## Chapter 13: The derivatives market

# Textbook Questions

### Review questions

*The following questions appear in the textbook on page 414.*

*Answer the following questions.*

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**What is a derivative?**

**Derivatives are financial instruments that have the following characteristics:**

**(a) Derivatives derive their value from the values of underlying securities and other variables. Such variables can be an index such as FTSE/JSE Financial 15 Index, reference rates such as JIBAR, an underlying instrument in the cash market (equity, money, bond, foreign exchange or commodity) or in the derivatives market. Examples are as follows:**

* **A currency option is linked to a particular currency pair in the foreign exchange market.**
* **A bond futures contract is linked to a certain bond in the bond market.**
* **An agricultural futures contract is linked to maize or wheat in the commodities market.**
* **An option on a bond futures contract is linked to a bond futures contract trading in the derivatives market.**

**Derivatives can be based on almost any variable from the price of electricity (electricity derivatives), to the weather in London (weather derivatives), to the creditworthiness of Anglo American plc (credit derivatives) to the number of hurricane insurance claims paid in 2009 (insurance derivatives).**

**(b) Derivatives have either no initial net investment or an initial investment (such as an option premium) that is smaller than would be expected for an equivalent underlying contract.**

**(c) Derivatives allow businesses to hedge risks that arise from factors outside their control such as volatile commodity prices, equity prices, interest rates and foreign currencies. For example, a firm can protect itself from increases in the price of a commodity that it uses in production by entering into a derivatives contract that will gain value if the price of the commodity rises. Derivatives are also used by firms seeking profits by betting on which way prices will move. Such speculators provide liquidity to the derivatives market and assume the risks that hedgers wish to avoid.**

**Name and describe the two organisations in South Africa that make up the organised derivatives market.**

**The two organisations that make up an exchange-traded derivatives market are the exchange and its clearinghouse or central counterparty. In South Africa, exchange-traded derivatives contracts trade on the four JSE derivatives markets, namely the currency derivatives market, the equity derivatives market, the interest rate market, and the South African Futures Exchange (SAFEX) commodity derivatives market. The JSE’s derivatives markets have their own central clearinghouse, namely Safcom – the Safex Clearing Company (Pty) Ltd. The clearinghouse processes all trade executed on the exchange. It acts as counterparty to all transactions entered into on the exchange, and assumes the contractual relationship between the buyer and seller – that is, it becomes the buyer to each seller and the seller to each buyer. The clearinghouse is responsible for determining the profit and loss on all open positions by revaluing them at the end of each business day at the closing contract prices traded on the exchange. This process is referred to as marking-to-market.**

**What are the two opposing forces that influence the design of derivatives contract by derivatives exchanges?**

**Standardisation and market depth and liquidity.**

**Differentiate between forward and futures contracts.**

**Forward and futures contracts are similar instruments. However, there are four main characteristics specific to futures contracts that distinguish them from forward contracts:**

* **Futures contracts are traded on organised exchanges while forwards trade over the counter.**
* **Futures contracts are based on a standard quantity/quality of the underlying asset and have standardised delivery rules and dates. Forward contracts are custom made.**
* **With futures contracts performance is guaranteed by the futures exchange’s clearinghouse. This together with margining arrangements reduces default risk. Forwards have default risk – that is, the seller may not deliver and the buyer may not accept delivery.**
* **Futures contracts are marked-to-market – that is, valued at current market prices on a daily basis**

**Define an option contract and describe its characteristics.**

**An option contract conveys the right to buy or sell a specific quantity of an underlying asset (equity, interest-bearing security, currency or commodity) or derivative (e.g. futures, swaps, options) at a specified price at or before a known date in the future. As such an option has certain important characteristics:**

* **It conveys upon the buyer (or holder) a right – not an obligation. Since the option can be abandoned without further penalty, the maximum loss the buyer faces is the cost of the option.**
* **By contrast, if the buyer chooses to exercise his right to buy or sell the underlying asset or derivative, the seller (or writer) has an obligation to deliver or take delivery of the underlying asset or derivative. Therefore, the potential loss of the seller is theoretically unlimited.**

**Options are generally described by the nature of the underlying asset or derivative: an option on equity is termed an *equity option,* an option on a futures contract a *futures option,* an option on a swap a *swaption*, and so on.**

**What is an interest-rate swap?**

**In interest-rate swaps the notional is called the notional principal. As notional principals are identical in amount and involve the same currency, they are not exchanged – that is, the interest rate swap is an off-balance sheet instrument. In addition, since the periodic payments – interest – are also in the same currency, only the interest differential, assuming matching payment dates, is exchanged.**

**The original interest-rate swap structure, now called the *vanilla* or *coupon* swap, is a fixed-for-floating swap – that is, the exchange of an interest stream based on a fixed interest rate for an interest stream based on a floating interest rate.**

**The most important use for interest-rate swaps is to hedge interest-rate risk.**

**What are the uses of currency swaps?**

**Currency swaps are used to hedge exchange rate risk and reduce the cost of financing.**

**Explain how equity swaps can be used to hedge equity positions.**

**Equity swaps can be used to hedge equity positions by converting volatile equity returns into stable fixed-income returns.**

**What does the value of insurance derivatives depend on?**

**The value of insurance derivatives depends on expectations of the amount of catastrophic losses from events such as hurricanes and earthquakes.**

**Name the participants in the derivatives market.**

**Hedgers, speculators or arbitrageurs and investors.**