Xetra® Release 14.0

Market Model Equities

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1 Introduction

Xetra® is the pan-European electronic trading system of Deutsche Börse AG for cash market trading in equities and a variety of other instruments including Exchange Traded Funds (ETFs), Exchange Traded Products (ETPs)[1], mutual funds, bonds, warrants, certificates and subscription rights. It was introduced in November 1997 in order to create a transparent and efficient way of automated trading at the Frankfurter Wertpapierbörse (FWB; Frankfurt Stock Exchange). Since its introduction, Xetra has been enhanced through further releases adding functions and capabilities according to market needs.

The document on hand describes electronic trading of equities, related subscription rights, ETFs, ETPs and bonds (for reasons of simplicity in the following regrouped under the term “equities”, unless necessary specifications require a more detailed product definition for which the specifications apply). The market models for Xetra International Market, Xetra BEST and for Continuous Auction are described in separate market model documents.

The Market Model Equities defines the principles of order matching and price determination as implemented in the trading system Xetra. This includes available trading models, the prioritization of orders, the different order types and the transparency level, i.e. the type and the extent of information available to market participants during trading hours. It represents the current implementation status. The Discretionary Order is not described in this document as this order type is currently not used at the FWB.

The ultimate and legally binding terms for trading at the Frankfurter Wertpapierbörse are laid down in the rules and regulations of the exchange, especially the “Börsenordnung” (Exchange Rules for the Frankfurter Wertpapierbörse (FWB)) and the “Bedingungen für Geschäfte an der Frankfurter Wertpapierbörse” (Conditions for Transactions on the Frankfurter Wertpapierbörse (FWB)). The market model serves as basis for the rules and regulations which, nevertheless, may contain additional provisions and in particular may exclude or restrict the use of order and quote types described in this market model.

[1] Exchange Traded Products (ETPs) include Exchange Traded Commodities (ETCs) and Exchange Traded Notes (ETNs).

2 Fundamental Principles of the Market Model

Xetra's market model for equity trading follows below principles which have been determined in the process of designing the market model:

1. The exchange market model for equity trading is order-driven. Available order types are market orders, limit orders, market-to-limit orders, stop orders, iceberg orders, hidden orders, midpoint orders, strike match orders, trailing stop orders, one-cancels-other orders and orders-on-event. In addition, market participants can enter quotes.

2. An equity can be traded in the trading model "continuous trading in connection with auctions" or in "auctions" only.

3. Continuous trading starts with an opening auction, can be interrupted by one or several intraday auction(s) and ends with either a closing auction or an end-of-day auction. If continuous trading ends with an end-of-day auction, an intraday closing auction is scheduled which provides an intraday valuation price. Continuous trading starts again after completion of the intraday closing auction.

4. Xetra accepts all order sizes. Exceptions to this rule exist for equities for which the exchange may set a minimum order size and for equities which can only be traded in multiples of a minimum tradable unit. Currently, only subscriptions rights will have a minimum order size greater than the minimum tradable unit.

5. Basically, all order types are supported during continuous trading and in auctions. The market-to-limit order, iceberg order, hidden order and midpoint order types are only available for instruments traded in the trading model "continuous trading in connection with auctions". The strike match order can be entered during continuous trading and auctions but executions will be restricted to the closing auction.

6. In general, orders are executed according to price/time priority. If in continuous trading, at a given price, both visible and invisible (hidden) orders exist, the visible orders are always executed with priority. Midpoint orders are executed according to volume/time priority under consideration of the Minimum Acceptable Quantity (MAQ).

7. Trading is anonymous, i.e. market participants cannot identify which market participant entered an order pre-execution. In equities processed through a central counterparty (CCP), anonymity extends to the settlement layer.

8. Auctions consider all order sizes for price determination, whereas continuous trading is based upon round lots only. Any remaining parts of the order or orders below the round lot size are referred to as odd lots. Odd lots are only considered in auctions. Currently, the round lot size is 1 for all equities.

9. During the auction's call phase, the order book remains partially closed. The indicative auction price or the best bid and/or ask limit is displayed. Depending on the individual equity, additional market imbalance information may be disseminated. In case of an uncrossed order book, the accumulated volumes at the best bid and best ask are displayed in addition to the best bid and ask limits. In case of a crossed order book the executable volume for the indicative auction price, the side of the surplus and the volume of the surplus are displayed. Currently, the market imbalance information is disseminated for all equities.

10. The last determined price of an equity in an auction or during continuous trading generally serves as reference price. As an exception to this rule, price determinations based on executed midpoint orders generally do not serve as reference prices.

11. The following aspects must be taken into consideration in order to ensure price continuity:

    - A volatility interruption takes place if the potential price lies outside a pre-defined price range around the reference price.
    - Market orders are executed at the reference price if there are only market orders executable in the order book.
    - Price determination takes place with consideration of the reference price if non-executed market orders are in the order book in continuous trading which are matched against incoming limit orders.

12. The execution probability of market orders in auctions is increased by the introduction of market order interruptions.

13. During an IPO auction, the order book remains closed for the full duration of the auction. Market participants will only be informed about the price range in which the auction price can be determined. The price range will be distributed via the Xetra Newsboard to all market participants by Market Supervision after consultation with the Lead Manager. Further information such as indicative auction price, auction volume and surplus will not be broadcasted during any of the IPO auction phases.

14. Orders are valid for a maximum of 360 days (i.e. 360 calendar days including the current day (=T+359)) from the date of entry.

15. Trade confirmations are disseminated immediately after the respective trade, including information on the counterparty. If the equities in which the trade was concluded are supported by a central counterparty (CCP), the CCP is displayed as counterparty of the trade.

16. The accounting cut-off is carried out daily subsequent to the post-trading phase.

3 Products and Segmentation

All equities listed at the Frankfurter Wertpapierbörse are eligible for electronic trading unless technical restrictions within the nature of the equity prevent this. The “Geschäftsführung” (Management Board) of FWB may define exceptions from this rule.

In order to ensure efficient trading in Xetra, equities are segmented into different groups. Possible criteria for segmentation are, for example, liquidity or country of origin (domestic or foreign). The trading segments valid in Xetra are not dependent on the existing legally stipulated admission segments (market segments) at the Frankfurter Wertpapierbörse.

A trading segment consists of a specific number of instruments for which trading is organized in the same way. Certain parameters of the Xetra market model concerning trading model, order book transparency, trading times etc. can be configured for one trading segment. A combination of parameters is selected for each trading segment, which specifies the trading process in the respective segment.

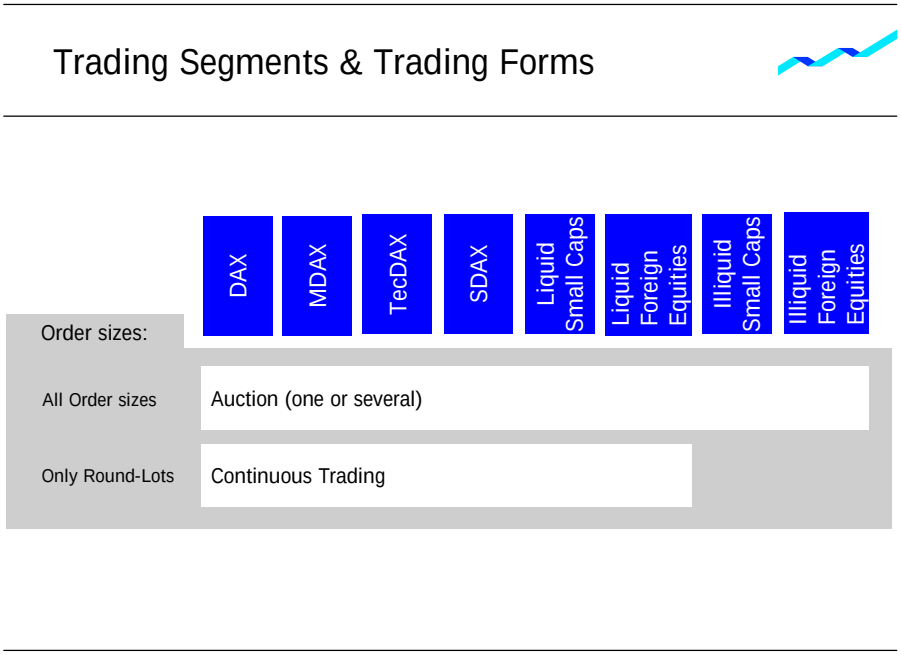


Figure 1: Trading segments and trading forms

4 Market Participants

A corporation admitted at Frankfurter Wertpapierbörse (trading member) must fulfill the requirements according to the “Börsenordnung” (Exchange Rules) of the Frankfurter Wertpapierbörse for participation in exchange trading in order to be admitted to trading in the electronic trading system Xetra. These users of the system can be divided into several categories:

- Traders

  Traders are individuals admitted for Xetra trading as mentioned above. A trader can act as agent trader (account A), as proprietary trader (account P) or as liquidity provider (”Designated Sponsor”, account D, or as “Liquidity Manager”, account Q). Orders will be flagged accordingly.

- Other users
  Administrators are users, which are not admitted or authorized for trading (they assign and maintain authorization rights for the member’s personnel). This category also includes personnel in settlement, operation and compliance as well as information users.

5 Provision of Additional Liquidity by Designated Sponsors

Banks and securities firms admitted to trading at Frankfurter Wertpapierbörse act as Designated Sponsors, increasing the shares' liquidity by offering to buy and sell equities, thereby improving the price quality of supported equities. Functions as these conducted in Xetra can be augmented by additional services assumed by the Designated Sponsor. Examples of such services would be research and consulting in investor relations management. In order to be traded in the trading model "continuous trading", each equity requires at least one Designated Sponsor. Equities with sufficient liquidity (according to the Xetra Liquidity Measure - XLM) are exempted from this rule. This exemption does not apply for ETFs, ETPs, subscription rights and bonds trading on Xetra.

Xetra enables all participants including Designated Sponsors to enter quotes. A quote is the simultaneous entry of a buy and sell limit order in Xetra. Quotes entered into the system are good-for-day. Only one quote per equity can be placed in the order book per member's individual trader group.

The following subsections give an overview on the tasks and duties of a Designated Sponsor and the corresponding performance measurement. For details please consult the latest Designated Sponsor Guide.

5.1 Designated Sponsor Tasks and Duties

Designated Sponsors have to provide quotes for a certain minimum time during the continuous trading phase. Additionally, a Xetra member can enter an electronic request (quote request) to all Designated Sponsors registered in the respective equity to provide a quote. The member can indicate whether he is interested in buying or selling and how many equities he wishes to buy or sell. The entire market is informed that there is a quote request in the respective equity. As a rule, each Designated Sponsor must respond to a request within a fixed period of time by placing a quote.

Furthermore, Designated Sponsors are obliged to participate in auctions and volatility interruptions by entering a quote in the order book shortly after the start of the call phase. They have to maintain the quote until price determination takes place. During this time, they can modify both quote limits and volumes. For ETFs, ETPs and foreign shares different rules apply as a quote must be provided at price determination only.

Depending on the equity's liquidity, Deutsche Börse AG defines requirements for the minimum quote quantity, the maximum quote bid/ask spread, the maximum response time, the latest point in time of entry in auctions, respectively and the minimum time the quote has to remain in the order book. These requirements must be met so that the quote can be included in the Designated Sponsor's performance measurement.

5.2 Assessment of Performance and Privileges

During the performance measurement, it is checked whether all quotes meet the quality requirements concerning:

- Minimum quantity
- Maximum bid/ask spread
- Minimum quotation time in continuous trading
- Participation rate in opening auctions
- Participation rate in regular auctions
- Participation rate in volatility interruptions

These criteria are used to assess the performance of the respective Designated Sponsor. In case the respective Designated Sponsor does not fulfill the minimum requirements, the exchange can withdraw the Designated Sponsor status.

The Designated Sponsor is granted certain privileges for complying with his obligation of placing quotes and meeting the quality standards. Currently, transaction fees for trades executed as a Designated Sponsor will be remitted in full at the end of a period due to his performance in one equity.

A further privilege refers to the information given in a quote request. Only the corresponding Designated Sponsor of an equity knows the identity of the market participant making the request and the optional information (the interested side - bid or ask - and the requested volume).

6 Provision of Additional Liquidity in Xetra MidPoint by Block Agents

Xetra participants that operate a Multilateral Trading Facility within the European Union or a similar trading system (Dark Pool MTF) outside the European Union may be admitted as Xetra Block Agent in instruments available for midpoint order matching. Xetra Block Agents increase liquidity and execution probability in midpoint order matching for Xetra participants as they bridge liquidity available for execution in their own execution venues into the Xetra book for midpoint orders. Xetra Block Agents are informed about incoming, modified, matched and deleted midpoint orders when the order value is above or equal to a pre-defined threshold value. They also have the ability to freeze midpoint order matching for a short period of time. Only the Xetra Block Agent that caused the actual freeze phase is allowed to take action during this phase, e.g. entering a midpoint order to match the executable midpoint orders in the book.

7 Order Types

All order sizes can be traded in Xetra with the exception of equities where a minimum order size has been defined. Xetra supports both round lots and odd lots.

A round lot is composed of round lot parts or multiples thereof; odd lots are composed of odd lot parts (smaller than the equity-specific round lot size) and possibly further round lot parts. If an order consists of a round lot and an odd lot part, the assigned order size of the current trading form is taken into account for the price determination. Both order parts have the same order number. By means of a partial execution, the round lot part respectively the odd lot part of an order could change.

An order modification leads to a new time priority if either the limit is changed or the order modification has a negative impact on the priority of the execution of other orders in the order book (e.g. increase of the volume of an existing order). However, if the volume of an existing order should be decreased, the current valid time priority will remain. If a new time priority is appointed, the order will receive a new order number.

An existing minimum order size is validated upon order entry. An order not satisfying the minimum order size will be rejected by the system.

Orders can be entered as persistent or as non-persistent orders. Non-persistent orders are automatically deleted as soon as technical problems occur in the Xetra backend or trading is interrupted in the corresponding instrument.

7.1 Basic Types

Three order types are admitted for price determination during continuous trading and in auctions:

- *Market orders* are unlimited bid/ask orders. They are to be executed at the next price determined.
- *Limit orders* are bid/ask orders, which are to be executed at their specified limit or better.
- *Market-to-limit orders* are unlimited bid/ask orders, which are to be executed at the auction price or (in continuous trading) at the best limit in the order book, if this limit is represented by at least one limit order and if there is no market order on the other side of the book. Any unexecuted part of a market-to-limit order is entered into the order book with a limit equal to the price of the first partial execution.

Order types can be specified further through additional execution conditions, validity constraints and trading restrictions.

7.2 Execution Conditions for Continuous Trading

Market orders, limit orders, market-to-limit orders and midpoint orders in continuous trading can be defined by the following execution conditions:

- An *immediate-or-cancel order (IOC Order)* is an order, which is executed immediately and fully or as fully as possible. Non-executed parts of an IOC order are deleted without entry in the order book.

- A *fill-or-kill order (FOK Order)* is an order, which is executed immediately and fully or not at all. If immediate and full execution is not possible, the order is rejected without entry in the order book.

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

- 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. Immediate execution against hidden orders only is exempted from this rule as such execution is always considered to be passive. However, 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.

- A *top-of-the-book order (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). Incoming TOP orders may also be fully or partially executed against resting hidden orders. However, if such execution would trigger a volatility interruption, the TOP order will be rejected. Resting TOP orders are deleted when an auction or volatility interruption is triggered and during these auctions incoming TOP orders are rejected.

- A *TOP+ Order* will be accepted and added to the order book if it is not immediately executable against a visible order in the order book, i.e. if the limit of a buy (sell) TOP+ order is smaller (greater) than the best visible ask (bid), and if the total value of all orders on the same side of the order book with the same limit or a limit better than that of the TOP+ order is below a certain threshold value. Incoming TOP+ orders may also be fully or partially executed against resting hidden orders. However, if such execution would trigger a volatility interruption, the TOP+ order will be rejected. Resting TOP+ orders are deleted when an auction or volatility interruption is triggered and during these auctions incoming TOP+ orders are rejected.

7.3 Validity Constraints

The validity of orders can be determined by means of further constraints. To this effect, the market model offers the following variations.

- *Good-for-day:* Order only valid for the current exchange trading day.

- *Good-till-date:* Order only valid until a specified date (up to a maximum of 360 days (i.e. 360 calendar days including the current day (=T+359)) from the date of entry).
- *Good-till-cancelled:* Order only valid until it is either executed or deleted by the originator or the system on reaching its maximum validity of 360 days (i.e. 360 calendar days including the current day (=T+359)).

7.4 Trading Restrictions

By means of the following restrictions, it is possible to generally assign market and limit orders to all auctions or to one specific auction. Iceberg orders, hidden orders, market-to-limit orders and midpoint orders cannot be entered with trading restrictions. For the strike match order the restriction 'closing auction only' is mandatory.

- *Opening auction only:* Order only valid in opening auctions.
- *Closing auction only:* Order only valid in closing auctions. The trading restriction "closing auction only" refers either to the closing auction or to the intraday closing auction.
- *Auction only:* Order only valid in auctions.
- *Accept surplus:* The order can only be entered during the order book balancing phase of an auction. The participants have the possibility to execute by this trading restriction the remaining surplus, i.e. those orders, which were unlimited or limited to the auction price but could not be executed, at a later point in time. This special trading restriction must be combined with execution conditions immediate-or-cancel or fill-or-kill. This trading restriction is only supported for instruments with an order book balancing phase.

With the introduction of the intraday closing auction, the following new trading restrictions will be supported:

- *Main trading phase only:* An order is only executable in the main trading phase which is defined from the start of the opening auction until the end of the closing auction or the end of the intraday closing auction.
- *Auctions in main trading phase only*: An order is only executable in the auctions of the main trading phase.
- *End-of-day auction only:* Orders are executable in the end-of-day auction only.

7.5 Additional Order Types

7.5.1 Stop Orders

In order to support trading strategies, two stop order types can be used, the execution of which will be possible after reaching a predefined price (stop price):

- *Stop market order:* When the stop price is reached (or exceeded for stop buy orders or fallen below for stop sell orders), the stop order is automatically placed in the order book as a market order.

- *Stop limit order:* When the stop price is reached (or exceeded for stop buy orders or fallen below for stop sell orders), the stop order is automatically placed in the order book as a limit order.

Each modification of a stop order leads to the appointment of a new time stamp.

7.5.2 Iceberg Orders

In order to enable market participants to enter large orders into the order book without revealing the full volume to the market, iceberg orders are provided.

An *iceberg order* is specified by its mandatory limit, its overall volume and a peak volume. Both the overall volume and the peak volume must be a round lot.

The peak is the visible part of an iceberg order and is introduced in the order book with the original timestamp of the iceberg order according to price/time priority. In continuous trading, as soon as the peak has been completely executed and a hidden volume is still available a new peak is entered into the book with a new time stamp. In auction trading, iceberg orders contribute with their overall volume. Minimum peak sizes and minimum overall volumes are specified per trading segment.

The last peak introduced in the order book may be smaller than the peak size specified. Iceberg orders will not be marked as such in the order book. Additional execution conditions or trading restrictions cannot be assigned to an iceberg order.

7.5.3 Midpoint Orders

The midpoint order is an order type which allows market participants to attain execution at the midpoint of the currently available visible Xetra bid/ask spread. The midpoint order interacts only with other midpoint orders, not with the remaining orders available in the Xetra order book. Deutsche Börse AG may define a minimum order value for midpoint orders. In addition, Deutsche Börse may allow entry of a Minimum Acceptable Quantity (MAQ). Market participants can set an MAQ for each midpoint order individually. MAQ defines that the order shall only be executed if a minimum number of shares prescribed by the MAQ can be executed in one price determination. If the remaining volume of a midpoint order falls below the MAQ as a result of partial executions, the MAQ is set to the remaining volume.

Optionally, the midpoint order can be entered with a limit, which, in contrast to other order types, is not considered for price determination but only serves as cap (floor) limiting the price at which a buy (sell) midpoint order may be executed.

Execution price is always the currently available midpoint of the Xetra bid/ask spread in Continuous Trading. Accordingly, with a given order book situation, midpoint orders can be executed merely through a change in Xetra bid/ask spread. During auctions, no executions of midpoint orders can take place.

Midpoint orders available in the order book are not disclosed to other market participants with the exception of Xetra Block Agents. This is valid for the volume of a midpoint order as well as for a possibly added limit. Xetra Block Agents receive information about midpoint orders in a specific instrument when the order value is above or equal to a pre-defined threshold value in order to identify executable situations against orders that are available for execution in their MiFID regulated execution venues. The delivered information contains side, quantity, limit, MAQ and system order number of all midpoint orders in an instrument (for details see section 13.2.5.).

As opposed to other order types, volume/time priority under consideration of the MAQ applies if various midpoint orders compete with each other in the order book. Due to the MAQ, order book situations in which strict volume/time priority is disregarded may occur (e.g. for the purpose of optimizing the executable volume or for releasing an executable order book situation blocked by the MAQ).

Midpoint orders can be entered with execution conditions immediate-or-cancel or fill-or-kill and validity constraints good-for-day, good-till-date and good-till-cancelled.

In general, midpoint orders are only executed if the potential execution price of a midpoint order would not trigger a volatility interruption according to chapter 11. However, midpoint orders do not trigger volatility interruptions. Also, executions of midpoint orders do not lead to a new Xetra reference price. Therefore they do not trigger stop orders, either.

7.5.4 Hidden Orders

Hidden orders enable trading participants to enter non-visible limit orders in the Xetra order book. Pursuant to the “Markets in Financial Instruments Directive” (MiFID), hidden orders must be large in scale compared with normal market size.[2] A hidden order also remains invisible if its remaining volume falls below the minimum order size due to partial executions.

In continuous trading, hidden orders are subject to the same matching rules as limit orders, i.e. execution generally follows the price/time priority. However, if at one price both visible and invisible orders (hidden orders) exist, the visible orders (including the hidden volume of iceberg orders) are always executed with priority.

For determination of the indicative price in auctions, hidden orders are fully considered. Prioritization of hidden orders in auctions is according to strict price/visibility/time priority. If determination of an indicative price is not possible, hidden orders are not considered for disclosure of the best bid and/or best ask limits.

Hidden orders can be entered with validity constraints good-for-day, good-till-date and good-till-cancelled. Execution conditions are not supported for hidden orders.

[2] The minimum order sizes for each security are defined by the „European Securities and Markets Authority“ (ESMA). They can be accessed under the following link: http://mifiddatabase.esma.europa.eu/. For instruments not contained in the MiFiD data base, the Management Board of FWB defines the minimum order size.

7.5.5 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 and has been designed for trading members who wish to manage delta hedge risks arising from derivative positions in a more efficient way, i.e. avoiding unintended executions.

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.

7.5.6 Trailing Stop Order

A trailing stop order is a stop market order with a dynamic stop limit that is adjusted in relation to a reference price. Dynamic stop limits can be entered either as an absolute or percentage difference from the corresponding reference price (“trailing amount”). Alternatively, a specific stop limit can be entered, upon which the absolute difference from the corresponding reference price is calculated and set accordingly.

The dynamic stop limit is continuously monitored and adjusted according to the following rule: If the reference price of a trailing stop sell (buy) order rises (falls) in such a way that the trailing amount is exceeded, the dynamic stop limit is increased (decreased) to maintain compliance with the trailing amount. If the reference price of a trailing stop sell (buy) order falls (rises), the dynamic stop limit is not adjusted. If the reference price of a trailing stop sell (buy) order matches or falls below (rises above) the dynamic stop limit, the trailing stop order is triggered.

Execution conditions and trading restrictions are not supported by trailing stop orders.

7.5.7 One-Cancels-Other Order

A one-cancels-other order is an order that combines a limit order and a stop order. If the limit order is fully executed or the stop order is triggered, the other order will be deleted. If the limit order is partially executed, the stop order will be modified to match the remaining volume of the limit order. The stop order of a one-cancels-other order can be entered either as a stop market or stop limit order.

Execution conditions and trading restrictions are not supported by one-cancels-other orders.

7.5.8 Order-on-Event

An order-on-event is an order that becomes executable after a certain event has been triggered (“trigger event”). Trigger events are defined in relation to the price level of a reference instrument, i.e. an event is triggered whenever the price of the reference instrument reaches, rises above or falls below a previously

defined price level. Possible reference instruments include indices, futures as well as any instrument available for trading on Xetra. An order-on-event can be entered either as a market or limit order.

Execution conditions and trading restrictions are not supported by orders-on-event.

7.6 Handling of Orders in Case of Events Affecting Prices

The exchange can interrupt or suspend trading in the event of extraordinary events affecting prices (e.g. company news). In case of suspension, orders existing in the system are deleted. In case of interruption, only non-persistent orders are deleted.

Orders in the order book are deleted in the event of dividend payments and ordinary events affecting prices (e.g. capital adjustments) at the first trading day after the general meeting.

7.7 Cross Request

Crossings and pre-arranged trades in continuous trading are only allowed if the market has been informed in advance via 'Cross Request' functionality detailing the instrument and quantity. Corresponding orders have to be entered into the open order book within 5 to 35 seconds after notifying the market. However, there is no guarantee that these orders will in fact be executed against each other. Any other participant, who has been informed by the Cross Request, can enter orders in the order book which in turn can be executed against the orders designated for the crossing.

Crossings and pre-arranged trades in auctions do not require prior notification of the market with a Cross Request.

8 Trading Phases

Trading takes place all day and begins with the pre-trading phase followed by the trading phase and the post-trading phase. The system is not available for trading between the post-trading and pre-trading phase.

The pre-trading phase and the post-trading phase are the same for all equities whereas the course of the trading phase may vary from equity to equity. According to their segmentation, individual equities are traded in different trading models and at different trading hours.

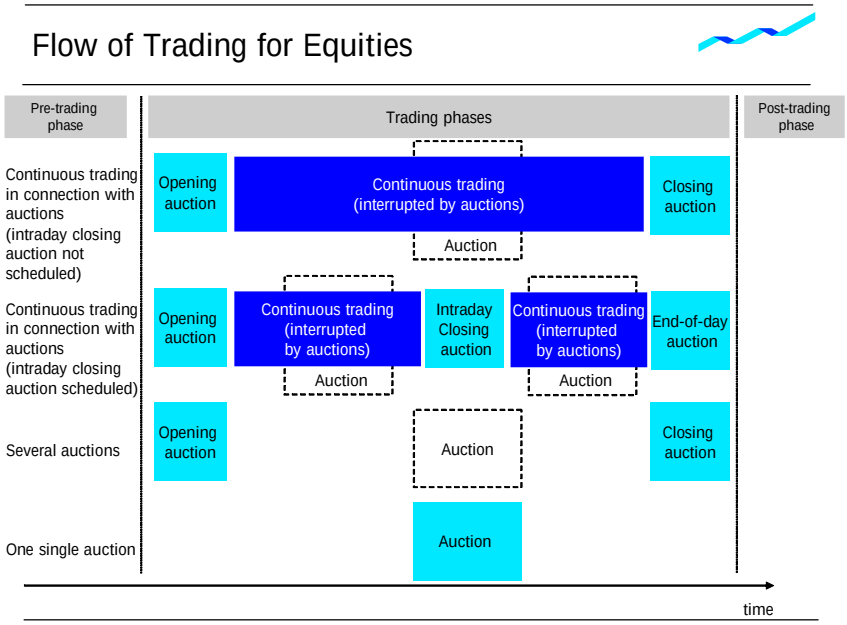


Figure 2: Flow of trading for equities

8.1 Pre-trading Phase

The pre-trading phase initiates the trading phase. Market participants can enter orders and quotes for preparing the actual trading day and modify or delete their existing orders and quotes. The exchange confirms the member's order[3] entry and maintenance by order confirmation. Market participants do not receive an overview of the market's order book situation as the order book is closed during this phase. The last price fixed or the best bid/best ask limits of the last auction of the previous day are displayed.

[3] In the order book quotes are always handled like two orders (a limit buy and a limit sell order). Therefore, the document refers in the following only to orders and not to quotes.

8.2 Trading Phase

Depending on the trading model and trading segment, orders of any size or round lots can be traded in the trading phase. The trading phase varies according to the respective trading segments. Depending on trading segment, equities will be traded in one of the trading models described in chapter 10 - Trading Models. Trading model information specific to subscription rights trading are described in chapter 12.

8.3 Post-trading Phase

After the trading phase, new orders can be entered and existing orders can be modified or deleted in the post-trading phase. New order entries are taken into consideration in the respective trading form on the following trading day depending on possible execution restrictions and validity constraints. It is also possible to modify trade attributes in the post-trading phase.

9 Trading Forms

Generally, the market model includes the trading forms auction and continuous trading for on-exchange trading. Additionally, Xetra provides IPO and OTC entry functionalities.

9.1 Auction

In auctions, all order sizes (round lot and odd lot orders) are tradable. By considering all existing market orders, limit orders, market-to-limit orders, iceberg orders and hidden orders in one security, a concentration of liquidity is ensured. Iceberg orders participate with their full volume in auctions. In auctions, hidden orders are handled like limit orders. Market-to-limit orders are treated like market orders if they have no limit assigned yet and as limit orders if they have already a limit assigned. If there is no auction price, market-to-limit orders, which were entered during the call phase of the auction, are deleted. If there is an auction price, remaining parts of market-to-limit orders, which are partly executed, and market-to-limit orders, which are not executed, are entered into the order book with a limit equal to the price of the auction. BOC, TOP and TOP+ orders are deleted when an auction is triggered. During auctions, incoming BOC, TOP and TOP+ orders are rejected. Midpoint orders do not participate in auctions.

Price determination in auctions is effected according to the principle of most executable volume. At the same time, price/visibility/time priority is valid so that the maximum of one order, which is limited to the auction price or unlimited, can be partially executed. The order book remains partially closed during the auction's call phase. As information about the market situation, participants obtain the indicative price with executable volumes plus a possible market surplus of the respective order book side (Market Imbalance Information). Market participants are informed via an auction plan about the time the individual equity is called.

9.2 IPO Auction

Generally, the IPO auction resembles a standard auction. In contrast to the standard auction the order book remains completely closed during an IPO auction. Price determination is restricted to a price range defined by the IPO's Lead Manager. The price range is actually entered by Market Supervision. Within the price range the auction price can be determined according to the modified principle of most executable volume, i.e. the price with the most executable volume within the price range. Market participants will only be informed about the price range via a Xetra news board message entered by Market Supervision. Further information such as indicative auction price, auction volume and surplus will not be broadcasted at any time of the IPO auction phases.

9.3 Continuous Trading

Only round lots are allowed during continuous trading. Each new order (except for stop orders) is immediately checked if it is executable against orders on the other side of the order book. With the exception of midpoint orders, execution of orders during continuous trading is made according to price/time priority. If, at a given price, both visible and invisible orders (hidden orders) exist, the visible orders are always executed with priority. In this trading form, the order book is open. Limits, accumulated order volumes per limit and the number of orders per limit are displayed, whereby hidden orders are not considered.

According to chapter 7.5.3, execution of midpoint orders takes place according to volume/time priority under consideration of the MAQ. Volumes and limits of midpoint orders are not displayed.

9.4 OTC (Xetra Trade Entry)

During the whole trading day (pre-trading, trading and post-trading phase), all participants have the possibility to enter OTC trades in Xetra. In principle, entry is possible for all equities, which are available for exchange trading in Xetra. For the use of this function, a trader's admission is not necessary.

Entered OTC trades must be approved by the counterparty. The approval process can take place manually or automatically. Subsequently, both counterparties receive a trade confirmation generated by the system. Unconfirmed trades are automatically deleted by the system at the end of the trading day. Xetra transmits the confirmed OTC trades to the settlement systems for the subsequent clearing and settlement processing.

It is possible to specify the value date for OTC trades. The entry of OTC trades is not affected by round lot sizes or minimum order sizes.

10 Trading Models

For equity trading, Xetra supports the following trading models:

- Continuous trading in connection with an opening auction, none, one or several intraday auctions and either a closing auction or an intraday closing auction in connection with an end-of-day auction.
- One or more auctions per day at pre-defined points in time.

10.1 Continuous Trading in Connection with Auctions

Trading starts with an opening auction. At the end of the opening auction, continuous trading is started. Continuous trading can be interrupted by one or several intraday auction(s). At the end of continuous trading, the closing auction is initiated if no intraday closing auction is scheduled.

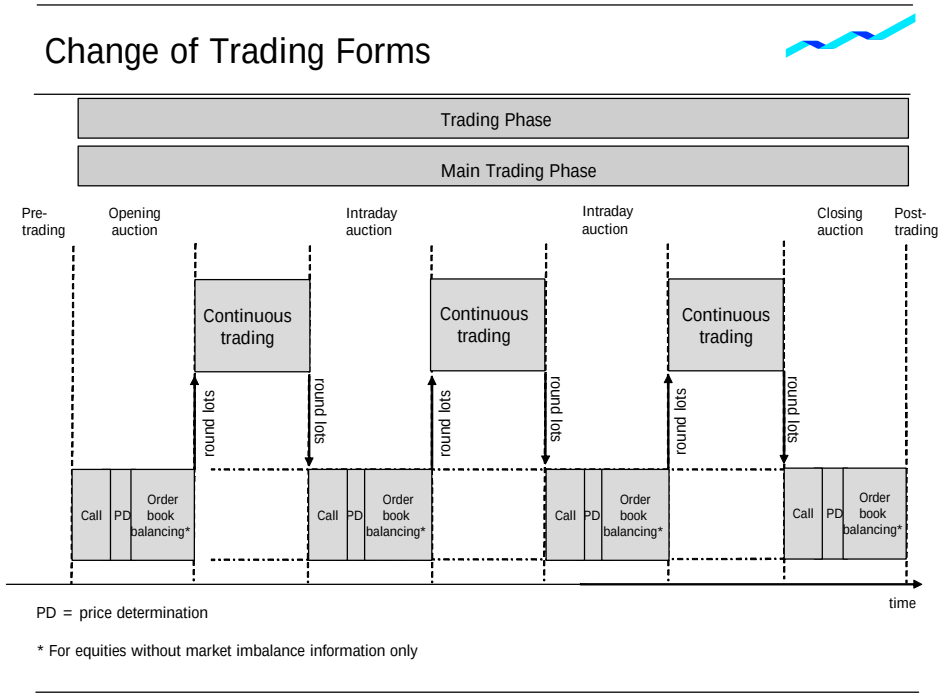


Figure 3: Change of trading forms (no intraday closing auction scheduled)

In case of intraday closing, continuous trading will start again after the intraday closing auction, and can be interrupted by additional intraday auctions. In this case, the last auction of the day is the end-of-day auction. The main trading phase is defined as the time between the beginning of the opening auction and the end of the intraday closing auction.

Market participants are informed via an auction plan about the time the individual equity is called.

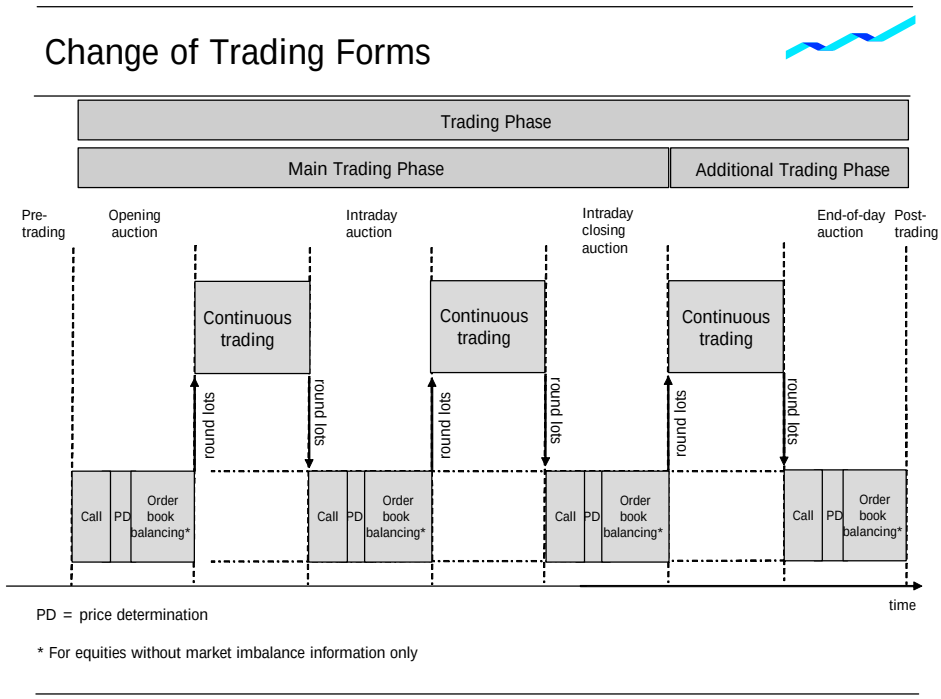


Figure 4: Change of trading forms (intraday closing auction scheduled)

10.1.1 Opening Auction

An opening auction, comprising a call phase, price determination phase and - for all equities without market imbalance information - order book balancing phase, is carried out prior to continuous trading. With the exception of midpoint, BOC, TOP and TOP+ orders, all orders (round lots and odd lots) still valid from the previous day or which have already been entered on the current trading day, participate in this auction unless their execution is restricted to the closing auction or the end-of-day auction. All quotes and iceberg orders with their full volume entered in the order book are also taking part in the opening auction. Resting BOC, TOP and TOP+ orders are deleted at the start of the opening auction. Market-to-limit orders are treated like market orders if they have no limit assigned yet and as limit orders if they have already a limit assigned. All executable orders are matched in the opening auction, thus avoiding a ”crossed order book” (i.e. no price overlapping of bid/ask orders) and initiating continuous trading.

The opening auction begins with a call phase (see Figure 5: flow of an opening auction). Market participants are able to enter orders and quotes in this phase as well as modify and delete their own existing orders and quotes.

Information on the current order situation is provided continually during the call phase in which the order book remains partially closed. The indicative auction price is displayed when orders are executable. This is the price which would be realized if the price determination was concluded at this time. If an indicative price cannot be determined, the best bid/ask limit is displayed, whereby the limit of hidden orders is not considered.

During the call phase of the auction, additional market imbalance information may be disseminated. This allows the market to react to the surplus before the price determination takes place. In case of an uncrossed order book, the accumulated volumes at the best bid and best ask are displayed in addition to the best bid and ask limits, whereby the volume of hidden orders is not considered. In case of a crossed order book the executable volume for the indicative auction price, the side of the surplus and the volume of the surplus are displayed.

The duration of the call phase can be varied depending on the equity's liquidity. The call phase has a random end after a minimum period in order to avoid price manipulation.

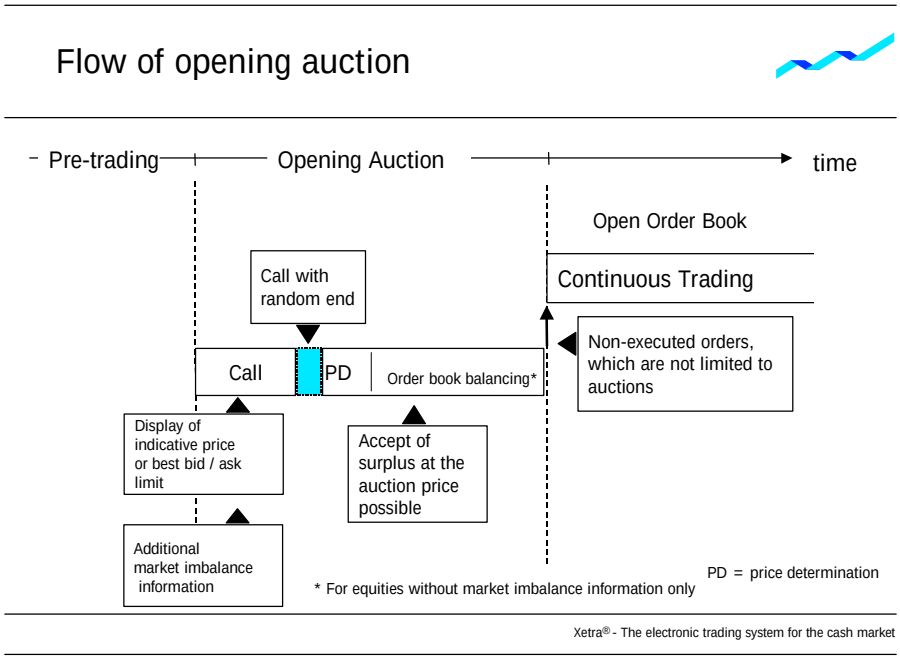


Figure 5: Flow of an opening auction

The call phase is followed by the price determination phase. The auction price is determined according to the principle of most executable volume on the basis of the order book situation at the end of the call phase. The auction price is the price with the highest order volume and the lowest surplus for each limit in the order book. If the order book situation is not clear, i.e. if there is more than one limit with the same executable volume, further criteria are taken into consideration for the determination of the auction price (see section 13).

The auction price cannot be determined if no orders are executable. In this case, the best bid/ask limit is displayed, whereby the limit of hidden orders is not considered.

Time priority ensures that the maximum of one order limited to the auction price or unlimited is partially executed. Immediately after the auction price has been determined, both counterparties are informed by way of execution confirmation about the order price, its volume and time of execution. The execution confirmation is followed by a trade confirmation providing participants with the complete settlement and transaction data. Settlement-relevant information of trades of the current trading day can be modified so that participants afterwards receive an updated trade confirmation. The sequence of execution and trade confirmations in case of netting is described in the Xetra functional description.

In equities without market imbalance information an order book balancing phase takes place if there is a surplus. Executable orders, which cannot be executed in the price determination phase, will be made available to the market for a limited period of time. This surplus contains all order sizes. Orders are executed at the determined auction price in the order book balancing phase. Orders of the respective equity can neither be changed nor deleted during order book balancing.

Market participants can either accept the surplus partially or fully by entering accept surplus orders. Accept surplus orders are executed at the auction price in accordance with time priority.

Only accept surplus orders can be entered during the order book balancing phase. The system will reject any other orders as well as quotes and quote requests.

Analogous to the procedure after auction price determination, counterparties receive both an execution confirmation and trade confirmation during the order book balancing phase.

At the end of the auction, all market orders and limit orders, which were not or only partially executed, are forwarded to the next possible trading form according to their trading restrictions. If there is no auction price, market-to-limit orders which do not have a limit assigned yet are deleted. If there is an auction price, remaining parts of market-to-limit orders which are partly executed and market-to-limit orders which are not executed are entered into the order book with a limit equal to the price of the auction. Iceberg orders are transferred to continuous trading with their (remaining) peak shown in the order book.

10.1.2 Continuous Trading

Continuous trading is started after the termination of the opening auction. During continuous trading the order book is open, thus displaying the limits, the accumulated order volumes of each limit and the number of orders in the book at each limit. Hidden orders and midpoint orders are excluded as these are not disclosed to other market participants (with the exception of midpoint orders being disclosed to Xetra Block Agents when the order value is above or equal to a pre-defined threshold value). Each new order and each new quote is immediately checked for execution against orders on the other side of the order book.

These orders will be executed according to price/time priority, whereas midpoint orders are executed according to volume/time priority under consideration of the MAQ. Orders can either be executed fully, partially or not at all, thus generating none at all, one or more trades. Orders, which were not or only partially executed, are entered into the order book and sorted according to price/time priority respectively according to volume/time priority in case of midpoint orders.

Sorting orders by price/time priority ensures that buy orders with a higher limit take precedence over orders with lower limits. Vice versa, sell orders with a lower limit take precedence over orders with a higher limit. If, at a given price, both visible and invisible orders (hidden orders) exist, the visible orders are always executed with priority. The second criterion ‘time’ applies in the event of orders sharing the same limit, i.e. orders which were entered earlier take priority. Market orders have priority over limit orders in the order book. Between market orders, time priority also applies.

In case of midpoint orders, sorting according to volume/time priority under consideration of the MAQ results in orders with high volumes having priority over orders with smaller volumes. Due to the MAQ, order book situations may occur in which strict volume/time priority is disregarded (e.g. for the purpose of optimizing the executable volume or for releasing an executable order book situation blocked by the MAQ.

Time as secondary criterion applies in the event that two orders have the same volume. Therefore, orders entered earlier are treated with priority.

When a peak of an iceberg order has been completely executed and a hidden volume is still available, another peak with a new time stamp is shown in the book. The hidden volume of an iceberg order has to be completely executed before hidden orders with the same limit or the next limit in the order book are executed. Therefore, execution of orders limited at less favorable prices is only possible after all orders at that limit are fully executed. However, orders (excluding hidden orders) with the same limit as the new peak are executed before the new peak is executed. If multiple iceberg orders are available at a time the respective peaks are introduced according to price/time priority.

Rules for price determination during continuous trading are described in detail in chapter 13.

Analogous to the procedure for the opening auction, the counterparties receive both an execution confirmation and a trade confirmation after orders have been matched. The sequence of execution and trade confirmations in case of netting is described in the Xetra Functional Description.

10.1.3 Intraday Auctions

The start of the intraday auction interrupts continuous trading. Like opening auctions, intraday auctions consist of three phases: call phase, price determination and, for equities without market imbalance information, order book balancing phase. All orders (with the exception of midpoint orders) and quotes of one equity (i.e. odd lots and round lots) are automatically concentrated in one order book. This is valid for those orders and quotes, which were taken over from continuous trading as well as for those, which were entered in the order book for auctions only. All iceberg orders with their full volume entered in the order book are also taking part in the intraday auction. Resting BOC, TOP and TOP+ orders are deleted at the start of the intraday auction. Market-to-limit orders are treated like market orders if they have no limit assigned yet and as limit orders if they have already a limit assigned.

The order book is partially closed during the call phase. The market participants are given information on the indicative price (if available) or the best bid/ask limit. The auction price cannot be determined if orders are not executable during price determination. Instead, the best bid/ask limit is published, whereby the limit of hidden orders is not considered.

During the call phase of the auction, additional market imbalance information may be disseminated. In case of an uncrossed order book, the accumulated volumes at the best bid and best ask are displayed in addition to the best bid and ask limits, whereby the volume of hidden orders is not considered. In case of a crossed order book the executable volume for the indicative auction price, the side of the surplus and the volume of the surplus are displayed.

As it is the case with opening auctions, only for equities without market imbalance information an order book balancing phase is initiated if there is a surplus of orders. In the order book balancing phase, accept surplus orders are executed at the auction price.

At the end of the auction, all market orders and limit orders, which were not or only partially executed, are forwarded into the next possible trading form according to their respective order sizes and trading restrictions. If there is no auction price, market-to-limit orders which were entered during the call phase of the auction are deleted. If there is an auction price, remaining parts of market-to-limit orders which are partly executed and market-to-limit orders which are not executed are entered into the order book with a limit equal to the price of the auction. Iceberg orders are transferred to continuous trading with their (remaining) peak or a new peak shown in the order book.

Continuous trading is restarted at the end of the auction.

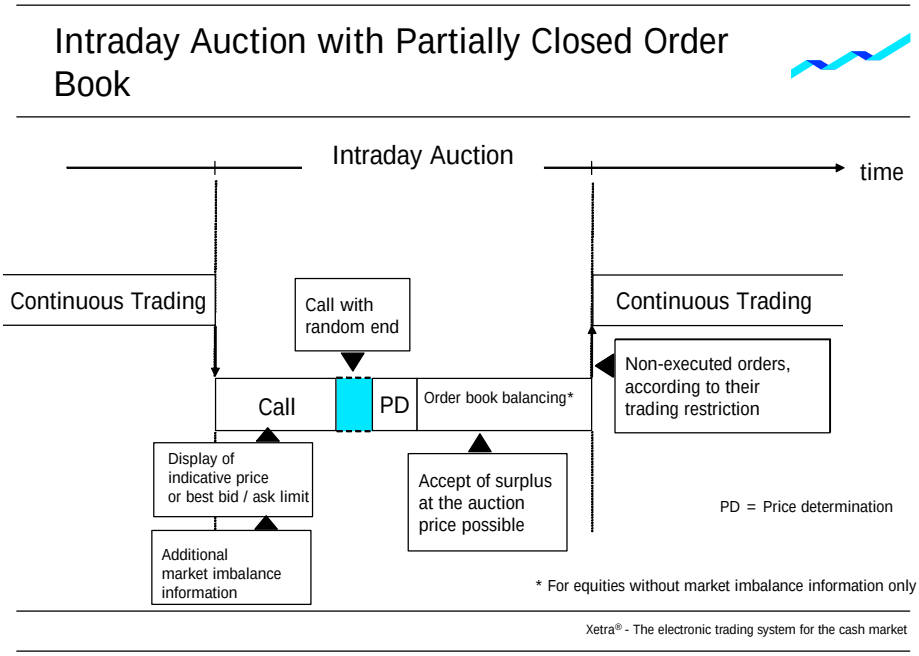


Figure 6: Flow of intraday auction

10.1.4 Closing Auction

If no intraday closing auction is scheduled continuous trading is followed by the closing auction. The closing auction is also divided into call phase, price determination and – for equities without market imbalance information – an order book balancing phase as described above.

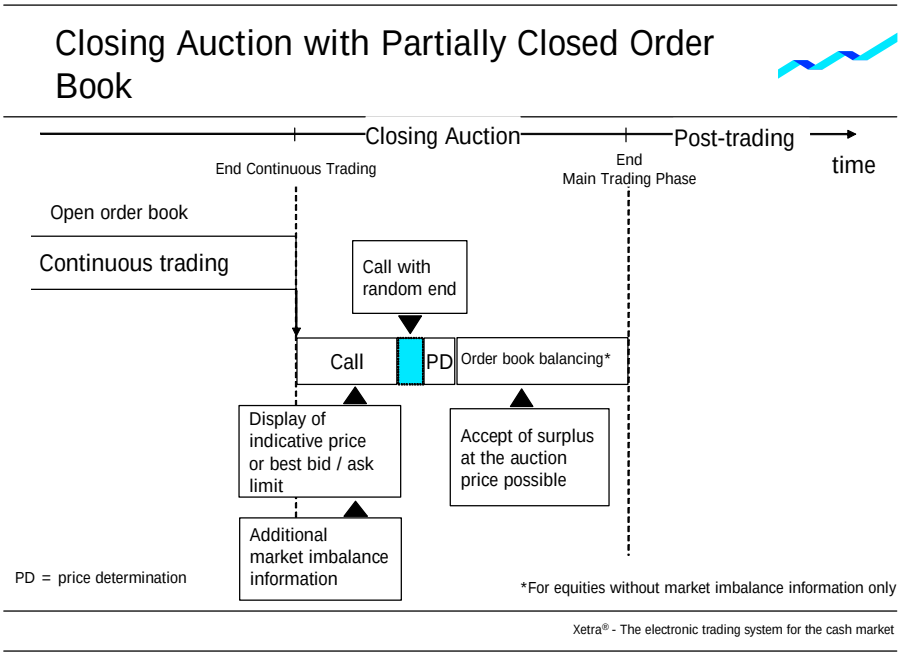


Figure 7: Flow of Closing Auction

In the closing auction, all order sizes (odd lots and round lots) are automatically matched in one order book. This applies to orders (with the exception of midpoint orders) and quotes adopted from continuous trading as well as to orders, which have the trading restrictions “auction only” or “closing auction only” or are only entered in the order book for the closing auction. All quotes and iceberg orders with their full volume entered in the order book are also taking part in the closing auction. Resting BOC, TOP and TOP+ orders are deleted at the start of the closing auction. Market-to-limit orders are treated like market orders if they have no limit assigned yet and as limit orders if they have already a limit assigned. Strike match orders can only be executed in the closing auction.

The auction price cannot be determined if no orders are executable. In this case, the best bid/ask limit is published, whereby the limit of hidden orders is not considered. Market-to-limit orders entered during this auction are deleted. If there is an auction price, all market-to-limit orders (irrespective whether they are partially executed or not at all) receive the auction price as a limit. Non-executed or only partially executed market orders and limit orders and market-to-limit orders with a limit assigned are transferred to the next trading day according to their validity. Quotes are deleted at the end of the trading day as they are only good-for-day.

10.1.5 Intraday Closing Auction

An intraday closing auction – if scheduled – interrupts continuous trading. Like other scheduled auctions, an intraday closing auction consists of a call phase, the price determination and, for equities without market imbalance information, order book balancing phase. All orders (with the exception of midpoint orders) and quotes of one equity (i.e. odd lots and round lots) are automatically concentrated in one order book. This is valid for those orders and quotes, which were taken over from continuous trading as well as for those, which were entered in the order book for “auctions only”, “auctions in main trading phase only”, “closing auction only” or are entered in the call phase of the closing auction. Resting BOC, TOP and TOP+ orders are deleted at the start of the intraday closing auction.

Concerning the information provided during the auction and the handling of market-to-limit orders, iceberg orders, hidden orders and quotes, the intraday closing auction does not differ from other auctions.

An intraday closing auction provides an intraday valuation price. Continuous trading is restarted at the end of the auction.

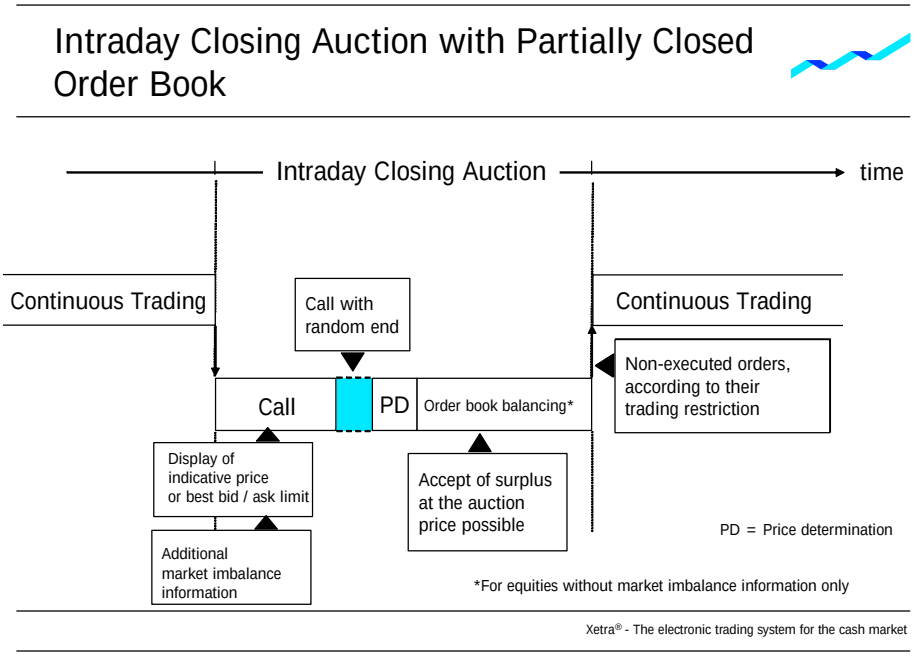


Figure 8: Flow of intraday closing auction

10.1.6 End-of-Day Auction

When scheduled, the end-of-day auction ends continuous trading. The end-of-day auction is also divided into call phase, price determination and – for equities without market imbalance information - order book balancing phase.

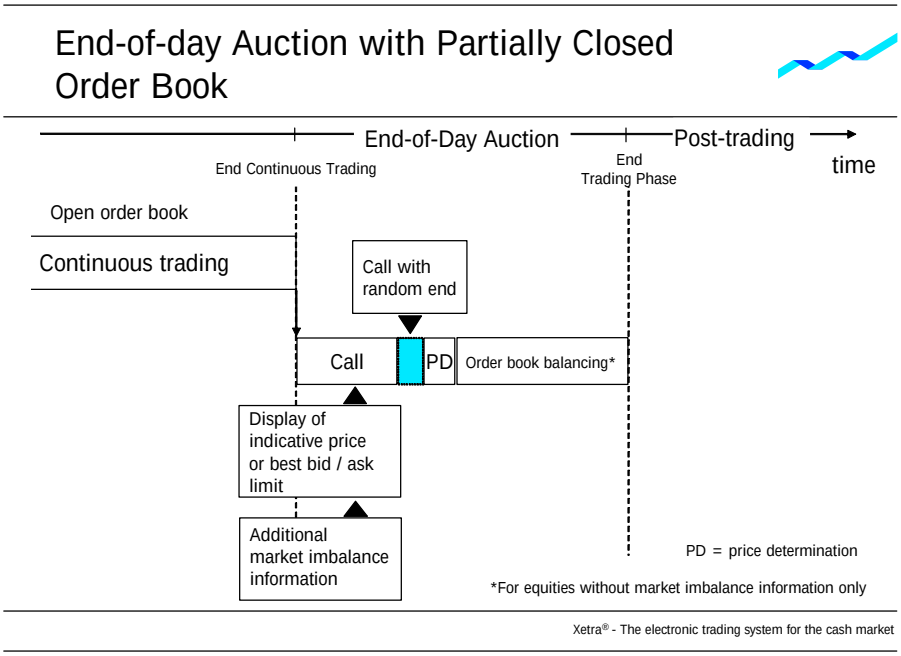


Figure 9: Flow of end-of-day auction

In the end-of-day auction, all orders (odd lots and round lots), with the exception of midpoint orders, and quotes which are not restricted by the trading restrictions “opening auction only”, “main trading phase only”, “auctions in main trading phase only” or “closing auction only” are automatically matched in one order book. This also applies to orders, which are entered in the call phase of the end-of-day auction. Resting BOC, TOP and TOP+ orders are deleted at the start of the end-of-day auction.

Concerning the information provided during the auction and the handling of market-to-limit orders, iceberg orders, hidden orders and quotes, the end-of-day auction does not differ from regular auctions.

10.2 Several Auctions or Single Auction

If an equity is limited to auctions, this/these auction(s) also consist(s) of three phases, i.e. call phase, price determination and order book balancing phase. In contrast to the procedure for the opening auction or intraday auction during continuous trading, orders, which have not been executed, remain in the order book until the next auction. Continuous trading does not take place. An auction plan informs market participants about the time the individual equities are called. Market-to-limit orders, iceberg orders, hidden orders and midpoint orders are not supported for this trading model.

The auction price cannot be determined if no orders are executable. In this case, the best bid/ask limit is released and the remaining orders are transferred to the next auction according to their validity.

11 Safeguards in Auctions and Continuous Trading

Xetra contains safeguards to improve price continuity and increase the probability of execution of market orders. The main safeguards are volatility interruptions in auctions and continuous trading as well as market order interruptions in auctions (not in auctions initiated by volatility interruptions). As far as Designated Sponsors exist for an equity, they will enter quotes during volatility interruptions (see also chapter 5: Provision of Additional Liquidity by Designated Sponsor).

Volatility interruptions can be initiated in two ways:

- The indicative price lies outside the ”dynamic” price range around the reference price (see Figure 10: Dynamic and static price range). The reference price (reference price 1) for the dynamic price range is the last traded price of an equity determined in an auction or during continuous trading. The reference price is re-adjusted during continuous trading only after an incoming order has been matched (as far as possible) against orders in the order book. Executions triggered by midpoint orders do not lead to an adjustment of the reference price.

- The indicative price lies outside the ”static” price range, which has been defined additionally. This wider static price range defines the maximum percentage deviation of an additional reference price (reference price 2) which generally corresponds to the last price determined in an auction on the current trading day. If this price is not available, the last traded price determined on one of the previous trading days is taken as reference price. Reference price 2 is only re-adjusted during the trading day after auction price determination so that the position of the static price range remains largely unchanged during trading. Executions triggered by midpoint orders do not lead to an adjustment of the reference price.

Dynamic and Static Price Range

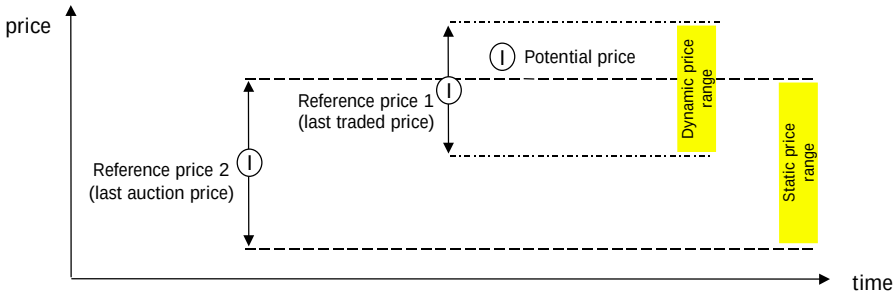


Figure 10: Dynamic and static price range

Market order interruptions are initiated if market orders or market-to-limit orders within the order book are not or only partially executable at the end of the call phase. Market order interruptions can occur only once per auction.

If, at the end of a volatility interruption, the potential price lies outside of a defined range, which is broader than the dynamic price range, the volatility interruption will be extended until the volatility interruption is terminated manually. The extension of the volatility interruption is displayed to the market participants.

If the indicative auction price continues to lie outside of the static or dynamic price range respectively but not outside the wider range for *extended* volatility interruptions at the end of the volatility interruption, price determination is carried out nonetheless. The same applies to market order interruptions if market orders cannot be executed fully or only partially.

11.1 Volatility Interruption During Continuous Trading

To ensure price continuity, continuous trading is interrupted by a volatility interruption whenever the potential execution price of an order lies outside the dynamic and/or static price range around a reference price. Incoming orders are (partially) executed until the next potential execution price leaves the price corridor (exception: fill-or-kill orders). Market participants are made aware of this market situation.

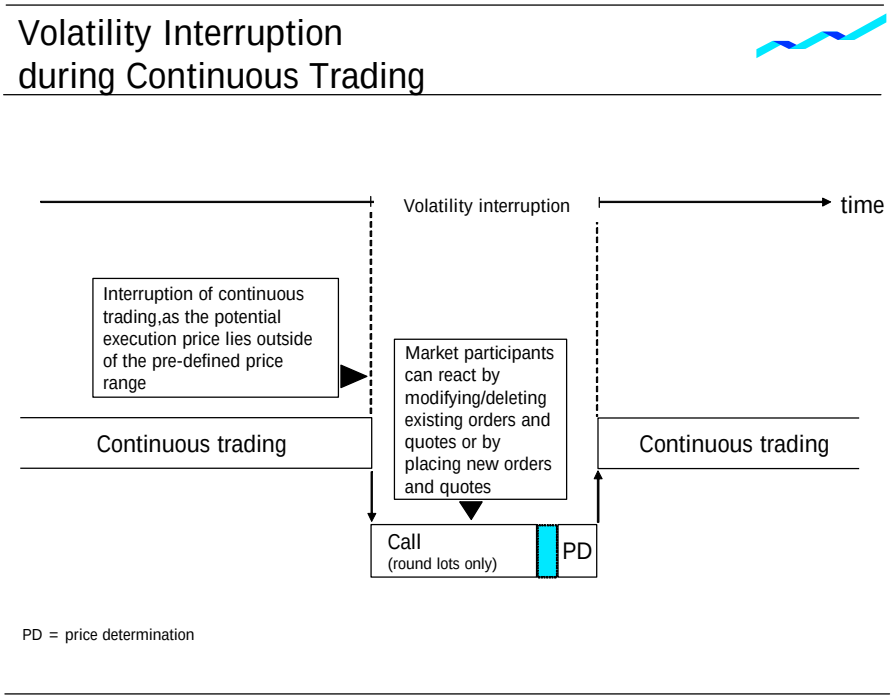


Figure 11: Volatility interruption during continuous trading

A volatility interruption triggers a change of trading form: continuous trading is interrupted and an auction is initiated. The auction is restricted to orders designated for continuous trading. As with other auctions, iceberg orders participate with their full volume in volatility interruptions. Resting BOC, TOP and TOP+ orders are deleted when a volatility interruption is triggered. Market-to-limit orders, which are entered in the call phase, are considered like market orders concerning price determination. In auctions, hidden orders are handled like limit orders.

The auction consists of a call phase and price determination phase. After a minimum duration, the call phase in general ends randomly. However, if the potential execution price lies outside of a defined range, which is wider than the dynamic price range, the call will be extended until the volatility interruption is terminated manually. Continuous trading is taken up again after price determination or, if price determination was not possible, at the end of the auction call.

For midpoint orders, BOC, TOP and TOP+ orders, special regulations apply: In general, midpoint orders are only executed if the potential execution price would not trigger a volatility interruption. However, midpoint orders do not trigger volatility interruptions. Furthermore, incoming BOC, TOP and TOP+ orders may execute against resting hidden orders. However, if such execution would trigger a volatility interruption, the BOC, TOP or TOP+ order will be rejected.

11.2 Volatility Interruption During Auctions

A volatility interruption is initiated if the indicative auction price lies outside the dynamic and/or static price range at the end of the call phase. The price range is stipulated individually for each security and defines the maximum percentage deviation (symmetrically positive and negative) of the reference price in a security. The reference price corresponds to the last traded price or last auction price and dynamically changes the price range with every price determination. Volatility interruptions in an auction are indicated to the market participants. Iceberg orders participate with their full volume in volatility interruptions during auctions. In auctions, also hidden orders are handled like limit orders.

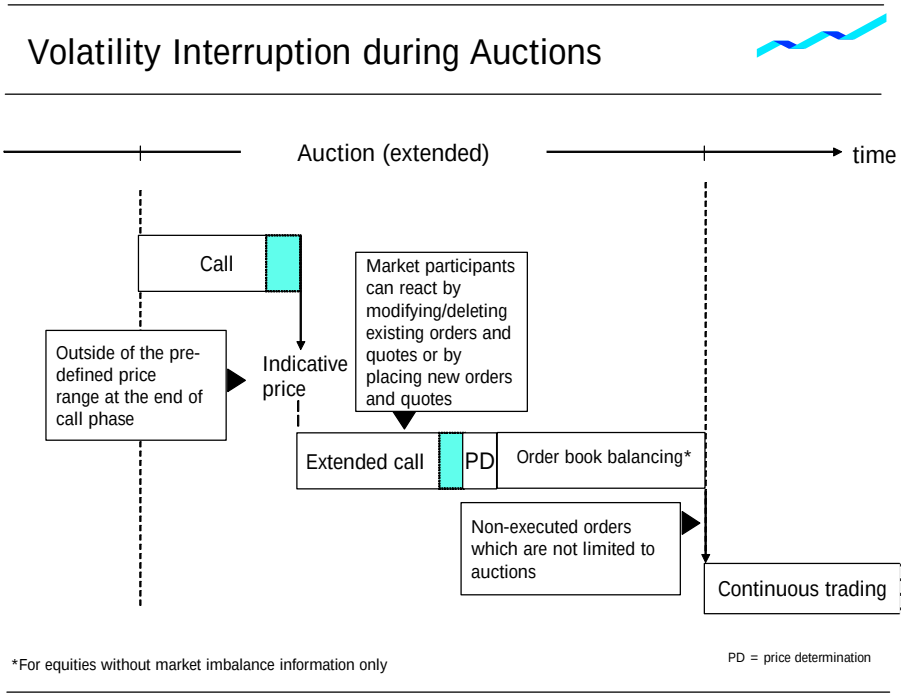


Figure 12: Volatility interruption during auctions

A volatility interruption initiates a limited extension of the call phase, allowing market participants to enter new orders and quotes as well as to modify or delete orders and quotes in the order book. After a minimum duration, the call phase in general ends randomly. However, if the potential execution price lies outside of a defined range, which is wider than the dynamic price range (extended dynamic price range), the call will be extended until the volatility interruption is terminated manually. If possibly a surplus has not been balanced until the end of the order book balancing phase, all non-executed or partially executed market and limit orders are transferred to the next possible trading form according to their order sizes and trading restrictions. If there is no auction price, market-to-limit orders which were entered during the call phase of the auction are deleted. If there is an auction price, remaining parts of market-to-limit orders which are partly executed and market-to-limit orders which are not executed are entered into the order book with a limit equal to the price of the auction.

11.3 Market Order Interruption in Auctions

If market orders or market-to-limit orders (with no limit assigned yet) within the order book are not or only partially executable (market order surplus) at the end of the call phase, it will be extended for a limited time in order to increase the execution probability of market orders and market-to-limit orders in auctions.

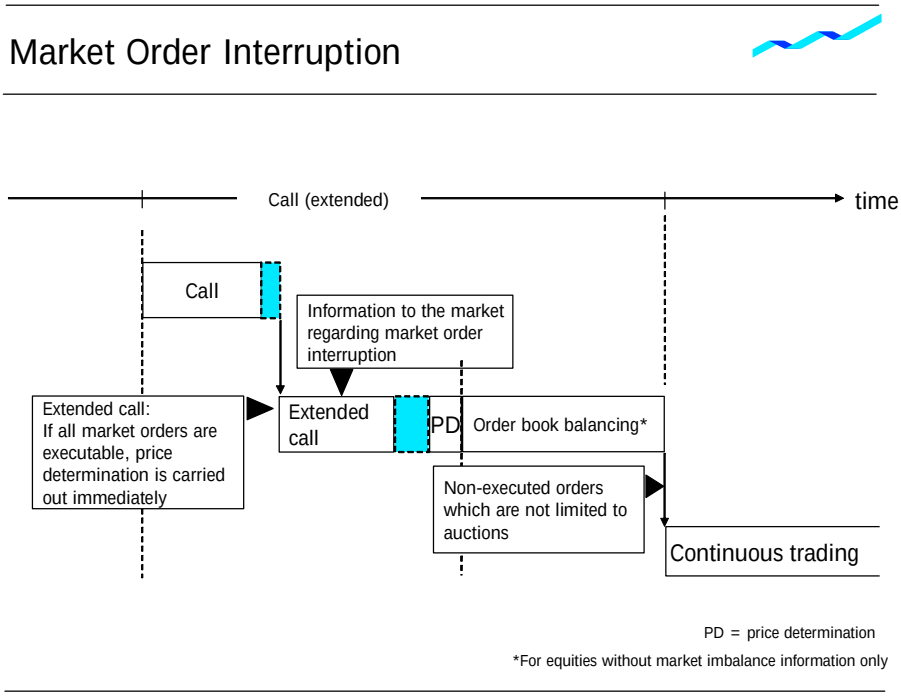


Figure 13: Market order interruption

The market is informed about a market order interruption. Market participants will be able to enter new orders and quotes or change and delete existing orders in the order book. The call phase is terminated as soon as all present market orders and market-to-limit orders could be executed or the extension has expired. The extension of the call phase is also terminated randomly. If the surplus is not balanced until the end of the order book balancing phase, all non-executed or only partially executed market and limit orders are transferred to the next possible trading form according to their order sizes and trading restrictions. If there is no auction price, market-to-limit orders which were entered during the call phase of the auction are deleted. If there is an auction price, remaining parts of market-to-limit orders which are partly executed and market-to-limit orders which are not executed are entered into the order book with a limit equal to the price of the auction. Iceberg orders are transferred to continuous trading with their (remaining) peak or a new peak shown in the order book.

If the market order interruption is triggered after a volatility interruption, this market order interruption is subject to a modified price check taking into account the extended dynamic price range.

12 Trading of Subscription Rights

The nature of subscription rights requires the combination of different trading models and functional components known for equity trading and are outlined in this section.

12.1 Orders

Trading of subscription rights makes use of both a minimum order and minimum quote size. The actual minimum order and minimum quote size will depend on the calculatory value of the respective subscription right. For iceberg orders, the peak size will be set to match at least the minimum order size.

12.2 Flow of Trading and Trading Models

For subscription rights trading Xetra offers the following trading model combination, that differ from the general equity trading model particularly on the first and last trading day of trading:

- IPO auction followed by an intraday auction and continuous trading similar to the underlying equity.
- Continuous trading in connection with an opening auction, none, one or several intraday auctions and either a closing auction or an intraday closing auction in connection with an end-of-day auction.
- Single IPO auction on Xetra.

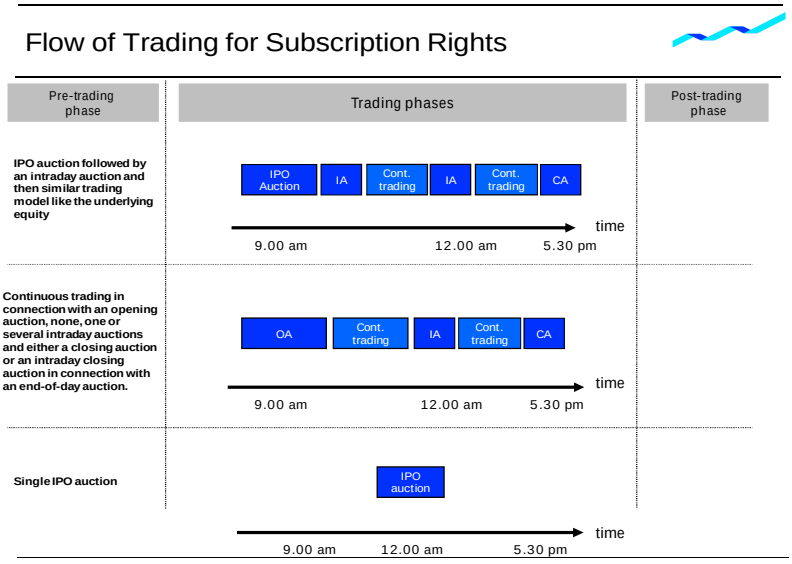


Figure 14: Flow of trading for subscription rights

12.2.1 IPO Auction Followed by Intraday Auction

The first trading day begins with a Xetra IPO auction for the subscription right.

After the price determination phase in the IPO auction, the first intraday auction is triggered to uncross the order book. With the start of the first intraday auction, the level of transparency is analogue to the underlying equity of the subscription right (indicative price, volume, dissemination of market imbalance information). The trading schedule following the first intraday auction is similar to the underlying equity. Designated Sponsor obligations begin with the start of this first intraday auction.

12.2.2 Continuous Trading in Connection with Auctions

The trading schedule during this period is the same as for the underlying equity. No auctions using the IPO functionality occur. At the end of the second last trading day all orders remaining in the order book will automatically be deleted due to the change in the trading model. If orders have to be transferred to the last trading day, participants have to re-enter them on the last trading day.

12.2.3 Single IPO Auction

On the last trading day, the trading model is changed and a single Xetra IPO auction will be scheduled for price determination.

13 Illustration of Price Determination Processes

13.1 Auctions

13.1.1 Basic Matching Rules

The auction price is determined on the basis of the order book situation stipulated at the end of the call phase. Concerning the price determination in auctions, market-to-limit orders are handled in the same way as market orders. Iceberg orders are contributing with their overall volume like a limit order. In auctions, hidden orders are handled like limit orders. Midpoint orders do not participate in auctions.

Should this process determine more than one limit with the highest executable order volume and the lowest surplus for the determination of the auction price, the surplus is referred to for further price determination:

- The auction price is stipulated according to the highest limit if the surplus for all limits is on the buy side (bid surplus) (see example 2).
- The auction price is stipulated according to the lowest limit if the surplus for all limits is on the sell side (ask surplus) (see example 3).

If the inclusion of the surplus does not lead to a clear auction price, the reference price is included as additional criterion. This may be the case

- If there is a bid surplus for one part of the limits and an ask surplus for another part (see example 4),
- If there is no surplus for all limits (see example 5).

In the first case, the lowest limit with an ask surplus or the highest limit with a bid surplus is chosen for further price determination.

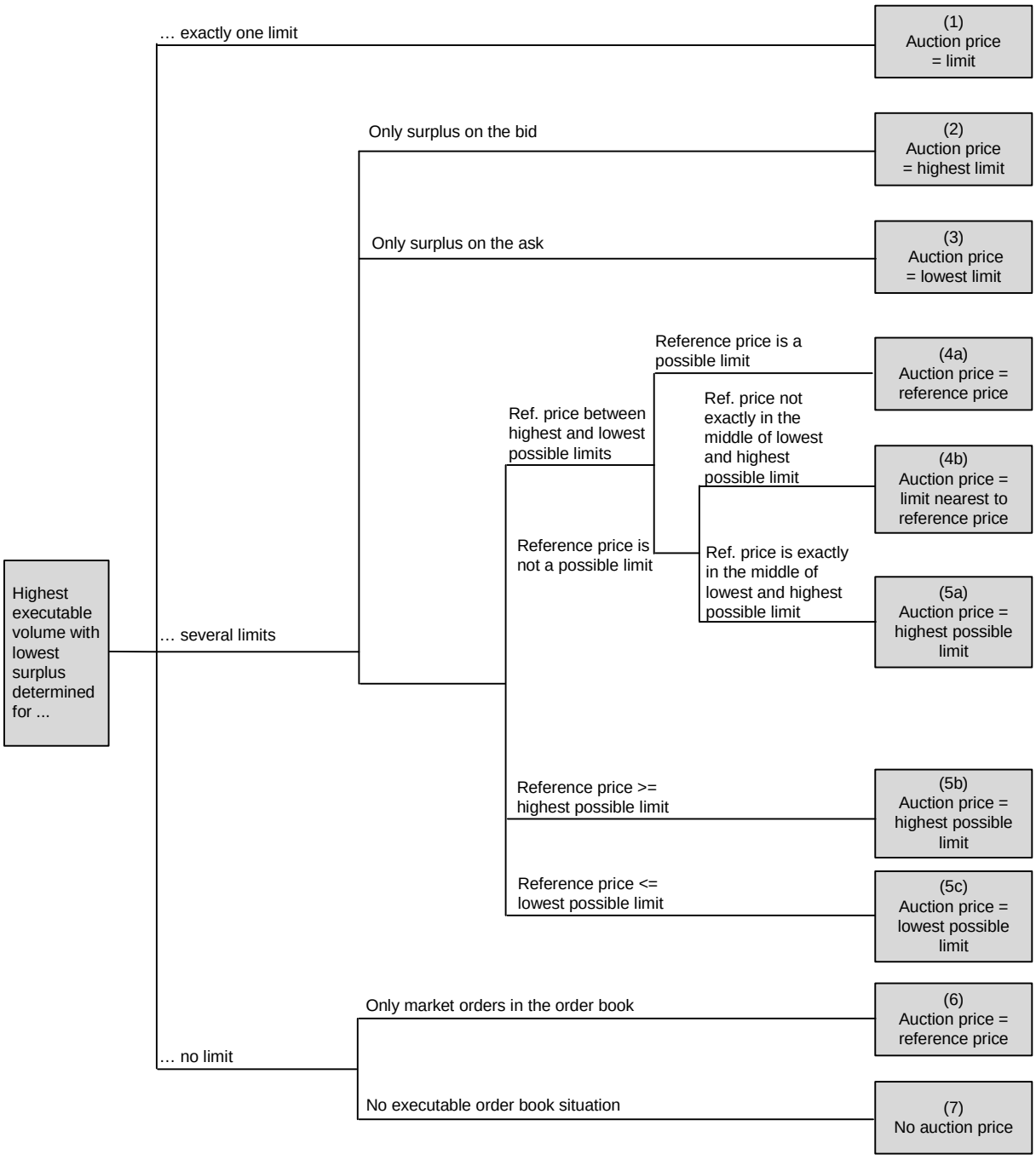
In both cases, the reference price is considered for stipulating the auction price:

- If the reference price is higher than or equal to the highest limit, the auction price is determined according to this limit.
- If the reference price is lower than or equal to the lowest limit, the auction price is determined according to this limit.
- If the reference price lies between the highest and lowest limit, the auction price equals the reference price.

If only market orders are executable against one another, they are matched at the reference price (see example 6).

An auction price cannot be determined if orders are not executable against one another. In this case, the best bid/ask limit (if available) is displayed, whereby the limit of hidden orders is not considered (see example 7).

The following figure gives an outline of how price determination rules affect possible order book situations in an auction. The number in brackets refers to the corresponding example for this rule.



13.1.2 Matching Examples

The following examples are given to clarify the basic matching rules in auctions. In the examples, price determination is carried out using exemplary order book situations.

Example 1: There is exactly one limit at which the highest order volume can be executed and which has the lowest surplus.

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
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

Corresponding to this limit, the auction price is fixed at € 200.

Example 2: There are several possible limits and there is a surplus on the bid.

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
Limit	400	400		202	100	500		
Limit	200	600	100	201		500		
		600	100	199		500	300	Limit
		600	400	198		200	200	Limit

Corresponding to the highest limit, the auction price is fixed at € 201.

Example 3: There are several possible limits and there is a surplus on the ask.

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
Limit	300	300		202	300	600		
Limit	200	500		201	100	600		
		500		199	100	600	400	Limit
		500	300	198		200	200	Limit

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

Example 4: There are several possible limits and there is both an ask surplus and a bid surplus.

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
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 either equals the reference price or is fixed according to the limit nearest to the reference price:

a) If the reference price is € 199, the auction price will be € 199.

b) If the reference price is € 200, the auction price will be € 199.

Example 5: There are several possible limits and no surplus on hand.

Bid								Ask
	Volume	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	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 either equals the reference price or is fixed according to the limit nearest to the reference price:

a) If the reference price is € 200, the auction price will be € 201.

b) If the reference price is € 202, the auction price will be € 201.

c) If the reference price is € 198, the auction price will be € 199.

Example 6: Only market orders are executable in the order book.

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
Market	900	900	100	Market		800		
		900	100	Market		800	800	Market

The auction price equals the reference price.

Example 7: There is no eligible limit as there are only orders in the order book which are not executable.

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
				201		80	80	Limit
Hidden	80	80		200				
Limit	80	160		199				

It is not possible to determine an auction price. In this case, the highest visible bid limit (€ 199) and the lowest visible ask limit (€ 201) are published.

Additional example: Partial execution of an order within the opening auction

Bid								Ask
	Quantity	Acc. Quantity	Surplus	Limit	Surplus	Acc. Quantity	Quantity	
Limit 9:00	300	600	200	200		400	400	Limit
Limit 9:01	300							

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

Additional example: Using the Strike Mach order to hedge a position

Scenario 1: How the Strike Match Order protects from unintended Executions

Table 1: Scenario 1: Order Input

Order Type	Min Limit	Max Limit	Quantity	Trade Direction
Market			250	Buy
Limit		199	150	Buy
Market			300	Sell
Limit	198		200	Sell
SMO / Market	200		50	Buy
Reference Price		201		

The SMO order represents a hedge trade, where the trader wants to buy, if the auction price exceeds 200 EUR. Table 2 shows the impact, if instead of a SMO a regular market order is used. Then, in Table 3, it is illustrated how a SMO can provide a benefit by avoiding an unintended execution.

Table 2: Scenario 1: Resulting Order Book Situation if regular market order instead of SMO with a minimum limit is used

Buy Cum. Quantity	Surplus	Auction Price EUR	Sell Surplus	Cum. Quantity	Max Exec Volume	Surplus
450	0	199	50	500	450	50
450	0	198	50	500	450	50

The potential auction prices are 198 EUR and 199 EUR. Since all of them have a surplus of supply the auction price will be determined at the lowest possible limit 198 EUR.

Assuming in this scenario the trader entered a market order instead of the SMO, he will be executed, even though the price is below 200 EUR.

Table 3: Scenario 1: Resulting Order Book Situation with Strike Match Order

Buy Cum. Quantity	Surplus	Auction Price EUR	Sell Surplus	Cum. Quantity	Max Exec Volume	Surplus
400	0	199	100	500	400	100
400	0	198	100	500	400	100

The potential auction prices are 198 EUR and 199 EUR. Since all of them have a surplus of supply the auction price will be determined at the lowest possible limit 198 EUR.

This time, the trader entered a SMO instead of a market order. The minimum limit of the SMO has the effect that the SMO is not executed because the auction price is below 200 EUR. This protects the hedge trader from an unintended execution.

13.2 Continuous Trading

13.2.1 Basic Matching Rules

Midpoint orders are explicitly excluded from the basic matching rules described below, since they can only be executed against each other and not against other order types. The basic matching rules for midpoint orders are explained separately in chapter 13.2.3. Corresponding matching examples can be found in chapter 13.2.4.

Each new incoming order is immediately checked for execution against orders on the other side of the order book which will be executed according to price/time priority. If, at a given price, both visible and invisible orders (hidden orders) exist, the visible orders are always executed with priority.

Orders can be executed fully in one or more steps, partially or not at all. Thus, each new incoming order may generate none at all, one or several trades.

Orders or non-executed parts thereof or remaining peaks of an iceberg order are entered in the order book and sorted according to price/time priority. Remaining parts of a partially executed market-to-limit order will enter the order book with a limit and a time stamp equal to the price of the executed part.

Price determination in continuous trading is carried out in addition to price/time priority according to the following rules:

Rule 1: If an incoming market order meets an order book with market orders only on the other side, this market order is executed at the reference price (as far as possible) (see example 1).

Rule 2: If an incoming market order, market-to-limit order or limit order meets an order book with limit orders only on the other side, the highest bid limit or lowest ask limit, respectively, in the order book determines the price (see examples 2, 3, 10, 11, 18, 19).

Rule 3: If an incoming market-to-limit order meets an order book with market orders only or market and limit orders or no orders at all on the other side of the book, this market-to-limit order is rejected (see examples 9, 12, 13).

Rule 4:

- If an incoming market order meets an order book with market orders and limit orders on the other side (see examples 4, 5, 6, 7), or
- if an incoming limit order meets an order book with market orders only on the other side (see examples 14, 15, 16, 17), or
- if an incoming limit order meets an order book with market orders and limit orders on the other side (see examples 21, 22, 23, 24, 25, 26),

then the incoming order is executed against the market orders in accordance with price/time priority with respect to non-executed bid market orders at the reference price or higher (at the highest limit of the executable orders) or at the reference price or lower (at the lowest limit of the executable orders) with respect to non-executed ask market orders.

Market orders, which have not been executed in the order book, must be executed immediately with the next transaction (if possible). In this case, the following principles must be taken into consideration for continuous trading:

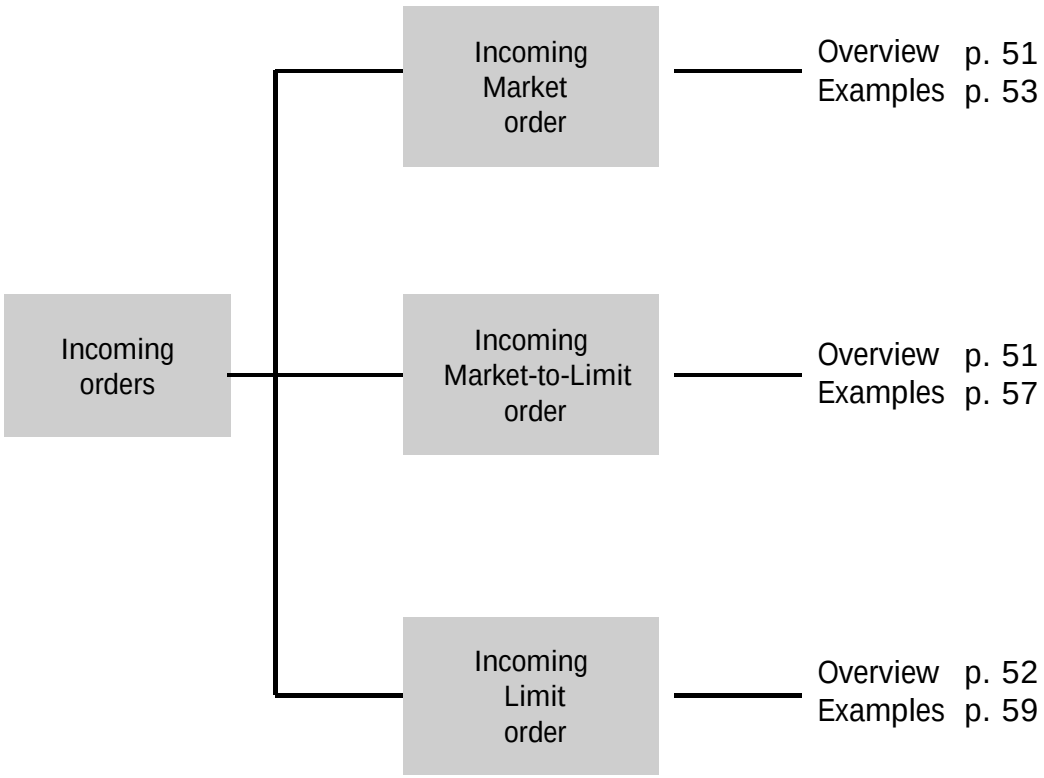
Principle 1: Market orders are given the reference price as a ”virtual” price. On this basis, execution is carried out at the reference price provided that this does not violate price/time priority.

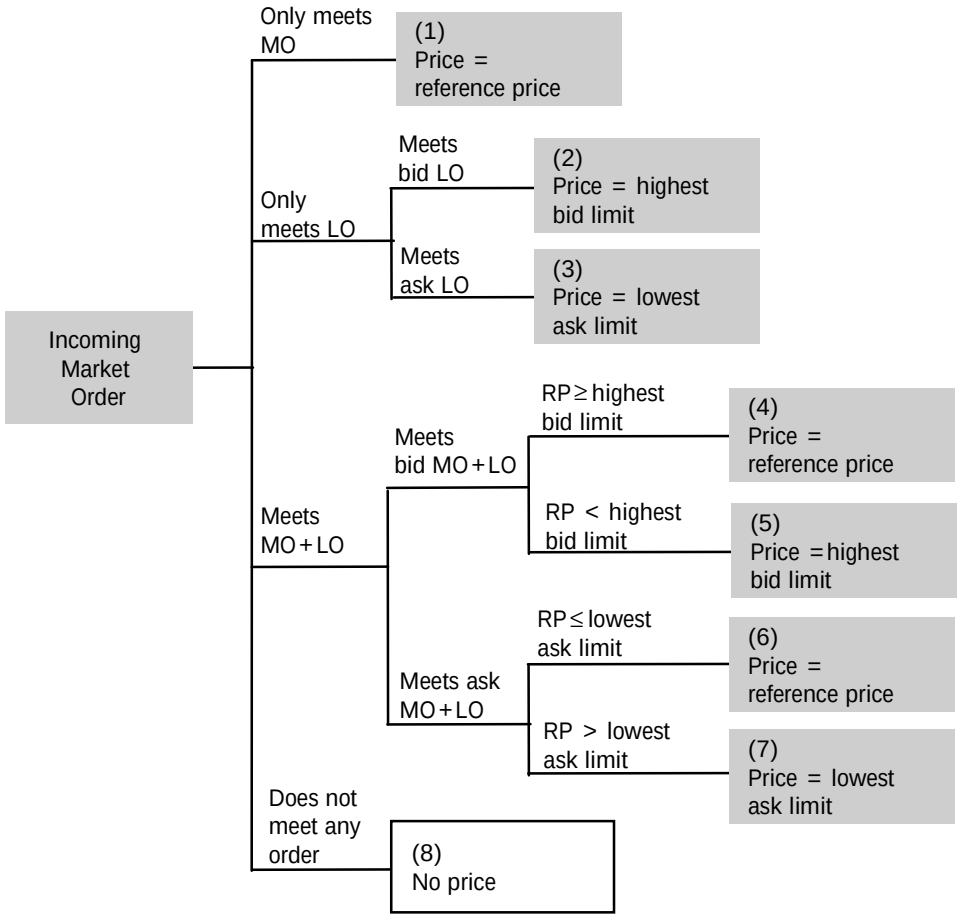
Principle 2: If orders cannot be executed at the reference price, they are executed in accordance with price/time priority by means of price determination above or below the reference price (non-executed bid market orders or ask market orders) i.e. the price is determined by a limit within the order book or a limit of an incoming order.

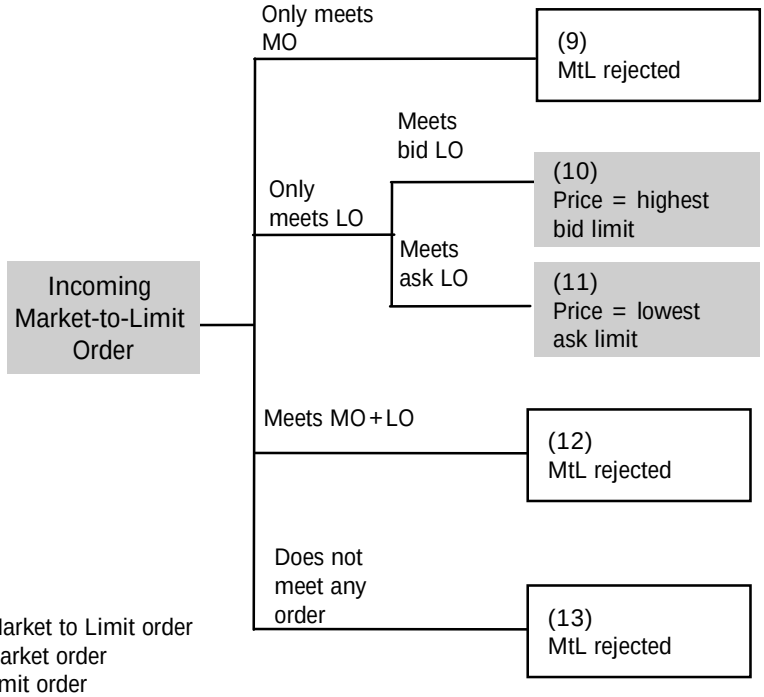
Rule 5: If an incoming order does not meet any order in the order book (see examples 8, 13, 27) or if an incoming limit order meets an order book with limit orders only on the other side of the book and the limit of the incoming buy (sell) order is lower (higher) than the limit of the best sell (buy) order in the book (see example 20), no price is determined.

Rule 6: Both hidden orders and limit orders are executed according to price/time priority. If, at a given price, both visible and invisible orders (hidden orders) exist, the visible orders are always executed with priority (see further examples in chapter 13.2.2.2).

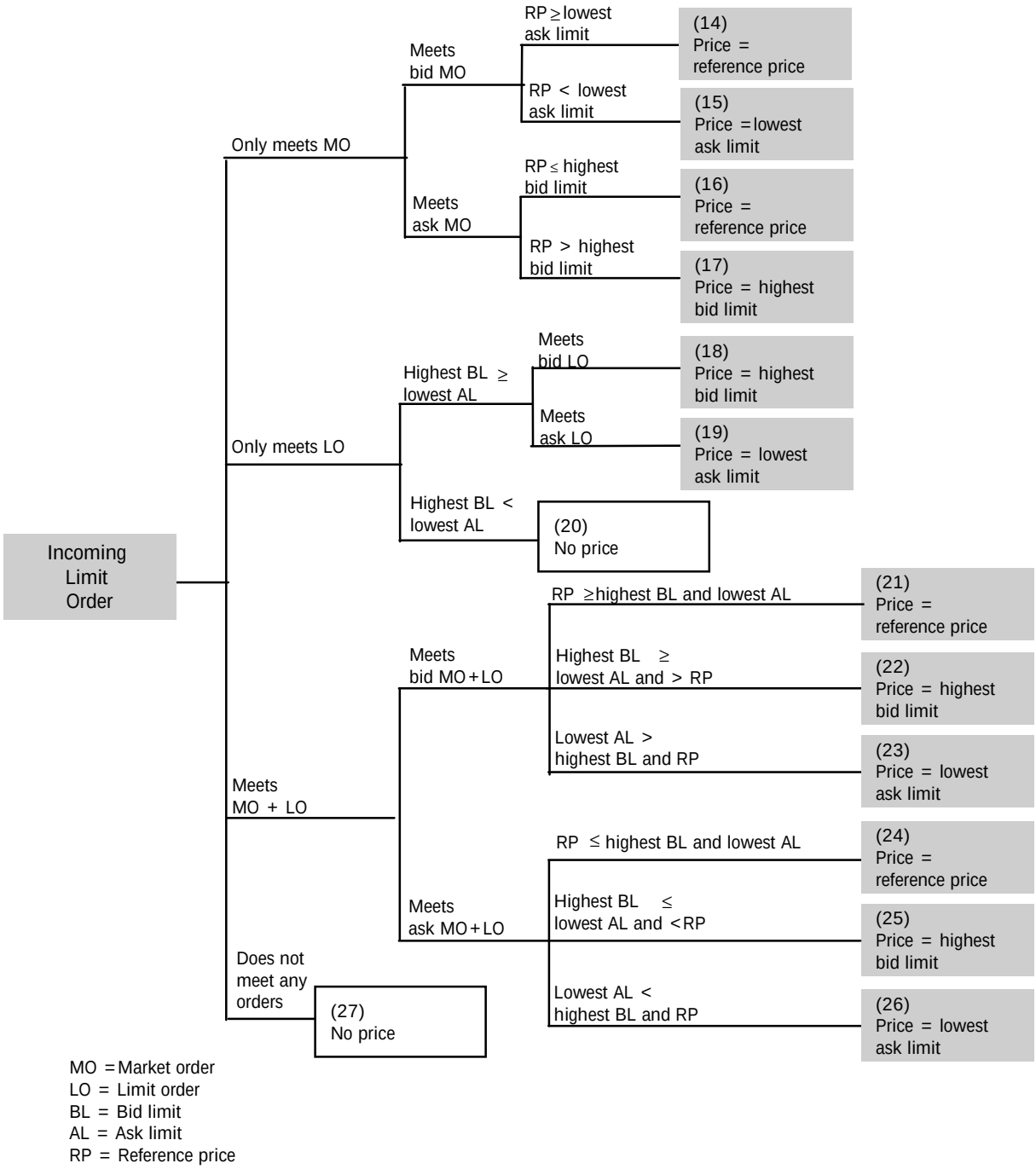
The following figures give an outline of how price determination rules affect possible order book situations in continuous trading. The head number refers to the corresponding example for these situations.







MtL = Market to Limit order
MO = Market order
LO = Limit order
RP = Reference price


Incoming Limit Order
Only meets MO
Meets bid MO
RP ≥ lowest ask limit
(14) Price = reference price
RP < lowest ask limit
(15) Price = lowest ask limit
Meets ask MO
RP ≤ highest bid limit
(16) Price = reference price
RP > highest bid limit
(17) Price = highest bid limit
Only meets LO
Highest BL ≥ lowest AL
Meets bid LO
(18) Price = highest bid limit
Meets ask LO
(19) Price = lowest ask limit
Highest BL < lowest AL
(20) No price
Meets MO + LO
Meets bid MO+LO
RP ≥ highest BL and lowest AL
(21) Price = reference price
Highest BL ≥ lowest AL and > RP
(22) Price = highest bid limit
Lowest AL > highest BL and RP
(23) Price = lowest ask limit
Meets ask MO+LO
RP ≤ highest BL and lowest AL
(24) Price = reference price
Highest BL ≤ lowest AL and < RP
(25) Price = highest bid limit
Lowest AL < highest BL and RP
(26) Price = lowest ask limit
Does not meet any orders
(27) No price
MO = Market order
LO = Limit order
BL = Bid limit
AL = Ask limit
RP = Reference price

13.2.2 Matching Examples

This chapter is subdivided into two sections: the first section (13.2.2.1) provides matching examples which cover the order book situations mentioned in the figures presented above. In the second section (13.2.2.2) additional examples are provided which cover special order book situations, e.g. volatility interruptions and the functionality of iceberg orders and hidden orders.

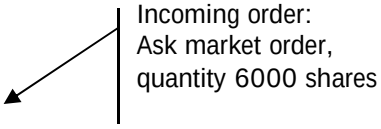
13.2.2.1 Matching Examples for Basic Matching Rules

The following examples are meant to clarify the basic matching rules for continuous trading by carrying out the price determination using exemplary order book situations.

Example 1: A market order meets an order book with market orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			

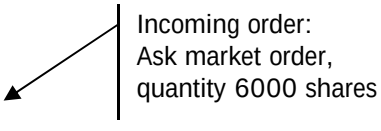


The reference price is € 200.
Both market orders are executed at the reference price of € 200 (see principle 1).

Example 2: A market order meets an order book with limit orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	200			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	200			



Both orders are executed at the highest bid limit of € 200.

Example 3: A market order meets an order book with limit orders only on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			200	6000	9:01

Incoming order:
Bid market order,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			200	~~6000~~	9:01

Both orders are executed at the lowest ask limit of € 200.

Example 4: A market order meets an order book with market orders and limit orders on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
9:01	6000	Market			
9:02	1000	195			

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
9:01	~~6000~~	Market			
9:02	1000	195			

Incoming order:
Ask market order,
quantity 6000 shares

The reference price is € 200. It is higher than or equal to the highest bid limit.
The incoming ask market order is executed against the bid market order in the order book at the reference price of € 200 (see principle 1).

Example 5: A market order meets an order book with market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			
9:02	1000	202			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			
9:02	1000	202			

Incoming order:
Ask market order,
quantity 6000 shares

The reference price is € 200. It is lower than the highest bid limit.
The incoming ask market order is executed against the bid market order in the order book at the highest bid limit of € 202 (see principle 2).

Example 6: A market order meets an order book with market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
			Market	6000	9:01
			202	1000	9:02

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
			Market	~~6000~~	9:01
			202	1000	9:02

Incoming order:
Bid market order,
quantity 6000 shares

The reference price is € 200. It is lower than or equal to the lowest ask limit.
The incoming bid market order is executed against the ask market order in the order book at the reference price of € 200 (see principle 1).

Example 7: A market order meets an order book with market orders and limit orders on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	6000	9:01
			202	1000	9:02

Incoming order:
Bid market order,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	~~6000~~	9:01
			202	1000	9:02

The reference price is € 203. It is higher than the lowest ask limit.
The incoming bid market order is executed against the ask market order in the order book at the lowest ask limit of € 202 (see principle 2).

Example 8: A market order meets an order book in which there are no orders.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time

Incoming order:
Bid market order,
quantity 6000 shares

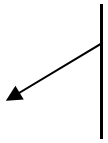
Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
10:01	6000	Market			

The incoming bid market order is entered in the order book. A price is not determined and no orders are executed.

Example 9: A market-to-limit order meets an order book with market orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			



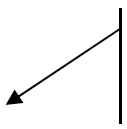
Incoming order:
Ask market-to-limit order,
quantity 6000 shares

The market-to-limit order is rejected. A price is not determined and no orders are executed.

Example 10: A market-to-limit order meets an order book with limit orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	200			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	200			



Incoming order:
Ask market-to-limit order,
quantity 6000 shares

Both orders are executed at the highest bid limit of € 200.

Example 11: A market-to-limit order meets an order book with limit orders only on the other side of the order book.

Bid Time	Quantity	Limit	Limit	Quantity	Ask Time
			200	6000	9:01

Incoming order:
Bid market-to-limit order,
quantity 6000 shares

Bid Time	Quantity	Limit	Limit	Quantity	Ask Time
			200	~~6000~~	9:01

Both orders are executed at the lowest ask limit of € 200.

Example 12: A market-to-limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid Time	Quantity	Limit	Limit	Quantity	Ask Time
9:01	6000	Market			
8:55	5000	199			

Bid Time	Quantity	Limit	Limit	Quantity	Ask Time
9:01	6000	Market			
8:55	5000	199			

Incoming order:
Ask market-to-limit order,
quantity 6000 shares

The market-to-limit order is rejected. A price is not determined and no orders are executed.

Example 13: A market-to-limit order meets an order book in which there are no orders on the other side of the order book.

Bid Time	Quantity	Limit	Limit	Quantity	Ask Time

Bid Time	Quantity	Limit	Limit	Quantity	Ask Time

Incoming order:
Ask market-to-limit order,
quantity 6000 shares

The market-to-limit order is rejected. A price is not determined and no orders are executed.

Example 14: A limit order meets an order book with market orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			

Incoming order:
Ask order, limit € 195,
quantity 6000 shares

The reference price is € 200. It is higher than or equal to the lowest ask limit.
Both orders are executed at the reference price of € 200 (see principle 1).

Example 15: A limit order meets an order book with market orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			

Incoming order:
Ask order, limit € 203,
quantity 6000 shares

The reference price is € 200. It is lower than the lowest ask limit.
Both orders are executed at the lowest ask limit of € 203 (see principle 2).

Example 16: A limit order meets an order book with market orders only on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	6000	9:01

Incoming order:
Bid order, limit € 203,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	~~6000~~	9:01

The reference price is € 200. It is lower than or equal to the highest bid limit.
Both orders are executed at the reference price of € 200 (see principle 1).

Example 17: A limit order meets an order book with market orders only on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	6000	9:01

Incoming order:
Bid order, limit € 199,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	~~6000~~	9:01

The reference price is € 200. It is higher than the highest bid limit.
Both orders are executed at the highest bid limit of € 199 (see principle 2).

Example 18: A limit order meets an order book with limit orders only on the other side of the order book.

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:33	6000	199			

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:33	~~6000~~	199			

Incoming order:
Ask order, limit € 198,
quantity 6000 shares

The highest bid limit is higher than or equal to the lowest ask limit.
Both orders are executed at the highest bid limit of € 199.

Example 19: A limit order meets an order book with limit orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
			199	6000	9:33

Incoming order:
Bid order, limit € 200,
quantity 6000 shares

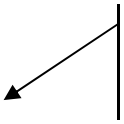
Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
			199	~~6000~~	9:33

The highest bid limit is higher than or equal to the lowest ask limit.
Both orders are executed at the lowest ask limit of € 199.

Example 20: A limit order meets an order book with limit orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:33	6000	199			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:33	6000	199	200	6000	10:01



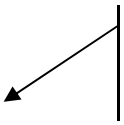
Incoming order:
Ask order, limit € 200,
quantity 6000 shares

The highest bid limit is lower than the lowest ask limit.
The incoming ask order is entered into the order book. A price is not determined and no orders are executed.

Example 21: A limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			
9:02	1000	196			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			
9.02	1000	196			



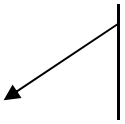
Incoming order:
Ask order, limit € 195,
quantity 6000 shares

The reference price is € 200. It is higher than or equal to the highest bid limit and higher than or equal to the lowest ask limit.
The incoming ask order is executed against the bid market order in the order book at the reference price of € 200 (see principle 1).

Example 22: A limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			
9:02	1000	202			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			
9:02	1000	202			



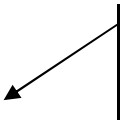
Incoming order:
Ask order, limit € 199,
quantity 6000 shares

The reference price is € 200. The highest bid limit is higher than or equal to the lowest ask limit and higher than the reference price.
The incoming ask order is executed against the bid market order in the order book at the highest bid limit of € 202 (see principle 2).

Example 23: A limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			
9:02	1000	202			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~6000~~	Market			
9:02	1000	202			



Incoming order:
Ask order, limit € 203,
quantity 6000 shares

The reference price is € 200. The lowest ask limit is higher than the highest bid limit and the reference price.
The incoming ask order is executed against the bid market order in the order book at the lowest ask limit of € 203 (see principle 2).

Example 24: A limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	6000	9:01
			202	1000	9:02

Incoming order:
Bid order, limit € 203,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	~~6000~~	9:01
			202	1000	9:02

The reference price is € 200. It is lower than or equal to the highest bid limit and lower than or equal to the lowest ask limit.
The incoming bid order is executed against the ask market order in the order book at the reference price of € 200 (see principle 1).

Example 25: A limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	6000	9:01
			202	1000	9:02

Incoming order:
Bid order, limit € 200,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	~~6000~~	9:01
			202	1000	9:02

The reference price is € 201. The highest bid limit is lower than or equal to the lowest ask limit and lower than the reference price.
The incoming bid order is executed against the ask market order in the order book at the highest bid limit of € 200 (see principle 2).

Example 26: A limit order meets an order book with market orders and limit orders on the other side of the order book.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	6000	9:01
			199	1000	9:02

Incoming order:
Bid order, limit € 203,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
			Market	~~6000~~	9:01
			199	1000	9:02

The reference price is € 200. The lowest ask limit is lower than the highest bid limit and the reference price. The incoming bid order is executed against the ask market order in the order book at the lowest ask limit of € 199 (see principle 2).

Example 27: A limit order meets an order book in which there are no orders.

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time

Incoming order:
Bid order, limit € 200,
quantity 6000 shares

Bid Time	Bid Quantity	Bid Limit	Ask Limit	Ask Quantity	Ask Time
10:01	6000	200			

The incoming bid order is entered into the order book. A price is not determined and no orders are executed.

13.2.2.2 Further Examples

Partial execution of a market order. A limit order meets an order book in which there are market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	6000	Market			
9:02	1000	202			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	5000	Market			
9:02	1000	202			

Incoming order:
Ask order, limit € 203,
quantity 1000 shares

The reference price is € 200. The lowest ask limit is higher than the highest bid limit and the reference price. The incoming ask order can only be partially executed against the bid market order in the order book, which is carried out at the lowest ask limit of € 203 (see principle 2).

Initiation of a volatility interruption. A limit order meets an order book in which there are market orders and limit orders on the other side of the order book.

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market			
9:02	1000	202			

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	Market	220	1000	10:01
9:02	1000	202			

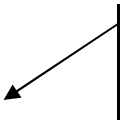
Incoming order:
Ask order, limit € 220,
quantity 1000 shares

The reference price is € 200 and the price range is +/- 2% of the last determined price. The limit of the incoming ask order lies outside the pre-defined price range and an execution is not carried out. The ask order is entered in the order book and continuous trading is interrupted by an auction.

Partial execution of a market-to-limit order. A market-to-limit order meets an order book with limit orders only on the other side of the order book.

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	1000	203			
9:02	1000	202			

Bid					Ask
Time	Quantity	Limit	Limit	Quantity	Time
9:01	~~1000~~	203	203	2000	9:05
9:02	1000	202			



Incoming order:
Ask market-to-limit order,
quantity 3000 shares,
time: 9:05

The incoming market-to-limit order can only be partially executed against the best bid limit order in the order book at € 203. The remaining part of the market-to-limit order (2000) is entered into the order book with a limit equal to the price of the executed part at € 203.

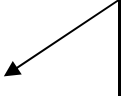
Examples showing the functionality of iceberg orders:

In contrary to the previous examples, in the following an initial order book situation which changes stepwise in multiple stages is provided to explain the functionality of iceberg orders. Beyond this, contrary to the display in the order book of Xetra, orders at same price level are displayed separately (in Xetra they are displayed in an aggregated view per limit). Furthermore, the peaks of an iceberg order are written in italics (in Xetra they are not marked at all).

An iceberg order is entered into the order book and meets limit orders only on the other side of the order book.

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01:00	6000	202	203	500	8:55:00
9:02:00	2000	201			

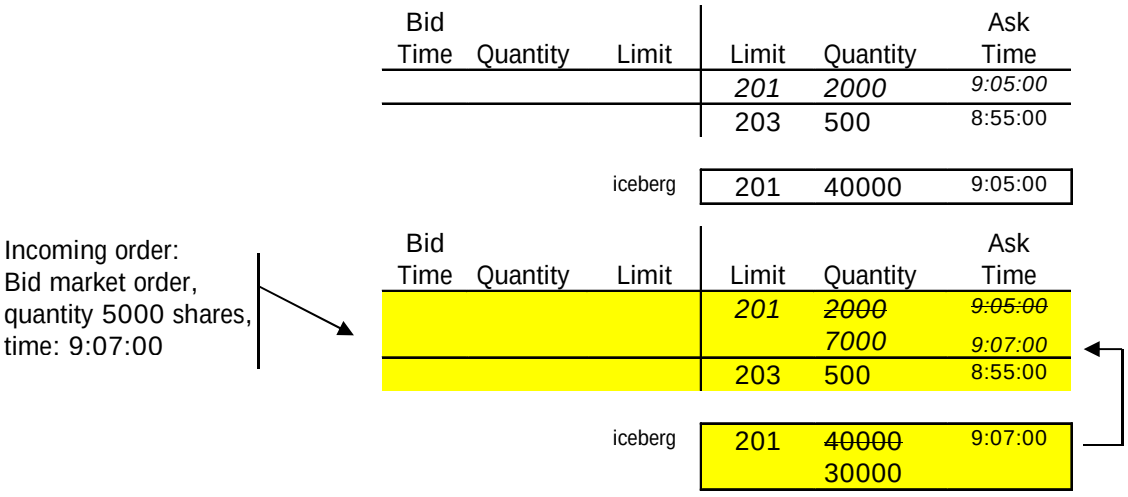
Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01:00	~~6000~~	202	*201*	*2000*	*9:05:00*
9:02:00	~~2000~~	201	203	500	8:55:00
		Iceberg	201	40000	9:05:00



Incoming order:
Ask iceberg order, limit € 201
overall volume 50000 shares,
peak 10000 shares,
time: 9:05:00

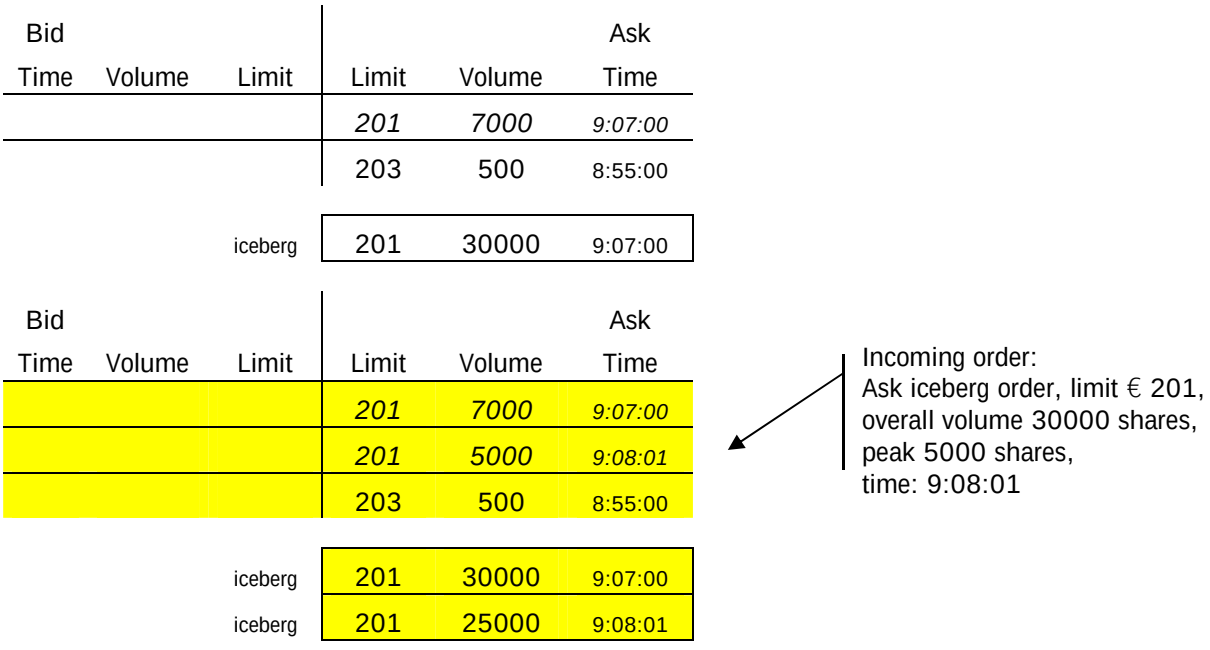
The peak of the iceberg order is executed against the orders in the order book as far as possible (6000 at € 202; 2000 at € 201). The remaining peak of the iceberg order (2000) is entered into the order book according to price/time priority with a remaining volume of 40000 behind it.

A new bid market order meets the order book.



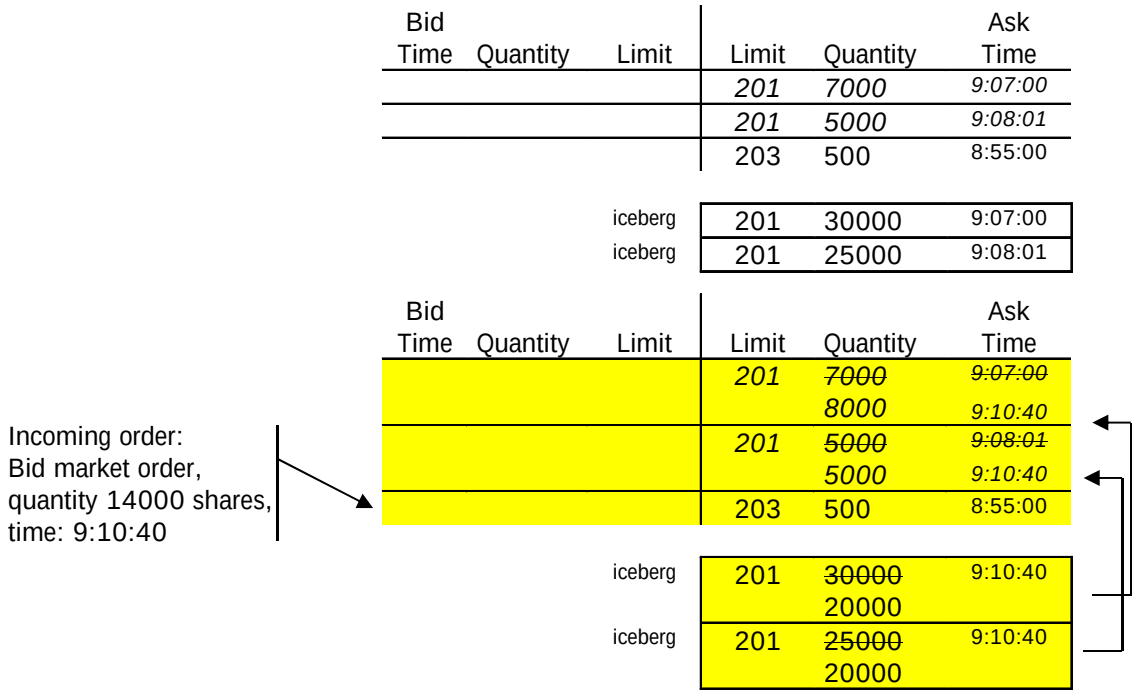
The incoming market order is executed against the peak (2000) of the iceberg order at € 201. Then the next peak of the iceberg order is introduced in the order book with a new time stamp (9:07:00). It is executed against the remaining part of the incoming order (3000). The remaining peak of the iceberg order (7000) is shown in the order book with a volume of 30000 behind it.

Another iceberg order is entered into the order book.



The peak of the iceberg order cannot be executed against orders on the other side of the book. The visible part (peak) of the iceberg order is entered into the order book according to price/time priority with a volume of 25000 behind it.

A new bid market order meets the order book.



The incoming market order first is executed against the peak of the iceberg order at € 201 with a volume of 7000.

Before the next peak of this iceberg order is introduced, the peak of the iceberg order at the same limit is executed (5000).

A new peak of the first iceberg order is introduced in the book with a new time stamp (9:10:40) and a remaining volume of 20000 behind it.

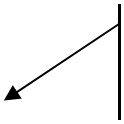
A new peak of the second iceberg order is introduced in the book with a new time stamp (9:10:40) and a remaining volume of 20000 behind it.

Then the remaining part of the incoming order (2000) is executed against the new peak of the first iceberg order. The remaining part of this iceberg order (8000) is shown in the book with a volume of 20000 behind it.

Another limit order is entered into the order book.

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
			201	*8000*	*9:10:40*
			201	*5000*	*9:10:40*
			203	500	8:55:00
		iceberg	201	20000	9:10:40
		iceberg	201	20000	9:10:40

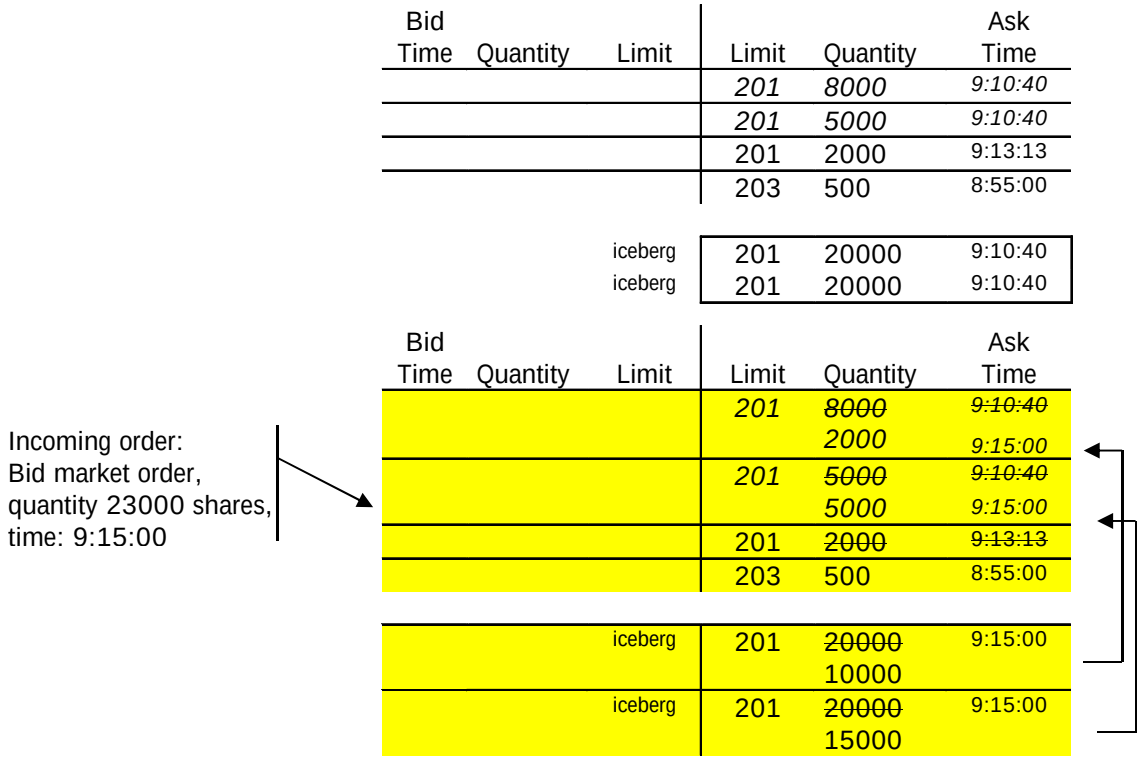
Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
			201	*8000*	*9:10:40*
			201	*5000*	*9:10:40*
			201	2000	9:13:13
			203	500	8:55:00
		iceberg	201	20000	9:10:40
		iceberg	201	20000	9:10:40



Incoming order:
Ask limit order, limit € 201,
quantity 2000 shares,
time: 9:13:13

The new limit order cannot be executed against orders on the other side of the book. It is entered into the order book according to price/time priority.

A new bid market order meets the order book.



The incoming bid market order first is executed against the lowest ask limit on the other side of the order book which is represented by a peak (8000) of an iceberg order at € 201.

Before the next peak of the iceberg order is introduced, all other peaks and limit orders at the same limit have to be executed. Therefore, the next peak (5000) and the next limit order (2000) in the order book are executed against the incoming order.

A new peak of the first iceberg order is introduced in the order book with a new time stamp (9:15:00) and a remaining volume of 10000 behind it.

A new peak of the second iceberg order is introduced in the order book with a new time stamp (9:15:00) and a remaining volume of 15000 behind it.

The remaining volume (8000) of the incoming order then is executed against the new peak of the first iceberg order at € 201. A remaining peak of this iceberg order of 2000 is shown in the order book.

Examples with regard to the features of hidden orders:

In the examples, hidden orders are marked with “H” after the limit. In the open order book, hidden orders are not disclosed to the market participants.

A market order meets an order book in which hidden orders and limit orders are at the same limit on the opposite order book side.

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	200 (H)			
9:02	4000	200			

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	200			
9:02	~~4000~~	200			

Incoming order:
Market ask order,
Volume 4000 shares

Execution of the incoming market order takes place at the highest bid limit of € 200. As there are a visible as well as an invisible order (hidden order) at that limit, the visible order is executed with priority. Better time priority of the hidden order is irrelevant.

A market order meets an order book in which limit orders and hidden orders at different limits are on the opposite order book side.

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01	6000	200 (H)			
9:02	1000	199			

Bid					Ask
Time	Volume	Limit	Limit	Volume	Time
9:01	~~6000~~	200 (H)			
9:02	1000	199			

Incoming order:
Market ask order,
Volume 6000 shares

Execution of the incoming market order takes place at the highest bid limit of € 200. Because no visible order exists at this limit, the hidden order is executed.

13.2.3 Basic Matching Rules for Midpoint Orders

An incoming midpoint order is checked immediately for executability against midpoint orders on the other side of the order book whose execution takes place according to volume/time priority under consideration of the MAQ.

Execution price is always the midpoint of the currently available visible Xetra bid/ask spread in Continuous Trading. Execution may take place fully in one or more steps, partly or not at all, thereby generating no, one, or various trades.

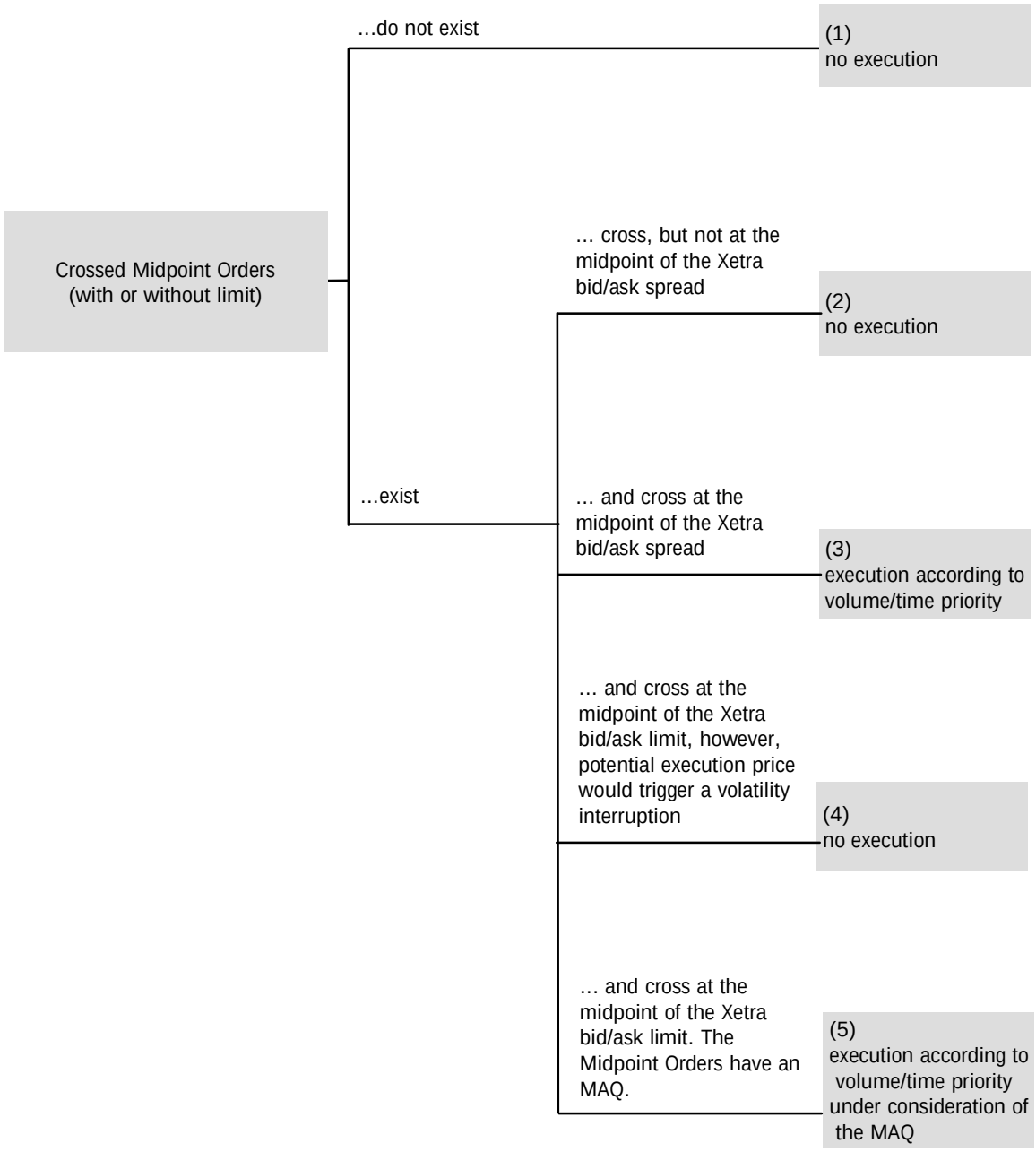
Non-executed or only partly executed midpoint orders are entered in the order book and sorted according to volume/time priority.

Volume/time priority under consideration of the MAQ regulates that the midpoint order with the highest entered volume (i.e. the volume prior to any potential partial executions) at the moment of execution is executed first. Due to the MAQ, strict volume/time priority is disregarded in particular situations, e.g. for the purpose of optimizing the executable volume or for releasing a crossed order book which would otherwise be blocked by a specific MAQ.

If various midpoint orders with the same volume priority exist, the midpoint order with the oldest time stamp is executed first.

As execution prices are limited to the midpoint of the currently available Xetra bid/ask spread in Continuous Trading, crossed, however non-executable midpoint orders may occur. Also crossed yet non-executable midpoint orders might occur, due to the MAQ.

The following figure gives an overview of possible order book situations of midpoint orders in Continuous Trading. Numbers in brackets refer to the corresponding example for the rule.

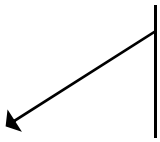


13.2.4 Matching Examples for Midpoint Orders

The following examples are given to clarify the basic matching rules for midpoint orders in Continuous Trading through illustration of exemplary order book situations.

Example 1: A limited midpoint order meets an order book with limited midpoint orders only on the other side. Due to their limit, they are not executable.
The currently available Xetra bid/ask spread is 197 – 202 (midpoint = 199.50).

Bid Time	Bid Volume	Midpoint Order Limit	Midpoint Order Limit	Ask Volume	Ask Time
9:01	6000	200			



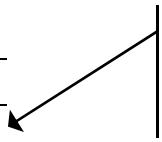
Incoming order:
Ask midpoint order,
Limit € 203, Volume
6000 shares

Bid Time	Bid Volume	Midpoint Order Limit	Midpoint Order Limit	Ask Volume	Ask Time
9:01	6000	200	203	6000	9:05

Although the highest bid limit exceeds the Xetra midpoint, it is lower than the lowest ask limit. Therefore, the incoming ask midpoint order is entered in the order book. No orders are executed.

Example 2: A limited midpoint order meets an order book with limited midpoint orders only on the other side. The midpoint orders cross, but not at the midpoint. Therefore, they are not executable.
The currently available Xetra bid/ask spread is 197 – 202 (midpoint = 199.50).

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	6000	198			



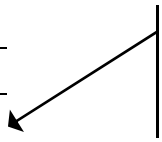
Incoming order:
Ask midpoint order,
Limit € 197, Volume
6000 shares

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	6000	198	197	6000	9:05

Although the highest bid limit is higher than the lowest ask limit, it does not exceed the Xetra midpoint. The incoming ask midpoint order is entered in the order book. No orders are executed. There are crossed midpoint orders which, however, are not executable at the midpoint of the currently available Xetra bid/ask spread.

Example 3: A limited midpoint order meets an order book with limited midpoint orders only on the other side. The midpoint orders cross at the midpoint and are executed.
The currently available Xetra bid/ask spread is 197 – 202 (midpoint = 199.50).

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	6000	200			



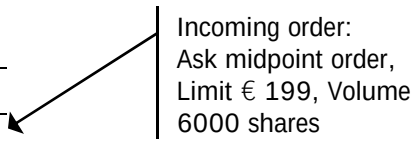
Incoming order:
Ask midpoint order,
Limit € 197, Volume
8000 shares

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	~~6000~~	200	197	2000	9:05

The highest bid limit exceeds the Xetra midpoint and is higher than the lowest ask limit, with the latter being below the Xetra midpoint. The order book is crossed at the midpoint of the currently available Xetra bid/ask spread. Therefore, 6000 shares are executed at € 199.50. 2000 remaining shares of the incoming ask midpoint order are entered in the order book.

Example 4: A limited midpoint order meets an order book with limited midpoint orders only on the other side. The midpoint orders cross at the midpoint. However, the potential execution price would trigger a volatility interruption. No execution takes place.
The currently available Xetra bid/ask spread is 197 – 202, the midpoint (199.50) is outside the dynamic respectively static price range.

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	6000	200			



Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	6000	200	199	6000	9:05

The highest bid limit exceeds the Xetra midpoint (199.50) and is higher than the lowest ask limit, with the latter being below the Xetra midpoint. The order book is crossed at the midpoint of the currently available Xetra bid/ask spread. However, the potential execution price of € 199.50 would trigger a volatility interruption. Therefore, the incoming midpoint order is entered in the order book and no execution takes place. No volatility interruption is triggered.

Example 5: A limited midpoint order with MAQ meets an order book with limited midpoint orders only on the other side. One of them has an MAQ. The midpoint orders cross at the midpoint. In order to release the order book crossed at the midpoint, strict volume/time priority is disregarded. Execution takes place at the midpoint.
The currently available Xetra bid/ask spread is 197 – 202; midpoint 199.50.

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	5000	201			
9:02	4000 (3000 MAQ)	200			

Incoming order:
Ask Midpoint Order,
Limit € 199, Volume 6000 shares, MAQ 6000 shares

Bid Time	Volume	Midpoint Order Limit	Midpoint Order Limit	Volume	Ask Time
9:01	2000	201			
9:02	1000 (1000 MAQ)	200			

The highest bid limit exceeds the Xetra midpoint (199.50), and is higher than the lowest ask limit which is below the Xetra midpoint. The order book is crossed at the currently available midpoint of the Xetra bid/ask spread. Full execution of the largest bid order is not possible, although its priority is higher due to its higher volume. The reason is that its volume does not fulfill the MAQ of the incoming ask midpoint order and the remaining volume of the incoming ask midpoint order does not suffice to fulfill the MAQ of the second bid midpoint order. To optimize the executable volume, the incoming ask midpoint order is executed against the MAQ (3000 shares) of the bid midpoint order with lower priority and against 3000 shares of the bid midpoint order with higher priority.

13.2.5 Midpoint order matching with Xetra Block Agents

The midpoint order matching will persist and be enhanced by the additional liquidity provision of Xetra Block Agents. Xetra Block Agents receive information about midpoint orders in a specific instrument when the order value is above or equal to a pre-defined threshold value in order to identify executable situations against orders that are available for execution in their MiFID regulated execution venues. The delivered information contains only side, quantity, limit, MAQ and system order number of all midpoint orders in an instrument.

If a Xetra Block Agent identifies an execution possibility against orders that are available for execution in his MiFID regulated execution venue, he can interrupt midpoint order matching by setting it into a freeze

phase.[4] The Xetra Block Agent can upon his discretion freeze both the current status of the midpoint orders in the order book as well as the midpoint price derived from the Xetra order book at that time.
During this freeze phase, other Xetra participants are not able to enter, modify or delete orders and freeze requests of other Xetra Block Agents are not processed. Only the Xetra Block Agent who initiated the actual freeze phase is allowed to take action. He may:

- enter a midpoint order to match the executable midpoint orders in the book. Matching takes place according to volume/time priority under consideration of the MAQ on the basis of the frozen midpoint price. The midpoint book is immediately unfrozen.
- send a non-executable midpoint order during the freeze phase which will not be matched but unfreeze the midpoint book.
- wait until the midpoint book is automatically unfrozen after a pre-defined time interval has elapsed (e.g. 1 second).

A partial execution of midpoint orders entered by the Xetra Block Agent during the freeze phase will also end the freeze phase. The remaining quantity will remain in the book for regular midpoint order matching unless canceled or modified.

During freeze phases, other market participants are not able to enter, modify or delete midpoint orders. Such transactions are rejected and will not be stored for midpoint book entry after release of the freeze phase. As soon as the freeze phase is released, a new midpoint is taken from the Xetra order book and resting midpoint orders are checked for execution possibilities against each other before new trade entries are processed.

If a Xetra Block Agent submits a freeze request for the midpoint book during an auction or volatility interruption in the Xetra order book, the freeze request is rejected. If the midpoint book is already frozen and an auction or volatility interruption is triggered in the Xetra order book, the freeze phase is aborted by the system.

For each midpoint book, freeze and unfreeze messages will be displayed to all Xetra members.

[4] The ability of Xetra Block Agents to submit freeze requests can be activated or deactivated within the trading system. Currently, this functionality is deactivated.