# **CONSULTATION PAPER** THE INTRODUCTION OF A **CLOSING AUCTION SESSION**

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Hong Kong Exchanges and Clearing Limited 香港交易及結算所有限公司

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# **EXECUTIVE SUMMARY**

This public consultation seeks views and comments from market practitioners, listed companies, investors, members of the public and Exchange Participants on the proposal to introduce an end-of-day closing trading session for all securities which allows the input of orders into the Stock Exchange's Automatic Order Matching and Execution System (AMS) for a single price auction (closing auction session) after the completion of the continuous trading session.

The introduction of a closing auction session aims to improve the determination of securities closing prices, facilitate trading at market close, and enhance market liquidity and the overall competitiveness of the Hong Kong securities market.

To provide a closing auction session that is easy for market participants to understand and use, Hong Kong Exchanges and Clearing Limited (HKEx) proposes adopting the trading mechanism that is used already for the pre-opening session. The pre-opening session has operated smoothly and has been well received by market participants since its introduction in 2002.

The proposed features of the closing auction session are summarised in Part C of this paper.

# **PART A: INTRODUCTION**

### **Current Closing Price Calculation Mechanism**

1. Currently, the closing price of a stock is determined by taking the median of 5 nominal prices<sup>1</sup> in the last minute of the continuous trading session. The system will take up to 5 snapshots of the nominal prices at 15-second intervals starting from 3:59:00 p.m. The five snapshot nominal prices are then arranged in ascending order and the median (i.e. the middle one) will then be taken as the closing price.

<u>Snapshot</u>	<u>Time</u>	Bid Price	Ask Price	Last <u>Recorded</u> <u>Price</u>	<u>Nominal</u> <u>Price</u>
1st	3:59:00 p.m.	\$39.40	\$39.50	\$39.50	\$39.50
2nd	3:59:15 p.m.	\$39.40	\$39.50	\$39.50	\$39.50
3rd	3:59:30 p.m.	\$39.30	\$39.40	\$39.50	\$39.40
4th	3:59:45 p.m.	\$39.30	\$39.40	\$39.40	\$39.40
5th	4:00:00 p.m.	\$39.20	\$39.30	\$39.30	\$39.30

2. The following example illustrates the calculation:

- 3. The five snapshot nominal prices are arranged in ascending order (i.e. \$39.30, \$39.40, \$39.40, \$39.50, \$39.50) and then the median (i.e. \$39.40) will be taken as the closing price. Choosing the median of five snapshot nominal prices ensures that the closing price will not be biased by one single trade concluded at a specific time.
- 4. The current closing price calculation method has been in use since 1987 starting initially with 3 snapshots of nominal prices. It was subsequently extended to 5 snapshots of nominal prices at the launch of AMS in 1993. At present, the system takes a few minutes to complete the closing price calculation for the whole market.

<sup>&</sup>lt;sup>1</sup> The nominal price in the continuous trading session is determined by comparing the current bid price, current ask price and last traded price / previous closing price, as the case may be. For details, please refer to Chapter 1 of the Rules of the Stock Exchange of Hong Kong.

### **Views on the Current Closing Price Calculation Mechanism**

- 5. Some market participants consider that the current closing price calculation method is simple and it provides the randomness that the closing prices will not be unreasonably biased by one single trade (i.e. the last trade). However, other comments on the current method have been obtained and are presented below:
  - (a) the last minutes of trading are often characterised by increased price volatility;
  - (b) it is difficult to achieve the closing price in order to facilitate the execution of portfolio valuation and index rebalancing activities. The result is that the Hong Kong market is one of the hardest closes to match and more difficult to trade than markets with closing auctions;
  - (c) the spread (the difference between the best bid and the best ask) often widens near the market close;
  - (d) it is difficult to understand by the general public in case the closing price is different from the last traded price; and
  - (e) most of the major overseas markets adopt end of day closing auctions to determine fair closing prices.
- 6. Some market participants were of the view that a closing auction would improve the existing method used for determining closing prices.

### **Practices in Major Overseas Markets**

- 7. The popularity of a closing auction mechanism has increased in recent years and has become the international practice adopted by most equity markets.
- 8. Numerous major overseas markets have call auctions at both market open and close. In fact, it appears that only a few stock exchanges including HKEx have adopted a pre-opening auction solely without introducing a closing auction.
- 9. A comparison of major overseas markets that have both pre-opening and closing sessions is presented along with a description of the applicable closing auction mechanisms and duration in Appendix I.
- 10. At these major overseas markets, the closing auctions operate in a manner similar to the opening auctions. The main difference is the duration of the closing sessions which are normally shorter and conclude in around 5 minutes.
- 11. In Asia, most of the major markets have adopted closing auctions to determine the closing price Australia, Korea, Japan, Singapore, Taiwan and Thailand. Through discussions with some Exchange Participants, they indicated that the closing auction was usually the most active trading period of the day for most Asian markets. The exchanges' experience in using an auction to close their equity markets and determine closing prices has been positive.

### **Experience with the Pre-opening Session in Hong Kong**

- 12. In March 2002, HKEx introduced its pre-opening session for the stock market for all securities. One key objective of introducing the pre-opening session was to determine a competitive opening price before the commencement of the continuous trading session.
- 13. Currently, the pre-opening session comprises an order input period from 9:30am to 9:45am; a pre-order matching period from 9:45am to 9:50am; an order matching period from 9:50am to 9:58am; and a blocking period from 9:58am to 10:00am during which no orders may be input nor resident orders matched. Since its introduction, the pre-opening session has operated smoothly and positive comments have been received from a broad cross section of market participants.
- 14. Based on statistics for the second half of 2006, over 1,700 listed securities have had transactions concluded during the pre-opening session. On average, these transactions contribute approximately 1.2% of total daily market turnover (i.e. \$420M). With respect to Hang Seng Index (HSI) constituent stocks, the percentage of daily turnover concluded by single price auction during the pre-opening session is about 1.6%. The pre-opening session also collects many limit orders that carry through to the 10:00 opening of the continuous trading session.

15. Through discussions with market participants and reviews of academic studies, some widely held views and comments on the closing auction have been collected and are presented in this section.

## **Reduce Trading Volatility**

- 16. Some Exchange Participants indicated that their clients have indicated a strong preference for a closing auction mechanism in Hong Kong to smooth out volatility. For example, some asset managers adopt a 'passive' approach to investment, i.e. their goal is simply to match the performance of a benchmark index. As the index performance is based on the closing prices of the underlying securities, it is in the clients' best interests for the asset managers to trade for their customers' accounts at the closing price. The asset managers therefore instruct their brokers to try to match this closing price used to calculate the relevant indexes.
- 17. However, on any given day, trading at the close of the market under the current closing mechanism is often significantly more volatile than trading during the rest of that day as brokers attempt to obtain the closing price of the relevant stock on behalf of their asset management clients based on the median of 5 nominal prices for that stock in the last minute. This volatility makes it more difficult for brokers (and therefore their clients) to consistently obtain the closing price.

### **Enhance Market Liquidity**

- 18. Some Exchange Participants were of the view that the consolidation of the order flow in a closing auction could overcome the problem of possible gaps and order imbalances that can arise in the continuous trading environment, particularly with respect to illiquid securities. Some felt that a closing auction could help complete an order that had not otherwise been filled during the continuous trading session. The closing auction will also offer an additional trading method for inactive securities which might contribute to enhanced liquidity.
- 19. The settlement price determined using a closing auction mechanism could also serve to enhance the liquidity of derivative instruments. In this regard some Exchange Participants cited the case of index arbitrage where the difference between the settlement price and actual unwinding prices can be so wide that the entire profit may be lost. They estimate that trading volumes would likely increase if the calculation of a final settlement price was determined by an auction system. For further details on the calculation of the final settlement price/official settlement price for HKEx's derivative instruments, please refer to Part D below. No proposal is being put forward at this time to change the final settlement price procedures for HKEx derivatives contracts.

### The Potential for Manipulation of Stock Prices

20. As indicated by some of the institutional participants interviewed, the closing auction is less susceptible to market manipulation considering the transparency of auction processes and based on their trading experience in major overseas markets with closing auction mechanisms.

- 21. Some Exchange Participants were of the view that the move to a auction closing mechanism could make the Hong Kong market more vulnerable to market manipulation at the close of trading than it presently is, in particular for illiquid stocks, and suggested that the closing auction should only be applied to the most liquid stocks, say HSI constituents, at the initial stage. The concern is that one or several orders can have a big effect on the closing price. However, an opposing view suggested that this problem is not unique to the closing auction. One or several orders can have the same effect using the current closing price calculation mechanism.
- 22. In any event, persons engaging in or attempting market manipulation would of course be subject to appropriate regulatory actions in the same way as they would under the current closing mechanism.

### **Market and Broker Concerns**

- 23. Some Exchange Participants consider that the current closing price calculation method (i.e. the median of the five 15 second snapshots) has worked well since 1993. A new closing auction for determining closing prices may cause confusion to the market. We believe these concerns can be addressed. To provide a closing auction session that is easy for market participants to understand and use, the proposed closing auction is similar to the current pre-opening auction. In addition, HKEx will arrange seminars, practice sessions and market rehearsals for market participants before any launch of a closing auction mechanism.
- 24. Some Exchange Participants are concerned that the implementation of a closing auction would engender system changes and other new operational arrangements. As a result, they may have to incur additional investment. However, by adopting a similar auction mechanism as in the current pre-opening session to the closing auction, it is anticipated that the cost and change to Exchange Participants' systems and operations would not be significant.

### **Academic Studies**

25. A review of academic studies indicates that the introduction of a closing auction reduces volatility at the market close. Further, it is said that a closing auction improves the quality of the price discovery process. The improved price discovery can also serve to increase the efficiency of the derivatives markets by making the marking-to-market of derivative products more orderly and by making it easier for traders to unwind their positions at appropriate prices.

## PART C: PROPOSED CLOSING AUCTION SESSION FOR COMMENTS

### **Trading Mechanism of the Closing Auction Session**

26. Similar to the current pre-opening session, the closing auction session will apply to all securities. It consists of an order input period, a pre-order matching period and an order matching period with the following proposed operating hours:

	Normal Day Trading	Half Day Trading (e.g. Christmas eve)
Order input period	16:00 to 16:05	12:30 to 12:35
Pre-order matching period	16:05 to 16:06	12:35 to 12:36
Order matching period	16:06 to 16:11	12:36 to 12:41

The operating hours may be revised after taking into account system performance and order patterns during the initial period.

### **Order Input Period**

- 27. All outstanding orders will be automatically carried forward from the continuous trading session to the order input period of the closing auction session. This arrangement should serve to enhance the liquidity and order flow for the closing auction.
- 28. During the order input period, only at-auction orders (without specified price) and at-auction limit orders (with specified price) will be accepted. Order types available during the continuous trading session, such as limit orders, enhanced limit orders and special limit orders, will not be accepted.
- 29. Orders will be accumulated and updated in the trading system continuously. These orders will be non-binding and may be modified or cancelled at any time between 16:00 to 16:05 or 12:30 to 12:35 (as the case may be) during which no matching occurs. During this period, an Indicative Equilibrium Price (IEP) and Indicative Equilibrium Volume (IEV)<sup>2</sup> will be continuously re-calculated as new orders are received and displayed on the stock pages as in the current pre-opening session.

 $<sup>^{2}</sup>$  In general, the IEP will be one of the prices which fall within the range of the highest bid price and the lowest ask price at which the aggregate of the value of executed trades is maximised. This calculation mechanism applies to both the order input period and the pre-order matching period. IEV is the number of shares that will be matched at the IEP.

### **Pre-order Matching Period**

- 30. During the pre-order matching period between 16:05 to 16:06 or 12:35 to 12:36 (as the case may be), only at-auction orders will be accepted and no orders can be modified or cancelled. This arrangement provides a mechanism to attract more at-auction orders.
- 31. As in the order input period, the IEP/IEV will be continuously updated as new orders are received and displayed on the stock pages throughout the pre-order matching period.
- 32. Some Exchange Participants suggested that at-auction orders entered should also be allowed to be cancelled during the pre-order matching period since traders may wish to hold back the orders if the IEP moves significantly against them in this period.

### **Order Matching Period**

- 33. During the order matching period from 16:06 to 16:11 or 12:36 to 12:41 (as the case may be), traders will not be allowed to input, modify or cancel any orders.
- 34. Orders gathered during the order input period and the pre-order matching period are matched by order type, price and time priority as is done in the pre-opening session. Note that an at-auction order has higher matching priority than other orders.
- 35. The final IEP of each security with matched orders will be determined based on the existing rules for the pre-opening session (Appendix II). The final IEP will be taken as the closing price.
- 36. In any case, if the closing auction session does not generate a closing price (i.e. no IEP), the existing method will apply using the median of the five 15 second snapshots taken in the last minute of continuous trading (i.e. the current closing price calculation method) as the closing price. In addition, all unmatched orders lapse after the closing auction session.

#### **Other Trading Arrangements in the Closing Auction Session**

- 37. At-auction orders and at-auction limit orders entered during the order input period and the pre-order matching period of the closing auction session will be subject to the same validation procedure as that in the pre-opening session.
- 38. There may be no closing auction session if the continuous trading session is terminated or adversely affected by an emergency, including but not limited to fire or other accident, typhoon, rainstorm, computer malfunction and other similar events. Under such circumstances, the current emergency arrangement for determining closing prices will follow (i.e. the last nominal prices will be used as closing prices).
- 39. Under the current arrangement for continuous trading, if an Exchange Participant is suspended from trading, orders entered by that Exchange Participant will be cancelled whilst trades executed before then will be binding. In the closing auction session, if an Exchange Participant is suspended from trading after the commencement of auction matching, all trades concluded by auction matching will be valid. This approach is also consistent with that in the pre-opening session.

### **Random Closing Alternative**

- 40. As noted from the comparison of major overseas markets (Appendix I), some overseas markets have a random closing session. Under this approach, the main difference is that the auction matching starts randomly within a defined time period. The precise moment of concluding the order input period and/or pre-order matching period is not known beforehand. This can make it more difficult for market players to input or remove orders immediately before the commencement of the order matching period with the intention of affecting the IEP.
- 41. For example, assuming auction matching is scheduled to take place at 16:05 and the actual matching time is randomly generated and occurs up to 15 seconds on either side of the above time, the auction matching may start at any time between 16:04:45 and 16:05:15. The Australian Stock Exchange, London Stock Exchange and Deutsche Bourse adopt random starts of their auction matching sessions.
- 42. Some Exchange Participants consider that the current auction mechanism for the pre-opening session has been in use since 2002 and no particular problems have arisen. They comment that a new random closing mechanism would require additional investments in system changes and other operational arrangements. As a result, the system costs for this would be appreciably more than the proposal to use existing AMS functionality.

# **PART D: OTHER CONSIDERATIONS**

### **Trading Hours**

- 43. Currently, the cash market closes at 16:00. Assuming the trading hours for the continuous trading session remain unchanged, with the introduction of a closing session, the effective trading hours of the cash market will be extended for the duration of the closing auction (say, around 11 minutes).
- 44. As a result, the current window (i.e. 15 minutes) between the closing of the cash market (16:00) and the derivatives market (16:15) will be narrowed accordingly. Some market participants considered that this window is useful for unwinding the position of derivative products after the underlying closing prices are generated. To retain the status quo, it was suggested that if the closing auction is adopted the closing time for the derivatives market should be extended accordingly.

### **Closing Prices Dissemination**

45. From January 2007, the securities closing prices are calculated automatically by the AMS/3 system after market close and disseminated to Exchange Participants and other market users around 16:03. Under the proposed closing auction session, the securities closing prices will be disseminated to the market after completion of the closing auction matching (i.e. around 16:11).

#### **Final Settlement Price (FSP) for Derivative Products**

- 46. Currently, the FSP for equity index products and stock futures traded on HKEx are determined by the average of the values of the index/stock price taken at five-minute intervals during the last trading day.
- 47. If a closing auction session is introduced, the closing price determined by the closing auction session could be considered in future as an option for calculating the FSP for derivative products. Some participants considered that single auction prices would better facilitate arbitrageurs wishing to unwind their arbitrage positions provided that the liquidity in the closing auction session was deep enough. Therefore, change to the current FSP calculation will only be considered after we ascertain the market effect resulting from the implementation of the closing auction.

## PART E: NEXT STEPS AND TIME FRAME

- 48. HKEx invites market practitioners, listed companies, investors, members of the public and Exchange Participants to consider the introduction of a closing auction session together with the proposed features set out in this consultation paper and forward to HKEx their views, suggestions and comments.
- 49. Please submit your comments to the address below on or before 7 May 2007 to:

Hong Kong Exchanges and Clearing Limited 12<sup>th</sup> Floor, One International Finance Centre 1 Harbour View Street Central Hong Kong

Re: Consultation Paper on the Introduction of a Closing Auction Session

Comments may also be sent by fax to (852)2868-5223 or by e-mail to <u>feedback@hkex.com.hk</u>. This consultation paper is also available on HKEx website at <u>http://www.hkex.com.hk</u>.

- 50. The names of persons who submit comments on this consultation paper together with the whole or part of their submissions may be disclosed to members of the public. Statements of HKEx's policy on handling personal data are set out in Appendix IV.
- 51. Following consideration of market responses, HKEx will issue a consultation conclusion summarising the main points made by respondents.
- 52. It is anticipated that the earliest time for the introduction of a closing auction session will be in **the second half of 2007** after taking into account market comments and readiness and the need for operational or system changes to be made.

## APPENDIX I: MAJOR OVERSEAS STOCK MARKETS WITH SINGLE PRICE AUCTION MECHANISM

Country	Opening Auction	Closing Auction	Duration of Closing Auction	Fixed Closing / Random Closing	Trading volume for Closing Auction <sup>4</sup> (% of total)
HKEx	Yes	No	N/A	N/A	N/A
Australian Stock Exchange	Yes	Yes	Order input – 16:00 to 16:10 Order matching – 16:10	Random (from 16:10 to 16:11)	7.7%
Shanghai Stock Exchange and Shenzhen Stock Exchange	Yes	No	N/A	N/A	N/A
Tokyo Stock Exchange <sup>2</sup>	Yes	Yes	Order matching – 15:00	Fixed	2.9%
Korea Stock Exchange	Yes	Yes	Order input – 14:50 to 15:00 Order matching – 15:00	Fixed	7.8%
Singapore Stock Exchange	Yes	Yes	Order input – 17:00 to 17:05 Order matching – 17:05 to 17:06	Fixed	8.0%
Deutsche Bourse	Yes	Yes	Order input – 17:30 to 17:35 Order matching – 17:35	Random (from 17:35:00 to 17:35:30)	N/A
Euronext Paris	Yes	Yes	Order input – 17:25 to 17:30 Order matching – 17:30	Fixed	N/A
London Stock Exchange (SETS) <sup>3</sup>	Yes	Yes	Order input – 16:30 to 16:35 Order matching – 16:35	Random (from 16:35:00 to 16:35:30)	N/A
New York Stock Exchange <sup>2</sup>	Yes	Yes	Order input – 9:30 to 15:58 Freeze time – 15:58 to 16:00 Order matching – 16:00	Fixed	N/A

Sources of information: Websites of exchanges and CSFB research report (Asian Closing Price Mechanisms)

- 1. The above mechanism refers to the main board market of the exchanges.
- 2. For Tokyo Stock Exchange and New York Stock Exchange, orders for closing auction are placed and shown throughout the day and matched immediately with the remaining limit orders after completion of the continuous trading.
- 3. For London Stock Exchange, the auction period will be extended (by a maximum of 13.5 minutes) under 2 situations: (i) when the indicative auction match price breaches the price tolerance level (which are predefined percentage thresholds either side of the dynamic base price (in general equal to the last traded price)); or (ii) if market orders would remain unexecuted following the auction matching.
- 4. Median daily volume over the period from June to August 2005.

## APPENDIX II: RULES FOR DETERMINING THE INDICATIVE EQUILIBRIUM PRICE

#### **Rules of the Stock Exchange of Hong Kong**

#### **Rules for Determining IEP**

- 501H.(1) An IEP will be calculated according to the following rules only if the highest bid price of the buy at-auction limit orders is equal to or higher than the lowest ask price of the sell at-auction limit orders:
  - (a) the IEP shall be one of the bid prices or ask prices which falls within the range of the highest bid price of the buy at-auction limit orders and the lowest ask price of the sell at-auction limit orders (inclusive of both prices) at which the aggregate size of the trades to be concluded based on the methodology specified in Rule 517(1)(a) is maximised;
  - (b) if more than one price satisfies Rule 501H(1)(a), the IEP shall be the price at which the normal order imbalance is the lowest. For the purposes hereof, normal order imbalance, in relation to a price, means the difference between the aggregate size of the buy at-auction orders and the buy at-auction limit orders with bid prices at or better than that price and the aggregate size of the sell at-auction orders and the sell at-auction limit orders with ask prices at or better than that price;
  - (c) if more than one price satisfies Rule 501H(1)(b), the IEP shall be-
    - (i) the highest of such prices if in relation to each and every of such prices, the aggregate size of the buy at-auction orders and the buy at-auction limit orders with bid prices at or better than that price is greater than the aggregate size of the sell at-auction orders and the sell at-auction limit orders with ask prices at or better than that price; or
    - (ii) the lowest of such prices if in relation to each and every of such prices, the aggregate size of the buy at-auction orders and the buy at-auction limit orders with bid prices at or better than that price is smaller than the aggregate size of the sell at-auction orders and the sell at-auction limit orders with ask prices at or better than that price;
  - (d) if more than one price satisfies Rule 501H(1)(b) and 501H(1)(c) does not apply, the IEP shall be the price which is the closest to the previous closing price. If two prices are of equidistant from the previous closing price, the IEP shall be the higher of the two prices. However, if the previous closing price is not available, the IEP shall be the highest of such prices.

## **APPENDIX III: LIST OF QUESTIONS**

#### List of Questions

- 1. Do you have any other comments on the application of a closing auction session? Please explain your view.
- 2. Do you support the proposal to introduce a closing auction session? Why or why not? Please explain your view.
- 3. Are there any other suggestions on the proposed features / trading arrangements of the closing auction which we ought to consider? Please explain your view.
- 4. What would be the estimated lead time required for changes to systems and operations of your firm to cater for the proposed closing auction session?
- 5. Do you have any comments on the random closing approach? Please explain your view.
- 6. Are there any other issues regarding the introduction of a closing auction session not mentioned in this consultation paper that we ought to consider? Please explain your view.

## APPENDIX IV: PERSONAL INFORMATION COLLECTION AND PRIVACY POLICY STATEMENT

#### PERSONAL INFORMATION COLLECTION

#### AND PRIVACY POLICY STATEMENT

#### **Provision of Personal Data**

1. Your supply of Personal Data to HKEx is on a voluntary basis. "Personal Data" in these statements has the same meaning as "personal data" in the Personal Data (Privacy) Ordinance, Cap 486.

#### **Personal Information Collection Statement**

2. This Personal Information Collection Statement is made in accordance with the guidelines issued by the Privacy Commissioner for Personal Data. It sets out the purposes for which your Personal Data will be used after collection, what you are agreeing to in respect of HKEx's use, transfer and retention of your Personal Data, and your rights to request access to and correction of your Personal Data.

#### **Purpose of Collection**

- 3. HKEx may use your Personal Data provided in connection with this discussion paper for purposes relating to this exercise and for one or more of the following purposes:
  - for performing or discharging HKEx's functions and those of its subsidiaries under the relevant laws, rules and regulations;
  - for research and statistical purposes;
  - for any other lawful purposes.

#### **Transfer of Personal Data**

- 4. Your Personal Data may be disclosed or transferred by HKEx to its subsidiaries and/or regulator(s) for any of the above stated purposes.
- 5. Your Personal Data may also be disclosed or transferred to members of the public in Hong Kong and elsewhere as part of the public discussion of this paper, including but not limited to disclosing your name to the public together with the whole or part of your comments by posting them on the HKEx website, publishing them in documents or by other means. If you do not wish your name to be disclosed to members of the public, please state so when responding to this paper.

#### Access to or Correction of Data

6. You have the right to request access to and correction of your Personal Data in accordance with the provisions of the Personal Data (Privacy) Ordinance. HKEx has the right to charge a reasonable fee for processing any data access request. Any such request for access to and/or correction of your Personal Data should be addressed to the Personal Data Privacy Officer of HKEx in writing by either of the following means:

By mail to:	Personal Data Privacy Officer
-	Hong Kong Exchanges and Clearing Limited
	12 <sup>th</sup> Floor, One International Finance Centre
	1 Harbour View Street
	Central
	Hong Kong
By email to:	pdpo@hkex.com.hk

#### **Retention of Personal Data**

7. Your Personal Data will be retained for such period as may be necessary for the carrying out of the above-stated purposes.

#### **Privacy Policy Statement**

- 8. HKEx is firmly committed to preserving your privacy in relation to Personal Data supplied to HKEx on a voluntary basis. Personal Data may include names, addresses, e-mail addresses, login names, etc, which may be used for the stated purposes when your Personal Data is collected. The Personal Data will not be used for any other purposes without your consent unless such use is permitted or required by law.
- 9. HKEx has security measures in place to protect against the loss, misuse and alteration of Personal Data supplied to HKEx. HKEx will strive to maintain Personal Data as accurately as reasonably possible and Personal Data will be retained for such period as may be necessary for the stated purposes and for the proper discharge of the functions of HKEx and those of its subsidiaries.