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CMB WING LUNG BANK

Derivatives General Knowledge Training

(Text Version)

What are Derivatives?

When you read a newspaper or watch financial and economic news on television, you always hear about financial products such as futures, options, and warrants. Did you know these financial products are normally referred to as “Derivatives”? And do you also know what derivatives are? There are a total of four parts in this training, and we hope this training can help you know more about derivatives, and understand their nature, types, applications, as well as their related risks.

However, different derivatives have different natures, when trading these financial products, remember to consult your professional investment advisor for further information before you invest. Let’s move on to the first part, the “Introduction of Derivatives”.

Section 1 - Introduction of Derivatives

Let’s start by talking about what derivatives are. Derivatives “evolved” from (i.e. were “derived” from) other products. In the financial market, derivatives are usually derived from spot market products (e.g. currency, stocks, gold, etc), which are called the “Underlying Assets”. As derivatives are based on their underlying assets, their values will definitely be influenced by the underlying assets. Apart from this, derivatives’ values can also be affected by other market factors such as interest rate changes, economic environment, etc.

Now let’s move on to the differences between derivatives and spot market products. “Spot market products” are those products that can be settled between buyers and sellers in a very short time. For example, when you are shopping in a supermarket, products on the shelves can be taken home right after paying for them. The same is true in the spot market, where you can settle the trade for currencies or stocks, usually within a day or a very short period. Thus, they are called spot market products.

Normally, the difference in settlement times is a way to differentiate spot market products and derivative products. In addition, if the prices drop rapidly after you bought spot market products, you would not have immediate losses unless you realize the holding. But, if you bought derivative products, which must be settled before a specific future date (e.g. a month later); when the prices drop rapidly, you would bear the risk of losses. For example, you may be aware of one such derivative product, “Warrant”. A warrant's value is directly related to the movement of its underlying stock price. Now that you know how derivatives and spot market products are

related, and also where derivatives evolved from, you should be able to tell why these financial products are called “Derivatives”.

Having concluded this section, let’s pause for a summary. Derivatives are based on spot market products (e.g. currency, stocks, gold, etc). Derivatives are settled on a specific future date, while spot market products can be settles within a day or a very short time. Finally, Derivatives’ prices are mainly influenced by the movements in the prices of their underlying assets. Coming up, we will talk about the different natures and types of derivatives.

Section 2 - Common Types of Derivatives

Last time we talked about what Derivatives are, and in the following section, we will be talking about the different types of derivatives and their natures. There are various types of derivatives in the market, and here we will focus on two main types, namely, “Futures” and “Options”.

Let’s take a look at them in detail and highlight the differences between them. Let’s talk about the first type of derivatives. “Futures” refers to contracts between a buyer and a seller, who mutually agreed to trade underlying assets (e.g. stocks, currencies, gold, etc.) on a specific future date (e.g. one month later) at a specific price. On the designated date, both the buyer and seller have to follow the arrangements in the contract, including the price and the quantity of the underlying assets. That means, the buyer has to pay the exact amount as defined in the contract for the seller’s underlying assets. Similarly, the seller has to abide by the agreed price as specified in the contract when selling the underlying assets to the buyer.

In addition, “Futures” can also be further classified into two types: “Listed” and “Non-listed" (also known as "Over-the-counter"). Those futures products listed on an exchange are called “Futures Contracts”. You may have heard about the "Hang Seng Index Futures" on the financial news, that is an example of futures contracts listed on the exchange. For those that are not listed on the exchange, they are called “Forward Contracts”. Sometimes, you may hear about something called a “Swap”, such as “Currency Swap” or “Interest Rate Swap”. Actually, these “Swap” products usually consist of a pair of forward contracts.

For example, investor could buy and sell two different forward contracts at the same time, and use a swap to exchange two different currencies at specified prices and dates. For example, assume that you want to exchange his/her Hong Kong Dollars into Australian Dollars two days later, and then set them aside as a fixed deposit to earn interest. When the fixed deposit matures, say, in one month, you would like to convert the Australian Dollars back into Hong Kong Dollars at a predetermined exchange rate. To do this, you can buy and sell two different forward contracts at the same time today, so to lock-up the exchange rate now to avoid the impact of future fluctuations in the foreign exchange rates.

Now, let's focus on futures contracts that are listed on the exchange, these futures contracts have a common characteristic, which is called the "Standardized Contract". What does this mean? For example, each index point of the Hang Seng Index Futures is priced at $50 by the exchange. That means, when any investor trades the Hang Seng Index Futures, all other investors use the same formula of one point equaling $50. This is what we mean by the "Standardized Contract". Forward Contracts are not listed on the exchange. Unlike futures contracts, forward contracts are not "Standardized Contracts". Settlement prices and trading amounts can be tailor-made according to the needs of individual investors. If the contract is not traded on the exchange, we call it an "Over-the-Counter" or OTC contract. A "Currency Forward Contract" is a common example of OTC contracts, where investors make a currency forward contract with a financial institution based on their particular needs. The investor can negotiate the contract details, such as settlement prices and settlement dates, with the financial institution. Consider parents who buy foreign currencies to pay for their children's overseas school fees, but worry that the exchange rates will increase in the near future. Therefore, they can buy a currency forward contract, perhaps a 3-month contract from the financial institution in order to lock in a certain foreign exchange rate at the end of the 3 months, as specified in the contract. This action could avoid currency rate fluctuations. Having already talked about "Futures", let's go on to talk about another type of derivative product; the "Option".

An "Option" is a contract, involving a buyer and a seller, which gives the buyer a right, but not an obligation, to buy or sell the underlying asset with the seller of the option. The underlying asset's quantity, price and the contract period are fixed at the time when the contract is made. If the buyer exercises the option, the seller must follow the contract specifications for settlement of the underlying asset. Within option products, you ought to know the difference between a "Call Option" and a "Put Option". A "Call" means buying the underlying asset, while a "Put" is selling the underlying asset. Call warrants you often hear of are a kind of "call option" product. Sometimes, you may read in the newspaper that senior management of listed companies receives stock options from the companies. These are also "call option" products. Now let's move on to the three different kinds of "Moneyness of Options": "In-the-money" : When the underlying asset's price is higher than the call option's exercise price or lower than the put option's exercise price, the option is said to be "In- the-money".

"At-the-money": When the underlying asset's price is equal to the call or put option's exercise price, the option is said to be "At- the-money". "Out-of-the-money": When the underlying asset's price is lower than the call option's exercise price or higher than the put option's exercise price, the option is said to be "Out-of-the-money".

To make this clearer, consider this "call option" example. Assuming that a buyer and a seller entered into a call option contract, where the buyer can buy a pack of salt from the seller at the price of $2 after one month. Even if the market price of a pack of salt rises to $20 after a month, the buyer can still buy from the seller at the price of $2. For the buyer of the call option contract, the salt is $18 cheaper than the current price. However, the seller will lose $18 at that time. In

the market, you can act as the buyer of an option with the right to buy or to sell the underlying assets, but you have to pay the “Option Premium”, in exchange for that right. The seller will earn the “Option Premium”, but, at the same time, he or she also must bear the risk of market price fluctuations, which may result in possible losses. You might ask why someone would want to be an option seller if there is a chance of losing money. Firstly, no one knows what the price will be after one month; secondly, the option contract seller received a specific amount from the buyer as the price of buying the contract. This is the “Option Premium” which we mentioned earlier.

The "Option Premium" can be viewed as a cost of buying a right. While the sellers receive the Option Premium, they may potentially enhance their returns. Investment products that consist of different derivatives are often called "Structured Products". Equity-Linked Deposits, or Currency-Linked Deposits, are common examples of "Structured Products". Most of these structured products consist of derivatives; that is, a combination of different derivatives, some of which are "principal-protected", and some of which are "non-principal-protected".

Therefore, when you invest in "Structured Products" which are mixtures of derivatives, a clear understanding of the detailed contract provisions is particularly important, for example, whether it is "principal-protected" or, "non-principal-protected". Of course, when trading structured products, you always required to bear in mind the risk of significant market price fluctuations, which may result in possible losses.

We have just covered “Futures” and “Options”, but in fact, there are many examples of these derivatives in the market, including the "listed products" and "non-listed products" you usually read about in the newspaper. Warrants, or the Callable Bull/Bear Contracts, are common examples of "listed products", which are a kind of option. "Non-listed products", such as equity linked deposits or currency-linked deposits, are commonly available at any bank or financial institution. Now let's make use of an equity-linked deposit for a further explanation. Its structure contains an equity option, which means that the investor who buys the equity-linked deposit acts as the option seller, who receives the option premium as earlier mentioned. In this case, if the underlying stock price does not fall below a specified price, referred to as the “Exercise Price” in the option; the investor can earn the option premium and thereby enhancing his / her potential return. On the other hand, the investor also has to bear the downside risk resulting from significant market movement of the underlying stock.

Now for a quick summary. Do you remember the two types of derivative products we have talked about? They are “Futures” and “Options”. And what are their differences? “Futures” are contracts between a buyer and a seller, who mutually agreed to trade specific underlying assets, at a specific price on a specified future date.

Among option products, you ought to know the difference between a “Call Option” and a “Put Option”. For example, a “Call Option” gives the buyer a right but no an obligation to exercise the

contract; in other words, to buy the underlying asset from the seller at a pre-determined price on (or before) a certain future date. What about the characteristics of “Structured Products”? Most structured products are embedded with derivatives, some are “principal-protected”, and some are “non-principal-protected”. Next time, we will talk about the application of derivative products.

Section 3 - Application of Derivatives

Last time, we introduced common types of derivatives and their natures. Now, we are going to talk about their applications. There are many applications of derivatives, but we will now focus on four applications for derivatives. They are: (1) Speculation – Yield Enhancement; (2) Access to Different Asset Classes; (3) The Leverage Effect; and (4) Long / Short Exposures & Risk Hedging. To begin, the first application is “Speculation - Yield Enhancement”. How can you use derivatives to enhance yield? Let’s use a commonly available Equity-Linked Deposit as an example.

Suppose an investor has an insight. He believes the stock market will not drop significantly in the coming month, and even if certain stocks drop below a certain price, the investor is willing to buy those stocks at that price. If so, he can use the equity-linked deposit by selling a put option. If the stock price does not fall below a certain level, he can enhance his/her investment yield by receiving the option premium and he does not have to actually buy the stocks. But if the market drops, then he needs to buy the stocks at a price higher than the market price, and if the stock price falls sharply, there will be a greater risk of loss.

The second application is “Access to Different Asset Classes”, meaning that you can participate in, or buy and sell, different assets (e.g. stock, foreign currency, etc.) through derivatives. By making use of derivatives, you can participate in different investment markets even in some markets that are hard to enter. As an example, the "A-share" market in mainland China is a market that participation by foreign investors is subject to restrictions; however, through what are known as Synthetic ETFs, investors can indirectly participate in the "A-share" market. These Synthetic ETFs make use of derivatives to track (or replicate) the performance of a market index as the main investment objective. Through the Synthetic ETFs, although investors cannot hold "A" shares directly, the performance of "A" shares can be reflected by the Synthetic ETFs the investors hold. This is one application of derivatives.

A third application is the “Leverage Effect”. For example, you may have heard about a “warrant”, which has a leveraging effect. Buying a board lot of shares in the stock market may cost tens of thousands of dollars; but if the investor chooses to buy a warrant, it may only cost a few thousand and the investors can get leveraged exposure to the shares at a lower cost. This is called the “Leverage Effect”. But, of course, by doing this, you must keep an eye on the market prices, as fluctuating prices may increase risk because you are trading derivatives, and not the stocks themselves.

Finally, the fourth application is “Long / Short Exposures & Risk Hedging”. The application of derivatives has a special ability here. That is, you can buy a call warrant when you expect the market to rise or buy a put warrant when you expect the market to fall. Put warrants can help him/her to hedge against the downside risk of the market. For example, if you hold some stocks, you can buy a put warrant when you anticipate that the market will fall. If the stock price does fall, the put warrant can provide an extra yield, and compensate for some of the losses from holding the stocks.

Let’s make a quick summary. Do you remember the four main applications of derivatives products? First is “Speculation - Yield Enhancement”, where investors make use of Equity-Linked Deposits to increase their yield. If the stock’s price does not fall below a specified level, the return to the investor will be increased because of the option premium.

Second is “Access to Different Asset Classes”, which means investors can buy different products including stock or foreign currency through derivative products. Equity-Linked Deposits and Synthetic ETFs are common examples of this application.

Third is the “Leverage Effect”, which means investors do not need to pay tens of thousands of dollars to buy a board lot of shares, instead, they pay only a few thousand for a warrant, which can provide leveraged exposure to shares at a lower cost. This is called the “Leverage Effect”.

Lastly, the fourth application is “Long / Short Exposures & Risk Hedging”. Investors can buy a call warrant when they expect the market to rise or buy a put warrant when they expect the market to fall. These types of put warrants can help to hedge the downside risk of the market. Besides the applications of derivative products, we also have to understand the related risks. The next section will explain the risk involved in derivative products.

Section 4 - Key Risks Associated with Derivatives

In the previous section, we introduced the application of derivatives, and now we will talk about the key risks involved in derivatives. They are (1) Counterparty Risk, (2) Investment Risk of the Underlying Asset, (3) Early Redemption & Potential Capital Loss Risk, (4) Liquidity Risk, (5) Interest Rate Risk, and (6) Leverage Risk. Let’s talk about them one by one.

The first one is Counterpart Risk. Derivatives are issued by third parties, such as listed companies or financial institutions, which we usually refer to as "issuers". If these organizations encounter financial problems and this leads to a decrease in their credit rating, or if they collapse because of solvency problems, the derivatives’ values will be affected and may even lose all value.

Another risk is the Investment Risk of Underlying Asset. As we mentioned in the first part of this training, derivatives’ prices depend on the value of their underlying assets. Normally,

fluctuations in the underlying assets' prices will affect derivatives' prices directly. This is the Investment Risk of the Underlying Asset.

The third risk is the Early Redemption & Potential Capital Loss Risk. Regardless of whether the investor chooses to redeem early, or the issuer has to terminate the products because of early redemption, these actions may cause the investor to lose money because they may receive an amount less than what they have invested. Therefore, you should pay attention to the early redemption provision, and consider if it would affect the amount you invest.

The fourth risk is the Liquidity Risk. Generally speaking, this risk is related to whether or not the derivatives can be easily sold and converted into cash. Before the expiry, some derivatives may be harder to sell and convert into cash. If it is not possible to sell them, you will have to wait until the derivatives expire before you can get your funds back. If you need to use these funds at any time, please pay special attention to this risk.

The fifth risk is the Interest Rate Risk. Any derivative will ultimately be exchanged for an "asset" and "money", or exchanged between two currencies. The fact is that "money" is necessarily linked to interest rates. Therefore, interest rate changes will definitely affect the values of derivative products.

Last is the Leverage Risk. Consider that a small movement in the stock market (or foreign exchange market) may exhibit more drastic change in a derivative's price. This is the Leverage Risk.

Can you remember the different kinds of key risks we talked about? Now let's make a quick summary. They are (1) Counterparty Risk, (2) Investment Risk of the Underlying Asset, (3) Early Redemption & Potential Capital Loss Risk, (4) Liquidity Risk, (5) Interest Rate Risk, and (6) Leverage Risk.

The above risks are common ones, and because of the rapid changes in the financial markets, when you trade derivatives, please make sure you are aware of the specific provisions and risks of each. We have now come to the end, and you hopefully have a better knowledge of derivatives and their risks. However, even if you fully understand the concepts mentioned in this training, it still does not mean you know everything about derivatives. Since derivatives have different kinds of characteristics, when you trade derivatives, ask your investment advisor for detailed information about the derivatives and the risks involved. As the saying goes, the "The More You Know, The Better!"

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