as executed:

Remaining quantity for second leg is decreased by  $50 \times 30 / 40 = 37.5$  (rounded to 38), leaving the quantity at 12 (50 - 38).

Order Quantity of instrument B is then changed to 12 in the order book

The second leg will be matched at 16.00, thus executing the linked order in full, although in different securities.

**Example: Linked order entered into order book**

Linked order:

Buy instrument A, Qty 40, limit 11.50

or

Buy instrument B, Qty 80, limit 15.70

Assume Lot Size = 1 for first leg, and 2 for second leg

Order Book A			
80	\$11.40	\$11.50	30
50	\$11.30	\$11.80	100

Order Book B			
40	\$15.60	\$15.70	6
20	\$15.50	\$16.00	110
		\$17.00	100

Start matching first leg.

30 of A will be bought at 11.50 (inside the given price).

The second leg must be decreased accordingly by calculating the proportion to regard as executed:

Remaining quantity for second leg is decreased by  $80 \times 30 / 40 = 60$ , leaving the quantity at 20 ( $80 - 60$ ).

Order Quantity of instrument B is then changed to 20.

It is now possible to match 6 of B.

Remaining quantity = 14

The first leg must be decreased accordingly:

Remaining quantity for first leg is decreased by  $10 \times 6 / 20 = 3$ , leaving the quantity at 7 ( $10 - 3$ ).

Order Quantity of instrument A is then changed to 7.

Order books now look like this:

Order Book A			
7	\$11.50	\$11.80	100
80	\$11.40		
50	\$11.30		

Order Book B			
14	\$15.70	\$16.00	110
40	\$15.60	\$17.00	100
20	\$15.50		

For linked orders: If one of the legs cannot be stored in the order book the remainders of the other legs are also cancelled. If for example one of the legs have a Good Until Session condition and the order book enters a new session state that leg will be cancelled together with the rest of the legs in the linked order.

## Appendix 4 Reporting

Where to report manual and OTC trades:

Trades executed off-order book can be reported for publication to the following NASDAQ OMX Nordic and Baltic fixed income markets.

<b>Copenhagen</b>	
CPH Cash Bond Trading	Manual and OTC trades in all bonds and bills admitted for trading on NASDAQ OMX Copenhagen
CPH Fixed Income Derivatives	Manual and OTC trades in all fixed income derivatives admitted for trading on NASDAQ OMX Copenhagen
<b>Stockholm</b>	
STO Retail Bonds	Manual and OTC trades in all bonds and bills admitted for trading on NASDAQ OMX Stockholm
STO Structured Products	Manual and OTC trades in all products admitted for trading on NASDAQ OMX Stockholm
STO Credit Certificate	Manual and OTC trades in all products admitted for trading on NASDAQ OMX Stockholm
STO Retail Corporate Bonds	Manual and OTC trades in all bonds and bills admitted for trading on NASDAQ OMX Stockholm
STO Tailor Made Products	Manual and OTC trades in all products admitted for trading on NASDAQ OMX Stockholm
STO Lottery Bonds	Manual and OTC trades in all bonds and bills admitted for trading on NASDAQ OMX Stockholm
<b>Helsinki</b>	
HEL Bonds	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Helsinki
HEL Structured Products Retail	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Helsinki
HEL Structured Products Tailor Made	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Helsinki
HEL Corporate Bonds	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Helsinki
HEL Government Bonds	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Helsinki
HEL Convertibles	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Helsinki

<b>Riga</b>	
RSE Bonds	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Riga
RSE Bonds Auto match	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Riga
<b>Tallinn</b>	
TSE Bonds	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Tallinn
TSE Bonds Auto match	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Tallinn
<b>Vilnius</b>	
VSE Bonds	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Vilnius
VSE Bonds Auto match	Manual trades in all bonds and bills admitted for trading on NASDAQ OMX Vilnius

Manual trades and OTC trades may be entered during the following sessions:

Pre-trading: Off-hours trades (not for NASDAQ OMX Baltic Exchanges)

Trading: On-hours trades

Trade reporting is not allowed during terminating and post-trading sessions. During terminating trades may be cancelled.

### **Manual trades**

Trades executed off-order book in accordance with NMR and BMR.

### **OTC-trades**

Trades executed off-order book and not in accordance with NMR.

### **End-of-day trade statistics**

For some fixed income products the individual trades are not reported for publication. Instead members are required to report the aggregated volume, high, low and average price for such instruments - admitted for trading on NASDAQ OMX Stockholm.

### **Deferred publication for NASDAQ OMX Copenhagen**

*Manual trades must be reported immediately or not later than 3 minutes from time-of-agreement.*

For on-exchange trades, NASDAQ OMX Copenhagen allows waivers from the principle of immediate publication of a reported trade if the trade meets the criteria in table 4.1.

The minimum trade sizes required to qualify for deferred publications are given in table 4.1. The relevant thresholds are the ones expressed in the same currency as the order book in the respective instrument, e.g. for bonds traded in Euro the Euro thresholds apply.

**Table 4.1 Deferred publication thresholds and delays on Danish Mortgage Bonds and Other Bonds**

Permitted Delay	Mortgage bonds	Government and Corporate bonds and Structured Products
	Minimum qualifying amount (Nominal volume)	
End of trading day	100 million DKK	20 million DKK

Manual trades in government bonds shall also be reported to NASDAQ OMX Copenhagen immediately or not later than 3 minutes from time-of-agreement. Trades of 20 mDKK or bigger may be delayed until End-of-day.

OTC trades<sup>9</sup> in bonds admitted to trading on NASDAQ OMX Copenhagen may also have deferred publication in which case the above minimum volumes apply.

There is no legal requirement to publish OTC trades in government bonds, but if such trades are reported they may be deferred in accordance with table 4.1.

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<sup>9</sup> Members must publish OTC trades within the same timeframe as for manual trades. There is however no obligation for members to publish their OTC trades via the NASDAQ OMX publication service, but if the member chooses to do so the deference functionality is also available for the OTC trades.

## Appendix 5 Tick size tables

The tick sizes for Fixed Income Instruments traded in Genium INET Trading are as follows:

Exchange	Category	Tick size
<b>NASDAQ OMX Copenhagen</b>	Benchmark government bonds	0.01
	Mortgage bonds	0.05/0.01
	Flex loans and some CIBOR loans	0.01
	Corporate and other bonds	0.01
	Structured bonds retail	0.01
	Structured bonds tailor-made	0.01
	Less traded bonds	0.25
	Treasury bills	0.000001
	Electro broker market	0.01
	Issue Market	0.01/0.001
	<b>NASDAQ OMX Stockholm</b>	Fixed-Income Instruments traded:
- on price on the Ordinary Markets		0.005
- on yield on the Ordinary Markets		0.001
- on the Market Maker Markets		0.001
- on the Benchmark Bonds Market		0.001
- on the Issues and Buy Back Markets		0.001
<b>NASDAQ OMX Helsinki</b>	All Fixed-Income Instruments	0.001
<b>NASDAQ OMX Riga</b>	FI New Issue Yield	
	- on Corr. price	0.000001
	- on yield	0.001
	Equities IPO	0.01
	FI New Issue	
- on price	0.0001	
<b>NASDAQ OMX Tallinn</b>	All Fixed-Income Instruments	0.0001
<b>NASDAQ OMX Vilnius</b>	FI New Issue Yield	0.005
	FI New Issue Yield Non	0.0001
	Common FI trading	0.0001
	Equities issuing auctions	0.01

The valid tick sizes are available on the web, cf. the following link:

[http://nasdaqomx.com/digitalAssets/66/66727\\_tick\\_sizes\\_for\\_saxess\\_instruments\\_february\\_8\\_2010.pdf](http://nasdaqomx.com/digitalAssets/66/66727_tick_sizes_for_saxess_instruments_february_8_2010.pdf)

## **Appendix 6 Trade statistics and price concepts**

In this appendix you find a brief description of the market information available to members and information vendors.

The information differs among the Nordic fixed income markets and therefore the description is specified per exchange.

### **Market information & price concepts on the Danish Fixed Income Market**

#### **Pre-trade information**

Order book information will be available market-by-order (MBO) as well as market-by-level (MBL) for members whereas the information vendors will only have MBL information for the top five price levels. During opening calls only MBL-information will be available and will include the non-disclosed amount of hidden volume orders. During continuous trading MBL-information will only include the disclosed amount of hidden volume orders, i.e. the volume in MBL-information will be consistent with the volume shown in the MBO-information.

MBO information means information about each order in the order book and MBL means information about the aggregated volume for each of the price levels published.

Pre-trade information includes member identification on the Danish cash bond trading and the fixed income derivatives markets – note that the derivatives market has indicative quotes and not firm prices. Pre-trade information on the auction and electrobroker markets is anonymous.

**Also note** that only the issuers have access to pre-trade information in the auction market because Danish issuers use hidden auctions and only the market makers have access to pre-trade information from the electrobroker market.

The spread defined as the difference between the best bid and the best offer is defined by round lot orders as well as odd lot orders and AoN orders.

#### **Post-trade information**

Post trade information is available on each individual trade in the trade ticker message. All post-trade information is without identification of the parties, i.e. anonymous.

Post-trade information is available to both members and information vendors on a trade by trade basis.

Besides the trade ticker message also some trade statistics are published. Below is a description of the trade statics (price concepts) from the Danish fixed income markets.

Genium INET can disseminate trade statistics like high/low, last paid, average price, aggregated volume on order book level. NASDAQ OMX Copenhagen has decided not to publish such statistics on order book level but instead on instrument level, i.e. the price concepts and volumes will be aggregated for all order books belonging to the same instrument (a.k.a. underlying Security) – except for the auction order books. This means that the trade message will not include information about last paid and average

price for Danish fixed income instruments; this information will instead be available in the Genium Consolidated Feed, InstrumentStatistics message.

The post-trade statistics for the Danish market is therefore supplied through Genium Consolidated Feed and not directly via Genium INET.

#### **Last price paid**

The last price paid is defined as the latest price paid at any time for published transactions executed in the trading system or reported during (continuous) trading as standard trades, which are trades executed using standard market conditions in terms of price, time of the trade and standard delivery and settlement schedule. The last price paid is defined by standard trades in the cash bond trading market, inclusive of OTC-standard trades.

#### **All trades average price**

The all trades average price is calculated as a turnover weighted average price of published trades executed in the cash bond trading market, the electrobroker market or reported to the cash bond trading market as a standard trade or an OTC-standard trade. The all trades average price is calculated as a turnover-weighted average of all such standard transactions reported and published during the opening hours.

Also standard trades and OTC-standard trades with delayed publication are included in the all trades average price at the time of execution, i.e. before publication takes place. The all trades average price is calculated and published on a continuous basis, but without information about the volume traded. After closing of the market the final value of the all trades average price is published inclusive of the volume traded.

#### **High and low prices**

High and low prices are calculated on the basis of the trades which update the all trades average price and are thus the highest price and the lowest price, respectively, among the trades which have updated the all trades average price of the trading day.

#### **Opening price**

The opening price is defined as the first price paid for a published cash bond trading order book trade or reported as a standard trade or OTC-standard trade.

#### **Closing price**

Closing price is defined as the "last price paid" at time of closing.

#### **Indicative closing price**

If no "last price paid" exists, an indicative closing price will be calculated as the mid price of the time weighted best bid and offer prices at close if:

For mortgage bonds, government bonds and corporate and other bonds bids and offers must comply with the following criteria:

- during the three opening hours prior to closing there must be both bid and offer prices for at least 95 pct. of that period
- the order volume must be at least one round lot for both bids and offers
- maximum spread allowed is two points
- both bids and offers must be valid at the closing of the market

For structured bonds the bids and offers must comply with the following criteria:

- during the opening hours there must be both bid and offer prices for at least 85 pct. of that period
- the order volume must be at least five round lots for both bids and offers
- maximum spread allowed is four points
- both bids and offers must be valid at the closing of the market

If an indicative closing price is calculated, that price will be considered the official closing price of that day.

## **Market information & price concepts on the Finnish Fixed Income Market**

This part contains a list and an explanation of price concepts used on the Finnish fixed income market. The information described here is supplied through Genium Consolidated Feed or directly via Genium INET Trading. All the price concepts are defined on order book level unless otherwise stated.

### **Order book trading**

#### **Last price paid**

The last price paid is defined as the latest price paid at any time for published transactions executed in the trading system or reported during "continuous trading" as standard trades, which are trades executed using standard market conditions in terms of price, time of the trade and standard delivery and settlement schedule. The last price paid is defined by standard trades in the cash bond trading market.

#### **High and low prices**

High and low prices are calculated on the basis of the trades which update the last price paid and are thus the highest price and the lowest price, respectively, among the trades which have updated the last price paid during the trading day.

#### **Opening price**

The opening price is defined as the first price paid for a published cash bond trading order book trade or reported as a standard trade.

#### **Closing price**

Closing price is defined as the "last price paid" at time of closing.

## **Market information & price concepts on the Swedish Fixed Income Market**

This part contains a list and an explanation of price concepts used on the Swedish fixed income market. The information described here is supplied through Genium Consolidated Feed or directly via Genium INET Trading. All the price concepts are defined on order book level unless otherwise stated.

**Order book trading****Last price paid**

The last price paid is defined as the latest price paid at any time for published transactions executed in the trading system or reported during "continuous trading" as standard trades, which are trades executed using standard market conditions in terms of price, time of the trade and standard delivery and settlement schedule. The last price paid is defined by standard trades in the cash bond trading market.

**High and low prices**

High and low prices are calculated on the basis of the trades which update the last price paid and are thus the highest price and the lowest price, respectively, among the trades which have updated the last price paid during the trading day.

**Opening price**

The opening price is defined as the first price paid for a published cash bond trading order book trade or reported as a standard trade.

**Closing price**

Closing price is defined as the "last price paid" at time of closing.

**Turnover reporting**

For certain bonds that are defined as benchmark bonds exchange members have a reporting obligation. These statistics are reported in the indicative order book and disseminated on an aggregated level.

Members shall – for each Instrument – report the following information:

- The weighted average traded yield
- The highest traded yield
- The lowest traded yield and
- The total nominal value of all Manual Trades during the day.

If a trade occurs between two members, the buying member shall report the trade. If the trade occurs between a member and a non member, the member shall report the trade, regardless who is the buyer or seller. Reporting shall be made as an internal trade. Reported trades should be defined with the trade report type STAT Turnover Reporting.

The reported information is disseminated, on an aggregated level, the following business day.

**Indicative Prices**

NASDAQ OMX Stockholm disseminates indicative prices for a number of instruments. Members that are market makers in these instruments quote indicative bid and ask prices (yields) that is disseminated to the market through the Genium Consolidated Feed or directly via Genium INET Trading Workstation.

## **Market information & price concepts on the Baltic (Riga, Tallinn, Vilnius) Fixed Income Markets**

### **Pre-trade information**

Order book information including member identification is available market-by-order (MBO) as well as market-by-level (MBL) for members and vendors on the Baltic bond trading submarkets.

Pre-trade information on the fixed income issuing auctions is anonymous. Only the issuers have access to pre-trade information in the issuing auction markets.

### **Post-trade information**

Post trade information is available on each individual trade in the trade ticker message. Post-trade information is without identification of the parties, i.e. anonymous, only for issuing auction trades.

Post-trade information is available to both members and information vendors on a trade by trade basis.

All the price concepts are defined on order book level.

### **Last price paid**

The last price paid is defined as the latest price paid at any time for published transactions executed in the trading system or reported during "continuous trading" as standard trades, which are trades executed using standard market conditions in terms of price, time of the trade and standard delivery and settlement schedule. The last price paid is defined by standard trades in the Baltic bond trading submarkets.

### **High and low prices**

High and low prices are calculated on the basis of the trades which update the last price paid and are thus the highest price and the lowest price, respectively, among the trades which have updated the last price paid during the trading day.

### **Opening price**

The opening price is defined as the first price paid for a published Baltic bond trading order book trade or reported as a standard trade.

### **Closing price**

Closing price is defined as the "last price paid" at time of closing.

## Appendix 7 Fixing Concepts on the Swedish market

NASDAQ OMX Nordic Exchanges collect, calculate and disseminate fixings on several instruments.

For the STIBOR, NASDAQ OMX Swap Fixing and F/X Fixing participants quote in designated order books. Below is a description of the rules for each fixing product.

STIBOR Fixing:

- Only ask quotes are considered
- Only uses the latest contribution from each participant
- If less than 6 bids no calculation is done and the process is repeated
- If 6 or more contributions the highest and lowest are removed
- The fixing is the arithmetic average of the remaining bids
- The calculation is performed daily at 11:05

NASDAQ OMX Swap Fixing:

The NASDAQ OMX swap fixing is the mid swap rate however contributions are submitted as ask orders.

- Only ask quotes are considered
- Only uses the latest contribution from each participant
- If less than 5 asks no calculation is done and the process is repeated
- If 5 or more contributions the highest and lowest are removed
- The fixing is the arithmetic average of the remaining asks
- The calculation is performed daily at 11:10

F/X Fixing:

- Only bid quotes are considered
- Only uses the latest contribution from each participant
- If less than 3 participants have contributed no fixing value is calculated
- If 3 or more participants have contributed a fixing value is calculated
- If 5 or more participants have contributed the highest and lowest are removed before calculation
- The fixing is the arithmetic average of the remaining contributions
- The calculation is performed daily at 10:05