

Financial Derivatives

Part-1

1.1 What Is a Derivative?

The term “Derivative” indicates that it has no independent value, i.e., its value is entirely derived from the value of the underlying asset. The underlying asset can be securities, commodities, bullion currency, livestock or anything else. In other words, derivative means forward, futures, option or other hybrid contract of predetermined fixed duration, linked for the purpose of contract fulfilment to the value of a specified real or financial asset or to an index of securities.

The Securities Contracts (Regulation) Act 1956 defines “derivative” as under:
“Derivative” includes:

1. Security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.
2. A contract which derives its value from the prices, or index of prices of underlying securities.

Thus, a derivative is a financial security with a value that is reliant upon or derived from, an underlying asset or group of assets—a benchmark. Such assets could be tangible like wheat, cotton, real estate etc., or it could be intangible such as interest rates or index, etc. Hence, the derivative itself is a contract between two or more parties, and the derivative derives its price from fluctuations in the underlying asset.

The most common underlying assets for derivatives are stocks, bonds, commodities, currencies, interest rates, and market indexes. These assets are commonly purchased through brokerages.

Derivatives include forward contracts, future contracts, options and swaps. Derivatives have a valuable purpose in providing a means of managing financial risk. By using derivatives, companies and investors can transfer any undesired risk, for a price, to other parties who either want to assume that risk or have risks that offset that risk.

1.2 Products of Derivatives

There is a range of derivatives products that derive their values from the performance of respective underlying asset classes such as:

- 1. Equity Derivatives:** Equity futures and options on broad equity indices are perhaps the most commonly cited equity derivatives securities. Way back in 1982, trading of futures based on S&P's composite index of 500 stocks began on the Chicago Mercantile Exchange (CME). Options on the S&P 500 futures began trading on the CME in the following year. Today, investors can buy futures based on benchmark stock indices in most international financial centres. Index futures contract enable an investor to buy a stock index at a specified date for a certain price. It can be an extremely useful hedging tool.
- 2. Interest Rate Derivatives:** One of the most popular interest rate derivatives is interest rate swap. In one form, it involves a bank agreeing to make payments to a counterparty based on a floating rate in exchange for receiving fixed interest rate payments. It provides an extremely useful tool for banks to manage interest rate risk. Given that banks' floating rate loans are usually tied closely to the market interest rates while their interest payments to depositors are adjusted less frequently, a decline in market interest rates would reduce their interest income but not their interest payments on deposits. By entering an interest rate swap contract and receiving fixed rate receipts from counterparty, banks would be less exposed to the interest rate risk. Meanwhile, interest rate futures contract allows a buyer to lock in a future investment rate.
- 3. Commodity Derivatives:** The earliest derivatives markets have been associated with commodities, driven by the problems about storage, delivery and seasonal patterns. But modern day commodity derivatives markets only began to develop rapidly in the 1970s. During that time, the break-up of the market dominance of a few large commodity producers allowed price movements to better reflect the market supply and demand conditions. The resulting price volatility in the spot markets gave rise to demand of commodity traders for derivatives trading to hedge the associated price risks.
- 4. Foreign Exchange Derivatives:** The increasing financial and trade integration across countries have led to a strong rise in demand for protection against exchange rate movements over the past few decades. A very popular hedging tool is forward exchange contract. It is a binding obligation to buy or sell a certain amount of foreign currency at a pre-agreed rate of exchange on a certain future date.

5. Credit Derivatives: A credit derivative is a contract in which a party (the credit protection seller) promises a payment to another (the credit protection buyer) contingent upon the occurrence of a credit event with respect to a particular entity (the reference entity). A credit event in general refers to an incident that affects the cash flows of a financial instrument (the reference obligation). There is no precise definition, but in practice, it could be filing for bankruptcy, failing to pay, debt repudiation or moratorium. The fastest growing type of credit derivatives over the past decade is credit default swap (CDS). In essence, it is an insurance policy that protects the buyer against the loss of principal on a bond in case of a default by the issuer. The buyer of CDS pays a periodic premium to the seller over the life of the contract. The premium reflects the buyer's assessment of the probability of default and the expected loss given default.

1.3 Participants in a Derivative Market

In the derivatives market, different types of parties participate such as:

1. **Hedgers:** These are investors with a present or anticipated exposure to the underlying asset which is subject to price risks. Hedgers use the derivatives markets primarily for price risk management of assets and portfolios.

Example: An importer has to pay US \$ to buy goods and rupee is expected to fall to ` 50/\$ from ` 48/\$, then the importer can minimize his losses by buying a currency future at ` 49/\$.

2. **Speculators:** These are individuals who take a view on the future direction of the markets. They take a view whether prices would rise or fall in future and accordingly buy or sell futures and options to try and make a profit from the future price movements of the underlying asset.

Example: If you will the stock price of Reliance is expected to go up to ` 400 in 1 month, one can buy a 1 month future of Reliance at ` 350 and make profits.

3. **Arbitragers:** These are the third important participants in the derivatives market. They take positions in financial markets to earn risk less profits. The arbitragers take short and long positions in the same or different contracts at the same time to create a position which can generate a risk less profit.

Example: A futures price is simply the current price plus the interest cost. If there is any change in the interest, it presents an arbitrage opportunity.

1.4 Types of derivative contracts

The most popularly used derivatives contracts are Forwards, Futures, Options and Swaps.

1. **Forwards:** A forward contract is a customized contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price. The rupee-dollar exchange rates is a big forward contract market in India with banks, financial institutions, corporate and exporters being the market participants.
2. **Futures:** A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardized exchange-traded contracts. Unlike forward contracts, the counterparty to a futures contract is the clearing corporation on the appropriate exchange. Futures often are settled in cash or cash equivalents, rather than requiring physical delivery of the underlying asset. Parties to a Futures contract may buy or write options on futures.
3. **Options:** An option represents the right (but not the obligation) to buy or sell a security or other asset during a given time for a specified price (the "strike price"). Options are of two types - calls and puts. Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date. Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.
4. **Swaps:** Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. Swaps generally are traded OTC through swap dealers, which generally consist of large financial institution, or other large brokerage houses. There is a recent trend for swap dealers to mark to market the swap to reduce the risk of counterparty default. The two commonly used swaps are: (a) Interest rate swaps: These entail swapping only the interest related cash flows between

the parties in the same currency. (b) Currency swaps: These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction. Swaps may involve cross-currency payments (U.S. Dollars vs. Mexican Pesos) and cross market payments, e.g., U.S. short-term rates vs. U.K. short term rates.