

Making Sense of Futures Options

Disclaimer: Trading in futures and options is not suitable for all investors as the risk of loss is substantial. Purchasers of options may lose their entire investment. Sellers of options are subject to unlimited risk.



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ISBN 0-915513-43-9

MANUFACTURED IN THE UNITED STATES OF AMERICA

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What is an Option?

In the words of a lawyer: an option is “a unilateral contract giving the buyer the right to buy or sell an asset at a specific price within a certain time period.”

In plain English: an option is a legally enforceable agreement between a buyer and a seller, giving the buyer the right to buy or sell a specific asset at a certain price, during a certain period of time.

There are two types of options: calls and puts. If, for any reason, an investor wants to buy an asset, he may buy a call. This gives him the right to buy the asset at a set price before a certain date; for example, a farmer may purchase a call for ten acres of land at a price of \$2,000 per acre, within one year. If he pays \$1,000 for this option and the price of the land rises to \$2,500 per acre during the one year period, he may exercise the call, purchasing the land at \$2,000 per acre (the strike price), as it was agreed upon. The seller is obligated to sell the land for \$2,000 per acre.

If, on the other hand, our farmer plans to sell corn, he will buy a put. It gives him the right to sell the corn, perhaps to a grain elevator, at a set price, before a certain date: for example, he may purchase a put for 5,000 bushels of corn to be sold at a set price of \$2.75 per bu., within six months. If he pays \$250 for the option, and the price of corn falls to \$2.50 per bu. within six months, he will exercise the put, selling the corn at \$2.75 per bu. (the strike price), as it was agreed upon. The writer (seller) of the put is obligated to buy the corn at \$2.75 per bu.

In these examples, land and corn were the underlying assets. In the case of futures options, futures contracts* are the underlying assets. For example, if you buy a COMEX

April 400 gold call, it entitles you to buy a COMEX April gold futures contract at \$400 per ounce. Conversely, if you buy a COMEX⁺ April \$400 gold put, it entitles you to sell a COMEX April gold futures contract at \$400 per ounce.

You have two alternatives to exercising an option: offsetting and expiration. To offset (liquidate) the purchase of a futures call, you sell the call. The buyer of a put offsets his position by selling the put. Sellers of calls and puts may also liquidate their options by buying them back, thus eliminating their obligation to perform on the option.

To illustrate the offset of a long call position, let us assume that you purchased a NYMEX^{**} May 17 crude oil call when May crude oil futures contracts were trading at \$15.50, per barrel. The price (premium) you paid for the call is \$1.04 per barrel. Because there are 1,000 barrels per contract, your total outlay was \$1,040.00. Three days later, when the May crude oil futures contract was at \$15.79/barrel, the May 17 crude oil call was at \$1.13 per barrel. If you sold your call at \$1.13/bbl., you would realize a gain of \$90.00.

* A futures contract is a legally enforceable agreement to make or take delivery of a specific quantity and grade of a particular commodity, or cash, during a designated delivery period (the contract "month"); for example, a June Deutsche Mark futures contract provides for delivery of 125,000 Deutsche Marks during the June delivery period. The contract also specifies, among other things, delivery point and price adjustments for variations from contract specifications.

+ COMEX stands for Commodity Exchange, which is located in New York city and is known primarily for its futures contracts on metals.

** NYMEX stands for New York Mercantile Exchange, which is located in New York city and is known primarily for its energy, platinum, and palladium contracts.

The price (\$1.04/bbl.) you paid for the call is known as a premium, and is determined by market supply and demand. It is also affected by market activity, the time remaining before expiration, the price of the underlying futures contract, and price expectations.

At a Premium

The price you pay for an option (the premium) consists of two elements: intrinsic value and time value.

For an option to have intrinsic value, it must be “in-the-money”; that is, in the case of a call, the underlying futures price must be higher than the strike price; in the case of a put, it must be lower than the strike price.

An option has no intrinsic value if it is out-of-the-money or at-the-money. A call is out-of-the-money when the futures price is below the call strike price; it is at-the-money when the futures price and the strike price are equal. A put is out-of-the-money when the futures price is above the strike price; it is at-the-money when the futures price and the strike price are equal.

Call:

Futures Price > Strike Price=in-the-money

Futures Price < Strike Price=out-of-the-money

Futures Price = Strike Price=at-the-money

Put:

Futures Price > Strike Price=out-of-the-money

Futures Price < Strike Price=in-the-money

Futures Price = Strike Price=at-the-money

The following examples illustrate the same principles, but view them from different perspectives.

Example A describes the in- and out-of-the-money relationship where the underlying futures price remains constant, but option strike prices differ:

A: If the CME* June Live Cattle futures price is 77.00¢/lb.:

- a. a June 75 call is in-the-money by 2.00¢/lb.;
- b. a June 77 call is at-the-money;
- c. a June 79 call is out-of-the-money by 2.00¢/lb
- d. a June 75 put is out-of-the-money by 2.00¢/lb
- e. a June 77 put is at-the-money;
- f. a June 79 put is in-the-money by 2.00¢/lb.

Example B shows a call and a put with the same strike price and how different futures prices affect in- or out-of-the-money positions.

B.					
Futures Price	79 77 75	in-the-money at-the-money out-of-the-money		79 77 75	out-of-the-money at-the-money in-the-money
	└─┘			└─┘	
	77 Live Cattle Call			77 Live Cattle Put	

When an option is “in-the-money,” the difference between the strike price and the futures price is the option’s intrinsic value; for example, if the CSCE+ July sugar futures con

* CME stands for Chicago Mercantile Exchange, which is located in Chicago and is known primarily for its livestock, foreign currency, T-Bill, and stock index futures contracts.

+ CSCE stands for Coffee, Sugar & Cocoa Exchange, which is located in New York city and is known primarily for its coffee, sugar, cocoa, and inflation futures contracts.

tract is selling at 11.10¢/lb., the 10.00¢ July futures call option is “in-the-money”; its intrinsic value is 1.10¢/lb. On the other hand, if the price of the futures contract is 9.55¢/lb., the 10.00¢ July sugar futures call option is “out-of-the-money”; it has no intrinsic value.

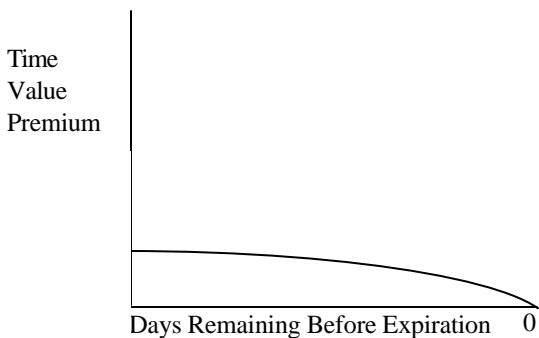
When an option is “out-of-the-money,” it has no intrinsic value; however, it may have time value. The time value of an option reflects the market’s evaluation of the probability that the futures contract will reach the option strike price before expiration of the option; thus, the time value of a call is greater when the market’s trend is upward and/or there is plenty of time remaining before expiration for the futures price to exceed the option strike price.

Time value is the portion of the premium paid for an option in excess of its intrinsic value. If the premium paid for the 10.00¢ July sugar futures call option is 1.79¢/lb. when the July sugar futures price is 11.40¢/lb., the intrinsic value is 1.40¢/lb., and the time value is .39¢/lb. When an option is out-of-the-money, the entire premium is attributable to time value.

What Do You Get When You...

Let Your Option Expire?

Options expire, usually nine months after their inception. They are said to “waste away.” Although options can be purchased or sold at any time during their life, as they approach expiration they are less likely to yield a profit; therefore, their time value tends to decline as follows:



If an option is out-of-the-money at expiration, it expires worthless. The premium paid is forfeited; that is, the option writer keeps the premium. For example, you buy a CBOT* May 300 corn call at $2\frac{1}{2}\text{¢}$ per bushel when May corn futures are at $277\frac{3}{4}\text{¢}$ per bushel. When the option expires on April 22 (approximately one month prior to the last day of trading for the futures contract), the May futures price is 280¢/bu . The call is out-of-the-money. The purchaser forfeits the $2\frac{1}{2}\text{¢/bu}$. premium (\$125.00), which the writer keeps.

Offset?

When you offset the purchase of a call, you sell it either at a higher price or a lower price. A higher priced call results from a rise in the underlying futures price. Upon sale, the option purchaser profits by the amount of increase in call premium. Its price will be lower if the futures price is lower or the time value has decayed upon sale. The call purchaser loses the amount of the decrease in call premium.

When you offset the purchase of a put, you sell it at a higher price or a lower price. A higher priced put results from a decline in the under

* CBOT stands for Chicago Board of Trade, which is located in Chicago and is known primarily for its grain and T-Bond futures contracts.

lying futures price. Upon sale, the put purchaser profits by the amount of increase in put premium. Its price is lower if the futures price is higher or the time value has decayed. Upon sale, the put purchaser loses the amount of the decrease in put premium.

A call writer receives a premium when he writes the call, but is also obligated to heed the call if the purchaser exercises his right to demand delivery of the underlying futures contract. If the writer wishes to, he may offset prior to expiration and thus eliminate his obligation. Upon liquidation (repurchase of the call), if his repurchase price is lower than his sales price, his gain is the difference between the two. On the other hand, if his outlay exceeds the premium received, he incurs a loss. The net loss is the difference between his sales price and the repurchase price; however, prior to offset, the call writer may be required to increase his margin deposit to cover the loss in the underlying futures contract. This requirement stems from the seller's obligation to deliver the underlying futures contract, should the purchaser exercise his call.

A **put writer** receives a premium when he writes a put, but also becomes obligated to take delivery if the purchaser exercises his right to deliver the underlying futures contract. If the writer wishes to, he may offset prior to expiration and thus eliminate his obligation. Upon liquidation (repurchase of the put), if his repurchase price is lower than his sales price, his gain is the difference between the two. On the other hand, if he pays more than he received, he incurs a loss. The net loss is the difference between his sales price and the repurchase price; however, prior to the offset, the put writer may be required to increase his margin deposit to cover the loss in the underlying

futures contract. This requirement stems from the seller's obligation to take delivery of the underlying futures contract, if the put purchaser exercises his option.

	Risk Limited to premium paid	Subject to margin calls
Call (long)	X	
Call (short)		X
Put (long)	X	
Put (short)		X

Exercise?

Upon exercise, the **option purchaser** receives an underlying futures position (a call receives a long futures position, a put receives a short futures position) by book entry with the clearinghouse. His premium becomes margin in his futures account. To clear his account of this futures position, he must offset (long futures must sell, short futures must buy).

When the buyer exercises his option, the **option writer** must deliver an underlying futures position (a call supplies the buyer with a long futures position, while the writer receives a short futures position; a put supplies a short futures position, while the writer receives a long futures position) by book entry with the clearinghouse. Although he keeps the premium he received from the buyer, the writer must pay the difference between the strike price and the futures price to fulfill his obligation to the buyer. To clear his account of this futures position, he must offset (short futures must buy, long futures must sell).

Breaking Even

Call Purchaser

The buyer of a call pays a premium. For the call to be profitable, it must be exercised at a price above the break-even point. This point is calculated by adding the premium and commissions paid to the call's strike price. For example, you purchase a NYCE* May 73 cotton call for 2.25¢/lb. when May cotton futures are at 74.48¢/lb. Commissions are \$50 per round turn. Cotton futures contracts are 50,000 lbs. The break-even price is 75.35¢/lb. ($\$50 / 50,000 \text{ lbs.} = \$0.0010 = 0.10\text{¢/lb.}$; $73.00\text{¢/lb.} + 2.25 + 0.10 = 75.35\text{¢/lb.}$). Although futures options may be exercised at any time before expiration, it would not be economical to exercise below the break-even point. Realistically, you would rarely exercise an option because of the loss of the time value; more likely you would offset your option, thus keeping your transaction costs to a minimum and avoiding the risks of trading futures contracts. The only time you may wish to exercise is when the option is deep in-the-money and has little time value.

Call Writer

The call writer assumes a passive position. He may not exercise the call, but may be required to deliver a long position, thereby receiving a short futures position. This is most likely to occur when the call is deep-in-the-money. In other words, the purchaser tends to exercise when the writer is above break-even; i.e., above the strike price plus the premium less

* NYCE stands for the New York Cotton Exchange (also abbreviated "CTN"), which is located in New York city and is known primarily for its cotton, orange juice, and T-Note futures contracts.

commissions. For example, you sell a CME March 435 S&P 500 call when the CME S&P 500 stock index futures contract is trading at 447.65. The premium you receive is 13.85. Commissions are \$60 per round turn. The contract size is \$500 times the index. Your break-even point is 448.73 ($\$60/500 = 0.12$; $435.00 + 13.85 - 0.12 = 448.73$). If the futures price exceeds 448.73, you suffer a loss when the purchaser exercises his option.

Put Purchaser

The buyer of a put pays a premium. For the put to be profitable, it must be exercised at a price **below** the **break-even point**. The break-even point is calculated by subtracting the premium paid and commissions from the put's strike price. For example, you purchase a KCBT* May 310 wheat put for $4\frac{1}{2}\text{¢/bu.}$ when May wheat futures are at 326¢/bu. Commissions are \$62.50 per round turn. Wheat contracts are 5,000 bu. The break-even price is $304\frac{1}{4}\text{¢/bu.}$ ($\$55/5,000 \text{ bu.} = 1\frac{1}{4}\text{¢/bu.}$; $310\text{¢/bu.} - 4\frac{1}{2}\text{¢} - 1\frac{1}{4}\text{¢} = 304\frac{1}{4}\text{¢/bu.}$). Please note that, for puts, you do not exercise unless the futures price is *below* the break-even point.

Put Writer

The put writer also assumes a passive position. He may not exercise the put, but may be required to deliver a short position, thereby receiving a long futures position. This is most likely to occur when the put is deep-in-the-money. In other words, the purchaser tends to exercise when the writer is below break-even; i.e., below the strike price minus the premium

* KCBT stands for the Kansas City Board of Trade, which is located in Kansas City, Missouri, and is known primarily for its wheat and stock index futures contracts.

plus commissions. For example, you sell a COMEX May 105 copper put when the COMEX May copper futures contract is trading at 87.60¢/lb. The premium you receive is 19.05¢/lb. Commissions are \$55 per round turn. Copper contracts contain 25,000 lbs. Your break-even point is 86.17¢/lb. ($\$55/25,000 \text{ lbs.} = \$0.0022 = 0.22\text{¢/lb.}; 105.00\text{¢/lb.} - 19.05\text{¢} + 0.22\text{¢} = 86.17\text{¢/lb.}$) If the futures price falls below 86.17¢/lb., you would suffer a loss when the purchaser exercises this option.

Break-even is an important money management tool. By keeping an eye on the break-even point, the **option writer** knows at what point he will incur a loss, should the **option purchaser** exercise. He may decide to offset his position before an exercise inflicts a loss. The option purchaser, too, may use the break-even point to decide whether to exercise his option.

Reading the Newspaper

Each exchange has its own contract specifications, which include the commodity, contract size, contract grade, minimum fluctuation, daily limit, and contract delivery months. Some of these can be found, together with price data, in financial newspapers.

A particular futures option is described by the strike price, the futures delivery month, futures contract, and type. The *Wall Street Journal* lists the “March 9450 Eurodollar futures call option” as shown below:

EURODOLLAR (CME) \$ million; pts of 100%

Strike	Calls—Settle			Puts—Settle		
	Mar-c	Jun-c	Sep-c	Mar-p	Jun-p	Sep-p
9450	0.41	0.38	0.57	0.01	0.25	0.38
9475	0.17	0.25	0.43	0.02	0.37	0.48
9500	0.03	0.16	0.32	0.13	0.52	0.60

Est. vol. 16,038, Fri vol. 5,369 calls, 7,238 puts

Open interest Fri; 173,939 calls, 139,576 puts

EURODOLLAR (CME)—\$1 million; pts of 100%

	Open	High	Low	Settle	Chg.	Yield		Open
								Interest
Mar	94.89	89.91	89.88	89.90	+05	10.10	-.05	130,690
Mar	94.57	89.64	89.56	89.63	+12	10.37	-.12	241,822
Mar	94.66	89.70	89.64	89.70	+12	10.30	-.12	130,639

“Eurodollar”* refers to the underlying futures contract. It is an option to buy a March CME Eurodollar futures contract. CME is the exchange on which the option is traded. The contract size is \$1 million, and is traded in points of 100% (.01% x \$1,000,000 x 90/360 days = \$25.00 per .01). Strike prices are shown in the far left-hand column without the decimal point. They are chosen at intervals around the futures price. Calls are indicated with a small “c” after the month, puts are denoted with a small “p.” The most active months are published; in this case, March, June, and September. Option premium settlement prices are listed under the appropriate columns.

Because the premiums are quoted in points of 1% (\$25 each), the March 9450 call costs \$1,025.00 (41 x \$25 = \$ 1,025.00). The only way the call premium will rise from this level is if the underlying futures price increases from its current level (94.90); however, the call premium may not rise when the futures price rises if the decay of time value exceeds the futures gain. Upon a cursory glance, we see

* Eurodollar futures are based on Eurodollar Time Deposits which consist of 90-day deposits of U.S. dollars in foreign banks. They are similar to Certificates of Deposit, except they are not regulated or guaranteed by the U.S. government.

that the intrinsic value of this call is .40, the time value is .01. This indicates that the option is nearing expiration. Upon further research, we find that the option is 5 days from expiration. On Day 2, if the futures price rises to 96.10, the call premium may be 1.61, moving point for point with the futures price. The gain is 1.20, or \$3,000.00 ($120 \times \$25 = \$3,000$).

On the other hand, if the futures price **declines**, the **call** price tends to **decline** because the time value is decaying and the futures price is declining. For example, if the futures price falls to 94.78, the call premium may decline to .28, retaining only its intrinsic value. The loss equals .13, or \$325 ($13 \times \$25 = \325). When the futures price **declines**, **put** premiums tend to **rise**, unless time value decay consumes the gain. This occurs because a short Eurodollar futures position (what you get when you exercise a long put) profits from a Eurodollar price decline. In this case, the purchaser of a June 9500 Eurodollar put (in-the-money by .10) pays a premium of 0.52 when the futures price is 94.90. The time value is 0.42. If the futures price declines to 94.78 on Day 2, the put premium may rise to .62, creating a gain of .10, or \$250 ($10 \times \$25 = \250).

Finally, if the futures price **rises**, **put** premiums tend to **decline** because the time value is decaying and the futures price is rising. If the futures price rises to 95.05, the put premium may decline to .35, producing a loss of .17, or \$425.00 ($17 \times \$25 = \425.00).

After the price quotes, the newspaper listing divulges an estimated volume figure, and the previous day's volume for both calls and puts. **Volume** is the number of contracts traded daily; i.e., the number of contracts bought or sold. For Eurodollars, the prior day's volume was estimated to be 16,038 calls and puts. The

previous business day's volume was 5,369 calls and 7,238 puts. Volume figures are important to technical analysts who track price movements and market participation.

Open interest, shown on the last line, is also important to technicians as an indicator of interest in the commodity. It reveals the number of contracts outstanding. Both calls and puts have an open interest position consisting of the number of long or short positions not yet offset. Open interest is an ever changing figure throughout the life of a contract. In this example, there are 173,939 calls outstanding, and 139,576 puts; a very liquid market.

Your Order Please!

There are many different types of orders; each exchange specifies the type that may be traded in its trading pits. Orders can be categorized as follows:

1. **Market orders**
2. **Stop orders**
3. **Limit orders** (resting orders)

Market orders are orders to buy or sell at the best possible price **as soon as possible**. They are the first orders to be filled at any given price, and are used to enter or exit the market quickly, regardless of price.

Stop orders are traded only when the market price trades "through" the stop price. The following diagram illustrates the placing of such orders:

95.84	Buy Stop
95.74	Market Price
95.64	Sell Stop

A **buy stop** order is placed above the current market price, and becomes a market order when the option's premium **trades or is bid at or above** the stop price. A buy stop order can be used to limit losses (a stop loss order) on a short position, or to establish a long position. When a stop loss order is triggered due to market movements, the trader is "stopped out." Because stop orders become market orders, the fill price may **not** be at or near the last traded price. **No order can guarantee a fill at a specific price!**

A **sell stop** order is placed below the current market price, and becomes a market order when the option's premium **trades or is offered at or below** the stop price. A sell stop can be used to limit losses on a long position, or establish a short position.

Limit orders are used to buy or sell **at a specified price or better**. *They never become market orders.*

95.84	Sell Limit
95.74	Market Price
95.64	Buy Limit

A **buy limit** order is placed below the current market price, and is filled only **at or below** the limit price. A **sell limit** order is placed above the current market price, and is filled only **at or above** the limit price.

Limit orders are the lowest in priority and are filled after market and stop orders; thus, the market price may touch the limit order price and yet the customer **may not** receive a fill. If the order is not filled, it may not be a broker error.

Stop limit orders are used like stop orders, but execution is restricted to the limit price or better. They never become market orders!

95.84	Buy Stop Limit
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95.74	Market Price
-------	--------------

95.64	Sell Stop Limit
-------	-----------------

A **buy stop limit** is activated when the option is bid or traded **at or above** the stop level; however, the order is not filled unless the price subsequently remains at or drops below the limit level. A **sell stop limit** is activated when the option is offered or traded **at or below** the stop level; however, the order is not filled unless the price subsequently remains at or rises above the limit level.

For a stop limit order, the prices for the stop and the limit need not be at the same level; for example, an order may read “Buy 95.84 stop 95.90 limit.” The order is activated when the price reaches 95.84, but is filled only if it remains at or below 95.90.

Stop limit orders offer some price protection, especially in fast-moving markets; however, **no order** can be guaranteed an execution when market prices fluctuate widely; i.e., move limit-up or -down. If the stop limit order is filled, it will be filled at the limit price or better. Stop limit orders are, along with limit orders, the lowest priority orders to be filled.

The following chart illustrates the relationship between the market price and the position of each order.

95.84 Buy Stop Sell Limit Buy Stop Limit

95.74 Market Price

95.64 Sell Stop Buy Limit Sell Stop Limit

Into the Pits and Back

Most people see very little of the order filling process. They place an order, and a few minutes later, the execution is confirmed. Within the short time it takes to fill an order, hundreds of market participants cooperate to bring buyers and sellers together from around the world. To understand the market's operation, it is helpful to follow the course of a trade.

Farmer George expects to grow 10,000 bushels of spring wheat. To hedge his production, he decides to buy 2 MGE* May 335 spring wheat puts. He calls his broker and places a market order. The broker fills out the order slip with the appropriate information and records the time of entry by "time-stamping" it. He then calls his firm's (or their clearing firm's) order clerk, who may be on the floor of the exchange. (The clearing firm is a member of the Clearinghouse, which is an agency of the exchange. It guarantees all trades, assures contract performance, and includes firms of the highest financial and ethical qualifications.) The order clerk writes down the order, time-stamps it, and hands it to a runner, who takes it to the trading pit and gives it to the floor (or pit) broker. He,

* MGE stands for Minneapolis Grain Exchange, which is located in Minneapolis, Minnesota, and is known for its spring wheat futures contract.

in turn, executes the order by “open outcry.” Open outcry is the practice of offering orders to the other pit traders by calling the orders out and using hand signals.

Once an order is filled, the pit broker writes the execution on the order card, and tosses the paper out of the pit. The runner takes the executed order back to the order desk: the order clerk stamps the time of execution on the order, and calls George’s broker to confirm the trade. The broker once again time-stamps the order, and calls George to confirm the trade. Often, this process occurs so quickly that the broker keeps George on the line while the order is being filled, to inform him of the fill price within moments of his order.

A market reporter observes the activity in the pit and records price changes, which are posted on chalkboards or electronic display boards operated by computer. The price information is then disseminated to the quotation services and investment media. The Clearinghouse matches the buyers’ and sellers’ orders. When it has verified the transactions, the Clearinghouse becomes guarantor and acts as the buyer for every seller and the seller for every buyer—effectively guaranteeing George’s trade.

Normally, George liquidates his hedge by offsetting (selling) his 2 puts and selling his spring wheat in the cash market. He calls his broker and places an order to sell 2 MGE May 335 spring wheat puts, thereby closing his open long put position. For those who are not geographically close to the exchange-approved delivery points, this is a practical way to hedge.

Although 97% of all futures options contracts are offset or expire, George may exercise his option by informing his broker that he wishes to exercise. If he does, he receives 2

short MGE May spring wheat futures contracts in his margin account, which continue to hedge his crop. To liquidate the futures contracts, George calls his broker and issues an order to buy 2 MGE May spring wheat futures contracts.

It is unlikely that George will avail himself of the exercise process, due to the high costs of exercise. Yet, the markets do provide him with an efficient, low-risk way to lock in a sales price for his commodity long before it is deliverable. This added flexibility is very useful for anyone with marketable commodities.

Of course, not all traders are hedgers; speculators also benefit from efficient order processing. When they receive fills close to the price of the last trade, they are encouraged to participate in the markets, which increases liquidity. The more liquid the market, the easier it is to enter and exit, whether you are a hedger or a speculator. From across town or around the world, hedgers and speculators alike are attracted to the futures and futures options markets because of the efficient price discovery mechanism. Within moments of an order being placed, it is filled quietly and mysteriously at the best available price.

Salt and Pepper

Hedgers and speculators are like salt and pepper; they complement one another. Speculators assume existing business risk, while hedgers seek to transfer price risk to someone else.

Many businessmen do not enjoy price risk. If prices move in an unfavorable direction, losses may occur. Farmers, too, may suffer losses if the prices of the commodities they grow are depressed at harvest time. Business

men and farmers need to limit their risk by securing a greater degree of certainty about prices and supplies. The futures options markets answer this need. A farmer or businessman can calculate his income by targeting a price for his commodity well in advance of delivery.

This “price insurance” aspect of hedging also has a smoothing effect on cash flow, simplifying financial planning, and frequently reducing working capital requirements; i.e., hedging allows for more efficient product pricing, and more efficient inventory management.

The speculator makes all this possible; he assumes the risk of price change, expecting to earn a profit when he writes an option. He may not have a cash position—he usually intends to offset his option or allow it to expire. He realizes a profit if prices remain the same or rise (short put), or if prices remain the same or decline (short call). He suffers a loss if prices decline (short put), or rise (short call) .

The risk of loss from price change is “transferred” because the purchase of options from a speculator (the speculator writes the option) enables losses in the hedger’s cash position to be offset by gains in his long option position. An option buyer has three advantages: leverage, limited risk, and possibly unlimited gains. For the hedger, this translates to pre-determined risk, leverage with no margin calls, price protection, and the opportunity to benefit from favorable cash price changes. Unlike margin deposits on futures, an option premium is an expense charged against the final cash market transaction; therefore, price protection with options is not as complete as with futures contracts. Also, options are wasting assets. The advantages of options may outweigh these

limitations for those who are wary of the risks and demands of futures markets.

As a soybean farmer, you wish to protect against a price decline. On July 10, the cash bid for harvest delivery soybeans is \$7.50. You decide to use futures options to hedge. November options expire in mid-October, so you choose the January options expiring in mid-December. January soybean futures are selling at \$6.50, and the January 650 put premium is 40¢. To hedge 10,000 bushels you plan to sell in November, you buy two January 650 puts.

On November 23, cash soybeans are \$5.00, with January futures at \$5.50. The put premium equals its intrinsic value of \$1.00. You sell the January 650 puts and the cash crop on the same day. The hedge result is:

Hedger

	<u>Cash</u>	<u>Put</u>
7/10	\$6.00 bid	.40 Buy 2 Jan 800
11/23	\$5.00 sell	1.00 Sell 2 Jan 800

Sale of cash beans	\$5.00
Gain on option	<u>.60</u>
Net price on beans	\$5.60

Speculator

Sell 2 Jan 650	\$.40
Buy 2 Jan 650	<u>1.00</u>
	-.60

The cash price fell \$1.00. The hedger gained \$.60 on the put, netting the target price less the initial cost of the option ($\$6.00 - .40 = \5.60). When choosing a target price to hedge, it is important to remember that the option premium is an expense. Meanwhile, the speculator has taken a \$.60 loss on the put sale. He has financed the hedger's price protection.

If on the other hand, prices rise to \$6.75 for the January futures and \$6.25 for the cash bid by 11/23, the hedger gains \$.25 on his cash position, and loses \$.31 on his puts, making his net price on the beans \$5.94. He benefits from the 25¢ increase in the cash price, and recovers part of the option premium (9¢) as well. An unhedged position would have fared better, or the put could have been offset sooner when an uptrend had clearly established itself. The speculator gained \$.31 on the sale of the puts; his risk was rewarded.

Although a hedger may not always profit from a hedge, he gains security from options; his risk is limited, while his profit potential is only slightly impaired. The speculator, who believes he can predict futures price trends better than the hedger, promotes hedging by assuming the risk transferred by the hedger. Together, they balance the market, complementing one another, like salt and pepper.

AfterMath

Upon execution of your order, the Commodity Futures Trading Commission (CFTC) requires that your brokerage firm send you a confirmation of the trade. It lists the trade date, price, option description, number of contracts, and the debit to your account balance for commissions. Frequently, a confirmation is combined with a Purchase and Sale Statement, which is delivered when a position is liquidated. The statement reveals the profit or loss from a trade, and the consequent debit or credit to the account balance. A typical Confirmation/Purchase and Sale Statement may look like the following sample:

ABC Brokerage Company
1234 Options Street
Futures City, USA

Combined Commodity Statement

Mr. Jack Sample	Date
4678 Speculator's Way	5/31/XX
Putsville, USA	Account#
	1234-567-890

Date	Bought	Sold	Commod./Opt Description	Trade Price	Amount DR	CR
5/30XX			Account Balance			632.34
*****Confirmation*****Confirmation*****						
We have made this day the following trade for your account.						
5/31/XX	5		Call Sep XX CME			
			T-Bill 9000	0.30		
					3750.00	
			NFA Fee		1.40	
5/31/9XX			Account Balance			4380.94
*****Purchase and Sale*****Purchase and Sale*****						
5/29/XX	5		Call Sep XX CME			
			T-Bill 9000	0.25		3125.00
5/31/XX		5	Call Sep XX CME			
			T-Bill 9000	0.30		3750.00
			Gross Debit Opt. Prem.		3125.00	
			Gross Credit Opt. Prem.			3750.00
			Net Memo Opt. Premium			625.00

Confirmations show the price at which contracts were purchased or sold as well as the commissions and fees charged. In the Confirmation/Purchase and Sale Statement shown above, Jack Sample received a confirmation of his sale of 5 September 9000 T-Bill futures call options on the Chicago Mercantile Exchange. Commissions were not shown because it was a liquidation. Round-turn (purchase and sale) commissions were charged when the position was opened.

The Purchase and Sale Statement reflects the liquidation of his long call position with the sale of 5 September 9000 T-Bill calls on 5/31/XX. The sale resulted in a profit of 5 basis points, or \$625 on 5 contracts. The sale

amount (30 basis points, or \$3,750) is shown as a credit to his account. The \$4,380.94 ending balance shown in Jack's account includes his beginning account balance and the changes due to commissions, fees, and trades.

At the end of each month, Jack receives a Monthly Commodity Statement, revealing the activity during the month and open positions as of the end of the month. Assuming Jack had purchased 2 calls on 5/30/XX at 0.22, his monthly statement would include this open position as well as the activity illustrated above:

Monthly Commodity Statement Activity and Open Positions

Date	Bought	Sold	Commod./Opt. Description	Price	Amount	
					DR	CR
4/30/XX			Balance Forward			5000.00
5/29/XX	5		Call Sep XX CME T-Bill 9000		Net Prem.	
					3226.40	
5/30/XX	2		Call Sep XX CME T-Bill 9000		Net Prem.	
					1141.26	
5/31/XX		5	Call Sep XX CME T-Bill 9000		Net Prem.	
					3748.60	
5/31/XX			Account Balance—U.S.			Segregated Funds
4380.94						4380.94
			Net Option Premium for Month			619.06—
*****Open Positions*****Open Posi-						
tions*****						
5/30/XX	2		Call Sep XX CME T-Bill 9000		0.22	1100.00
			Final Exercise 8/18/XX Total Opt. Market Value			
					1100.00	
			Account Value at Market			5480.94

Jack's Monthly Commodity Statement lists three trades for the month. The purchase of 5 calls established a long position that was closed at a profit by the sale of 5 calls on 5/31/XX. The purchase of 2 calls on 5/30/XX established a second long position which remained open at month-end.

When Jack receives confirmations or statements from his brokerage firm, he always reviews them carefully. It is in his best interest to report any errors to the main office immediately.

What Are Your Options?

Investors and speculators may pursue a number of strategies for trading options. In general, they may:

1. Buy calls
2. Buy puts
3. Write calls
4. Write puts
5. Spread or straddle

Buying Calls

Due to the wasting nature of options, the purchaser of a **call** must expect a swift, sharp *increase* in the price of the underlying futures. Timing is especially important when buying calls. Although you may buy a call with a distant expiration, the premium will be very high and will dissipate over the life of the call. On the other hand, if you buy a call near expiration and the expected swift, sharp increase does not occur, you may lose the entire premium in a short time.

Buying Puts

The same situation applies to puts. The buyer must expect a swift, sharp *decrease* in the underlying futures price. If the sudden decrease does not occur, the entire premium may be lost.

Writing Calls

Option sellers appear to be at a great disadvantage because their profit potential is limited to the premium they collect, while their loss is potentially unlimited; however, the mathematical odds favor the option seller for several reasons:

1. Options are often overpriced because of the public's bias to purchase them; i.e., there is greater demand for a limited risk position than for the potentially unlimited risk associated with the sale of options.
2. The call writer gains if the futures price trends down, remains stable, or moves slightly against him (higher). Thus, he has three opportunities to gain, but only one to incur a loss. Only if the price moves sharply upward does the call writer stand to lose.
3. By selling out-of-the-money calls containing only time value, the options continually lose time value and, therefore, some of their premium. Even repurchasing the option prior to expiration may prove profitable. In other words, writing calls with large amounts of time value premium have a high degree of profit potential.

Writing Puts

Put writers have the same advantages as call writers. Writing puts may be profitable when the writer expects the market to trend higher, remain stable, or move only slightly lower. Only if the futures price moves sharply lower does the put writer stand to lose.

Spreading or Straddling

There are virtually unlimited possibilities for different option trading strategies by combining puts and calls on any given futures contract using different strike prices, different expiration dates, and different markets. When two or more options are combined into one strategy, they are called a spread.

Combinations may serve to reduce risk and increase the probability of profit. They may be used in bull markets, bear markets, flat markets, and volatile markets. Complex strategies range from spreads profiting from disparities in option premiums, to spreads that benefit solely from time premium decay.*

Depending on your willingness to accept risk, you may choose a strategy as simple as buying a call or put for speculation or hedging, or as complex as a spreading technique involving as many as four options.

Because the opportunities are so numerous and varied, learning is an essential prerequisite of profitable trading.

WORDS, WORDS, WORDS

Arbitrage: the simultaneous purchase and sale of a commodity in two different markets to profit from unequal prices. The two transactions may occur on different exchanges, in different delivery months, or in cash, futures, and options markets.

Basis: the difference between the cash price and the futures price of a commodity. CASH - FUTURES = BASIS. Basis is also used to refer to the difference between prices in different markets or different commodity grades.

Broker: an agent who executes trades (buy or sell orders) for customers. He receives a commission for his services. Other terms used to describe a broker include: a) account executive (AE), b) associated person (AP), c) registered commodity representative (RCR), d) NFA associate, e) financial professional (FP).

* For a more thorough discussion of options trading strategies, see David L. Caplan, *Profiting with Futures Options* (Grove City, PA, Center for Futures Education, Inc., 1995).

Call option: a contract giving the buyer the right to purchase something within a specified period of time at a specified price. The seller receives money (the premium) for the sale of this right. The contract also obligates the seller to deliver if the buyer exercises his right to purchase.

Clearinghouse: an agency associated with an exchange which guarantees all trades, thus assuring contract delivery and/or financial settlement. Upon settlement, the clearinghouse becomes the buyer for every seller and the seller for every buyer.

Clearing member: a clearinghouse member is responsible for executing client trades. Clearing members also monitor the financial capability of their clients by requiring sufficient margins and position reports. They must maintain a minimum net capitalization of \$1 million.

Commission: the fee which clearinghouses charge their clients to buy and to sell futures options. Also, the fee brokers, in turn, charge their clients to execute orders.

Commodity Futures Trading Commission (CFTC): the federal regulatory bureaucracy with exclusive jurisdiction over all futures and futures option trading. The CFTC is empowered to regulate all market participants, including the exchanges, futures commission merchants (brokerage firms) and their agents, floor brokers, and traders. The CFTC was created by the Commodity Exchange Act of 1974.

Contract: a legally enforceable agreement between two or more parties for performing, or refraining from performing, some specified act; e.g., delivering 5,000 bushels of corn at a specified grade, time, place, and price, or deliv

ering the right to deliver 5,000 bushels of corn at a specified grade, time, place, and price.

Covered position: a transaction that is covered by an opposite and equal transaction; for example, a trader who is holding a gold futures contract later sells a call option for the same commodity amount and delivery date; his option position is “covered.” He is holding the futures contract deliverable on the option if it is exercised. The term is also used to indicate the repurchase of previously sold contracts; e.g., covering one’s short position.

Delta: the correlation factor between a futures price fluctuation and the change in premium for the option on that futures contract. Delta changes from moment to moment as the option premium changes.

Discretionary account: an account over which the owner has given a “power of attorney” to another person, usually his broker, to make decisions to buy or to sell without notifying the owner until after the trades have been executed. Discretionary accounts often are called “managed” or “controlled” accounts.

Fill: the execution of an order; the price at which an order has been executed.

Fundamental Analysis: the study of specific factors such as weather, discoveries, and changes in government policy, that influence supply and demand and, consequently, prices in the market place.

Futures Commission Merchant (FCM): a futures brokerage firm that maintains customer accounts, keeps deposits, and performs trades on behalf of these customers.

Futures contract: a standardized agreement to purchase or to sell a set quantity and quality

a commodity at a specific place, within a certain time range, and at a price determined on the exchange floor. The terms of the standardized agreement are set by the exchange.

Hedging: the transfer of price risk through establishing equal and offsetting positions in different markets; e.g., selling a futures contract to hedge a long cash market position, or buying a futures put to hedge a long cash position.

Intrinsic value: the value of an option measured by the difference between the strike price and the market price of the underlying futures contract when the option is “in-the-money” (the amount by which the option is “in-the-money”). A COMEX 400 gold futures call has an intrinsic value of \$10 if the underlying gold futures contract is at \$410/ounce.

Limit order: an order that is limited as to price or time of execution of a trade, or both; for example, a “buy limit” order is placed below the market price. A “sell limit” order is placed above the market price. A sell limit is executed only at the limit price or higher (better), while the buy limit is executed at the limit price or lower (better).

Liquidity: refers to a market that allows quick and efficient entry or exit at a price close to the last traded price. This ability to liquidate or establish a position quickly is due to a large number of traders willing to buy and sell. The market flows like liquid, or has liquidity.

Long: a position that yields profits as a result of price increases. You may be called a “long” if you purchase a futures contract or a call option.

Margin: an amount of money deposited by futures contract buyers and sellers as a “performance bond” or “earnest money,” insuring performance on the terms of the contract. Margin is also required when writing futures options.

Margin call: a call from the clearinghouse to a clearing member, or from a broker to a customer, to add funds to his margin account to cover an adverse price movement. The added margin assures the brokerage firm and the clearinghouse that the account continues to be margined sufficiently.

National Futures Association (NFA): a futures industry self-regulatory group established to support and reinforce the CFTC, to promulgate rules and guidelines, and set admission standards. All FCMs, APs, CTAs, etc., are required to join the NFA.

Offsetting: eliminating the obligation to perform on a contract by liquidating a purchase or covering a sale of a futures contract or a futures option contract; i.e., selling an option to liquidate its earlier purchase, or buying an option to liquidate its earlier sale. An option can be offset only with the same option; i.e., the same strike price, month, and call or put.

Open outcry: oral bids and offers made in the trading rings, or pits. This method assures the buyer and seller equal treatment and the best price available.

Premium: the price paid to purchase an option, and the price received by the seller or writer of the option.

Settlement: the clearinghouse practice of adjusting all futures and futures options accounts daily according to gain or loss from price

movement. Also, the price set by the clearinghouse at the end of the day for determining price limits the next day.

Short: the sale of a futures contract or a futures option. For a futures contract, this sale is a legally enforceable agreement to make delivery of a specific quantity and grade of a particular commodity during a specified delivery period. For options, shorting obligates the option writer to deliver the underlying futures position upon exercise by the option purchaser. Short may also refer to someone who believes that prices will decline.

Strike price: the specified price at which an option contract may be exercised. If the buyer of the option exercises (demands performance), the futures contract positions will be entered at the strike price.

Technical analysis: the use of charts to examine changes in price patterns, volume of trading, open interest, and rates of change to predict and profit from price trends. Technicians often believe that futures and futures options prices anticipate any changes in fundamentals.

Time value: the premium paid for an out-of-the-money option, reflecting the probability that the option will move into the money before expiration. There also may be time value in the premium of an in-the-money option, reflecting the probability that the option will move further into the money.

2005-CINV-00591