



**Market Model for trading with  
Stocks, Bonds and  
Structured Products  
through the trading system Xetra<sup>®</sup>  
of Wiener Börse AG**

(XETRA<sup>®</sup> - Release 12.0)

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## 1 Introduction

Xetra is the pan-European electronic trading system of Deutsche Börse AG for trading in equities, bonds and structured products.

The document on hand exclusively describes electronic trading of the trading procedures “Continuous trading” and “Auction trading”. The trading procedure “Continuous auction” is described in a separate document. This documentation is based on the General Terms and Conditions of Business of Wiener Börse AG in the respective valid version.

Stocks are traded through the market model for equities:

- Equities (incl. ADC's – Austrian Depositary Certificates)
- Participation certificates
- Profit-sharing certificates/rights
- subscription rights and new issues with their own securities identification code

Bonds are traded through the market model for bonds:

- Government Bonds
- Federal treasury bills
- Federal obligations
- Interest rate and government strips
- Corporate bonds
- Banking bonds
- Convertible bonds

Structured Products are traded through the market model for structured products:

- |                                     |                         |
|-------------------------------------|-------------------------|
| ■ Basket certificates               | ■ Exchange traded funds |
| ■ Index certificates                | ■ Cash funds            |
| ■ Leverage (Knock out) certificates | ■ Bond funds            |
| ■ Discount certificates             | ■ Balanced funds        |
| ■ Bonus certificates                | ■ Equity funds          |
| ■ Express certificates              | ■ Real Estate funds     |
| ■ Guarantee certificates            | ■ Emerging Market funds |
| ■ Reverse convertibles              | ■ Other funds           |
| ■ Outperformance certificates       | ■ Warrants              |
| ■ Other certificates                |                         |

## 2 Market Segmentation on Wiener Börse AG

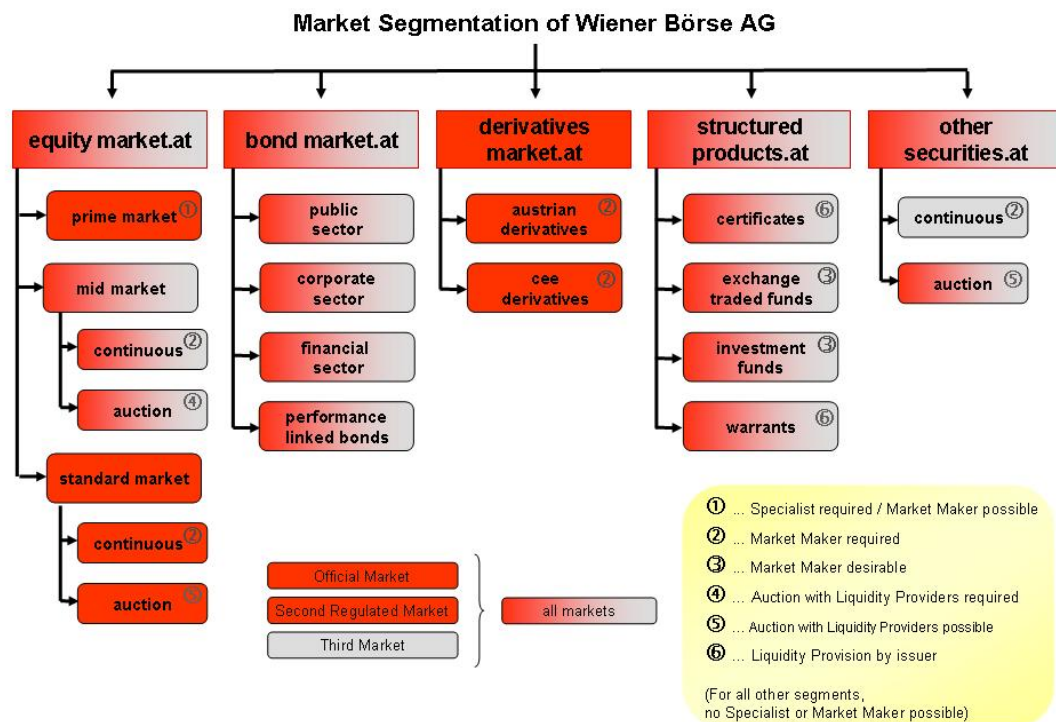
The market segmentation allocates the financial instruments traded on the markets of Wiener Börse AG according to certain criteras into market segments. The market segmentation does not take into account whether financial instruments are admitted to listing on a regulated market (Official Market or Second Regulated Market) or is traded on a Multilateral Trading System (Third Market); these markets are used only as a criterion for the allocation to the different market segments.

The allocation criteria to the different market segments is determined particulary by

- Markets (Official Market, Second Regulated Market, Third Market)
- Type of financial instruments (shares, participation certificates, bonds, certificates etc)
- More stringent reporting, quality and disclosure requirements
- Liquidity Providing (Specialist, Market Maker etc.)
- Trading system and type trading

The obligations of issuers stipulated by the Stock Exchange Act are not be affected by the new market segmentation.

The financial instruments traded on the markets of Wiener Börse AG are grouped into the following segments:



**Figure 1 :** Market Segmentation of Wiener Börse AG

**Note:** In case shares are represented by ADCs (Austrian Depository Certificates), they are subject to the same terms and conditions that apply to the shares.



### 3 Basic Principles of the Xetra® Market Model

The Xetra® market model defines the mechanism through which orders are matched and trades concluded under the trading system of Wiener Börse AG. This includes price determination rules, the order of priority in which orders are executed through the trading system of Wiener Börse AG, and the type and scope of information provided to market participants during trading sessions.

The following basic principles were laid down for the cash market of Wiener Börse AG:

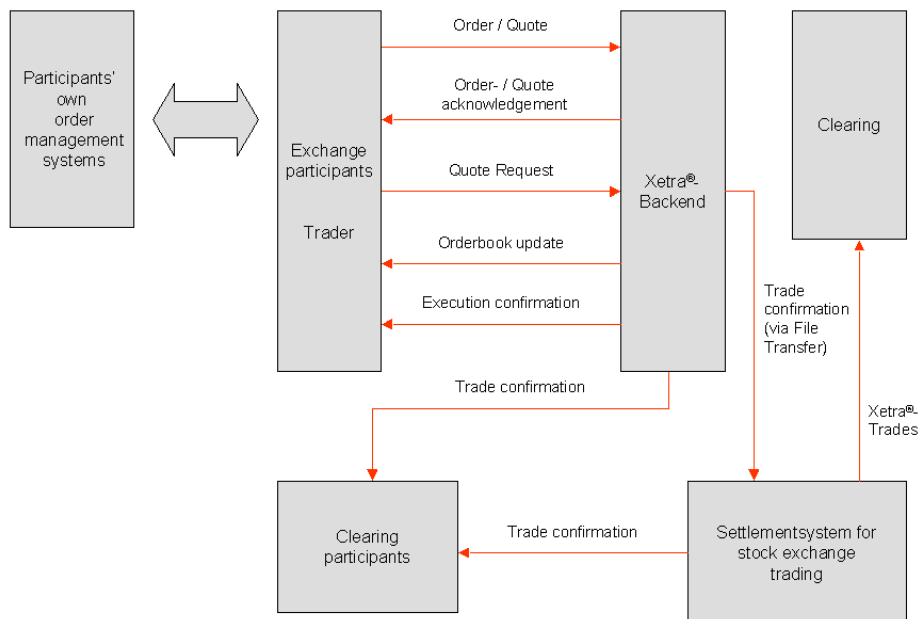
- The Xetra® market models implemented in Vienna are both order- and quote-driven.
- An instrument may be traded continuously or in auction trading.
- Continuous trading starts with an opening auction; it may be interrupted by an intraday auction and ends with a closing auction.
- Orders are executed by order of priority based on price and time of input.
- Trading is anonymous, i.e. market participants cannot view their counterparties on the trading screen and are not named in the trade confirmation note.
- Xetra® supports trading in orders of all sizes taking account of the specific minimum trading lot. The specific minimum trading lot may be one.
- At any point in time only one price will exist for any one instrument.
- The reference price is the price determined most recently for an instrument in an auction and/or in continuous trading.
- In order to ensure price continuity, the following aspects must be taken into consideration:
  - Trading is interrupted if the potential price is outside of a predefined price range around the reference price.
  - Market orders are executed at the reference price if the order book contains only executable market orders.
  - If there are unfilled market orders on the order book in continuous trading and these orders can be matched against incoming limit orders price determination is based on the reference price.
- The probability of market orders being executed during auction trading is increased by the introduction of market order interruptions.
- The validity of an order ends at the latest 90 calendar days after the date it was entered.
- During the pre-trading/post-trading phase the order book is closed.
- Execution confirmations are sent out immediately after a trade has been closed.
- The accounting cut-off takes place daily after the post-trading phase.





## 4 The Procedure of Market Transaction

In Xetra<sup>®</sup>, transactions relating to equities are entered, processed and settled as illustrated below:



**Figure 2: A Market Transaction under Xetra<sup>®</sup>**

Traders place orders and quotes through their Xetra<sup>®</sup> front end workstations. The orders are then transmitted to the Xetra<sup>®</sup> back end station, which processes the orders and quotes in accordance with their specified attributes.

In each phase of the transaction process, participants are kept informed of the status of their orders and quotes and the trades closed. When an entry has been accepted by the Xetra<sup>®</sup> back end and entered into the order book, the trading participant receives an order or quote confirmation. When a trade has been closed, the participant is immediately provided with an execution confirmation showing the key data of the orders executed (price and volume of trade executed, time of execution, order specifications).

These confirmations, which are displayed on the trading screen and are available on the server for access by participants involved in stock exchange processing and settlement procedures, are sent out to settlement and trading participants. After the trading session, Xetra<sup>®</sup> transactions are transmitted automatically to CCP.A (Central Counterparty Austria) for initiating the settlement process.



## 5 Market Participants

### 5.1 Participants of Wiener Börse AG and User Identifications

In order to participate in trading with securities (cash market) through Xetra<sup>®</sup>, it is necessary for the institution to become a member of Wiener Börse and to have the required technical and human resources – for that purpose the admission requirements of Wiener Börse AG have to be complied with. They are obliged to ensure the proper settlement of deals. Participants of Wiener Börse AG not directly using the CCP.A (Central Counterparty Austria) clearing and settlement system have to name a settlement participant to the Wiener Börse AG who is a direct participant in the clearing and settlement system.

Once admission has been granted, the exchange operating company registers the participant in the Xetra<sup>®</sup> system including the corresponding access rights and issues a participant's identification code (Member-ID). Thereafter the trading participant has to arrange the individual users and do the setup using unique user identification codes (User-ID's) in the trading system Xetra<sup>®</sup>.

User identification codes with trading functions (so-called Trader-ID's) are authorized by Wiener Börse AG only to persons of a trading participant, who are admitted as an exchange trader or a trader's assistant. The activation of trading specific rights has to be done by the exchange operating company and is required to enter, modify or delete orders and quotes. All other user identification codes entitle the holder only to make queries or are equipped with system administrative or clearing specific rights.

The first half of the Trader-ID – the trader sub group – may be mostly defined by the trading participant, the second half of the code – the Trader-Code – is issued by Wiener Börse AG. In cases of arranging user identification codes for Xetra member supervisors respectively for order routing systems or order entry systems, these user groups will be defined by Wiener Börse AG.

Wiener Börse AG will define securities groups which will be made available to each participant. Participants have the option of adapting the access rights granted to their trading groups to their individual organizational needs.

Changes to the access rights for each user identification code are made by the participants themselves and recorded by Wiener Börse AG. These changes are communicated to participants in standardized reports at the end of each trading session. The users of the Xetra<sup>®</sup> system may be classified into the following categories:

#### 5.1.1 Exchange Trader

Exchange Traders are those physical persons that are authorized to place orders and to conclude dealings in the name of Members on the exchange or within the trading system and have been admitted as Traders to the exchange by the exchange operating company.

A trader may trade on behalf of clients („Agent Trader“, Account A) or on his or her own account („Proprietary Trader“, Account P), and if applicable act as a liquidity provider („Designated Sponsor<sup>1</sup>“, Account D, bzw. „Issuer<sup>2</sup>“, Account I).

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<sup>1</sup> **Designated Sponsor** is the designation used in the authorization concept as synonymous for Specialists and Market Maker in the trading procedure Continuous Trading and for Liquidity Providers in the trading procedure Auction!



**5.1.2 Other users**

Users of the system who are not admitted to trading include administrators (member supervisors for managing authorization rights for the users of the trading participant in Xetra), personnel engaged in settlement, operating and supervisory functions, and users of information.

**5.2 Market Making on Wiener Börse AG**

One of the functions provided by the Xetra® market model for stock exchange trading is that of market making through so-called designated sponsors<sup>3</sup>. In addition to the current market making system, a specialist system is in place on Wiener Börse AG; a specialist is a type of super market maker. This system will supplement the current market making system, as the specialist's task is to provide additional liquidity to the market.<sup>4</sup>

**6 Types of Orders**

Orders of all sizes may be traded through Xetra®, as the minimum trading lot for Xetra® in Vienna has been defined as one for all segments of equities trading.

In bond trading, the minimum trading lot corresponds to the smallest tradable unit. The smallest tradable unit depends on the minimum denomination of the specific security (e.g., €1,000).

A change to an order will result in a new time priority if the limit is changed or if the change has a negative impact on the execution priority of other orders in the order book (e.g., increases in the volume of an existing order). If, however, the volume of an existing order is reduced, the original time priority remains valid.

Timestamp changes	Timestamp remains unchanged
<ul style="list-style-type: none"> <li>▪ Limit ↑</li> <li>▪ Limit ↓</li> <li>▪ Volume ↑</li> <li>▪ longer validity ↑</li> <li>▪ Change of Instrument</li> <li>▪ Change of Stop Order</li> </ul>	<ul style="list-style-type: none"> <li>▪ Volume ↓</li> <li><u>Change of other fields:</u></li> <li>▪ shorter validity ↓</li> <li>▪ Account</li> <li>▪ Internal Ordernumber</li> <li>▪ Text field</li> <li>▪ trading restriction</li> </ul>

<sup>2</sup> **Issuer** is the designation used in the authorization concept as synonymous for liquidity provision by the Issuer of certificates and warrants as a trading participant in the trading procedure Continuous Auction!

<sup>3</sup> The terms designated sponsor, market maker, and liquidity provider are used synonymously.

<sup>4</sup> A detailed explanation of the market maker and specialist functions is provided in a separate document.



## 6.1 Persistent Orders vs. Non-persistent Orders

In the Xetra® trading system trading participants may choose whether they send their orders as persistent or as non-persistent orders. Once the order has been sent to the exchange, the persistency attribute of the order cannot be changed anymore. Therefore the order must be deleted and entered again.

When the default is chosen, the following rules apply for the determination of the order persistency in the Xetra® trading system:

- Agent orders (account "A") are persistent
- All other orders (account type not "A") are non-persistent if the validity of the order is GFD (= good for day) or explicitly stated the current business day
- All orders with validity greater than GFD (= good for day) are persistent orders (cannot be changed anymore)

Additionally all trading participants have the following options:

- Agent orders (Account "A") with the validity GFD (= good for day) or explicitly stated the current business day can also be non-persistent
- All other orders (account type not "A") with the validity GFD (= good for day) or explicitly stated the current business day can also be entered as persistent orders
- Persistent Orders: Will not be deleted from the order book in exceptional circumstances, i.e. in case of a partially or fully interruption of the Xetra® trading system (=Market Halt).
- Non-persistent Orders: Will be deleted from the order book automatically in exceptional circumstances, i.e. in case of a partially or fully interruption of the Xetra® trading system (=Market Halt).

In Xetra® trading model "continuous auction" orders and stop orders can only be entered as persistent orders. Quotes are never persistent.

## 6.2 Order Specifications

In Xetra®, all orders are anonymous. The trading participants cannot see who entered a specific order or quote into the order book.

The maximum period over which an order can remain valid is 90 days after the date it was entered. This applies to orders with validity restrictions not calling for the automatic cancellation of the order at a specified point in time.

### 6.2.1 Basic Types of Orders

- **Market Orders:** Market orders are unlimited buy or sell orders (orders to buy or sell at the best available price) to be executed at the next price that is determined.
- **Limit Orders:** Limit orders are limited buy or sell orders to be executed at the set limit price or better.



### 6.2.2 Market-to-Limit Orders

Market-to-limit orders are orders characterized by an increased probability of execution (as market orders) combined with the security afforded by limit orders.

In continuous trading, market-to-limit orders are executed against the best limit on the opposite side of the order book. If an order cannot be executed in full, a new limit order is entered into the order book for the remaining portion that has the same limit as the part of the order already executed. This limit order is automatically assigned the time stamp of the first partial execution.

In continuous trading, market-to-limit orders may only be entered into the system if the opposite side of the order book contains only limit orders.

During auction trading (including volatility and market order interruptions), market-to-limit orders are treated and displayed the same way as market orders. During these phases, market-to-limit orders may also be entered if the order book contains market orders, since during an auction, such orders are treated as market orders.

At the end of an auction, market-to-limit orders are executed at the auction price. If an order cannot be fully executed, the portion of the order left unfilled is offered at the auction price during the order book balancing phase. In the event that the surplus cannot be executed during the order book balancing phase, the order is transferred as a limit order to the next trading phase. In case a market-to-limit order is not executable during auction trading, it is automatically cancelled.

Market-to-limit orders trigger volatility interruptions as well as market order interruptions. Once unfilled portions of a market-to-limit order have been entered into the order book as limit orders, changes to the limit are no longer possible!

### 6.2.3 Iceberg Orders

This type of order permits the input of large order sizes into the order book during continuous trading without the market being given insight into the overall volume.

Iceberg orders are characterized by the input of a limit, overall volume and peak size. Both overall volume and peak size must have a round lot format.

The peak is the part of an iceberg order that is displayed. In continuous trading, a new peak with a new time stamp is entered into the order book as soon as a peak has been fully executed and the order book still contains undisclosed volume.

The peak that has last been entered into the order book may be smaller than the peak size indicated. Iceberg orders are not marked as such in the order book. They are only valid for the current trading day and may not be combined with additional trading or execution restrictions. Any increase in peak size or overall volume gives the order a new order number.

Iceberg orders with their overall volumes are displayed during auction trading as the order book is open. Minimum peak size and minimum overall volume are determined in accordance with the trading segment (stocks or bonds). If an iceberg order is not fully executed during an auction phase, a new order with its overall peak is entered into the order book after the changeover to the continuous trading phase.



### 6.2.4 Stop Orders

To support trading strategies, two different types of stop orders are available that are activated after a predefined price level (stop limit) is reached

- **Stop market order:** When the stop limit is reached (or exceeded for stop buy orders or falls below it for stop sell orders), the stop order is automatically placed in the order book as a market order and may be executed immediately.
- **Stop limit order:** In the case of a stop-limit order, when the stop limit is reached (or exceeded for stop buy orders or if it falls below it for stop loss orders), the stop order is automatically placed in the order book as a limit order and may be executed immediately.

When entering a stop loss order, the stop limit must be below the price that was last determined for the respective security. In the case of a stop buy order, the stop limit must exceed the price of the security that was last fixed by the system. Any change to a stop order gives it a new time stamp.

### 6.3 Validity Restrictions

Further restrictions may be imposed to specify the period of time for which an order is valid. The market model provides the following options:

- **Good-for-day:** This order is valid only for the current trading day.
- **Good-till-date:** This order is valid only up until a specified date (not later than 90 days after the time the order was entered).
- **Good-till-cancelled:** This order is valid until it has either been executed or cancelled by the trader or - when the maximum validity period of 90 days has expired - by the system.

### 6.4 Execution Restrictions

Market and Limit Orders in continuous trading can additionally be defined by the following execution condition:

- **Immediate-or-cancel:** An immediate-or-cancel order (IOC order) is an order that is executed immediately and in full to the furthest extent possible. Unfilled portions of an IOC order are not entered into the order book but deleted.
- **Fill-or-kill:** A fill-or-kill order (FOK order) is an order that is either executed immediately and in full or not at all. If its immediate full execution is not possible, an FOK order is not entered into the order book but deleted.
- **Strike-Match-Order:** A Strike-Match-Order is an order with an additional limit (strike match limit) that can be added for limit or market orders. The additional limit determines the minimum price for a buy order or the maximum price for a sell order. It will be executed only if the price also satisfies the restrictive additional limit. The Strike-Match-Order can only be used in the Closing Auction in trading model Continuous Trading. In Xetra the Strike Match Order is



implemented as execution restriction “SMO” in combination with the trading restriction “CA” (“Closing Auction only”). While changing the additional limit is possible, the execution restriction and the trading restriction cannot be modified. Regarding the matching priority only changes of the normal limit (including modifications from or to a market order) will have an influence. Strike Match Orders are only valid for the Closing Auction of the respective trading day and are deleted during the end of day processing.

Limit orders in continuous trading can additionally be defined by the following execution condition:

- **Book-or-Cancel:** BOC-Order is an order, which is placed as resting liquidity in the order book in order to ensure passive execution. If immediate (and hence aggressive) execution is possible, the order is rejected without entry in the order book. If such execution would trigger a volatility interruption, the BOC order will be rejected. Resting BOC orders are deleted when an auction or volatility interruption is triggered as any trading volume executed in an auction or volatility interruption is classified as aggressive trading volume. During auctions and volatility interruptions, incoming BOC orders are rejected.
  
- **Top-of-the-Book:** TOP-Order will be accepted and added to the order book if its limit is narrowing the current order book spread, i.e. if the limit of a buy (sell) TOP order is greater (smaller) than the best visible bid (ask) in the order book and smaller (greater) than the best visible ask (bid). Resting TOP orders are deleted when an auction or volatility interruption is triggered and during these auctions incoming TOP orders are rejected.

## 6.5 Trading Restrictions

Using the following restrictions, orders may be placed for trading in all auctions or in a specific auction only:

- **Opening auction only:** This order is valid only for the opening auction.
  
- **Closing auction only:** This order is valid only for the closing auction.
  
- **Auction only:** Valid only for auctions.
  
- **Accept surplus orders:** This order may be entered only during the order book balancing phase<sup>5</sup> of an auction. The participants may use this type of order to execute orders from the remaining surplus, i.e. market orders or orders with an auction price limit or a better limit that were left unfilled. Orders of this type are entered with the execution instructions immediate-or-cancel (IOC) or fill-or-kill (FOK).

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<sup>5</sup> For more detailed information on the order book balancing phase see 7.3.1.1.3

## 6.6 Order Attributes

Xetra<sup>®</sup> allows participants to specify attributes for their orders. The order attributes are listed in the Table below:

Order attribute	Description / contents	Mandatory
Buy / Sell	Buy / Sell	yes
Exchange	Exchange on which the instrument is traded	yes
Instrument	WKN or ISIN or symbol	yes
Volume	Order volume	yes
Limit	Limit (if not specified: market order)	no
Order type	M = Market Order L = Limit Order T = Market-to-Limit Order I = Iceberg Order	for market-to-limit orders and iceberg orders
Validity restriction	Good-for-day (GFD), Good-till-date (GTD), Good-till-cancelled (GTC), not specified = GFD. Maximum validity: 90 calendar days from entry date (T+89)	no
Execution restriction	Immediate-or-Cancel (IOC), Fill-or-Kill (FOK), Book-or-Cancel (BOC), Stop Market Order (STP), Stop Limit Order (STP) Strike-Match-Order (SMO) Top-of-the-Book (TOP)	no
Peak size	Peak size for iceberg orders	for iceberg orders
Trading restrictions	Opening Auction only Auction only Closing Auction only Accept Surplus	no
Text field	To be used ad lib.	no
Participant's order number	To be used ad lib.	no
Account identification code	A („Agent“), P („Proprietary“), D („Market Maker and Specialist“)	yes
Participant's identification code	Xetra <sup>®</sup> identification code assigned by the Wiener Börse AG	yes
User identification code	Xetra <sup>®</sup> identification code assigned by the participant	yes
Xetra <sup>®</sup> -order number	Xetra <sup>®</sup> identification assigned by the system	yes
Time stamp	Xetra <sup>®</sup> identification assigned by the system	yes

Table2: Order Attributes for Xetra<sup>®</sup> Orders



Combination options of order attributes are listed in the Table below:

combinable with	FOK	IOC	BOC	TOP	SMO	STP	T	I	GFD	GTD	GTC	OA	AO	CA	SU
FOK		-	-	-	-	-	X	-	X	-	-	-	-	-	X
IOC	-		-	-	-	-	X	-	X	-	-	-	-	-	X
BOC	-	-		-	-	-	-	-	X	X	X	-	-	-	-
TOP	-	-	-		-	-	-	-	X	-	-	-	-	-	-
SMO	-	-	-	-		-	-	-	X	-	-	-	-	X	-
STP	-	-	-	-	-		-	-	X	X	X	-	-	-	-
T	X	X	-	-	-	-		-	X	X	X	-	-	-	-
I	-	-	-	-	-	-	-		X	-	-	-	-	-	-
GFD	X	X	X	X	X	X	X	X		-	-	X	X	X	X
GTD	-	-	X	-	-	X	X	-	-		-	X	X	X	-
GTC	-	-	X	-	-	X	X	-	-	-		X	X	X	-
OA	-	-	-	-	-	-	-	-	X	X	X		-	-	-
AO	-	-	-	-	-	-	-	-	X	X	X	-		-	-
CA	-	-	-	-	X	-	-	-	X	X	X	-	-		-
SU	X	X	-	-	-	-	-	-	X	-	-	-	-	-	

Table 1: Combination options of order attributes

Legend:	FOK = Fill-or-Kill	GFD = Good-for-day
	IOC = Immediate-or-Cancelled	GTD = Good-till-date
	BOC = Book-or-Cancel	GTC = Good-till-cancelled
	TOP = Top-of-the-Book	OA = Opening Auction
	SMO = Strike-Match-Order	AO = Auction only
	STP = Stop Market/Limit	CA = Closing Auction
	T = Market-to-Limit	SU = Accept Surplus
	I = Iceberg	

It is obligatory to enter a validity (default is GFD). Execution restrictions and trading restrictions cannot be combined (exception: SU in combination with IOC or FOK).



## 6.7 Quotes

Additionally, Xetra® allows participants registered in the system as market makers or specialists to enter quotes. Quote is the simultaneous entry of limited buy and sell orders into Xetra®. Quotes are valid only for the day on which they are entered into the system.

## 6.8 Quote Attributes

The quote functionality enables market makers or specialists to simultaneously enter limited buy and sell orders (quotes).

Quote attribute	Descriptions / contents	Mandatory
Exchange	Exchange on which the security is traded	yes
Bid Limit	Limit set by buying side	yes
Ask Limit	Limit set by selling side	yes
Security	Security identification code or ISIN or symbol	yes
Bid volume	Volume quoted by buying side; depends on tradable lot (shares/nominal value)	yes
Ask Volumen	Volume quoted by selling side; depends on tradable lot (shares/nominal value)	yes
Account identification code	D („Market Maker or Specialist“)	yes
Participant's identification code	Xetra® identification code assigned by Wiener Börse AG	yes
User identification code	Xetra® identification code assigned by the participant	yes
Xetra®-order number	Xetra® identification assigned by the system	yes
Time stamp	Xetra® identification assigned by the system	yes

Table 3: Quote Attributes for Xetra® Orders

## 7 Trading in Xetra®

### 7.1 Trading Phases

Trading takes place throughout the entire day and starts with the pre-trading phase followed by the main trading phase and ends with the post-trading phase. The system is not available in the time between the post-trading phase and the pre-trading phase.

While pre-trading and post-trading rules are the same for all instruments, procedures in the main trading phase may differ. Depending on their liquidity, instruments are traded through different trading procedures.

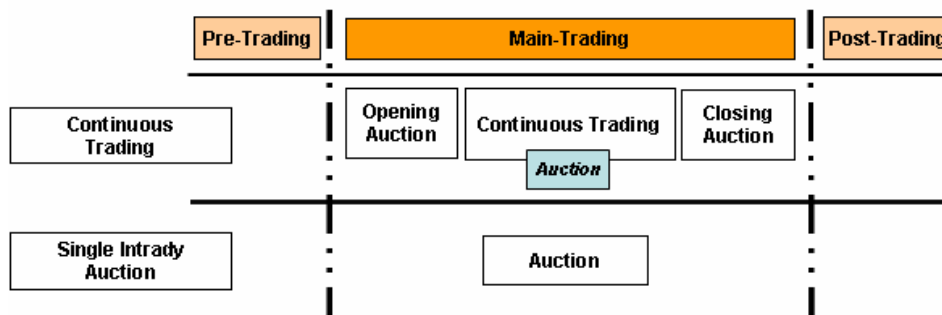


Figure 3: Trading model

#### 7.1.1 Pre-trading Phase

The pre-trading phase precedes the main trading phase. During this time, market participants may enter orders and quotes in preparation of actual trading and change or delete their own orders or quotes. Orders entered by participants are confirmed by the exchange.

Market participants are not allowed to view the orders entered into the order book as the order book is closed during that phase. The only information shown, if available, is the closing price determined for the instrument concerned on the preceding trading day.

#### 7.1.2 Main trading Phase

During the main trading phase, orders of any size may be traded in accordance with the rules applicable to the type of trading and the trading segment concerned. In some trading segments<sup>6</sup> trading is continuous with an opening auction and a closing auction. Continuous trading can be interrupted by predefined intraday auctions.

In trading segments with less liquid securities respectively in securities for which there are no market maker commitments, all trading is through auction trading only, with the number of auctions held during a trading day depending on the current liquidity of the instruments traded in the segment. In Vienna, only one auction is held per trading day in these segments.

<sup>6</sup> See Chapter 2 or document 'Detailed Specifications to the Market Model for Trading on the Cash Market through the trading system Xetra® of Wiener Börse AG'

### 7.1.3 Post-trading Phase

The end of the main trading phase is followed by a post-trading phase, in which participants may enter orders and change or delete their own orders that have not been executed. Newly entered orders will be traded in the appropriate trading procedures on the next trading day, subject to any execution or validity restrictions that may apply. The processing of trades closed during the day also takes place during the post-trading phase.

## 7.2 Trading Procedures

The 'Market Model for trading with Stocks, Bonds and Structured Products through the trading system Xetra® of Wiener Börse AG' supports the trading procedures of auction trading and continuous trading; for the trading of bonds on Wiener Börse AG, the system supports the trading procedure of auction trading. Xetra® also offers the functionality of entering direct trades.

### 7.2.1 Auction

Auction trading is possible for orders of any size. By collecting all market and limit orders received for an instrument, liquidity is concentrated at a specific point of time. In auction trading, prices are determined according to the principle of executing as many orders as possible. At the same time, orders are ranked by price and time received, as a result of which not more than one order with an auction price limit or one unlimited order are partially executed. During the call phase of the auction, the order book is open (if the instrument is supported by a Liquidity Provider). Market participants are also given an overview of the situation in the display of indicative prices or the best bid/ask limits. An auction schedule lists the times at which specific securities are called.

### 7.2.2 Continuous Trading

Any new incoming order is immediately checked to determine whether or not it can be executed right away. In continuous trading, orders are executed according to price and time entered. With this type of trading procedure the order book is open, i.e. limits and cumulated order volumes per limit are displayed.

### 7.2.3 Entering OTC trades

During the course of the entire trading session (pre-trading, main trading and post-trading phases), participants have the opportunity of directly entering trades into Xetra®. Entering trades of this type is generally permitted for all securities that are also traded through the exchange in Xetra®. It is not necessary to have been admitted as trader to be able to use this function.

Direct trades entered must be confirmed by the counterparty on the same day. Both counterparties then receive an order confirmation. Orders that have not been confirmed are automatically deleted by the system at the end of the day. The confirmed direct trades are transferred by Xetra® to the clearing and settlement system of Oesterreichische Kontrollbank/DS (direct settlement).

In the case of direct trades, it is possible to specify the value date and the type of settlement of the proceeds.

7.3 Trading Models

The Xetra® trading system supports the following trading models:

‘Continuous trading’ in conjunction with an opening auction, one intraday auction and a closing auction, as well as the ‘Auction’ trading’ model with one or several intraday auctions at scheduled points in time and the trading model ‘Continuous Auction’.

The Xetra® “Market Model for the trading of Stocks, Bonds and Structured Products” supports three trading models:

- Continuous trading with an opening auction, an intraday auction and a closing auction;
- Continuous trading with an opening auction and a closing auction;
- One auction per trading day.

These variants are explained in more detail further below. A detailed description of trading model (2) is not given, as the only difference to trading model (1) is that continuous trading is not interrupted by an auction. For this reason the illustration showing the procedure in the course of a trading day in model (2) corresponds to trading model (1) with the exception of the intraday auction and therefore does not require any further explanation.

7.3.1 Continuous Trading in Conjunction with Auctions

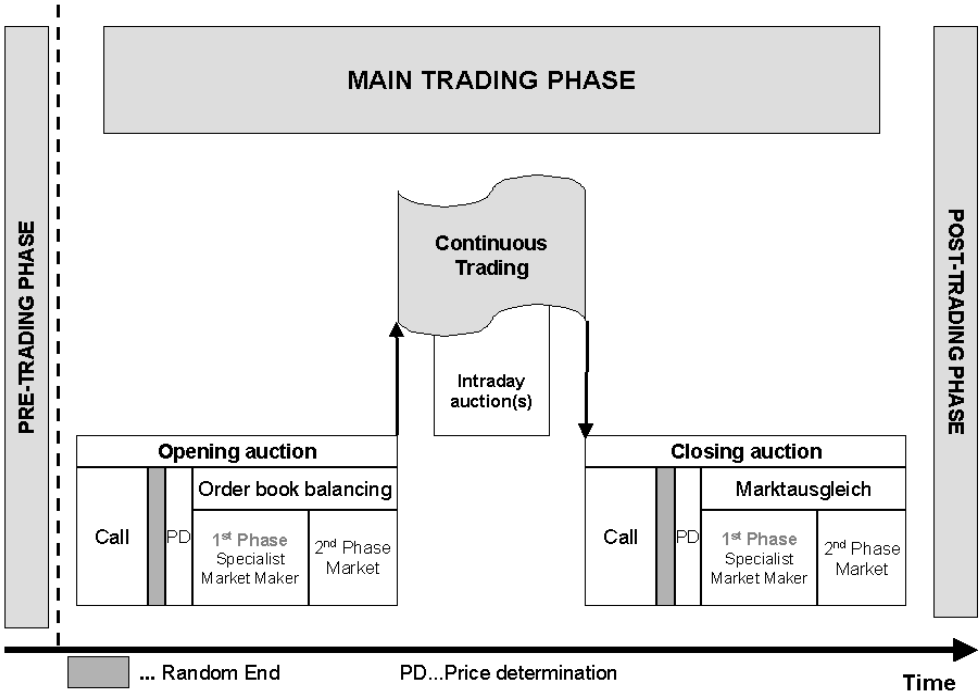
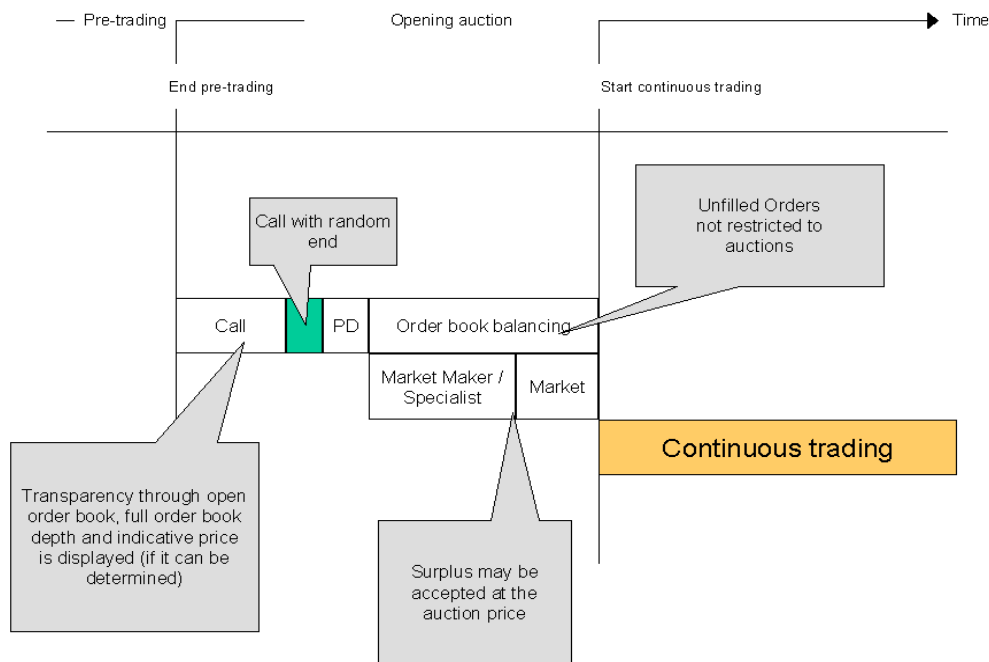


Figure 4: Sequence of Trading Procedures

7.3.1.1 Opening Auction

The beginning of continuous trading is preceded by an opening auction consisting of the call phase, price determination phase and order book balancing phase. All orders remaining from the preceding day and still valid, or entered on the trading day itself, take part in this auction unless their execution is specifically restricted to the closing auction ("closing auction only"). All orders that are executable are filled in the opening auction to avoid a "crossed order book" situation (i.e. an order book not showing matching buy and sell orders) and permit the commencement of continuous trading.



PD = Price determination

Figure 5: The Opening Auction

7.3.1.1.1 Call Phase

The opening auction starts with the call phase (see Figure 5). An auction schedule informs the market participants of the periods when specific securities are called. During this phase, the market participant may enter new orders and quotes and change or delete previously placed orders.

In the call phase, when the order book is open, the entire depth of the market is displayed. If there are orders that can be matched, an indicative auction price is displayed. This is the price that would be set for the auction if the price determination phase were to end at this point.

The duration of the call phase may vary according to the liquidity of the securities in a trading segment. In order to avoid price manipulation, the call phase is ended at a random point in time after a certain minimum period.

7.3.1.1.2

#### Price Determination Phase

The call phase is followed by the price determination phase. Price determination takes only a few seconds. The auction price is determined on the basis of the order book situation at the end of the call phase according to the principle of executing as many orders as possible.

The auction price is the price at which the largest volume of orders can be executed, leaving the smallest possible surplus for each limit in the order book. The time priority rule ensures that of the orders with an auction price limit, not more than one order is partially executed.

If existing orders cannot be matched, it is not possible to determine an auction price. In this case, the best bid and/or ask limit(s) is/are displayed.

As soon as the auction price has been determined, the market participants receive an execution confirmation showing the number of trades closed along with the execution price, time, and volume.

#### 7.3.1.1.3 Order Book Balancing Phase

If it is impossible to execute all executable orders in the price determination phase, these orders are offered to the market for a limited time, during the so-called order book balancing phase.

An order book balancing phase occurs only if there is a surplus of orders. Orders are executed at the auction price previously determined. During the order book balancing phase, orders previously entered into the system can be neither changed nor deleted.

The market participants may absorb the surplus on offer either wholly or in part by entering the command Accept Surplus Orders. All other orders are rejected by the system during this phase. Accept Surplus Orders can be entered only with the execution restrictions IOC or FOK. Accept Surplus Orders are executed in the order of their arrival.

The order book balancing phase comprises two stages: in the first stage - during a pre-defined period - only market participants registered as market makers or specialists have access to the surplus in a specific security. After the end of this period, the surplus is available to the entire market.

If the surplus of orders was not or only partially executed these orders are forwarded to the next possible trading form according to their restrictions.

During the order book balancing phase, the parties to a trade receive execution confirmations analogous to those issued after the determination of an auction price.

### 7.3.1.2 Continuous Trading

Continuous trading starts after the end of the opening auction. In continuous trading, the order book is open with limits and aggregate order volumes per limit being displayed. Any new incoming limit or market order and every new quote is examined immediately to determine whether it can be matched against orders on the opposite side of the market. Orders are executed according to price and time ranking.

An order may be executed in full, in one or several steps, in part, or not at all, thereby generating one or several transactions or none at all. Orders or parts of orders left unfilled may be entered into the order book and sorted by price and time priority.

As orders are sorted by price and time, buy orders with a higher limit take precedence over buy orders with lower limits. Conversely, sell orders with a lower limit take precedence over sell orders with higher limits. Time is used as a second criterion when several orders have the same limit. In this case, orders that were entered earlier take precedence. Market orders take precedence in the order book over limit orders. The rule of time priority also applies to market orders.

When two orders have been matched, the trading parties receive execution confirmations in a procedure analogous to the one followed in the opening auction.

### 7.3.1.3 Intraday Auction

An intraday auction interrupts continuous trading. The intraday auction has three phases analogous to the opening auction and consists of a call phase, price determination phase and order book balancing phases. All orders and quotes for stocks in the order book are matched automatically. This applies to orders and quotes remaining from the continuous trading procedure as well as to orders that were placed with the restriction Auction Only.

In the call phase, the order book is open and market participants are given a view of the entire depth of the market. As an additional piece of information, an indicative price is displayed. If there are orders that cannot be matched at the time of price determination, it is not possible to determine an auction price.

The order book balancing phase only occurs if there is a surplus, analogously to the opening auction. It has two sub-phases; in the first phase, only market makers and specialists have access to the surplus, in the second phase, all market participants have the opportunity to balance the surplus. In the order book balancing phase, the orders are executed at the auction prices determined.

If the surplus is not balanced by the end of the order book balancing phase, all unfilled orders or partially executed market orders, market-to-limit orders and limit orders are transferred to the next possible trading procedure depending on their size and trading restrictions. This applies even if it was not possible to determine an auction price.

After the intraday auction ends, continuous trading goes on.

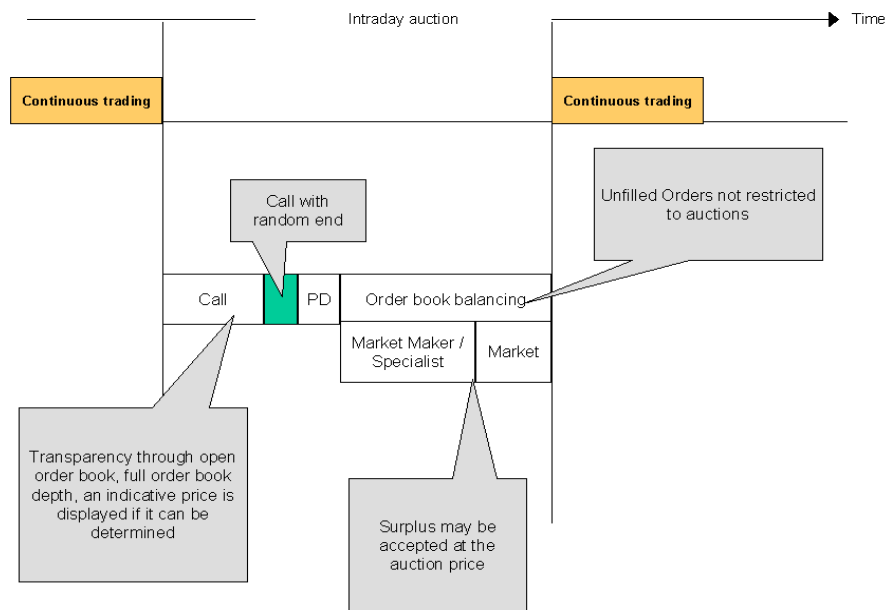


Figure 6: Intraday auction with open order book

7.3.1.4 Closing Auction

Continuous trading is followed by a closing auction consisting of a call phase, price determination phase and order book balancing phases (see Figure 7)

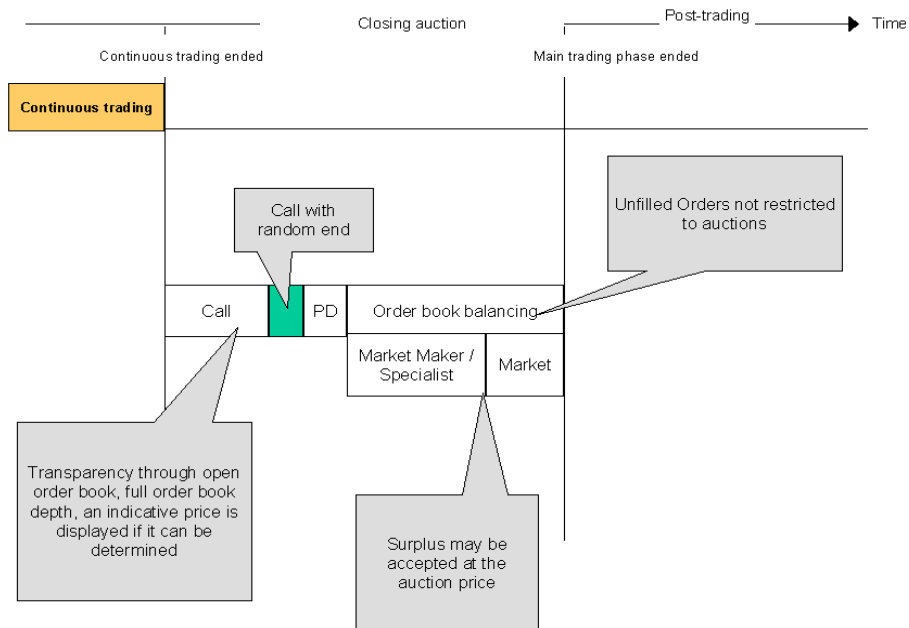


Figure 7: The Closing Auction

In the closing auction, orders of all sizes recorded in the order book are matched automatically. This covers orders and quotes carried forward from continuous trading as well as orders entered into the order book only for the closing auction. If the orders entered cannot be matched and executed, no auction price is determined. In this case the best bid and/or ask limit(s) is/are displayed. Unfilled or only partially executed market orders, market-to-limit orders and limit orders are transferred to the next trading day according to their validity.

### 7.3.2 Single Auction

The trading procedure for securities for which no member has assumed a market maker commitment is the auction. The auction also consists of three phases: call, price determination, and order book balancing. In contrast to the opening auction or the intraday auctions in continuous trading, orders not executed remain on the order book until the next auction is held. All orders that are executable are executed to avoid a "crossed order book" status. There is no continuous trading. An auction schedule informs market participants of the periods when specific securities are called.

If orders cannot be matched, it is not possible to determine an auction price. In this case, the best bid and/or ask limit(s) is/are displayed.

#### 7.3.2.1 Call Phase

The auction starts with the call phase. An auction schedule informs the market participants of the periods when specific securities are called out. During this phase, the market participant may enter new orders and change or delete previously placed own orders.

During the call phase for the trading procedure single auction without liquidity provider, the order book is partly open. Only best bid and best ask of the market are displayed. If there are orders that can be matched, an indicative auction price is displayed. This is the price that would be set for the auction if the price determination phase were to end at this point.

During the call phase for the trading procedure single auction with liquidity provider, the order book is open. The entire depth of the market is displayed. If there are orders that can be matched, an indicative auction price is displayed. This is the price that would be set for the auction if the price determination phase were to end at this point.

The duration of the call phase may vary according to the number and liquidity of the securities in a trading segment. In order to avoid price manipulation, the call phase is ended at a random point in time after a certain minimum period.

#### 7.3.2.2 Price Determination Phase

The call phase is followed by the price determination phase. Price determination takes only a few seconds. The auction price is determined on the basis of the order book situation at the end of the call phase according to the principle of executing as many orders as possible.

The auction price is the price at which the largest volume of orders can be executed, leaving the smallest possible surplus for each limit in the order book. The time priority rule ensures that of the orders with an auction price limit, not more than one order is partially executed.

If existing orders cannot be matched, it is not possible to determine an auction price. In this case, the best bid and/or ask limit(s) is/are displayed.

As soon as the auction price has been determined, the market participants receive an execution confirmation showing the number of trades closed along with the execution price, time, and volume.

### **7.3.2.3 Order Book Balancing Phase**

If it is impossible to execute all executable orders in the price determination phase, these orders are offered to the market for a limited time, during the so-called order book balancing phase.

An order book balancing phase occurs only if there is a surplus of orders. Orders are executed at the auction price previously determined. During the order book balancing phase, orders previously entered into the system can be neither changed nor deleted.

The market participants may absorb the surplus on offer either wholly or in part by entering the command Accept Surplus Orders. All other orders are rejected by the system during this phase. Accept Surplus Orders can be entered only with the execution restrictions IOC or FOK. Accept Surplus Orders are executed by time priority.

If the surplus has not been absorbed by the end of the order book balancing phase, all market orders, market-to-limit orders and limit orders that have not been executed or only in part are carried forward into the next possible trading procedure in accordance with their trading restrictions (i.e. in the case of single auctions, into the auction on the following trading day).

During the order book balancing phase, the parties to a trade receive execution confirmations analogous to those issued after the determination of an auction price.

If the orders entered cannot be matched and executed, no auction price is determined. In this case, the best bid and/or ask limit(s) is/are displayed.



### 7.3.3 Dividend Payments and corporate Actions

In the case of dividend payments, price markdowns and corporate actions (e.g., ex-rights trading and stock splits), orders contained in the Xetra<sup>®</sup> order book are treated in the following way:

- Automatic deletion of all existing orders by Wiener Börse AG in the course of the day-end processing before the ex-rights trading day.

### 7.3.4 How Measures Involving Bonds are Handled

- In the case of interest payments on a bond, Wiener Börse AG does not make adjustments or cancellations in the order book.
- Trading in securities with variable interest rates (floaters) is suspended on the day Interest rates are adjusted (= coupon date). Due to the trading suspension, the order is canceled from the order book.
- If a bond's conditions worsen making it non-tradable, trading is suspended and all orders are canceled.
- If series are drawn by lot, trading is suspended starting seven days before the drawing and ending on the date of drawing (eight days in total). All orders are canceled.
- If an issuer faces difficulties (such as, difficulties in making redemption payments), trading is suspended and all orders are canceled.
- The redemption of bonds requires the suspension of trading seven days prior to redemption date and the cancellation of all orders.



## 8 Safeguards in the Market Model

The electronic securities trading system Xetra® includes two important safety mechanisms – volatility interruption and market order interruption – which contribute significantly to the prevention of price jumps and help to increase price continuity. In addition, these mechanisms improve the probability of unlimited orders being executed. More precisely, they are:

- volatility interruption during auctions;
- volatility interruption during continuous trading; and
- market order interruption during an auction (but not in auctions which result from a volatility interruption).

The most important safety mechanism, the volatility interruption, can be triggered in two ways:

- If the indicative execution price is outside the dynamic price corridor on either side of the reference price (see Fig. 8). The reference price (reference price 1) for the dynamic price corridor is the most recent price of a security that was determined in an auction or in continuous trading. The reference price is adjusted in continuous trading whenever an incoming order has been matched against orders in the order book and executed to the extent that this was possible.
- If the indicative execution price is outside the additionally defined static price corridor. The wider static price corridor defines the maximum deviation – in absolute numbers and/or as a percentage – from another reference price, which is the last price determined in an auction held during the current trading session. If this price has not been determined, the most recent price determined on one of the previous trading days is used instead.

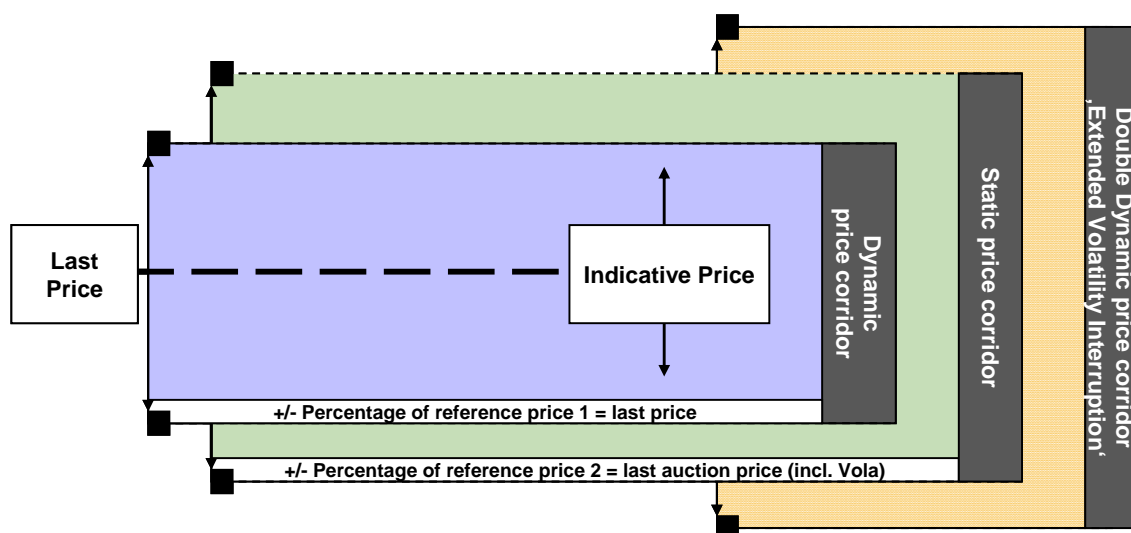


Figure 8: Dynamic and static price corridors

Each of these safety mechanisms can only be triggered once per price determination phase, i.e., there can be only one volatility interruption and one market order interruption in an auction. If a market order interruption and a volatility interruption occur simultaneously, the market order interruption has priority. If, after a volatility interruption, the indicative auction price remains outside one of the two price corridors, price determination is still carried out. The same applies to market order interruptions for market orders that can be executed only in part or not at all.

### 8.1 Volatility Interruption during an Auction

A volatility interruption is triggered if the indicative auction price at the end of the auction call phase is outside the dynamic and/or static price corridors (see Fig. 9). The price corridor is set individually for each security and defines the maximum deviation – in absolute numbers and/or as a percentage – from the reference price of a security, both positive and negative (symmetrically on either side of the reference price).

The reference price is the most recently determined price; in each price determination phase, it dynamically changes the location of the price corridor. Market participants are informed if a volatility interruption occurs during an auction.

A volatility interruption results in a limited prolongation of the call phase during which market participants can enter new orders and quotes, or modify or cancel orders that are already in the order book. After expiration of the prolongation period, the call phase also ends at a random point in time.

If an order surplus persists and is not balanced by the end of the order book balancing phase, all market orders and limit orders that have not been executed, or have not been executed in full, are transferred to the next possible trading procedure in accordance with order size and trading restrictions.

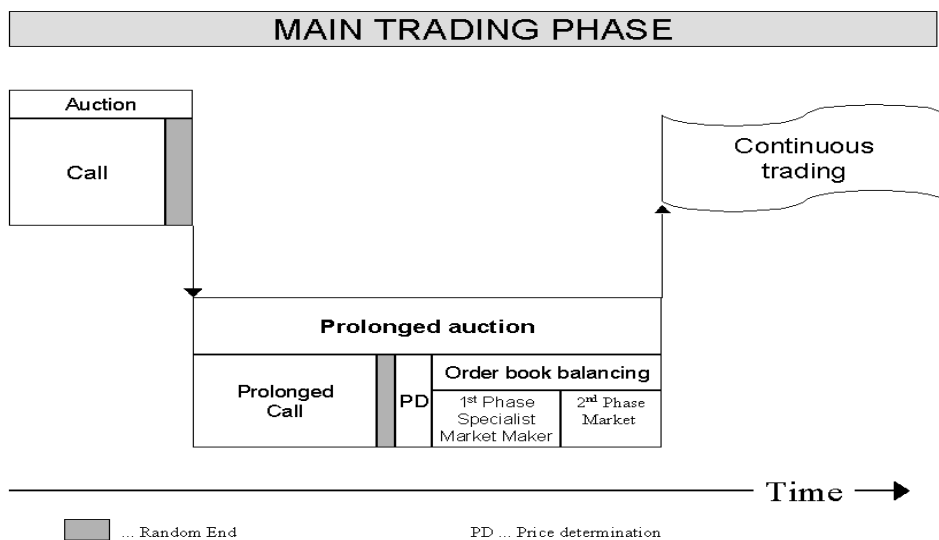


Figure 9: Volatility interruption during an auction

During an auction, each of the two safety mechanisms – market order interruption and volatility interruption – can occur only once per price determination phase. If the indicative auction price remains outside the relevant price corridor after a volatility interruption, price determination is still carried out. The same applies to market order interruptions for market orders and market-to-limit orders that can be executed only in part or not at all.



## 8.2 Volatility Interruption in Continuous Trading

Incoming orders are executed until the next potential execution price leaves the price corridor (exception: fill-or-kill orders). Market participants are informed about this market situation.

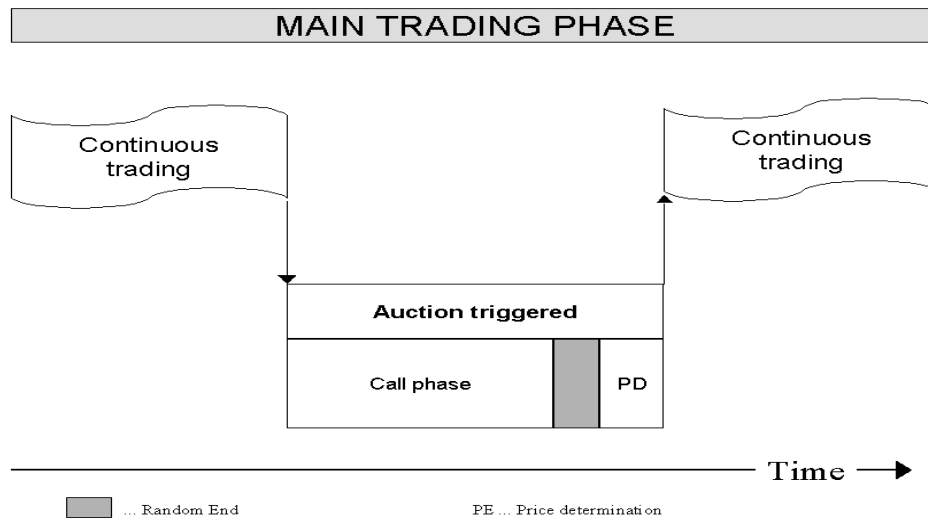


Figure 10: Volatility interruption in continuous trading

A volatility interruption causes a change of trading procedures. Continuous trading is interrupted, and an auction begins. In the auction, only those orders which were intended for continuous trading are considered. The auction consists of the call and price determination phases. After a minimum period of duration, the call phase ends at a random point in time. Following the price determination, or, if it is not possible to determine a price, continuous trading is resumed after expiration of the auction time period (see Fig. 10).

## 8.3 Extended Volatility Interruption

A further safety mechanism is the extended volatility interruption (extended vola). It follows the same price corridors as the simple volatility interruption. It is triggered if a price were to be determined that is outside double the extent of the dynamic price corridor. A price is not determined automatically after the call phase in the subsequent volatility interruption. The market control department checks with the participant if the order entered that triggered the interruption was correct. If the order is confirmed, trading is activated again by the market control department and the trade is concluded.



8.4 Market Order Interruption during an Auction

If, at the end of the call phase, market orders in the order book cannot be executed at all or only in part (market order surplus), the call phase is prolonged for a limited time period to increase the probability of execution of market orders and market-to-limit orders in auctions. Market participants are informed about this market situation.

During this period, new orders may be entered, and orders which have previously been entered into the order book may be modified or adjusted to the new market situation. The call phase ends as soon as all market orders and market-to-limit orders present are executed or, alternately, when the prolongation period expires. The prolongation of the call phase also ends at a random point in time. If surplus orders persist after the end of the order book balancing phase, all orders which cannot be executed or can be executed only in part are transferred to the next possible trading procedure, ranked according to order size and trading restriction (see Fig. 11).

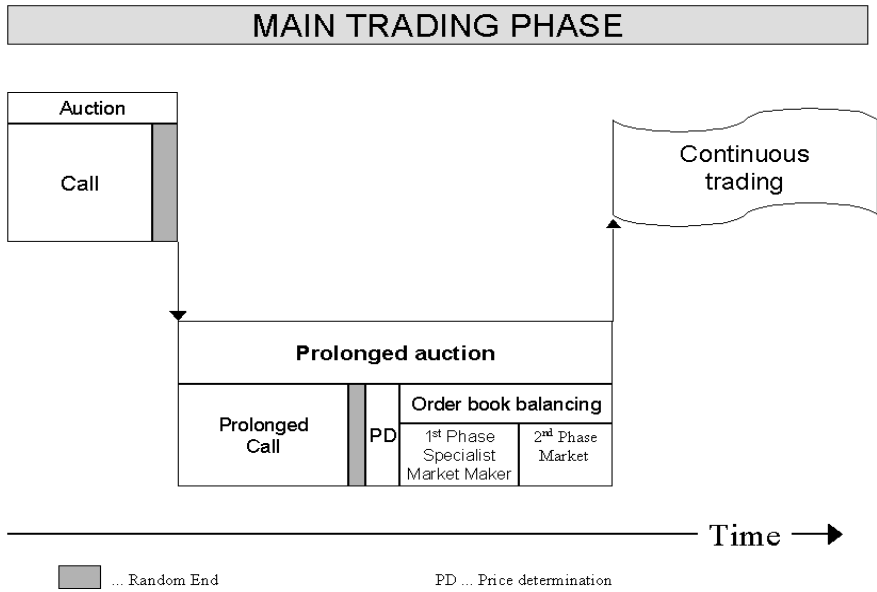


Figure 11: Market Order Interruption



## 9 Rules of Price Determination

### 9.1 Auction Price Determination

The auction price is determined on the basis of the order book situation at the end of the call phase. The auction prices are determined according to the principle of executing as many orders as possible. At the same time orders are ranked by price and time entered.

If more than one limit is possible for a maximum volume of executable orders and a minimum order surplus in determining the auction price, the surplus of orders is additionally used to determine prices.

- If the surplus is on the buy side for all limits (bid surplus), the auction price is fixed according to the highest limit;
- If the surplus is on the sell side for all limits (ask surplus), the auction price is fixed according to the lowest limit.

If including the surplus does not result in a clear auction price, the reference price is used as an additional criterion.

This situation occurs if

- there is a bid surplus for some limits and a ask surplus for others;
- if there is no surplus for any of the limits.

In the first case, the highest limit with a bid surplus and the lowest limit with an ask surplus are considered for further price determination. In both cases, the reference price is used to determine the auction price as follows:

- If the reference price is closer to the highest limit, the auction price is determined according to the highest limit;
- If the reference price is closer to the lowest limit, the auction price is determined according to the lowest limit;
- If the reference price is exactly in the middle of the highest and the lowest limit the auction price is determined according to the highest limit.

If only market orders can be matched and executed, they are executed at the reference price.

If the orders cannot be matched, an auction price cannot be determined. In this case, the best bid and/or ask limit(s) (if available) is/are displayed.





The diagram below illustrates the effect that the price determination rules have on possible order book situations.

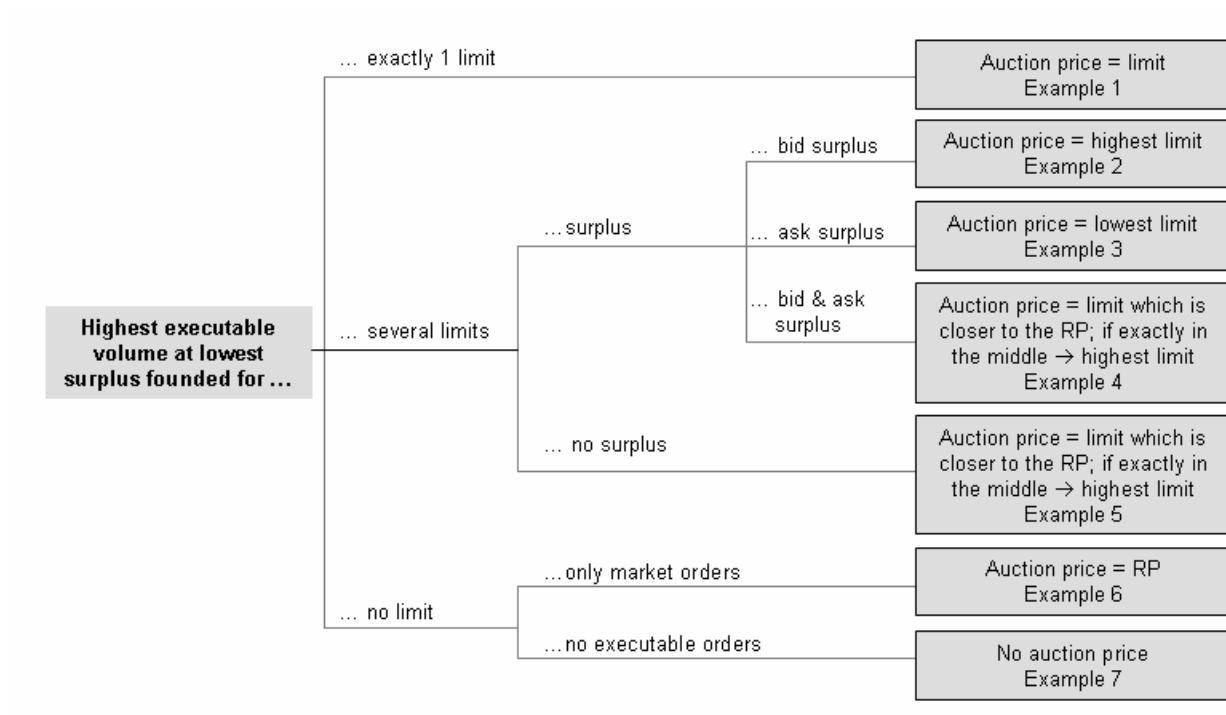


Figure 12: Basic matching rules in auctions





## 9.2 Examples of Matching in Auctions

The following examples of price determination for specific order book situations will illustrate the basic rules of matching in auctions.

- Example 1: There is exactly one limit at which a maximum order volume can be executed at a minimum order surplus.

Buy				Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume
Limit	200	200		202	500	700	
Limit	200	400		201	300	700	
Limit	300	700		200		700	100 Limit
		700	100	198		600	200 Limit
		700	300	197		400	400 Limit

The auction price is fixed at €200 in line with this limit.

- Example 2: Several limits would be possible and there is a bid surplus.

Buy				Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume
Limit	400	400		202	100	500	
Limit	200	600	100	201		500	
		600	100	199		500	300 Limit
		600	400	198		200	200 Limit

The auction price is fixed at €201 in line with the limit.

- Example 3: Several limits would be possible and there is a ask surplus.

Buy				Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume
Limit	300	300		202	300	600	
Limit	200	500		201	100	600	
		500		199	100	600	400 Limit
		500	300	198		200	200 Limit

The auction price is fixed at €199, corresponding to the lowest limit.



■ Example 4: Several limits would be possible and there are surplus orders on both, the bid and the ask side.

Buy				Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume
Market	100	100		Market	100	200	
		100		202	100	200	100 Limit
Limit	100	200	100	199		100	
		200	100	Market		100	100 Market

The auction price is determined to the limit which is closer to the reference price. If the reference price is exactly in the middle of the highest and the lowest limit the auction price is determined according to the highest limit.

If the reference price = € 200, then the auction price = € 199.

If the reference price = € 201, then the auction price = € 202.

If the reference price = € 200.50, then the auction price = € 202.

■ Example 5: Several limits would be possible and there is no surplus.

Buy				Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume
Limit	300	300		202	200	500	
Limit	200	500		201		500	
		500		199		500	300 Limit
		500	300	198		200	200 Limit

The auction price is determined to the limit which is closer to the reference price. If the reference price is exactly in the middle of the highest and the lowest limit the auction price is determined according to the highest limit.

If the reference price = € 205, then the auction price = € 201.

If the reference price = € 200, then the auction price = € 201.

If the reference price = € 197, then the auction price = € 199.

■ Example 6: The order book contains executable market orders only.

Kauf				Verkauf			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume
Market	900	900	100	Market		800	
		900	100	Market		800	800 Market

The auction price is equal to the reference price.

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- Example 7: There is no applicable limit. The order book contains orders which cannot be executed.

Buy					Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume	
				201	80	80	80	Limit
Limit	80	80	80	200				

No auction price can be determined. In this case, the highest bid limit (€200) and the lowest ask limit (€201) are disseminated.

- Another example: Partial execution of an order in an opening auction.

Buy					Sell			
	Volume	Cumulative Volume	Surplus	Limit	Surplus	Cumulative Volume	Volume	
Limit	300	600	200	200		400	400	Limit
9:00								
Limit	300							
9:01								

As the bid side contains two executable orders limited at the auction price, time priority decides which of the two is fully executed and which is partially executed. In this case, the order with the time stamp 9:00 is executed fully and the order with the time stamp 9:01 is executed partially (100 shares), both at the auction price of €200. An order surplus of 200 shares resulting from the partial execution is transferred into continuous trading provided that it is not limited to auctions only.



### 9.3 Price Determination in continuous Trading

Every new incoming market order, market-to-limit order or limit order is immediately checked against the orders on the opposite side of the order book to see if it can be executed. Once entered into the order book, orders are executed according to price/time priority.

Orders may be executed either in full - in one or more steps -, in part or not all, thus generating one or more transactions, or none at all.

Orders which have not been executed or executed only in part, are entered into the order book and ranked according to price/time priority.

In addition to price and time priority ranking, prices are determined in continuous trading according to the following rules:

- Rule No. 1: If a market order, market-to-limit order or limit order is placed while the order book contains only limit orders on the opposite side, the price is determined by the highest buy limit/lowest sell limit in the order book.
- Rule No. 2: If a market order or limit order is placed while the order book contains only market orders on the opposite side, this order is executed at the reference price (to the extent possible).
- Rule No. 3:
  - If a market order is placed while the order book contains market orders and limit orders on the opposite side, or
  - if a limit order is placed while the order book contains only market orders on the opposite side, or
  - if a limit order is placed while the order book contains market orders and limit orders on the opposite side, then

the incoming order is matched against the market orders in the order book and executed according to price/time priority; if the market orders in the order book are buy market orders, the transaction is executed at or above the reference price (at the highest limit of the executable orders); if they are sell market orders, the transaction is executed at or below the reference price (at the lowest limit of the executable orders).

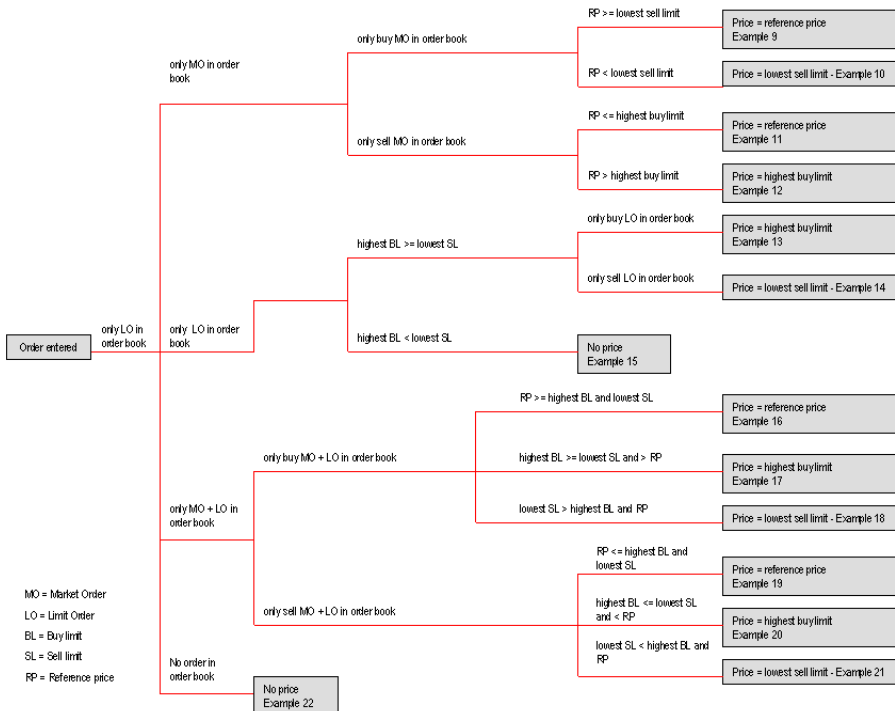
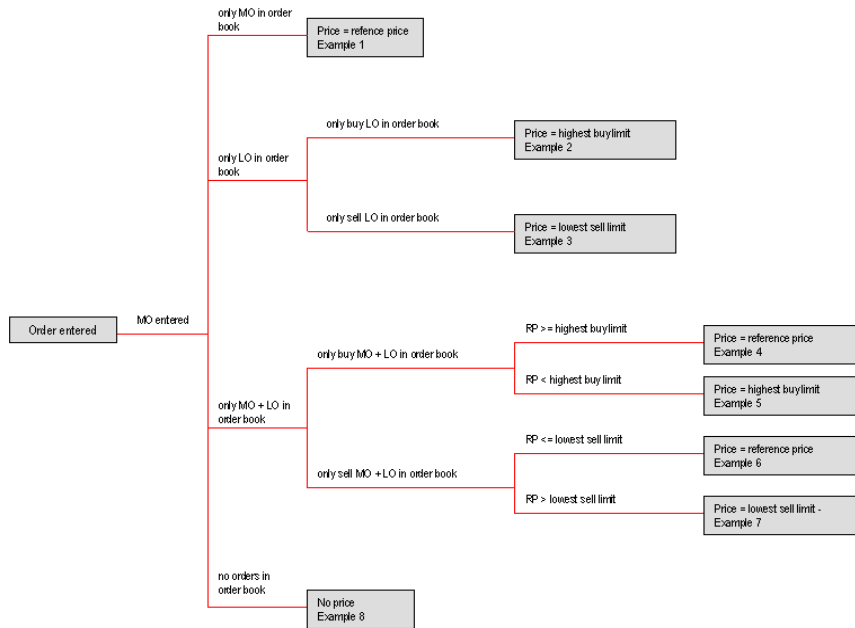
Market orders in the order book that have not yet been executed must (if possible) be executed immediately in the subsequent transaction. In this context, the following two principles apply in continuous trading:

- Principle No. 1: The reference price is used as the virtual price for market orders. On this basis, orders are generally executed at the reference price, unless this would run counter to price/time priority.
- Principle No. 2: If execution at the reference price is not possible, execution in accordance with price/time priority is ensured by determination of a price above/below the reference price (for buy market orders/sell market orders not yet executed) – i.e., the price is determined by a limit contained in the order book or by the limit of an incoming order.

The diagram below illustrates the effects of the rules of price determination on potential order book situations in continuous trading:



MARKET MODEL FOR TRADING WITH STOCKS, BONDS AND STRUCTURED PRODUCTS



MO = Market Order  
 LO = Limit Order  
 BL = Buy limit  
 SL = Sell limit  
 RP = Reference price

### 9.4 Examples of Matching in Continuous Trading

The following examples of price determination in specific order book situations will illustrate the basic rules of matching in continuous trading.

- Example 1: A market order is placed while the order book contains only market orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			

Order entered:  
sell market order,  
volume 6000 shares

The reference price is €200. The two market orders are executed at the reference price of €200 (Principle No. 1).

- Example 2: A market order is placed while the order book contains only limit orders on the opposite side.

Sell			Buy		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	200			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	200			

Order entered:  
sell market order,  
volume 6000 shares

The two orders are executed at the highest buy limit of €200.

- Example 3: A market order is placed while the order book contains only limit orders on the opposite side.

Order entered:  
buy market order,  
volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			200	6000	9:01

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			200	6000	9:01

The two orders are executed at the lowest sell limit of €200.

- Example 4: A market order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	195			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	195			

Order entered:  
sell market order,  
volume 6000 shares

The reference price is €200. It is equal to or higher than the highest buy limit. The incoming sell market order is executed against the buy market order in the order book at the reference price of €200 (Principle No. 1).

- Example 5: A market order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Order entered:  
sell market order,  
volume 6000 shares

The reference price is €200. It is lower than the highest buy limit. The incoming sell market order is executed against the buy market order in the order book at the highest buy limit of €202 (Principle No. 2).



MARKET MODEL FOR TRADING WITH STOCKS, BONDS AND STRUCTURED PRODUCTS

- Example 6: A market order is placed while the order book contains market orders and limit orders on the opposite side.

Order entered:  
buy market order,  
volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01
			202	1000	9:02

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	<del>6000</del>	9:01
			202	1000	9:02

The reference price is €200. It is equal to or lower than the lowest sell limit. The incoming buy market order is executed against the sell market order in the order book and at the reference price of €200 (Principle No. 1).

- Example 7: A market order is placed while the order book contains market orders and limit orders on the opposite side.

Order entered:  
buy market order,  
volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01
			202	1000	9:02

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	<del>6000</del>	9:01
			202	1000	9:02

The reference price is €203. It is higher than the lowest sell limit. The incoming buy market order is executed against the sell market order in the order book at the lowest sell limit of €202 (Principle 2).

- Example 8: A market order is placed and there are no orders on the opposite side.

Order entered:  
buy market order,  
volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
10:01	6000	Market			

The incoming buy market order is entered into the order book; no price is determined, and no orders are executed.

MARKET MODEL FOR TRADING WITH STOCKS, BONDS AND STRUCTURED PRODUCTS

- Example 9: A limit order is placed while the order book contains only market orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	<del>6000</del>	Market			

Order entered:  
sell order, limit € 195,  
volume 6000 shares

The reference price is €200. It is equal to or higher than the lowest sell limit. The two orders are executed at the reference price of €200 (Principle No. 1).

- Example 10: A limit order is placed while the order book contains only market orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	<del>6000</del>	Market			

Order entered:  
sell order, limit € 203,  
volume 6000 shares

The reference price is €200. It is lower than the lowest sell limit. The two orders are executed at the lowest sell limit of €203 (Principle No. 2).

- Example 11: A limit order is placed while the order book contains only market orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	<del>6000</del>	9:01

Order entered:  
buy order, limit € 203,  
volume 6000 shares

The reference price is €200. It is equal to or lower than the highest buy limit. The two orders are executed at the reference price of €200 (Principle No. 1).

- Example 12: A limit order is placed while the order book contains only market orders on the opposite side.

Order entered:  
 buy order, limit € 199,  
 volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:33	6000	199	Market	6000	9:01

The reference price is € 200. It is higher than the highest buy limit. The two orders are executed at the highest buy limit of € 199 (Principle No. 2).

- Example 13: A limit order is placed while the order book contains only limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:33	6000	199			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:33	6000	199			

Order entered:  
 sell order, limit € 198,  
 volume 6000 shares

The highest buy limit is equal to or higher than the lowest sell limit. The two orders are executed at the highest buy limit of € 199.

- Example 14: A limit order is placed while the order book contains only limit orders on the opposite side.

Order entered:  
 buy order, limit € 200,  
 volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			199	6000	9:33

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:33	6000	200	199	6000	9:33

The highest buy limit is equal to or higher than the lowest sell limit. The two orders are executed at the lowest sell limit of € 199.

- Example 15: A limit order is placed while the order book contains only limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	199			
9:01	6000	199	200	6000	10:01

Order entered:  
sell order, limit €200,  
volume 6000 shares

The highest buy limit is lower than the lowest sell limit. The incoming sell order is entered into the order book; no price is determined, and no orders are executed.

- Example 16: A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	196			
9:01	6000	Market			
9:02	1000	196			

Order entered:  
sell order, limit €915,  
volume 6000 shares

The reference price is €200. It is equal to or higher than the highest buy limit and the lowest sell limit. The incoming sell order is executed against the buy market order in the order book at the reference price of €200 (Principle No. 1).

- Example 17: A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	<del>6000</del>	Market			
9:02	1000	202			

Order entered:  
sell order, limit € 199,  
volume 6000 shares

The reference price is € 200. The highest buy limit is equal to or higher than the lowest sell limit and higher than the reference price. The incoming sell order is executed against the buy market order in the order book at the highest buy limit of € 202 (Principle No. 2).

- Example 18: A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	<del>6000</del>	Market			
9:02	1000	202			

Order entered:  
sell order, limit € 203,  
volume 6000 shares

The reference price is € 200. The lowest sell limit is higher than the highest buy limit and higher than the reference price. The incoming sell order is executed against the buy market order in the order book at the lowest sell limit of € 203 (Principle No. 2).

- Example 19: A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Order entered:  
 buy order, limit €203,  
 volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01
			202	1000	9:02

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	<del>6000</del>	9:01
			202	1000	9:02

The reference price is €200. It is equal to or lower than the highest buy limit and the lowest sell limit. The incoming buy order is executed against the sell market order in the order book at the reference price of €200 (Principle No. 1).

- Example 20: A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Order entered:  
 buy order, limit €200,  
 volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01
			202	1000	9:02

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	<del>6000</del>	9:01
			202	1000	9:02

The reference price is €201. The highest buy limit is equal to or lower than the lowest sell limit and lower than the reference price. The incoming buy order is executed against the sell market order in the order book at the highest buy limit of €200 (Principle No. 2).

- Example 21: A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Order entered:  
 buy order, limit €203,  
 volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	6000	9:01
			199	1000	9:02

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
			Market	<del>6000</del>	9:01
			199	1000	9:02

The reference price is €200. The lowest sell limit is lower than the highest buy limit and lower than the reference price. The incoming buy order is executed against the sell market order in the order book at the next sell limit of €199 (Principle No. 2).

- Example 22: A limit order is placed and there are no orders on the opposite side.

Order entered:  
 buy order, limit €200,  
 volume 6000 shares

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
10:01	6000	200			

The incoming buy order is entered into the order book; no price is determined, and no orders are executed.



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Other examples:

Execution in part of a market order. A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	5000	Market			
9:02	1000	202			

Order entered:  
sell order, limit € 203,  
volume 1000 shares

The reference price is € 200. The lowest sell limit is higher than the highest buy limit and higher than the reference price. The incoming sell order can be matched only with a part of the buy market order in the order book. The incoming sell order is executed in full, the buy market in the order book in part, at the lowest sell limit of € 203 (Principle No. 2).

Triggering of a volatility interruption. A limit order is placed while the order book contains market orders and limit orders on the opposite side.

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Buy			Sell		
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Order entered:  
sell order, limit € 220,  
volume 1000 shares

The reference price is € 200, and the price corridor is +/- 2% on either side of the most recently determined price. The limit of the incoming sell order is outside the pre-defined price corridor; the order is not executed. The sell order is entered into the order book, continuous trading is interrupted, and an auction is started.



## 10 Glossary

Term	Explanation
Accept Surplus Order	This type of order may be entered only during the → order book balancing phase of an auction. The participants may use this type of order to execute orders from the remaining → surplus of an auction (i.e., orders with an auction price limit or a better limit that were left unfilled) at the → auction price. Orders of this type are entered with the execution instructions → Immediate-or-cancel (IOC) or → Fill-or-kill (FOK).
Account types	There are three types of accounts for trading: → agent account (A), → proprietary trading (P), → liquidity provider (D).
Accounting cut-off	Point in time at which the date of the current trading day is changed over to the date of the next trading day.
Additional liquidity	Additional liquidity in a certain instrument is provided by → liquidity providers entering → quotes.
Agent trader	Trader who trades for agent accounts.
Ask limit	Limit on the sell side.
Auction only order	An order that is valid only for scheduled auctions.
Auction price	The auction price is the price of an → instrument at which the largest volume of orders can be executed, leaving the smallest possible → surplus for each limit in the → order book at the end of the → call phase.
Auction trading	Auction trading is a trading procedure defined in the exchange operating company → market model in which all incoming orders for a stock are gathered and taken into consideration, thus concentrating liquidity. Price determination takes place according to an auction schedule that specifies the times at which the securities are called. The method applied for determining prices follows the → principle of executing as many orders as possible. An auction may consist of up to three phases: → call phase, → price determination phase and → order book balancing phase.
Authorization scheme	Scheme in place for issuing access rights for trading and trading support functions, the allocation of accounts and of securities.
Back end	see → Xetra® back end.
Bid limit	Limit on the buy side.
Book-or-Cancel (BOC)	A book-or-cancel order (BOC Order) is an order, which is placed as resting liquidity in the order book in order to ensure passive execution. If immediate (and hence aggressive) execution is possible, the order is rejected without entry in the order book.
Call phase	This is the opening phase of an auction that is followed by the → price determination phase or, if applicable, the → order book balancing phase. During this phase, market participants may enter new orders and → quotes and change or delete previously placed orders or → quotes. The → order book is → open during stock trading.

Closing auction	The closing auction takes place at the end of the trading day after → continuous trading ends. It comprises three phases: → call phase, → price determination phase and → order book balancing phase.
Closing auction only	Trading restriction specifying that an order should only be executed during the → closing auction.
Communication server (CS)	Part of the 4-tier architecture of the Xetra® system. The CS is a type of network computer that operates between the central computers of Xetra® and the → front end stations of the participants. Access to the → back end is possible only via CSs.
Continuous trading	Trading procedure defined in the exchange operating company → market model. Continuous trading starts after the → opening auction. New incoming orders are immediately matched against orders on the other side of the → order book to determine whether or not they can be executed.
Corporate actions	Changes in the share capital of a stock corporation.
Counterparty	The party on the other side of a deal or agreement in securities trading.
Designated Sponsor functionality	Designated Sponsors and/or → liquidity providers (market makers, specialists) may use this input and display functionality of the Xetra® system for the purpose of fulfilling the obligations they have assumed.
Dynamic price corridor	Price corridor that is adjusted dynamically relating to the last price determined for a stock during auction trading or → continuous trading. If the indicative execution price of an order is outside of the dynamic price corridor, a → volatility interruption is triggered (see also → static price corridor).
Execution confirmation	Execution confirmations are sent to market participants immediately showing the trade closed along with the execution price, time, and volume.
Fill-or-kill order (FOK)	A fill-or-kill order is an order that is either executed immediately and in full or not at all. If its immediate full execution is not possible, an FOK order is not entered into the → order book but deleted.
Front end applications	Applications that run on front end workstations and → MISSes.
Good-for-day	Validity restriction. This type of order is valid only for the current trading day.
Good-till-cancelled	Validity restriction. This type of order is valid until it has either been executed or canceled by the trader or – when the maximum validity period of 90 days has expired – by the system.
Good-till-date	Validity restriction. This type of order is valid only up until a specified date (not later than 90 days after the time the order was entered).
Host cluster	A group of several computers that are linked to a common resource.
Iceberg order	An order that is entered into the → order book specifying the limit, overall volume and → peak size. In → continuous trading, market participants may only view the peak size.

Immediate-or-cancel (IOC)	An immediate-or-cancel order is an order that is executed immediately and in full to the furthest extent possible. Unfilled portions of an IOC order are not entered into the → order book but deleted.
Indicative price	The → auction price that would have been determined if the auction were to close at this point in time.
Indicative volume	The volume of trades that would be executed in an auction if the auction were to end at this point in time.
Instrument	Security that is tradable through the Xetra® system.
ISIN	12-digit international security identification code (International Securities Identification Number)
Limit order	Limit orders are buy or sell orders to be executed at the set limit price or better.
Liquidity providers	The concept of liquidity provider refers to market makers, designated sponsors and specialists. These are specialized dealers whose task is to eliminate temporary market imbalances between supply and demand. This is accomplished by placing buy and sell quotes into the system for the security they are responsible for. A security may have none, one or several market makers, but only one specialist.
Market making	See → Liquidity providers.
Market model	See → Xetra® market model.
Market order	Market orders are unlimited buy or sell orders to be executed at the next price that is determined.
Market-to-limit order	An order that is executed at the best limit available in the → order book. If an order may only be → partially executed, the unfilled portion is entered into the → order book as → limit order with the same limit as the order that has already been → partially executed.
Market order interruption	If, at the end of the → call phase of an auction, → market orders and → market-to-limit orders in the → order book cannot be executed, or only in part (market order → surplus), the → call phase is prolonged for a limited time period to increase the probability of market order execution in auctions.
Matching	The matching of supply with demand according the rules for determining prices.
Matching rules	Rules for determining fair prices in the market model.
MISS	A MISS (Member Integration System Server) is part of the → front end installation of a market participant. All technical services run on the MISS (plural: MISSes).
Opening auction	The opening auction takes place at the beginning the trading session and consists of three phases: → call phase, → price determination phase and → order book balancing.
Opening auction only	Trading restriction. This type of order is valid only for → opening auctions.
Order book	The order book contains all current orders for an → instrument including their valid trading and execution restrictions.



Order book balancing phase	Any → surplus orders that have auction price limits or better limits and any unlimited orders remaining after auction price determination are offered in this phase to the market at the → auction price.
Order book, crossed	Order book status in which all matchable buy and sell orders are displayed.
Order book information	Information on the depth of the → order book. The display shows the best ten bid/ask limits (incl. → market orders) with aggregate volume.
Order book, open	Orders in the → order book displayed with cumulated volumes per limit.
Partial execution (of an order / quote)	Only part of the volume of an order or → quote is executable.
Peak size	The part of an → iceberg order that is displayed in the → order book during → continuous trading.
Performance benchmarking	The performance of → liquidity providers (market makers, specialists) is measured by Wiener Börse AG to check and see if, and to which extent, they are meeting the obligations they have assumed.
Price determination phase	The phase in an auction that is followed by the → order book balancing phase. The → auction price is determined on the basis of the order book situation at the end of the → call phase according to the → principle of executing as many orders as possible.
Principle of executing as many orders as possible	This describes the procedure followed when fixing prices on the exchange. All buy and sell orders placed are collected up until a specific point in time. By matching all executable orders at each price, the price at which the largest number of trades can be concluded is determined.
Proprietary trader	Trader that trades for own account („Account P“).
Proprietary trading	Trading in one's own name for own account.
Quote	The simultaneous entry of limited buy and sell orders.
Reference price	The last price determined in an → auction or in → continuous trading for a security.
Safety mechanisms	Xetra <sup>®</sup> supports two safety mechanisms: a) → volatility interruption (in auctions and → continuous trading) aimed at increasing price continuity; and b) → market order interruption (in auction trading) aimed at raising the probability of → market orders and → market-to-limit orders being executed.
Specialist	A specialist is a special type of → liquidity provider on Wiener Börse AG who has assumed the obligation to enter quotes for bigger sizes and narrower spreads, as compared to the market makers, for a specific stock.
Static price corridor	The static price corridor defines the maximum deviation – in absolute numbers and/or as a percentage – from the last price determined in an auction held during the current trading day. (see also → dynamic price corridor). If the → indicative execution price is outside of this price corridor, a → volatility interruption is triggered.





Stop limit order	In the case of a stop-limit order, when the stop limit is reached (or exceeded for stop buy orders or if it falls below it for stop loss orders), the stop order is automatically placed in the → order book as a limit order and may be executed immediately.
Stop market order	When the stop limit is reached (or exceeded for stop buy orders or falls below it for stop sell orders), the stop order is automatically placed in the → order book as a market order and may be executed immediately.
Stop order	There are two types of stop orders available for supporting trading strategies that make it possible to execute an order when a certain price limit is reached (stop limits). The orders are then entered into the → order book and are available for matching (see → stop market / limit order).
Strike-Match-Order (SMO)	SMO is an order with an additional limit (strike match limit) that can be added for limit or market orders. The additional limit determines the minimum price for a buy order or the maximum price for a sell order. SMO are only valid for the Closing Auction of the respective trading day and are deleted during the end of day processing.
Surplus	A surplus of orders is given if demand in an instrument exceeds supply at the end of the → call phase in an auction, or if supply exceeds demand at the end of the call phase in an auction.
Top-of-the-Book (TOP)	TOP-Order will be accepted and added to the order book if its limit is narrowing the current order book spread, i.e. if the limit of a buy (sell) TOP order is greater (smaller) than the best visible bid (ask) in the order book and smaller (greater) than the best visible ask (bid). Resting TOP orders are deleted when an auction or volatility interruption is triggered and during these auctions incoming TOP orders are rejected
Trader	A trader is a natural person admitted to trading on Wiener Börse AG. A trader may trade on behalf of clients (→ agent trader, Account A) and/or for his or her own account (→ proprietary trader, Account P), and/or act as a → liquidity provider (market maker or specialist, Account D).
Trading model	Xetra® supports the following trading models: → continuous trading in conjunction with auctions (→ opening auction, none, one or several → intraday auction(s) and a → closing auction); or one or several auctions per day at scheduled times.
Trading segment	A group of → instruments with similar features as defined in the → market model.
Types of orders	Xetra® supports different types of orders in auction trading and in → continuous trading (see → market orders, → limit orders, → market-to-limit orders and → iceberg orders).
Volatility interruption	This is a safety mechanism to improve price continuity during auctions and → continuous trading. It is triggered if the indicative → execution price of an order during → continuous trading or at the end of → call phase of an auction is outside of the → dynamic price corridor or of the → static price corridor.





WKN	The abbreviation used in German as security identification code for national securities and assigned by Oesterreichische Kontrollbank. It consists of six digits.
WS (Workstation)	The computers on which Xetra <sup>®</sup> software is used for trading (plural: Wss).
Xetra <sup>®</sup>	Electronic trading system developed by Deutsche Börse AG ( <b>eXchange Electronic Trading</b> ).
Xetra <sup>®</sup> back end	The Xetra <sup>®</sup> back end includes the Xetra <sup>®</sup> → host cluster and the → communication servers.
Xetra <sup>®</sup> front end	Is used by Xetra <sup>®</sup> market participants for trading and accessing the → Xetra <sup>®</sup> back end. Includes → MISSEs and → workstations (WS).
Xetra <sup>®</sup> market model	The Xetra <sup>®</sup> market model defines the procedures through which orders are matched in the trading system of Wiener Börse AG. This includes fundamental rules such as the order of priority in which orders are executed through the trading system of Wiener Börse AG, price determination rules, and the type and scope of information provided to market participants during trading sessions.

