

## **The Futures Markets**

### Canadian Securities Institute<sup>1</sup>

#### **Introduction**

This chapter provides an introduction to futures markets where exchange-traded, forward-based derivatives are traded. Forward-based derivatives represent contracts made between two parties that require some specific action at a later date. Most often, this action takes the form of delivery of some underlying asset and payment for the asset. All forward-based contracts have a buyer and a seller, a maturity or expiration date, and a formula for exchanging payments set up when the contract is initiated that takes effect at some later date. Apart from a performance bond, no up-front payment is required. All forwards are in effect zero-sum games. The buyer's gain will be the seller's loss and vice versa. The gain and loss will always have a linear relationship with the price of the underlying interest. It should be noted that all forwards facilitate the use of leverage.

A forward-based derivative can trade on an exchange or over the counter (OTC). When it is traded on an exchange, it is referred to as a *futures contract*. There are two general types of futures contracts. Contracts that have a financial asset as their underlying interest are referred to as *financial futures*. These would include interest-rate, currency and equity futures. Contracts that are based on a physical or 'hard' asset are generally referred to as *commodity futures* contracts. Examples of commodity futures are gold, soybeans and crude oil.

#### **Futures Contracts and Markets**

A futures contract is an agreement between two parties to buy or sell an asset at some future point in time at a predetermined price. This section describes the characteristics and mechanisms that are common to all futures contracts, and the highly organised and structured markets in which these contracts are traded.

#### **General Characteristics of Futures Contracts and Markets**

Since futures contracts trade on an exchange, all futures contracts are *standardised* in terms of their size, grade, and time and place of delivery. Other features of futures contracts that are standardised include their trading hours, minimum price fluctuations and, for contracts that have them, maximum daily price limits. All contract terms, except price, are defined by the exchange on which they trade. This standardisation can have an impact on hedging, as delivery dates and terms are not flexible. The following table provides an example of the standard specifications of a typical futures contract – canola futures that trade on the Winnipeg Commodity Exchange.

**Contract specifications of Canadian canola futures**

Contract Size:	20 metric tonnes
Minimum tick size:	C\$0.10 per metric tonne (C\$2 per contract)
Daily price limit:	C\$30 per metric tonne above or below previous settlement
Dynamic price limit:	80 ticks or C\$8.00 per contract
Delivery months:	January, March, May, July and November
Trading hours:	9:30 a.m. to 1:15 p.m. (Central Time)
Delivery point:	Areas in Saskatchewan at par; a premium applies to other delivery areas of C\$2.00-6.00/tonne

<sup>1</sup> Canadian Securities Institute, Toronto.

Deliverable grades: Contract deliverable grades shall be based on primary elevator grade standards as established by the Canadian Grain Commission (CGC). Non-commercially clean Canadian canola with maximum dockage of 8%; all other specifications to meet No. 1 Canada canola. Premium/discount prices apply to other grades of canola.
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The *contract size* describes the number of units that underlie the futures contract. This is the amount per contract that must be delivered or accepted for delivery if the contract is held to the delivery month. For instance, in the example if the current canola price was \$400 per tonne, the value of the contract would be \$8000 ( $\$400 \times 20$  tonnes). At delivery, the seller would deliver \$8000 worth of canola that the buyer would have to pay cash for.

The minimum *tick size* represents the smallest price increment the futures contract can move up or down. In the case of canola, it is 10 cents per tonne. If the current price of an October canola futures contract is \$400 per tonne, the next trade could take place at a price of either \$400, \$400.10 or greater, or \$399.90 or less. The 10 cent per tonne increment translates to \$2.00 per contract ( $20 \text{ tonnes} \times 10 \text{ cents}$ ).

Exchanges set *limits* on the amount by which most futures can move, either up or down, during one day's trading session. If the price moves down by an amount equal to the daily limit, the contract is said to be limit down. If it reaches the upper limit then it is said to be limit up. The limits are designed to calm market panic, and to give market participants time to absorb new information that may have been disseminated.

In addition the exchange imposes a dynamic price limit which relates to intra-day trading. This prevents large price moves between orders. In the case of the canola contract, a dynamic price limit applies of 80 ticks (or C\$8.00/contract) between orders.

When a futures price moves by its daily limit, there still may be some trading at the limit price. Most often, however, trading comes to a complete halt as *bids* (the highest price at which someone is willing to buy) or *offers* (the lowest price at which someone is willing to sell) are non-existent when the market moves limit down or up, respectively. This kind of situation can be very dangerous for traders holding losing long or short positions because they are unable to liquidate. If the limit situation lasts for several days, huge losses can result.

Partially in recognition of this risk, most exchanges have adopted procedures to deal with limit moves. One procedure expands price limits after a few days of limit moves. *Expanded limits*, for example, may widen out to 150% of regular limits so as to give traders holding losing long or short positions a greater chance to liquidate. Another procedure removes limits entirely for futures contracts trading in their delivery month. Finally, some exchanges have abolished limits on some contracts altogether.

Futures contracts are *settled daily*. Profits are credited daily to accounts that have winning positions, and losses debited daily to accounts that have losing positions. The size of the daily amount depends on the relationship between the current futures price and the initial entry price. If the futures price is higher, the holder of the long position receives a payment from the short for an amount equal to the

difference. If the futures price is lower, the holder of the short position receives a payment from the long for an amount equal to the difference.

A futures contract only gains or losses value as the futures price changes. The payoff from a position in a futures contract is *linear* and, because of margining and daily mark-to-market, there may be significant cash flows associated with futures contracts. Cash flows can be positive or negative and, if not properly anticipated, can affect a party's ability to effectively use futures as a hedging tool.

The *delivery months* are also set by the exchange. In addition, the exchanges set specific deadline days for when trading in a contract ceases and for when the delivery period begins and ends. In the case of canola, the last trading day for a particular delivery month is always the trading day preceding the fifteenth calendar day of the delivery month.

The exchange also sets the deliverable grade (the quality of an asset that will be accepted for delivery in terms of grade, weight or other characteristics), and other alternative grades that are acceptable for delivery. The deliverable grade for canola is Number 1 Canada canola. However, some other grades will be accepted with an appropriate price discount/premium to the final settlement price.

A *clearing association* stands between the parties to a futures contract. As a result, counterparties' identities are irrelevant. Companies A and B, which may have equal and opposite positions in futures contracts, can easily terminate their respective futures contracts at anytime following onset up to contract expiration by what is referred to as an *offsetting transaction*. Company A could independently sell and company B independently buy the contract in the secondary market, which would have the effect of liquidating their respective positions and have no dependence upon each other because of the clearing association: if A or B defaulted on their obligations, the exchange would assume the obligations of the defaulted party.

The financial integrity of the futures markets is protected by requiring that each party to a contract to post a performance bond, which is called the *margin*. Through a daily *marking-to-market* process with corresponding transfers of margin, each party to a contract is assured of the other party's performance. The initial value of a futures contract to both buyer and seller is zero, but initial margins, are not.

Finally, futures markets are *regulated* by governmental agencies and self-regulatory organisations. Regulations are very specific and detailed. Before any futures contract can be listed for trading it must be approved by regulatory authorities.

### **Types of Orders**

When placing an order in the futures markets, there is some common terminology that is essential to understand in order to be sure that orders are executed properly. Below is a list of some of the most common order types. This terminology applies whether buying or selling a contract.

- *Market order*. This order is used to buy or sell immediately at the 'market price'. There is no guarantee what that price will be, so you rely on the broker and trader for timely and effective execution.
- *Best efforts or worked order*. This order is placed when you wish to give the broker or trader some discretion in executing the transaction. It is often used for large orders where a 'market' order might disrupt trading.

Again, you rely on the broker and trader for timely and effective execution and there is no guarantee as to the price at which the trade is executed, or even if the trade is executed at all.

- *Good 'til cancelled (GTC)*. This is an order to execute a trade that stays 'live' until the customer cancels the trade. Many firms will cancel all GTC trades at the 'close of business', but others will not. It is important to understand the difference in how your brokerage treats GTC trades.
- *Market on open (MOO)*. This is a 'market' order that will be executed when the market opens, at a price within the opening range of prices. Opening price ranges can be quite wide, so this type of trade is to be used with discretion.
- *Market on close (MOC)*. This is a 'market' order that will be executed when the market closes. The price of the trade will be within the closing range of the day, which may be quite large and vary substantially from the settlement price. As with an MOO order, MOC orders are to be used with discretion.
- *Limit order*. This order is placed when you are looking to buy or sell at a specific price 'or better'. This tells your broker or trader in the pit that you are looking to purchase the futures contract at a price no higher than your limit or to sell at a price no lower than your limit. When using this type of order, you should be aware that the market may trade at your limit price for substantial periods of time and you may still not be filled at your order. You are only guaranteed to have your order executed if the market trades through the limit price, either above your sell limit or below your buy limit.
- *Stop order*. This is an order to buy or sell when the market reaches a certain price. Once that price has been reached, the order becomes a 'market order'. A buy stop is placed above the market and a sell stop is placed below the market. Stop orders are commonly used to protect profits or to attempt to limit losses. One should note that markets have a tendency to 'find stops', meaning that when a market price is reached that triggers 'stop orders', the market will often reverse price trends.
- *Market if touched (MIT)*. Much like a stop order, an MIT order becomes a 'market order' if the price reaches a specified level. Unlike the 'stop order', an MIT order to sell is placed above the current market price, and an MIT order to buy is placed below the current market price. Not all firms or exchanges will accept MIT orders.
- *Fill or kill (FOK)*. This order is a limit order that is sent to the pit to be executed immediately and if the order is unable to be filled right away, it is cancelled.
- *Spread order*. A simple spread order involves two positions, one bought and one sold. The trades generally involve the same market with different months (calendar spread) or closely related markets, such as interest rates of different maturities. An order is entered at a 'spread' between the prices of the two contracts. The final execution prices of each contract may not be the same as current 'market' prices of each individual contract, but each contract's price will be within the day's trading range for that contract.
- *Fast markets*. Of note to anyone who is executing trades on futures markets is a condition known as 'fast markets'. Such a condition means that there is excessive price volatility, usually in combination with a lack of normal liquidity. During 'fast markets', the normal rules that cover whether a trade will be executed according to specific orders are suspended. There are no guarantees of prices or execution. In general, one should be very cautious about entering any type of order during 'fast markets'.

### **Margin Requirements and Marking to Market**

Futures transactions are typically margin transactions. But unlike margins on securities (which are a counterpart to the maximum loan value that a dealer may extend to its customer to purchase a security), a futures margin is the amount of money that a customer must deposit with a broker to provide a level of assurance that the financial obligations of the futures contract will be met. In effect, futures margins represent a good faith deposit or a performance bond.

The minimum margin rate for a client who wishes to establish a position in a futures market is set by the exchange or clearing house, but a member firm may impose higher margin rates on its clients. The member firm, however, may not charge the client *less* than the exchange's minimum requirements.

Two levels of margin are used in futures trading – *original* and *maintenance margins*. Original or *initial* margin represents the required deposit when a futures contract is entered into. Maintenance margin is the minimum balance for margin required during the life of the contract.

One of the characteristics of a futures contract is its daily settlement or what is referred to as *marking-to-market*. As mentioned earlier, at the end of each trading day, the 'long' makes a payment to the 'short' or vice versa, depending on the relationship between the current futures price and the initial entry price. In operational reality the payment takes place between the counterparties' respective investment dealers (member firms) through the clearing house; and while the long and short's respective accounts are debited or credited each day by the amount of loss or gain, the party who is in the losing position will only have to deposit additional margin when their account balance falls below the maintenance margin level.

### **Leverage**

Since futures prices only reflect the prices of their underlying interests, the question to ask is why futures trading is considered riskier than trading the underlying interests themselves. The main reason is leverage. Leverage describes the amount of capital that must be put up in order to buy or sell an asset. In mathematical terms, it is simply the ratio of the investment relative to the amount of capital needed to purchase it. If a \$100,000 house is purchased with a \$25,000 down payment and a \$75,000 loan, the purchaser has a 4:1 leverage ratio. Since futures trading requires smaller margins than equity trading, more leverage is available.

While leverage is often associated with futures trading, readers should understand that it is not inherent in a futures contract. A futures trader could decide to deposit a contract's full value as margin rather than the minimum margin required. For example, a trader who goes long a gold futures contract could deposit the contract's value of US\$40,000 (100 ounces at an assumed price of \$400 per ounce) as margin. If this decision is made, the trader would not be leveraged at all.

In practice, most traders will take advantage of the leverage that is offered. It is one of the attractions of trading futures. Leverage, however, should be thought of as separate to a futures contract. It is a feature that most participants will exploit, but some may choose not to use. For example, pension funds in Canada are regulated in a way that prevents them from taking leveraged positions in futures contracts.

## Liquidity and Trading Costs

Liquidity, low trading costs and price transparency are some of the main attractions of futures trading. Some of the most actively traded contracts have trading volumes in excess of 300 million contracts per annum<sup>2</sup> (e.g. Euro-Bund Futures on Eurex and three-month Eurodollar Futures on CME). In such circumstances it is possible to trade large parcels without adversely affecting the price, and bid-offer spreads are minimal. The spread in the liquid contracts is usually the minimum price fluctuation, called a tick. In contrast, some futures contracts are not at all liquid; days may pass when not a single contract is traded. Trading costs also can include commissions paid to brokers and exchange/clearing fees.

## Options on Futures

Options on futures contracts were introduced in October 1982 when the CBOT began trading options on Treasury bond futures. These have added a new dimension to futures trading. While both futures and futures options can provide protection against adverse price movements, the purchase of futures options (as with other types of options) provides the ability to both guarantee a purchase or sale price and, at the same time, allow a hedger to participate fully in favourable movements in the price of the underlying asset. Of course, this feature of options comes at a cost – the premium.

Options on futures are just like any other option except that the underlying interest is a futures contract rather than a stock, bond, currency or stock index. A *call option* gives the holder the right to purchase a particular futures contract at a specific price (the exercise price) at any time during the life of the option. A *put option* gives the holder the right to sell a particular futures contract at a specified price at any time during the life of the option. Most options on futures are American style, although some exchanges offer European options on futures.

At most futures exchanges the option premium is paid by the buyer at the time of purchase. No margin is required as the losses are limited to the extent of the option premium. The seller of the option must, however, post a margin. There are some exchanges (e.g. the Sydney Futures Exchange) where option purchases, in addition to sales, occur on a margined basis.

The following table provides an example of contract specifications for FTSE 100 index contracts. Note that the specifications of the options contracts are closely aligned with the underlying futures contract. The exchange (in this case Euronext-LIFFE) has to establish rules for the selection of exercise prices.

	<b>FTSE 100 index futures</b>	<b>FTSE 100 index options (European style)</b>
Unit of trading	Contract valued at £10 per index point	Same
Delivery months	March, June, September, December (nearest four available for trading)	Same
Quotation	Index points (e.g. 6500.0)	Same
Minimum price movement (tick size & value)	0.5 (£5.00)	Same
Last trading day	Third Friday in delivery month	Third Friday of the expiry month
Delivery day	First business day after the last trading day	Na
Trading hours	08:00–17:30	08:00–16:30

<sup>2</sup> *Futures Industry*, March–April 2007.

Trading platform	LIFFE CONNECT	Same
Exchange delivery settlement price (EDSP)	The value of the FTSE 100 Index is calculated by FTSE International with reference to the outcome of the EDSP intra-day auction at the London Stock Exchange carried out on the Last Trading Day	Same
Daily settlement price	Na	The daily settlement price is based on the 16:30 price of the FTSE 100 index
Settlement day	Na	Settlement day is the first business day after the Last Trading Day.
Exercise day	Na	Exercise by 18:00 on the last trading day only
Contract standard	Cash settlement based on the EDSP	Same
Exercise price intervals	na	The interval between exercise prices is determined by the time to maturity of a particular expiry month and is either 50 or 100 index points. The Exchange reserves the right to introduce tighter strike intervals (e.g.25 points) where necessary.
Introduction of new exercise prices	na	Additional exercise prices will be introduced on the business day after the underlying index level has exceeded the second highest, or fallen below the second lowest, available exercise price
Option premium	na	Payable by the buyer in full on the business day following a transaction

Source: [www.euronext.com](http://www.euronext.com)

Euronext-LIFFE (like many exchanges), allows for even greater choice of contract terms through the availability of *flex options*. A flex option is designed to offer the flexibility of the OTC market, but with the advantages that exchange trading brings such as price transparency and reduction in counterparty risk. Participants may request a price quotation on an option with much longer maturity than standard contracts and with the exercise price of their choice.

Options on futures can be used to either speculate on or hedge an underlying futures contract or the asset underlying the futures contract. An investor who is holding a profitable long gold futures contract, for example, may want to buy a gold futures option put for profit protection. By the same token, an investor who is bullish on gold may just want to buy a futures option rather than buy the outright futures. As far as speculating or hedging cash price movements, the decision to use options on futures or outright futures depends on the investor's risk and return profile. If a limited risk strategy is desired, long futures options would be the choice. If the investor wants to lock in a price with no up-front costs, futures would be the choice.

### **Futures Exchanges and Clearing Houses**

This section describes the basic features and functions of organised futures exchanges and clearing houses. The trend to electronic trading is one of the most significant affecting the operation of exchanges at the present time. The world's second largest futures exchange, Eurex, has *only* electronic trading. With its lower trading costs, it has gained an important competitive advantage, even entering the Chicago market to compete with CBOT.

When an order is placed to buy or sell a futures contract, the order is relayed to the futures exchange where that contract is listed. If the futures exchange uses a trading floor, the order is relayed to the contract's trading pit. For the more active

futures contracts, several hundred traders surround the octagonal-shaped pit. The action around the pit is frantic, with traders shouting, waving their arms and signalling with their fingers orders relayed to them by runners, who run or signal the orders received via phone lines or other communication facilities. Once a trade is consummated between two traders, details are filled out on a trading card and the confirmation is given to the runner who relays it back to the broker who then notifies the client.<sup>3</sup>

If the futures exchange uses an electronic trading system, orders are entered directly into the system where they are matched on a price-time priority, which simulates the auction system used on trading floors. When an order has been filled, the trading system automatically notifies the brokerage firms from where the orders originated. Each brokerage firm would then notify the broker who then notifies the client.

### **Exchanges**

Futures exchanges provide a forum for market participants to buy and sell futures contracts.

Regardless of the type of futures exchange (open-cry or electronic), the price buyers and sellers agree upon is arrived at through an *auction process*.

The term *open outcry auction process* is used to describe trading on a physical exchange. In this type of auction system, bids and offers are communicated between *floor traders* in a trading ring or pit through both verbal and hand communications. Once a trade is consummated, *market reporters*, who operate from strategic locations around the floor of the exchange, record and input the information into a communications system. Once inputted, the price information can be disseminated almost instantaneously around the world.

On an electronic exchange, a specific futures contract's best bid and offer prices are displayed on computer terminals located in member firms' offices. The terminals also allow member firms' traders to enter orders for any contract trading on the system. As orders are entered, the exchanges' trading systems will sort, display and, when the rules of auction trading say so, match them (i.e. create a trade). Only registered members of an exchange have privileges to trade on that exchange. On a physical exchange, there are two types of floor traders. Those who primarily trade on their own account are referred to as *locals*, while those who fill orders from customers are referred to as *floor brokers*. Locals either own an exchange membership, known as a *seat*, or lease one from an owner.

### **Clearing Houses**

Although an exchange provides the setting for the purchase and sale of futures contracts, no money actually changes hands there. Instead, each futures exchange has an associated organisation that takes care of financial settlement, and helps ensure that markets operate efficiently. This organisation, which is called a *clearing house*, can be set up either as a separate corporation or as a department of the exchange.

A clearing house guarantees the financial obligations of every contract that it clears. It does this by acting as the buyer for every seller, and the seller for every buyer (*principle of substitution*). A participant who has bought or sold a futures contract has an obligation not to the party on the other side of the transaction,

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<sup>3</sup> Modern technology is quickly eliminating, in some cases, the need for runners. Orders are increasingly being entered into trading pits directly.



but to the clearing house, just as the clearing house has an obligation to the participant. The existence of the clearing house means that market participants need not be concerned about the honesty or reliability of other trading parties. The integrity of the clearing house is the only issue. As clearing houses have a good record in honouring their obligations, the counterparty risk in futures trading is considered to be negligible. This is one of the principal advantages of futures trading as opposed to OTC trading.

Clearing houses are able to guarantee the financial integrity of futures contracts through a layered system of financial protection. Margin deposits provide the first layer of protection. Parties to a futures trade must deposit an initial or original margin when the contract is first entered. Through the life of the contract, gains are credited and losses debited to the long and short holder accounts on a daily basis. If losses result in an account's net equity (defined as cash deposited plus/minus any open futures positions' profit/loss) falling under the maintenance margin level, the losing party must make a margin deposit to replenish net equity to at least the original margin level.

A primary activity of a clearing house is to *match trades* submitted by clearing member firms. Throughout each trading day, clearing members report the details of executed trades, whether they are on behalf of their clients or are on their own accounts, to the clearing house. Once the clearing house verifies the accuracy of all reported transactions, ensures that there is a buy for every sell, and receives original margin from clearing members, it takes over the financial obligations inherent in the futures contract.

The clearing house does not need to know the actual identities of the parties to the transactions. It only needs to know the net positions of the clearing members. The clients are financially responsible to the member firms, while the member firms are financially responsible to the clearing houses. Once a transaction is consummated and confirmed, the clearing house substitutes itself as the buyer for the seller and as the seller for the buyer. This substitution enables the individual trader to liquidate a position without having to wait until the other party to the original contract decides to liquidate. The trader has in effect bought the contract from or sold it to the clearing house.

It is also the job of the clearing house to ensure that all deliveries are carried out smoothly. It is important to keep in mind that the principle of substitution does not apply to deliveries. The clearing house merely matches up the buyers and sellers who then can make arrangements for delivery either outside the clearing house or within the clearing house (in which case the clearing house merely acts as custodian). Once the long accepts the delivery notice, the clearing house's obligation is honoured. The clearing house does not take on the obligations of delivery if one side does not satisfy the conditions of delivery. The clearing members must settle any disputes between themselves in accordance with regulatory by-laws. Neither member has any recourse to the clearing house.

### **Marking-to-Market and Margin**

Suppose that client A has just entered a long December gold futures contract on NYMEX. The contract calls for delivery of 100 ounces of gold. The price that A and the counterparty to the trade (client B) arrived at through the open outcry auction system was US\$385 per ounce. Therefore, A has contracted to buy and B to sell at the maturity of the contract in December 100 ounces of gold at an effective price of US\$385 per ounce. To give each party to the trade a higher level of assurance that the terms of the contract will be honoured, each must deposit an initial margin of, in this case, \$2000 into their respective trading

accounts. In turn, the member firm(s) where the accounts are being held will submit the \$2000 to the clearing house.

Assume in this example that the *maintenance* margin level is \$1500. The \$2000 that client A initially deposits in the account is equity. If the gold futures price moves higher, net equity will increase. If, for example, the gold futures price rises to \$386 the day after the contract is initiated, A's equity will increase by \$100 ( $\$1 \times 100$  ounces) to \$2100. The \$100 increase will be at the expense of the counterparty to the trade (client B), whose equity will have declined by \$100 to \$1900. Client A's account will be automatically credited with \$100 by the clearing house and B's debited by the same amount. Client A can withdraw this amount because the account's net equity would exceed the initial margin requirement of \$2000. Client B, however, would *not* have to deposit \$100 into the account because the account's net equity of \$1900 would still be higher than the maintenance margin level of \$1500. Client B would only have to make a deposit if the account's net equity fell under the maintenance margin level.

It should be noted that if the original and maintenance margin levels were exactly the same, every dollar lost would have to be physically transferred from the losing party to the winning party. This would be quite onerous and difficult to administer. One of the reasons for having a lower maintenance margin level is convenience. It means that clients do not have to run to their respective member firms to make a deposit every time there is a small fluctuation in their accounts.

Daily transference of margin from losers to winners gives the clearing house, in its capacity as third party guarantor and party to the transaction, a high level of confidence that performance will be honoured. Putting clearing houses in an even stronger position to act as guarantor are the *guarantee deposits* which must be maintained by each clearing member. In addition, the clearing house receives income to support its operations by charging fees for clearing trades and for other services performed.

The size of the initial margin will vary according to the contract and the trader's position. Initial margins are determined by the clearing house and may vary from time to time. In the case of option contracts, the choice of initial margin is complicated by the fact that option prices are exposed to multiple risks, the most significant being changes in the underlying futures price and changes in the volatility. Finally, the appropriate initial margin will depend on the exact position held by the investor.

To take account of all these factors, many exchanges now use the Standard Portfolio Analysis of Risk (SPAN) framework (originally developed by the Chicago Mercantile Exchange). The SPAN framework takes a portfolio of futures, and options, held by an investor and simulates (stress tests) how its value would react to a series of market scenarios. The scenario with the worst outcome for that particular portfolio is used to set the initial margin. Various adjustments may also be made to take account of other factors such as basis risk in spread strategies and extra volatility which is common in the spot contract.

### **Market Participants – Hedgers**

The primary function of a futures market is to allow participants who wish to reduce or eliminate risk to do so by shifting the risk to those who want to assume it in return for the possibility of earning a profit. A market participant may need to either reduce the risk of holding a particular asset for future sale or reduce the risk involved in anticipating the purchase of a particular asset. This section covers only the most basic ideas of hedging with futures.

A *short hedge* is executed by someone who owns or, in the case of a farmer or miner, anticipates owning an asset in the cash market that will be sold at some point in the future. In order to protect against a decline in price between the present and the time when the asset will be ready for sale, the hedger can take a short position in a futures contract on the same underlying asset which matures approximately at the time of the anticipated sale. By taking this action in the futures market, the hedger will be able to receive an amount equal to the price agreed in the contract, despite the fact that the spot price of the asset at the time of the sale might be considerably different.

A long hedge is executed by someone who anticipates buying the underlying asset at some point in the future. In order to protect against rising prices between the present and the time when the asset is needed, the hedger can take a long position in a futures contract on the underlying asset which matures approximately at the time of the anticipated purchase of the asset. By taking this action in the futures market the hedger has fixed the purchase price, even though delivery does not need to be accepted until some point in the future.

### **Market Participants – Speculators**

Speculators are those market participants who, in the pursuit of profit, are willing to assume the risk that hedgers are seeking to shift. There are several different types of speculator who operate in the futures market. They are distinguished from each other by a number of factors, including the length of time they plan to hold a particular futures position, the amount of profit per position they anticipate, and the amount they are willing to risk.

#### **Locals**

Locals are also referred to as *scalpers*. This type of speculator operates right from the floor of the exchange and has the shortest time horizon of all. Taking advantage of the knowledge and 'feel' gained from their proximity to the 'action', the local attempts to profit from small price changes that take place in very short periods of time. The time horizon for a local can often be measured in minutes, rather than hours or days. Since the local is only looking to profit from very small price changes, the amount that is typically at risk on any given trade is small. Consequently, a local depends on relatively large volumes to make a successful living and is a unique feature of open outcry markets.

#### **Day Traders**

As the name suggests, day traders are speculators whose time horizon is a single day. Positions taken during a trading day are liquidated by the end of that day. Positions are not carried overnight. Day traders may trade on or off the floor. They are looking to profit from larger price moves than locals, and as a result they are willing to risk more. However, as is evidenced by their desire not to hold any positions overnight, they are not willing to tolerate a lot of risk.

Another risk that day traders tend to avoid is that of holding positions going into major reports that could impact the price of a particular futures contract. Day traders involved with grain and oilseed futures, for example, typically study major supply/demand reports (released on a regular basis by the United States Department of Agriculture) without any positions. These reports are typically released just before a market opening or just after a market close. Price movements in response to a report have the potential to be very significant, particularly if the data released are different from market expectations.

### **Position Traders**

This type of trader has a time horizon that can be measured in terms of weeks or even months. Position traders attempt to profit from longer-term price trends. Timing is not as important for a position trader as it is for a local or day trader. The position trader is typically well financed and is willing and able to withstand adverse short-term price changes to a larger extent than locals or day traders, in order to maintain a position consistent with their long-term view of the market.

### **Spreads**

Spreading involves the purchase of one futures contract against the sale of another which is related in some fashion. Spread traders attempt to identify market situations where the price relationship between two related assets has deviated from its historical norm. When such a situation is identified, the trader will take a spread position designed to profit from a move back towards a level or a range that is more in line with historical performance. The trader does this by simultaneously buying the 'underpriced' asset and selling the 'overpriced' asset. Spreads can be divided up into four broad categories, as follows:

#### **Intramarket Spreads**

Intramarket spreads are also known as *calendar spreads* or *time spreads*. This is a spread which involves the purchase and sale of futures contracts that have the same underlying asset, but different delivery months. They are very popular with agricultural futures where traders speculate on the relative changes in 'old' and 'new' crop prices.

#### **Intercommodity Spreads**

An intercommodity spread is between two different but related futures contracts. The two contracts may trade on the same exchange or on different exchanges. A trader would implement an intercommodity spread when he/she feels that the price of one asset has become under- or over-valued relative to the price of another asset which has a similar usage.

Perhaps the most popular financial futures intercommodity spread is what is known as the TED spread, which involves the purchase or sale of Treasury bill futures (T) against the opposite position in Eurodollar futures (ED). A trader buys the TED spread by going long on Treasury bills and short on Eurodollars, and he/she shorts the TED spread by going short on Treasury bills and long on Eurodollars. Generally, in times of economic and/or political turmoil, investors seek the safety of Treasury bills which are backed by the US government rather than Eurodollar deposits which are backed only by the bank that issues them. The collective action of investors during these periods forces Treasury bill rates down (prices up) relative to Eurodollars rates.

#### **Intermarket Spreads**

An intermarket spread involves the purchase and sale of futures contracts that trade on different exchanges, but which have the same underlying asset. Opportunities arise for various reasons. For example, in the case of wheat futures, which trade on the Chicago Board of Trade, Kansas City Board of Trade and Minneapolis Grain Exchange, a spread opportunity may occur because of relative changes in supply and demand conditions of different deliverable grades trading in each respective market.

#### **Commodity Product Spread**

This kind of spread involves the purchase or sale of a commodity against the opposite position in the products of that commodity. The most

common example of a commodity product spread is the *crush* spread, which involves taking a long position in, for example, soybeans against a short position in its products, soybean meal and soybean oil. The objective of the spread is to take advantage of any unusual price differences between soybeans, which are not often used in their natural state, and the products they are crushed into – soybean meal, which is primarily used for animal feed, and soybean oil, which is used as a vegetable oil.

### **Market Participants – Managed Futures Investors**

Individuals and institutions invest in managed futures products primarily to gain exposure to an asset class that is distinct from the traditional stocks, bonds and cash. Research into managed futures has found that futures are a distinct asset class due to their low correlation with other asset classes. As a result, the addition of futures to a portfolio of other asset classes can provide diversification benefits. Investors looking to diversify their equity and/or bond portfolios are increasingly turning to managed futures products.

Essentially there are two types of managed futures: *managed accounts* and *managed funds*.

- Managed futures accounts are used primarily by high net-worth investors and occasionally by institutions who want some exposure to the futures market, but lack the trading expertise or the time to trade, and may give trading authority over to a trading adviser.
- Managed futures funds are investment funds that employ strategies using specified derivatives, physical commodities and leverage. Managed futures funds generally focus on a wide variety of market sectors utilising trading styles that may be based on fundamental analysis, technical analysis or a combination of both. Fund managers may base their trading decisions on fully automated computer programs and/or some degree of personal judgement. Fund managers may also trade on the basis of trends, anticipated trend reversals or arbitrage. Unlike equity funds, for example, whose performance may be highly dependent on the direction of the overall stock market, the performance of managed futures is much more dependent on the skills of the manager.

In many ways hedge funds are similar to mutual funds (or unit trusts). Both are professionally managed pools of money that may charge investors front- or back-end sales commissions. Both charge management fees and can be bought and sold through an investment dealer at a price equal to the funds' net asset value per share. But in contrast to mutual funds (which are generally limited to buying securities or holding cash) hedge funds are structured as limited partnerships that allow the managers to use a wide variety of alternative strategies and investments. These include derivatives, short selling, leverage, arbitrage, currency trading, and more. Commodity pools are essentially managed futures funds that are structured and sold as mutual funds.