

Frequently asked questions

Hong Kong listed warrant and CBBC market

Introduction

These FAQs are intended to give you a better understanding of derivative warrants (“warrants”) and callable bull or bear contracts (“CBBCs”) listed in Hong Kong. These FAQs include examples and quick facts about some of their key features and risks, as well as some information about how they work in practice.

However, these FAQs are not designed to deal with all the important issues or scenarios that may affect you. They do not provide all the information you need to invest and they do not constitute investment or legal advice. You must read the listing documents for further information about the relevant product and seek independent advice if you have questions. Investing involves responsibility.

Should I invest in warrants and/or CBBCs?

Warrants or CBBCs are high risk derivative products which are only suitable for experienced investors. You should not invest in these products if:

- you do not have investment experience in investing in leveraged products
- the investment does not suit your investment objectives
- you do not fully understand the risks involved
- you are not willing to accept price volatility and assume the risks of a possible total loss
- you do not have sufficient knowledge of the factors that affect their pricing
- you do not know how to assess the creditworthiness of the issuer or (if applicable) its guarantor

If you are in doubt, you should clarify with the intermediary or seek independent professional advice.

What documents should I read?

You should read the listing documents of the relevant products. The listing documents contain important information, such as trade particulars of the relevant products and information of issuers and liquidity providers that you must read before investing in any warrant or CBBC. You should also read these FAQs carefully.

Where can I find out more?

The following resources also provide useful information:

- (a) The website of the HKEX has special pages for [warrants](#) and [CBBCs](#). You can obtain the listing documents for warrants and CBBCs from those designated webpages.
- (b) Industry Principles on Liquidity Provision for Listed Structured Products (July 2012) ("[Industry Principles](#)").
- (c) The website of individual issuers. Links to [individual issuers' websites](#) can be found on the website of the HKEX.
- (d) The website of the SFC has various [education materials](#) on structured products.

Who should I contact if I have any questions about my warrants or CBBCs?

If you have any questions or concerns about your product, or about an issuer's or a liquidity provider's performance, you can contact the issuer directly or speak to an independent advisor.

The [issuer's contact](#) details are set out in the relevant listing documents and can also be found on the HKEX's website.

If necessary, you can also contact The Stock Exchange of Hong Kong Limited ("**Exchange**") by calling +852 2840 3895 or by sending email to info@hkex.com.hk.

These FAQs are divided into the following sections:

PART I	: GENERAL FEATURES OF WARRANTS AND CBBCS	4
	• WARRANTS	4
	• CBBCS	5
PART II	: PRODUCT RISKS	7
PART III	: TRADING ARRANGEMENTS	11
PART IV	: LIQUIDITY PROVISION	12
	• GENERAL INFORMATION ABOUT LIQUIDITY	12
	• QUOTE REQUEST	15
	• ACTIVE QUOTE	17
	• QUOTE REQUEST CASES	22
	• ACTIVE QUOTE CASES	23
PART V	: PRICES OF WARRANTS AND CBBCS	25
	• GENERAL	25
	• ENTITLEMENT RATIO	27
	• PREMIUM	27
	• DELTA	29
	• GEARING AND EFFECTIVE GEARING	29
	• IMPLIED VOLATILITY	30
	• FUNDING COST	31
	• TIME VALUE	32
	• SUPPLY AND DEMAND	32
	• CORPORATE ACTIONS	32
	• CASES	34
PART VI	: CBBC MANDATORY CALL EVENTS/EXPIRY AND SETTLEMENT	39
	• CBBC MANDATORY CALL EVENTS	39
	• EXPIRY AND SETTLEMENT	40
PART VII	: GLOSSARY	43

Part I : General features of warrants and CBCs

Warrants

1.1 What are warrants?

A warrant is an instrument that gives the holder a right – but not the obligation - to “buy” or “sell” an underlying asset at a pre-set price (called the “exercise price”) on or before the expiry date. Warrants can be issued over a range of assets, including stocks, stock indices, currencies and commodities or a basket of assets. [The list of eligible stocks for warrants over single stock](#) is posted on the HKEX’s website. However, investing in a warrant does not give you any rights in or to the underlying asset. Currently, all warrants are cash settled when exercised on expiry.

There are two types of warrants:

- (a) A “call” warrant may be invested in by an investor who believes that the price of the underlying asset will increase during the term of the warrant.
- (b) A “put” warrant may be invested in by an investor who believes that the price of the underlying asset will decrease during the term of the warrant.

Typically, warrants in Hong Kong are issued with a life span of six months to two years, but are usually traded by investors before expiry. Warrants magnify your investment through leverage. This carries significant opportunities as well as significant risks. Warrants usually cost a fraction of the price of the underlying asset and may provide a leveraged return, but such leverage could also magnify your losses.

Warrants are a special form of option in which an investor can only take a long position in the warrants, just like option buyers. This means you can only take a long position in a call or a put warrant by buying such warrant and close out such long position previously established by selling such warrant – that is, you cannot short sell such warrant.

Your maximum loss will therefore be limited to the amount you pay for the warrant (plus any transaction costs, such as broker fees associated with your investment).

1.2 How do warrants work?

This depends on the type of warrant you buy (call versus put). The following examples deal with a warrant linked to a local stock.

- (a) **Call warrant** - At the expiry of a call warrant over a local stock, if the 5-day average closing price of the underlying stock before the expiry date is:
 - i. *higher* than the warrant's exercise price, the warrant is "in-the-money" and will be exercised automatically at expiry. In that case, you will receive a cash payment calculated by reference to the positive difference between that 5-day average closing price and the exercise price of the call warrant, adjusted by the entitlement ratio; or
 - ii. *equal to or lower than* its exercise price, the warrant is “at-the-money” or “out-of-the-money”, respectively, and will become worthless.

- (b) **Put warrant** - At the expiry of a put warrant over a local stock, if the 5-day average closing price of the underlying stock before the expiry date is:
- i. *lower than* its exercise price, the warrant is "in-the-money" and will be exercised automatically at expiry. In that case, you will receive a cash payment calculated by reference to the positive difference between the exercise price and that 5-day average closing price, adjusted by the entitlement ratio; or
 - ii. *equal to or higher than* its exercise price, the warrant is "at-the-money" or "out-of-the-money", respectively, and will become worthless.

1.3 How are the rights of a warrant holder different from the rights of a shareholder over the underlying stock?

Holder of a warrant on an underlying stock does not have the same rights as the shareholder of the underlying stock. Holders of warrants do not have voting rights or the right to receive any dividends, bonus or other distributions from the issuer of the underlying stock. The life span of a warrant is fixed, which may be automatically exercised on its expiry date or may expire worthless, whereas a shareholder of the underlying stock can hold such stock as a long term investment.

1.4 What are exotic warrants? What are the differences between an exotic warrant and a standard warrant?

There are various types of warrants in the market. Exotic warrants carry exotic features and their terms may be more complicated than standard warrants. An exotic warrant is identified with an "X" in its English stock short name. For more details, investors should refer to the listing documents and seek independent professional advice.

CBBCs

1.5 What are CBBCs?

A CBBC is an instrument that tracks the performance of an underlying asset. The trading price of a CBBC tends to mirror the movement in the price of its underlying asset. Like warrants, CBBCs can be issued over a range of eligible underlying assets prescribed by the Exchange from time to time. However the scope of eligible underlying assets is currently more restrictive for CBBCs than it is for warrants. [The list of eligible stocks for CBBCs](#) is posted on the HKEX's website.

A CBBC can be issued as a bull contract or a bear contract.

- (a) A "bull" CBBC may be invested in by an investor who holds a view that the price of the underlying asset will increase during the term of the CBBC.
- (b) A "bear" CBBC may be invested in by an investor who holds a view that the price of the underlying asset will decrease during the term of the CBBC.

Similar to a warrant, a CBBC may provide a leveraged return, but also carries the risk of magnifying your losses. Your maximum loss under a CBBC is limited to the investment amount you pay for the CBBC (plus any transaction costs, such as broker fees associated with your investment).

1.6 How does a CBBC work?

A CBBC is generally issued at a price that represents the difference between the spot price or level of the underlying asset and the strike price or level of the CBBC, plus the issuer's funding costs.

CBBCs have a mandatory call feature measured by reference to a call price or level. If the spot price or level of the underlying asset is at or below (in respect of a series of bull CBBCs) or at or above (in respect of a series of bear CBBCs) the call price or level at any time during an observation period (including pre-opening session, continuous trading session and closing auction session), a mandatory call event is triggered, following which the CBBC is terminated early and the trading of that CBBC ceases immediately. Otherwise, the following happens on expiry:

- (a) **Bull CBBCs** - For a bull CBBC, if the closing price or level of the underlying asset at expiry is:
- i. *higher than* the CBBC's strike price or level, you will receive a cash payment calculated by reference to the positive difference between that closing price or level and the strike price or level of the CBBC, adjusted by the entitlement ratio; or
 - ii. *equal to or lower than* its strike price or level, the CBBC will become worthless.
- (b) **Bear CBBCs** - For a bear CBBC, if the closing price or level of the underlying asset at expiry is:
- i. *lower than* the CBBC's strike price or level, you will receive a cash payment calculated by reference to the positive difference between strike price or level of the CBBC and that closing price or level, adjusted by the entitlement ratio; or
 - ii. *equal to or higher than* its strike price or level, the CBBC will become worthless.

1.7 What is the difference between CBBCs and warrants?

The following table describes some of the key differences between warrants and CBBCs.

Feature	Warrants	CBBCs
Response to price movement in underlying asset	Depends on various factors.	Changes in value by approximately the same amount as the underlying asset, but still depends on various factors.
Implied volatility	Affects trading price of warrants.	Insignificant to trading price of CBBCs.
Funding costs	Built into the premium price of a warrant.	Specified in the listing document.
Tenor	6 months to 5 years.	3 months to 5 years.
Mandatory call	Standard (i.e. non-exotic) warrants do not have a mandatory call feature.	CBBCs have a mandatory call feature. A CBBC is terminated early when the price of the underlying asset hits the call price
Underlying assets	More underlying assets are eligible for warrant issuance (see FAQ 1.1).	Relatively fewer underlying assets are eligible for CBBC issuance (see FAQ 1.5).

1.8 What is the difference between a “Category R” and a “Category N” CBBC?

The difference between these two categories of CBBCs is where the call price or level of the CBBC is set.

- (a) A “Category N” CBBC refers to a CBBC where its call price or level is *equal* to its strike price or level, under which you will not receive any cash payment after the occurrence of a mandatory call event and will lose your entire investment.
- (b) A “Category R” CBBC refers to a CBBC where its call price or level is different from its strike price or level, and you may receive a residual cash payment (called “**residual value**”) upon the occurrence of a mandatory call event. However, in the worst case, you will not receive any residual value and will lose your entire investment.

Part II : Product risks

2.1 What are the risks I need to consider before investing in a warrant or CBBC?

Investing in structured products is not for everyone.

Warrants and CBBCs involve a high degree of risk and you must be comfortable with that risk before investing. The relevant listing documents disclose the key risks applicable to the relevant warrant or CBBC. You must consider and understand those risks. You must also be able to assume the risks, which includes being financially able to bear the potential losses in a “worst case” scenario.

Generally speaking, the key risks include the following:

- (a) **Non-collateralisation** - Warrants and CBBCs are not secured by any asset of the issuer or the guarantor (if any) or supported by any other collateral.
- (b) **Credit risk** - Holders of warrants and CBBCs are unsecured creditors of the issuer and the guarantor (if any) and they have no preferential claim to any assets that an issuer or a guarantor (if any) may hold. You can access information about [issuers' credit ratings](#) on the HKEX's website.
- (c) **Gearing risk** - Although warrants and CBBCs often cost less than the underlying assets, a warrant or CBBC may change in value to a much greater extent than the underlying assets. Although the potential return on warrants or CBBCs may be higher than that on the underlying assets, in the worst case the value of warrants or CBBCs may fall to zero and holders may lose their entire investment amount.
- (d) **Limited life** - Unlike stocks, warrants and CBBCs have an expiry date and therefore a limited life. Unless the warrants or CBBCs are in-the-money, they become worthless when they expire.
- (e) **Time decay** - So long as other factors remain unchanged, the time value of warrants or funding costs of CBBCs will decrease over time and will become zero upon maturity. Therefore, without a strong view of the underlying assets, warrants or CBBCs should be viewed as a relatively short term investment product in comparison with an investment in the underlying assets.
- (f) **Market forces** - In addition to the basic factors that determine the theoretical price of a warrant or CBBC, prices of warrants or CBBCs are also affected by the demand for and supply of the warrants or CBBCs. This is particularly the case when warrants or CBBCs of a series are almost sold out and when there are further issues of a series of warrant or CBBC.

- (g) **Turnover** - High turnover should not be regarded as an indication that the price of a warrant or CBBC will go up. The price of a warrant or CBBC is affected by a number of factors in addition to market forces, such as the price of the underlying assets and their volatility, the time remaining to expiry, interest rates and the expected dividend on the underlying assets.
- (h) **Possibly limited secondary market** - The liquidity provider may be the only market participant for a particular warrant or CBBC. The more limited the secondary market, the more difficult it may be for you to realise the value in the warrant or CBBC before expiry.
- (i) **Operational and technical problems affecting liquidity services** – The liquidity provider may not be able to provide liquidity when there are operational and technical problems hindering its ability to do so. Even if the liquidity provider is able to provide liquidity in such circumstances, its performance on liquidity provision may be adversely affected. For example:
 - i. the spread between bid and ask prices quoted may be significantly wider than its normal standard;
 - ii. the quantity for which liquidity will be provided by the liquidity provider may be significantly smaller than its normal standard; and
 - iii. the liquidity provider's response time for a quote may be significantly longer than its normal standard.
- (j) **Corporate action of the underlying stocks** – Corporate actions affect the value of the underlying stocks which in turn affect the value of the warrants or CBBCs. Adjustments may or may not be made to the terms of the warrants or CBBCs (such as entitlement ratio, exercise price, etc.) depending on the terms and conditions set out in the listing documents. Where adjustments are to be made, the adjustments will only become effective (the "Effective Date") when all necessary parameters can be determined.

The prices of the warrants or CBBCs may be volatile from the ex-entitlement date of the underlying stocks until the Effective Date. You should exercise particular caution in trading those warrants and CBBCs during that period. In addition, no adjustment will be made to those warrants and CBBCs that expire within that period.

You should read carefully the risk disclosure in the relevant listing documents of the warrant or CBBC before investing in such product.

2.2 If an issuer or its guarantor suffers from a credit rating downgrade such that it no longer meets the eligibility requirements in the Listing Rules, what would happen to its outstanding warrants and CBBCs?

The issuer's existing warrants and CBBCs are still valid and you can continue to trade them through the Exchange trading system. The issuer must publish an announcement regarding the credit rating downgrade and continue to provide liquidity for its existing structured products and perform its settlement obligations upon expiry.

You should be cautious that prices of warrants or CBBCs issued by the affected issuer may be affected by its or its guarantor's credit downgrade.

However, when an issuer no longer meets the eligibility requirements in the Listing Rules, the issuer will not be allowed to launch new issues or further issues. It must apply for the withdrawal of warrants and CBBCs launched but not yet listed and all warrants and CBBCs with no outstanding positions held by the public.

2.3 Can derivative warrants or CBBCs be traded during closing auction session?

No, both derivative warrants and CBBCs are not eligible for trading in closing auction session and their market closing time is 4:00 p.m.

However, some underlying securities are eligible for trading in closing auction session and the closing level of the relevant index will be ascertained after 4:10 p.m. (or 12:10 p.m. in the case of half day trading) (“eligible underlying asset”). As a result, the market closing time for a derivative warrant or CBBC and its underlying asset can be different. In this case, the price or level of eligible underlying assets may move in closing auction session while investors cannot buy or sell related derivative warrants or CBBCs. Moreover, the CBBC can be knocked out and mandatory call event will occur if the closing price or level of the eligible underlying asset hits the call price or level at the end of the closing auction session.

2.4 Can derivative warrants or CBBCs be traded during the 5-minute cooling-off period after the triggering of the VCM?

Since the affected underlying security or index is not suspended and continues to trade within a specified price limit during the 5-minute cooling off period after the triggering of the VCM, the derivative warrants and CBBCs can still be traded without any price limit. You can access information about [VCM](#) on the HKEX website.

However, investors should note that where events surrounding VCM causes abnormal trading behavior of the underlying leading to hedging difficulties, the liquidity provision obligations of issuers could be exempted. In this case, there may be a temporary absence of price quotes, a reduction in quote size, or a wider bid-ask spread during the 5-minute cooling-off period. Please refer to FAQs 4.21 and 4.37 for more explanations.

2.5 If an issuer defaults, can I claim back my investment?

If a cash settlement amount is payable by an issuer at expiry but the issuer defaults in its payment obligation, you can claim as an unsecured creditor against the issuer, and if the product is guaranteed, also against the guarantor.

None of the warrants or CBBCs currently listed on the Exchange is collateralised. This means that there is no specific security or asset to back up the obligations of the issuer or guarantor. If the issuer or its guarantor (if any) becomes insolvent or defaults, you may not recover all or even part of the amount due (if any).

Please note that a warrant or CBBC may also expire worthless under its terms. Even if an issuer does not default, you may still lose your entire investment in a warrant or CBBC.

2.6 What is the additional risk for trading CBBCs as opposed to warrants?

CBBCs are a type of leveraged investment. They may involve a higher degree of risk and are not suitable for all types of investors. You should consider your risk appetite prior to trading in any CBBC. In any case, you should not trade in a CBBC unless you understand the nature of the product and the related transaction costs involved and are prepared to lose your entire investment amount, since a CBBC will be called by the issuer and expire early due to the occurrence of a mandatory call event when the price or level of the underlying asset hits its call price or level. The payoff for a Category N CBBC is zero when it expires early due to the occurrence of a mandatory call event. When a Category R CBBC expires early due to the occurrence of a mandatory call event, the holder may receive a small residual value payment, but there may be no residual value payment in some situations.

2.7 What are the additional risks in trading warrants or CBBCs with overseas underlying assets?

(a) Exchange rate risk

Investors trading in warrants or CBBCs with overseas underlying assets may be exposed to an exchange rate risk during the term of the warrants or CBBCs when the price and cash settlement amount of such warrants or CBBCs are converted from a foreign currency in which the overseas underlying asset is priced into Hong Kong dollars.

(b) Different trading hours between the underlying exchange on which the overseas underlying assets are traded and the Exchange

If trading in the overseas underlying assets is suspended on the underlying exchange, trading in the warrants or CBBCs will be suspended for a similar period.

The trading hours of the underlying exchange (based on Hong Kong time) are likely to be different from the trading hours of the Exchange. Trading in the overseas underlying assets on the underlying exchange may be suspended during non-trading hours of the Exchange. Such suspension may be lifted, and trading may resume, during non-trading hours of the Exchange.

If trading in the overseas underlying assets on the underlying exchange is suspended, trading in the warrants or CBBCs on the Exchange will not be automatically suspended – in such case, the market price of the warrants or CBBCs may fluctuate significantly until trading in the warrants or CBBCs on the Exchange is suspended. If trading in the overseas underlying assets on the underlying exchange resumes following a suspension, trading in the warrants or CBBCs on the Exchange will not be resumed automatically and you will not be able to trade the warrants or CBBCs until trading in the warrants or CBBCs on the Exchange is resumed.

In addition, the trading price of the overseas underlying assets is calculated and published during the trading hours of the underlying exchange. You should be aware of the time zone difference between Hong Kong and the location in which the underlying exchange is situated in assessing the trading price of the overseas underlying assets. The trading prices of the overseas underlying assets may be volatile in response to the movements on the underlying exchange during which the Exchange is not open for trading of the warrants or CBBCs.

(c) Less public information about the overseas underlying assets and such information may not be available in English or Chinese

There may be less publicly available information about the overseas underlying assets than those about Hong Kong underlying assets and some of that information may not be available in English or Chinese. If you do not understand any such information, you should obtain independent advice.

(d) Political and economic risk

The trading prices of the overseas underlying assets may be subject to political, economic, financial and social factors that apply in those geographical regions, which may differ favourably or unfavourably from those factors that apply to Hong Kong. Moreover, foreign economies may also differ favourably or unfavourably from the Hong Kong economy in important respects such as growth of gross national product, rate of inflation, capital reinvestment, resources and self-sufficiency.

(e) **Occurrence of mandatory call event for CBBCs outside trading hours**

CBBCs linked to overseas underlying assets may be called outside the Exchange's trading hours. In such cases, the CBBCs will be suspended from trading on the Exchange in the next trading session or soon after the issuer has notified the Exchange about the occurrence of the mandatory call event. There will be no automatic suspension of the CBBCs by the trading systems of the HKEX's securities market upon the occurrence of a mandatory call event. For Category R CBBCs, valuation of the residual value will be determined on the valuation day according to the terms and conditions as set out in the listing documents.

Part III : Trading arrangements

3.1 What information is included in the English short name of a warrant?

You can learn some basic features of a warrant from its stock short name. Below are the naming conventions for reference.

Z	Z	Q	Q	Q	Q	Q	@	E	C	Y	Y	M	M	A
Or														
Z	Z	-	Q	Q	Q	Q	@	E	C	Y	Y	M	M	A
Or (traded in Renminbi)														
Z	Z	Q	Q	Q	Q	@	E	C	Y	Y	M	M	A	*
ZZ	Issuer's short name													
Q	Up to 5 characters representing name of the underlying asset													
@	@ = Cash settlement ; * = Physical delivery													
E	E = European ; R = Regional warrants ; X = Exotic (non-traditional) ; No Character = American													
C	C = Call ; P = Put ; No Character = non Call or Put													
YYMM	Expiry year and month													
A	Serial number for additional issues by the same issuer on same underlying asset with same expiry year and month (A, B, C ...)													
*	Indicator for warrants traded in Renminbi (RMB)													

The above naming convention for warrants has come into effect since 27 Feb 2012. The stock short name of warrants launched before 27 Feb 2012 will remain unchanged. There is no serial number assigned to the first issue of warrants launched before 27 Feb 2012 (i.e. ZZ-QQQQ@ECYYMM).

You should note that the above naming conventions are applicable in most cases but not exclusive for all circumstances. The stock short names of warrants indicate some basic information only. You should refer to the relevant listing documents of the product and consult your brokers or investment advisers before trading. Listing documents can be found at "Securities Products" under the "Products & Services" section of the HKEX's website.

3.2 What information is included in the English short name of a CBBC?

You can learn some basic features of a CBBC from its stock short name. Below are the naming conventions for reference.

Z	Z	#	Q	Q	Q	Q	Q	R	C	Y	Y	M	M	A
Or (traded in Renminbi)														
Z	Z	#	Q	Q	Q	Q	R	C	Y	Y	M	M	A	*
ZZ	Issuer's short name													
#	CBBC indicator													
Q	Up to 5 characters representing name of the underlying asset													
R	R = With residual value; N = No residual value													
C	C = Bull contract ; P = Bear contract													
YYMM	Expiry year and month													
A	Serial number for additional issues by the same issuer on same underlying asset with same expiry year and month (A, B, C ...)													
*	Indicator for CBBCs traded in Renminbi (RMB)													

The “#” sign in the stock short name could help investors differentiate a CBBC from a warrant.

You should note that the above naming conventions are applicable in most cases but not exclusive for all circumstances. The stock short names of CBBCs indicate some basic information only. You should refer to the relevant listing documents of the product and consult your brokers or investment advisers before trading. Listing documents can be found at “Securities Products” under the “Products & Services” section of the HKEX’s website.

3.3 Will I incur any transaction fees in buying or selling warrants or CBBCs on the Exchange?

Yes. Similar to the trading of shares, transaction fees currently include:

- (a) brokerage commission and fees charged by the relevant broker;
- (b) the transaction levy imposed by the SFC; and
- (c) a trading fee charged by the Exchange.

3.4 Do I have to pay any stamp duty?

No. Currently, all warrants and CBBCs traded on the Exchange are cash settled and trading in such cash settled warrants and CBBCs is not subject to any stamp duty.

Part IV : Liquidity provision

General information about liquidity

4.1 What is liquidity and why is it relevant to trading in warrants or CBBCs?

A liquid product has a tradable market with tight bid and ask prices and sufficient size, in which there are opportunities to buy and sell warrants or CBBCs. The provision of liquidity is an important feature of warrants and CBBCs because it allows investors to buy and sell warrants and CBBCs that may otherwise be illiquid (that is, have insufficient supply or demand). Issuers may provide liquidity in respect of their products through a designated liquidity agent (called a “liquidity provider”). In Hong Kong, liquidity providers are commonly known as “market makers”.

Each issuer must appoint one liquidity provider, who must be an Exchange participant, for each of its products.

4.2 What is the role of a liquidity provider?

Most warrants and CBBCs do not have public holdings on their first listing dates. A liquidity provider provides quotations for a particular warrant or CBBC to support a tradable environment for that product. Such quotations take into account the prevailing market conditions affecting the underlying asset, such as hedging costs and liquidity, spread and volatility of the underlying. Liquidity providers provide liquidity by inputting orders into the trading system of the Exchange when they receive “quote requests”. They do so according to the committed service level set out in the relevant listing document. These standards typically include:

- (a) the maximum response time – i.e. the maximum time it will take to submit a pair of quotes after a request is received;
- (b) the maximum spread between the bid and ask price;
- (c) the minimum quote size; and
- (d) situations in which a quote will not be provided.

Under certain circumstances, liquidity providers are required to provide “active quotes” (that is, even where no request has been submitted by investors) by actively inputting orders into the Exchange’s trading system in accordance with the service levels set out in the Industry Principles. See FAQ 4.22.

4.3 How to identify liquidity provider quotes?

Each liquidity provider is currently identified by a 4-digit broker ID code of 95XX, 96XX or 97XX. The relevant listing documents of an issuer set out the exact obligations of its liquidity provider.

4.4 Why does the liquidity provider sometimes become less active in providing quote?

In circumstances where the outstanding quantity of a warrant or CBBC in the market increases, the liquidity provider may be less active in providing quotes for such warrant or CBBC. This is because the key role of a liquidity provider is to facilitate liquidity when there is limited or no market liquidity on the warrant or CBBC (such as when the products are newly listed on the Exchange with limited or no trading by market participants or investors) and to support a tradable environment for the warrant or CBBC. If a warrant or CBBC is not eligible for active quotes due to the fact that there is more than 50% of its aggregate number outstanding in the market, then there may not be any active quote from the liquidity provider. You can find out the outstanding quantity of [warrant](#) or [CBBC](#) as of the previous trading day on the HKEX’s website.

Where the number of market participants for a particular product grows, the “market force” increases, and the product becomes less dependent on the liquidity provider as the sole source of liquidity. By implication, the role of the liquidity provider becomes less important when there is a higher number of particular warrant or CBBC outstanding, because this means there are more investors trading in the product, leading to a natural market.

4.5 Does the liquidity provider need to maintain the price for a product at a particular level?

No. Liquidity providers are not required to support prices of warrants or CBBCs. In practice, like other market participants, a liquidity provider is free to buy and sell at any price.

4.6 How many liquidity providers can an issuer appoint for each warrant or CBBC in issue?

Each series of warrant or CBBC will have only one liquidity provider appointed for such series.

4.7 How do I get the liquidity provider's information for a warrant or CBBC?

You can obtain the liquidity provider's name and contact details in two ways:

(a) Visit the HKEX's website:

The designated HKEX's website lists all the liquidity providers for all [warrants](#) and [CBBCs](#) listed on the Exchange.

(b) Check the relevant listing documents of the [warrant](#) or [CBBC](#).

4.8 How can I request prices from a liquidity provider?

Simply contact the liquidity provider directly during trading hours on a trading day at its designated phone number. See FAQ 4.7 about where to find the liquidity provider's contact details.

4.9 What factors affect the liquidity of a warrant or CBBC, and the way the liquidity provider provides liquidity?

Through the liquidity provider, the issuer takes into account the prevailing market conditions affecting the underlying asset (e.g. hedging costs and liquidity, spread and volatility of the underlying) in the quotations provided to the market. See FAQs 5.2 and 5.4 for further information on the factors affecting the price of a warrant and CBBC.

4.10 Do I have to trade against the liquidity provider's bid or ask price?

Not necessarily. Trading warrants or CBBCs is similar to trading stocks listed on the Exchange. Any investor's bid or ask price may be accepted and traded upon by other investors. You may also place orders just like trading in listed stocks. However, there may not be sufficient interest in trading such warrants or CBBCs.

4.11 If the appointed liquidity provider is no longer an Exchange participant, can that liquidity provider continue to provide liquidity? Is an issuer required to appoint another liquidity provider if the existing liquidity provider is disqualified?

If the appointed liquidity provider is no longer an Exchange participant, it cannot continue to provide liquidity. The issuer must appoint another liquidity provider in its place.

4.12 What is the Industry Principles? Is compliance with the liquidity standards in the Industry Principles voluntary? How does the Exchange enforce them?

The Industry Principles set out the best practices on liquidity provision standards for listed structured products. The Guide on Enhancing Regulation of the Listed Structured Products Market published by the Exchange requires issuers to follow the Industry Principles. Issuers cannot opt out.

The Industry Principles are general guidance for issuers and are not binding commitments nor do they give rise to enforceable obligations. For example, they do not give investors any specific rights against any issuer.

Occasional failure to comply with the Industry Principles will not in itself render an issuer or its liquidity provider liable to any sanction or enforcement action. That said, compliance with the Industry Principles is relevant to the Exchange’s assessment of an issuer’s suitability to list structured products. The Exchange will actively monitor issuers’ performance and request for explanations why an issuer has not complied with certain Industry Principles.

Quote Request

4.13 What is “quote request”?

Quote request is one of the methods in which liquidity is provided. It refers to the provision of liquidity by entering orders into the Exchange’s trading system in response to an investor’s request.

The Guide and Industry Principles set out the new tightened liquidity standards to be adopted by each issuer in its listing documents. Quote request standards are the minimum service level for all warrants and CBBCs applicable to all possible market conditions (regardless of the underlying assets), subject to certain exemptions set out in the listing documents.

4.14 What are the tightened minimum service levels for quote requests?

The following table summarises the new service levels.

Standard	By 31 October 2012
Maximum bid-ask spread	20 spreads
Maximum response time	10 minutes
Minimum quantity	20 board lots
Minimum holding time	5 minutes* <i>*Issuers can refresh the quote to reflect changes in the price of the underlying asset and the prevailing market conditions</i>

4.15 When will the tightened minimum service levels for quote requests take effect?

Issuers are required to implement the tightened quote request service levels by 31 October 2012.

4.16 What does a “minimum holding time of 5 minutes” mean?

When a liquidity provider responds to your quote request, it must continue to hold a quotation (which effectively means it must continue to make available an offer to trade for investors) for at least 5 minutes after it is posted on the Exchange’s trading system upon your request. This means that you can accept the quote (that is, agree to trade on that basis) within such 5 minutes, if it has not lapsed (see below).

However, it is important to be aware that even within those 5 minutes, the liquidity provider may need to adjust the bid and ask prices to take into account prevailing market conditions and changes in the price of the underlying asset. If that occurs, the liquidity provider will “refresh its quote” – that is, an adjusted quote will be posted on the Exchange’s trading system.

More importantly, if a liquidity provider's quote is being traded by another investor within the 5 minute holding time and the quotation lapses, you need to submit another quote request if you wish to trade.

4.17 Under what circumstances is the liquidity provider not required to provide quote upon request?

The liquidity provider is not obliged to provide quote upon request in nine key situations:

- (a) during a pre-opening session or a closing auction session (if applicable);
- (b) during the first 5 minutes of each morning session or the first 5 minutes after trading commences for the first time on a trading day;
- (c) when the warrant or CBBC or any underlying asset is suspended from trading for any reason;
- (d) when there is no warrant or CBBC available for market making activities;
- (e) if the theoretical value of the warrant or CBBC is less than HK\$0.01;
- (f) in the case of CBBCs only, upon the occurrence of a mandatory call event;
- (g) where the underlying asset is an index, if there occurs or exists any suspension of, or limitation imposed on, trading of options or futures contracts relating to the index or if the index level is not calculated or published as scheduled for any reason;
- (h) when there are operational and technical problems beyond the control of the liquidity provider that hinder the liquidity provider's ability to provide liquidity; or
- (i) if there is a "fast market" which materially affects the issuer's hedging ability (see FAQ 4.19).

These circumstances are stated in the relevant listing documents and the relevant exemptions are set out in paragraph 3.3 of [Industry Principles](#).

The following FAQs also explain some of these situations in more details.

4.18 What happens to my warrant or CBBC if its underlying asset is suspended from trading?

If trading in the underlying asset of a warrant or CBBC is suspended, trading in such warrant or CBBC will also be suspended until trading in the underlying asset resumes. Investors must understand and take into account the risks arising from a loss of time value during a suspension period.

4.19 What do you mean by "fast market"?

"Fast market" refers to situations where the financial markets experience exceptional price movements and high volatility over relatively short periods of time, which can result in a sudden increase in risk and uncertainty, possibly affecting issuers' hedging abilities.

For example, these situations may include:

- (a) **financial uncertainty** - exceptionally volatile market conditions linked to financial uncertainty - for example, the period following Lehman Brothers' bankruptcy in September 2008 and the "flash crash" of 6 May 2010, when the Dow Jones Industrial Average suffered its worst intra-day point loss; and

- (b) **underlying uncertainty** - the occurrence of events causing the intraday market price of the underlying stock or index to experience significant fluctuations and/or a material reduction in liquidity of the underlying - for example, Japan's earthquake on 11 March 2011 which resulted in a drastic fall in Nikkei index in the immediately following period and fluctuation in prices of the related warrants.

These are just possible examples of fast market events. Depending on circumstances, some market events may trigger a VCM which may possibly result in a fast market.

It is generally more difficult to provide quotes momentarily when the price of the underlying asset is changing rapidly within a short period of time.

4.20 What will an issuer do when there is a system failure leading to a service interruption?

System difficulties and failures can affect the ability of a liquidity provider to provide quotes within the service level set out in relevant listing documents or provide any quote at all.

A system failure will be notified to the market as soon as practicable and shall be fixed within the shortest possible time.

4.21 What will happen to Quote Requests for the warrant and CBBC, on a day when the underlying was subject to a VCM?

The issuer will commit to Quote Request obligations during the day, including during the cooling off period, unless an exemption is obtained for Quote Request (see FAQ 4.17, particularly point (g) and (i) which may relate to a VCM event).

Active Quote

4.22 What are “active quotes”?

Active quotes refer to the provision of liquidity where a liquidity provider actively inputs orders into the Exchange's trading system.

The Industry Principles describe a new active quote standard which will be offered with effect from 31 December 2012 for products with an active underlying asset, provided certain criteria are met (see FAQ 4.27).

For further information, please refer to section 4 of the [Industry Principles](#) .

4.23 When will active quotes be implemented by issuers?

Issuers are targeting implementation of the new active quote liquidity service in accordance with the Industry Principles by 31 December 2012.

4.24 Does active quote mean there is continuous quotation available throughout a trading day?

Generally speaking, yes. However, active quotes may not strictly be “continuous” because liquidity providers may need to pause the provision of active quotes for a reasonably short period of time to adjust quote parameters in response to market conditions or operational needs (see FAQ 4.32 for some of the reasons why this might happen).

Roughly speaking, active quotes should be provided for at least 90% of the time of a trading day for warrants and CBBCs that meet the criteria for active quotes and each pause should not exceed 10 minutes.

4.25 Is there a minimum holding time for active quotes?

No. Unlike quote request, there is no minimum holding time for active quotes.

4.26 Under what circumstances are issuers required to provide active quotes?

Issuers are only required to provide active quotes during the “Qualified Period”. This means the period when:

- (a) the criteria set out in FAQ 4.27 are met; and
- (b) none of the exemptions set out in FAQ 4.17 applies.

4.27 What are the criteria for active quotes?

Issuers are only committed to providing active quotes for warrants and CBBCs that satisfy the following criteria (as measured on a real time basis):

- (a) an active underlying (see FAQ 4.28);
- (b) 50% or less of their aggregate number outstanding in the market;
- (c) for warrants only, remaining time to expiry of at least 30 calendar days (for instance, if the expiry date of the warrant is 2 January 2013, active quote should be provided by the liquidity provider up to and inclusive of 3 December 2012) ;
- (d) for warrants only, moneyness between 20% in-the-money and 20% out-of-the-money. “Moneyness” is derived by comparing the spot price or level of the underlying and the exercise price or strike level; *and*
- (e) for CBBCs only, the prevailing price of the underlying stock falls outside 2% of the call price or the prevailing level of the underlying index falls outside 1% of the call level. This “qualified range” is derived by comparing the spot price or level of the underlying and the call price or level.

These criteria are set out in paragraph 4.2 of the [Industry Principles](#).

4.28 How do I know if an underlying asset of a warrant or CBBC is an “active underlying”?

An “active underlying” means local indices (such as the Hang Seng Index and Hang Seng China Enterprises Index) and stocks listed on the Exchange which are eligible for CBBC issuance. These represent stocks with the highest turnover in the market.

[CBBC eligible list](#) is generally updated on a quarterly basis and posted on HKEX’s website .

Investors should pay attention to the change in the eligible underlying and the effective date of the eligible list. An underlying previously eligible for CBBC issuance and is removed from the current eligible list will no longer be an “active underlying”. As a result, structured products with that particular underlying will cease to be subject to active quotes (see FAQs 4.22 and 4.27) commencing on the effective date of the eligible list.

On the other hand, a newly added eligible underlying will become an “active underlying” and will be subject to active quotes commencing on the effective date of the eligible list (assuming the criteria for active quotes (see FAQ 4.27) are all met).

4.29 Where can I find the list of structured products that are subject to active quotes?

If you want to know whether a particular warrant or CBBC is eligible for active quotes at any particular time on a trading day, you may contact the issuer to ask if such warrant or CBBC meets the active quote criteria.

The list of structured products which were eligible for active quotes based on market data as of close of trading on a trading day will be included in each issuer's daily trading summary published on the next trading day. If you wish to use such market data as a general reference point, you may also access such historic data of [warrants](#) or [CBBCs](#).

Such information included in an issuer's daily trading summary will only show historic data as of the close of trading on the previous trading day for general guidance only. You must not assume that such information is accurate, complete or up-to-date. You should not rely on such historic list as an indication that a warrant or CBBC listed in such daily trading summary actually meets the active quote criteria at any other time.

4.30 Why doesn't the issuer provide active quotes for warrants with less than 30 calendar days remaining term?

The time value of a warrant erodes rapidly towards expiry, making it more difficult to provide active quotes. Active quotes are therefore only able to be provided for a warrant the value of which is not materially affected by the erosion of its time value.

4.31 What is "moneyness"? How is it calculated?

"Moneyness" describes where the warrant's exercise price or strike level is in relation to the price or level of the underlying asset.

In the case of a call warrant, if the exercise price or strike level is:

- (a) above the price or level of the underlying asset, the warrant is said to be "out-of-the-money"; or
- (b) below the price or level of the underlying asset, the warrant is said to be "in-the-money".

Numerically, moneyness of a call warrant is calculated by reference to the difference between the underlying asset's price or level and the exercise price or strike level, divided by the underlying asset's price or level, as illustrated in the table below.

Exercise price	Price of underlying asset	% in-the-money/out-of-the-money
HK\$80	HK\$100	$(\text{HK\$}100 - \text{HK\$}80) / \text{HK\$}100 \times 100\% = +20\%$ (i.e. 20% in-the-money)
HK\$120	HK\$100	$(\text{HK\$}100 - \text{HK\$}120) / \text{HK\$}100 \times 100\% = -20\%$ (i.e. 20% out-of-the-money)

In the case of a put warrant, if the exercise price or strike level is:

- (a) below the price or level of the underlying asset, the warrant is said to be "out-of-the-money"; or
- (b) above the price or level of the underlying asset, the warrant is said to be "in-the-money".

Similar to a call warrant, the moneyness of a put warrant is calculated by reference to the difference between the exercise price or strike level and the underlying asset's price or level, divided by the underlying asset's price or level, as illustrated in the table below.

Exercise price	Price of underlying asset	% in-the-money/out-of-the-money
HK\$120	HK\$100	$(\text{HK\$120} - \text{HK\$100}) / \text{HK\$100} \times 100\% = +20\%$ (i.e. 20% in-the-money)
HK\$80	HK\$100	$(\text{HK\$80} - \text{HK\$100}) / \text{HK\$100} \times 100\% = -20\%$ (i.e. 20% out-of-the-money)

4.32 Under what circumstances will active quotes be paused or affected temporarily?

Active quotes may not be continuous because liquidity providers may need time to pause the provision of active quotes for a reasonably short period of time to adjust quote parameters in response to market conditions or operational needs.

Common causes of these short interruptions include the following:

- (a) a sudden or material change in the trading pattern of the warrant or CBBC, such as where a relatively inactive warrant suddenly becomes active;
- (b) news is published that might have an impact on the market price of the underlying. For example, a change in forecast earnings or proposed dividends;
- (c) the underlying or the stock market experiences exceptional price movement or high volatility over a short period of time which materially affects the liquidity provider's ability to source a hedge or unwind an existing hedge (see FAQ 4.19);
- (d) the underlying stock trades at a wider bid-ask spread than normal which causes the spread in the warrant or CBBC to exceed the maximum level specified in paragraph 4.9 of the Industry Principles;
- (e) the liquidity provider reasonably suspects any potential mispricing, system issue or error;
- (f) the liquidity provider reasonably suspects abnormal trading in respect of the underlying;
- (g) operational and technical problems such as computer network disconnection, loss of data feed, loss of connectivity with the Exchange or technical issues which arise in the issuer's computer system; or
- (h) the liquidity provider will suffer, or expects to suffer, a financial risk due to frequency of trades and quantity of trades in relation to its warrants or CBBCs.

4.33 Under what circumstances will active quotes be discontinued?

An issuer may stop providing active quotes for a product on a trading day if that product no longer meets the criteria stated in FAQ 4.27. Individual issuers may voluntarily decide to keep providing active quotes, or may switch to providing liquidity on a quote request basis in accordance with the minimum liquidity service levels.

4.34 Why do issuers only provide active quotes under specified circumstances?

A liquidity provider's quotation for products must be based on actual market conditions (see FAQ 4.9). There are three key considerations for an issuer when deciding if active quotes can be provided:

- (a) if the product is suitable in terms of demand and risk management;
- (b) if the market conditions affecting the underlying asset, such as its liquidity and the availability of hedging, permit active quotations; and
- (c) the prevailing market conditions affecting the product itself, such as supply and demand patterns.

4.35 What is the spread requirement for active quotes?

The bid and ask spreads for active quote are tighter than the maximum spreads prescribed for quote request. These tightened spreads are as follows:

Product	Local index underlying	Actively traded stock underlying
Warrant	5 spreads	10 spreads
CBBC	10 spreads	15 spreads

4.36 Why is there a different active quote liquidity service standard (i) between warrants and CBBCs and (ii) between local index and actively traded stock respectively?

Spreads for CBBCs are wider than those for warrants because the price of CBBCs is generally more sensitive to movements in the value of the underlying asset, meaning that it is more costly for the issuer to hedge that underlying asset.

Spreads for warrants or CBBCs over an actively traded stock are wider than those for warrants or CBBCs over a local index because of the higher liquidity to hedge a local index and it is generally more costly (e.g. stamp duties, bid-ask spread, etc.) to hedge the actively traded stock underlying.

4.37 How will the provision of Active Quotes be affected for a warrant/CBBC when the underlying security is subject to VCM?

Investors should be aware that standards for Active Quotes described in the Industry Principles are intended to apply to normal market conditions. Provision of Active Quotes may be affected where there are abnormal or exceptional market conditions.

Quotes provided by liquidity providers necessarily reflect the liquidity of the underlying securities or indices at any given time. If the liquidity of the underlying is impaired by conditions surrounding a VCM event, or by the VCM itself, the liquidity of the warrant or CBBC may be adversely affected in terms of quote size and spread relative to more normal market conditions.

During the 5-minute cooling off period after triggering of the VCM, where issuers' hedging ability is materially affected due to the uncertainty in the underlying securities or index, it is possible that the minimum service level for Active Quotes will not be fulfilled, such as no bid-ask quotations, widening of bid-ask spread and reduction in quote size.

Similarly, after the 5-minute cooling off period, liquidity provision may still be affected if issuers continue to experience hedging difficulties. Under such circumstances, Liquidity Providers may not fulfil the minimum service level for Active Quotes as described in the Industry Principles.

However, issuers will use best efforts to meet quote request requirements.

Quote Request Cases

- 4.38 A liquidity provider has provided quotes with 30 spreads in response to my quote request. Has the liquidity provider breached its obligation to quote within the maximum bid-ask spread set out in the relevant listing document?**

Yes, unless the situation falls within any of the circumstances described in FAQ 4.17. The new tightened liquidity providing obligations for quote requests prescribe a maximum spread for quote request (20 spreads) with effect from 31 October 2012.

- 4.39 I made a quote request at 3:15 p.m. with a liquidity provider but it only provided quotes at 3:40 p.m. Has the liquidity provider breached its obligations?**

Possibly, it depends on the circumstances. The maximum response time for quote request has been capped at 10 minutes with effect from 31 October 2012. If the situation falls within any of the circumstances described in FAQ 4.17, then the liquidity provider is not required to provide quotes within 10 minutes.

- 4.40 I note a liquidity provider provided a quote in response to a quote request which lasted for 3 minutes only. Has the liquidity provider breached its obligation?**

Not necessarily. For example, the quote may have been taken by another market participant or one of the circumstances set out in FAQ 4.17 may have arisen.

- 4.41 I wanted to sell 1,000 board lots of my warrants and called up the liquidity provider for a quote. Why couldn't I sell my 1,000 board lots even after I got the quote from the liquidity provider?**

The quote size offered by the liquidity provider is limited by the actual liquidity of the relevant hedging vehicle (e.g. the underlying asset or the listed or OTC options linked to the underlying asset). In this case, the liquidity provider may not be able to buy all 1,000 board lots of your warrants if the liquidity provider cannot unwind such hedging vehicle for all of the 1,000 board lots of your warrants (for example, because the relevant hedging vehicle is illiquid). The minimum quote size offer that a liquidity provider is committed to quote is 20 board lots with effect from 31 October 2012.

- 4.42 I bought a call warrant with a last reported price (or nominal price) of HK\$0.01 and that reported price has not moved for a long time. I want to sell my holding in such call warrant. Why can't I get any quotes from the liquidity provider?**

The last reported price (or the nominal price) is not necessarily the same as the warrant's actual theoretical value. In this case, the most likely reason is that the actual theoretical value of the call warrant is less than HK\$0.01. This is one of the circumstances in which a liquidity provider is not required to respond to any quote request (see FAQ 4.17).

- 4.43 I submitted a quote request to a liquidity provider who responded by saying that there are existing liquidity provider quotes already in the market. Has the liquidity provider breached its obligations to respond to my request?**

No. If an existing quote that complies with the minimum service levels is available, the liquidity provider will be deemed to have complied with its liquidity obligations.

4.44 I asked a liquidity provider to reduce its bid-ask spread which has already met minimum service levels for quote requests. Is the liquidity provider obliged to provide a tighter spread?

The liquidity provider is only required to commit to the minimum service level. If your request for a bid-ask spread reduction is a tighter standard than the minimum service level, the liquidity provider is not obliged, and may not be able, to provide a tighter spread. It is because the bid-ask spread may change from time to time or even widen according to the prevailing market conditions affecting the underlying asset (such as hedging costs and liquidity, spread and volatility of the underlying).

4.45 Should I still make a quote request for warrants and CBBCs if the liquidity provider is providing active quotes for such products?

If the liquidity provider has provided active quotes that comply with the spread requirement for active quotes as prescribed in the Industry Principle, it should not be necessary to make a separate quote request for such products as the bid and ask spreads for active quotes are tighter than the maximum spreads prescribed for quote request.

4.46 I made a quote request for a call warrant over a stock. The liquidity provider claimed that it was exempted from providing quotes due to a significant move in the Hang Seng Index or the overall market. Is the liquidity provider justified to claim an exemption from providing quotes?

The liquidity provider is exempted from providing liquidity when there is a “fast market” which materially affects the issuer’s hedging ability. Please refer to FAQ 4.19 on what is meant by “fast market”.

A significant move in the Hang Seng Index or the overall market may or may not result in exceptional price movement and high volatility of the underlying stock. In this case, the liquidity provider may need to demonstrate to the Exchange that its hedging ability has been materially affected by exceptional price movement during a short period of time.

Active Quote Cases

4.47 I hold a call warrant over a stock, which is due to expire in 15 days. I want to sell it before it expires. Why is there no active quote for it?

Time to maturity is one of the criteria for active quotes. As your call warrant has a maturity of less than 30 calendar days, it does not meet the active quote criteria set out in the Industry Principles. In this case, you could contact the issuer to make a quote request.

4.48 I hold a call warrant over an active underlying stock with an exercise price of HK\$45. The spot price of the underlying stock is HK\$50. Is the stock warrant eligible for active quotes?

Issuers provide active quotes for warrants with moneyness between 20% in-the-money and 20% out-of-the-money.

Where the spot price of the underlying stock is HK\$50, an exercise price of the stock call warrant between HK\$40(+20%) and HK\$60(-20%) meets the $\pm 20\%$ moneyness criteria. In this case, your warrant should be eligible for active quotes (subject to it meeting the other criteria), as the exercise price of HK\$45 falls within the $\pm 20\%$ moneyness range.

4.49 I hold a call warrant over HSI, with a strike level at 22900. The spot level of HSI is 18300. Is my index warrant eligible for active quotes?

Issuers provide active quotes for warrants with moneyness between 20% in-the-money and 20% out-of-the-money.

Where the spot level of the HSI warrant is 18300, a strike level of the call warrant between 14640 (+20%) and 21960 (-20%) meets the $\pm 20\%$ moneyness criteria. In this case, your warrant does not fulfil the active quote criteria because the exercise level of 22900 falls outside the $\pm 20\%$ moneyness range.

As a result, you could contact the issuer to make a quote request if you want to sell your warrant.

4.50 I hold a bull CBBC linked to Stock X, with a call price of HK\$50. The spot price of Stock X is now trading at HK\$52. Will the issuer provide active quotes for this CBBC?

Issuers provide active quotes for bull CBBCs linked to stocks where the spot price of the underlying stock is above 2% of the call price.

Where the call price of a bull CBBC is HK\$50, a spot price above HK\$51 meets the percentage requirement for the bull CBBC. In this case, your CBBC should be eligible for active quotes (subject to it meeting the other criteria, such as the aggregate number outstanding in the market) since the spot price is above 2% of the call price. You should also note that the bull CBBC would be knocked out when the spot price reaches HK\$50.

4.51 I hold a bull CBBC linked to HSI, with a call level of 19000. The spot level of HSI is 19100. Will the issuer provide active quotes for this CBBC?

Issuers provide active quotes for bull CBBCs linked to an index where the spot level of the underlying index is above 1% of the call level.

Where the call level of a bull CBBC is 19000, a spot level above 19190 meets the percentage requirement for the bull CBBC. Your CBBC does not fulfil the active quote criteria because the spot level is less than 1% above the call level. You should also note that the bull CBBC would be knocked out when the spot level reaches 19000. In this case, you could contact the issuer to make a quote request.

4.52 I hold a HSI warrant which fulfils the active quote criteria prescribed in the Industry Principles. Why there is no active quote provided?

Active quotes will not be provided where one of the exemptions set out in paragraph 3.3 of the Industry Principles applies. For example, the liquidity providers need not provide active quotes where:

- (a) the theoretical value is less than HK\$0.01
- (b) there is a technical failure and operational problems beyond the control of the liquidity provider; or
- (c) the underlying asset or the stock market experiences exceptional price movement and high volatility over a short period of time which materially affects the liquidity provider's hedging ability.

Remember that active quotes are not continuous (see FAQ 4.24). You could contact the liquidity provider, if you have any questions about liquidity (see FAQ 4.7).

4.53 I notice that an issuer provides quotes for the warrants which do not fulfil the active quote criteria but the spread is wider than the maximum bid-ask spread under the active quote requirement. Has the issuer breached the active quote requirement?

No. An issuer may, at its option, provide active quotes voluntarily. In those circumstances, the issuer is not bound by the specific spread requirements for active quotes as set out in the Industry Principles. However, in this case, the issuer will still need to comply with the spread requirement applicable to quote request in response to a quote request.

Part V : Prices of Warrants and CBBCs

General

5.1 What is the “theoretical value” of a warrant or CBBC? How is it determined?

Warrants and CBBCs have a “theoretical value” that may be very different from their traded (nominal) price.

The theoretical value is the price of the warrant or CBBC calculated by reference to the issuer’s pricing model, taking into account all relevant market factors. See FAQ 5.2 and FAQ 5.4 for the factors that can affect the price of warrants and CBBCs generally.

5.2 What factors affect the price of a warrant?

The price of a warrant generally depends on the price of the underlying asset. However, throughout the term of a warrant, its price will be influenced by a number of other factors, including:

- (a) the exercise price of the warrant;
- (b) the value and volatility of the price of the underlying asset (being a measure of the issuer’s expectation on the fluctuation in the price of the underlying asset over time);
- (c) the time remaining to expiry: generally, the longer the remaining life of the warrant, the greater its value;
- (d) the interim interest rates and expected dividend payments or other distributions on the underlying asset;
- (e) the liquidity of the underlying asset;
- (f) the availability of, and demand for, the warrant;
- (g) the issuer’s hedging transaction costs;
- (h) the creditworthiness of the issuer and/or its guarantor; and
- (i) in case of index warrants, the price and liquidity of the futures contracts relating to such index

Assuming other factors remain unchanged, the theoretical impact of changes in certain key factors above on call and put warrants is illustrated in the table below:

Factor*	Call warrant price	Put warrant price
Underlying asset price ↑	↑	↓
Underlying asset volatility ↑	↑	↑
Time to expiry ↓	↓	↓
Interest rate ↑	↑	↓
Expected dividends ↑	↓	↑

* Please note that the table above only shows the theoretical relationship with the key pricing parameters. In reality, there are other factors affecting the price of a warrant.

5.3 Why is the price movement of a warrant not directly proportional to the movements in the price or level of its underlying assets?

- The price of a warrant is not only affected by the price of the underlying asset but a range of other factors (see FAQ 5.2). This means that movements in the price of a warrant may not be proportionate, or may even be opposite, to the price movement of the underlying asset. For example: for a call warrant, if the price of the underlying asset increases, but the implied volatility of the price of the underlying asset decreases, the price of the warrant may decrease as the drop in its implied volatility may offset an increase in the price of the underlying asset;
- if a warrant is deep “out-of-the-money” (e.g. when its theoretical value is substantially less than HK\$0.01), the price of the warrant may be insensitive to any increase (in respect of a call warrant) or decrease (in respect of a put warrant) in the price of the underlying asset;
- if the outstanding volume of a series of warrants in the market is high, the supply and demand of the warrant may have a greater impact on the warrant price than the price of the underlying asset;
- in respect of a call warrant, a decrease in time value may offset any increase in the price of the underlying asset, especially when the warrant is close to its expiry where the time value usually decreases more rapidly; and
- in respect of a put warrant, a decrease in time value may offset any decrease in the price of the underlying asset, especially when the warrant is close to its expiry where the time value usually decreases more rapidly.

5.4 What factors affect the price of a CBBC?

During the term of a CBBC, its price will be influenced by a number of factors, including:

- its strike price or level and call price or level;
- the likelihood of the occurrence of a mandatory call event;
- the probable range of residual value (if any) upon the occurrence of a mandatory call event;
- the funding cost;
- time remaining to expiry;

- (f) the interim interest rates and expected dividend payments or other distributions on the underlying asset;
- (g) the liquidity of the underlying asset;
- (h) the availability of, and demand for, the CBBC;
- (i) the probable range of the cash settlement amount;
- (j) the issuer's related hedging transaction costs;
- (k) the creditworthiness of the issuer and its guarantor, if applicable; and
- (l) in the case of index CBBCs, the price and liquidity of the futures contracts relating to such index.

5.5 Does the price movement of a CBBC always correspond to the movements in the price or level of its underlying assets?

The price of a CBBC tends to follow closely the price of the underlying asset. As a result, if the underlying asset increases in value, a "bull" CBBC with an entitlement ratio of 1 to 1 (i.e. one CBBC to one unit of the underlying asset) generally increases in value by approximately the same amount, whereas a "bear" CBBC with an entitlement ratio of 1 to 1 generally decreases in value by approximately the same amount (see FAQ 5.6 regarding entitlement ratios generally).

However, when the underlying asset of a CBBC is trading at a price close to its call price, the value of CBBC may become more volatile (and less sensitive to movements in the price of the underlying asset due to the risk of occurrence of a mandatory call event) and the change in its value may be disproportionate to the change in the value of the underlying asset.

Entitlement Ratio

5.6 What is the entitlement ratio?

The entitlement ratio for a warrant or CBBC is the number of such warrants or CBBCs required to be converted into a unit of the underlying asset at the strike price on the expiry date. The Listing Rules allow structured products using shares (or other securities) as underlying assets to be issued in the ratio of (i) 1, 5, 10, 50, 100 or 500 structured products for one share (or unit of other securities); or (ii) 1, 10 or 100 shares (or units of other securities) for one structured product. For example, if the entitlement ratio of a warrant linked to a stock is 10 to 1, it means every 10 warrants can be converted into one stock at the exercise price at expiry.

5.7 Does entitlement ratio affect the face value of a warrant or CBBC?

Assuming all other factors affecting two different warrants or CBBCs are the same (underlying asset, strike price, expiry date, volatility etc.), their respective entitlement ratios would directly affect their respective values per unit.

Generally, warrants or CBBC with a higher entitlement ratio would have a relatively small value per unit. However, in theory, the entitlement ratio would not affect the performance of a particular warrant or CBBC, as it has been calculated into the effective gearing (see FAQ 5.12).

Premium

5.8 What is the premium?

The premium reflects the degree by which the price of the underlying asset needs to move before reaching the break-even price of a warrant or a CBBC at expiry. For example, if the premium of a call warrant or a bull CBBC is 10%, the underlying price should rise by 10% at expiry, in order to reach the break-even price.

You can calculate the premium based on the formula below (based on the payout formula at expiry):

$$\text{Premium of a call warrant or bull CBBC} = \frac{[\text{strike price} + (\text{product price} \times \text{entitlement ratio})] - \text{underlying price}}{\text{underlying price}} \times 100\%$$

$$\text{Premium of a put warrant or bear CBBC} = \frac{\text{underlying price} - [\text{strike price} - (\text{product price} \times \text{entitlement ratio})]}{\text{underlying price}} \times 100\%$$

These formulae can therefore be used as a reference to calculate the percentage by which the price of the underlying asset needs to move before reaching the break-even price of a warrant or a CBBC at expiry.

5.9 I bought a call warrant linked to the underlying stock with an expiry date of late April. Why did the call warrant trade below its intrinsic value with a negative premium of 1% in mid-March?

This seemed unreasonable as the warrant price should at least be equal to its intrinsic value, i.e. the excess of the prevailing market price of the underlying stock over the exercise price of the call warrant.

While in most cases a warrant does trade above its intrinsic value, this does not mean that the intrinsic value must be the minimum value of a warrant. As explained below, it is possible for a warrant to trade below its intrinsic value.

Holding a call warrant differs from holding the underlying stock, especially since the holders of the call warrant are not entitled to receive any dividends that might be declared by the underlying stock. In this particular case, the underlying stock was due to announce its annual results in late March. Based on practices in previous years, the underlying stock is likely to go ex-dividend in mid-April. With an expiry date for the call warrant in late April, the market price of the underlying stock would be the ex-dividend price in determining the payout of the call warrant on that expiry date. This would result in a lower payout to call warrant holders than it otherwise should. Although the final dividend that the underlying stock would declare was still unknown in mid-March, it was widely anticipated that the dividend would be no less than \$1.5. It was not unreasonable for potential investors and the liquidity provider to deduct the dividend element when pricing the call warrant.

5.10 Why may a bull CBBC linked to the HSI expiring in 6 months sometimes have a negative premium?

In calculating the premium for a bull CBBC linked to the HSI based on the formula as set out in FAQ 5.8 above, we need to determine the underlying price for the HSI.

The spot level of the HSI may differ from its estimated future price, because the estimated future price of the HSI is calculated by reference to the sum of the cash value of the HSI (based on the HSI's spot level) and interest rate, less the expected dividends. In most cases, as the expected dividends would be higher than the interest rate, such estimated future price of the HSI is therefore often lower than the cash value of the HSI's spot level.

The premium calculated pursuant to the formula set out in FAQ 5.8 may therefore be different depending on whether you apply (i) the spot level of the HSI as the underlying price, or (ii) the estimated future price of the HSI as the underlying price.

However, as the product price of a CBBC linked to the HSI is generally based on the estimated future price of the HSI futures expiring in 6 months (rather than the spot level of the HSI), such estimated future price should be adopted as the underlying price for calculating the premium of the CBBC. It is therefore likely that the premium calculated based on such lower estimated future price may result in a positive premium, whereas the premium calculated based on the spot level of the HSI may result in a negative premium, using the formula as set out in FAQ 5.8 above.

Delta

5.11 What is delta of warrant and CBBC?

Delta is the ratio of the change in the warrant or CBBC price (after adjusted by the entitlement ratio) to the change in the underlying asset's price. It shows the absolute changes in the price of the warrant or CBBC if the price of the underlying asset changes.

Delta normally ranges between 0 and 1 for call warrants and 0 and -1 for put warrants (the negative sign shows the opposite directional movement to the underlying). In general, at-the-money call and put warrants have a delta of approximately 0.5 and -0.5 respectively. In-the-money warrants will generally have a higher delta than out-of-the-money warrants with the same underlying asset and maturity. For example, a call warrant with a delta of 0.1 is generally a deep out-of-the-money warrant, whereas a call warrant with a delta of 0.9 is generally a deep in-the-money warrant. Vice versa, a put warrant with a delta of -0.1 is generally a deep out-of-the-money warrant, whereas a put warrant with a delta of -0.9 is generally a deep in-the-money warrant.

In general, the delta of a bull CBBC is close to but not exactly equal to 1 and the delta of a bear CBBC is close to but not exactly equal to -1.

Gearing and Effective Gearing

5.12 What is the difference between effective gearing and gearing?

"Gearing" means the relationship that the cost of the underlying asset bears to the cost of a warrant or a CBBC. For example, if the gearing for a particular warrant is 10 times, then the investment cost of that warrant is 1/10 of the underlying asset.

However, in the case of a warrant this only relates to the initial cost of the underlying asset and the initial cost of the warrant– it cannot be used later to reflect the dynamic relationship between the price of the underlying asset and the price of the warrant over time.

"Effective gearing" of a warrant is calculated by multiplying the gearing and the delta of the warrant (For delta, see FAQ 5.11).

Effective gearing is a better measure of the percentage change of a warrant with a 1% change of underlying asset. For example, if the effective gearing is 10 times for a particular call warrant (and we assume other factors remain unchanged) when the price of the underlying asset rises by 1%, the theoretical price of the call warrant price should rise by 10%. Similarly, when the underlying asset falls by 1%, the theoretical price of the call warrant price should fall by 10%. However, this should only be used as a reference; the effective gearing of a warrant will change over time as other factors, such as the underlying price, delta, gearing, time decay and implied volatility, also change.

For CBBCs, “gearing” and “effective gearing” are the same in most circumstances, which is the potential multiplying effect on the price of the CBBC in response to a 1% change in the underlying asset price.

5.13 Why does the price movement of a warrant or CBBC not correspond to the effective gearing?

A number of other factors also change all the time (see FAQs 5.2 and 5.4) and, therefore, a mere rise in the underlying asset’s price may not necessarily lead to a corresponding increase to the extent of the effective gearing, or to any increase at all in the warrant or CBBC price.

Implied Volatility

5.14 How does implied volatility of a warrant affect their prices?

Implied volatility of a warrant is one of the factors influencing the price of warrant. For example, assuming other factors remain constant, when implied volatility of a warrant decreases, the warrant price should theoretically also go down, and vice versa.

5.15 How does an issuer decide the implied volatility level of a warrant when pricing the warrant? Why does implied volatility of warrants over the same underlying asset differ between different issuers?

Implied volatility of a warrant is a key parameter in the issuer’s pricing formulae that cannot be observed directly. However, issuers can estimate the implied volatility of a warrant based on:

- (a) the historical volatility of the underlying asset;
- (b) the implied volatility of the listed and OTC options based on market data (see FAQ 5.17); and
- (c) the issuer’s market expectation and cost of issuing such warrant.

Implied volatility level of warrants varies between issuers because each issuer may hold a different market expectation on a particular underlying asset from other issuers and has different issuing cost.

5.16 What is historical volatility of underlying asset and where can investor find such information?

Volatility is determined by annualised statistics measuring changes in price of its underlying asset: the greater the fluctuations, the higher the volatility.

“Historical volatility” is a measure of underlying price fluctuations over a certain period in the past. You may obtain information on historical volatility of the underlying asset by subscribing to the data provision service of a market data information provider.

5.17 Why does the implied volatility of listed and OTC options affect the price of a warrant?

Implied volatility of a warrant varies according to various market factors and it has a close relationship with the implied volatility generated by OTC and listed options.

After an issuer sells a warrant, it generally needs to hedge against the risks arising from that issuance through different channels; two of those channels are OTC options and listed options. OTC options are options that are traded on a bilateral basis outside of the trading facilities provided by any exchange. Usually, the counterparties are institutional professional investors, such as investment banks. Listed options are those traded on a trading facility such as the Exchange.

If the implied volatility of an OTC option or a listed option is moving downward, the implied volatility of a related warrant may also move downward. On the contrary, if the implied volatility of an OTC option or a listed option is going upward, the implied volatility of the related warrant may also go upward. Therefore, variations in the implied volatility of an OTC option or a listed option may indicate a trend in the implied volatility of related warrants.

5.18 Where can I see information on the implied volatility of an OTC option?

OTC options are bilateral contracts traded privately between two participants, off-exchange. As a result, there is no public information available for the implied volatility of an OTC option.

5.19 Where can I see information on the implied volatility of a listed option?

You may obtain information on the implied volatility of a listed option by subscribing to the data provision service of a market data information provider.

Funding Cost

5.20 How does “funding cost” affect the price of a CBBC and how is it calculated?

The funding cost of a CBBC is relevant to determining its price. A CBBC is generally traded at a price that represents:

- (a) for bull CBBC, (spot price or level of the underlying asset - strike price or level of the CBBC) + prevailing funding cost; and
- (b) for bear CBBC, (strike price or level of the CBBC - spot price or level of the underlying asset) + prevailing funding cost.

The funding cost is determined based on:

- (a) an issuer's financing or stock borrowing costs, after adjustment for any expected ordinary dividends of the shares (if the underlying assets are dividend-paying shares); and
- (b) its profit margin.

These items fluctuate from time to time. The funding cost of a CBBC may be affected by its supply and demand. Furthermore, depending on the liquidity and volatility of the underlying asset at the time, the cost and risk of hedging may also cause a fluctuation in the issuer's funding costs. This means that the issuer's funding costs are not fixed throughout the term of the CBBC. In addition, the longer the duration of the CBBC, the higher the funding costs. The funding costs decline over time as the CBBC moves towards expiry.

When choosing between CBBCs, amongst other considerations, you should compare the funding costs of different issuers of CBBCs with similar underlying assets and features.

Time Value

5.21 What is time value and how does it affect the price of a warrant?

Time value is the value of a warrant arising from the time left to maturity and is equal to the difference between the current warrant price and its intrinsic value. The time value can be considered as the cost paid in return for the gearing effect. In general, the longer the time to expiry, the higher the probability that the underlying price will move in favour of the warrant holder and hence a higher warrant price. However, the time value of a warrant will become zero when the warrant has reached maturity, this is sometimes referred to as the time decay of a warrant.

Supply and Demand

5.22 How does further issuance affect the price of a warrant or CBBC?

Issuers are entitled to increase market supply of a particular warrant or CBBC where the outstanding quantity exceeds 50%, to prevent price fluctuations caused by short supply. The way this takes place is that the issuer applies to the Exchange for further issuance of the product.

“Outstanding quantity” means the quantity held by investors and is generally shown as a percentage. It is calculated by dividing the number of warrants or CBBCs held by the market on a particular day (after closing) by the total number of warrants or CBBCs issued. For example, if the number of certain warrants held after closing on a particular day is 10 million and the number of those warrants that had been issued is 100 million, then the outstanding quantity is 10%.

When the outstanding quantity is high, this means that the quantity held by the market is high, and the quantity held by the liquidity provider is relatively low. This makes it difficult to maintain steady liquidity. In other words, a product with a high outstanding quantity may be more vulnerable to the influence of the forces of market supply and demand. As a result, its price may not follow the price of the underlying asset very closely.

For this reason, further issuance has the potential to bring greater stability to the product price and minimise the chance of price fluctuations caused by the disequilibrium between supply and demand.

5.23 How does the outstanding quantity affect the price of a warrant or CBBC?

The higher the outstanding quantity, the greater the potential that the warrant price is affected by market supply and demand. When there is a selling pressure on a product, the price of that product may be squeezed (that is, brought down) by prevailing market forces.

On the other hand, the price of a warrant or CBBC with a low outstanding quantity is likely to be less affected by market supply of, and demand for, that warrant or CBBC.

Corporate Actions

5.24 How does the distribution of dividends of an underlying stock affect the price of a warrant or CBBC?

When a listed company announces its financial results, it will also generally announce whether dividends will be paid.

Whether or not this affects the price of a related warrant or CBBC depends on whether or not dividends were expected and, if so, at what level and on what date. This is because the issuer considers past records of dividend distribution and the dividends expected by the market, when calculating the warrant or CBBC price.

If the dividend distribution and ex-dividend date are as expected and other factors remain constant, theoretically, the dividends should not affect the price of the warrant or CBBC.

5.25 What if the underlying stock eventually declared a dividend lower than expected? How about if the declared dividend is larger than expected?

If the dividend declared is lower than expected, the price of the call warrant would be expected to move up, assuming other factors remain unchanged.

On the other hand, if the underlying stock declared a larger dividend than expected, the price of the call warrant would be expected to drop, assuming other factors remain unchanged. Accordingly, investors who bought the warrant may lose.

5.26 Will the terms of a warrant or CBBC be adjusted when there is a capital adjustment of the underlying asset?

Under normal circumstances, a warrant or CBBC linked to shares of a company will be adjusted if there is a capital adjustment of those underlying stocks (such as bonus issue, rights issue and restructuring event or spin-off / merger / consolidation). Specifically, an adjustment will be made to the call price, strike price and entitlement ratio according to terms specified in the relevant listing documents.

In the case of a merger/consolidation, an adjustment will be made to the call price, strike price and entitlement ratio of the warrant or CBBC of the company being merged or consolidated with. If the merger/consolidation results in an extinguishment of the current underlying, such underlying of the warrant or CBBC will change from the original underlying to a surviving/new underlying. Where there is a surviving company, no adjustment will be made to the warrant or CBBC of the surviving company.

Where the Effective Date of the adjustment occurs after the ex-entitlement date of the underlying stocks (such as in the case of spin-off), no adjustment will be made to those warrants or CBBCs that expire in the interim period.

5.27 Will structured products be suspended when the underlying stock is undergoing a merger?

It is possible that trading of shares of the entities undergoing a merger may be suspended for a period of time. The Listing Rules require suspension of structured products where the underlying stock is suspended. When this happens, the value of structured products may be adversely affected due to time decay during the suspension period.

5.28 What will be the arrangements on structured products if there is a spin-off of the underlying company and a distribution of specie to shareholders?

Under normal circumstances and for the purpose of calculating the value of the rights attached to the spin-off company, issuers will use volume-weighted average price (VWAP) of those auto-matched trades of that company on its first day of listing as the basis of adjustment. The adjustment will take effect from the day following the listing date. Investors should note that no adjustment will be made to those structured products that expire before the effective date of the adjustment.

Depending on circumstances of the case, structured products may be suspended from trading from the ex-entitlement date to the listing date of the spin-off company. In this case, the value of structured products may be adversely affected due to time decay during the suspension period.

Similarly, depending on circumstances of the case, the observation period for CBBs may be suspended from the ex-entitlement date to the listing date of the spin-off company. Thus, no mandatory call event will occur during such period.

Cases

5.29 I hold a call warrant on a stock underlying. The price of the underlying only dropped by 2%. Why did the liquidity provider's quote for my call warrant fall much more than 2%?

Warrant is a short-term trading instrument with a gearing effect (see FAQ 5.12), it could magnify your loss relative to the underlying performance.

5.30 I bought a call warrant on a stock underlying in the morning trading session, when the underlying was traded at HK\$50. The underlying price then dropped to HK\$48 and the liquidity provider's quote also dropped. In the afternoon, the price of the underlying went back to HK\$50 but the liquidity provider's quote was still lower than the price at which I bought the call warrant, why?

In addition to the underlying price, the liquidity provider's quote also depends on a number of other factors (see FAQ 5.2). Assuming all other factors remain constant, although the underlying price went back to HK\$50 from HK\$48, it is likely that the increase in the underlying price was offset or even outweighed by the decrease in the implied volatility of the warrant, hence lowered the warrant price (see FAQ 5.14).

5.31 I note a warrant launched a week ago was issued at HK\$0.25, but its price dropped to HK\$0.20 on its first listing date. How could this happen?

The issue price of a warrant is determined based on the market factors prevailing on the launch date of a warrant. On the first trading day of a warrant (being 5 trading days after the launch date), it is possible that substantial changes have occurred in respect of the market factors affecting the price of that warrant.

5.32 I hold a call warrant issued by firm A. There was another warrant with identical terms (same underlying, expiry date and strike price) issued by firm B. Why was price quoted by firm A lower than that quoted by firm B?

In addition to a warrant's terms (i.e. underlying, expiry date and strike price), the price of a warrant also depends on a number of other factors (see FAQ 5.2) which are based on different pricing assumptions adopted by individual issuers (e.g. different implied volatilities of warrants, interest rate, expected dividends, etc.). Moreover, even with identical terms, different warrants may have a different level of market participation and outstanding amount, which may affect the warrant price to a different extent. Accordingly, the prices of warrants with identical terms issued by different issuers may be different.

- 5.33 I hold a bull CBBC issued by firm X which will expire in six months. There was another CBBC with identical terms (same underlying, expiry date, strike price and call price) issued by firm Y. Why was price quoted by firm X lower than that quoted by firm Y?**

In addition to the term of CBBC (i.e. underlying, expiry date, strike price and call price), the price of a CBBC also depends on a number of other factors (see FAQ 5.4) which are based on different pricing assumptions adopted by individual issuers (e.g. different funding level, hedging cost, expected dividends, etc). Accordingly, the prices of CBBCs with identical terms issued by different issuers may be different.

- 5.34 I hold a HSI call warrant which was last traded at HK\$0.01. The HSI increased by more than 3% but the liquidity provider refused to quote and the warrant's last traded price still remained at HK\$0.01. Why didn't the liquidity provider's quote increase in line with the underlying?**

It is likely that the HK\$0.01 last traded (nominal) price could have been brought down a while ago and does not reflect its prevailing theoretical value before the rally of the HSI, hence it is not the best reference to gauge the actual performance of the warrant.

It is particularly the case for short term and deep out-of-the-money warrant. Despite the HSI rallied more than 3%, the warrant is still out-of-the-money with extremely short term, hence its prevailing theoretical value after the rally of the HSI is still below HK\$0.01.

The liquidity provider is not required to provide quote when the theoretical value of the warrant is less than HK\$0.01. (see FAQ 4.17)

- 5.35 A call warrant had 70% of its volume outstanding in the market. Why did the price of the warrant drop while the price of the underlying remained unchanged?**

Assuming all other factors remain constant, it is likely that the warrant price is affected by market force. The higher the outstanding amount, the greater the potential that the warrant price is affected by market supply and demand, and as a result of which the warrant price may drop due to the high selling pressure while the price of the underlying remained unchanged.

- 5.36 I hold a call warrant which will expire in 10 days. Why did the liquidity provider's quote fall by 10% despite an increase in the price of the underlying by 1%?**

Assuming all other factors remain constant, it is likely that the price of some out-of-the-money and extremely short term warrants is insensitive to the change in the price of the underlying (due to low delta). It is likely that the liquidity provider's quote fell despite an increase in the underlying price as such extremely short term warrant was deeply affected by time decay (much more so than the change in the underlying price).

- 5.37 I hold a very deep in-the-money call warrant linked to HSI and expiring in June (in 2 months) with entitlement ratio 10,000. The delta of the warrant is almost 1. The HSI index increased 150 points while HSI June futures contracts increased 110 points. The warrant price increased by HK\$0.011 (equivalent to 110 index points) only. Why did it not increase by around HK\$0.015 (equivalent to 150 index points)?**

HSI warrants are not solely priced based on HSI index. They are mainly priced based on HSI index, interest rate and expected dividend. Since HSI futures contract reflects the value of HSI index, interest rate and expected dividend, the pricing of the HSI warrants is generally priced based on HSI futures contracts.

- 5.38 I hold a bull CBBC linked to the HSI expiring in 6 months. The spot level of the HSI increased by 0.1% since I bought the CBBC during the day. Why did the price of the CBBC remain unchanged despite an increase in the spot level of the HSI?**

The price of such CBBC is based on the estimated future price of the HSI futures expiring in 6 months against which the CBBC is hedged (rather than the spot level of the HSI or the future price of the front month HSI futures). The estimated future price of the HSI is calculated by reference to the sum of the cash value of the HSI (based on the HSI's spot level) and interest rate, less the expected dividend. Assuming all other factors remain constant, it is likely that such increase in the spot level of the HSI was offset by the adjustment of expected dividend by the issuer, and hence the price of the CBBC remained unchanged.

- 5.39 I hold a bull CBBC linked to HSI expiring in 6 months and the entitlement ratio is 10,000. The bull CBBC was about 400 points to be knocked out. HSI index and futures both increased by 100 points but the bull CBBC only increased by HK\$0.009. If the delta of the Bull CBBC was equal to 1, its price should increase by HK\$0.01 (i.e. 100 index points /10,000 = HK\$0.01). Why did the bull CBBC increase by less than HK\$0.01?**

This is because the delta of the bull CBBC is not exactly equal to 1. Besides, there are a number of different factors which may affect the price of a CBBC other than underlying spot such as expected dividend and funding cost (see FAQ 5.4).

- 5.40 I hold a bull contract. The spot price of the underlying was trading close to the call price. Why did the bull contract drop to HK\$0.015 while the stock dropped only by HK\$0.01 given the entitlement ratio is 1?**

When the underlying spot price is trading close to the call price, the price of the CBBC may become more volatile and the change in the price of the CBBC may be disproportionate to the change in the underlying spot price. Investors should also be aware of the number of outstanding CBBC in the market. The higher the outstanding number, the greater the selling pressure when the underlying spot price gets closer to the call price. This leads to a more volatile price behaviour.

- 5.41 Why does the liquidity provider quote wider spread for a warrant with an illiquid stock underlying than a liquid or blue chip underlying?**

A liquidity provider provides quotes for a particular warrant or CBBC by taking into consideration the prevailing market conditions such as hedging costs and the liquidity, spread and volatility of the relevant hedging vehicles. Normally, blue chip stocks have better liquidity which allows liquidity provider to provide a tighter quote than illiquid underlying.

- 5.42 I hold a call warrant on HSI. I understand the call warrant price should drop as the HSI drops. However, why did the liquidity provider lower the bid price only but not the ask price. This deprives my chance of buying more call warrant at a lower price.**

Liquidity providers can provide bid and ask quotes at the pricing level they deem fair by reference to the theoretical price of the call warrant provided that they comply with the maximum spread requirements. The bid and ask spread may change from time to time according to the prevailing market conditions affecting the underlying asset such as hedging costs and liquidity, spread and volatility of the relevant hedging vehicles. Therefore it is possible that their quotes will not match your expected price levels due to the widening of the bid and ask spread.

For example, we assume that the theoretical price of the call warrant was initially HK\$0.2 with a spread of HK\$0.003 on each side, such that the bid and ask quotes were initially HK\$0.197 and HK\$0.203 respectively. The HSI then drops which leads to a corresponding drop in the theoretical price of the call warrant to HK\$0.197. Notwithstanding the drop in the theoretical price of the call warrant, the spread may be widened to reflect the prevailing market conditions. For example, if the spread is then widened to HK\$0.006 on each side. The new bid and ask quotes will become HK\$0.191 and HK\$0.203 respectively for the warrant with a theoretical price of HK\$0.197. In such case, the ask quote does not change but the bid quote is lowered due to the widened spread.

5.43 I hold a call warrant linked to an HSI constituent security and the entitlement ratio is 1. The closing price of the warrant and the underlying was as below.

Date	Closing price of the warrant	Closing price of the underlying stock
Previous day	HK\$0.120	HK\$5.00
Today	HK\$0.118	HK\$5.02

Why did the closing price of the warrant drop while the closing price of the underlying increased?

This could happen because:

- (i) some other pricing factors affected the warrant price (e.g. volatility, expected dividend, time decay, etc.) (see FAQ 5.2),
- (ii) the market closing time of the warrant and the underlying security was different. Being an eligible security under the closing auction session, it continued to trade in the closing auction session which ended at 4:10 p.m. while the trading in the warrant ceased at 4:00 p.m. In this case, due to the 10 minutes closing time gap, direct comparison of closing price of the warrant and the underlying security might not be appropriate and meaningful, or
- (iii) the closing price of the warrant might not reflect the quote price of the liquidity provider. In this case, quotes of the liquidity provider might have moved in line with the underlying but were not reflected in the closing price of the warrant. The closing price could be (1) calculated based on other exchange participants' trades and quotes; or (2) carried forward from previous days.

5.44 I hold a bull CBBC linked to an HSI constituent stock. The CBBC was still trading until close of the market at 4:00 p.m. I noted that the CBBC was knocked out subsequently at around 4:10 p.m. How could the CBBC be knocked out after market close at 4:00 p.m.?

CBBCs can be knocked out during the observation period which includes pre-opening session, continuous trading session and closing auction session. Even though the trading in the CBBC ceased at the end of the continuous trading session at 4:00 p.m., it could still be knocked out when the underlying stock hits the call price at the end of the closing auction session (see FAQ 2.3).

5.45 I hold a call warrant with an exercise price of HK\$12.28 and the entitlement is 1 share. The underlying company announced a bonus issue of one bonus share for every ten existing shares. How does the bonus issue affect the price and the terms of the call warrant?

The entitlement and exercise price of the call warrant will be adjusted according to the following formula:

$$\text{Adjusted entitlement} = \text{Adjustment factor} * E$$

$$\text{Adjusted exercise price} = X / \text{Adjustment factor}$$

Where

- Adjustment factor = $1 + N$
- E: Existing entitlement immediately prior to the bonus issue
- X: Existing exercise price immediately prior to the bonus issue
- N: Number of additional shares received by a holder of existing shares for each share held prior to the bonus issue

In this case,

- Adjustment factor = $1 + 1/10 = 1.1$
- Adjusted entitlement = $1 * 1.1 = 1.1$ shares
- Adjusted exercise price = $\text{HK\$}12.28/1.1 = \text{HK\$}11.164$ (rounded to the nearest HK\$0.001)

The purpose of the adjustment is to ensure that as far as possible, the theoretical price of the warrants remain unchanged immediately before and immediately after the adjustment. Assuming all factors being equal, the theoretical price of the warrants will remain unchanged.

5.46 I hold a call warrant on a stock underlying with its expiry date on 14 June. On 5 April, the underlying declared a final dividend and the ex-dividend date of the underlying falls on 29 May. The ex-dividend date of the final dividend for last year was 17 June. How does this affect the price of the warrants?

In general, the higher the dividend, the lower the price of a call warrant. It is exactly the opposite for a put warrant. In this case, assuming all other factors remain unchanged, the call warrant price will drop upon declaration of dividend on 5 April. It is because the actual ex-date (29 May) falls before the expiry date (14 June) and the dividend actually paid during the term of the warrant is higher than expected (according to historical record it was expected that such dividend would only be paid after the expiry of the warrant).

Part VI : CBBC mandatory call events/Expiry and settlement

CBBC mandatory call events

6.1 Will I receive any payment if a mandatory call event occurs and how is MCE valuation period determined?

For “Category N” CBBCs, the answer is no. If a mandatory call event occurs, you will lose all of your investment.

For “Category R” CBBCs, the answer is maybe. You may receive a residual value when a Category R CBBC is being called before expiry. The residual value is calculated generally in accordance with the following principles:

- (a) For a Category R “bull” CBBC – (The lowest spot price or level of the underlying asset in the MCE valuation period minus the strike price or level) divided by the entitlement ratio.
- (b) For a Category R “bear” CBBC – (The strike price or level minus the highest spot price or level of the underlying asset in the MCE valuation period) divided by the entitlement ratio.

For a CBBC, MCE valuation period is a period commencing from the time upon which a mandatory call event occurs in the trading session of the Exchange up to and including the end of the following trading session.

Pre-opening session and morning session are considered as one trading session. The afternoon session and the closing auction session are considered as another trading session. In the case of half day trading, the pre-opening session, the morning session and the closing auction session are considered as one trading session.

Please see the listing documents of the relevant CBBC for further details.

6.2 I hold a CBBC and my broker confirmed that I had sold the CBBC during a pre-opening session. However, the broker later told me the trade was cancelled as a mandatory call event had occurred during the pre-opening session. What is that about?

If a mandatory call event occurs in the pre-opening session, all auction trades in CBBCs concluded during that session and all manual trades concluded after the end of the pre-order matching period during that session are invalid, will be cancelled and will not be recognised by the issuer or the Exchange.

Manual trades refer to trades concluded not through the auto-matching system. An auction trade refers to the automatic order matching of the auction orders during the order matching period in the pre-opening session.

Mandatory call event may also occur at any time throughout the continuous trading session during the trading day. If it occurs during the continuous trading session, no further trade can be concluded via auto-matching. In addition, all trades concluded manually after the mandatory call event will be cancelled.

Please note that since there may be a time gap between the mandatory call event and termination of trading of the CBBC, some CBBC trades concluded after the occurrence of the mandatory call event may be cancelled even though they have been confirmed by brokers. Investors should therefore apply special caution when a CBBC is trading close to the call prices or levels.

Expiry and settlement

6.3 Can I trade in a warrant or CBBC on the expiry date?

No, the expiry day of a warrant or CBBC is not the same as the last trading day. Investors can only trade a warrant or CBBC on or before the last trading day:

- (a) For a warrant, there should be 3 settlement days between the last trading day and the expiry day. For example, if a warrant expires on Friday, 23 June, the last day of trading will be Monday, 19 June (assuming the 3 days between 19 and 23 June are settlement days); and
- (b) For a CBBC, the last trading day falls on the trading day immediately before its expiry date, subject to the occurrence of a mandatory call event following which the CBBC is terminated early and the trading of that CBBC ceases immediately (see FAQ 1.6).

6.4 How and when are warrants and CBBCs settled?

All warrants and CBBCs currently traded on the Exchange are European style and are cash settled at expiry.

For cash-settled warrants and CBBCs that are in-the-money on the expiry date, the warrant and CBBC holders are then paid a positive cash settlement amount according to the terms and conditions as set out in the listing documents.

Investors will receive the cash settlement amount (if any) no later than the third settlement day following the expiry date. In general, Christmas Eve, New Year's Eve and Lunar New Year's Eve (being half trading days) will normally be prescribed by the Exchange as non-settlement day.

6.5 How is the settlement price at expiry of a warrant calculated?

For warrants issued on a single local stock traded on the Exchange, the settlement price at expiry is calculated based on the 5-day average closing price of the underlying stock prior to and excluding the expiry day.

For local index warrants, the settlement price at expiry is based on the final settlement price of the corresponding index futures contract of the same expiry month as the warrants traded on the Hong Kong Futures Exchange.

For more information about the settlement price at expiry for warrants on other underlying assets, please refer to the relevant listing documents.

6.6 How is the settlement price at expiry of a CBBC calculated?

For CBBCs issued on a local stock traded on the Exchange, the settlement price at expiry is calculated based on the closing price of the underlying stock on the trading day before expiry of the CBBCs.

For CBBCs issued on a local index (such as HSI or HSCEI), the settlement price at expiry is based on the final settlement price of the corresponding index futures contract of the same expiry month as the CBBCs traded on the Hong Kong Futures Exchange on the second last business day of the contract month.

For more information about the settlement price at expiry for CBBCs on other underlying assets, please refer to the relevant listing documents.

6.7 An underlying stock will be delisted and cancelled for cash by way of privatisation. What will I get if I am holding warrants or CBBCs linked to that stock?

The issuer may elect to early terminate the warrants or CBBCs. Holders of those warrants or CBBCs may receive an early termination amount which is determined by the issuer:

- (a) in good faith and a commercially reasonable manner; and
- (b) where applicable, by reference to the determination made by the Exchange in relation to the relevant listed options or futures over the underlying stock. In a past case, such early termination amount has been calculated based on the difference between the exercise price and the offer price of cancelling the underlying stock under the proposed privatisation, adjusted by the entitlement ratio. However, such determination may be different on a case-by-case basis.

6.8 What is the method of determining the 5-day average closing price of the underlying stocks when there is a trading suspension or no closing price (e.g. typhoon no. 8) on the following day(s)?

- (a)
 - (i) Trading suspension or absence of closing price on the 1st, 2nd, 3rd, or 4th valuation date only - in that case, the closing price on the next valuation date will be used as the closing price on such 1st, 2nd, 3rd, or 4th valuation date, so that there are 5 closing prices used to determine such 5-day average closing price.
 - (ii) Trading suspension or absence of closing price on each of the 3rd and 4th valuation dates only - in that case, the closing price on the 5th valuation date will be used as the closing price on each of the 3rd and 4th valuation dates, so that there are 5 closing prices used to determine such 5-day average closing price.
- (b) Trading suspension or absence of closing price on the 5th valuation date only (but not the expiry date) - in that case, the closing price on the 5th valuation date is determined based on the issuer's good faith estimate made in accordance with the terms and conditions. Such determination will be made on a case-by-case basis based on prevailing market conditions. The closing price on the expiry date was used in most of the past cases.
- (c) Trading suspension or absence of closing price on each of the 5 valuation dates and the expiry date - in that case, the closing prices on each of the 5 valuation dates are determined based on the issuer's good faith estimate made in accordance with the terms and conditions. Such determination will be made on a case-by-case basis by reference to the prevailing market conditions. The last reported closing price was used in most of the past cases.

Trading suspension above means suspension of trading of the underlying stock during the last half hour before close of trading.

6.9 What is the method of determining the settlement price at expiry of a CBBC when there is a trading suspension or no closing price (e.g. typhoon no. 8) for the underlying stocks on the following day(s)?

- (a) Trading suspension or absence of closing price on the original valuation date only - in that case, the closing price on the trading day following the original valuation date will be used as the settlement price at expiry.
- (b) Trading suspension or absence of closing price on the original valuation date and each of the three trading days immediately following the original valuation date - in that case, the closing price on the 4th trading day following the original valuation date will be used as the settlement price at expiry.

- (c) Trading suspension or absence of closing price on the original valuation date and each of the four trading days immediately following the original valuation date - in that case, the settlement price at expiry is determined based on the issuer's good faith estimate made in accordance with the terms and conditions. Such determination will be made on a case-by-case basis by reference to the prevailing market conditions.

Trading suspension above means suspension of trading of the underlying stock during the last half hour before close of trading.

Part VII : Glossary

The following table briefly explains some of the common terms used in these FAQs when describing warrants and CBBCs and how they work. Please also refer to the relevant listing documents, which contain important details of how these terms apply in practice.

Term	What this means
5-day average closing price	The average of the closing prices of the underlying stock quoted on each of the 5 business days falling immediately before the expiry date of a warrant. This price is used to compare against the exercise price of a warrant to determine the cash settlement amount at expiry.
Active quote	A method of providing liquidity by actively inputting orders into the Exchange's trading system
Call price or level	A pre-set benchmark price or level of the underlying asset used to determine if a mandatory call event has occurred.
Cash settlement amount	The potential cash amount payable under a warrant or CBBC at expiry, calculated in accordance with a payout formula specified in the listing document.
CBBC	Callable bull or bear contract listed on the Exchange.
Closing auction session	For a full day trading, closing auction session commences at 4:00 p.m. (12:00 noon for half day trading) and ends at 4:10 p.m. (12:10 p.m. for half day trading). A closing auction allows trades to be executed at the closing price. During a closing auction, market participants may input buy and sell orders, with the price that most volume can be traded at forming the closing price. All orders will then be executed at that price.
Effective gearing	The dynamic relationship that the cost of the underlying asset bears to the cost of a warrant during its term.
Entitlement ratio	The number of warrants or CBBCs needed to buy (or sell) one unit of the underlying asset. For example, a warrant linked to stock XYZ that has an entitlement ratio of 10:1 means that the holder of that warrant needs 10 warrants to acquire one unit of stock XYZ. In general (assuming other trade terms being the same), a warrant with a high entitlement ratio will have a lower price generally, and vice versa.
European style	European-style warrants can only be exercised on the expiry date
Exchange	The Stock Exchange of Hong Kong Limited.
Exercise price or level	A pre-set benchmark price or level to determine the potential cash settlement payout at expiry of a warrant or CBBC.
Expiry date	The day on which the term of a warrant or CBBC expires
Gearing	The relationship that the initial cost of the underlying asset bears to the initial cost of a warrant or CBBC.
Guide	Guide on Enhancing Regulation of the Listed Structured Products Market (27 July 2012) published by the Exchange.

Term	What this means
Implied volatility	The anticipated level of volatility of underlying assets over the remaining life of a warrant, as reflected in the price of the warrant.
Industry Principles	Industry Principles on Liquidity Provision for Listed Structured Products (July 2012) published by the Exchange.
Liquidity provider	An Exchange participant appointed by the issuer to provide liquidity for a particular warrant or CBBC.
MCE or Mandatory Call Event	An event that occurs when the spot price or level of the underlying asset reaches or goes beyond the call price or level during the term of a CBBC.
MCE valuation period	A period commencing from the time at which a mandatory call event occurs in respect of a CBBC in a trading session of the Exchange to the end of the following trading session. The MCE valuation period may be extended due to the occurrence of disruption to the trading of the underlying asset. Please see the listing documents of the relevant CBBC for further details.
Observation period	A period commencing from the first listing date of a CBBC to its last trading day (both days inclusive) in which the issuer will observe if a mandatory call event has occurred in respect of such CBBC.
OTC or over-the-counter	An off-exchange trading platform where financial instruments are traded directly between two parties on negotiated prices and terms.
Premium	The amount that reflects the degree by which the price of the underlying asset needs to move before reaching the break-even price of a warrant at expiry.
Quote request	A method of providing liquidity by entering orders into the Exchange's trading system, in response to an investor's request.
Residual value	The residual cash payment (if any) paid to an investor in a Category R CBBC upon the occurrence of a mandatory call event.
Settlement day	A business day on which the settlement services of CCASS are open for use by CCASS participants. In general, a trading day will also be a settlement day, except that Christmas Eve, New Year's Eve and Lunar New Year's Eve will normally be prescribed by the Exchange as non-settlement days.
Underlying asset	The asset(s) to which a warrant or CBBC is linked.
Volatility	The degree of change in the price of the underlying asset of a particular warrant: the greater the fluctuations, the higher the volatility.
VCM or Volatility Control Mechanism	VCM is a dynamic price limit model applied at the individual instrument level. Where the price deviates more than a predefined percentage within a specific time frame, the instrument will trade within band during a 5-minute cooling off period. 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.
Warrant	Derivative warrant listed on the Exchange.