

Futures **OR** Futures Options

How and When to Choose

By Russell R. Wasendorf, Sr.



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INTRODUCTION TO COMMODITY FUTURES

THE PURPOSE OF COMMODITY FUTURES

There is some evidence that the principles being used in modern futures trading were in use in China circa 2,000 B.C. Certainly, the principles of futures trading have evolved for modern applications but the basic principles have endured.

The primary principle and purpose of a futures market is to provide a mechanism for the user and producer of a particular commodity to contract for delivery of that commodity at a future date at a specific price. The forward contract is the early form of the futures contract.

Using forward contracts in ancient China, nearly 4,000 years ago, may have been able to contract with a grower of rice to purchase the farmer's production at a specified price before the rice was even harvested. The rice merchant would negotiate with the farmer a price, a delivery point, a specific commodity (rice) and a specific grade.

The use of a forward purchase and sale contract has been repeated many times through history with many different commodities and in many lands. But, it wasn't until the mid-1800's that the process of forward contracting became as formalized as it is today.

In the early to mid-1800's, when agricultural producers harvested their grain in the fall, they gathered with their grain in Chicago to negotiate sales to processors and distributors. Since there was a glut of grain brought to the market place at harvest time, the price was relatively low. By spring of the following year, a relative shortage of grain developed as the limited storage facilities were depleted and the price increased dramatically. There was a wide disparity between the price of available grain at harvest time and the price later in the year.

Inadequate storage was one of the main reasons that both producers and users were anxious to agree on the concept of forward pricing.

The user of grain knew that the stored supply of grain would be depleted by spring of the following year. Therefore, he was interested in contracting for a spring delivery of grain. The user agreed to buy the farmer's grain at a specified price, a specified quantity, a specified quality and at a specified date in the future. The farmer agreed to sell to the same specifications. This activity was called forward contracting. Farmers and users of grain started meeting in central locations to carry on the activity of forward contracting and, in 1848, they formed the

Chicago Board of Trade as the meeting place for these transactions.

One of the early problems that occurred at the Chicago Board of Trade was that when most of the farmers were interested in selling, particularly at a high price, fewer users were interested in buying.

Conversely, users who were interested in buying a low price were not always able to inspire the producers to sell at that price. This was a problem of liquidity.

To promote more liquidity in the market, producers and users agreed to standardize their contracts with a standardized grade, standardized delivery date and location, standardized commodity and a standardized quantity. (Example: 5,000 bushels of No.2 yellow corn for delivery in December in Chicago) By standardizing the contracts, a forward contract became a futures contract and could be traded one for the other, a facility unavailable in the forward contract.

Forward contracts allow for limited facility for trading due to the specific nature of the contract.

A futures contract, with its standardization, could be traded readily and, therefore, allowed for a shorter holding period than a forward contract.

With the introduction of a standardized contract, a new player was attracted to the futures marketing process—the speculator. He had no interest in the actual ownership of a commodity and lacked the ability to produce the commodity to deliver to the market. The speculator's objective in the market was purely that of profit. His interest was to take advantage of shorter-term transactions.

When a producer wished to sell at a relatively high price, the user might not be interested in buying. But, the speculator, thinking that the prices could go even higher, might choose to step into the user's position and buy the contract. Also, at a low price level, the user might be interested in purchasing a futures contract but the producer might be reluctant to sell at that lower price level. In that instance, a speculator might assume the sell side of the contract. In this way, the futures markets came into being.

HEDGING

The futures market streamlined the ability to hedge. Hedging is the procedure of taking protection against price change. The producer of a commodity certainly is in-

interested in protecting himself if prices go down. The user is interested in protecting against price increases.

The futures markets have brought the process of hedging to its fullest sophistication. At any moment during the year, a producer can be a seller of his commodity for a future delivery.

It's July 1. A farmer has 100 acres upon which he has planted corn and he conservatively estimates his yield to be 100 bushels of corn. The farmer can see that he has a good crop of corn on his 100 acres. He also notices that the price that is quoted by the futures exchange each day is relatively high. The price on July 1 is \$3.00 for December delivery corn. The producer decides to sell. So, he contacts the futures exchange through a broker and asks the broker to sell two 5,000-bushel contracts in the corn market. At the same time, a speculator may be anticipating an increase in price so he calls his broker and asks to buy two contracts of corn for future delivery. Two contracts will be executed. The farmer will be the seller of two contracts; the speculator, the buyer of two contracts. Notice—for every buyer there must be a seller. To create a futures contract, there is one buyer and one seller.

During the next several months, the producer's corn grows, matures and he harvests his grain, a general bearish condition has prevailed. Exports of corn have decreased. Cattle and hog numbers have decreased. And, a larger than expected supply is available due to increased yields for farmers' grain. The price of corn has decreased to \$2.75 per bushel. Therefore, the amount of money the farmer can get for his grain has decreased. But, since the producer has sold a futures contract at \$3.00, the decrease in price has forced the buyer of the futures contract to transfer capital into the account of the seller.

What if a bullish situation had developed in the corn market and the price of the futures contract increased during the same time period to, say, \$3.25? Because the producer was a seller of this contract, he would be forced to transfer capital into the account to compensate for the larger sale price of the contract. The value of his cash grain, however, will have increased during the same time period.

Hence, the increased profits in the cash market can be transferred to use in the futures market.

Some very simple rules can be summarized.

1. If a market participant is a buyer of a futures contract (holding a "long" position) and the price increases, there is an increase in the value of his long position. He makes money.

2. If a participant in the market is a buyer (holding a "long" position) and the price decreases, there is a decrease in the value of the contract. He loses money.

3. If you are a seller of a futures contract (holding a "short" position) and the market decreases, the money lost by the long is transferred to the short in the form of a profit. The seller, or the short, makes a profit if the price decreases.

4. If the participant in the futures market is a seller (holding a "short" position) and the price of a commodity increases, the short must transfer capital into the account because of the increased value of the contract. Therefore, the short would lose money. In the case of a hedger, if the hedger is short in the futures market and the price goes down, the decreased value of his cash inventory is compensated by the increased value in his futures position.

THE PARTICIPANTS OF COMMODITY FUTURES TRADING

As mentioned above, there are two general categories of participants in the futures markets: the hedger and the speculator. These categories can be broken down to describe more specifically different types of hedgers and speculators.

Hedgers fall into two types: a selective hedger and a true hedger. A true hedger is a producer or user of a commodity who hedges price risk, then maintains that hedge for the entire time period that a cash position is held. An example of a true hedger would be a farmer that hedges his corn crop in July and holds that hedge until the crop is harvested and sold into the cash market.

A selective hedger, on the other hand, may put on a hedge when the price risk is most imminent. He, then, may release or lift the hedge when he feels price risk is not as serious. He may establish the hedge again if he feels a greater price risk will reoccur.

Let us be quick to point out that if a producer or user of a commodity is not hedged, then he is a speculator in the cash market.

There are basically four types of speculators: the position trader, the spreader, the scalper and the day trader.

A position trader is a speculator who establishes a position in the market, long or short, and holds that position for a relatively long period of time. A position trader may hold his position for two or three days, two or three weeks or even two or three months or a year.

The day trader, as the name implies, is a speculator who is in the market for no more than a day at a time. A day trader may put on a position in the morning and be out of the market on the close. Or, he may be in and out of the market several times within the same day.

The scalper is a speculator who trades from within the pits and is, therefore, a member of the exchange, as explained in

the next section. The scalper tries to take advantage of very short-term price movements. A scalper may hold a position for as little as 10 or 15 seconds trying to take advantage of minor aberrations in price.

A spreader is a speculator who tries to take advantage of price distortions between different commodities, different delivery options or different exchanges. A spreader may perceive that the nearby delivery month option of soybeans is under priced relative to a deferred to later delivery month of soybeans (January soybeans are low relative to March soybeans). In that event, the spreader would assume a long position in the January option and a short position in the March option. If the spreader is correct, the January option will gain in price on the March option. The spreader would take advantage of this price distortion being corrected.

THE STRUCTURE OF THE COMMODITY EXCHANGE

The commodity exchange was designed with the purpose of fulfilling several very important functions. The first function was to offer a place for the buyer and seller to meet. The commodity exchange is the physical marketplace for futures transactions.

The commodity exchanges also offer the function of price determination. The auction-like activity at the commodity exchanges offer a bid and ask format to determine moment-by-moment prices for a particular commodity. Commodity traders bent on the purchase of a commodity will bid to buy. Traders interested in selling will offer to sell by open outcry in the pits of the exchange. When the buyer and seller have agreed on a sale price, then the price for that moment has been determined. This, then, opens the door for another function of the exchange: price reporting.

As buyers and sellers meet and agree on commodity prices, these prices are disseminated around the world. Price reporting is a very important function of the exchange for it allows, theoretically, all participants and potential participants in the commodities markets the opportunity to know the minute-by-minute price.

The exchanges are the main regulatory body of the commodity industry yet also function as the bookkeeper.

The commodity exchange is the first line of regulation for the futures industry. Since the development of the first exchange, the futures industry has been self-regulated. Today, there are three regulatory bodies: the exchanges, the Commodity Futures Trading Commission and the National Futures Association.

GOVERNMENT REGULATION

As mentioned above, commodity trading is regulated primarily by a self-regulatory body, the commodity exchanges.

Until the mid 1970's, the commodity exchanges were the most active regulatory body. But, with the Commodity Futures Trading Act of 1974, a government regulatory body has emerged—the Commodity Futures Trading Commission (CFTC). This agency has the responsibility to oversee all regulation of the futures trading industry. The chairman of the CFTC serves at the convenience of the President of the United States and is appointed by him. The chairman, along with five CFTC commissioners, heads up this government agency and is responsible for establishing the extent of government involvement in the futures market.

TRADING COMMODITY FUTURES

The first step before anyone can legally establish a position in the futures market is to open an account. For the individual trader or speculator, opening an account means to fill out the necessary forms, then put money into a margin account. The forms that must be signed by the customer consist of the customer agreement form, which legally binds the customer to be responsible for any trade that he establishes, and a risk disclosure statement. The risk disclosure statement delineates clearly the financial risks of being involved in the futures industry.

If the individual opening an account is a hedger, then a bona fide hedge form must be filled out. The hedger would indicate what commodities he would be hedging in this account as well as estimate the quantities to be hedged.

The amount of money to be placed in the commodity trading account is usually restricted to certain minimums. Many brokerage offices require a \$5,000, \$10,000 or \$15,000 minimum amount to be placed in the margin account.

To gain a clearer understanding of trading activity, let's follow a commodity trade from beginning to end.

Mr. Jones has established a futures trading account. He thinks that T-Note prices will be going higher and is interested in establishing a long position in the futures markets. Therefore, he calls his broker and tells the broker that he would like to buy two contracts, of June Treasury Notes at the market price. The broker would write the order: buy 2 contracts of June T-Notes at the market. Most field brokers would time stamp the order, then communicate it to the floor of the exchange. Typically, orders are communicated on-line or a telephone call.

The order would come into the order desk on the floor of the exchange, or possibly on-line to an electronic trading engine. The order taker would fill out an order to buy 2 contracts of June T-Notes at the market. The order would be time stamped, and would be executed in the exchange pit by a floor broker and matched electronically in an electronic engine.

Confirmation that the order had been filled would then be communicated back to Mr. Jones would be notified that he had a long position of two contracts of June T-Notes at a specified price.

To understand how margin requirements would have worked in the above example, suppose that the margin requirement for T-Notes was \$2,000 for each contract. Therefore, Mr. Jones must have \$4,000 in his margin account when he initiated the above transaction.

Mr. Jones was told that the maintenance margin was \$1,500.

Maintenance margin is the minimum amount of margin Mr. Jones can have in his account and still maintain a position in the market. If Mr. Jones incurs losses in the market to deplete his account to less than maintenance margin, then he must immediately add additional monies to bring the account back to the initial margin level.

It is important to notice that margin is a small percentage of the total value of the contract. \$2,000 margin on a \$100,000 T-Note Futures Contract means that only 2% is necessary to initiate a position to control \$100,000 worth of T-Notes. Some margins are even less. It is also important to point out that margin is not a down payment. Margin is a perfor-

mance bond and must be maintained to ensure the performance of the trader.

ANALYZING COMMODITY FUTURES MARKETS

There are as many different techniques of analyzing commodity markets as there are traders—everything from trading sophisticated econometric models to trading commodities on the basis of moon cycles. But, the two most common schools of analysis are: fundamental analysis and technical analysis.

Fundamental analysis can be described as the supply and demand analysis technique. A fundamental analyst will observe the supply of a commodity compared to its demand. If supply is low and demand is high, he concludes that prices will rise. If supply is high and demand is relatively low, prices will fall.

A technical analyst, on the other hand, is an observer of a price action itself. If prices are in an up trend, he may think that it is a good time to buy. If prices are in a downtrend, it may be an opportunity to sell.

You will see, as you study commodity futures trading, the numerous techniques used in both fundamental and technical analysis. Often, fundamental and technical analysis is combined in the trading system.

GLOSSARY OF COMMONLY USED FUTURES TERMS

ACTUALS: The physical or cash commodity, as distinguished from commodity futures contracts.

AFLOAT: Commodities in harbor or in transit on vessels.

ANIMAL UNIT: Measure of food consumption.

ARBITRAGE: The simultaneous purchase of one commodity against the sale of another in order to profit from distortions from usual price relationships. (See also Spread, Straddle)

BASIS: The difference between the cash or spot price and the price of the nearby futures contract.

BID: An offer to buy a specific quantity of a commodity at a stated price.

BROAD TAPE: Term commonly applied to newswires carrying price and background information on securities and commodities markets, in contrast to the exchanges' own price transmission wires, which use a narrow "ticker tape".

BROKER: A person paid a fee or commission for acting as an agent in making contracts or sales; floor broker - in commodities futures trading, a person who actually executes orders on the trading floor of an exchange; account executive (associated person) - the person who deals with customers and their orders in commission house offices. (See also Registered Commodity Representative)

BROKERAGE: A fee charged by a broker for execution of a transaction, an amount per transaction or a percentage of the total value of the transaction; usually referred to as a commission fee.

BUCKET, BUCKETING: Illegal practice of accepting orders to buy or sell without executing such orders; and the illegal use of the customer's principal-margin deposit-without disclosing the fact of such use.

BUY OR SELL ON CLOSE OR OPENING: To buy or sell at the end or the beginning of the trading session at a price within the closing or opening range or prices.

BUYING HEDGE (OR LONG HEDGE): Buying futures contracts to protect against possible increased cost of commodities which will be needed in the future (See Hedging).

CARRYING CHARGES: Those costs incurred in warehousing the physical commodity, generally including interest, insurance, and storage.

CARRYOVER: That part of current supplies of a commodity comprised of stocks from previous production/marketing seasons.

CASH COMMODITY: Actual stocks of a commodity as distinguished from futures contracts; goods available for immediate delivery or delivery within a specified period following sale; or a commodity bought or sold with an agreement for delivery at a specified future date. (See Actuals and Forward Contracting)

CASH FORWARD SALE: See Forward Contracting.

CERTIFICATED STOCKS: Stocks of a commodity that have been inspected and found to be of a quality deliverable against

futures contracts, stored at the delivery points designated as regular or acceptable for delivery by the commodity exchange.

CHARTING: The use of graphs and charts in the technical analysis of futures markets to plot trends of price movements, average movements of price, and volume and open interest. (See Technical Analysis)

CLEARING HOUSE: An agency connected with commodity exchanges through which all futures contracts are made, offset or fulfilled through delivery of the actual commodity and through which financial settlement is made; often is a fully chartered separate corporation, rather than a division of the exchange proper.

CLEARING PRICE: See Settlement Price.

CLOSING RANGE: A range of closely related prices at which transactions took place at the closing of the market; buying and selling orders at the closing might have been filled at any point within such a range.

COMMISSION MERCHANT: One who makes a trade, either for another member of the exchange or for a non-member client, but who makes the trade in his own name and becomes liable as principal to the other party to the transaction.

COMMODITY FUTURES TRADING COMMISSION: A regulatory commission set up by Congress to administer the Commodity Exchange Act, which (CFTC): supervises trading on commodity exchanges which are regulated as contract markets.

CONTRACT GRADES: Standards or grades of commodities listed in the rules of the exchanges which must be met when delivering cash commodities against futures contracts. Grades are often accompanied by a schedule of discounts and premiums allowable for delivery of commodities of lesser or greater quality than the contract grade.

CORNER: To secure such relative control of a commodity that its price can be manipulated.

COVER: To offset a previous futures transaction with an equal and opposite transaction. "Short-covering" is a purchase of futures contracts to cover an earlier sale of an equal number of the same delivery month; "liquidation" is the sale of futures contracts to offset the obligation to take delivery on an equal number of futures contracts of the same delivery month purchased earlier.

CURRENT DELIVERY (MONTH): The futures contract which will come to maturity and become deliverable during the current month; also called "spot month".

DAY TRADERS: Commodity traders, generally members of the exchange active on the trading floor, who take positions in commodities and then liquidate them prior to the close of the same trading day.

DEFAULT: (1) In reference to the federal farm loan program, the decision on the part of a producer of commodities not to repay the government loan, but instead to surrender his

crops; (2) In futures markets, the theoretical failure of a party to a futures contract to either make or take delivery of the physical commodity as required under the contract.

DELIVERABLE GRADES: See Contract Grades.

DELIVERY MONTH: A calendar month during which a futures contract matures and becomes deliverable.

DELIVERY NOTICE: Notice from the clearing house of a seller's intention to deliver the physical commodity against his short futures position; precedes and is distinct from the warehouse receipt or shipping certificate, which is the instrument of transfer of ownership.

DELIVERY POINTS: Those locations designated by commodity exchanges at which stocks of a commodity represented by a futures contract may be delivered in fulfillment of the contract.

DELIVERY PRICE: The official settlement price of the trading session during which the buyer of futures contracts receives through the clearing house a notice of the seller's intention to deliver, and the price at which the buyer must pay for the commodities represented by the futures contract.

DISCOUNT: (1) A downward adjustment in price allowed for delivery of stocks of a commodity of lesser than deliverable grade against a futures contract. (2) Sometimes used to refer to the price differences between futures of different delivery months, as in the phrase "July at a discount to May," indicating that the price of the July future is lower than that of the May.

DISCRETIONARY ACCOUNT: An arrangement by which the holder of the account gives written power of attorney to another, often his broker, to make buying and selling decisions without notification to the holder, often referred to as the "managed account" or "controlled account".

ECONOMETRICS: The use of statistical and mathematical methods in the field of economics to verify and develop economic theories.

ELASTICITY: A characteristic of commodities which describes the interaction of the supply, demand, and price of a commodity; demand elasticity - a commodity is said to be elastic in demand when a price change creates an increase or decrease in consumption; supply elasticity - the supply of a commodity is said to be elastic when a change in price creates change in the production of the commodity; inelasticity of supply or of demand exists in either of the reverse situations, when either supply or demand is relatively unresponsive to changes in price.

EVENING UP: See Cover.

F.O.B.: Free on board; indicates that all delivery, inspection, and elevation or loading costs involved in putting commodities on board a carrier have been paid.

FEED RATIOS: The variable relationships of the cost of feeding animals to market weight sales prices, expressed as ratios, such as the hog/corn ratio. These serve as indicators of the profit return or lack of it in feeding animals to market weight.

FIRST NOTICE DAY: First day on which notices of intention to deliver cash commodities against futures contracts can be presented by sellers and received by buyers through the exchange-clearing house.

FORWARD CONTRACTING: A cash transaction common in many industries, including commodity merchandising, in which the buyer and seller agree upon delivery of a specified quality and quantity of goods at a specified future date. A specific price may be agreed upon in advance or there may be agreement that the price will be determined at the time of delivery on the basis of either the prevailing local cash price or a futures price.

FREE SUPPLY: Stocks of a commodity which are available for commercial sale, as distinguished from government owned or controlled stocks.

FUNDAMENTAL ANALYSIS: An approach to analysis of futures markets and commodity futures price trends which examines the underlying factors which will affect the supply and demand of the commodity being traded in futures contracts. (See also Technical Analysis)

GROSS PROCESSING MARGIN (GPM): Refers to the difference between the cost of soybeans and the combined sales income of the soybean oil and meal which results from processing soybeans.

HEDGING: Briefly stated, the sale of futures contracts in anticipation of futures sales of cash commodities as a protection against possible price declines, or the purchase of futures contracts in anticipation of future purchases of cash commodities as a protection against the possibility of increasing costs. (See also Buying Hedge, Selling Hedge)

INVERTED MARKET: Futures market in which the nearer months are selling at premiums over the more distant months; characteristically, a market in which supplies are currently in shortage.

INVISIBLE SUPPLY: Uncounted stocks of a commodity in the hands of wholesalers, manufacturers, and producers which cannot be identified accurately; stocks outside commercial channels but theoretically available to the market.

LAST TRADING DAY: Day on which trading ceases for the maturing (current) delivery month.

LIFE OF CONTRACT: Period between the beginning of trading in a particular future and the expiration of trading in the delivery month.

LIMIT UP OR DOWN: See Price Limit.

LIMIT ORDER: An order in which the customer sets a limit on either price or time of execution, or both, as contrasted with a "market order", which implies that the order should be filled at the most favorable price as soon as possible.

LIQUIDATION: See Cover.

LIQUID MARKET: A market where selling and buying can be accomplished with ease, due to the presence of a large number of interested buyers and sellers.

LOAN PROGRAM: Primary means of government agricultural price support operations, in which the government lends money to farmers at pre-announced rates with the farmers' crops used as collateral. Default on these loans is the primary method by which the government acquires stocks of agricultural commodities.

LONG: One who has bought a cash commodity or a commodity futures contract, in contrast to a short, who has sold a cash commodity or futures contract.

MARGIN: (1) An amount of money deposited by both buyers and sellers of futures contracts to insure performance against the contract, i.e., to deliver to take delivery of the commodity (not an equity or down payment for the goods represented by the futures contract). (2) Profit margin - the difference between the price which one pays for goods and the price at which the goods or products of them are resold.

MARGIN CALL: A call from a brokerage firm to a customer to bring margin deposits back up to minimum levels required by exchange regulations; similarly, a request by the clearing house to a clearing member firm to make additional deposits to bring clearing margins back to minimum levels required by the clearing house rules.

MARKET ORDER: An order to buy or sell futures contracts which is to be filled at the best possible price and as soon as possible. In contrast to a limit order, which may specify requirements for price or time of execution. (See also Limit Order)

MATURITY: Period within which a futures contract can be settled by delivery of the actual commodity; the period between the first notice day and the last trading day of a commodity futures contract.

MEMBER'S RATE: Commission charged for the execution of an order for a person who is a member of the exchange.

NEARBY DELIVERY (MONTH): The futures contract closest to maturity.

NOMINAL PRICE: Declared price for a futures month sometimes used in place of a closing price when no recent trading has taken place in that particular delivery month; usually an average of the bid and asked prices.

NOTICE DAY: See First Notice Day.

NOTICE OF DELIVERY: See Delivery Notice.

OFFER: An indication of willingness to sell at a given price; opposite of bid.

OFFSET: The liquidation of a purchase of futures through the sale of an equal number of contracts of the same delivery month, or the covering of a short sale of futures contract through the purchase of an equal number of contracts of the same delivery month. Either action transfers the obligation to make or take delivery of the actual commodity to other persons.

OMNIBUS ACCOUNT: An account carried by one futures commission merchant with another in which the transactions of two or more persons are combined rather than designated separately and the identity of the individual accounts is not disclosed.

OPEN INTEREST: The total number of futures contracts of a given commodity which have not yet been offset by opposite futures transactions nor fulfilled by delivery of the actual commodity; the total number of open transactions, with each transaction having a buyer and a seller.

OPEN OUTCRY: Method of public auction for making bids and offers in the trading pits or rings of commodity exchanges.

OPENING RANGE: Range of closely related prices at which transactions took place at the opening of the market; buying and selling orders at the opening might be filled at any point within such a range.

ORIGINAL MARGIN: Term applied to the initial deposit of margin money required of clearing member firms by clearing house rules; parallel to the initial margin deposit required of customers by exchange regulations.

OVERBOUGHT: A technical opinion that the market price has risen too sharply and too fast in relation to underlying fundamental factors.

OVERSOLD: A technical opinion that the market price has declined too steeply and too fast in relation to underlying fundamental factors.

P & S (PURCHASE AND SALE STATEMENT): A statement sent by a commission house to a customer when his futures position has changed, showing the number of contracts involved, the prices at which the contracts were bought or sold, the gross profit or loss, the commission charges, and the net profit or loss on the transactions.

PARITY: A theoretically equal relationship between farm product prices and all other prices. In farm program legislation, parity is defined in such a manner that the purchasing power of a unit of an agricultural commodity is maintained at its level during an earlier historical base period.

POSITION: A market commitment. A buyer of futures contracts is said to have a long position and, conversely, a seller of futures contracts is said to have a short position.

POSITION LIMIT: The maximum number of futures contracts in certain regulated commodities that one can hold, according to the provisions of the CFTC.

POSITION TRADER: A commodity trader who either buys or sells contracts and holds them for an extended period of time, as distinguished from the day trader, who will normally initiate and liquidate a futures position within a single trading session.

PREMIUM: The additional payment allowed by exchange regulations for delivery of higher-than-required standards or grades of a commodity against a futures contract. In speaking of price relationships between different delivery months of a given commodity, one is said to be "trading at a premium" over another when its price is greater than that of the other.

PRICE LIMIT: Maximum price advance or decline from the previous day settlement price permitted for a commodity in one trading session by the rules of the exchange.

PRIVATE WIRES: Wires leased by various firms and news agencies for the transmission of information to branch offices and subscriber clients.

PRODUCER: Farmer who grows crops, etc.

PUBLIC ELEVATORS: Grain storage facilities, licensed and regulated by state and federal agencies, in which space is rented out to whomever is willing to pay for it; some are also approved by the commodity exchanges as regular for delivery of commodities against futures contracts.

PYRAMIDING: The use of profits on existing futures positions as margins to increase the size of the position, normally in successively smaller increments; such as the use of profits on the purchase of five futures contracts as margin to purchase an additional four contracts, whose profits will in turn be used to margin an additional three contracts, etc.

RANGE: The difference between the highest and lowest prices recorded during a given trading session, week, month, year, etc.

REPORTING LIMIT: Sizes of positions set by the exchanges and/or by the CFTC at or above which commodity traders must make daily reports to either or both the exchange and the CFTC as to the size of the position by commodity, by delivery month, and according to the purpose of trading, i.e., speculative or hedging.

RETENDER: The right of holders of futures contracts who have been tendered a delivery notice through the clearing house to offer the notice for sale on the open market, liquidating their obligation to take delivery under the contract; applicable only to certain commodities and only within a specified period of time.

ROUND LOT: A quantity of a commodity equal in size to the corresponding futures contract for the commodity, as distinguished from a job lot, which may be larger or smaller than the contract.

ROUND TURN: The combination of an initiating purchase or sale of a futures contract and the offsetting sale or purchase of an equal number of futures contracts of the same delivery month. Commission fees for commodities transactions cover the round turn.

SAMPLE GRADE: In commodities, usually the lowest quality acceptable for delivery in satisfaction of futures contracts. (See Contract Grades)

SCALPER: A speculator on the trading floor of an exchange who buys and sells rapidly, with small profits or losses, holding his positions for only a short time during a trading session. Typically, a scalper will stand ready to buy at a fraction below the last transaction price and to sell at a fraction above, thus creating market liquidity.

SELLING HEDGE (OR SHORT HEDGE): Selling futures contracts to protect against possible decreased prices of commodities which will be sold in the future. (See Hedging)

SETTLEMENT PRICE: The closing price, or a price within the range of closing prices, which is used as the official price in determining net gains or losses at the close of each trading session.

SHORT: One who has sold a cash commodity or a commodity futures contract, in contrast to a long, who has bought a cash commodity or futures contract.

SPECULATOR: One who attempts to anticipate commodity price changes and make profits through the sale and/or purchase of commodity futures contracts. A speculator with a forecast of advancing prices hopes to profit by buying futures contracts and then liquidating his obligation to take delivery with a later sale of an equal number of futures

of the same delivery month at a higher price. A speculator with a forecast of declining prices hopes to profit by selling commodity futures contracts and then covering his obligation to deliver with a later purchase of futures at a lower price.

SPOT COMMODITY: See Cash Commodity.

SPREAD (OR STRADDLE): The purchase of one futures delivery month against the sale of another futures delivery month of the same commodity, the purchase of one delivery month of one commodity against the sale of that same delivery month of a different commodity, or the purchase of one commodity in one market against the sale of that commodity in another market, take advantage of and profit from the distortions from the normal price relationships that sometimes occur. The term "Spread" is also used to refer to the difference between the price of one futures month and the price of another month of the same commodity. (See also Arbitrage)

SWITCH: Liquidation of a position in one delivery month of a commodity and simultaneous initiation of a similar position in another delivery month of the same commodity. When used by hedgers, this tactic is referred to as "rolling forward" the hedge.

TECHNICAL ANALYSIS: An approach to analysis of futures markets and likely future trends of commodity prices which examines the technical factors of market activity. Technicians normally examine patterns of price change, rates of change, and changes in volume of trading and open interest. This data is often charted to show trends and formations which will in turn serve as indicators of likely future price movements.

TENDER: The act on the part of the seller of futures contracts of giving notice to the clearing house that he intends to deliver the physical commodity in satisfaction of the futures contract. The clearing house in turn passes along the notice to oldest buyer of record in that delivery month of the commodity. (See also Retender)

TICKER TAPE: A continuous paper tape transmission of commodity or security prices, volume and other trading and market information which operates on private leased wires by the exchanges, available to their member firms and other interested parties on a subscription basis.

TO-ARRIVE CONTRACT: A type of deferred shipment in which the price is based on delivery at the destination point and the seller pays the freight in shipping it to that point.

TRANSFERABLE NOTICE: See Retender.

VARIATION MARGIN CALL: A mid-season call by the clearing house on a clearing member requiring the deposit of additional funds to bring clearing margin monies up to minimum levels in relation to changing prices and the clearing member's net position.

WAREHOUSE RECEIPT: Document guaranteeing the existence and availability of a given quantity and quality of a commodity in storage; commonly used as the instrument of transfer of ownership in both cash and futures transactions.

PROFITING FROM OPTIONS ON FUTURES

INTRODUCTION

In recent years economic uncertainty and financial market volatility have added a great degree of risk to investments. Investors on every level have been forced to search for lower risk investment tools while hoping for greater investment success. One of these investment tools combines the features of listed stock options and futures, to produce options on futures contracts. These comprehensive risk management tools allow investors to take advantage of both the leverage of futures and the limited risk of options.

It has been suggested that the ideal investment vehicle is one which offers a profit potential at a predetermined risk of loss. If the maximum loss can be precisely calculated prior to committing funds and the profit potential is far greater than the risk, the unique investment may be ideally suited to today's market conditions. If this investment also reduces the need to analyze minor day-to-day price movements and avoids the need to place stops to protect against minor reversals, it has come even closer to perfection.

Theoretically, you should never enter a commodity futures contract unless you expect a major move to begin immediately. If the move is not expected to occur for several weeks or months, the sophisticated money manager will hold cash or commit funds to other investments in order to earn a return until the major price move is ready to begin.

To avoid the risk that the timing is off, or that the anticipated major price move will not materialize at all, a stop-loss order should always be entered simultaneously with the establishment of the futures contract position. The failure of the trader to place a stop-loss order has all too often resulted in major losses, or even the complete loss of invested capital, as opposed to only minor losses when protective stops are used.

The advantage of a commodity option, regardless of the number of times the market price moves against your position or the severity of each negative move, complete protection is provided against financial loss during the life of the option. The investor's concern then can be concentrated on the ultimate extent and direction of price movement. The problems of timing and the placement of the initial stop-loss order, so important to the success of the commodity futures speculator, can be ignored by the futures option purchaser.

THE BASIC CONCEPT OF OPTIONS ON FUTURES IS PRICE INSURANCE

The buyer, or holder, of an option has the right, but not the obligation to receive a position in the underlying commodity futures contract at a predetermined price (strike price) on

or before a specific date (expiration date). Unlike a futures contract, which requires the purchase or sale of a commodity if held to maturity, the buyer of an option may elect to let the option expire without exercising its rights. In this way, an option resembles insurance in which a premium is paid to insure against the possibility of a large change in price. If the price change does not occur, the individual purchasing the option loses only the premium paid.

OPTIONS ARE PURCHASED AS PUTS AND CALLS

The two basic types of options are the "put" and the "call". A call option gives the purchaser the right to acquire a long position in a futures contract at the strike price on or before the option's expiration date. These can be employed for protection against rising prices. To remember the term "call", you should associate the action of calling something to you, if you call, you'll want to possess the commodity in the future.

A put option gives the option purchaser the right to acquire a short position in a futures contract. Put options are the type which may be most useful in seeking protection against declining prices. Remember, to put is to put away from you, if you put you want the future opportunity to sell.

The price paid for a put or call option is called the premium, which is established in open, competitive trading at one of the major exchanges trading options.

Thus, a soybean option designated as a "Nov. \$7.50 put" would give the buyer of the option the right to sell (go short) a November soybean futures contract at a price of \$7.50 per bushel at any time prior to expiration, regardless of what the futures price is at the time of exercising the option. Conversely, a soybean option designated as a "Nov. \$7.50 call" would convey the right to buy (go long) a November soybean futures contract at a price of \$7.50 a bushel.

OPTIONS ON FUTURES PROVIDE RIGHTS, NOT OBLIGATIONS TO THE BUYER

The term "right" refers to one of the primary differences between futures and options. With futures, an obligation is created for both the buyer and seller. The buyer must take, and the seller must make, delivery unless the position is offset prior to delivery. In the case of options, unilateral obligation is placed on the "writer" or seller of the option, that is, only the option writer is obligated to perform. The buyer of the option may exercise the option, but may also decide to abandon it and let the option expire. In the event the option is exercised, the option writer must deliver the underlying futures position. Once the writer has received

notice from the buyer that the option will be exercised, the writer cannot offset his option position.

THE OPTIONS WRITER IS PAID TO ASSUME THE RISKS OF THE OPTION

In return for assuming this obligation, the writer of the option receives payment of a premium from the buyer. The premium must be paid in full, in cash, when the option is purchased. The buyer is paying for specific rights. The seller agrees to grant those rights and is paid for assuming the risks of offering options. To the writer, the premium is the maximum profit available in the trade. In the case of writing a call option, if the value of the option he writes rises, he may have to deliver a futures position, or cover his short sale at a higher price, thus incurring a loss. If the value of the option decreases, the short sale is profitable, but the value can only decrease to zero, thus placing a limit on profits. The intrinsic value of a call option declines to zero when the price of the underlying futures contract falls to the strike price or below.

Conversely, the call buyer's profits increase as the value of the option he purchases increases. He may sell the option at the higher price, or demand delivery of a futures position but his right to abandon the option limits his loss to the premium paid. Since the value of the option can only go to zero, the buyer can let it expire and forfeit his premium.

THE WRITER MAY WRITE "COVERED" OR "UNCOVERED" OPTIONS

As in the futures market, for every buyer there must be a seller. In options trading an option seller (writer) must be prepared to enter an appropriate futures position opposite to the option buyer, to accommodate the buyer if the option is exercised. Option writers may be considered as "covered" or "uncovered". A call option writer is covered if he has a long futures contract position before writing the call. A put option writer is covered if he has a short futures contract position before writing the put. If either one of these covered options should be exercised, the writer would have the appropriate position to deliver to the buyer of the option and would not have to acquire the position at the current, probably unfavorable, market price.

Options that are not written against an existing position in underlying futures contracts are called uncovered options. If the adverse movement of the futures contract price is greater than the premium received, the writer of the contract will lose.

OPTIONS PROVIDE STAYING POWER

Perhaps the most salient difference between options and futures is staying power or the ability to withstand adverse market moves. With futures, both the buyer's and the seller's risk is theoretically unlimited, and each party is in jeop-

ardy of the market moving against the position. Options, on the other hand, possess a mechanism of defined risk. The premium paid represents the total amount the buyer has at risk. If he forfeits the premium, he has no further financial obligation. Due to this unique situation, the buyer is not required to provide margin or face the potential of margin calls regardless of where the underlying futures price moves during the life of the option. No matter how far the trade moves against the position, the buyer can hold the option in anticipation of an eventual turn around in the market that will make his position profitable.

THE DETERMINATION OF THE PREMIUM AMOUNT BY OPEN MARKET

We have discussed premium in terms of payment for rights, but who determines the amount of this payment? A unique market place is the ultimate determinant. Options are traded in an auction type environment at a registered exchange, with bids and offers made by open outcry. There are, however, some guidelines for determining the option premium. In fact, there are a number of option pricing models which mathematically calculate the theoretical value of an option. Some very detailed documents have been written about these models and their effectiveness, but they will not be covered in this discussion. For the purposes of this document, two basic components of premium should be understood:

$$\text{Premium} = \text{Intrinsic Value} + \text{Time Value}$$

Intrinsic value is the amount an option would be worth if it were to expire immediately. For example, if soybean futures were trading at \$9.00 per bushel and your call option gave you the right to buy soybean futures at \$8.50 per bushel, you would have an immediate 50 cent per bushel profit and should be willing to pay 50 cents per bushel for that option. A call option with a strike price less than the market price is said to be "in-the-money".

A put option is "in-the-money" when a strike price is above the market price. Using our \$9.00 per bushel soybean futures example, the right to sell soybean futures at \$9.50 per bushel is worth an immediate 50 cents per bushel profit, and this 50 cents is the intrinsic value of this put option.

A call option with a strike price above the current market price is said to be "out-of-the-money". The right to buy soybeans at \$9.50 when they can be had on the open market for \$9.00 per bushel is intrinsically worth nothing, but there may be a processor or soybean crusher who wants to assure himself the right to buy soybean futures at \$9.50 in the event the market rallies higher than \$9.50. So a future (or time) value may be bid into the price of this option. At the same time, there may be a producer who anticipates a sharp decline and wants to insure that he can sell soybean futures

at \$8.50 per bushel later even though they are at \$9.00 per bushel now. When the strike price of a put is below the current market price, it is also out-of-the-money.

When the strike price of an option, put or call, is exactly at the current market price, it is said to be "at-the-money". With soybean futures at \$9.00 per bushel, a \$9.00 option still has no intrinsic value but there is a high probability that it will gain intrinsic value, given that only a small move in the market would be needed.

The second component that makes up the option premium is time value, and this is somewhat less specific than the intrinsic value. It is based entirely on the future expectations of price movements. By definition the time value is the amount of the premium that exceeds intrinsic value, but this definition hardly seems complete. To understand time value, some factors that contribute to the creation of this value should be explained.

In general, the more time until expiration, the greater the time value. Common sense would dictate that all else being equal, the right to buy something is worth more if you have a year to decide instead of only six weeks. The option buyer is asking the writer to pre-price his product regardless of future events. The writer must be paid for this risk, logically a year's worth of risk costs more than six weeks' worth.

Option premiums are also affected by short-term interest rates to the extent that higher rates may result in lower premiums. Options are competing with other instruments for the investment dollar. If the competition's rate of return is lower, options need not be priced as attractively and premiums will be higher. It is further assumed that the required margin for options will be met using interest bearing instruments so that there will be no loss of efficiency in the use of investment funds.

Volatility is probably the most obvious and least understood influence on option prices. While there may be many mathematical explanations for volatility, let us again rely on common sense. If soybean futures are at \$9.00 per bushel, and will remain at that price for a year, there is little risk in selling a \$9.50 call option. But if soybean futures trade between \$8.25 per bushel and \$9.75 per bushel in the same week, there is significantly greater risk associated with the \$9.50 call option. Once again, the writer of the option must be paid for assuming the risk. The greater the likelihood that the option will trade through the strike price, thus increasing the chance of the buyer exercising the option, the higher the premium must be to accommodate the risk taken by the writer.

The common thread running through each of these components of time value is risk. Anything that increases the writer's risk will increase option premiums, regardless of the source of risk. Any time the amount of risk decreases, option premiums will fall.

OPTIONS ON FUTURES CONTRACTS

PRACTICE QUESTIONS

1. Which of the following most closely correlates with a short hedge?

- A. Buy a call.
- B. Write a put.
- C. Sell a call and buy a put.
- D. Buy a call and write a put.

2. When must the buyer of a commodity option pay for the option purchase?

- A. When the option is exercised.
- B. On the same day the option is purchased.
- C. Within five business days after the purchase.
- D. Within a reasonable time after the option is purchased.

3. If you are the writer of a call option on a commodity futures contract, what would you receive if the purchaser exercised his option?

- A. You would be assigned a short position in a futures contract.
- B. You would be assigned a long position in a futures contract.
- C. You would be required to accept delivery of the actual commodity.
- D. You would be required to make delivery of the actual commodity.

4. If soybeans are trading at 6.50 and an investor thinks that the market is going up, he should:

- A. Write a call.
- B. Buy a call.
- C. Write a put.
- D. Buy a put.

5. If you are the buyer of a call option on a commodity futures contract, what would happen upon exercise of the option?

- A. You would be assigned a short position in a futures contract.
- B. You would be assigned a long position in a futures contract.
- C. You would have to accept delivery of the actual commodity.
- D. You would have to make delivery of the actual commodity.

6. If a person writes a put option on a commodity futures contract, what would happen upon exercise of the option?

- A. He would be assigned a short position in a futures contract.
- B. He would be assigned a long position in a futures contract.
- C. He would have to accept delivery of the actual commodity.
- D. He would have to make delivery of the actual commodity.

7. If a person buys a put option on a commodity futures contract, what would happen upon exercise?

- A. He would be assigned a short position in a futures contract.
- B. He would be assigned a long position in a futures contract.
- C. He would have to accept delivery of the actual commodity.
- D. He would have to make delivery of the actual commodity.

8. Buying options gives a trader staying power because there are no margin obligations.

- A. True
- B. False

9. A trader who thinks interest rates will rise would:

- A. Buy calls.
- B. Buy puts.
- C. Sell puts.
- D. Write covered puts.

10. An in-the-money call means that:

- A. The strike price of a call is below the going market in the future.
- B. The strike price of a call is above the going market in the future.
- C. The strike price is at or close to the going market.
- D. All of the above.

11. Deep-out-of-money options:

- A. Offer the buyer a remote chance for profit.
- B. Offer the grantor small premiums.
- C. Offer very limited liquidity.
- D. All of the above.

With the basic fundamentals of commodity options behind us we can now proceed with the subject of commodity option trading techniques. Often the attractiveness of options is the amount of risk perceived by the investor, but options are also attractive due to their flexibility. An investor may employ an option in expectation of rising or falling markets, of stable or volatile markets.

PURCHASING A CALL OPTION TO TAKE ADVANTAGE OF RISING PRICES

There are a variety of reasons an investor may buy a call, but primarily the objective is to take advantage of an anticipated increase in the price of an underlying futures contract. Calls have the unique ability to establish a floor price without establishing a ceiling price. The downside risk is clearly defined while the upside potential is nearly unlimited.

By purchasing a call the investor hopes for an increase in the underlying futures. This increase allows the investor a profit upon exercise of the call. Also, an increase in the value of the underlying futures makes the call premium value increase so that the investor could sell that call later for a higher premium profit.

Assume that in September of 1984, July 1985 soybean futures are at \$8.50. A strong upward move is anticipated which could carry the price to \$10.00. The sophisticated futures trader taking a long position in a futures contract might place a stop at 8.40 to protect his long position in the event the anticipated price move does not unfold. An alternative to buying the future with a \$1500 initial margin requirement, and risking \$500 if stopped out, would be to purchase an \$8.50 strike price call option on July 1985 soybeans premium cost of perhaps \$850.00 with an expiration date of June 14, 1985.

For the purpose of this example the premium of \$850.00 is selected as a reasonable value. You should realize that option premiums are determined in a bid and ask arena, therefore premium values fluctuate with market conditions. Purchasing this call position means that the buyer is now potentially long 5,000 bushels of July 1985 soybeans at \$8.67, calculated by adding the striking price of \$8.50 to the premium cost of \$850, expressed as 17 in market points. (Dollar premium costs are converted to trading or market points by dividing the dollar premium cost by the dollar value of one market point. In this case the \$850.00 premium cost is divided by \$50, the value of a one point move in soybeans, to give us 17 market points.)

The maximum loss to the call buyer can never exceed the premium cost. The maximum loss will occur only if the option is not exercised or converted because the market does not move above the \$8.50 level.

On the other hand, if the market does move above the strike price, the size of the loss decreases as the price rises until the break-even point is reached. As the price rises above the break-even point, the option becomes profitable and the profit increases as the price continues to advance. For example, if the price reaches the \$10.40 level, the buyer would, decide to exercise his call option and thus will be long one contract of July 1985 soybeans at \$8.50. Simultaneously, one contract of July 1985 soybeans could be sold at the market price of \$10.40; the net profit on the trade after deducting the cost of the call is \$8650.00.

Long Soybean Futures at	\$10.40
Breakeven of Call	\$ 8.67
	1.73 or 173 pts.
Multiply by value to point	\$50.00
	\$8,650.00

In the above example, say soybeans hit their peak in May, 1985, only one month before the expiration date. In this case, the buyer would normally exercise the option, as opposed to trading against it, because of the short life span remaining. However, if the soybean market had advanced to \$10.40 long before June 14, 1985, the options buyer would have several additional courses of action open to him.

In the previous example, we looked at a speculative angle of purchasing a soybean call. A commercial user of soybeans, a soybean crusher for example, might look at the purchase of a call, as price risk insurance. Purchasing a July \$8.50 call for \$850.00 on September 1st would assure the crusher a maximum price for soybeans of \$8.67 (option exercise price plus premium paid) until expiration of the option in June. Yet the crusher would retain the right to let the option expire and buy soybeans lower if prices moved in his favor.

If the price of July soybean futures were to decline to \$7.00 at the expiration of the option, the refiner could let the worthless option expire and purchase soybeans in the open market at \$7.00, an effective cost of \$7.17 (\$7.00 plus the 17 point premium value). If the refiner would have locked in the price using a futures hedge, he would have suffered a very large loss in his futures transaction as the sharp price decline occurred. By using the futures market, he would have forfeited the opportunity to benefit from sharply lower prices. Comparing a futures hedge against the purchase of a call, both can be an effective hedge against higher prices. The payment of the option premium does increase a guaranteed purchase price as compared to locking in a price in the futures market. However, when using futures you are locked into a particular price and if the market moves against you, you must pay for the price decline. In contrast an option may be abandoned to give you the opportunity to

take advantage of a downward price movement. There is no requirement to exercise an option.

TRADING FUTURES AGAINST PROFITABLE OPTIONS

Thus far all that has been discussed is the benefit options provide, the unlimited opportunity for gains with only moderate risk involved. But due to options' flexibility, other distinct advantages are offered, such as the ability to trade against the options. Actually, there are many alternatives available to the buyer of the call once he is established in his option position.

If the call buyer believes the July 1985 soybean market has advanced to its peak and may decline and not advance again to the \$10.40 level before the expiration date, he can "lock in" his profit by making a short sale of one July 1985 futures contract at \$10.40. On the expiration date, the call buyer exercises his option, thus establishing a long position at \$8.50 and liquidates this long position against the short sale of \$10.40, thus realizing the same profit as in the earlier example.

If, instead of believing the future has topped out and will not again reach the \$10.40 area before the expiration date, the buyer feels the soybean market may move lower and then rally again before the expiration date, he could trade against his option by selling short one July 1985 contract at the current level of \$10.40. When the market moves lower, the short will be covered by a market purchase. This transaction will generate a profit and leave the original option unchanged. If on the expiration date, the market is above the striking price, the call is declared, thus going long at \$8.50, and simultaneously the position is liquidated at the market. Thus, the trader has made a profit on his option and also on his trade against the option. If on the expiration date, the market is below the original strike price, the option is abandoned causing a loss of the premium. The premium loss is, of course, offset by the profit made on trading against the option.

What happens if, after July soybeans reach their peak (\$10.40 in our example) and the buyer has gone short, soybeans decline below the strike price and remain below the strike price on the expiration date? Should this occur, the call would be abandoned and the short covered at the market on the expiration date. The short could, of course, be kept open after the expiration date of the call as a regular future trade, but since we are only concerned here with options and their use, and because holding an unhedged futures position creates an additional risk, we will assume that all trading positions are closed on the expiration date.

Still another question which is often raised, what happens to the call option if, on the expiration date, the future is

trading at a price higher than the strike price, but below the price at which the premium is fully covered? In such a case, it will always benefit the option holder to exercise the option even if the premium is not fully covered. Let us suppose, for example, that July soybeans are trading at \$8.55 on the expiration date. In all such cases the exercise of the option will generate little cash after covering commissions. Even though a net profit will not result, the cash thus generated will help reduce the total loss on the option.

Sell soybean futures at	\$ 8.55
Exercise call at	-\$ 8.50
Gross transaction profit in points	.05 = 5pts.
Transaction profit in points	5
Multiply by point value	\$50.00
Transaction profit in dollars	\$250.00
Less option dealers commission	\$ 75.00
Net transaction profit	\$175.00
Minus Total Premium Cost	-\$850.00
Total Net Loss	-\$675.00

Had the call been abandoned, the loss would have been the total premium cost of \$850.00. By declaring the option as opposed to abandoning it, \$175.00 was generated which helps reduce the total loss.

SHORTING FUTURES AGAINST A CALL CONVERTS THE CALL TO A PUT

If a call buyer anticipates a change from an up trend in the underlying futures to a downtrend, he may decide to short the futures contract to benefit from the decline in price thereby converting the affect of the call to reflect the benefits of a put. If prices decline, the profits of the futures position will balance the depreciation of the call value. Vis-à-vis if the price rises, the increasing value of the call will balance the losses in the futures position.

Establishing a short futures position against a call not only has the effect of converting the call to a put, but, in most cases, as long as the short position is held open, the present profit (the difference between the striking price of the call and the price of the short) is maintained, and no further profits are generated.

There is an exception to the statement, "while a short is protecting a profit on a call, no further profits can be generated." This exception occurs if the price declines below the striking price of the call. For example, assume a short is entered at \$10.40 against a call at \$8.50, locking in a profit of \$1.90 through all future price levels above the \$8.50 striking price of the call. Additional profits are made as soon as the market price declines below the strike price and as long as it remains below the strike price of the call.

TRADING AGAINST UNPROFITABLE OPTIONS CAN BE PROFITABLE

In nearly all of the examples used so far, the call has been profitable at one time during its life. Yet even if the option was never profitable in its own right, profits could be generated by trading against the unprofitable option.

Suppose an option buyer purchased a call. The bullish move anticipated failed to materialize. A sell signal is given over the near-term, so a futures contract is sold short against the call. If the market continues down, the short futures position can be covered profitably and the call can be abandoned on its declaration date since the price never reached the strike price.

If the market turns up after the future has been sold, the option buyer would be subject to a loss equal to the range from where the futures were shorted to the strike price of the call. Thus, trading against an unprofitable call, the maximum risk exposure, regardless of the height of the rally, would be the difference between the price at which the futures was shorted and the strike price of the call.

CALLS CAN PROTECT AGAINST LOSSES IN SHORT FUTURES POSITIONS

Calls can also be used quite advantageously as substitutes for stop-loss orders in the futures. Being uncertain of the exact timing of the continuation of the decline and believing a stop could be executed by a short-term technical reaction, thereby liquidating the short position prior to the major price decline, a call can be purchased in lieu of a stop.

This call provides a permanent stop-loss for the life of the option, meaning the maximum possible loss, regardless of how high soybeans rise, is the cost of the call. The call also has the added advantage in that it places no limit on the potential profits to be earned on the short side.

In all of these examples, options were purchased at, or before, the time at which the futures position was taken as a trade against the option. But the process can be quite successfully reversed by entering into a futures position and then, at a later time, purchasing the option. Under this trading concept, the object is to use an option to protect, or lock in, the present profits of a profitable futures position, while not interfering in any way with the ability of the futures contract to show still further profits.

The speculator's futures contract is in a highly profitable position. He can hedge the position and thus protect the profit with a call. Should the market then continue to decline, the speculator can still benefit to the full extent, less the premium cost of the call, and the call will be insurance against a loss should the market rise.

BUYING OUT-OF-THE-MONEY CALLS CAN INCREASE THE LEVERAGE

The last simple call purchase strategy is buying an out-of-the-money call. Let us assume that July soybean futures on March 1 are trading at \$7.00 per bushel. On March 1, an investor buys a July soybean \$8.00 call for \$450.00. If on March 1 you expect a very large increase in the price of July futures, this \$450 premium is very small. If you compare the premium of an out-of-the-money call to an at-the-money call, you would see that leverage greatly increases, meaning a smaller premium is required, but the probability of a gain is reduced because a large price move is required to bring profits at expiration. The whole strategy behind the purchase of an out-of-the-money call is that the investor anticipates a very large move in the underlying commodity. When the out-of-the-money call is purchased, there is already a deficit in the price as noticed by buying an \$8.00 call and the futures are trading at \$7.00.

An advantage of an out-of-the-money call is an immediate price rise which would cause an immediate increase in the price of the option. Even though it may not be profitable to exercise, the premium would automatically increase as the price of the futures would. Also, with such a small premium, the profits that can be taken from a large move in the underlying commodity in favor of the investor is very enticing. If a major move does not occur, and the investor does not sell the option before expiration, the loss is minimal due to the small price of the premium as compared to a larger premium that is required for at-the-money calls.

An out-of-the-money option can be very advantageous for a commercial trader, or hedger. The out-of-the-money call guarantees a higher maximum price, or ceiling, in this case than an at-the-money call would. Also, the commercial soybean buyer can be protected against disastrous prices at a very small premium. The price of his insurance has gone down considerably by using out-of-the-money calls if you compare the \$450 premium in this case to the \$850 premium in the previous example used.

PUT OPTIONS OFFER THE RIGHT TO BE SHORT FUTURES

As defined before, a put option gives the buyer the right, but not the obligation, to be short a futures contract. Put options give the investor the facility to obtain price protection against declining prices without giving up the opportunity to profit from price increases. Puts establish a minimum price, or price floor, for the investor if and when he exercises the option. From these examples we discover the basic reason an investor would purchase a put commodity option is in anticipation of a price decline of the underlying futures.

The most satisfactory use of a put option is exercising a previously established put after substantial price decline in the

underlying commodity. This simple method allows the buyer of the put almost unlimited opportunity for gains from a price decline with often a fixed and relatively moderate risk. Substantial returns can be made for the buyer of a put if the market moves substantially lower.

PUTS ARE EFFECTIVE TOOLS FOR SHORT HEDGES

A simple use of a put is to hedge a soybean crop. Assume in the spring when a producer plants soybeans, the November futures price is trading at \$7.50 a bushel. An alternative open to the producer is to hedge by selling a November futures contract. Another alternative may be to forward contract the sale of his soybeans for a good price for local delivery at harvest. But the producer may be reluctant to do either because it would mean giving up the chance to profit from a summertime price rally such as the drought rally that occurred in the summer of 1983.

Another alternative to be considered is the purchase of a put option. Rather than commit to a firm selling price the put would provide price insurance, that is, protection against a price decline without giving up the chance to sell the soybean crop at a higher price.

If the producer buys a November \$7.50 put, and by harvest the November futures prices decline to \$6.50 a bushel, he can exercise his right to sell a November futures contract at the option strike price of \$7.50 a bushel. The \$1.00 per bushel profit in the futures position acquired through exercise of the put should roughly offset the cash market decline in the price of soybeans. The producer may also obtain the same sum of money by having his broker sell the option for its \$1.00 per bushel intrinsic value.

Thus, by buying the put option, the producer has established a price floor not a price ceiling. If by harvest the November futures had risen above the option's \$7.50 strike price, the producer would simply allow the option to expire and sell his beans at the higher market price, losing only the cost of the option premium. The producer is never, at any time, obligated to exercise his option. Thus, when the cash market was above the strike price, he simply absorbs the cost of the premium. Conceivably all of the premium cost plus an additional profit can be returned by receiving a higher cash price.

At this point, an investor might ask, "What is the difference between buying a put for price protection and hedging or selling a futures contract for price protection?" There are two important differences. One difference – buying a put establishes only a floor price where hedging establishes both a floor price and a ceiling price. A second difference – unlike selling of futures contracts, buyers of options are never subject to margin call because options traders are not contin-

gently liable to deliver the actual commodity. The maximum obligation for options' buyers is the option premium.

This does not suggest that buying puts for price protection is necessarily or always preferable to futures hedging. A disadvantage, for options' buyers is they incur an expense hedgers do not. This expense is the option premium. Options should be regarded as an alternative pricing strategy to hedging not a primary alternative.

TRADING FUTURES AGAINST PROFITABLE PUTS LOCKS IN PROFITS

By trading futures long against the put, the profits from the put are perfectly protected against price rallies similar to selling futures against calls. It is not a requirement to offset the long position on the expiration date of the option. But choosing to carry the futures position after the expiration date of the option creates three potential hazards: 1) The trader is losing the protection of the option and must, therefore, assume the risk of adverse market movement. 2) Carrying a naked or unhedged futures position creates the liability of margin calls during periods of adverse market action. 3) If the futures position is held to maturity, the problem of delivery then faces the investor.

A LONG FUTURES POSITION AGAINST A PUT CONVERTS THE PUT TO A CALL

Buying a future long against a put has the effect of converting the put to a call. During the period that the long position is kept open, the profit existing on the put at the time a long futures position is purchased will be protected. This profit is defined as the difference between the striking price of the put and the price of the long position. But in most cases, the long position must be liquidated in the market and the put left unhedged before any further profits are to be made unless the soybean futures price rises above the strike price. If the price of futures rises above the strike price, additional profit will be generated in the long futures while the value of the put will remain at zero.

PUTS HAVE THE SAME YET OPPOSITE AFFECTS AS CALLS

The previous discussion highlighting the advantages of calls and their various uses is directly applicable to the fashion puts can be profitably employed. Here is a summary of important applications of puts. First note that the buyer of the put has the advantage of never being called for maintenance margin on his long futures positions traded against and protected by the put option. Second, it should be remembered that purchasing a futures contract against the put has the effect of converting the put into a call, as long as the long position is maintained. The profit is defined as the difference between the strike price of the put and the price at which a long futures contract was purchased. This profit is totally protected and, in addition, there is a very real pos-

sibility of having the futures rise above the strike price of the put and thus provide the opportunity to earn additional profits. Another point to keep in mind, trading against the put prevents having to exercise it in an instance where the put is profitable, yet a temporary price rally is imminent.

PUTS CAN BE MORE EFFECTIVE PROTECTION FOR LONG FUTURES POSITIONS THAN STOP LOSS ORDERS

Futures positions should always be protected against a large move against your position. One way to protect a position is with a put option as a stop. The use of an option has a great many advantages over a stop. First, an option provides protection at a guaranteed price. Another advantage is there is no limit to the number of times an option can be used as a stop. Third, the affect of the put can be reversed, meaning a put turned into a call by having a long position at a price above the put strike price. Lastly, an option provides protection against whipsaws or market volatility knocking you in a fast moving market.

PURCHASING A PUT IS A PURCHASE OF TIME

Many times the buyer of a put, expecting the commodity to collapse, sees the futures show strength to the upside. You should not become immediately discouraged and abandon a put which proves unprofitable after the purchase. The purchase of an option is actually a purchase of time. A put on a soybean futures contract currently trading above the strike price should be viewed positively based on its remaining life. This time can be employed to the investor's advantage by trading against it.

PUTS AS HEDGES AGAINST PROFITABLE FUTURES PRESERVE PROFITS

Puts are often used as a hedge against a profitable futures position. There are many advantages: The profits are protected by allowing the long position to be offset against the short created by the exercising of the put at the put striking price. Due to this protection, whipsaws and severe declines do not affect the profits in any way. This protection lasts the entire life of the put, and thus only the ultimate price move is important. The investor's worries are calmed, regardless of futures market action; his current profit is absolutely locked into a protected position. Along with this, the futures holder is also allowed to profit from additional strength, which could develop in the market.

OUT-OF-THE-MONEY PUTS WORK CONVERSELY TO CALLS

Another put trading strategy is the purchase of an out-of-the-money put. This works on the same principle as a purchase of an out-of-the-money call. The underlying functions of establishing a lower minimum price protection level at a smaller premium are the same. An out-of-the-money put is a deductible price risk insurance that being the cost of the premium is cut practically in half. Protection against

disaster prices is provided by a very small premium and net additional risk increases very little.

USING A COMBINATION OF PUTS AND CALLS PROVIDES A UNIQUE INVESTMENT OPPORTUNITY

Puts and calls can be used together. A put can be used to hedge or lock in a profit on a call and vice-versa. If an investor has a put and a call in the same market and the market drops, the put is exercised in order to protect the call's profit. But far more important, the put does not interfere with the futures ability to further profit from a continuation of bull move. The cost of this protection, without jeopardizing future profits, is still only the premium cost.

For a comparison, in a futures long position profits can be locked in by using a short in another contract month, which moves in a one-to-one linear relationship. When using futures to hedge futures (an intra-commodity spread), the premium cost of the option is saved, but no additional profits are possible regardless of how high or low the future ultimately trades.

A second advantage of the option-hedging option concept is the use of a call to hedge a profitable put position. Should the market rise, the call can be profitably exercised. But even more important, if the bearish move continues unabated, additional profits can be generated. The cost of this hedge is simply the premium cost.

SPECIAL DOUBLE IS A TRULY UNIQUE INVESTMENT TOOL

A very unique idea available to options traders is the special double option, or sometimes just referred to as a double option. This is a combination of a put option and a call option which allows the purchaser to either buy or sell (but not both) a commodity at a fixed strike price for future delivery at any time prior to the expiration date. The premium cost of a double is usually close to, but slightly less than, the sum of the premium costs of both a put and a call purchased separately.

The stipulation of the double option is only one side of the double can be exercised, but both sides can be traded against as many times as desired. All the trading techniques discussed earlier with regard to puts and calls, including the use of an option to hedge another option, options as hedges on futures, trading against unprofitable options, and the use of options in lieu of stop orders, will work equally well with either or both sides of the double. The only restriction is that only one side may ultimately be declared or exercised.

All of the advantages of puts and calls are offered by double options. These advantages include minimum and calculatable risk exposure, tremendous leverage, unlimited profit potential, and freedom from margin calls. The double has

one additional ultimate advantage which places it in a special category far and above by itself. The keen advantage of the double is it frees the holder from his dependence on market direction prediction. The double option, being the combination of both a put and a call, can be profitable regardless of whether the market advances or declines. It is often easier to determine the volatility than the direction volatility will ultimately carry the price.

The purchaser of a put must attempt to predict the market. Except where the put is used in lieu of stop to protect a new long position, or to hedge a profitable long position, the put buyer is anticipating a substantial drop in price. Simultaneously, the speculator who purchases a naked call, without the expectation of immediately being short, is anticipating a major price move on the upside.

OPTIONS WRITERS ARE PAID TO ASSUME THE RISK OF OPTIONS

Opposite of buying puts and calls, an investor has the alternative to write put and call options. Regarding options, the terms writer and option seller are synonymous. The writer will sell or grant the option to the buyer. The risk involved with writing options is completely opposite to the risk and reward potential of buying options. The writer of an option is exposed to unlimited risk with the prospect of only limited rewards, whereas the buyer of options assumes limited risk with the prospect of potentially unlimited rewards. The primary incentive for writing either put or call options is the premium income. High rates of return on invested capital can be seen as an advantage for the option writer in a relative brief period of time. A major requirement for writing options is the investor must understand the risk and monitor and manage that risk accordingly.

An option writer has an investment requirement but it is relatively small compared to the money that can be earned. This investment is a margin deposit, which is comparable in size and purpose to the margin required from buyers and sellers of futures contracts. The percentage return from premiums earned by writing options can be high on such a small investment.

The initial deposit of margin funds, similar to that required from participants in the futures markets is required to assure the availability of adequate funds to cover losses on a day-to-day basis. Thus, just as open positions of futures traders are, "marked to the market" each day, so are open positions of option writers. An example would be an investor that writes an at-the-money call and the futures price moves above the exercise price, his margin requirement will be increased to provide funds for the potentially increased loss. As previously defined a writer of a call will be assigned a short position if the option is exercised, the

call writer loses money as the futures markets rise. In most cases, this would require an investor to deposit additional funds. Conversely, if the market moves in favor of the option writer, he would be entitled to withdraw excess funds.

The name of the game for option writers is risk management. Risk management should begin with the determination of which option to write, a put or a call. The writer must consider that the higher the risk the higher the premium, the lower the risk the lower the premium. An option with only three months until expiration is less likely to be exercised than an otherwise identical option with six months until expiration. But the premium that can be earned by writing a three-month option will be less than a premium earned from a six-month option.

A major risk for an option writer is the risk of exercise, the primary goal of the option writer is the buyer not exercising his option. The writer retains the full amount of the premium if the option is not exercised. One strategy to reduce the risk of exercise is to write an out-of-the-money option. The chances of the buyer exercising an out-of-the-money option are far less than an at-the-money option. Here's the trade-off, the premium is smaller for an out-of-the-money option.

A very important fact that an option writer should keep in mind, is that the buyer of the option can exercise at any time. If and when to exercise a profitable option is entirely up to the option buyer. An option writer is assigned a notice of exercise through his brokerage firm when the buyer indicates that he wants to exercise his option. The writer then can no longer buy an option (offset his option position). He is automatically assigned a position in the underlying futures opposite the buyer's position. The writer's only choice at that point is whether to hold or liquidate his new futures position.

The writer of the call option has in effect entered into an agreement to be short a given futures contract at the specified exercise price at any time prior to expiration. For this obligation, the call writer receives money from the call buyer in the form of a premium to compensate. It is this premium money that motivates all writers to participate in the market.

COVERED OPTION WRITERS HAVE A POSITION IN THE UNDERLYING FUTURES CONTRACT

There are two types of option writers, covered option writers and uncovered writers. Covered call writers are those who own an underlying futures contract, while uncovered or naked call writers have no such position. These principles were touched on previously in this booklet, but will now be detailed.

A major objective of covered call writers is to seek to reduce the risk of their existing long futures position. An uncovered call writer seeks to gain from a weakening of the underlying futures, but there is considerable risk involved with naked call writing. This stems from the possibility of the futures price increasing significantly. The call would be exercised causing a large net loss to the writer.

A covered call writer, on the other hand, has in his portfolio a long futures contract, which covers the call he wrote in the event it is exercised by the buyer. The high risk associated with naked call writing is the motivation that has compelled futures exchange clearing houses to require naked call writers to deposit and maintain sufficient funds in an account to assure that the writer can meet futures market commitments if the option is exercised.

It should also be noted that like call buyers, call sellers could offset their positions any time prior to the expiration date to be completely relieved of their obligations.

WRITE A CALL OPTION TO PROTECT A LONG SOYBEAN FUTURES POSITION

A futures trader can write a covered call option to protect the value of his long futures position. Suppose you just purchased a March soybean futures contract at \$8.00 and write a March soybean call with a strike price of \$8.10. If the market value of the call as traded in the option exchange is pegged at .12 or 600, the \$600 premium you receive will serve as an added buffer against price declines in the soybean futures contract. Unlike using a put to hedge a long futures position, you receive the premium but you have only limited protection. To determine the degree of protection obtained, the premium is subtracted from the price of the futures contract.

	\$8.00 futures price
	- .12 premiums received
futures price protected to	\$7.88

Assume, at expiration March soybean futures decline to \$7.85 from \$8.00, giving a long futures market position loss of 15 points or \$750. At the \$7.85 price, however, the call option with an \$8.00 strike price would be without value and thus you would retain the entire \$600 premium. By writing the option, you reduced your market loss to only \$150, or just over 33 percent of the loss that would have occurred on an unprotected long position. However, had the price of the soybean futures declined further, your loss would have been greater. Your protection was limited to the amount of the premium you received.

But suppose the price of soybean futures increased instead to, say, \$8.20 a bushel. It is certain the call that you wrote at

the \$8.00 strike price will be exercised. You will be forced to deliver your soybean futures contract at \$8.10, even though the market is currently at \$8.20. You receive a valuable premium for writing the call but it limited your ability to participate in the major futures price increase while limiting your protection against price decline.

WRITING OPTIONS CAN INCREASE TRADING SOYBEAN PROFITS

Writing call options can provide an increased ability for returns in commodity trading portfolios. A call option writer will reduce losses to the extent of the premium during periods of declining commodity prices, while foregoing the opportunity for gains if commodity prices rise. Smaller losses and declining markets coupled with smaller gains in rising markets add up to more stable overall returns.

Another technique employed by call option writers may be writing a call option to place a sell order above the market price. If the option is not exercised, the option writer retains the premium. If the option is exercised, the option writer will receive a short position above the market. Still, another technique may be writing a call in lieu of placing a limit sell order. If the futures price increases and the call option is exercised, the investor achieves a higher effective selling price to the extent of the option premium. If the price does not increase and the option is not exercised, the premium retained by the option writer provides at least a partial cushion against the decrease in the futures price.

In review, writing call options has the potential to provide significant sources of additional investment income for investors who have a bearish view of the markets. An investor may regard income from call option premiums as a partial hedge against a decline in the level of commodity prices. Another investor may wish to write calls to achieve increased ability of investment return, in effect to sell soybeans at above the current market price, or as an alternative to placing a sell order at above the market price.

WRITING UNCOVERED CALL OPTIONS HAS NEARLY UNLIMITED RISK

Writing uncovered calls has been discussed before in this booklet, as you remember uncovered call writers do not have the long position in an underlying future. This uncovered call has virtually unlimited risk. Here is an example.

Assume you wrote a March \$7.00 soybean call. If futures prices moved to \$7.25, the call premium would increase in value. The writer of the uncovered call would have to maintain a margin account sufficient to cover the loss, the call writer would have to compensate for the \$1250 loss by adding more money to the account. If, as hoped, soybean futures prices declined or remained stable, the covered call option

value would begin to dissipate. It would then be possible for the writer to realize a profit by buying the call to offset his option position, or, if the price remained below \$7.00, until expiration to allow the call to expire without value. In both cases retaining the premium paid.

Uncovered call writers must remember that the premium they received represents their maximum potential profit but the risk they are incurring is nearly unlimited.

WRITING PUTS IS FOR THE BULLS

For the investor with a bullish market outlook writing put options provides an attractive investment opportunity. If a futures price stays above the exercise price of the put, the put option is not likely to be exercised and the premium will be retained in full by the investor.

In exchange for receiving this premium, the put writer agrees to buy (be long) an underlying futures contract at the stated exercise price. The writer of a put option incurs substantial risk while returns are limited to the amount of the premium. As futures prices fall, the value of the put increases, thus making exercise highly probable on the part of the put buyer. Should futures prices increase, the writer can realize a profit to the extent of the premium with a purchase of a put or he can allow the contract to expire and retain the entire premium.

An example, suppose you were bullish on the soybean market with May soybean futures trading at \$7.42. You decide to write the May \$7.30 soybean put for a 16-point premium, or \$800 (the 16 point premium includes a 12 point intrinsic value and 4 point time value). As long as the futures price remains above the exercise price of the put, the put will expire unexercised and you will keep the entire \$800 premium. However, if the futures price drops below \$7.30, you might want to buy the option back at a loss to avoid potentially even greater losses if the trend continues.

It is important to remember that an option can be exercised at any time and the timing is not likely to be convenient for the writer. A writer holding an in-the-money put may expect the option exercised at any time and may be required to assume the obligations of a long futures contract.

Investors may also choose to write put options as an alternative way to assume a long position in an underlying future at a price below current market levels. An example, assume that soybean futures are trading at \$7.42, you feel the soybean market would be an excellent buy at \$7.30, and you wrote a May soybean put option with a strike price at \$7.30, thus obtaining a premium of 16 points or \$800. Suppose the futures market declined to \$7.25 and your short put option position is exercised, obligating you to assume a long soybean futures position at \$7.30. This 16-point premium income you received

would lower the effective acquisition cost of your futures position to \$7.16 or 11 points below the current market price.

- \$250 futures loss (5 points x \$50)
+ \$800 options gain
<hr/>
\$550 net gain

You could hold the futures in anticipation of a price rise or liquidate in favor of an immediate profit. Or, as you described earlier, you might also elect to hedge your long soybean futures by purchasing a put.

WRITING PUT OPTIONS TO HEDGE SHORT FUTURES POSITIONS CAN ADD A NEW PROFIT OPPORTUNITY

Put options often provide a number of hedging opportunities for the futures market investor. For example, a put can be written to protect a short position in the futures market. The premium received from the sale of a put serves as a cushion against an upward movement in the price of the underlying futures. If prices do rise, the loss on the short futures position would be at least partially offset by the put. If futures prices remained above the strike price, the put would expire unexercised due to its unprofitability for the buyer. If prices decline, however, the short futures position would become more profitable while the put position will show a loss to the writer.

The prudent investor, considering this strategy, should clearly recognize the risk involved. If the futures price rises, the resulting loss on the short futures position greatly exceeds the premium received by writing the option.

WRITING PUT OPTIONS AS BUY ORDERS BELOW THE MARKET

Another basic strategy for writing a put is to place a buy order at a price below the present futures price. This, to some investors, is a more attractive alternative than placing the typical buy order in the futures.

WRITING UNCOVERED PUTS PROVIDE UNLIMITED RISK AND LIMITED REWARDS

Writing naked puts has the same basic effect as writing naked calls only reversed. The potential reward is the opportunity to retain the option premium if the option is not exercised. The risk, of course, is that if futures prices decline below the option strike price, the writer will incur a loss. The same risk principles apply as they did to writing uncovered calls.

COVERED OPTION WRITING IS PROTECTED BY THE PARALLEL PRICE MOVEMENT OF OPTIONS AND FUTURES

Generally speaking, options writing strategies are based on the theory that changes in the value of the option premiums

reflect price fluctuations in the underlying futures market. Call option premiums will tend to increase as futures prices increase, and decline when futures prices decline. Put option premiums will do just the reverse, decrease as prices rise and increase as prices decline. Since future prices and option prices tend to move in tandem an offsetting futures position will cancel the effect of an adverse move in option premium values. Several covered writing strategies are detailed in the following paragraphs.

BUY-AND-WRITE AND SELL-AND-WRITE ARE SIMPLE STRATEGIES WITH BIG POTENTIAL

The two basic covered writing strategies are the buy-and-write and the sell-and-write strategies. These allow a disciplined investor to establish a range of potential futures price movements, which can comfortably assure a writing profit. As with most writing strategies, the buy-and-write approach is usually used in conjunction with a bullish market opinion, or an investor may be neutral. A buy-and-write is when an investor chooses to buy soybean futures by simultaneously writing a soybean futures call option. Someone who is neutral and slightly bearish would simultaneously sell soybean futures while writing soybean futures put options, this is executing a sell-and-write.

Suppose an investor believes that soybean futures prices are unlikely to decline over the next six months, yet they might move slightly higher on the short term. It is May. November soybean futures are trading at \$8.05, while at-the-money November soybean futures call options can be sold for a premium of \$0.15 per bushel. The investor could buy the November futures at the same time he writes the call options. By writing covered calls, he has effectively secured a selling price of \$8.20 per bushel (\$8.05 plus the \$0.15 premium). If November futures rise above \$8.20 per bushel, the investor has a loss and would have made more money by simply buying the futures. However, he suffers no actual losses by writing the calls, since his option market losses are covered by the long futures position.

Only if November futures fall below \$7.90 per bushel (\$8.05 minus the \$0.15 premium) would the investor experience actual losses.

Investor buys November \$8.05 soybean futures and writes \$8.05 calls for \$0.15 premium

Realizes Opportunity Loss
\$8.20

Profit Range
\$7.90

Realizes Actual Loss

This diagram illustrates that through the buy-and-write strategy, the investor establishes a range of futures price movements, which improves the possibility for a profitable result.

On the other hand, suppose an investor is neutral to slightly bearish on the soybean market in May, with November futures at \$8.05 per bushel. He could sell the November futures while simultaneously writing a November \$8.05 put for a premium of \$0.20 per bushel. This sell-and-write strategy provides an effective repurchase price for the short futures position of \$7.85 per bushel. If November futures are trading below \$8.25 a bushel when the put options expire, the investor is assured of a profit. If November soybeans fall below \$7.85, he has an opportunity loss but no actual losses from writing the options. At futures prices above \$8.25 per bushel, actual futures losses exist in excess of the premium collected.

Investor sells November \$8.05 futures and writes \$8.05 puts for \$0.20 premium

Realizes Actual Loss
\$8.25

Profit Range
\$7.85

Realizes Opportunity Loss

USING A BUY AND WRITE STRATEGY SIMULTANEOUSLY USING A PUT AND CALL WIDEN THE RANGE OF PROFIT POTENTIAL

When an investor does not expect any substantial change in the level of commodity prices in the foreseeable future, a strategy that involves buy-and-write techniques writing both puts and calls can be employed. As long as the futures price remains within the range, the investor will realize a profit. The total option premiums received from the combination will exceed the losses incurred in whichever option is exercised.

With the soybean futures contract at \$7.60, an investor earns a \$1,000 premium (20 points) by writing an at-the-money call and an additional \$1,000 premium by writing an at-the-money put. Total premium: \$2,000.

If the futures price remains at exactly \$7.60, neither option will be exercised and the investor will retain the full \$2,000. As long as the futures price remains between \$7.20 and \$8.00 (\$0.40 below or above the exercise price of \$7.60), the investor will retain at least a part of the \$2,000 premium. For instance, if the soybean index futures at expiration were \$7.50, the put would be exercised at a loss of \$500 and the investor's profit would be reduced to \$1,500.

Generally speaking, the writer of a put-call combination will incur a net loss only if the futures price declines below or climbs above the calculated break-even prices (\$7.20 and \$8.00 in the example). The net loss would be the amount by which the loss on the exercised option exceeds the total option premium received.

If the futures contract at expiration has risen to \$8.00, a call option with a \$7.60 exercise price will be exercised at a \$2,500 loss. Since this is greater than the \$2,000 premium, the investor will incur a \$500 net loss.

A note of caution, however: The writer of a put-call combination should be aware of the possibility of a loss even if the futures price remains within the calculated range. This could occur if a substantial price increase is followed by a substantial price decrease or a substantial decrease is followed by an increase above the exercise price) resulting in both options being exercised prior to expiration.

SALE OF MULTIPLE OPTIONS CONTRACT AGAINST A FUTURES POSITION CAN CREATE A GREAT VARIETY OF RISK REWARD COMBINATIONS

This strategy is called ratio writing. Ratio writing permits the option writer to create a profit band of futures price movements. This strategy creates simultaneously covered and uncovered option positions, due to the multiple futures options being written against the underlying futures.

Ratio writing takes advantage of the theory that most option premiums move less than dollar for dollar with futures prices. On the average, at-the-money options prices move about half as fast as the futures underlying them, thus selling two options leaves the trader in a position of market neutrality (a 1 point futures price move will offset the premium price moves in the two options). Thus, the position can be considered a hedge.

The theory that premiums move less than dollar for dollar with futures prices may be difficult to understand. By definition the proportional change in a particular option premium for a given change in the underlying futures contract is known as the delta. The delta of an option tends to increase as the option moves further into the money.

The delta will tell you how much an option's value should change given a one-point change in the underlying future. Deltas are expressed in decimal terms, thus a delta of .50 means the option price will move one half as much as the underlying futures price during short term price movements. This change is instantaneous, so, as the market moves, the delta changes.

An at-the-money option with a reasonable amount of time value remaining usually has a delta of about .50. The way that a trader would achieve a perfect hedge would be to buy

or sell two options against one futures position. If a delta of .25 existed, the result would be holding a position of four options to one futures contract. Due to the instantaneous changes of deltas, it is necessary to adjust the hedge between the futures and options markets as the delta changes.

The greatest advantage of using deltas is that the trader knows his potential profit or loss given any price movement in the underlying commodity. There are far more uses for the option trader as far as deltas are concerned, but that would be another book in itself. This brief summation hopefully has defined what a delta is and its basic use.

Ratio writing can be accomplished by either a buy-and-write or sell-and-write basis. It can also be utilized in connection with existing futures positions. For example, suppose an investor writes two \$8.00 November soybean futures call options at \$0.20 premiums. At the same time he buys one November soybean futures contract at \$8.00 per bushel. Since he has collected 80 points worth of premium income, the investor is assured of a writing profit as long as the options expire with November soybean futures trading somewhere between \$7.60 and \$8.40 per bushel. If the options expire with November futures trading outside that \$0.80 band, the writer will experience actual losses.

SPREADING OR STRADDLING OPPORTUNITIES ABOUND IN OPTIONS TRADING

Spreading opportunities in options are far more numerous than futures because spreading is available between a wide variety of strike prices and expiration dates. An option spread is similar to a futures spread, consisting of a long and short position (a call and a put) in one option, with the call and put having either different strike prices or different expiration dates. Spreading enables an investor to reduce the risk inherent in writing either a put or a call option. Since both the purchase and the sale of an option are involved, spreads are established with either net credit or debit. A spread is said to be a credit if the value of the option sold exceeds the value of the option purchased. An example is if one \$8.50 put is sold for a \$1000 premium, while an \$8.50 call of a different expiration date is bought for a \$750 premium, a net credit is received. The premium of the option sold is higher than the one bought netting the seller a net credit of \$250 or a five point net credit.

Conversely a spread is done at a net debit if the value of the option purchased exceeds the value of the option sold. If a trader buys an \$8.50 call for a \$1000 premium and sells an \$8.50 call of a different expiration date for only \$750, the trader has a net debit of \$250 (5 points). The profit potential of a spread depends on the change in the relationship between the prices of the options. Two basic types of spreads are time spreads and price spreads.

TIME SPREADS TAKE ADVANTAGE OF THE RISKS OF HOLDING OPTIONS FOR VARYING PERIODS OF TIME

Time spreads involve options with the same strike price but different expiration dates. The prime objective of a time spread is to take advantage of the tendency of the time value of an option to decline at a very rapid rate before finally disappearing just prior to expiration. Typically a put or call with a nearer expiration date is sold (written) and a put or call with an expiration date that is more distant is purchased. The option sold and the option bought both have the same strike price.

The intent is to sell time. The more distant put or call loses its time value at a slower rate, which limits the risk of such a position by removing the potential for unlimited loss on sharp upside moves.

WRITING A CALL WHILE BUYING A CALL TAKES ADVANTAGE OF TIME VALUE

A spreader in soybean options might, for instance, write (sell) a March \$8.30 soybean call for a \$0.10 premium and purchase a May \$8.30 soybean call for a \$0.15 premium. The spread would be established for a net debit of \$0.05 points premium. The original debit represents the maximum possible loss as long as the spread remains in effect. In order to profit, the spread would have to widen to more than .05 points. Both the passage of time and the price movement of the underlying futures contract have the potential to affect this spread.

The difference between the two options as time passes is likely to increase because the nearby option will lose its time value at a faster rate compared to the distant option. The price of the underlying contract is the prime determinant of how much a spread will profit. If the spread position is established by selling the nearby option, and buying the more distant when both options are at-the-money, the spread will be profitable if the futures prices remain relatively constant, and will tend to lose money if the prices change. The spread will be at its widest when the price of the futures contract is closest to the exercise price of the option. The spread will narrow as the price moves away from the exercise price in either direction. In the example above, a soybean futures price of \$8.30 at the March option expiration date would cause the March \$8.30 call to expire without value, while the May \$8.30 contract might have one point of time value left. The spread could be closed out at double its original cost. If prices are considerably higher or lower than \$8.30 the spread would narrow as both options lost their time values.

Even if the soybean market should happen to increase slightly, this strategy will still yield a profit, provided that at the time the March call expires the premium difference between the March and May options is greater than the initial net cost of the spread. Moreover, the maximum net loss will occur only if the May call (at the same time the March call expires) no longer

has any time value. This will happen only if it is so far out-of-the-money that no market exists for it or so far in-the-money that its premium is totally a reflection of its intrinsic value.

A PRICE SPREAD IN WHICH YOU PURCHASE A CALL AT A LOWER PRICE AND SELL A CALL AT A HIGHER PRICE IN THE SAME EXPIRATION DATE IS CALLED A BULL SPREAD

Option spreads that consist of options having the same expiration dates but different exercise prices are called price spreads. If an investor thinks the soybean market is going to rise, he might purchase a call. With the March soybean futures at \$7.00, a call with a \$6.80 strike price might be purchased for a .25 point premium. If you do not want to risk the entire .25 points, an alternative would be to write a call with a higher exercise price. In this case, the March \$7.10 soybean call could be sold for, perhaps, a .10 point premium, or \$500. The spread could be put on a .15 point debit. Such a spread is called a bull spread and the risk in the position is limited to the amount of the original debit. Risk limitation does not come without a price, however, and the profit potential of the spread also is limited.

The maximum profit in a price spread is computed by subtracting the original debit from the difference between the exercise prices of the two options. In this example, the debit is .15 points and the difference between exercise prices is .30 points. You are risking .15 points for the possibility of making .20. A price above \$7.10 at the March expiration would see both options trading at their intrinsic value. The difference between them would be the maximum -.10 points. If the price was lower than \$6.80, both calls would expire without value and the maximum loss would occur.

A PRICE SPREAD IN WHICH YOU SELL A CALL AT A LOWER PRICE AND PURCHASE A CALL AT A HIGHER PRICE IN THE SAME EXPIRATION DATE IS CALLED A BEAR SPREAD

If, you thought soybean prices were going to go lower, you might have reversed the above process and sold (wrote) the \$6.80 call for a premium of .25, while buying the \$7.10 call option for a .10 point premium. The spread would be established for a .15 point credit. Such a spread is called a bear spread. Any price on the underlying futures instrument below \$6.80 at the time of the options expiration would cause both calls to expire worthless, allowing you to retain the entire .15 points premium. The maximum loss would be .15 points (.30 -.15), and would occur at any price above \$7.10 at expiration, because the options would be selling .30 points apart, at their intrinsic value.

As previously discussed, a spread can involve puts or calls with either a different exercise price, a price spread, or a different expiration date, called a time spread. Spreader must start with an opinion on a market for the particular futures contract the option represents. A spreader can either be a bull

spreader or a bear spreader. A time bull spread involves buying the more distant expiration month and selling the nearby expiration month. For example, buy one November \$7.00 soybean call and sell one March \$7.00 soybean call. If this is to be a price spread, one buys the low strike price option and sells the higher price strike option. For example, buy one \$7.00 soybean call option and sell one \$7.50 soybean call option.

SPREADING PUTS INSTEAD OF CALLS, THE RULES ARE EXACTLY THE SAME

That is, a bull time spread would be buying a deferred month and selling the nearby month, and a bull price spread would be buying a low price put and selling the high price put.

If on the other hand, a spreader is bearish about the market, he would establish a bear spread. A bear time spread involves buying the nearby expiration month and selling a deferred expiration month. For example, buy a July soybean call option and sell an October soybean call option. If the bear spread is a price spread, you would buy the high strike price call and sell the lower strike price call. For example, buy 1 March \$7.50 soybean call and sell March \$7.00 soybean call. Again, if the spread pertains to puts, the rules are exactly the same.

THERE ARE A FEW RULES CONCERNING BULL SPREADS THAT MUST BE DISCUSSED

- A bull spread profits only when the spread widens.
- The maximum profit on the bull spread is the difference between the strike price minus the debit (the amount of the cost of the long side exceeds the proceeds of the short side).
- The maximum loss is the debit, the net premium paid.

THERE ARE ALSO THREE DISTINCT RULES THAT A BEAR SPREADER SHOULD FOLLOW

- A bear spread profits when the spread narrows.
- The maximum profit on a bear spread is the credit (the amount the proceeds from the short side exceeds the cost of the long position).
- The maximum loss on a bear spread position is the difference between the strike price less the credit.

For example, in July an investor expecting lower soybean prices notes that the September futures price of soybeans is \$6.60. In order to profit from the decline in soybean prices, he puts on a bear spread by buying a September \$6.60 soybean call at a premium of .20 (\$1,000), and sells a September \$6.30 soybean call at a premium of .40 (\$2,000).

The futures price at expiration must be below or equal to the strike price of the options sold in order for the investor to realize the maximum profit. If the futures price isn't at that level, the option will be exercised and the investors'

resulting profits or losses will depend on whether the value of the option at expiration is smaller or greater than the net premium received. The maximum profit on this position is the net premium received \$1,000 (\$2,000, the amount received on the short side, less \$1,000 the amount paid on the long side). The difference between the two strike prices is the maximum loss on this position ($\$6.60 - \$6.30 = .30 \times \$50 = \$1,500$) minus net credit or net premium received (\$1,000), leaving him with a loss of \$500.

The bull price spread is a very attractive investment during periods of increased market prices, because it offers clearly defined and potentially attractive risk reward parameters. The investor knows in advance, to the dollar, the maximum net profit possible and the maximum net loss possible.

BULL CALL SPREAD IS WHEN YOU BUY A LOW STRIKE PRICE CALL AND WRITE A HIGH STRIKE PRICE CALL IN THE SAME EXPIRATION MONTHS

One of the strategies an investor may employ is a bull call spread, meaning the investor is bullish on market prices. The bull call spread involves buying one option and writing (selling) another option. This is done by buying the call option with the low strike price and selling the call option with the high strike price.

The guidelines of the bull call spread are well defined. The maximum net loss involved is the net premium cost. The maximum net profit that could come from this spread is the difference between the strike prices of the two options less the net premium cost. An example of a bull call spread is if in July an investor expecting higher soybean prices notes the September futures price is \$7.00 per bushel. To profit, with price increases, he buys a September \$7.00 call at a premium of \$1,000, and sells a September \$8.00 call at a premium of \$400. His maximum profit is \$4,600 (the strike price difference of \$5,000 less the net premium cost of \$600). His maximum loss is the \$600 premium cost.

In order for the investor to realize the maximum profit, the futures price at expiration must be equal to or above the strike price of the option written. If it isn't, the investor's resulting profit or loss will depend on whether the value of the purchased call at expiration is more or less than the net premium cost. If the futures price in the previous example increased only to \$7.00 per bushel, the \$500 gain would mean a September \$7.00 call sold would be less than the net premium cost of \$600, and the investor would have lost \$100. As the futures price increased, say, to \$7.50 per bushel, the investor would have a \$1,900 profit. That is the \$2,500 gain minus the September \$7.00 written call minus the \$600 net premium cost.

The investor can modify his risk reward potential on a bull call spread depending on his selection of the premium of the

strike price bought and written. With the September futures price at \$7.00 per bushel, the investor buys a September \$7.60 call at a premium of \$750 and writes a September \$8.00 call at a premium of \$500. The investor's maximum risk is the \$250 net premium cost. His maximum profit is \$1,750 (the \$2,000 strike price difference less the \$250 net premium). Although the potential loss is relatively small, a substantial increase in the futures price (from \$7.00 to \$8.00) is required in order to realize the maximum profit.

The investor's expectations during the life of the option and his tolerance for risk determines what spreading opportunity to take. The choice of which strike price to buy compared with which strike price to write. But as illustrated, once the arithmetic of the spread is understood, the risk and reward potentials are clear to the investor for his decision.

BULL PUT SPREAD INVOLVES BUYING A LOW STRIKE PRICE PUT WHILE WRITING A HIGH STRIKE PRICE PUT

As opposed to the bull call spread, an investor may employ a bull put spread. This strategy also involves profiting on an increase in the market. A bull put spread consists of purchasing a put option with a low strike price and selling a put option with a high strike price. The maximum profit potential for the investor is the premium difference. The maximum loss the investor could incur is the difference in strike price less the net premium received. For example, in November the March futures price is \$7.20 per bushel. To profit from an expected increase in the futures price, an investor pays a premium of \$1,750 to buy a March \$7.20 put and collects a premium of \$4,000 by writing a March \$8.50 put. The net premium received is \$2,250.

If the futures price at expiration is \$8.50 or above, neither put will be exercised, and the investor's net profit will be \$2,250 (the net premium received). The maximum loss of \$2,750 ($\$5,000 - \$2,250$) will occur if the futures price at expiration is \$7.20 or below.

The strategies to benefit from a declining market are just the opposite as they are for a rising market. A bear call spread during declining soybean prices offers clearly defined risk and reward guidelines. The investor, who is risk averse, knows in advance the net profit and the maximum net loss possible.

THE BEAR CALL SPREAD INVOLVES BUYING THE CALL OPTION WITH A HIGH STRIKE PRICE AND SELLING THE CALL OPTION WITH THE LOWER STRIKE PRICE

The maximum net profit from the spread is the net premium received on the sale of the call option. The possible maximum net loss is the difference between the strike prices of the two options less the net premium received.

For example, in March an investor expecting lower soybean prices notes that the July futures price is \$7.75 per bushel. To profit, if soybean prices decline, he buys a July \$7.75 call at a premium of a \$1,000 and sells a July \$7.15 call at a premium of \$2,200. His maximum profit is the net premium received (\$1,200). His maximum loss is \$1,800 (the strike difference of \$3,000 less the net premium received of \$1,200).

For the investor to realize the maximum profit at expiration the futures price must be below or equal to the strike price of the option written (sold). If it isn't, the option will be exercised and the investor's resulting profit or loss will depend on whether the value of the option at expiration is smaller or greater than the net premium received. If the futures price in the previous illustration declined only to \$7.60 per bushel, the \$2,250 loss when the July \$7.50 call was exercised, will be only partially offset by the \$1,200 net premium and the investor will have lost \$1,050.

Had the futures price declined, say, to \$7.25 per bushel, the investor would have a \$700 profit. That is the \$1,200 net premium received less the \$500 loss on the July \$7.15 call.

As with the bull call spread, the investor in a bear call spread can modify the risk reward arithmetic by his selection of the strike prices to be bought and written.

With July futures price at \$7.75 per bushel, the investor buys a July \$6.95 call at a premium of \$3,200. The investor's maximum profit is the \$800 premium difference. His maximum loss is only \$200 (the \$1,000 strike price difference less the \$800 net premium received). However, although the potential loss is relatively small, a relatively substantial decrease in the futures price (from \$7.75 to \$6.15) is required in order to realize the maximum profit.

As illustrated, once the arithmetic is understood, the investor may calculate risk and reward potentials to alternate his spread. His choices of which options to buy and write should be based on the investor's outlook for the market and his tolerance for risk.

A BEAR PUT SPREAD INVOLVES PURCHASING A PUT OPTION WITH A HIGH STRIKE PRICE AND SELLING A PUT OPTION WITH A LOWER STRIKE PRICE

The maximum profit is the difference in strike prices less the net cost (premium) of the options. The maximum loss is the net cost of the options. An example is illustrated below.

For example, in October, the January futures price is \$7.50. To profit from an expected decline in soybean futures price an investor pays a premium of \$1,900 to buy a January \$7.00 put and collects a premium of \$300 by writing a January \$6.50 put. His net premium cost is \$1,600.

If the futures price at expiration is \$6.50 or lower, the investor's profit will be the difference between the strike price of the options (\$5,000) less the net premium cost of \$1,600. His net profit is \$3,400. His maximum loss (\$1,600) will occur if the futures price at expiration is \$7.50 or above, in which case both options would expire worthless.

BUTTERFLY SPREAD CAN BE PROFITABLE IN QUIET MARKETS

There is one spread strategy that takes advantage of neutral markets. This strategy requires that you simply wait. The longer you wait, while nothing happens, the more profitable your position. This interesting strategy is called "the butterfly solution", or "long butterfly spread". The long butterfly spread entails a purchase of a high strike price and a low strike price option and the writing of two intermediate strike price options where all the options legs are either puts or calls. For example, you buy a \$7.00 call and sell two \$7.25 calls and buy a \$7.50 call. With this strategy you can realize a very tidy profit if the market remains stable around the short strike prices. A butterfly spread exposes the buyer to a limited risk in the event of a sharp price change.

Assume that a \$7.00 call is purchased for \$1,800, two \$7.25 calls are sold for \$2,300 each, and a \$7.50 call is purchased for \$800. Adding up the short premiums and subtracting the long premiums indicates this butterfly cost the trader \$300. This \$300 debit represents the maximum amount, which may be lost by taking on this butterfly position. This loss occurs if the soybean futures prices decline below the low price option or advance above the high price option by expiration. The soybean futures are trading at the middle strike price of \$7.25 expiration and a long \$7.00 call may be exercised for \$1,250 and the trader profits by \$950 (\$1,250 less \$300). This long (call) butterfly spread is advantageous for the investor who becomes impatient waiting for major identifiable bull or better markets. The spread limits its risk to a mild level in case of large price changes.

IN CONTRAST TO THE BUTTERFLY SPREAD A VOLATILITY SPREAD BENEFITS FROM ACTIVE MARKETS

I just described that a butterfly spread is used in neutral markets, but one might ask, "Is there anything that can be used during volatile times?" The answer is "yes", and the investment tool is the volatility spread.

A volatility spread works best when the market is volatile, but an even greater advantage is that the investor need not know which way the market is going. Volatility spreads work in either direction. If the market is moving up, or if the market is moving down, the investor may profit. There are numerous volatility spreads, but the principle behind them is one in the same. The following example shows how the theory works.

Assume that soybean futures are trading at \$8.00 and that July \$8.00 calls are trading at \$1,500. A typical volatility spread would consist of buying two July \$8.00 calls, and selling one soybean futures contract. Because the delta, defined previously in this paper, of an at-the-money call in this case the July \$8.00 is about .50, so two calls leave the investor theoretically long one soybean futures contract. This is offset by the one futures contract sold short. The net position is therefore neutral. At this point, one might ask themselves, "If you are both long the market and short the market, how can you make any money?" The answer is through market movement. If futures rallied to \$8.75, for example, the short futures contract will show a loss of \$3,750, but the two long calls will be worth \$3,750, each. Because the cost per call was \$1,500, each call will show a \$2,250 profit.

If the futures market prices had declined to \$7.25, instead, the short futures position would show a gain of \$3,750. The two calls would decline as well, but their value cannot decline past zero. At worst, the calls are worthless and the \$3,000 paid for them is lost. This still results in a \$750 net gain on the trade.

This volatility spread is profitable as long as the soybean futures decline by more than the total cost of both the calls. The lower the futures move, the greater the profit will be. There is risk involved in a volatility spread. This risk of the market becoming quiet. If the market does not move far enough in either direction, the spread will be ineffective.

Volatility spreads should be used at times of active moving markets, or when the investor feels something is about to happen, but doesn't know if it is going to make the market bullish or bearish.

A STRADDLE REFERS TO EITHER THE PURCHASE OF BOTH A PUT AND A CALL HAVING THE SAME EXERCISE PRICE AND EXPIRATION DATE

Straddles are also used when the investor feels the underlying futures contract is going to make a sizable move, but not sure in which direction this move will occur. By purchasing both a put and a call, an investor can make money if the market moves in either direction.

If market prices drop, the put option will be profitable to exercise. If the commodity prices rise, the call option will be profitable to exercise. To whatever extent the gain on the option that is exercised exceeds the total cost of the straddle, the investor will realize a net profit. But the investor's maximum loss is the cost of the straddle, are the total premiums paid.

An example, with the October futures price at \$6.60 per bushel, an investor pays a premium of \$2,000 to buy an October \$6.60 call and \$2,000 to buy an October \$6.60 put, the

total is \$4,000. If the futures price at expiration is above \$7.40 per bushel, the profit, when the call is exercised, will exceed the \$4,000 investment. Or if the futures price at expiration is below \$5.80 per bushel, the profit, when the put is exercised, will exceed the \$4,000 investment. Thus, in purchasing the straddle, the investor is counting on the futures price at expiration being either below \$5.80 or above \$7.40.

The only occasion on which the straddle buyer will lose his entire investment is if the futures price at expiration is the same as the strike price of the option. In that event, neither of the options would be worthwhile to exercise. If the futures price is either above or below strike price, he can recover at least a portion of the investment by clearing or exercising whichever option is in-the-money.

For example, if an investor pays a total of \$4,000 for a straddle in which the strike price of the option is \$6.60, a decline of the futures price at expiration to \$6.80, he would recover \$3,000 of his investment, resulting in a \$1,000 loss.

If an option trader or investor feels that the markets will remain neutral over time, the use of a short straddle or a sell put-call straddle will enable the investor to profit from this neutral market. With this strategy, you can afford simply to wait. The longer you wait, while nothing happens, the more profitable the position becomes. Even if the market does move adversely, either up or down, to a limit extent, you still make money.

A SELL PUT-CALL STRADDLE ENTAILS A SALE OF A CALL AND THE SALE OF A PUT WHERE BOTH LEGS OF STRADDLE SHARE A COMMON STRIKE PRICE AND EXPIRATION DATE

For example, an option trader may sell a call and put exercisable for a soybean futures contract with a strike price of \$7.20. If soybeans trade sideways and are priced at the \$7.20 strike price at expiration, both legs of the option will be abandoned by the option holders providing the short straddler to retain the full call and put premiums. A straddle writer is subject to a great deal of risk if the market moves sharply up or downward.

GLOSSARY OF COMMONLY USED OPTIONS TERMS ASSIGNMENT

ASSIGNMENT: Notice to an option writer that an option has been exercised by the option holder.

AT-THE-MONEY: An option whose strike price is equal - or approximately equal - to the current market price of the underlying futures contract.

BEAR SPREAD: A spread which is put on with the expectation that futures prices will decline.

BULL SPREAD: A spread which is put on with the expectation that futures prices will rise.

BUYER: The purchaser of an option, either a call option or a put option. Also referred to as the option holder.

CALL OPTION: An option which gives the option buyer the right to purchase (go "long") the underlying futures contract at the strike price on or before the expiration date.

CLASS OF OPTIONS: All call options - or all put options - on the same underlying futures contract.

CLEARING CORPORATION: The Board of Trade Clearing Corporation, whose function it is to clear (match) all purchases and sales and to assure the financial integrity of all open futures and options transactions on the Chicago Board of Trade.

CLOSING TRANSACTION: A purchase or sale that liquidates - offsets - an existing position. That is, selling an option that was previously purchased or buying back an option which was previously sold.

COMBINATION: A position created either by purchasing both a put and a call or by writing both a put and a call on the same underlying futures contract.

COVERED OPTION: An option written against an opposite position in soybean futures.

CREDIT SPREAD: A spread in which the value of the option sold exceeds the value of the option purchased.

DEBIT SPREAD: A spread in which the value of the option purchased exceeds the value of the option sold.

DELTA: The amount by which an option's price will change for a unit change in the underlying futures price. With the exception of deep-in-the-money options, the change in the option premium is usually less than the change in the futures price. The further an option is out-of-the-money, the smaller the change in the premium and the smaller the delta.

EXERCISE: The action taken by the holder of a call if he wishes to purchase the underlying futures contract or by the holder of a put if he wishes to sell the underlying futures contract.

EXERCISE PRICE: Same as strike price.

EXPIRATION: The date after which an option may no longer be exercised. Although options expire on a specified date during the preceding month, an option on a June futures contract is referred to as a June option since exercise would lead to the creation of a June futures position.

FUTURES CONTRACT: A contract traded on a futures exchange for the delivery of a specified commodity or financial in-

strument at a future time. The contract specifies the item to be delivered and the terms and conditions of delivery.

FUTURES PRICE: The price of a particular futures contract determined by open competition between buyers and sellers on the trading floor of the exchange.

HEDGE: The buying or selling of offsetting positions in order to provide protection against an adverse change in price. A hedge may involve having positions in the cash market, the futures market and/or the options market.

HOLDER: See Buyer.

IN-THE-MONEY: A call is said to be in-the-money if its strike price is below the current price of the underlying futures contract (i.e. if the option has intrinsic value). A put is in-the-money if its strike price is above the current price of the underlying futures contract (i.e. if the option has intrinsic value).

INTRINSIC VALUE: The dollar amount that could be realized if the option were to be immediately exercised. In other words, the amount by which an option is in-the-money. For call options, it is the current soybean futures price minus the strike price if the difference is a positive number. For put options, it is the strike price minus the current price of soybean futures if the difference is a positive number.

LONG: The position, which is established by the purchase of a futures contract or an option (either a call or a put) if there is no offsetting position.

MARGIN: The sum of money or securities, which must be deposited - and maintained - in order to provide protection to both parties to a trade. The exchange establishes minimum performance margin amounts. Brokerage firms often require performance margin deposits that exceed exchange minimums. In turn, they post and maintain customer performance margins with the Clearing Corporation. Option sellers can post Treasury Bonds or other approved collateral to satisfy initial performance margin requirements. Buyers of options do not have to post performance margins since their risk is limited to the option premium.

MARGIN CALLS: Additional funds which a person with a futures position or the writer of an option may be called upon to deposit if there is an adverse price change or if margin requirements are increased. Option sellers can post Treasury bonds or other approved collateral to meet variation performance margin calls. Buyers of options are not subject to margin calls.

NAKED WRITING: Writing a call or a put on a futures contract in which the writer has no opposite cash or futures market position. This is also known as uncovered writing.

OPENING TRANSACTION: A purchase or sale, which establishes a new position.

OUT-OF-THE-MONEY: A put or call option, which currently has no intrinsic value. That is, a call whose strike price is above the

current futures price or a put whose strike price is below the current futures price.

PREMIUM: The price of an option - the sum of money, arrived at in the competitive market, which the option buyer pays and the option writer receives for the rights granted by the option.

PUT OPTION: An option which gives the option buyer the right to sell (go "short") the underlying futures contract at the strike price on or before the expiration date.

PRICE SPREAD: The purchase and sale of two options covering the same futures contract with the same expiration dates but different exercise prices.

SELLER: Also known as the option writer or grantor. The sale of an option may be in connection with either an opening transaction or a closing transaction.

SERIES: All options of the same class having the same strike price.

SHORT: The position created by the sale of a futures contract or option (either a call or a put) if there is no offsetting position.

SPREAD: A position consisting of both long and short options (all calls or all puts). For example, a long position in a call with one strike price and expiration and a short position in another call with a different strike price and/or expiration.

STRADDLE: A combination in which the put and the call have the same strike price and the same expiration.

STRIKE PRICE: The price at which the holder of the call (put) may exercise his right to purchase (sell) the underlying futures contract.

TIME SPREAD: The purchase and sale of two options covering the same futures contract but with the same exercise price, but different expiration dates.

TIME VALUE: Any amount by which an option premium exceeds the option's intrinsic value. If an option has no intrinsic value, its premium is entirely time value.

UNCOVERED OPTION: The sale of an option without a position in the underlying futures contract.

UNDERLYING FUTURES CONTRACT: The specific futures contract that can be bought or sold by the exercise of an option.

WRITING: The sale of an option in an opening transaction.

THAT OLD BLACK & SCHOLES MAGIC

If you're not familiar with the work of Professors Black and Scholes, you need to be. Their pioneering work in the field of options price modeling is the basis on which just about every other price model is built. Trading options without knowing about Black and Scholes is like trying to understand classical music without knowing about Mozart and Bach.

But let's review some basics, which will become important input data for our later discussions.

TO BEGIN: WHAT IS AN OPTION?

It is an investment vehicle giving you the right – but not the obligation – to buy or sell a particular futures contract at a specified price (called strike or exercise price) at any time prior to a specified date (called the expiration or declaration date).

You have the choice of buying a “call” or a “put”. A call gives you the right to acquire a long position in the futures market. You would buy a call, if you felt the price of the underlying future was going to rise. Buy a put when you believe the underlying futures price will decline.

AN OPTION ON A FUTURES MARKET

Always keep in mind the relationship between options on futures and futures themselves. With futures, you assume all the responsibilities of your position. If you are short, you are contingently obligated to deliver the underlying commodity at the expiration of the contract. If you are long, you are contingently liable to accept delivery and pay for the commodity received.

Therefore, the commodity exchanges require futures traders to maintain a reasonably strong financial investment in their futures contracts. This is called margin money. If the market moves against them, they are required to put up additional margin.

BUYING AN OPTION REQUIRES PAYING A PREMIUM

When buying options, there are no margin requirements, unless you exercise your option and take over the futures contract. When buying an option you are required to pay the price of the option – the premium.

Most futures traders and many Options on Futures Traders rarely hold onto their position through delivery or expiration. Most often, they liquidate by obtaining an equal and opposite position. This is called an offset – one position (a long) offsets another (a short). The trade becomes neutral. The difference between the original price and the price at offset is their profit or loss.

Many options traders do the same thing. If they buy a call, they later sell the same call to offset their position. Or if they sell a put, they buy a put to offset. This can be done in most markets at any time prior to the expiration date.

“WRITING” OPTIONS IS RISKY

There is one other situation that needs mentioning, which is called writing or selling options. The writers of options agree to deliver to the buyers of options the underlying futures contracts at any time before the expiration dates. The writers of options are required to keep their positions fully margined because they may be asked to actually deliver futures contracts to buyers of options. This is a very risky business and is not recommended for anyone but the most experienced investors. Writers of options earn the premium that the buyers of options pay.

THE PRICE OF AN OPTION IS THE PREMIUM PLUS TRANSACTION COSTS

The cost of buying options includes the premium price plus the broker's commission plus the fees charged by the National Futures Association (NFA) and the exchange on which the option is traded. The NFA and exchange fees usually run less than \$5.00 per option trade and are used by the NFA and the exchanges for self-regulation of the futures industry.

The NFA is the futures industry's primary governing body. Its purpose is to assure, through self-regulation, high standards of professional conduct and financial responsibility on the part of the individuals, firms and organizations that are its members.

THE INTRINSIC AND EXTRINSIC VALUES

The premium is composed of intrinsic and extrinsic value. Intrinsic value of an option is the value the option would have, if it were converted (exercised) to the futures contract and offset. For example, if you had an option to buy a corn futures contract (5,000 bushels) at \$2.40 per bushel, and the futures price of corn was \$2.50, the option would have an intrinsic value of \$500.00 (5,000 bushels X 10 cents) or 10 cents per bushel.

All the other value in an option are called extrinsic value. Time value is an example. How much time (30, 60 or 90 days) is left before it expires? The longer the time the more likely something positive will happen and, therefore, the more value the option possesses.

Two other factors add value to options. The first is the volatility of the market of the underlying commodity. If prices are making wide and violent swings, there is a higher likeli-

hood that the prices will move in favor of the option. Wild markets make options more expensive.

The second factor is a function of demand. How many other options traders think the option you own will become more valuable? Or to put it another way, in what direction do traders think the underlying commodity prices are headed? If most people believe prices are going up, there will be a higher demand for calls. If a bear market is expected, puts will be in demand.

THE PRICE OF OPTIONS DETERMINED IN “OPEN AUCTION” ENVIRONMENT

The premium is determined by “open outcry” in trading pits on the floor of the major exchanges or in the electronic trading engines of these exchanges. Basically, it is determined the same way futures prices are.

A successful option trading depends on knowing your markets. This is where your broker can be most helpful. Your broker will be aware of most everything impacting pricing.

MEET THE OPTION’S “DELTA FORCE”

Just like the U.S. Army’s famous Delta Force, your option’s delta factor is always ready to help you get out of tight trading situations. It’s just one of the decision-making tools you need to learn to successfully trade options.

DELTA FACTOR A MEASURE OF CHANGE

The delta factor is a measure of the change in the price of your option relative to a change in the price of the underlying futures contract.

Let me explain. Let’s say you have purchased a silver call because you expect the price of silver to rise. You know there is a relationship between what you paid for the option (premium), the current price or premium being asked for that option, and the futures price of the contract you have an option on (the underlying futures).

Can you expect a 1 to 1 relationship? If the futures price of silver increases 10 cents per ounce, will the premium of that option increase 10 cents?

CHANGE IN OPTION PREMIUM VALUE IS LESS THAN THE CHANGE IN FUTURES PRICE

The delta factor addresses this question. Remember all the factors that impact the premium price we talked about last week – volatility of the markets, traders’ expectations, the current price trends, amount time until expiration of the option, the number of calls vs. puts, whether the option is “in” or “out-of the money”. You’ll learn through study of the options that the change in the option premium will represent only a fraction of the change in the price of the underlying commodity price. There is never a higher demand for

the option on a futures contract, than there is for the futures contract itself.

HOW TO CALCULATE DELTA FACTORS

The delta factor is calculated by dividing the amount of price difference of your option by the amount of price difference in the underlying commodity.

For example, if the price of your silver option increased by a nickel when the futures price of silver increased a dime, you would have a delta factor of .50 (.05 divided by .10 = 0.50). This means that you would expect your silver option to increase at half the rate of the futures.

A delta factor of .50 is common when an option is very close to being “in the money”. The delta factor never exceeds 1. Therefore, the higher the delta factor is, the higher potential there is for profits as the underlying futures contract’s price moves.

The opposite is also true. The higher the delta factor, the more expensive the option and the higher the loss can be. In futures and options trading, always consider the risk-reward ratio.

A low delta factor means that there is less of a cause-and-effect relationship between the option and its underlying futures contract. For example, a delta factor of .20 would mean that, for every \$1.00 increase in the value of futures contract, the options premium would increase 20 cents.

HOW DO YOU USE DELTA FACTORS?

The delta factor is a gauge to help you anticipate what options to buy and when to sell (or offset) the options you own. To begin with, let’s say you’re looking at 3 or 4 different options. You’re trying to decide which one to purchase.

You start calculating the delta factors every day or every other day for a week or so. If an option has a very low delta factor, below .25, it may be “deep-out-of-the-money” or in some other way has lost its relationship with the underlying market. You should probably cross it off your list, unless you have a good reason for playing a long shot.

THE IMPORTANCE OF TRACKING DELTA

As you track the delta factors of the other options, you notice one become stronger or outperform others. It is increasing in value faster than the others. This is one reason for considering this option.

It is definitely not the only reason. You must consider all the other elements that go into the calculation of the premium, which were mentioned earlier.

Later on, when you’ve held your option for a while and have decided to offset it, you’ll want to look at the delta factor

from a different perspective. Is it getting stronger or weaker? Knowing the trend of the delta factor of your option can sometimes help you make selling decisions.

THE DELTA FACTORS AS A PLANNING TOOL

The delta factor can also be used as a planning tool. For example, you're considering buying a soybean call. You think between now and the middle of February bean futures will increase by \$2.00 per bushel.

When you calculate the delta factor of the two options you are considering, the first one is .50 and the second one is .60. This means that if your price protection of \$2.00 is correct, the value of the first option will increase by \$1.00 and the second by \$1.20. If the second option costs only 10 cents per bushel more, it is probably a better bargain – all other factors being equal – than the less expensive option.

Always keep in mind that delta factors are not stable. They change whenever the price of the option premium and the underlying futures change, which is constantly. But these prices usually move in tandem, except when the option approaches expiration causing its time value to decay rapidly.

My point is simply this; you cannot calculate a delta factor once or twice and expect it to be valid days or weeks later – especially if your option is in a volatile market.

AN OVERVIEW OF THE BLACK/SCHOLES

Why does the Black/Scholes Formula get so much attention? How can you, as an average option trader, make any use of it? Why should you be interested in the first place?

These are all valid questions, worth a serious answer. To begin with, the Black/Scholes Formula or Model creates a guide by which you can evaluate the options trades offered to you.

FIRST DESCRIBED IN 1971 ARTICLE

Professors Fischer Black and Myron Scholes, of the Graduate School of Business, University of Chicago, and the Sloan School of Management, Massachusetts Institute of Technology, respectively, first published their formula in January, 1971. Since that time, an enormous amount of energy has been expended studying the formula and developing working models.

It has become the conscience of the options trading market. Option premiums, as we talked about earlier, are determined by open outcry in the trading pits. A lot of emotionalism often works its way into the pricing.

The Black/Scholes Model attempts to quantify the pricing... putting it into perspective. You'll be able to pick out the options that are overpriced or underpriced.

Let me briefly describe what composes the model. In the next issue of "Futures and Options Factors", we'll dig into the actual formula in greater detail.

INTEGRATES FIVE VARIABLES

The Black/Scholes Model integrates five variables in a mathematical formula.

The variables are:

1. The price of the underlying commodity futures contract.
2. The time value remaining to expiration.
3. The short term interest rate on a riskless investment.
4. Volatility of the price of the underlying futures contract.

The formula calculates the expected premium for puts and calls. The key word is "expected" premium. If you know what the price "should be", you are in a position to do some analysis.

The current price of the underlying commodity can be taken directly off a price quotation screen at any time or you can use the same price each day, such as the close or settlement price. The latter is most often used if you plan to track an option for a period of time. If you are, it's important to be consistent. The exercise price is the price at which the buyer of the call or put can choose to exercise his/her right to convert the option to the underlying long or short futures position. It is often referred to as the strike price.

Most computer programs, that calculate the Black-Scholes Model, simply ask for the number of days left from the current date to when the option expires. Some programs use the calendar built into the computer's CPU and just ask for the expiration date. The computer then counts the days left. This number is converted to a percentage in the actual calculations of the theoretical price of the option.

The next factor under consideration is the interest rate. The interest rates reflect the cost of the money used to hold the option until the expiration date. The usual figure used is the rate for treasury bills maturing closest to the option expiration date. For a 60-day option, use the 60-day T-Bill rate. For a 90-day option, you can use the 90-day T-Bill rate.

Before we tackle volatility, I'd like to note that the first four factors are straight forward. Very little discretion is required on the part of the option trader. This changes substantially with volatility and that is what makes it such a critical factor.

Volatility measures the speed of the market. It tells you how active the market is, but not what direction. Here's where futures and options-on-futures are somewhat different. Futures traders are extremely sensitive to the direction of the market. They are either long or short, in a bull or bear

spread. If the market moves in their direction, they'll generally make money or at least won't be seriously hurt.

Options traders own a wasting asset. In 30, 60, or 90 days, the option expires worthless. Naturally, they are concerned with market direction, since they generally own a put or a call, but the volatility of the market is equally as critical. If a market is very volatile, even options out or near out-of-the-money can be positively affected. It's not uncommon for experience option traders to trade the volatility. They'll sell volatility when it peaks and buy it at lows. Just as futures traders try to short price highs and buy at lows.

The volatility number is obtained by calculating the percentage of price change from one period to the next. The most common period is from one daily settlement price to the next. It could just as easily be calculated using the weekly or monthly close to provide a longer term view of the price stability or instability, as the case may be.

Calculating volatility using the actual settlement price creates what is more correctly called the historical volatility. The option trader must now decide how much history to use. This is where a lot of slippage or errors can creep into the calculations.

What period of time – the last 10, 30, 50, 250 days – will most accurately reflect the price activity for the remainder of the life of the option? There is no definite answer to this question. A value judgment is required on the part of the trader. The trader must look at volatility charts and decide if there are any trends in the direction of the volatility. Are the last 2 weeks more meaningful than the last 2 months, 2 quarters or 2 years? Will replotting the volatility rate as a moving average help smooth out the trend and provide a useful insight?

It is common for experienced traders to work backwards on this problem. They know the current price of the underlying commodity, days to expiration, and exercise price of the option being studied. They can also get a bid-ask from their broker or off their price quotation machine. With all this information, they can solve for the volatility. This is known as implied volatility. It is the volatility implied by the price of the option in the pits.

You can then compare the current implied volatility with the historical volatility. Keep in mind that the implied volatility changes with each change in the bid price, since this is the price you can buy the option for.

Option traders are forecasting volatility when they plug a figure into the Black-Scholes Model. It takes judgment and instinct to do it successfully. When option trades go sour, you can usually trace the error to the forecasted volatility, since it is the only input factor in the model requiring a lot of judgment. For

this reason electing the volatility rate is usually considered the most critical and difficult part of the option selection process.

DETERMINES A "GOOD" PREMIUM PRICE

For example, let's say you're considering a January Soybean Put with a \$5.75 strike price. The asking price is \$700.00 or 14 cents per bushel. Is this a good price or is it too high?

Let's say you then run the Black/Scholes Model and it calculates a price of \$500.00 or \$200.00 below the asking price. This is your first clue that the option may be overpriced. The model may determine the price at \$900.00, just as easily. In that case, you would consider an option that is \$200.00 underpriced.

ADVANCE KNOWLEDGE OF WINNERS AND LOSERS

The point is simply this: The Black/Scholes Model calculates an expected price given the 5 variables. You use it as your guide. Sometimes it alerts you to bargains. It is not a guide to guaranteed winners or losers.

You still have to make the decision as to where you think the price of the underlying option is headed. Then you should calculate the delta, which we discussed in last week's issue, to get a feel for the relationship between the price of the option and the price of the underlying futures contract.

By the way, the delta factor is incorporated in the Black/Scholes Formula as part of the volatility portion of the formula.

THE BLACK SHOLES MODEL IS AN IMPORTANT PART OF AN ANALYSIS PROCEDURE

If you are an experienced analyst of futures markets, you can double check the calculations of the formula. There is a direct link between the formula and other types of analysis. Your additional analysis – whether technical or fundamental – should agree with the results of the Black/Scholes Model before you make an investment.

In the soybean analysis, for example, let's say you believe soybeans are going to make a substantial move between now and March, 1989. You project a price of \$10.00 to \$12.00.

When the \$8.00 call is priced at \$1600.00, and the Black/Scholes Model indicates you should expect a premium of \$1200.00, you may still want to purchase one believing that the market has built some of its price expectation into the price of the call. At the \$1200.00 price, you might snap up several options because you really believe it is substantially underpriced.

The Black/Scholes Model gives you the benchmark from which to make your decision as to how good a deal really is, or how bad an overpriced option is. But never use it as your sole analytical tool. Don't forget, Black/Scholes calculates

the premium value of every put for every call. You must decide which side of the market you want to be on.

ONE WORD OF CAUTION...

The Black/Scholes formula has a tendency to overprice options. The reason is that it was originally developed for European options, rather than American. The difference between the two relates to the manner in which they can be exercised.

AN OVERVIEW OF THE BLACK/SCHOLES FORMULA

Within the barking pits an emotionally generated premium can arise. Human imperfection may create a cost of the option above or below its real worth. Myron Scholes and Fisher Black assembled a formula using somewhat the same indicators the "market" uses in an attempt to create a theoretical unemotional value of an option.

THE OLD NEWS...

The original formula created by the combination of Mr. Black and Mr. Scholes was used to find the premiums of stock options. The formula used a logarithmic assumption with six variables or market factors. The first variable was the current price of the stock (the formula will let it equal U). The second factor was the value of the cumulative normal density (N). The third variable is the strike price (E). The next is the risk free short term interest rate factor (R) and the duration of the option (T). The final variable is given as the variance rate on the return of the stock ($O2$). You will notice later that one of the differences between the new model and the old is in variables, one uses variance rate and the other uses the volatility function. Below is the real beginning of premium probability functions:

THE NEW NEWS...

By using the same assumption of logarithmically Black went on to create the Black model. The Black formula selected similar variables: (U) the underlying commodity, (E) the exercise price, (R) as the short term rate of interest, (T) the time to expiration, (V) the standard deviation of market volatility, and (N) as the Normal Cumulative probability distribution factor. Fisher Black created two formulas for the two sides of the options, the Puts (P) and the Calls (C). The Put "users" calculate their premiums with:

The Call side uses the same ($D1$)($D2$) function as the put, but uses a formula all of its own as shown below:

Now that you have the formulas, where do you get the numbers? The most obvious are the underlying price and the exercise price, which a simple quote screen would oblige

you. Another easy to obtain variable is the T-Bill interest rate, using the same contract month as your option. The time is the percentage of a year that is left until expiration.

Getting deeper into the variables we find volatility which can and should be calculated by taking the previous high and low price of a period of time say (i.e. 6 months before the date of calculation) and use the formula:

The final variable is (N) the Normal Cumulative probability distribution factor that follows the price has a 50% chance to rise and 50% chance to decline. I use a bell shaped graph to determine the factor with .25 as the maxima.

In the simulated example above, an assumed answer of .17 is calculated for the (N) variable.

THE GOOD NEWS...

Still a little vague, it wouldn't be surprising due to the formula's tendency to be a little inexact in definition. Hopefully to help you understand we'll put an example together using the information at the end of January 3rd trading.

EXAMPLE

On January 3rd, 1989, you are trying to decide on whether to purchase an April Gold Call. The underlying gold price for April gold is 418.70(U) with a strike price in the options of 400(E) at a 22.80 premium. There are 104 days to the expiration of the contract ($104/365 = 28\% = t$) and the T-Bills show a rate of interest at 8.08%(r). Over the previous 6 months, you calculated a volatility at 14%(v). Your Normal Distribution bell curve is reading at .24(N).

The example shows an overpriced option. The overpriced option looks far fetched at a glance, but due to the emotional factors of a market, the strike that is close to the underlying futures, and the amount of gold trading (particularly Call purchasing) for the day, may be fairly accurate.

THE BAD NEWS

If you are running a couple of examples through the formula and you come up with an unusual premium, check for these explanation points:

- The open interest on the day of the underlying price.
- The emotional factors that influence the market (i.e. crop report, etc.).
- The volatility on the day the data was collected.

Sometimes a price when it is too close to the underlying is used, the emotion of the pits taint the premium and the normal cumulative probability factor is distorted.

THE FORMULA

$$\text{Premium} = UN(d1) - Ee^{-rt}N(d2)$$

$$(d1) = \frac{\ln(U/E) + (r + \frac{1}{2}\sigma^2)t}{\sigma\sqrt{t}}$$

$$(d2) = (d1) - \sigma\sqrt{t}$$

$$P = -e^{-rt}[UN(-d1) - EN(-da)]$$

$$(d1) = \frac{[\ln(v/E) + (vt)/2]}{\sigma\sqrt{t}}$$

$$(d2) = \frac{[\ln(U/E) - (vt)/2]}{\sigma\sqrt{t}}$$

$$*C = e^{-rt}[UN(d-1) - 3EN(da)]$$

$$\frac{\text{High Price} - \text{Low Price}}{(\text{High Price} + \text{Low Price})/2} = (t)$$

$$(d1) \div (da) = \frac{[\ln(4187/400) \pm (14)(.28)/2]}{(.14)\sqrt{.28}} = \frac{.0456901 \pm .0196}{.074081}$$

$$(d1) = .8813339 \quad (d2) = .3521834$$

$$\begin{aligned} \text{Call} &= [27182818 (.0808)(.28)] [(418.7)(.24)(.8813339) + 3(400)(.24)(.3521834)] \\ &= [.0614984][88.563481] = 101.42882 \\ &= 11.684223 \approx 11.68 \end{aligned}$$

FAIR MARKET VALUE

Last week's discussion of options prompted the question of how do you know if an option's price is too high or if it is a bargain? This is the concept of Fair Market Value. I think, at times, it has been oversimplified and misrepresented. Here's how I look at the Fair Market Value of an option.

WHOSE VISION?

The textbook definition calls Fair Market Value (FMV) the price at which the buyer of an option and the writer of an option agree upon at open auction at an exchange. This, of course, is how the price of options on futures are determined. To my thinking, FMV is a much more complex subject.

To begin with, FMV does not include transaction costs to the buyer or seller. These are basically the commissions and various fees that must be paid. On some inexpensive options, they can be a high percentage of the price of the option and must be considered when developing trading strategies.

A more important consideration as far as FMV is concerned is the vested interest of various buyers and sellers. What may be important for one, may not be for another.

Take the scalpers on the floors of the exchanges trading for their own accounts. They seek short term profits during the course of trading sessions, rarely carrying positions overnight. They'll spot a move or a trend and trade it for a few minutes, an hour or so and take their profits or losses. Their motivation is nothing more than quick profits. It doesn't matter which way the markets are headed, as long as there is liquidity and some up-down movement. Scalpers are exchange members, or at least they lease seats, thus their per trade costs are low. They provide a very important function, which is to keep the market liquid. If it wasn't for scalpers, there would be wider gaps between bid and ask prices.

The next trader types to consider are the arbitrageurs and the spreaders. Arbitrage is the simultaneous purchase of a cash commodity or futures/option contract in one market against the sale of the same entity in a different market to profit from the difference in price. Spreading is very similar, but there are two differences. First, the arbitrageur seeks price misalignments only. For example, London gold is out of line with COMEX gold. One contract is traded "against" another.

Spreaders trade related markets, which may or may not be the same. Secondly, they have a longer term view of the

market and a much broader trading spectrum, i.e. inter market or exchange, inter commodity, inter delivery and commodity-product spreads.

Arbitrageurs rarely take positions home overnight. They are day traders. Spreaders can hold positions for days, weeks, and months. Arbitrageurs take equal and opposite positions in the same commodity. Their risk is limited to their initial position. Spreaders are in the same and/or related markets for long periods of time. They carry the risk of the related markets reacting differently to market influences.

Both have an important market function. They are the price cowboys of the futures ranges. The arbitrageurs handle the long term; spreaders the short term. Whenever they see some prices straying, they ride out and drive them back into the herd.

Hedgers are the next market segment we need to discuss. Their objective in the futures market is to offset the risk of price fluctuations in the cash market of commodities they currently own or need in the future. A farmer, for example, produces 100,000 bushels of corn or soybeans. Commodity prices soar during the summer because of a drought scare. He wishes to capture the high prices before his crops are ready to harvest. He can do this by buying a hedge, giving him the right to sell at a given price in November. Bankers do the same thing with interest rates. Investors offset the risk of stock ownership through the use of stock index options. You'll find hedgers in just about every market.

Another group related to the hedgers is the commercials. They can be both hedgers and speculators in the markets. What puts them in a class of their own is the large size of the trades they execute. Professional traders, Commodity Trading Advisors (CTAs), can be included in this general classification.

The only major market makers I haven't mentioned are the speculators. These are, of course, all the large and small traders seeking to take some profit from the market.

Now, let's describe what Fair Market Value means for each of these market segments. The scalpers really do not care. Their goal is to buy at one price and sell at a higher or vice versa. FMV is meaningless to them. The same is true for arbitrageurs. But these two groups help keep the other traders in line.

The real interest of spreaders is the difference (or spread) between the two contracts they are trading, but these prices must reflect a FMV based on each of the commodities for the current market conditions for the spreads to work. Minor misalignments, that would interest scalpers or arbitrageurs, are of no importance to spread specialists. Hedgers are interested in paying the lowest price possible for the option that hedges their risk. Often hedgers consider options as price insurance and they want the lowest premium.

The textbook description of FMV s most meaningful to speculators, commercials and professional traders. They are the ones that go to market with the hope of agreeing on a fair price. Most of the others look for "error" – prices that are not fair, out-of-line. When you think of Fair Market Value, you should keep this in mind. Compare the price of similar options on different exchanges, if possible. Select the one that helps you reach your objectives fastest.

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