

## **Learning Module 1: Derivative Instrument and Derivative Market Features**

**LOS 1a: define a derivative and describe basic features of a derivative instrument**

### **What is a Derivative?**

A derivative is a financial instrument that derives (obtains) its value from the performance of an underlying. The underlying may be a single asset, a group of assets, or variables such as interest rates.

### **Creation of Derivatives**

A derivative is created in the form of a derivative contract involving two counterparties: a buyer and a seller. A derivative contract is a legal agreement between counterparties that defines the rights and obligations of each party. It contains specific maturity or settlement.

The buyer is the **long** or the **holder**, owns the derivative, and is said to hold a long position. On the other hand, the seller is referred to as **short** and holds a short position.

Derivatives can be stand-alone or embedded. Stand-alone derivatives are distinct. An example, a is a derivative on a bond. On the other hand, embedded derivatives are derivatives within an underlying, for example, callable, puttable, and convertible bonds.

Derivatives can be classified into either one of two categories:

#### **1. Firm Commitment (Forward Commitment)**

In firm commitment, an amount is pre-determined, and the parties involved make an agreement to exchange it at a future date. Firm commitments include **forward contracts**, **futures contracts**, and **swaps**.

#### **2. Contingent Claim**

In a contingent claim, the settlement of the trade depends on one of the counterparties. **Options** are the primary contingent claims.

## Benefits of Using Derivatives

Investors can get access to broad opportunities by creating or modifying exposures in the following ways:

1. Earning profits by short selling an underlying whose value is expected to decline.
2. Diversifying a portfolio.
3. Offsetting the financial market exposure that comes with a commercial transaction.
4. Creating large exposures to an underlying using relatively low amounts of cash.
5. Either increasing or decreasing financial market exposure. For instance, hedging uses derivatives to offset (neutralize) existing (anticipated) exposure to an underlying.

## Uses of Derivatives

1. **Hedging:** Reduce or eliminate certain forms of risk.
2. **Speculation:** Derivatives have, as an inherent feature, a high degree of leverage. This means that investors only commit small amounts of money to a derivative position relative to the equivalent position in the underlying asset. Small movements in the underlying can lead to large movements in the derivative - both positive and negative.
3. **Arbitrage:** Simultaneous buying and selling to take advantage of varying prices for the same asset to earn a riskless profit.

**Note:** Unlike the spot markets, derivative markets have lower transaction costs and are more liquid.

## Derivative Underlyings

One way of classifying a derivative is by using the underlying from which the derivative derives

its value.

Commonly used underlyings are equities, fixed income, interest rates, currencies, commodities, and credit.

## Equities

Derivatives that use equities as the underlying may reference a single stock, a group of stocks, or a stock index. Options are predominantly associated with individual stocks, while index derivatives are mostly traded as options, futures, forwards, and swaps.

In index or equity swaps, an investor can receive a return on one index or interest rate and pay the return on one stock index. Investment managers can also use index swaps to increase or decrease exposure to an equity market without trading in individual shares.

Investors trade options on individual stocks. Also, issuers may use stock options to compensate their executives and employees as a motivation for greater corporate performance, which leads to higher stock prices.

Besides, companies may issue warrants. Warrants are stock options that give their holders the right to purchase shares at a fixed price directly from the issuer in the future.

## Fixed-Income Instruments and Interest Rates

Fixed income instruments mostly use bonds as the underlying. Associated derivatives include futures, swaps, and options.

Interest rate is a fixed income underlying used by interest rate derivatives, such as forwards, futures, and options. Note that interest rate is not considered an asset. Interest rate swaps are usually used to convert from a fixed interest rate to a floating interest rate exposure - or vice versa - over a certain period. Interest rate swaps mostly use a **market reference rate** (MRR) as the underlying. The most common market reference rate is the secured overnight financing rate (SOFR).

## Currencies

Derivatives can be used to hedge foreign exchange risk in commercial and financial transactions. For example, exporters may use forward contracts to sell domestic currency and buy foreign currency in a way that coincides with the delivery of goods or services in a foreign country.

## **Commodities**

Commodities are classified into hard or soft commodities. Hard commodities are natural resources such as crude oil. Soft commodities, on the other hand, are agricultural products such as crops and cattle.

Derivatives on commodities are usually used to manage the price risk of an individual commodity or a commodity index separate from physical delivery.

## **Credit**

Derivative contracts that use credit as an underlying are based on the default risk of either a single or a group of issuers. For instance, Credit Default Swaps (CDS) help manage the risk of loss if a borrower defaults.

## **Others**

Others include weather, cryptocurrencies, and longevity. Derivatives that use such underlyings are less common, and their pricing is challenging.

## Question

Which of the following derivatives *most likely* represents a contingent claim?

- A. Futures.
- B. Options.
- C. Forwards.

The correct answer is **B**.

Options are the primary contingent claims. For a contingent claim, trade occurrence depends on one of the counterparties.

**A and C are incorrect.** For firm commitments, an amount is pre-determined and an agreement is made to exchange it at a future date. Forward or firm commitments include forwards swaps, and futures.

## **LOS 1b: describe the basic features of derivative markets, and contrast over-the-counter and exchange-traded derivative markets**

### **Over-the-Counter (OTC) Derivative Markets**

OTC derivative markets can be formal institutions such as NASDAQ or an information connection of parties who buy from and sell to one another.

In OTC derivative markets, **derivatives end-users** enter contracts with **dealers** or a financial intermediary such as a bank. The dealers (also regarded as the market markers) engage in bilateral transactions to transfer risk to other parties.

Terms of OTC can be modified to match a desired risk exposure profile. This is a beneficial feature to derivative end users who want to hedge existing or expected exposure.

### **Exchange-Traded Derivative (ETD) Markets**

In ETD markets, derivatives are traded in more formal and standardized contracts, promoting higher liquidity and transparency. Such derivatives include futures, options, and other financial contracts at the exchange.

The exchange determines the terms and conditions, including the size of each contract, type, quality, and location of the underlying.

The exchange members consist of dealers (market markers) who are prepared to buy at one price and sell at a higher price. If they cannot find counterparties to trade, risk takers such as speculators may be willing to assume an exposure in the underlying.

Exchange-traded derivatives have standardized terms and conditions. As such, clearing and settlement are done efficiently.

**Clearing** is a process where the exchange/central counterparty verifies the execution of a transaction, exchange of payments, and records of the participants. On the other hand,

**settlement** refers to the payment of final amounts and/or delivery of securities or physical commodities between the counterparties based upon exchange rules.

Exchange-traded derivatives demand collateral on deposit upon initiation and during the life of a contract to reduce counterparty risk. The deposit is paid through a financial intermediary, which assures counterparty default.



## Differences between Over-the-Counter (OTC) Derivative and Exchange-Traded Derivative (ETD) Markets

- OTC offers more flexibility and customizability.
- OTC is less transparent than ETD.
- OTC involves more counterparty risk, and it is less liquid than ETD.

## Question 1

Which statement *best* describes the OTC derivatives market?

- A. Contracts are flexible, and there is a high degree of reporting to the regulatory authorities.
- B. Contracts are standardized, cleared, and settled through a centralized clearing house.
- C. Contracts are flexible, often cleared and settled between transacting parties with a low level of regulatory oversight.

## Solution

**The correct answer is C.**

Exchange-traded derivative contracts are standardized, cleared, and settled through a centralized clearinghouse and accompanied by a high level of regulatory reporting. OTC contracts are far more flexible and less regulated.

## Question 2

Consider the following draft commercial contract extracted from Clap company's records.

Contract date	Today
Goods seller	ABZ Limited, Japan
Goods buyer	Clap Company, USA
Goods description	Oil drilling machine
Quantity	Two
Delivery date	150 days from the contract date
Delivery terms	Delivered by ferry. Costs to be paid by the buyer
Payment terms	The amount is payable by the buyer upon delivery
Contract price	\$17,525

Which derivative market should ABZ Limited *most likely* use to hedge its financial risk under this commercial contract?

- A. An exchange-traded market since it is standardized and transparent.
- B. An OTC market, since the contract can be customized to match ABC's desired risk profile.
- C. The market with the best price regardless of whether it is an OTC or an exchange-traded market.

## Solution

The correct answer is **B**.

An over-the-counter market allows the customization of risk to suit a client's risk exposure profile.

It would be difficult for ABZ Limited to find a contract that matches the desired 150 days from contract date delivery and the exact contract price in an exchange-traded market.

**A and C are incorrect.** As seen above, the over-the-counter market is the best-suited market for ABZ Limited.