BRIEFING SESSION

IMPLEMENTATION OF
CLOSING AUCTION SESSION (CAS)
&
VOLATILITY CONTROL
MECHANISM (VCM)

HKEX
香 港 交 易 所

AGENDA

1 Implementation Schedule – Securities Market

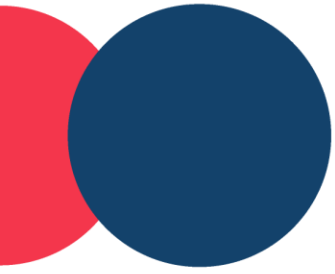**2** CAS Trading Practice Highlights

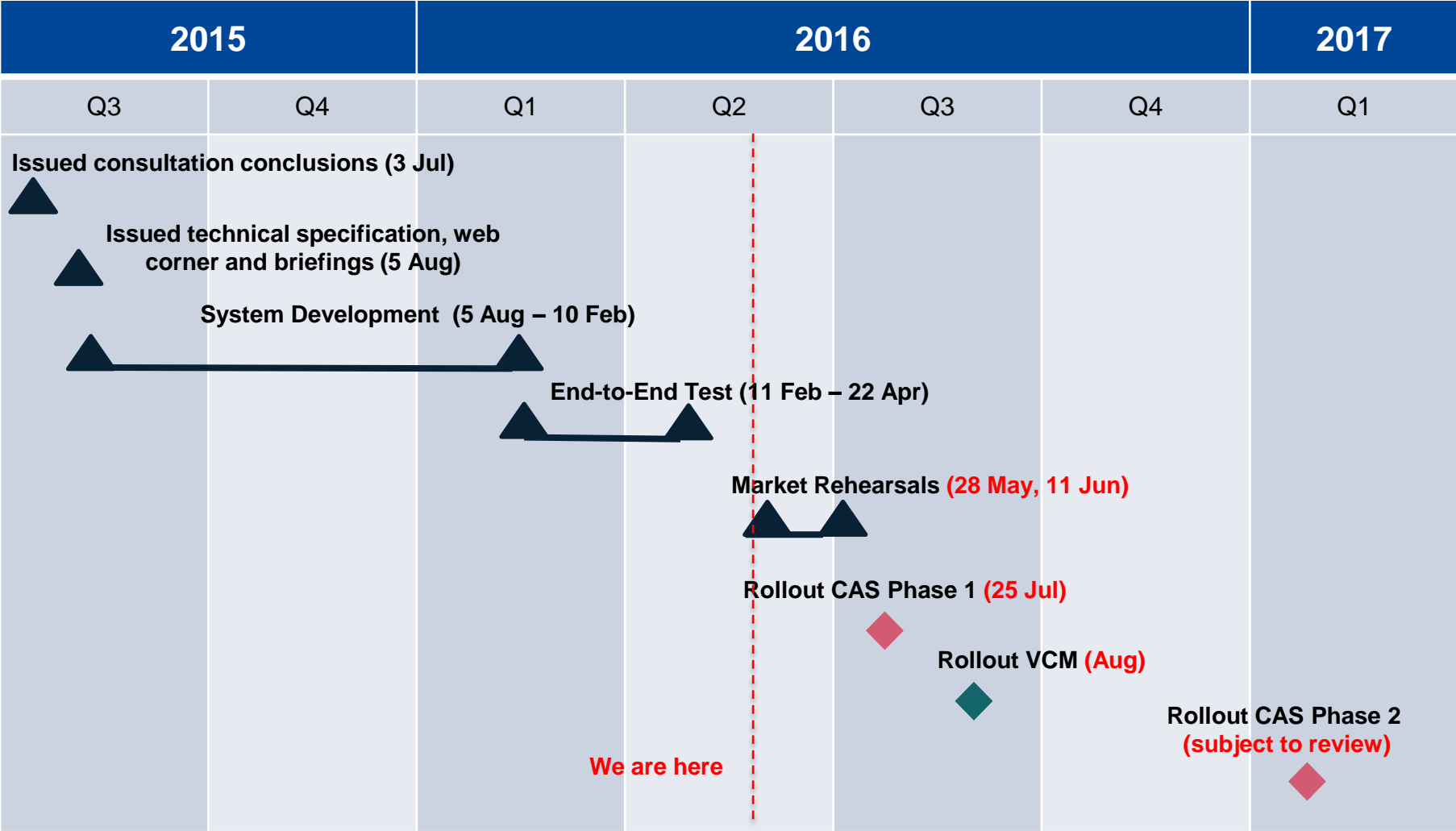**3** VCM Trading Practice Highlights

4 Market Rehearsals Upcoming on 28 May 2016 and 11 Jun 2016

IMPLEMENTATION SCHEDULE – SECURITIES MARKET

Implementation schedule – Securities Market

2015		2016					2017
Q3	Q4	Q1	Q2	Q3	Q4		Q1

Issued consultation conclusions (3 Jul)

Issued technical specification, web corner and briefings (5 Aug)

System Development (5 Aug – 10 Feb)

End-to-End Test (11 Feb – 22 Apr)

Market Rehearsals (28 May, 11 Jun)

Rollout CAS Phase 1 (25 Jul)

Rollout VCM (Aug)

Rollout CAS Phase 2 (subject to review)

We are here

**The schedule is subject to rule amendment approval by the SFC and market readiness
CAS Phase 1 to be launched tentatively on 25 July 2016
VCM for securities market to be launched tentatively in August after stabilization of CAS rollout**
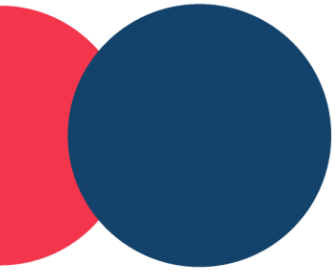
CAS TRADING PRACTICE HIGHLIGHTS

Overview of CAS model

Time	9:30-12:00; 13:00-16:00	16:00	16:01	16:06	16:08 16:10
Session	**Continuous Trading Session (CTS)**	**Reference Price Fixing Period (1 min)**	**Closing Auction Session**		
			Order Input Period (5 mins)	**No Cancellation Period (2 mins)**	**Random Closing Period (2 mins)**
Description	Reference price based on the median of 5-snapshot nominal prices in the last minute of CTS	• Calculate & publish reference price • No input, cancel & amend • Orders within price limit will be automatically carried forward	**Price Limit:** (a) 5% of Reference Price (b) Within lowest ask & highest bid **Order Type Allowed:** At-auction Order At-auction Limit Order **Order Input, Cancellation & Amendment:** Allowed Input/Cancel/Amend	Input Allowed, Cancel & Amend Not Allowed	

New Measures

1. Better transparency by showing the IEP price limit, the 16:00 CTS closing and imbalance information (direction and quantity)
2. Consider short selling with a price not below reference price in Phase 2
3. Allow matching of at-auction and at-auction limit orders at the reference price when an auction price cannot be determined

Eligible securities for CAS Phase 1

Phase 1 CAS Securities:

A. Major index constituents

1. Constituent stocks of Hang Seng Composite LargeCap and MidCap indexes

2. H shares which have corresponding A shares listed on Mainland securities exchanges

B. All ETFs

Handling on addition and deletion to relevant indexes and AH stocks

- Finalized list of Phase 1 CAS securities will be published on HKEX website before the tentative launch date of 25 Jul 2016

- During Phase 1 CAS:

  - Any addition of constituent stocks to Hang Seng Composite LargeCap and MidCap indexes will be added to list of CAS securities <u>on same date</u>

  - In order to maximize the stability and continuity of Phase 1 CAS operations, any deletion from these indexes will <u>not</u> be removed from the list of CAS securities

  - Newly listed ETFs, and H shares which have corresponding A-share or A shares which have corresponding H share, would be added to the CAS securities list <u>on their first day of listing</u>

Price limit in CAS

	Applicable session	Time Period	Scope of price limit
Stage 1	Order Input Period	16:01 - 16:06	± 5% from reference price
Stage 2	No Cancellation Period Random Closing Period	16:06 - time of random close	Within the lowest ask & highest bid at the end of Order Input Period as recorded at 16:06

Stage 1 - 16:01-16:06

Handling of CTS outstanding orders

- All outstanding orders from CTS, including short selling or market making orders, within ± 5% price limit will be automatically carried over from CTS to CAS. System will treat all such orders as at-auction limit orders

- Aggressive orders (i.e. buy order > upper limit and sell order < lower limit) will be cancelled by AMS/3 automatically

- Passive orders (i.e. buy order < lower limit and sell order > upper limit) will remain on order book but will not be executed in CAS

New orders input during CAS

- Input of new at-auction limit order with price outside the price limit will be rejected by AMS/3

- New short sell and market making orders disallowed in CAS

Price limit in CAS

Stage 2 - 16:06 until time of random close (same time for all CAS securities)

- In case only buy orders or only sell orders exist (or both do not exist) at end of Order Input Period at 16:06, Stage 2 price limit will simply be set at ± 5% from reference price (i.e. same as Stage 1)

- In any cases, order price shall not deviate more than 5% from reference price

Example for Stage 2 price limit

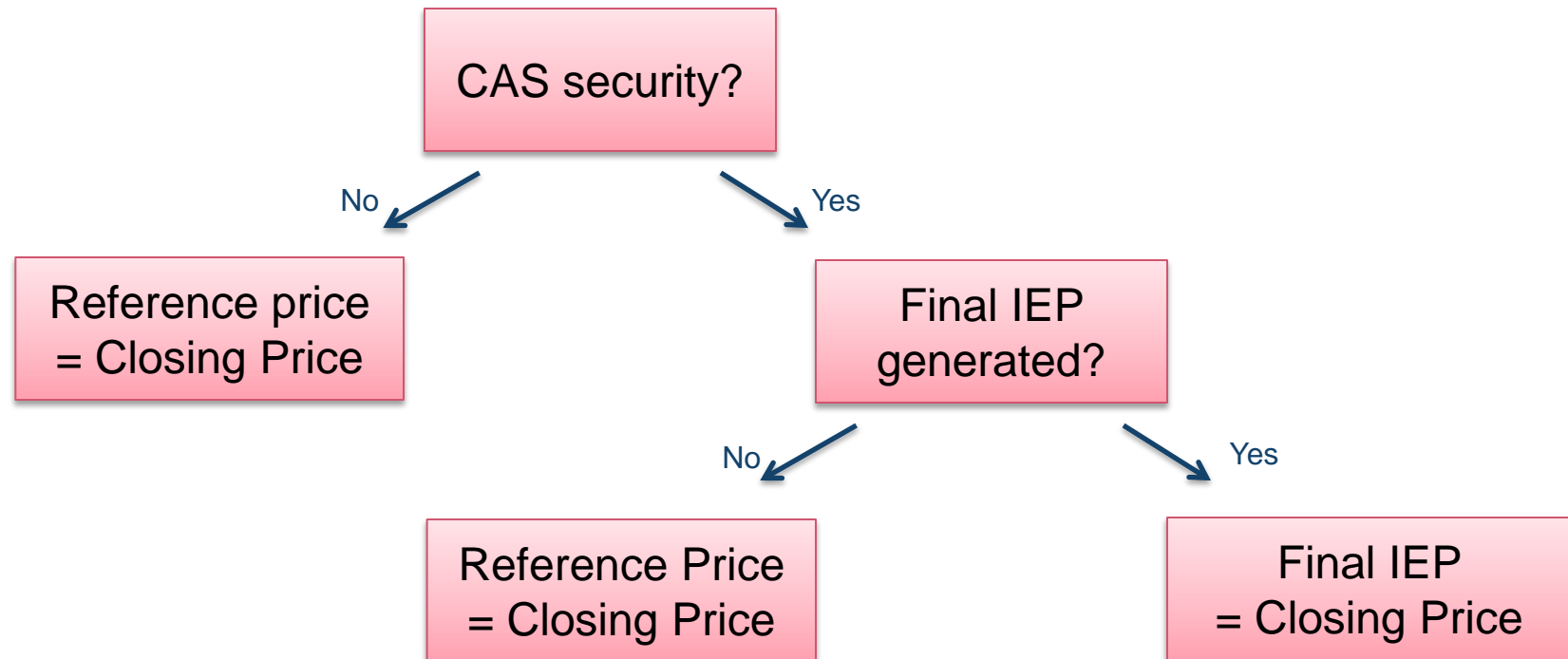| Time	Highest Bid	Lowest Ask	IEP	Price Limit (Stage 2)
16:06:00 (at the end of Order Input Period)	98.00	103.00	~	98.00 – 103.00
16:06:25	99.00	102.00	~	98.00 – 103.00
16:08:01	102.00	100.00	100.00	98.00 – 103.00

Other price checking during CAS

- Price checking in relation to 24 spreads rule will <u>not</u> be applicable during CAS

- 9 times rule checking for at-auction limit order will be applicable during CAS

- The existing price warning (order price > 20 spreads from nominal) will still apply

Closing price determination

After CAS implementation:

- Generally Final Indicative Equilibrium Price (Final IEP) will be the closing price for a CAS security

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                        ┌─────────────────┐
                        │  CAS security?  │
                        └─────────────────┘
                   No  /                   \  Yes
                      ↓                      ↓
         ┌──────────────────┐      ┌─────────────────┐
         │  Reference price │      │    Final IEP    │
         │  = Closing Price │      │   generated?    │
         └──────────────────┘      └─────────────────┘
                                   No  /              \  Yes
                                      ↓                ↓
                        ┌──────────────────┐  ┌──────────────────┐
                        │  Reference Price │  │    Final IEP     │
                        │  = Closing Price │  │  = Closing Price │
                        └──────────────────┘  └──────────────────┘
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Order matching

1. After end of Random Closing Period, no further input / amendment / cancellation of orders are allowed during order matching

2. Orders are then matched according to order type (at-auction > at-auction limit), price and time priority at the final IEP (i.e. closing price)

3. If final IEP cannot be determined, reference price will serve as the final IEP for matching. In this case, at-auction orders and at-auction limit orders with price at or better than the reference price will be matched at the reference price

4. If both IEP and reference price cannot be determined, then there will be no automatic order matching

Short selling

During Phase 1 of CAS:

- Short selling will not be implemented

- Input of new short selling order during CAS will not be allowed

Short selling orders carried forward from CTS

1. Outstanding short selling orders input during CTS which order price is <u>higher than or equal to the lower price limit</u> (i.e. order price >=95% of reference price) will be automatically carried forward to CAS and will be treated as at-auction limit orders

2. In other words, outstanding short selling orders input during CTS will be cancelled and not carried forward if order price <u>is lower than the lower limit</u> (i.e. order price < 95% of reference price)

3. For short selling orders carried forward form CTS

    - EPs are allowed to cancel and reduce quantity of the orders during CAS; the order priority will be maintained.

    - Change of order price or increase of quantity of short selling orders during CAS will not be allowed

Market data dissemination

Market data	When disseminated
CAS stock indicator	Start of trading day
Reference price (for both CAS and non CAS securities)	During Reference Price Fixing Period (between 16:00 and 16:01)
Stage 1 upper and lower price limit (For Order Input Period)	
IEP	Continuously updated during CAS (from 16:01 until time of random closing) if there is any change
IEV	
Order imbalance and direction	
Stage 2 upper and lower price limit (For No-cancellation and Random Closing Periods)	At 16:06
Closing price (for both CAS and non CAS securities)	After completion of closing price calculation of respective CAS securities or non CAS securities (i.e. a time between 16:08 and 16:10)

Trading hours after CAS (Derivatives Market)

Trading Day (Except Last Trading Day)	Full-Day Trading		Half-Day Trading	
	Existing Closing Time	New Closing Time	Existing Closing Time	New Closing Time
Index Futures & Options	16:15	16:30	12:00	12:30
Currencies Futures	16:15	16:30	12:00	12:30
Commodities Futures	16:15	16:30	12:00	12:30
HIBOR Futures	17:00	Unchanged	12:00	Unchanged
Stock Futures and Options	16:00	Unchanged	12:00	Unchanged

Trading Day (Except Last Trading Day)	AHFT Opening Time	
	Existing	New
AHFT Products	17:00	17:15

Details of the changes regarding the trading arrangements are set forth in Appendix 1 - 2

Final settlement price calculation algorithm changes after CAS

Changes in HSI & HHI Futures Final Settlement Price Calculation Algorithm

Readings	Existing Arrangement	New Arrangement
The 1st – 65th readings to be taken with 5 minutes interval	Index readings are taken during the period from: 9:30 a.m. to 12:00 noon.; and 1:00 p.m. to 3:55 p.m.	Unchanged
The 66th reading to be taken	The last index reading is taken when the official closing of stock prices are disseminated at the end of the continuous trading session in the SEHK	The last index reading is taken after the official closing of stock prices are disseminated at the end of the closing auction session in the SEHK

Changes in Stock Futures Final Settlement Price Calculation Algorithm

Readings	Existing Arrangement	New Arrangement
The 1st – 65th readings to be taken with 5 minutes interval	Readings are taken during the period from: 9:30 a.m. to 12:00 noon.; and 1:00 p.m. to 3:55 p.m.	Unchanged
The 66th reading to be taken	The last reading is the closing price taken when the official closing of stock price is disseminated at the end of the continuous trading session in the SEHK	The last reading is the closing price taken when they are disseminated at the end of the closing auction session in the SEHK

Typhoon arrangements after CAS (Cash Market)

Scenario	Proposed Arrangement
Typhoon Signal No. 8 or above is hoisted during trading hours before15:45 (for full day trading) or 11:45 (for half day trading)	• Trading will terminate 15 minutes after the hoisting of the Signal • There will be no CAS for that trading day
Typhoon Signal No. 8 or above is hoisted at or after 15:45 (for full day trading) or 11:45 (for half day trading)	• Trading for the day will continue until the end of the CAS

Typhoon arrangements after CAS (Derivatives Market)

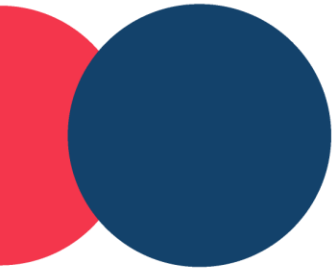| Market	Full-Day Trading		Half-Day Trading	
	Existing Arrangement	New Arrangement	Existing Arrangement	New Arrangement
Stock Index Futures and Options **Currencies Futures** **Commodities Futures**	Trading will be terminated 15 minutes after hoisting	Trading will be terminated 15 minutes after hoisting except that - if it hoists at or after 15:45 but before 16:00, trading will be terminated at 16:15	Trading will be terminated 15 minutes after hoisting	Trading will be terminated 15 minutes after hoisting except that - if it hoists at or after 11:45 but before 12:00, trading will be terminated at 12:15
HIBOR Futures	Trading will be terminated 15 minutes after hoisting	Trading will be terminated 15 minutes after hoisting except that - if it hoists at or after 15:45 but before 16:00, trading will be terminated at 16:15	Trading will be terminated 15 minutes after hoisting	Unchanged
Stock Futures and Options	Trading will be terminated 15 minutes after hoisting	Unchanged	Trading will be terminated 15 minutes after hoisting	Unchanged

Other arrangements

Securities Market Making (SMM) orders	• Obligations for Securities Market Makers (SMM) are not applicable in CAS and SMMs are prohibited to input new market making orders • Outstanding market making orders of SMMs (within price limits) will be automatically carried forward to CAS and processed by AMS/3 as at-auction limit orders • If necessary, SMMs can cancel their market making orders during the Order Input Period or before the end of CTS • Order quantity reduction is allowed during Order Input Period and order priority will be maintained, but increasing quantity, changing price or input new SMM orders would not be allowed • Trades conducted by SMMs during CAS are not eligible for fee exemptions
Liquidity provision for structured products	• Structured products are excluded from CAS and therefore liquidity provision of structured product is not applicable
CBBC Mandatory Call Event (MCE):	• CBBC could be called when its underlying security hits the call price at the end of CAS

Other arrangements

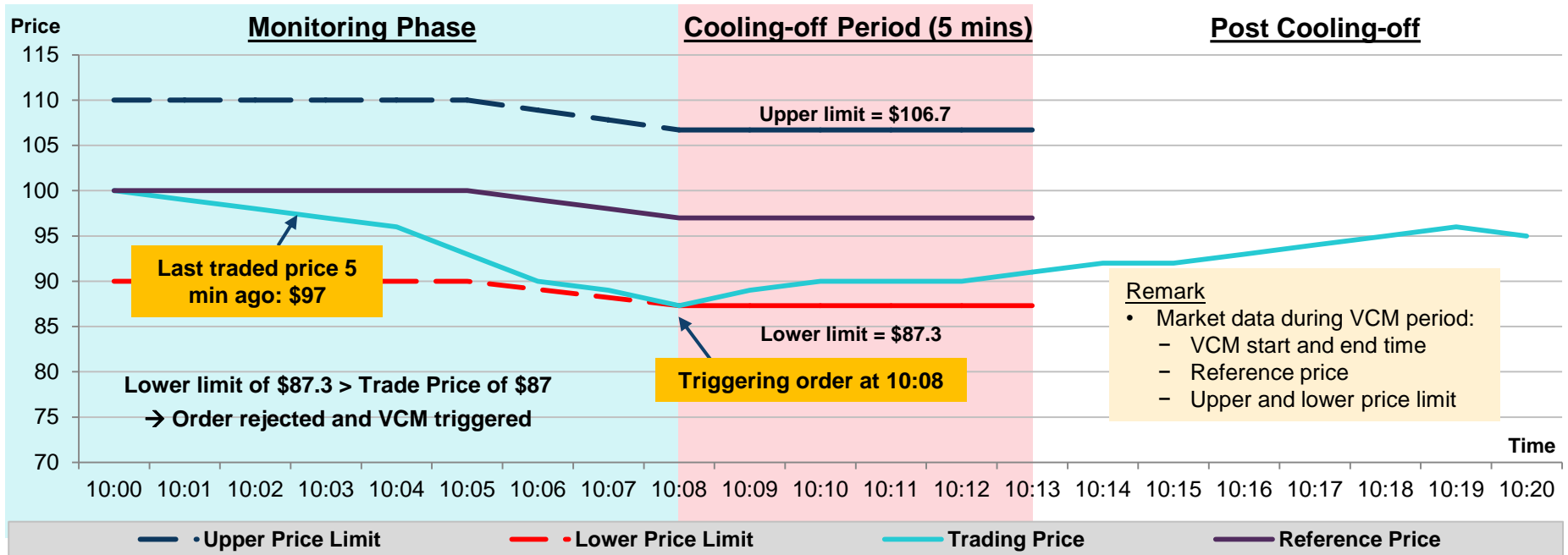|	
Input and rejection of manual trade	• Input of manual trade is allowed during Order Input Period, No Cancellation Period and Random Closing Period • EPs may reject manual trades inputted during CAS • Rejections of manual trades inputted <u>before</u> CAS will not be accepted by AMS • No manual trade input / rejection is allowed after end of Random Closing Period
Odd lots and special lots orders	• Not allowed in CAS
End of Support of AMS Open Gateway (OG) after June 2016	• EPs are reminded that OG will no longer be supported after Jun 2016, and will not support CAS functionalities • EPs still using OG are advised to migrate to Orion Central Gateway (OCG) as soon as possible

VCM TRADING PRACTICE HIGHLIGHTS

Overview of VCM model

Scope of securities / derivatives products	**Securities:** HSI & HSCEI constituent stocks (currently 81 stocks) **Derivatives:** HSI Futures (HSI), Mini-HSI Futures (MHI), H-shares Index Futures (HHI) and Mini H-shares Index Futures (MCH) spot month and the next calendar month contracts (currently 8 contracts)
Triggering Point	**Triggering level:** >±10% from the reference price for securities market >±5% from the reference price for derivatives market **Reference price:** Last trade 5 minutes ago

**Illustrative example by using the trading of an applicable VCM stock during CTS
(excluding first 15 minutes of Morning and Afternoon Sessions and last 15 minutes of the Afternoon Session)**

Monitoring Phase — **Cooling-off Period (5 mins)** — **Post Cooling-off**

Upper limit = $106.7

Lower limit = $87.3

Last traded price 5 min ago: $97

Lower limit of $87.3 > Trade Price of $87
→ Order rejected and VCM triggered

Triggering order at 10:08

Remark
• Market data during VCM period:
  – VCM start and end time
  – Reference price
  – Upper and lower price limit

Legend: ── Upper Price Limit ── Lower Price Limit ── Trading Price ── Reference Price

VCM - reference price model

Selection of reference price:

1. VCM monitoring starts at 9:30 for derivatives market, reference price should be last traded price executed 5 minutes before 9:30

2. VCM monitoring starts at 9:45 for cash market, reference price should be last traded price executed 5 minutes before 9:45. Such reference price will be updated by AMS/3 at the end of each one minute interval

3. If there is no trade execution 5 minutes before, system will further search backward for the latest last traded price as reference price. This search can go backward till market open where the auction price established during the pre-opening auction will be used as reference price

4. If there is no trade execution from market open to 5 minutes before the start of VCM monitoring, system will use the first traded price as the reference price until there is subsequent execution

5. Reference price from A.M. session will not be brought forward to P.M. session. Same mechanism will be applied after P.M. session market open except only trades executed in the P.M. session will be used as reference price

VCM monitoring and cooling off

- If A.M. session close before the end of cooling off period (e.g. cooling off period started at 11:56), the remaining time of the cooling off period will not be brought forward to P.M. session

- First 15 minutes after market open and the last 15 minutes of the last CTS will not subject to VCM (i.e. VCM monitoring will be stopped 20 minutes before 16:00 (for full day trading) or 12:00 (for half day trading))

Delay market open

- For market open is delayed due to bad weather (e.g. typhoon signal no. 8 or black rainstorm), first 15 minutes after market open will still not subject to VCM

Early close of market

- For early market close due to typhoon (e.g. typhoon signal no.8 is hoisted during trading hour), cooling off can still be triggered in the last 15 minutes before market close and continue until market close
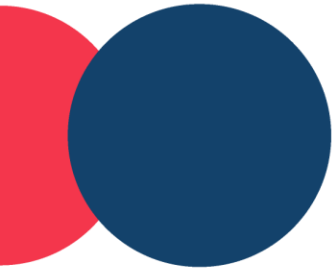
MARKET REHEARSALS
UPCOMING ON 28 MAY 2016 &
11 JUN 2016

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Market rehearsal arrangement

	Date	Who
First MR	28 May 2016 (Saturday)	Mandatory for <u>all</u> EPs to participate
Second MR	11 June 2016 (Saturday)	Mandatory for EPs <u>who did not successfully complete the first MR</u>

1. Half-day rehearsal will simulate activities during normal full day trading
2. Both CAS and VCM will be tested during MRs
3. Testing will be conducted via OCG only. OG will not be supported
4. Mandatory for all EPs
5. All EPs must return a Declaration of Readiness to HKEX after completion of the MR

Scope of coverage for CAS (including but not limited to)

Proper operations and functioning of BSS/NSTD and related infrastructure in supporting:

For CAS

1. Display of correct stock prices and market data including IEP, IEV, order imbalance and direction, reference price and price limits for Order Input Period and No Cancellation and Random Closing Period

2. Cancellation, quantity reduction or price modification of outstanding limit / enhanced limit orders carried forward from CTS during the Order Input Period of CAS

3. Input of At-auction limit orders (within the price limit) and At-auction orders during various periods

4. Input At-auction limit orders (outside the price limit) and orders will be rejected by AMS/3

5. Cancellation, change quantity or change price (if applicable) of At-auction limit orders and At-auction orders during the Order Input Period of CAS

6. Input of manual trades during various periods of CAS

7. Simulate real-life trading activities (in terms of transaction pattern and volume)

8. Receipt and processing of trade notifications generated at the end of CAS

9. Receipt closing prices after the end of Random Closing Period for CAS and non CAS securities

Scope of coverage for VCM (including but not limited to)

Proper operations and functioning of BSS/NSTD and related infrastructure in supporting:

For VCM

1. During cooling off period, display of additional market data including reference price, upper and lower limits, start time and end time of cooling off period

2. During cooling off period, input order (price outside the price limit, i.e. buy order higher than the upper limit or sell order lower than the lower limit) and the order will be rejected by AMS/3

3. During cooling off period, input order (price within the price limit, i.e. buy order at or lower than the upper limit or sell order at or higher than the lower limit) and the order will be accepted by AMS/3

4. Simulate real-life trading activities (in terms of transaction pattern and volume)

Tentative MR timetable

Time	Sessions	Remarks
09:00 – 09:15	POS: Order Input Period	
09:15 – 09:20	POS: Pre-order Matching Period	
09:20 – 09:28	POS: Order Matching Period	
09:28 – 09:30	POS: Blocking Period	
09:30 – 09:45	Morning CTS	No VCM monitoring
09:45 – 10:45	Morning CTS	With VCM monitoring
10:45 – 10:55	Mid-day Close	
10:55 – 11:00	Order Cancellation Period	
11:00 – 11:15	Afternoon CTS	No VCM monitoring
11:15 – 12:10	Afternoon CTS	With VCM monitoring
12:10 – 12:30	Afternoon CTS	No VCM monitoring
12:30 – 12:31	CAS: Reference Price Fixing Period	
12:31 – 12:36	CAS: Order Input Period	
12:36 – 12:38	CAS: No Cancellation Period	
12:38 – 12:40	CAS: Random Closing Period	

Please refer to detailed guidelines and rundown to be announced via upcoming circular

POS = Pre-opening Session

AMS/3 software rollout arrangement

Subject to successful completion of MRs and market readiness, the software rollout arrangements for CAS and VCM in cash market will be as follows:

- AMS/3 will rollout its new software version that supports both CAS and VCM on 25 Jul but only CAS features will be turned on while **VCM features will remain turned off**.

- After the launch of CAS and VCM software in AMS/3 on 25 Jul, both CAS securities indicator and VCM securities indicator will be disseminated to market. However, all securities will be set to non VCM securities until VCM rollout in Aug

- After the smooth rollout of CAS, VCM features will be turned on in Aug and the exact date will be announced in due course

Key dates and useful links/enquiry information

First MR: 28 May 2016
Second MR: 11 June 2016

CAS

Tentative Rollout:
25 July 2016

VCM

Tentative Rollout:
Cash – August 2016
Derivatives – Q4 2016

HKEX's CAS and VCM Designated Web Corner
Securities Market: https://www.hkex.com.hk/eng/market/sec_tradinfra/vcm_cas/vcm_cas.htm
Derivatives Market: http://www.hkex.com.hk/eng/market/dv_tradinfra/vcm.htm

Enquiries
Securities Market: AMS3Info@hkex.com.hk 2840 3626
Derivatives Market: ClickSupport@hkex.com.hk 2211 6360
Market Data/OMD-C related: IVSupport@hkex.com.hk 2211 6558

Q & A

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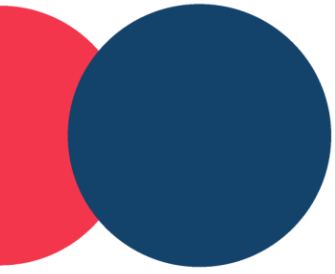
Appendix 1: Summary of trading hours after CAS

Product Class	Market	Full-Day Trading				Half-Day Trading	
		Existing Closing Time	New Closing Time	AHFT Existing Opening Time	AHFT New Opening Time	Existing Closing Time	New Closing Time
Equity and Index Products	Index Futures (HSI, HHI, MHI, MCH)	16:15	16:30	17:00	17:15	12:00	12:30
	Index Futures (CHH, DHS, DHH, VHS, BOV, SAF, BSE, MCX, Sector Index)	16:15	16:30	N/A	N/A	12:00	12:30
	Index Options (HSI, HHI, MHI, XHS, XHH)	16:15	16:30	N/A	N/A	12:00	12:30
	Stock Futures & Options	16:00	Unchanged	N/A	N/A	12:00	Unchanged
Interest Rate and Currencies Products	RMB Currencies Futures	16:15	16:30	17:00	17:15	12:00	12:30
	HIBOR Futures	17:00	Unchanged	N/A	N/A	12:00	Unchanged
Commodities Products	LME Mini Futures (LRA, LRC, LRN, LRP, LRS, LRZ)	16:15	16:30	17:00	17:15	12:00	12:30

Appendix 2: Summary of trading hours after CAS – last trading day

Product Class	Market	Full-Day Trading		Half-Day Trading	
		Existing Last Trading time	New Last Trading time	Existing Last Trading time	New Last Trading time
Equity and Index Products	Index Futures (HSI, HHI, MHI, MCH)	16:00	Unchanged	12:00	Unchanged
	Index Futures (DHS, DHH, BOV, SAF, BSE, MCX)	16:15	16:30	12:00	12:30
	Index Futures (CHH)	15:00	Unchanged	12:00	Unchanged
	Index Futures (VHS & Sector Index)	16:00	Unchanged	12:00	Unchanged
	Index Options (HSI, HHI, MHI, XHS, XHH)	16:00	Unchanged	12:00	Unchanged
	Stock Futures & Options	16:00	Unchanged	12:00	Unchanged
Interest Rate and Currencies Products	RMB Currencies Futures	11:00	Unchanged	11:00	Unchanged
	HIBOR Futures	11:00	Unchanged	11:00	Unchanged
Commodities Products	LME Mini Futures (LRA, LRC, LRN, LRP, LRS, LRZ)	*	Unchanged	12:00	12:30

* after-hours trading session during British Summer Time / after-hours trading session outside British Summer Time
LRA: 20:00 / 21:00, LRZ: 19:55 /20:55, LRC: 19:35 / 20:35,LRN: 20:05 / 21:05, LRS :19:45 / 20:45, LRP: 19:50 / 20:50

Appendix 3: Final settlement price determination period

Market	Full-Day Trading		Half-Day Trading	
	Existing Arrangement	New Arrangement	Existing Arrangement	New Arrangement
Volatility Index Futures (VHS)	15:30 – 16:00	Unchanged	11:15 – 11:45	11:30 – 12:00

Final Settlement Price	The Final Settlement Price for HSI Volatility Index Futures Contracts shall be a number, rounded down to the nearest two (2) decimal places, determined by the Clearing House and shall be the average of quotations of the HSI Volatility Index compiled, computed and disseminated by Hang Seng Indexes Company Limited taken at (i) one (1) minute intervals between 3:30 p.m. and up to 4:00 p.m. on the Last Trading Day; or (ii) one (1) minute intervals **between 11:30 a.m. and up to 12:00 noon** on the Last Trading Day which falls on Christmas Eve, New Year's Eve or Lunar New Year's Eve. The Chief Executive of the Exchange has the power under the Regulations for trading Stock Index Futures Contracts to determine the Final Settlement Price under certain circumstances