Warrants and CBBC

13-17 July 2009

**Ivan Lau
Manager, External Relations**

What are warrants (認股證)?

- **Warrants are a type of options**

- **Warrants are issued by financial institutions (or listed companies) that give the holder**

  - A right to buy or sell a specified amount of the underlying stock (正股)at a pre-determined price (strike/exercise price 行使價) on or before a stipulated future date (expiry date or maturity date 到期日)

Types of warrants

- **Right to buy/sell**
  - Call Warrant (認購證) – right to buy
  - Put Warrant (認沽證) – right to sell

- **Exercise style**
  - American (美式) – can be exercised at any time up to the expiry date
  - European (歐式) – can only be exercised on the expiry date

- **Settlement**
  - Cash or Physical

Stocks options and warrants in the market

| Warrants	Stock Options
Issuers are sellers (Investors can only buy warrants)	General investors can become sellers (Investors can buy and sell options)
No margin requirement	Margin requirements for sellers
European-style exercise	American-style exercise
Cash settled	Physical settled

Example of a call warrant

- **An investor buys a call warrant on ABC**

- **Strike price = $70**

- **Warrant price (premium) = $5**
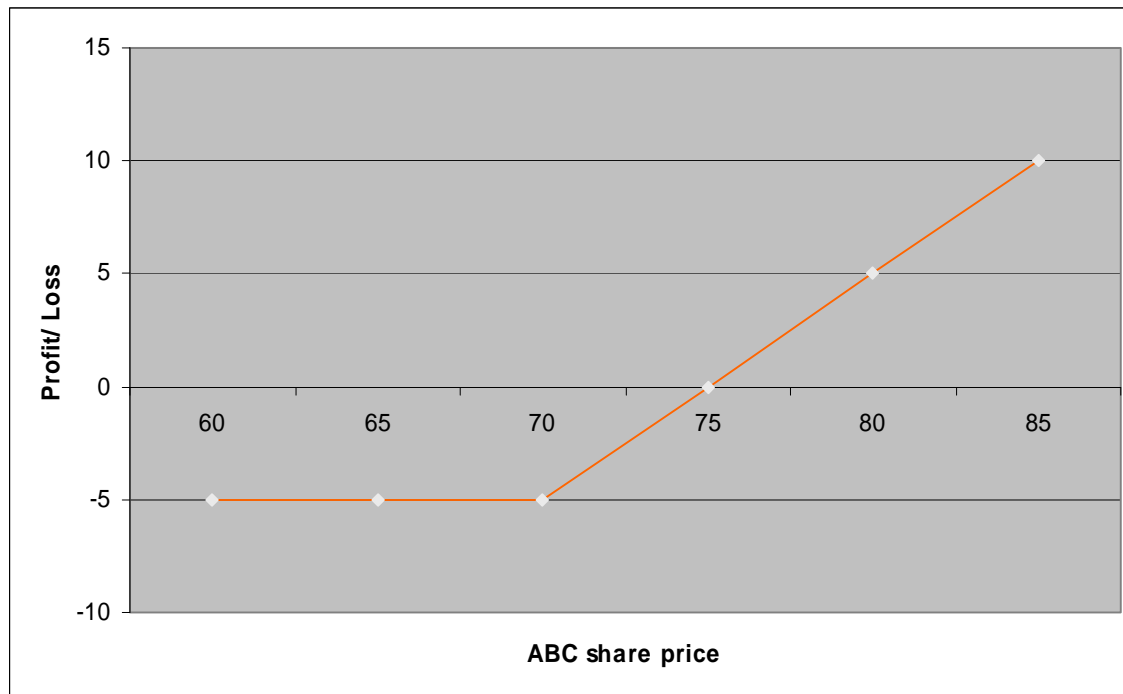
Example of a put warrant

- **An investor buys a put warrant on XYZ**
    - Strike price = $70
    - Warrant (premium) = $3
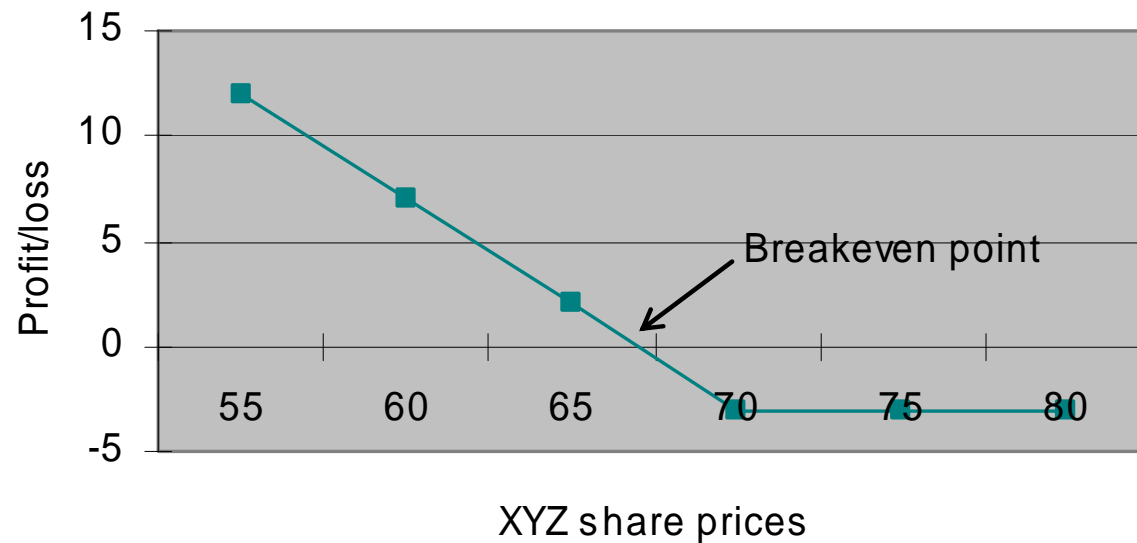
Liquidity Provider

- **Quoting methods**
  - Continuous quotes
  - Quote request

- **Listing document sets out obligations, e.g.**
  - Maximum spread
  - Minimum number of lot
  - Maximum response time

Liquidity provider

- **Liquidity provider can suspend its obligation, e.g.**
  - Trading suspension
  - The fair value of warrant below $0.01
  - Insufficient warrants to be offered
  - Fast market of underlying stock
  - Hedging becomes impracticable
  - A specific period prior to the warrant's expiry day
  - Technical or operational problems

Pricing of warrants (1)

- **Intrinsic value (**內在值**)**
  - Call = Maximum (Underlying Price – Strike Price or 0)
  - Put = Maximum (Strike Price – Underlying Price or 0)

- **In-the-money (**價內**)**
  - Positive intrinsic value

- **Out-of-the-money (**價外**)**
  - Zero intrinsic value

- **At-the-money (**等價**)**
  - Strike price = underlying price

Pricing of warrants (2)

- **Example, on 10 Feb 09, why the value of the HSBC call warrant (strike price = $100) was not zero (closing price = $0.081) when the HSBC share price closed at $63? (assuming the expiry date is 1 Dec 09)**

- **Time Value (時間值)**

- **Warrant Value = Intrinsic value + time value**

Key factors affecting warrant prices

	Call Warrant	Put Warrant
Underlying Price ↑	↑	↓
Underlying Volatility ↑	↑	↑
Strike Price ↑	↓	↑
Time to Expiry ↑	↑	↑

Warrants – stock name

- **8899 – MB – HSBC@EC0812**

  - Stock Code: 8899

  - Issuer: MB – Macquarie Bank

  - Underlying: HSBC

  - Settlement: @= Cash / *= Physical

  - Style: E= European / A= American / X= Exotic

  - Type: C= Call / P= Put

  - Maturity: 0812= 2008 Dec

Newspaper quotes - Terminologies

- **Delta (**對沖值**)**
  - Change in warrant price ($) in response to one dollar change in underlying price

- **Conversion ratio (**兌換率**)**
  - The number of warrants that need to be exercised to buy/sell one underlying share

- **Premium (**溢價**)**
  - (Strike Price + Warrant Price – Underlying Price) / Underlying Price x 100%

Newspaper quotes - Terminologies

- **Gearing (控股比率/槓桿值)**
  - Underlying price / (Warrant Price x Conversion Ratio)

- **Effective Gearing (實際槓桿比率)**
  - Expected rate of change in warrant price with respect to a 1% change in the underlying asset price
  - =Gearing x Delta

- **Implied Volatility (引伸波幅)**
  - Calculated from the warrant price
  - Used to measure whether a warrant is expensive relative to other warrants
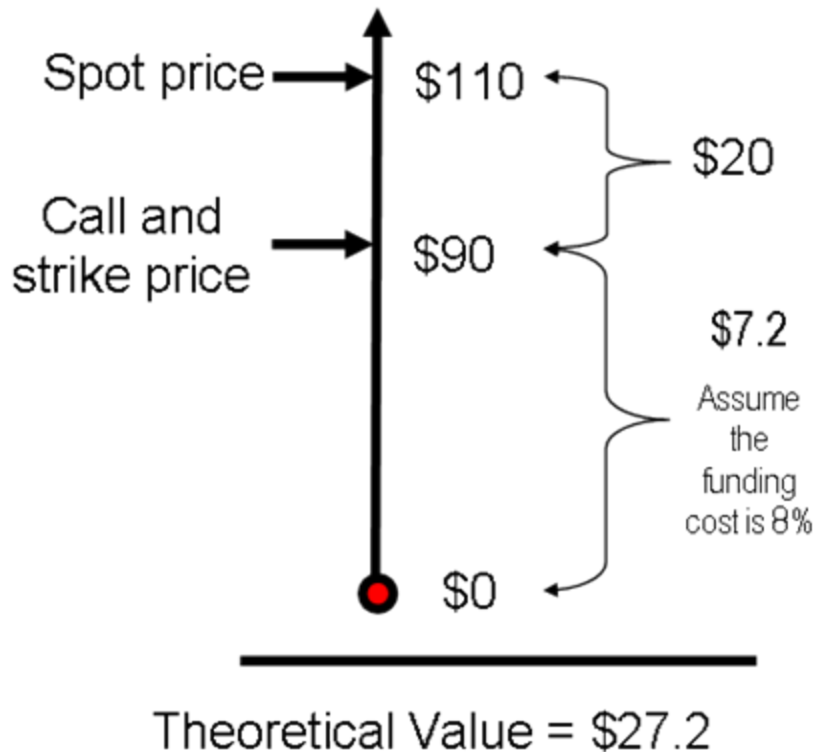
Things to note

- **Short-dated out-of-the-money warrants**

- **Gearing ratio can't predict warrant price movements**

- **Avoid overbuying**

- **Look beyond the gimmick and warrant recommendations**

- **Default risk**

What is CBBC?

- **Structured products that have some similar features with derivative warrants**

- **Value is linked with the performance of an underlying asset**

- **Specified expiry date, call price and strike price**

- **Must be called immediately by issuers when "call price" is hit**

- **Contract types: Bull or Bear**

- **Categories: N (with no residual value) or R (with possible residual value)**

Example: Bull Contract (category N)

Spot price ⟶ $110

Call and strike price ⟶ $90

$20

$7.2

Assume the funding cost is 8%

$0

Theoretical Value = $27.2
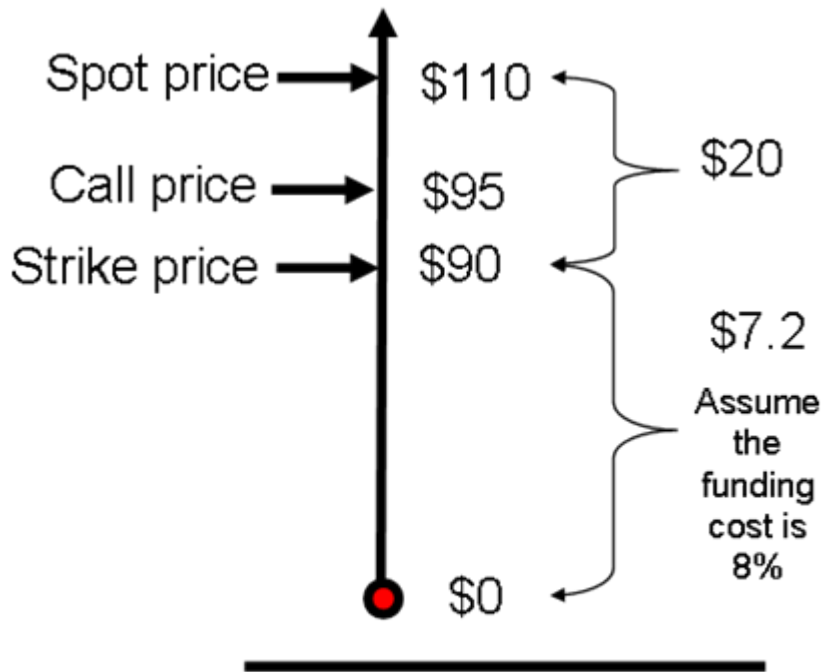
If the spot price of the underlying asset falls to $90

❑ Mandatory Call Event occurs

❑ The contract becomes worthless

If not called and the underlying asset closed at $130 at expiry

Theoretical value of each share of the contract

=$130 -$90 =$40

Example: Bull Contract (category R)

Spot price → $110
Call price → $95
Strike price → $90

$20

$7.2

Assume the funding cost is 8%

$0

Theoretical Value = $27.2

If the spot price of the underlying asset falls to $95

❑ Mandatory Call Event occurs

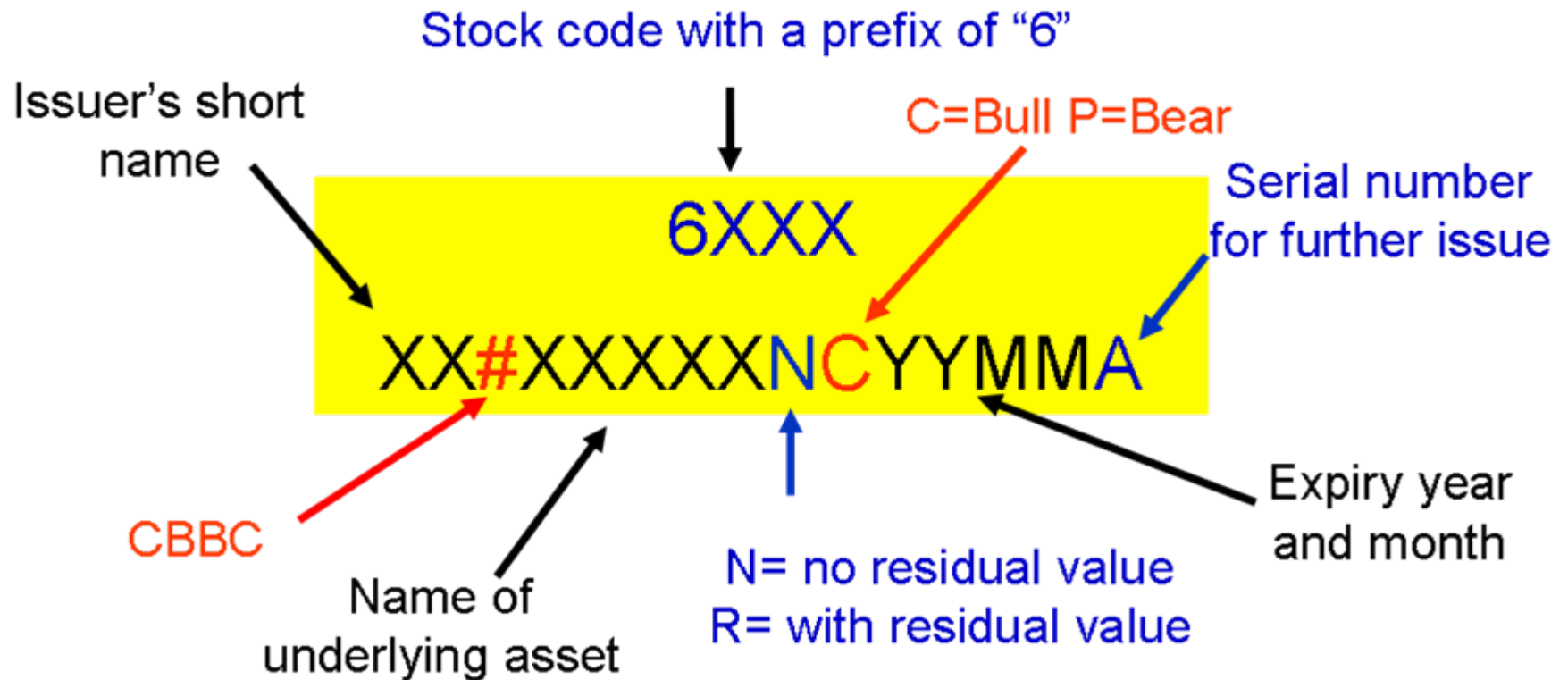Residual value of each share of the contract

=Settlement price -$90

If not called and the underlying asset closed at $130 at expiry

Theoretical value of each share of the contract

=$130 -$90 =$40

What is CBBC?

Stock Code and Short Name

Stock code with a prefix of "6"

C=Bull P=Bear

Issuer's short name

Serial number for further issue

6XXX

XX#XXXXXXNCYYMMA

CBBC

Name of underlying asset

N= no residual value
R= with residual value

Expiry year and month

CBBC vs warrants

	CBBC	Warrants
Price change	Track the price change of underlying asset more closely	Change according to various factors
Implied volatility	Relatively insignificant to pricing	Significant to pricing
Funding costs	The formula is specified in listing document	Built into the premium fo a warrant
Mandatory call	CBBC must be called when the underlying asset hit the call price	Standard warrants (i.e. non-exotic warrants) do not have call features

Points to note

- **Price may become volatile and liquidity is uncertain when close to call price**

- **Must be called immediately when call price is hit**

- **Trades filled after the call price is hit will not be recognised**

Class Activities

Activity 1

- **Click the following hyperlink to show students a video clarifying common misconceptions about derivative warrants, then highlight the role of liquidity provider in derivative warrant market**

  – SFC's InvestEd website: 3. Common Fallacies about Warrants

Class Activities

Activity 2: Discuss with students the most appropriate match for the terms listed at the bottom of the page

Product feature	Answer
The product has a specified call price in addition to strike price. Once the call price is hit, the issuer must terminate that product and its trading before expiry.	
The product has a liquidity provider.	
Trades of the product conducted after the call price is hit will not be recognised.	
The call price of the product equals to its strike price.	
Holders of the product may receive some residual value when the product is called.	

Answers:
CBBC / Category R CBBC / Category N CBBC