ELEMENTARY PRICING PRINCIPLES

Every asset has an economic value which is considered to be its fair value. Under efficient market conditions, the market price of an asset should equal its economic value or fair value. Normally, spot and derivative markets are very efficient. Different derivatives instruments such as forwards, futures and options are used for the purchase and sale of spot market assets such as stocks, bonds etc. The prices of derivatives are related to the underlying spot market assets through various important mechanisms. Now let us have a look at the fundamental linkage between spot and derivatives markets using mechanisms such as arbitrage and storage.

Arbitrage

Arbitrage implies obtaining risk-free profits by simultaneously buying and selling identical or similar instruments in different markets. The arbitrage opportunities cannot last for very long periods of time in a stock, but the very existence of arbitrageurs implies that there are opportunities in the markets for at least a short period. Arbitrage strategy is based on "law of one price". Law of one price states that equivalent combinations of financial instruments should have same price. That is, two securities A and B having identical cash flows in the future, irrespective of future events, should have the same price. An individual engaged in arbitraging is called arbitrageur. He consistently keeps track of different markets.

Sometimes, certain situations call for a second type of arbitrage. When a portfolio consisting of securities A and B results in certain payoffs, such portfolio should yield risk-free rate. An arbitrage opportunity exists when the certain return of securities A and B together is higher than the risk-free rate. An arbitrageur can borrow at the risk-free rate and buy the A+B portfolio. Thus, he can earn arbitrage profits when the certain payoff occurs. The payoff will be more than the required to pay back the loan at the risk-free rate.

Storage and Carrying Costs

Storage is a significant linkage between spot and derivatives market. Any asset can be purchased and stored**.** Storage cost can be defined as the cost involved in storing an asset over a period of time. When the future asset price is uncertain, the current asset price would be the future price less the cost of storage and interest. In the case of risk neutral investors, current asset price is the expected future price, less the storage and interest costs. However, when the investor is risk averse, the current spot price of the asset will be the expected future spot price, less storage cost, less interest foregone and less the risk premium (difference between the price paid by the risk-averse investor and current price of the asset). For goods such as electricity which are non-storable in nature, there would not necessarily be a relation between current spot price and the expected future spot price. In case of commodities (Stocks, metals, oil etc) that can be stored, the current spot price is determined according to current supply and demand conditions.