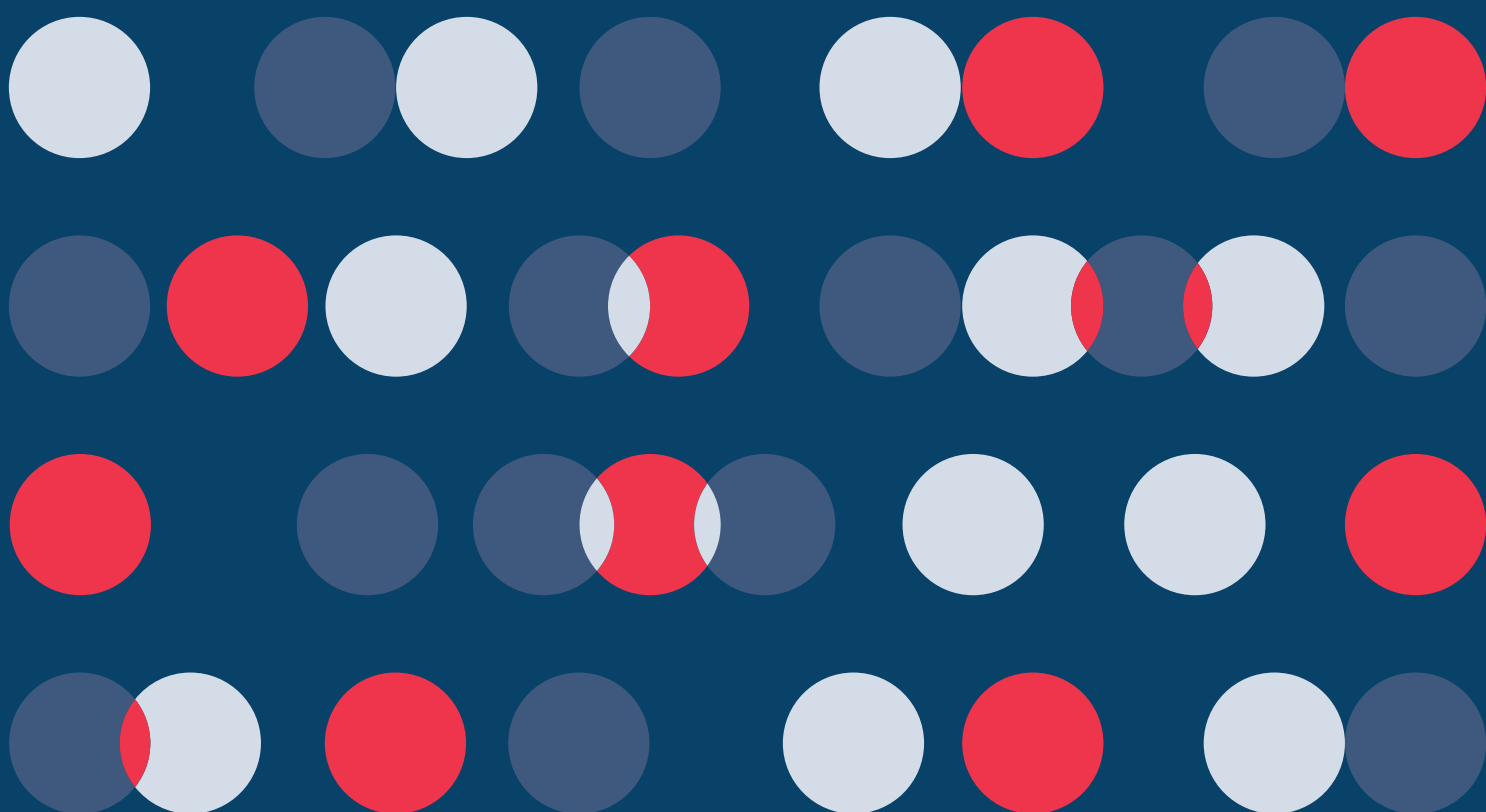


TRADING MECHANISM OF
VOLATILITY CONTROL MECHANISM (VCM)
IN THE SECURITIES MARKET



NOTE TO THE READER:

This paper is compiled based on the concluded consultation model and the relevant Rules of the Exchange (“Rules”) for the VCM. It aims to facilitate understanding of investors and traders about the VCM mechanism. 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

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 potential trade price of an applicable security 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 securities market was first implemented on 22 Aug 2016 and initially covered all Hang Seng Index (HSI) and Hang Seng China Enterprise Index (HSCEI) constituent stocks only (81 stocks as of July 2016).

In August 2018, further guidance was issued by IOSCO¹, which essentially requires regulated markets to establish suitable volatility controls and to review and calibrate such controls from time to time to ensure that they stay relevant with respect to the latest market development.

Accordingly, HKEX consulted the market in 2019 on a proposal to enhance VCM in the securities market and concluded the following enhancements:

1. Expanding VCM stock coverage to all constituent stocks of Hang Seng Composite (HSCI) LargeCap, MidCap and SmallCap Indexes (a total of nearly 500² stocks);
2. Applying a tiered structure of triggering thresholds at $\pm 10\%$, $\pm 15\%$, and $\pm 20\%$ against the last automatched traded price 5 minutes ago for the constituent stocks of the three HSCI size indexes respectively; and
3. Allowing multiple triggers per trading session for each VCM stock.

The above enhancements will be implemented in two phases. Phase 1 includes

¹ IOSCO final report on “Mechanisms Used By Trading Venues To Manage Extreme Volatility And Preserve Orderly Trading” issued on 1 August 2018

² Data as of 15 October 2019.

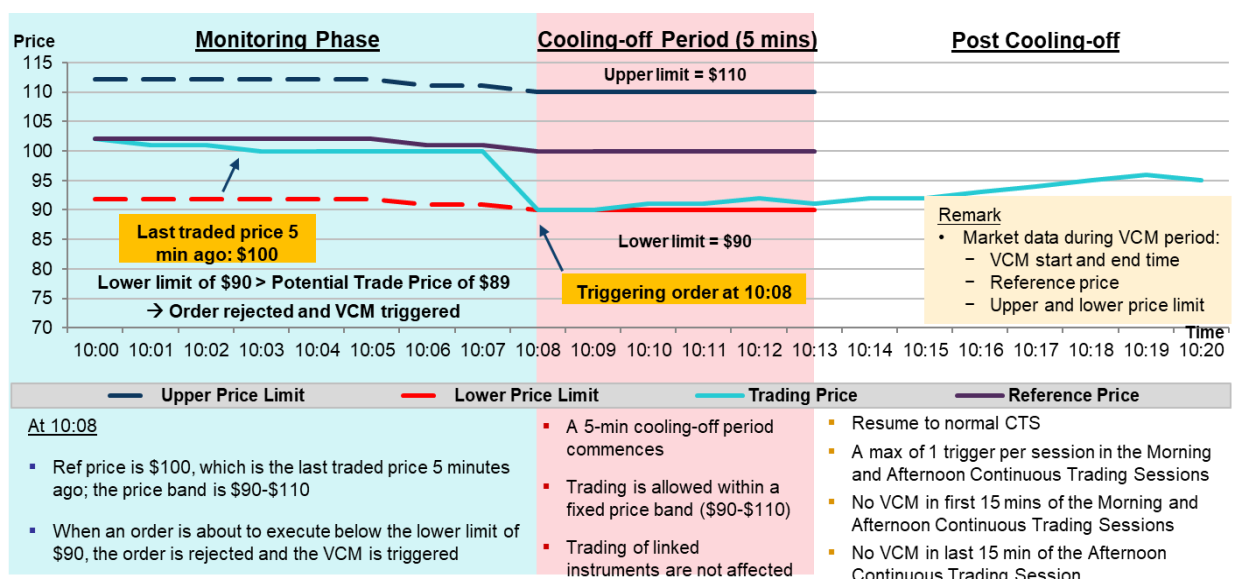
(1) VCM stock coverage expansion and (2) Adoption of a tiered structure of triggering thresholds, and was implemented on 11 May 2020.

In order to ensure a smooth implementation, HKEX will conduct a review on market operations six months after VCM expansion before the rollout of Phase 2 enhancement – i.e. (3) Allowing multiple triggers per trading session. The effective date of the Phase 2 enhancement will further be announced by HKEX.

2. Overview of VCM Model

HKEX has adopted a dynamic price limit VCM model for the securities market, 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. 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 security (VCM Security), using $\pm 10\%$ triggering threshold and price band in the Cooling-off Period as an example.



- In the securities market, VCM is triggered if the potential trade price of a VCM security deviates away from the last traded price 5-min ago by more than the pre-defined thresholds. A 5-min cooling-off period will start.
- During the cooling-off period, trading is allowed within a pre-defined price band.

- Normal trading without restriction will resume after cooling-off period.

3. Instruments Covered under VCM and Triggering Thresholds

VCM currently covers all Hang Seng Composite LargeCap Index constituents, Hang Seng Composite MidCap Index constituents, and Hang Seng Composite SmallCap Index constituents. A tiered structure of triggering thresholds and price bands during the cooling-off period will then be applied, referencing to the last automatched traded price of the VCM security 5 minutes ago. They are further summarised as follows:

VCM Securities	Triggering Level and Price Bands within Cooling-off Period
Hang Seng Composite LargeCap Index constituents	±10%
Hang Seng Composite MidCap Index constituents	±15%
Hang Seng Composite SmallCap Index constituents	±20%

4. Publication and Maintenance of the List of VCM Securities

The list of the VCM securities and their triggering thresholds are published on the HKEX website.

Any addition of constituent stocks to the indexes will also be added to the list of VCM securities on the effective date of the addition.

Similarly, any deletion of constituent stocks from the indexes will also be removed from the list VCM securities on the effective date of the deletion.

5. Monitoring Phase of the VCM

The VCM is only applicable to board lot order input during certain periods of the Continuous Trading Session (CTS) (more details below), but not for any order input during the Pre-opening Session (POS) and the Closing Auction Session (CAS).

During the CTS, the potential trade price of a VCM security will be continuously checked against a dynamic price limit, which is:

the last automatched traded price (i.e. reference price) 5 minutes ago \pm the triggering threshold %³

Periods during the CTS when VCM Monitoring will not be applied

- *Market Open* - The VCM monitoring is not applied at the first 15 minutes of the Morning and Afternoon CTS to allow free price discovery at the beginning of the CTS after a trading break.
- *Afternoon CTS* - The VCM monitoring is not applied at the last 20 minutes⁴ of the afternoon CTS 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 CTS of the day. This can also allow investors to unwind their day positions and avoid taking overnight risks.

6. VCM Trigger and Cooling-Off Period

During the CTS, the potential trade price of a VCM security will be continuously checked against its dynamic price limit. If the potential execution price will be outside its dynamic price limit, the order concerned will be rejected and a 5-minute cooling-off period will be triggered immediately.

Maximum Number of VCM Triggers

For each VCM security, there will be a maximum of one VCM trigger in each trading session (Morning Session and Afternoon Session are counted as two separate trading sessions). When normal trading has been resumed after the VCM, there will not be any VCM monitoring within the same CTS.

Subject to a review by HKEX on market operations that will be conducted six months after the expansion of VCM securities, multiple triggers per trading session

³ Refer to [Section 3](#) for the triggering thresholds

⁴ Since a cooling-off period will last for 5 minutes, the monitoring will stop 20 minutes before end of afternoon CTS.

for a VCM security will be allowed. The effective date of allowing multiple triggers will be announced by HKEX in due course.

Trading within a Fixed Price Band

During the 5-minute cooling-off period, the VCM security can continue trading but will only be allowed to trade within a fixed price band (i.e. \pm respective price band⁵ from the reference price)

Order Handling when VCM is triggered

<p>If VCM is Triggered Due to Potential Trade Price > Upper Price Limit</p>	<ul style="list-style-type: none"> • OTP-C will reject the buy/sell order (i.e. the incoming order) that triggered the VCM and no trade will be executed • OTP-C will also cancel the existing high price buy orders (i.e. those with buy price > upper price limit) that queued 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 OTP-C
<p>If VCM is Triggered Due to Potential Trade Price < Lower Price Limit</p>	<ul style="list-style-type: none"> • OTP-C will reject the buy/sell order (i.e. the incoming order) that triggered the VCM and no trade will be executed • OTP-C will also cancel the existing low price sell orders (i.e. those with sell price < lower price limit) that queued 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 OTP-C

Order Handling during the Cooling-off Period

Any incoming aggressive orders (i.e. buy order > upper price limit and sell order < lower price limit) outside the fixed price band will be rejected by OTP-C

⁵ Refer to [Section 3](#) for the price band percentage

immediately.

Passive orders (i.e. buy order \leq upper limit and sell order \geq lower limit) will still be accepted by OTP-C to allow building of liquidity.

Cooling-off Period will not be Brought Forward to Next Trading Sessions

If the Morning Session closes before the end of a cooling-off period (e.g. a cooling-off period starting at 11:56), the remaining time of the cooling-off period will not be brought forward to Afternoon Session.

7. Post Cooling-Off Monitoring

After the cooling-off period, trading in the CTS will resume to normal. Since there will only be a maximum of one VCM trigger per VCM security per trading session currently (until further announcement by HKEX for allowing multiple triggers, as noted in [Section 6](#)), no further VCM price monitoring will be imposed on that VCM security after a cooling-off period for the remainder of that trading session.

8. Determination of the VCM Reference Price

The reference price of the VCM is the price of the last automatch trade 5 minutes ago, and this being a dynamic price, captures both the magnitude and speed of price changes of individual VCM securities.

The VCM monitoring starts at 9:45am for the securities market. The first reference price for the trading day should be the last traded price executed 5 minutes before 9:45am. Thereafter the reference price will be updated by OTP-C at the end of each one minute interval.

It should also be noted that the reference price established during the Morning Session will not be brought forward to Afternoon Session.

If there was no trade execution 5 minutes ago

For the Morning Session at 9:45am, if there was no trade execution 5 minutes before, OTP-C will further search backward in time for the latest last traded price as the reference price. This search can go backward till the market open where the auction price established during the pre-opening auction will be used as the reference price.

In case there is no trade execution from market open to 5 minutes before the start

of the VCM monitoring, OTP-C will use the first traded price executed in the Morning Session as the reference price until there is a subsequent execution.

For the Afternoon Session at 1:15pm, if there was no trade execution 5 minutes before, OTP-C will further search backward in time for the latest last traded price as the reference price. This search can go backward till the market open of the Afternoon Session.

In case there is no trade execution from market open of the Afternoon Session to 5 minutes before the start of the VCM monitoring, OTP-C will use the first traded price executed in the Afternoon Session as the reference price until there is a subsequent execution.

9. Quotation Rule and Price Warning During Cooling-off Period

The price checking in relation to 24 spreads rule and 9 times rule will still be applicable as usual during the VCM cooling-off period.

The existing price warning mechanism (i.e. if a trader submits an order to OTP-C with this warning checking turned on, OTP-C will return a warning message to the trader when the order price is set at 21 spreads or more away from the nominal price) will also be applicable during the VCM cooling-off period.

10. Adverse Weather Arrangements

Delay Open of Securities Market due to Bad Weather

In the case that market open is delayed due to bad weather (e.g. hoisting of typhoon signal no.8 or above, Extreme Conditions or issuance of black rainstorm warning), similar to the normal market open, the first 15 minutes after market open will not be subject to the VCM monitoring.

Early Close of Securities Market due to Bad Weather

In the case of an early close of the market due to bad weather (e.g. hoisting of typhoon signal no.8 or above or Extreme Conditions during trading hours), cooling-off period can still be triggered in the last 15 minutes before market close and can continue until market close.

11. Additional Market Data Dissemination for VCM

Additional market information will be disseminated on HKEX Orion Market Data Platform for Securities Market (OMD-C) to provide transparency of the VCM to the market. Such information includes an indicator to identify VCM securities and the details of each cooling off period triggered by the VCM.

Before the start of a trading day, the OMD-C message for providing reference data will indicate whether a security is eligible for VCM or not on that day by the VCM security indicator.

Once a cooling off period is triggered by the VCM, the details of the cooling off period, including the stock code of the security concerned, the reference price, the lower price limit, the upper price limit, the start and end times of the cooling off period, will be disseminated immediately.

Reference price is only disseminated when a cooling off period is triggered. There is no reference price information in normal days where the VCM does not trigger any cooling off period.

12. Trading of Linked Instruments

All VCM securities will be treated independently, and therefore trading of its related or linked instruments (e.g. single stock options or derivative warrants) will remain unaffected when a VCM is triggered on a VCM security.

When a VCM security is under a cooling-off period, trading of its related instruments can continue without restriction.

13. Odd Lot / Special Lot Orders and Manual Trades

The VCM is only applicable for board lot order input during the CTS.

Odd lots / special lots orders and manual trades are not subject to VCM monitoring.

Input, amend, cancel of odd lot / special lot orders and input or reject of manual trades are allowed during VCM cooling-off period.

14. Securities Market Making (SMM) and Liquidity Provision

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

The current rules, regulations and procedures already make allowance for such situations. Per existing practice, the market makers or liquidity providers may request waiver or relaxation of their market making obligations.

15. Enquiries and Others

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

VCM webpages	https://www.hkex.com.hk/services/trading/securities/overview/trading-mechanism?sc_lang=en https://www.hkex.com.hk/vcm
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

