Volatility Control Mechanism (VCM) & Closing Auction Session (CAS)

HKEx

April 2016

Why introduce these two market structure changes?

	Objectives
VCM	**Safeguarding market integrity based on G20 & IOSCO's regulatory guidance** ▪ Safeguarding market integrity from extreme price volatility arising from trading incidents such as "Flash Crash" and algo errors ▪ Containing systemic risks caused by interlinked benchmarking index products ▪ For both securities and derivatives markets
CAS	**Meeting diverse trading needs of investors in our market** ▪ High institutional demand for execution at the closing price ▪ Catching up with all developed and most developing securities markets ▪ For securities market only

The two proposals are major microstructure upgrades to enhance Hong Kong market's overall competitiveness

Agenda

1. Volatility Control Mechanism (VCM)
2. Closing Auction Session (CAS)
3. Implementation Timeline

Hong Kong's VCM model to be implemented

VCM NOT a …	VCM is intended to …
✗ Trading halt to suspend trading ✗ Limit price movement of individual stocks	✓ Prevent drastic events such as algo errors/flash crash which may cause systemic risks ✓ Offer temporary cooling-off period and allow trading within a band during the cooling-off; normal trading to resume afterwards

A simple and light-touch approach to balance market protection and trading interruption:

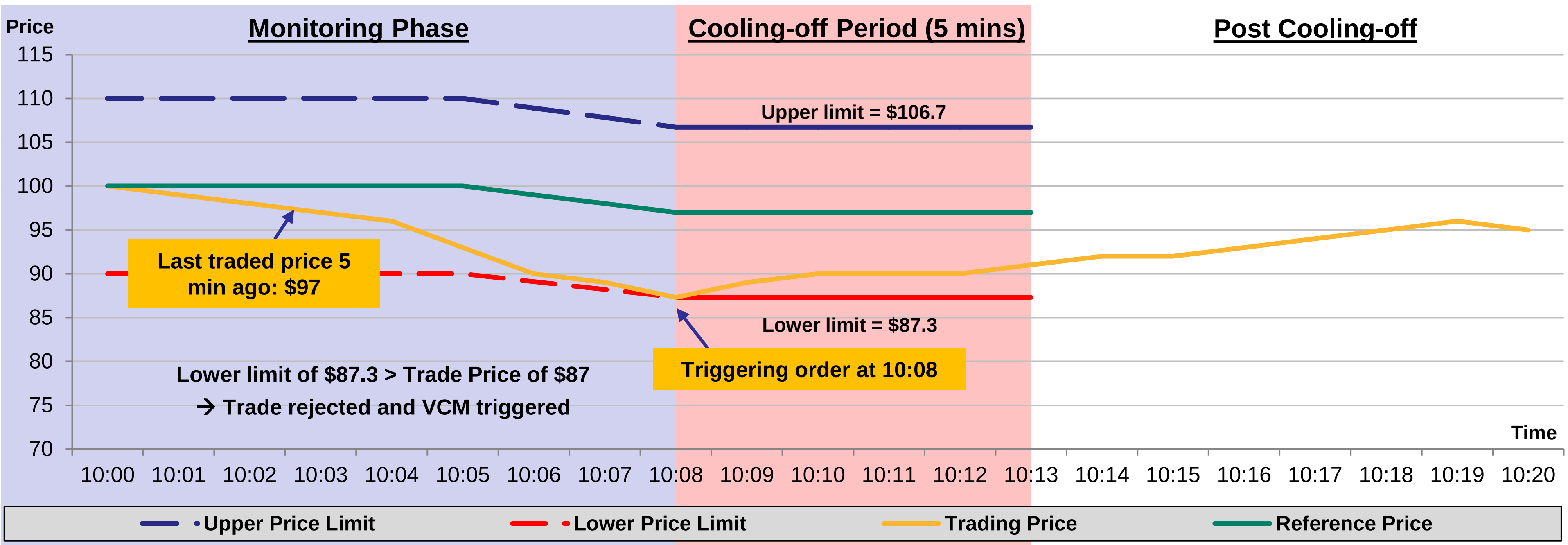
- VCM triggered if a stock (contract) is ±10%(±5%) away from the last traded price 5-min ago; 5-min cooling-off period will start to allow trading within the band only; normal trading will resume afterwards
- Only applicable to key HSI & HSCEI constituent stocks (81) and related index futures contracts (8)
- Apply to continuous trading sessions (CTS) excluding the first 15 min of the Morning and Afternoon sessions and the last 15 min of the Afternoon Session

HK has been able to learn from the VCM experience of other markets; A simple and light-touch model should be most suitable for HK

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)



Design highlights

Monitoring Phase	▪ Reference to a dynamic price (last trade 5-minute ago) to capture rapid and large price movements ▪ Monitoring stops in the first 15 minutes of Morning and Afternoon Sessions to allow free price discovery ▪ Monitoring stops in the last 20 minutes* of the Afternoon Session to avoid causing overnight risk ▪ Maximum of one trigger in each trading session for each instrument (i.e. 1 in the Morning Session and 1 in the Afternoon Session) to minimize market interruption ▪ No VCM monitoring for the triggered instrument after one trigger in the rest of the trading session
Cooling-off Period	▪ The cooling-off period would last for 5 minutes, and trading would resume to normal afterwards ▪ The triggered instrument would only be allowed to trade within price limit
Market Data Dissemination	▪ All VCM securities have an indicator for identification ▪ The following will be disseminated when a cooling-off period is triggered: VCM start time, VCM end time, reference price ,upper and lower price limit

* Since a VCM trigger will last for 5 minutes, the monitoring will stop 20 minutes before end of the Afternoon Session.

Applicable period for VCM#

Securities Market

Period	09:00-09:30	09:30-09:45	09:45-12:00	Lunch Break	13:00-13:15	13:15-15:45	15:45-16:00	16:00-16:10
Session	POS	Morning Session	Morning Session		Afternoon Session	Afternoon Session	Afternoon Session	CAS
VCM Applicable?	×	×	✓		×	✓	×	×
First Reference Price			Last traded price 5 minutes before 9:45*			Last traded price 5 minutes before 13:15*		

Derivatives Market

Period	08:45-09:15	09:15-09:30	09:30-12:00	Lunch Break	12:30-13:00	13:00-13:15	13:15-16:15	16:15-16:30
Session	POS	Morning Session	Morning Session		POS	Afternoon Session	Afternoon Session	Afternoon Session
VCM Applicable?	×	×	✓		×	×	✓	×
First Reference Price			Last traded price 5 minutes before 9:30*				Last traded price 5 minutes before 13:15*	

Auction Session **Continuous Trading Session**

POS = Pre-opening Session in the securities market or Pre-Market Opening Period in the derivatives market

#Time shown above is not drawn to scale.

*If there is no trading in the POS and after market open, the first trade will become the first reference price.

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Why CAS?

Why CAS?

- **Significant equity flow requires execution at the closing price (an investment mandate for many passive funds)**
  - ~10% of equity flow on a daily basis
  - 30%+ on index rebalancing days
- **Closing price is used for portfolio valuations and benchmarking**

Issues without a CAS

- ✗ **Trades cannot be executed at closing price**
- ✗ **Tracking error for index funds → Higher transaction cost, and invest return hampered**
- ✗ **Exchange Participants (EPs) cannot execute at the closing price → Tension between EPs and investors**

Meeting market demand for execution at closing price and index rebalancing

Note: Please see Appendix 1 for details of the existing closing methodology.

Four new measures to address price volatility issue

Time	9:30-12:00; 13:00-16:00	16:00	16:01	16:06	16:08 – 16:10
Session	Continuous Trading Session (CTS)	Closing Auction Session			
		Reference Price Fixing Period (1 min)	Order Input Period (5 mins)	No-cancelation 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	**Price Limit:** b Within lowest ask & highest bid (see Appendix 2)	
			Order Type Allowed: At-auction Order At-auction Limit Order		
			Order Input, Cancellation & Amendment: Allowed Input, Cancel & Amend	Input Allowed, Cancel & Amend Not Allowed	

Other 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 subject to a tick rule (reference price) in Phase 2
3. Allow matching of at-auction orders at the reference price when an auction price cannot be determined

Note: The day close of Stock Index Futures and Options in the derivatives market would be extended for 15 minutes. To allow sufficient time for the market to prepare for AHFT's opening, the opening time of AHFT may be changed from 17:00 to 17:15.

Four new features of new CAS

Features	Descriptions
1. Price Limit	▪ 1st stage: ± 5% ▪ 2nd stage: between lowest ask and highest bid
2. Random Closing	▪ Auction matching ends randomly within the 2-minute period of 16:08 to 16:10, exact ending of the CAS determined randomly by the system
3. Auction Information Dissemination	▪ Showing the Indicative Equilibrium Price (IEP), Indicative Equilibrium Volume (IEV), CAS stock indicator, order imbalance information, reference price (CTS closing price), upper and lower price limit of the Order Input Period, and upper and lower price limit of the No-cancelation and Random Closing Periods
4. At-auction Limit Orders	▪ All investors can input At-auction Limit orders throughout the CAS

Note: See Appendix 3 for international comparison of closing auction features.

Phased rollout to different securities to ensure a smooth rollout

Phase	Phase I Securities: Index Constituent Stocks	Phase II Securities: Other Stocks and Funds *(subject to Phase I review)*
Scope	**A. Major index constituents** ▪ Stocks including: – Constituent stocks of Hang Seng Composite LargeCap and MidCap indexes – H shares which have corresponding A shares listed on Mainland securities exchanges **B. All ETFs**	**C. Include remaining stocks and REITs plus some other equity products** ▪ Covers all equities and funds ▪ Excludes structured products and debt securities **Auction model:** ▪ No short selling in Phase 1, short selling with a tick rule will be considered in Phase 2 of the CAS ▪ Other CAS features will be same as Phase 1

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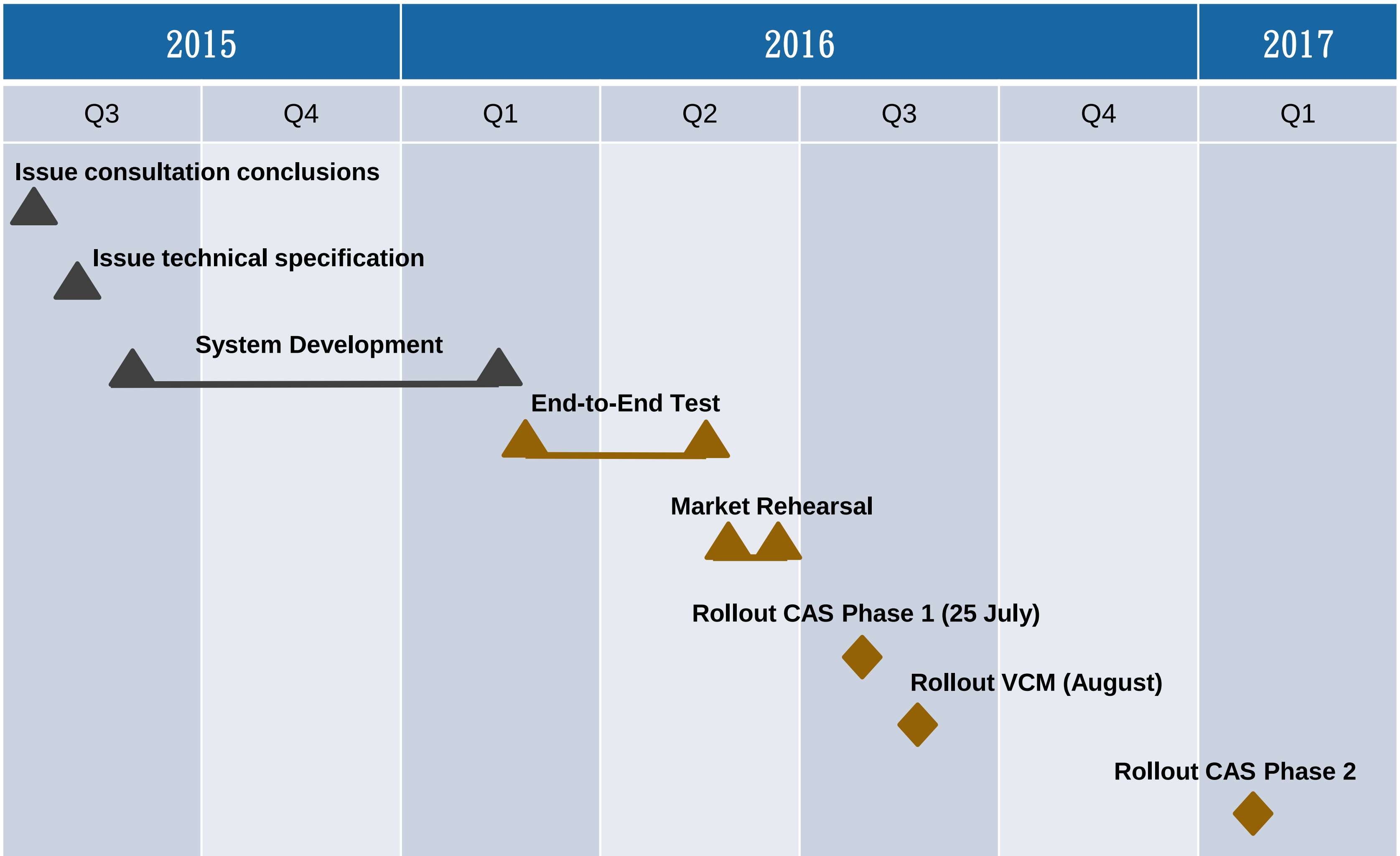
Implementation schedule and scope of securities of the two initiatives

Tentative Schedule	Q3 2016	Q3/4 2016	1H 2017
	CAS – Phase 1	VCM – Securities VCM – Derivatives	CAS – Phase 2 (subject to review)
Scope of securities / derivatives products	(List of securities subject to confirmation before rollout) ▪ Hang Seng Composite LargeCap & Composite MidCap Index constituent stocks ▪ H shares which have corresponding A shares listed on Mainland securities exchanges ▪ All ETFs	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) Excludes: Far month contracts, options and all other derivatives products	All equity securities and funds

The schedule is subject to rule amendment approval by the SFC and market readiness

Tentative implementation timeline – Securities Market



The schedule is subject to rule amendment approval by the SFC and market readiness

Appendices

Appendix 1: Current closing mechanism

Current closing mechanism – Taking the median of 5 nominal prices in the last minute of the CTS as the closing price

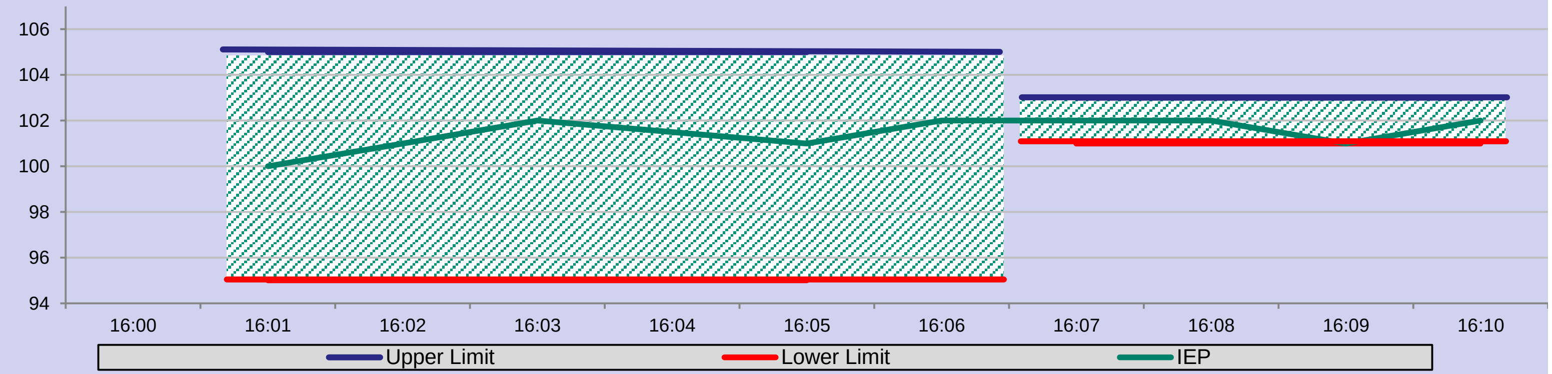
Illustration:

Snapshot	Time	Bid Price	Ask Price	Last Recorded Price	Nominal Price
1.	3:59:00 p.m.	$39.40	$39.50	$39.50	$39.50
2.	3:59:15 p.m.	$39.40	$39.50	$39.50	$39.50
3.	3:59:30 p.m.	$39.30	$39.40	$39.50	$39.40
4.	3:59:45 p.m.	$39.30	$39.40	$39.40	$39.40
5.	4:00:00 p.m.	$39.20	$39.30	$39.30	$39.30

Median price = $39.40 as closing price

Current closing mechanism cannot meet market needs of execution at closing price; Only less than 1% of trades are executed within these 5 seconds, and the execution price is not guaranteed

Appendix 2: Examples of price limit in CAS

First Stage **16:01–16:06**	<u>16:00 Price</u> Reference Price = $100 Price Limit = $95 to $105 <u>16:06 Price</u> Best (highest) Bid Price = $103 Best (lowest) Ask Price = $101 **IEP is formed in the first stage**
Second Stage **16:06–16:10**	<u>16:06 Price</u> IEP = $102 At-Auction limit order price limit = $101 to $103 **IEP price range maintains between $101 - $103 since no cancellation and amendments of orders after**
Illustration	

Note: Taking the median of 5 nominal prices in the last minute of the CTS to be the reference price, bid/ask orders cannot deviate more than 5% from the reference price in first stage.

Appendix 3: International CAS comparison
Features used by other major exchanges to address price instability

	Features to Address Price Instability Issue				
Exchange	**Price limit**	**At-auction limit orders throughout CAS**	**Random closing**	**No cancellation near the end of CAS**	**Auction extension upon price breach**
HKEx (Hong Kong)	✓ **NEW** (5% from last CTS; then within best bid/ask) For volatility control	✓ **NEW** Better price discovery by allowing offsetting flows	✓ **NEW** Prevent gaming of closing time	✓ **From Previous CAS** Prevent last minute order withdrawal	X **NOT Proposed** Already have price limit which is more stringent; complicated design
NYSE/NASDAQ (US)	✓	✓	X	✓	X
LSE/DB (UK/Germany)	X*	✓	✓	X	✓
Euronext (Paris)	X	✓	X	X	✓
SGX (Singapore)	X	✓	✓	✓	X
KRX (Korea)	✓	✓	✓	X	✓
TSE (Japan)	✓	✓	X	X	X
ASX (Australia)	X	✓	✓	X	X
TWSE (Taiwan)	✓	✓	X	X	✓
SZSE (Mainland)	✓	✓	X	✓	X

Propose to adopt all features except auction extension to address the price instability issue

* Price limit varies according to the security price, i.e. the smaller the price, the larger the percentage limit.

Note: the above table is compiled on publicly available information. Please refer to the relevant exchanges for more details or further updates.