TRADING MECHANISM OF VOLATILITY CONTROL MECHANISM (VCM) IN THE DERIVATIVES MARKET



NOTE TO THE READER:

This paper is compiled based on the concluded consultation model and the relevant Rules of the Futures Exchange ("Rules") for the Volatility Control Mechanism (VCM). It aims to facilitate understanding of investors and traders about the VCM. While due care has been taken to provide accurate and up to date information, the paper is for general reference only and if any discrepancies or inconsistencies with the Rules are found, the meanings in the 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 VCM is based on the regulatory guidance of the Group of Twenty (G20) and International Organization of Securities Commissions (IOSCO), and is designed to prevent extreme price volatility from trading incidents such as a “flash crash” and algorithm errors, and to address systemic risks from the inter-connectedness of securities and derivatives markets. Many international exchanges have implemented some form of volatility control mechanisms to control extreme price volatility.

In the case of HKEX’s VCM, if the price deviates more than a predefined percentage within a specific time frame, it will trigger a cooling-off period for five minutes. This provides a window allowing market participants to reassess their strategies, if necessary. It also helps to re-establish an orderly market during volatile market situations.

VCM for the derivatives market covers the spot month and next calendar month contracts in the Hang Seng Index (HSI) Futures, Mini-Hang Seng Index (MHI) Futures, Hang Seng China Enterprises Index (HHI) Futures, Mini-Hang Seng China Enterprises Index (MCH) Futures, Hang Seng TECH Index (HTI) Futures and Hang Seng Biotech Index (HBI) Futures markets (total 12 contracts, collectively known as “VCM Exchange Contracts”).

2. Overview of the VCM Model

HKEX has adopted a dynamic price limit VCM model for the derivatives markets, which would trigger a cooling-off period in case of abrupt price volatility detected at the instrument level. It would also focus on instruments that pose systemic risks arising from the inter-connectedness of securities and derivatives markets, particularly with respect to index products. This model is adopted because it is relatively simple and minimises market disruption.

The following diagram illustrates the case of a VCM trigger on an applicable instrument.



- VCM is triggered if the price of VCM Exchange Contracts except Hang Seng Biotech Index (HBI) Futures deviate more than ±5% from the last traded price 5 minutes ago ("VCM Reference Price"); a 5-minute cooling-off period will start.
- VCM is triggered if the price of a Hang Seng Biotech Index (HBI) Futures deviates more than ±20% from the last traded price 5 minutes ago ("VCM Reference Price"); a 5-minute cooling-off period will start.
- During the cooling-off period, trading is allowed within a pre-defined price band.
- Normal trading with VCM monitoring will resume after cooling-off period (see Section 6).

3. Instruments covered under VCM

VCM will only be applied to the spot month and next calendar month contracts in the Hang Seng Index (HSI), Mini-Hang Seng Index (MHI), Hang Seng China Enterprises Index (HHI), Mini-Hang Seng China Enterprises Index (MCH) , Hang Seng TECH Index (HTI) and Hang Seng Biotech Index (HBI) Futures markets.

4. Monitoring Phase of VCM

VCM is only applicable to normal orders ("VCM Exchange Contracts Order") input during specific time in the continuous trading session (9:30 – 12:00 & 13:15 – 16:10), excluding the Pre-Market Opening Period and After-Hours Trading session ("VCM Monitoring Period").

During VCM Monitoring Period, the potential trade price of a VCM Exchange Contracts except Hang Seng Biotech Index (HBI) Futures will be continuously checked against a dynamic price limit of ±5% and Hang Seng Biotech Index (HBI) Futures will be continuously checked against a dynamic price limit of ±20% based upon the VCM Reference Price, which is the last traded price 5 minutes ago .

Periods during the normal trading session when VCM monitoring will not be applied

- *Market Open* - VCM monitoring is not applied at the first 15 minutes of the morning and afternoon trading session to allow free price discovery at the beginning of the trading session after a trading break.

- *Afternoon trading session* - VCM monitoring is not applied at the last 20 minutes[1] of the afternoon trading session in order to ensure that there is an uninterrupted trading period (not interfered by an cooling-off period) during the last 15 minutes of the last trading session of the day. This can also allow investors to unwind their day positions and avoid taking overnight risks.

5. Cooling-Off Period

During the normal trading session, the potential trade price of a VCM Exchange Contract except Hang Seng Biotech Index (HBI) Futures will be continuously checked against a dynamic price limit of ±5% and Hang Seng Biotech Index (HBI) Futures will be continuously checked against a dynamic price limit of ±20%based upon the VCM Reference Price, which is the last traded price 5 minutes ago.

If the potential execution price is outside the above-mentioned price limit, the order concerned will be rejected and a 5-minute cooling-off period will be triggered immediately.

Trading within a fixed price band

During the 5-minute cooling-off period, trading for the VCM Exchange Contracts will continue within a fixed price band (±5% for VCM Exchange Contracts except Hang Seng Biotech Index (HBI) Futures and ±20% for Hang Seng Biotech Index

[1] Since a cooling-off period will last for 5 minutes, the monitoring will stop 20 minutes before end of afternoon trading session.

(HBI) Futures from the VCM Reference Price).

Order handling when VCM is triggered

If VCM is Triggered Due to Potential Trade Price > Upper Price Limit	• The incoming order can be partially executed to the extent that the trade prices are at or within limits. The remaining part of the order with potential trade price exceeds the limits will not be executed and cancelled by HKATS • HKATS will also cancel the existing high price buy orders (i.e. those with buy price > upper price limit) that reside in the buy order queue • All the existing sell orders will remain in the order queue no matter if their prices are higher than the upper price limit, and will not be cancelled by HKATS
If VCM is Triggered Due to Potential Trade Price < Lower Price Limit	• The incoming order can be partially executed to the extent that the trade prices are at or within limits. The remaining part of the order with potential trade price exceeds the limits will not be executed and cancelled by HKATS • HKATS will also cancel the existing low price sell orders (i.e. those with sell price < lower price limit) that reside in the sell order queue • All the existing buy orders will remain in the order queue no matter if their prices are lower than the lower price limit and will not be cancelled by HKATS

The cancelled orders will NOT be re-entered by HKATS after the cooling-off period, Exchange Participants are required to re-enter if necessary.

Order handling during the cooling-off period

Any incoming buy orders with price higher than upper price limit and sell order with price lower than lower price limit will be rejected by HKATS immediately.

Any incoming buy orders with price equal to or lower than upper price limit and sell order with price equal to or higher than lower price limit will still be accepted by HKATS to allow building of liquidity.

Cooling-off period will not be brought forward to next trading sessions

If the morning trading session closes before the end of a cooling-off period (e.g. a cooling-off period starting at 11:56 a.m.), the remaining time of the cooling-off period will not be brought forward to the afternoon trading session.

6. Post Cooling-Off Monitoring

After the cooling-off period, trading will resume to normal with VCM monitoring. In case there is no trade concluded during the cooling-off period, VCM monitoring will be resumed after the first trade (exclude combo vs. combo trades, tailor-made combination trades and block trades) concluded after the cooling-off period and the traded price will become the VCM Reference Price.

7. Determination of the VCM Reference Price

The VCM Reference Price is the price of the last trade 5 minutes ago (exclude combo vs. combo trades, tailor-made combination trades and block trades) and this is a dynamic price capturing both the magnitude and speed of price changes of individual VCM Exchange Contracts.

The VCM Monitoring Period starts at 9:30 a.m.. The first VCM Reference Price will be the last traded price executed before 9:25 a.m. (i.e. 5 minutes before). Thereafter the VCM Reference Price will be updated by HKATS at the end of each one second interval.

It should also be noted that the VCM Reference Price established during the Morning Session will not be brought forward to the Afternoon Session.

No trade execution 5 minutes before the VCM Monitoring Period Begins

The VCM Monitoring Period begins 15 minutes after market open for both the morning and afternoon sessions, i.e. 9:30 a.m. and 1:15 p.m. respectively. If there is no trade execution in the previous 5 minutes interval, HKATS will further search backward in time for the latest last traded price as the VCM Reference Price. This search can go backward till the market open when the Calculated Opening Price (“COP”) was established during the Pre-Market Opening and it will be used as the VCM Reference Price. In case there is no trade execution from market open to the start of the VCM Monitoring Period, the VCM Monitoring Period will begin after there is a first trade. The first traded price will be used as the VCM Reference Price.

8. Dynamic Price Banding During Cooling-off Period

The existing Dynamic Price Banding will still be applicable to the VCM Exchange Contracts during the VCM cooling-off period.

9. Additional Market Data Dissemination for VCM

Additional market information will be disseminated on HKEX Orion Market Data Platform for Derivatives Market (OMD-D) to provide transparency of VCM to the market. No new messages or data fields will be introduced to OMD-D for the VCM but the related information will be provided via two existing messages, namely Market Status and Market Alert.

New trading sessions (namely "OPEN_DPL_VCM", "OPEN_VCM", "RESET_VCM", "VCM_COOL_OFF_DPL" and "VCM_COOL_OFF") introduced for the VCM in the derivatives market will be provided as **Market Status** via OMD-D. Also, **Market Status** of the Instrument Series concerned will be updated upon the start and the end of a cooling-off period triggered by VCM. In addition, the details of the cooling-off period, including the contract code of the concerned contract, the VCM Reference Price, the lower price limit, the upper price limit, the start and end times of the cooling-off period, will be disseminated in a **Market Alert** message immediately once a coolIng off period is triggered.

10. Trading of Linked Instruments

All VCM Exchange Contracts will be treated independently, and therefore trading of its related or linked instruments (e.g. far month futures and options contracts) will remain unaffected when VCM is triggered on VCM Exchange Contracts.

When VCM Exchange Contracts are under a cooling-off period, trading of its related contracts will continue as normal.

11. Orders and Trades subject to VCM monitoring

VCM is only applicable to normal and market maker orders input during VCM Monitoring Period.

Standard Combination orders (except derived orders generated automatically as Bait Orders), Tailor Made Combination orders and Block Trades are not subject to VCM monitoring.

12. Derivatives Market Making and Liquidity Provision

HKEX recognises that it may be difficult for market makers or liquidity providers to hedge when VCM is triggered since VCM will impact their market making capability.

The passing rates of market maker and liquidity provider obligations have already provided flexibility for market makers and liquidity providers not to quote in case of such market situation.

13. Enquiries and Others

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

VCM webpages	http://www.hkex.com.hk/eng/market/dv_tradinfra/vcm.htm https://www.hkex.com.hk/Services/Trading/Securities/Overview/Trading-Mechanism?sc_lang=en
Email	Derivatives Market: hkatssupport@hkex.com.hk Market Data/OMD-D: IVSupport@hkex.com.hk
Hotline	Derivatives Market: 2211 6360 Market Data/OMD-D : 2211 6558