

GLOSSARY

Ask price The bid price.

Arbitrage An arbitrage is a financial strategy yielding a riskless profit and requiring no investment. It commonly amounts to the successive purchase and sale, or vice versa, of an asset at differing prices in different markets. i.e. it involves buying cheap and selling dear or selling dear and buying cheap.

Bid A bid is a proposal to buy. A typical convention for vocalising a bid is “ p for n ”: p being the proposed unit price and n being the number of units or contracts demanded.

Backwardation Backwardation describes a situation where the amount of money required for the future delivery of an item is lower than the amount required for immediate delivery. Backwardation is a signal that the item in question is in short supply. The opposite market condition to backwardation is known as contango, which is when the spot price is lower than the futures price.

In fact, there is some ambiguity in the usage of the term. According to the definition above, backwardation is when $F_{\tau|0} < S_0$, where $F_{\tau|0}$ is the current price for a delivery at time τ and S_0 is the current spot price. In an alternative definition, backwardation exists when $F_{\tau|0} < E(F_{\tau|t})$ with $0 < t < \tau$, which is when the expected future price at a later date exceeds the futures price settled at time $t = 0$. In modern usage, this is called normal backwardation.

Buyer A buyer is a long position holder who has agreed to accept the delivery of a commodity at some future date.

Capital Asset Pricing Model (CAPM) The capital asset pricing model describes the relationship between the expected return of an asset, or a portfolio of assets, and the return of the stock market as a whole. The relationship is expressed via the formula $E(r_i) - r_f = \beta\{E(r_m) - r_f\}$, where $E(r_i)$ is the expected return on the capital asset or portfolio, $E(r_m)$ is the expected return of the market, r_f is the risk-free rate of interest, such as the interest from government bonds, and β is the coefficient of the sensitivity of the asset returns to market returns. Here, $\beta = C(r_i, r_m)/V(r_m)$, which is known as the beta, is just the coefficient of the regression of r_i on r_m . The difference $E(r_m) - r_f$ is sometimes known as the market premium or risk premium.

Contango Contango is the situation where the price of a commodity for future delivery is higher than the spot price, or a far future delivery price is higher than a nearer future delivery price. The opposite market condition to contango is known as backwardation.

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Equity capital Equity capital is capital raised from the owners of a company. It differs from debt capital, which is money raised by through the issuance of debentures and bonds etc. Owners can choose to sell equity in the company, in the form of stock, to investors.

In accounting terms, after all liabilities are paid, ownership equity is the remaining interest in assets. If valuations placed on assets do not exceed liabilities, then there is negative equity.

Index Option When such an option is exercised, the writer pays the holder the difference between an agreed exercise price K and the spot value I of the index at the close of trading on the exercise day. An index option may be interpreted as an option in which the nominated asset is pure cash. Thus, it gives the holder the right to purchase (call) or sell (put) I units of cash at a specific exercise price K . An option based on a stock market index can be used as a hedging tool by stock portfolio managers.

Ito Process An Ito process is a stochastic process in continuous time. If the process is denoted by $x(t)$, then it can be described by the equation

$$dx(t) = \mu(x, t)dt + \sigma(x, t)dw(t),$$

where $dw(t)$ is an increment of a standardised Wiener process, which is the continuous-time version of a random walk. The functions $\mu(x, t)$ and $\sigma(x, t)$ govern the drift and the volatility of the process, respectively.

Ito's Lemma If $x(t)$ is a Ito process described by the equation $dx(t) = \mu(x, t)dt + \sigma(x, t)dw(t)$ and if $f(x, t)$ is a continuous differentiable function, then Ito's Lemma indicates that

$$df(x, t) = \left\{ \mu(x, t) \frac{\partial f}{\partial x} + \frac{\partial f}{\partial t} + \sigma^2(x, t) \frac{1}{2} \frac{\partial^2 f}{\partial x^2} \right\} dt + \sigma(x, t) \frac{\partial f}{\partial x} dw.$$

Leverage Financial leverage (or gearing) entails borrowing money to supplement existing funds for investment in such a way that the potential positive or negative outcome is magnified and/or enhanced. It generally refers to using borrowed funds, or debt, in an attempt to increase the returns to equity. The degree of leverage is measured by the debt-to-equity ratio.

Companies that are highly leveraged may be in danger of bankruptcy if they are unable to make payments on their debt.

Long Position A party who has purchased an asset for future delivery or who has purchased a futures contract has taken a long position in respect of the contract. (The holder of a long position in a call option has a right to buy, whereas the holder of a long position in a put option has a right to sell.)

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Here, the adjectives long and short have no temporal connotations, as they do when we talk of short-term and long-term. Instead, they refer to the balance of assets and liabilities. Thus, the overall position of any agent is the cumulative total of the contracts purchased minus the contracts sold. To have net assets is to be in a long position, whereas to have net liabilities is to be in a short position.

Nevertheless, we may observe that the typical commercial bank derives its income from the difference between the return on its assets, which are long-term loans, and the cost of its borrowings, which are its liabilities and which are the short-term deposits of its customers.

Long Hedge If a company knows that it is due to buy an asset at a particular date in the future, i.e. that it will go long at that date, then it can hedge by taking a long futures position which commits it to take a future delivery. This is known as a long hedge. If the price of the asset goes down, then the company will gain from buying the asset for less, but it will lose from closing the long futures position. (It will have to find another party to take the delivery, but they will pay less for doing so.) If the price goes up, then the company pays more to purchase the asset, but it gains from the futures position.

Offer An offer is a proposal to sell. A typical convention for vocalising an offer is “ n at p ”: n being the number of units or contracts and p being the unit price.

Marking to Market: Settling or reconciling changes in the value of futures contracts on a daily basis. The effect of marking to market is to ensure that the settlement price is always the current market price. This minimises the risk of default when the delivery date of the contract arrives.

At the delivery date, the party who is contracted to supply the asset can do so, if they have any credibility, by borrowing the money, by purchasing and delivering the asset and then immediately repaying the borrowed money. These transactions should be virtually costless.

Premium: Usually the amount paid for an insurance contract. In the present context, it is the price of an option.

Put Option The holder of a put option has the right to sell an asset at a particular date, called the expiry date, for a certain price called the strike price or exercise price. He has the long position in respect of the contract.

Random Walk A (first-order) random walk is a stochastic process in discrete time that corresponds to an accumulation of independently and identically distributed (i.i.d) random increments with a finite variance and a zero-valued expectation. A random walk with drift corresponds to a cumulation of (i.i.d) increments with a constant non-zero expected value.

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Seller A seller who has contracted to deliver an asset or a commodity at some future date is a short position holder.

Short Position The short position is the position of a party who has sold contract and is therefore subject to a liability. If he has sold a call option, then he is committed to making a delivery of an asset or a commodity at some future date. If he has sold a put option, then he is liable to take a delivery at a predetermined price.

Short Hedge If a company knows that it is due to sell an asset at a particular date in the future, i.e. that it will go short at that date, then it can hedge by taking a short futures position. (This will commit another party to take delivery at the future date for a price agreed at present.) This is known as a short hedge. If the market price of the asset goes down, the company will not fare well from the sale of the asset, but it will gain from the short futures position. If the price goes up, then the company will gain from the sale of the asset, but it will lose from the futures position.

Short Selling Short selling an asset at its market price S_t means borrowing the asset at time t from some other party who owns it, selling the borrowed asset at the spot price of S_t and, finally, returning the asset to the lender at an agreed date τ . If the spot price at time τ is $S_\tau < S_t$, then the short seller will have made a return which might exceed whatever must be paid to the owner of the asset for lending it.

Speculator A speculator is one who wishes to make a profit by a gambling that a price will increase or that it will decrease. Such a speculation involves a risk of making a loss instead of a profit.

Spot Price: The price paid for the immediate delivery of an asset.

Strike Price: The fixed price at which the owner of an option can purchase, in the case of a call, or sell, in the case of a put, the underlying security or commodity.

Wiener Process: A Wiener process is a continuous stochastic process, usually occurring through time, which is an accumulation of a continuous succession of infinitesimal increments that are statistically independent of their predecessors. In a standardised Wiener process, the change in the level of the process that accumulates over a unit time interval is a normally distributed random variable of zero mean and unit variance. Such a process is also described as *Brownian Motion*. It can also be regarded as the continuous-time counterpart of a discrete-time random walk.