Information Paper

Trading Mechanism of Pre-opening Session (POS) in the Securities Market

NOTE TO THE READER:

This document aims to facilitate understanding of investors and traders who may participate in the Pre-opening Session (POS), and is compiled based on the relevant Rules of the Exchange ("Trading Rules").   While due care has been taken to provide accurate and up-to-date information, this document is for general reference only and if any discrepancies or inconsistencies with the Trading Rules are found, the meanings in the Trading Rules shall prevail.   HKEX and its subsidiaries shall not be responsible or liable for any loss or damage, directly or indirectly, arising from the use of or reliance upon any information provided in this document.

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1. Background

The Pre-opening Session (POS) in the securities market was introduced in March 2002 with the purpose of determining a fair opening price for securities and reducing the loading of the trading system at the commencement of the Continuous Trading Session (CTS). The auction mechanism of the POS has remained largely unchanged since its launch.

In 2019, HKEX conducted a market consultation and proposed a series of enhancements to the POS auction mechanism. The enhancements involve adopting relevant features from the Closing Auction Session (CAS), which were introduced in 2016, to help improve price discovery and increase trading liquidity in the POS. HKEX concluded that there is substantial market support for the proposed enhancements of POS, and the enhanced POS was rolled out on 19 October 2020.

2. Applicable Securities

The POS covers all equities (including depository receipts, investment companies, preference shares and stapled securities), funds (including Exchange Traded Funds (ETFs) and Real Estate Investment Trusts (REITs)) and leveraged and inverse products (L&I Products) (together the "POS Securities").

Debt securities, structured products (including Derivative Warrants (DWs), Callable Bull/Bear Contracts (CBBCs) and Inline Warrants (IWs)), equity warrants and rights are not covered by the POS. Order and manual trade input on these non-POS Securities during the POS will be rejected. Trading of these securities, and acceptance of order and manual trade input, will start in the CTS instead.

(L&I Products were included in the CAS when the enhanced POS was implemented on 19 October

Market participants may obtain the full list of POS Securities by filtering the "POS Eligible" indicator from the [Full List of Securities](#) which is available on HKEX website.

3.   POS Trading Hours and Periods

The overall duration of the POS is from 9:00am – 9:30am. It consists of an Order Input Period, a No-cancellation Period, and Random Matching Period, and a Blocking Period.

Periods	Trading Hours	Duration
Order Input Period	9:00am – 9:15am	15 mins
No-cancellation Period	9:15am – 9:20am	5 mins
Random Matching Period *(order matching will start randomly during this period)*	9:20am – up to 9:22am	0-2 mins
Blocking Period	After matching – 9:30am	8-10 mins

Model of POS and Periods

Order Input Period (9:00am - 9:15am)

In the first period (a 15-minute Order Input Period), at-auction orders and at-auction limit orders within the ±15% price limits can be entered for POS Securities. Outstanding orders can also be amended or cancelled during this period.

No-cancellation Period (9:15am - 9:20am)

Starting from the second period (a 5-minute No-cancellation Period), the allowable price limits are tightened, and the prices of newly entered at-auction limit that aim to be executed during the POS must be between the highest bid & lowest ask recorded at the end of Order Input Period (i.e. recorded at 9:15am).

In order to build an order book with deeper liquidity after the market opens, passive at-auction limit orders will still be accepted provided that these orders are within ±15% from the previous closing price. However, these passive orders will not be matched during the POS (see further details in Section 4).

Both at-auction orders and at-auction limit orders can be entered during the No-cancellation Period, but no orders can be amended or cancelled.

Random Matching Period (9:20am - up to 9:22am)

In the third period (Random Matching Period which is up to two minutes in length), the order rules from the No-cancellation Period apply, and order matching takes place randomly within the two-minute period.   The Random Matching Period will end immediately upon the start of order matching.

Order Matching (at a random time between 9:20am and 9:22am)

At the end of the Random Matching Period, orders for all POS Securities are matched at their respective final Indicative Equilibrium Prices (IEP).   Order matching is based on order type (at-auction orders first and then at-auction limit orders), price and then time priority.   In cases where the final IEP cannot be established during the POS, no order matching will occur.

Unfilled at-auction orders will be cancelled by the Orion Trading Platform – Securities Market (OTP-C), while unfilled at-auction limit orders with order price not deviating 9 times or more from the nominal price will be converted to limit orders and carried forward to the CTS.

Blocking Period (after order matching - 9:30am)

Once order matching is completed, the Blocking Period starts immediately and continues until 9:30am.   Orders and manual trades can no longer be entered, amended or cancelled during the Blocking Period.

4.   Price Limits

A two-stage price limit mechanism is applied to control the price of at-auction limit orders (i.e. at-auction orders and manual transactions are not subject to these price

limits) which are input during the POS.

	Applicable Period(s)	Time / Duration	Allowable Price Limits
Stage 1	Order Input Period	9:00am - 9:15am	Stage 1 Upper and Lower Price Limits are ± 15% from previous closing price respectively • Buy orders: Previous Close - 15% ≤ Order Price ≤ Previous Close + 15% • Sell Orders: Previous Close - 15% ≤ Order Price ≤ Previous Close + 15%
Stage 2	No-Cancellation Period and Random Matching Period	9:15am - time of random matching	Stage 2 Upper Price Limit = the higher of the highest bid price and the lowest ask price recorded at the end of the Order Input Period at 9:15am. Stage 2 Lower Price Limit = the lower of the highest bid price and the lowest ask price recorded at the end of the Order Input Period at 9:15am. • Buy Order: Previous Close – 15% ≤ Order Price ≤ Stage 2 Upper Limit • Sell Order: Previous Close + 15% ≥ Order Price ≥ Stage 2 Lower Limit IEP will only be formed within the range of the highest bid price & lowest ask price recorded at the end of Order Input Period at 9:15am

Stage 1 price limit: applicable to the Order Input Period between 9:00am - 9:15am

The price limits are set at ±15% from the POS reference price, which is the previous closing price of a POS Security (or the adjusted closing price for POS Securities that have undergone corporate actions).

At-auction orders and at-auction limit orders within the ± 15% of the previous closing price can be entered starting from the Order Input Period.   An at-auction limit order which has a limit price outside the permissible price limit will be rejected by the OTP-C.

The Stage 1 price limits and the POS reference price are disseminated to the market via Orion Market Data Platform – Securities Market (OMD-C) before the start of the Order Input Period.

In the absence of a previous closing price (e.g. for IPO stocks) or for stocks resuming from trading suspension[1], the Stage 1 price limit checking will be not be applied for the Order Input Period.

Stage 2 price limit: applicable to the No-Cancellation Period and Random Matching Period between 9:15am - 9:22am

Starting from the No-cancellation Period, the allowable price limits will be further tightened and is set at the highest bid price and the lowest ask price recorded at the end of the Order Input Period at 9:15am.   More specifically:

> Stage 2 Upper Price Limit = the higher of the highest bid price and the lowest ask price recorded at the end of the Order Input Period at 9:15am.

> Stage 2 Lower Price Limit = the lower of the highest bid price and the lowest ask price recorded at the end of the Order Input Period at 9:15am.

The Stage 2 price limits will remain unchanged for the whole period of No-cancellation and Random Matching Periods and the price limits will be disseminated to the market via OMD-C at the beginning of No-cancellation Period.

During the No-cancellation Period and Random Closing Period, the prices of newly input at-auction limit orders that aim to be executed during the POS must be between the Stage 2 Upper Price Limit and the Stage 2 Lower Price Limit since the final IEP will

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[1] For stocks resuming from a trading suspension, the Stage 1 price limit check will not be applied for the first day of trading resumption only (no matter whether there is trade recorded on the day of trade resumption or not).

only be formed within the Stage 2 price limits, and no orders can be amended or cancelled.

At this stage, in order to build an order book with deeper liquidity after the market opens, <u>passive</u> at-auction limit orders (i.e. buy order price lower than the Lower Price Limit and sell order price higher than the Upper Price Limit) will still be accepted provided that these orders are within ±15% from the previous closing price.   However, it should be noted that these passive orders will not be matched during the POS since their prices fall outside the range of Stage 2 Upper Price Limit and Lower Price Limit.

In case only buy orders or only sell orders exist (or both do not exist) at the end of Order Input Period at 9:15am, the Stage 2 price limits will be set at ±15% from previous closing price (i.e. same as Stage 1 price limit).

POS trading arrangements for Exchange Traded Products (ETPs) on their first day of listing (listing day)

In order to prevent extreme price movement during the POS for ETPs (covering ETFs and L&I Products) on their listing day,   the ±15% price limit during the POS is applied to ETPs on their listing day, and the ETP's pre-IPO net asset value per unit will be used as the POS reference price for price validation.   ETP issuers will be required to publish an announcement on HKEXnews indicating the ETP's NAV by 5:00pm on the trading day before listing.

24-spread rule

The price checking in relation to 24-spread rule is not applicable during the POS.

9-time rule

The 9-time rule for at-auction limit orders is applicable during the POS. Notwithstanding the two-stage price limits mentioned above, the price of an order entered into the OTP-C during the POS shall not be made at a price that deviates 9 times or more from the nominal price, if available.

Price warning

The price warning mechanism (i.e. the optional warning message requiring broker reconfirmation when the input price is more than 20 spreads away from the nominal price) is maintained in the POS.

5. Order Types

Only at-auction orders and at-auction limit orders may be input during the POS and these order types can only be input starting from 9:00am (the beginning of the Order

Input Period).

Any order and manual trade input for non-POS Securities during POS are also rejected.

At-auction Order

An at-auction order is an order with no specified price and is entered into the OTP-C for execution at the POS securities' final IEP, if any, determined in the POS. It enjoys a higher order matching priority than an at-auction limit order and will be matched in time priority at the final IEP in the POS.

At-auction Limit Order

An at-auction limit order is an order with a specified price. An at-auction limit order with a specified price at or more competitive than the final IEP (in case of buying, the specified price is equal to or higher than the final IEP, or in case of selling, the specified price is equal to or lower than the final IEP) may be matched at the final IEP. An at-auction limit order may be matched in price and time priority at the final IEP. No at-auction limit order will be matched at a price worse than its specified price.

6. Determination of Indicative Equilibrium Price (IEP)

IEP is the indicative price for order matching during an auction should the auction end at that moment of time. IEP is determined by the OTP-C based on a set of pre-defined rules.

IEP is the price within the highest bid and the lowest ask and at which the aggregate volume of matchable orders is maximized. In determining the maximum matchable volume, the volume of both at-auction orders and at-auction limit orders are taken into account. The IEP is continuously calculated during the POS.

An IEP is only available if the highest bid is equal to or higher than the lowest ask (i.e. a so-called "crossed order book"). For the determination of IEP, please refer to the rule 501(H)(1) prescribed in Chapter 5 of the Rules of the Exchange.

Indicative Equilibrium Volume (IEV) is the number of shares that can be matched at IEP.

IEP at the end of the Random Matching Period would be the final IEP.

7. Short Selling

Input of short selling orders, as at-auction limit orders with a price not lower than the previous closing price ("tick rule in POS"), will be allowed in the POS for POS Securities

which are Designated Securities eligible for short selling. However, input of short selling at-auction orders will not be allowed.

In addition, other price checks applied on the at-auction limit orders, such as the two-staged price limit, will also be applicable to short selling orders input in the POS. During the No-cancellation Period and Random Matching Period (where Stage 2 price limits applies), short selling at-auction limit orders cannot be made at a price below the previous closing price or the Stage 2 Lower Price Limit, whichever is higher.

In the absence of the previous closing price, input of short sell orders in the POS will be rejected.

Similar to the arrangement in the CTS, short selling of ETFs and L&I Products, as well as short selling of other POS Securities by certain participants, including Designated Index Arbitrage Short Selling by a Designated Index Arbitrage Short Selling Participant, Stock Futures Hedging Short Selling by a Designated Stock Futures Hedging Short Selling Participant, and Options Hedging Short Selling by an Options Market Maker or an Options Hedging Participant, are exempted from application of tick rule in the POS. Structured Product Liquidity Provider Short Selling by a Structured Product Liquidity Provider and Structured Product Hedging Short Selling by a Structured Product Hedging Participant, however, are disallowed in the POS as structured product trading is excluded in the POS.

Please refer to the list of [Designated Securities eligible for short selling](#) where the stocks with tick rule exemption will be indicated. The list will be updated from time to time.

8. Market Making and Liquidity Provision

Structured products

Structured products are excluded from the POS and liquidity provision of structured product is not applicable for DWs, CBBCs and IWs during the POS.

Market making securities

SMMs are allowed to input SMM orders during the POS to fulfil their market making obligations. They are allowed by the Trading Rules to input SMM orders during the POS. Eligible SMM transactions concluded by SMMs in the POS are eligible for the market making fee exemptions.

9. Trading Hours

Order matching of the opening auction will occur at a random time between 9:20am

and 9:22am.   However, it should be noted that the overall duration of the POS will be a total of 30 minutes from 9:00am to 9:30am, and continuous trading will start at 9:30am.

10. Severe Weather Arrangements

For further details of trading arrangements under severe weather, please refer to the severe weather arrangements page on the HKEX website.

11. Market Data Dissemination

The POS offer auction transparency by providing market participants with market information including the IEP, the IEV, the order queues, POS stock indicator, order imbalance information (direction and quantity), Reference Price, Stage 1 and Stage 2 price limits (upper and lower price limits) and Trading States during the POS.

The OMD-C system will disseminate the above information to the market.   Before the start of a trading day, the OMD-C message for providing reference data such as the previous closing price, lower and upper price limits for the Order Input Period (Stage 1 price limits) and whether a security is eligible for the POS or not on that day by a POS Security indicator.

At the end of the Order Input Period at 9:15am, Stage 2 price limits are disseminated for each POS Security.

The IEP and IEV are disseminated during the POS.   In addition, order imbalance information, including the buy/sell direction and the imbalance quantity, at the latest IEP are also disseminated during the POS when there is a change of order imbalance.

The relevant trading session status will be sent when the trading session is changed.

12. Callable Bull/Bear Contract (CBBC) Mandatory Call Event (MCE)

CBBC could be called (i.e. undergo an MCE) when its underlying asset hits the call price during the POS.

13. Input and Rejection of Manual Trades

Input of manual trade (for both Direct Business and Non-direct Business transactions) for POS Securities is allowed during the POS from the start of the Order Input Period until matching happens (i.e. from 9:00am to the time of matching which is a random

time between 9:20am-9:22am).

As structured products, debt securities, equity warrants and rights are excluded from trading in the POS, reporting of manual trades on these non-POS securities is disallowed in the POS. Exchange Participants (EPs) may report manual trades on these products starting from 9:30am.

Similarly, the OTP-C also accepts rejections of those manual trades (except for direct business transactions) which are inputted during the POS from the start of the POS until matching happens.

During the Blocking Period, input or rejection of manual trades would not be allowed.

14. Enquiries and Others

Market participants who want to further understand the details of the POS can refer to the following website, email accounts and hotline numbers:

Webpage	https://www.hkex.com.hk/pos
Email	Securities Market: OTPC@hkex.com.hk Market Data/OMD-C: IVSupport@hkex.com.hk
Hotline	Securities Market: 2840 3626 Market Data/OMD-C: 2211 6558