

## Understanding Stock Options

Introduction .....	2
Benefits Of Exchange-Traded Options.....	4
Options Compared To Common Stocks.....	6
What Is An Option.....	7
Basic Strategies .....	12
Conclusion.....	20
Glossary.....	22

Copyright 1994, The Options Clearing Corporation.  
440 S. LaSalle Street  
Suite 2400  
Chicago, IL 60605 USA  
1-800-537-4258  
(312) 322-6200  
All Rights Reserved.

---

## Introduction

Options are financial instruments that can provide you, the individual investor, with the flexibility you need in almost any investment situation you might encounter. Options give you options. You're not just limited to buying, selling or staying out of the market. With options, you can tailor your position to your own situation and stock market outlook. Consider the following potential benefits of options:

- You can protect stock holdings from a decline in market price
- You can increase income against current stock holdings
- You can prepare to buy stock at a lower price
- You can position yourself for a big market move even when you don't know which way prices will move
- You can benefit from a stock price's rise or fall without incurring the cost of buying or selling the stock outright

A stock option is a contract which conveys to its holder the right, but not the obligation, to buy or sell shares of the underlying security at a specified price on or before a given date. After this given date, the option ceases to exist. The seller of an option is, in turn, obligated to sell (or buy) the shares to (or from) the buyer of the option at the specified price upon the buyer's request.

Options are currently traded on the following U.S. exchanges: The American Stock Exchange, Inc. (AMEX), the Chicago Board Options Exchange, Inc. (CBOE), the New York Stock Exchange, Inc. (NYSE), The Pacific Stock Exchange, Inc. (PSE), and the Philadelphia Stock Exchange, Inc. (PHLX). Like trading in stocks, option trading is regulated by the Securities and Exchange Commission (SEC).

The purpose of this publication is to provide an introductory understanding of stock options and how they can be used. Options are also traded on indexes (AMEX, CBOE, NYSE, PHLX, PSE), on U.S. Treasury securities (CBOE), and on foreign currencies (PHLX); information on these option products is not included in this document but can be obtained by contacting the appropriate exchange (see pages 40 and 41 for addresses and phone numbers). These exchanges which trade options seek to provide competitive, liquid, and orderly markets for the purchase and sale of standardized options. All option contracts traded on U.S. securities exchanges are issued, guaranteed and cleared by The Options Clearing Corporation (OCC). OCC is a registered clearing corporation with the SEC and has received a 'AAA' credit rating from Standard & Poor's Corporation. The 'AAA' credit rating relates to OCC's ability to fulfill its obligations as counter-party for options trades.

This introductory document should be read in conjunction with the basic option disclosure document, titled *Characteristics and Risks of Standardized Options*, which outlines the purposes and risks of option transactions. *Despite their many benefits, options are not suitable for all investors. Individuals should not enter into option transactions until they have read and understood the risk disclosure document which can be obtained here and from their broker, any of the options exchanges, or OCC. It must be noted that, despite the efforts of each exchange to provide liquid markets, under certain conditions it may be difficult or impossible to liquidate an option position. Please refer to the disclosure document for further discussion on this matter.*

*In addition, margin requirements, transaction and commission costs, and tax ramifications of buying or selling options should be discussed thoroughly with a broker and/or tax advisor before engaging in option transactions.*

## Benefits Of Exchange-Traded Options

Orderly, Efficient, and Liquid Markets... Flexibility. . Leverage.. Limited Risk.. Guaranteed Contract Performance. These are the major benefits of options traded on securities exchanges today.

Although the history of options extends several centuries, it was not until 1973 that standardized, exchange-listed and government regulated options became available. In only a few years, these options virtually displaced the limited trading in over-the-counter options and became an indispensable tool for the securities industry.

### **Orderly, Efficient and Liquid Markets**

Standardized option contracts provide orderly, efficient, and liquid option markets. Except under special circumstances, all stock option contracts are for 100 shares of the underlying stock. The strike price of an option is the specified share price at which the shares of stock will be bought or sold if the buyer of an option, or the holder, exercises his option. Strike prices are listed in increments of 2.5, 5, or 10 points, depending on the market price of the underlying security, and only strike prices a few levels above and below the current market price are traded. Other than for long-term options, or LEAPS, which are discussed below, at any given time a particular option can be bought with one of four expiration dates (see tables in Appendix). As a result of this standardization, option prices can be obtained quickly and easily at any time during trading hours. Additionally, closing option prices (premiums) for exchange-traded options are published daily in many newspapers. Option prices are set by buyers and sellers on the exchange floor where all trading is conducted in the open, competitive manner of an auction market.

### **Flexibility**

Options are an extremely versatile investment tool. Because of their unique risk/reward structure, options can be used in many combinations with other option contracts and/or other financial instruments to create either a hedged or speculative position. Some basic strategies are described in a later section.

### **Leverage**

A stock option allows you to fix the price, for a specific period of time, at which you can purchase or sell 100 shares of stock for a premium (price) which is only a percentage of what you would pay to own the stock outright. That leverage means that by using options you may be able to increase your potential benefit from a stock's price movements.

For example, to own 100 shares of a stock trading at \$50 per share would cost \$5,000. On the other hand, owning a \$5 call option with a strike price of \$50 would give you the right to buy 100 shares of the same stock at any time during the life of the option and would cost only \$500. Remember that premiums are quoted on a per share basis;

thus a \$5 premium represents a premium payment of  $\$5 \times 100$ , or \$500, per option contract. Market's assume that one month after the option was purchased, the stock price has risen to \$55. The gain on the stock investment is \$500, or 10%. However, for the same \$5 increase in the stock price, the call option premium might increase to \$7, For a return of \$200, or 40%. Although the dollar amount gained on the stock investment is greater than the option investment, the percentage return is much greater with options than with stock. Leverage also has downside implications. If the stock does not rise as anticipated or falls during the life of the option, leverage will magnify the investment's percentage loss. For instance, if in the above example the stock had instead fallen to \$40, the loss on the stock investment would be \$1,000 (or 20%). For this \$10 decrease in stock price, the call option premium might decrease to \$2 resulting in a loss of \$300 (or 60%). You should take note, however, that as an option buyer, the most you can lose is the premium amount you paid for the option.

### **Limited Risk For Buyer**

Unlike other investments where the risks may have no limit, options offer a known risk to buyers. An option buyer absolutely cannot lose more than the price of the option, the premium. Because the right to buy or sell the underlying security at a specific price expires on a given date, the option will expire worthless if the conditions for profitable exercise or sale of the contract are not met by the expiration date. An uncovered option seller (sometimes referred to as the writer of an option), on the other hand, may face unlimited risk.

### **Guaranteed Contract Performance**

An option holder is able to look to the system created by OCC's Rules which includes the brokers and Clearing Members involved in a particular option transaction and to certain funds held by OCC - rather than to any particular option writer for performance. Prior to the existence of option exchanges and OCC, an option holder who wanted to exercise an option depended on the ethical and financial integrity of the writer or his brokerage firm for performance. Furthermore, there was no convenient means of closing out one's position prior to the expiration of the contract.

OCC, as the common clearing entity for all exchange traded option transactions, resolves these difficulties. Once OCC is satisfied that there are matching orders from a buyer and a seller, it severs the link between the parties. In effect, OCC becomes the buyer to the seller and the seller to the buyer. As a result, the seller can buy back the same option he has written, closing out the initial transaction and terminating his obligation to deliver the underlying stock or exercise value of the option to OCC, and this will in no way affect the right of the original buyer to sell, hold or exercise his option. All premium and settlement payments are made to and paid by OCC.

## Options Compared To Common Stocks

### **Options share many similarities with common stocks:**

- Both options and stocks are listed securities. Orders to buy and sell options are handled through brokers in the same way as orders to buy and sell stocks. Listed option orders are executed on the trading floors of national SEC-regulated exchanges where all trading is conducted in an open, competitive auction market.
- Like stocks, options trade with buyers making bids and sellers making offers. In stocks, those bids and offers are for shares of stock. In options, the bids and offers are for the right to buy or sell 100 shares (per option contract) of the underlying stock at a given price per share for a given period of time.
- Option investors, like stock investors, have the ability to follow price movements, trading volume and other pertinent information day by day or even minute by minute. The buyer or seller of an option can quickly learn the price at which his order has been executed.

### **Despite being quite similar, there are also some important differences between options and common stocks which should be noted:**

- Unlike common stock, an option has a limited life. Common stock can be held indefinitely in the hope that its value may increase, while every option has an expiration date. If an option is not closed out or exercised prior to its expiration date, it ceases to exist as a financial instrument. For this reason, an option is considered a "wasting asset."
- There is not a fixed number of options, as there is with common stock shares available. An option is simply a contract involving a buyer willing to pay a price to obtain certain rights and a seller willing to grant these rights in return for the price. Thus, unlike shares of common stock, the number of outstanding options (commonly referred to as open interest") depends solely on the number of buyers and sellers interested in receiving and conferring these rights.
- Unlike stocks which have certificates evidencing their ownership, options are certificateless. Option positions are indicated on printed statements prepared by a buyer's or seller's brokerage firm. Certificateless trading, an innovation of the option markets, sharply reduces paperwork and delays.
- Finally, while stock ownership provides the holder with a share of the company, certain voting rights and rights to dividends (if any), option owners participate only in the potential benefit of the stock's price movement.

## What Is An Option

A stock option is a contract which conveys to its holder the right, but not the obligation, to buy or sell shares of the underlying security at a specified price on or before a given date. This right is granted by the seller of the option.

There are two types of options, calls and puts. A call option gives its holder the right to buy an underlying security, whereas a put option conveys the right to sell an underlying security. For example, an American-style XYZ Corp. May 60 call entitles the buyer to purchase 100 shares of XYZ Corp. common stock at \$60 per share at any time prior to the option's expiration date in May. Likewise, an American-style XYZ Corp. May 60 put entitles the buyer to sell 100 shares of XYZ Corp. common stock at \$60 per share at any time prior to the option's expiration date in May.

### Underlying Security

The specific stock on which an option contract is based is commonly referred to as the *underlying security*. Options are categorized as *derivative securities* because their value is derived in part from the value and characteristics of the underlying security. A stock option contract's *unit of trade* is the number of shares of underlying stock which are represented by that option. Generally speaking, stock options have a unit of trade of 100 shares. This means that one option contract represents the right to buy or sell 100 shares of the underlying security.

### Strike Price

The *strike price*, or *exercise price*, of an option is the specified share price at which the shares of stock can be bought or sold by the *holder*, or buyer, of the option contract if he *exercises* his right against a *writer*, or seller, of the option. To exercise your option is to exercise your right to buy (in the case of a call) or sell (in the case of a put) the underlying shares at the specified strike price of the option.

The strike price for an option is initially set at a price which is reasonably close to the current share price of the underlying security. Additional or subsequent strike prices are set at the following intervals: 2.5 points when the strike price to be set is \$25 or less; 5-points when the strike price to be set is over \$25 through \$200; and 10-points when the strike price to be set is over \$200. New strike prices are introduced when the price of the underlying security rises to the highest, or falls to the lowest, strike price currently available. The strike price, a fixed specification of an option contract, should not be confused with the *premium*, the price at which the contract trades, which fluctuates daily. If the strike price of a call option is less than the current market price of the underlying security, the call is said to be *in-the-money* because the holder of this call has the right to buy the stock at a price which is less than the price he would have to pay to buy the stock in the stock market. Likewise, if a put option has a strike price that is greater than the current market price of the underlying security, it is also said to be *in-the-money* because the holder of this put has the right to sell the stock at a price which is greater than the price he would receive selling the stock in the stock market.

The converse of in-the-money is, not surprisingly, *out-of-the-money*. If the strike price equals the current market price, the option is said to *beat the-money*.

### **Premium**

Option buyers pay a price for the right to buy or sell the underlying security. This price is called the option *premium*. The premium is paid to the *writer*, or seller, of the option. In return, the writer of a call option is obligated to deliver the underlying security (in return for the strike price per share) to an option buyer if the call is *exercised* and, likewise, the writer of a put option is obligated to take delivery of the underlying security (at a cost of the strike price per share) from an option buyer if the put is exercised. Whether or not an option is ever exercised, the writer keeps the premium. Premiums are quoted on a per share basis. Thus, a premium of 7/8 represents a premium payment of \$87.50 per option contract ( $\$0.875 \times 100$  shares).

### **American, European and Capped Styles**

There are three *styles* of options: American, European and Capped. In the case of an *American* option, the holder of an option has the right to exercise his option on or before the expiration date of the option; otherwise, the option will expire worthless and cease to exist as a financial instrument. At the present time, all exchange-traded stock options are American-style. A *European* option is an option which can only be exercised during a specified period of time prior to its expiration. A *Capped* option gives the holder the right to exercise that option only during a specified period of time prior to its expiration, unless the option reaches the cap value prior to expiration, in which case the option is automatically exercised. The holder or writer of either style of option can close out his position at any time simply by making an offsetting, or closing, transaction. A *closing transaction* is a transaction in which, at some point prior to expiration, the buyer of an option makes an offsetting sale of an identical option, or the writer of an option makes an offsetting purchase of an identical option. A closing transaction cancels out an investor's previous position as the holder or writer of the option.

### **The Option Contract**

An option contract is defined by the following elements: type (put or call), style (American, European and Capped), underlying security, unit of trade (number of shares), strike price, and expiration date. All option contracts that are of the same type and style and cover the same underlying security are referred to as a *class* of options. All options of the same class that also have the same unit of trade at the same strike price and expiration date are referred to as an option *series*. If a person's interest in a particular series of options is as a net holder (that is, if the number of contracts bought exceeds the number of contracts sold), then this person is said to have an *along* position in the series. Likewise, if a person's interest in a particular series of options is as a net writer (if the number of contracts sold exceeds the number of contracts bought), he is said to have a *short* position in the series.



## **Exercising the Option**

If the holder of an option decides to exercise his right to buy (in the case of a call) or to sell (in the case of a put) the underlying shares of stock, the holder must direct his broker to submit an *exercise notice* to OCC. In order to ensure that an option is exercised on a particular day, the holder must notify his broker before the broker's cutoff time for accepting exercise instructions on that day. Different firms may have different cutoff times for accepting exercise instructions from customers, and those cutoff times may be different for different classes of options.

Upon receipt of an exercise notice, OCC will then *assign* this exercise notice to one or more Clearing Members with short positions in the same series in accordance with its established procedures. The Clearing Member will, in turn, assign one or more of its customers (either randomly or on a first in first out basis) who hold short positions in that series. The assigned Clearing Member will then be obligated to sell (in the case of a call) or buy (in the case of a put) the underlying shares of stock at the specified strike price. OCC then arranges with a stock clearing corporation designated by the Clearing Member of the holder who exercises the option for delivery of shares of stock (in the case of a call) or delivery of the settlement amount (in the case of a put) to be made through the facilities of a correspondent clearing corporation.

## **The Expiration Process**

A stock option usually begins trading about eight months before its expiration date. The exception is LEAPS or long-term options, discussed below. However, as a result of the sequential nature of the expiration cycles, some options have a life of only one to two months. A stock option trades on one of three expiration cycles. At any given time, an option can be bought or sold with one of four expiration dates as designated in the expiration cycle tables which can be found in the Appendix.

The *expiration date* is the last day an option exists. For listed stock options, this is the Saturday following the third Friday of the expiration month. Please note that this is the deadline by which brokerage firms must submit exercise notices to OCC; however, the exchanges and brokerage firms have rules and procedures regarding deadlines for an option holder to notify his brokerage firm of his intention to exercise. Please contact your broker for specific deadlines.

OCC has developed a procedure known as *Exercise By Exception* to expedite its processing of exercises of expiring options by certain brokerage firms that are Clearing Members of OCC. Under this procedure, which is sometimes referred to as "ex-by-ex", OCC has established in-the-money thresholds and every contract at or above its in-the-money threshold will be exercised unless OCC's Clearing Member specifically instructs OCC to the contrary. Conversely, a contract under its in-the-money threshold will not be exercised unless OCC's Clearing Member specifically instructs OCC to do so. OCC does have discretion as to which securities are subject to, and may exclude other securities from, the ex-by-ex procedure. You should also note that ex-by-ex is not intended to dictate which customer positions should or should not be exercised and that ex-by-ex does not relieve a holder of his obligation to tender an exercise notice to his firm if the holder desires to exercise his option. Thus, most firms require their customers to notify the firm of the customer's intention to exercise even if an option is

in-the-money. You should ask your firm to explain its exercise procedures including any deadline the firm may have for tendering instructions on the last trading day before expiration.

### **Leaps® / Long-Term Options**

Long-term Equity Anticipation Securities® (LEAPS®) / long-term stock options provide the owner the right to purchase or sell shares of a stock at a specified price on or before a given date up to three years in the future. As with other options, LEAPS® are available in two types, calls and puts. Like other exchange-traded stock options, LEAPS® are American-style options.

LEAPS® calls provide an opportunity to benefit from a stock price increase without making an outright stock purchase for those investors with a longer term view of the stock market. An initial LEAPS® position does not require an investor to manage each position daily. Purchase of LEAPS® puts provides a hedge for stock owners against substantial declines in their stocks. Current options users will also find LEAPS® appealing if they desire to take a longer term position of up to three years in some of the same options they currently trade.

Like other stock options, the expiration date for LEAPS® is the Saturday following the third Friday of the expiration month. All equity LEAPS® expire in January.

### **The Pricing Of Options**

There are several factors which contribute value to an option contract and thereby influence the premium or price at which it is traded. The most important of these factors are the price of the underlying stock, time remaining until expiration, the volatility of the underlying stock price, cash dividends, and interest rates.

### **Underlying Stock Price**

The value of an option depends heavily upon the price of its underlying stock. As previously explained, if the price of the stock is above a call option's strike price, the call option is said to be *in-the-money*. Likewise, if the stock price is below a put option's strike price, the put option is in-the-money. The difference between an in-the-money option's strike price and the current market price of a share of its underlying security is referred to as the option's *intrinsic value*. Only in-the-money options have intrinsic value. For example, if a call option's strike price is \$45 and the underlying shares are trading at \$60, the option has intrinsic value of \$ 15 because the holder of that option could exercise the option and buy the shares at \$45. The buyer could then immediately sell these shares on the stock market for \$60, yielding a profit of \$ 15 per share, or \$ 1,500 per option contract.

When the underlying share price is equal to the strike price, the option (either call or put) is *at-the-money*. An option which is not in-the-money or at-the-money is said to be *out-of-the-money*. An at-the-money or out-of-the-money option has no intrinsic value, but this does not mean it can be obtained at no cost. There are other factors which give options value and therefore affect the premium at which they are traded.

Together, these factors are termed *time value*. The primary components of time value are time remaining until expiration, volatility, dividends, and interest rates. Time value is the amount by which the option premium exceeds the intrinsic value.

Option Premium = Intrinsic Value + Time Value

For in-the-money options, the time value is the excess portion over intrinsic value. For at-the-money and out-of-the-money options, the time value is the option premium.

### **Time Remaining Until Expiration**

Generally, the longer the time remaining until an option's expiration date, the higher the option premium because there is a greater possibility that the underlying share price might move so as to make the option in-the-money. Time value drops rapidly in the last several weeks of an option's life.

### **Volatility**

Volatility is the propensity of the underlying security's market price to fluctuate either up or down. Therefore, volatility of the underlying share price influences the option premium. The higher the volatility of the stock, the higher the premium because there is, again, a greater possibility that the option will move in-the-money.

### **Dividends**

Regular cash dividends are paid to the stock owner. Therefore, cash dividends affect option premiums through their effect on the underlying share price. Because the stock price is expected to fall by the amount of the cash dividend, higher cash dividends tend to imply lower call premiums and higher put premiums. Options customarily reflect the influences of stock dividends (e.g., additional shares of stock) and stock splits because the number of shares represented by each option is adjusted to take these changes into consideration.

### **Interest Rates**

Historically, higher interest rates have tended to result in higher call premiums and lower put premiums.

## Basic Strategies

The versatility of options stems from the variety of strategies available to the investor. Some of the more basic uses of options are explained in the following examples. For more detailed explanations, contact your broker or any of the exchanges.

For purposes of illustration, commission and transaction costs, tax considerations and the costs involved in margin accounts have been omitted from the examples in this document. These factors will affect a strategy's potential outcome, so always check with your broker and tax advisor before entering into any of these strategies. The following examples also assume that all Options are American-style and, therefore, can be exercised at any time before expiration. In all of the following examples, the premiums used are felt to be reasonable but, in reality, will not necessarily exist at or prior to expiration for a similar option.

### Buying Calls

A call option contract gives its holder the right to buy a specified number of shares of the underlying stock at the given strike price on or before the expiration date of the contract.

I. Buying calls to participate in upward price movements.

Buying an XYZ July 50 call option gives you the right to purchase 100 shares of XYZ common stock at a cost of \$50 per share at any time before the option expires in July. *The right to buy stock at a fixed price becomes more valuable as the price of the underlying stock increases.*

Assume that the price of the underlying shares was \$50 at the time you bought your option and the premium you paid was  $3\frac{1}{2}$  (or \$350). If the price of XYZ stock climbs to \$55 before your option expires and the premium rises to  $5\frac{1}{2}$ , you have two choices in disposing of your in-the-money option:

- You can exercise your option and buy the underlying XYZ stock for \$50 a share for a total cost of \$5,350 (including the Option premium) and simultaneously sell the shares on the stock market for \$5,500 yielding a net profit of \$ 150.
- You can close out your position by selling the option contract For \$550, collecting the difference between the premium received and paid, \$200. In this case, you make a profit of 57% ( $200/350$ ), whereas your profit on an outright stock purchase, given the same price movement, would be only 10% ( $55-50/50$ ).

The profitability of similar examples will depend on how the time remaining until expiration affects the premium. Remember, time value declines sharply as an option nears its expiration date. Also influencing your decision will be your desire to own the stock.

If the price of XYZ instead fell to \$45 and the option premium fell to  $7/8$ , you could sell your option to partially offset the premium you paid. Otherwise, the option would expire worthless and your loss would be the total amount of the premium paid or \$350. In most cases, the loss on the option would be less than what you would have lost had you bought the underlying shares outright, \$262.50 versus \$500 in this example.

II. Buying calls as part of an investment plan

A popular use of options known as "the 90/10 strategy" involves placing 10% of your investment funds in long (purchased) calls and the other 90% in a money market instrument (in our examples we use T-bills) held until the option's expiration. *This strategy provides both leverage (from the options) and limited risk (from the T-bills), allowing the investor to benefit from a favorable stock price move while limiting the downside risk to the call premium minus any interest earned on the T-bills.*

Assume XYZ is trading at \$60 per share. To purchase 100 shares of XYZ would require an investment of \$6,000, all of which would be exposed to the risk of a price decline. To employ the 90/10 strategy, you would buy a six-month XYZ 60 call.

Assuming a premium of 6, the cost of the option would be \$600. This purchase leaves you with \$5,400 to invest in T-bills for six months. Assuming an interest rate of 10% and that the T-bill is held until maturity, the \$5,400 would earn interest of \$270 over the six month period. The interest earned would effectively reduce the cost of the option to \$330 (\$600 premium minus \$270 interest).

If the price of XYZ rises by more than \$3.30 per share, your long call will realize the dollar appreciation at expiration of a long position in 100 shares of XYZ stock but with less capital invested in the option than would have been invested in the 100 shares of stock. As a result, you will realize a higher return on your capital with the option than with the stock.

If the stock price instead increases by less than \$3.30 or falls, your loss will be limited to the price you paid for the option (\$600) and this loss will be at least partially offset by the earned interest on your T-bill plus the premium you receive from closing out your position by selling the option, if you choose to do so.

### III. Buying calls to lock in a stock purchase price

An investor who sees an attractive stock price but does not have sufficient cash flow to buy at the present time can use call options to lock in the purchase price for as far as eight months into the future.

Assume that XYZ is currently trading at \$55 per share and that you would like to purchase 100 shares of XYZ at this price; however, you do not have the funds available at this time. You know that you will have the necessary funds in six months but you fear that the stock price will increase during this period of time. One solution is to purchase a six-month XYZ 55 call option, thereby establishing the maximum price (\$55 per share) you will have to pay for the stock. Assume the premium on this option is  $4\frac{1}{4}$ .

If in six months the stock price has risen to \$70 and you have sufficient funds available, the call can be exercised and you will own 100 shares of XYZ at the option's strike price of \$55. For a cost of \$425 in option premium, you are able to buy your stock at \$5,500 rather than \$7,000. Your total cost is thus \$5,925 (\$5,500 plus \$425 premium), a savings of \$1075 (\$7,000 minus \$5,925) when compared to what you would have paid to buy the stock without your call option. If in six months the stock price has instead declined to \$50, you may not want to exercise your call to buy at \$55 because you can buy XYZ stock on the stock market at \$50. Your out-of-the-money call will either expire worthless or can be sold for whatever time value it has remaining to recoup a portion of its cost. Your maximum loss with this strategy is the cost of the call option you bought or \$425.

#### IV. Buying calls to hedge short stock sales

An investor who has sold stock short in anticipation of a price decline can limit a possible loss by purchasing call options. Remember that shorting stock requires a margin account and margin calls may force you to liquidate your position prematurely. Although a call option may be used to offset a short stock position's upside risk, it does not protect the option holder against additional margin calls or premature liquidation of the short stock position.

Assume you sold short 100 shares of XYZ stock at \$40 per share. If you buy an XYZ 40 call at a premium of 3 1/2, you establish a maximum share price of \$40 that you will have to pay if the stock price rises and you are forced to cover the short stock position. For instance, if the stock price increases to \$50 per share, you can exercise your option to buy XYZ at \$40 per share and cover your short stock position at a net cost of \$350 (\$4,000 proceeds from short stock sale less \$4,000 to exercise the Option and \$350 cost of the option) assuming you can affect settlement of your exercise in time. This is significantly less than the \$ 1,000 (\$4,000 proceeds from short stock sale less \$5,000 to cover short) that you would have lost had you not hedged your short stock position.

The maximum potential loss in this strategy is limited to the cost of the call plus the difference, if any, between the call strike price and the short stock price. In this case, the maximum loss is equal to the cost of the call or \$350. Profits will result if the decline in the stock price exceeds the cost of the call.

#### **Buying puts**

A put option contract gives its holder the right to sell a specified number of shares of the underlying stock at the given strike price on or before the expiration date of the contract.

##### I. Buying puts to participate in downward price movements.

Put options may provide a more attractive method than shorting stock for profiting on stock price declines, in that, with purchased puts, you have a known and predetermined risk. The most you can lose is the cost of the option. If you short stock, the potential loss, in the event of a price upturn, is unlimited.

Another advantage of buying puts results from your paying the full purchase price in cash at the time the put is bought. Shorting stock requires a margin account, and margin calls on a short sale might force you to cover your position prematurely, even though the position still may have profit potential. As a put buyer, you can hold your position through the option's expiration without incurring any additional risk.

Buying an XYZ July 50 put gives you the right to sell 100 shares of XYZ stock at \$50 per share at any time before the option expires in July. This right to sell stock at a fixed price becomes more valuable as the stock price declines.

Assume that the price of the underlying shares was \$50 at the time you bought your option and the premium you paid was 4 (or \$400). If the price of XYZ falls to \$45 before July and the premium rises to 6, you have two choices in disposing of your in-the-money put option:

1) You can buy 100 shares of XYZ stock at \$45 per share and simultaneously exercise your put option to sell XYZ at \$50 per share, netting a profit of \$100 (\$500 profit on the stock less the \$400 option premium).

2) You can sell your put option contract, collecting the difference between the premium paid and the premium received, \$200 in this case.

If, however, the holder has chosen not to act, his maximum loss using this strategy would be the total cost of the put option or \$400. The profitability of similar examples depends on how the time remaining until expiration affects the premium. Remember, time value declines sharply as an option nears its expiration date.

If XYZ prices instead had climbed to \$55 prior to expiration and the premium fell to 1 1/2, your put option would be out-of-the-money. You could still sell your option for \$150, partially offsetting its original price. In most cases, the cost of this strategy will be less than what you would have lost had you shorted XYZ stock instead of purchasing the put option, \$250 versus \$500 in this case.

This strategy allows you to benefit from downward price movements while limiting losses to the premium paid if prices increase.

## II. Buying puts to protect a long stock position

You can limit the risk of stock ownership by simultaneously buying a put on that stock, a hedging strategy commonly referred to as a "married put." This strategy establishes a minimum selling price for the stock during the life of the put and limits your loss to the cost of the put plus the difference, if any, between the purchase price of the stock and the strike price of the put, no matter how far the stock price declines. This strategy will yield a profit if the stock appreciation is greater than the cost of the put option.

Assume you buy 100 shares of XYZ stock at \$40 per share and, at the same time, buy an XYZ July 40 put at a premium of 2. By purchasing this put option for the \$200 in premium, you have ensured that no matter what happens to the price of the stock, you will be able to sell 100 shares for \$40 per share, or \$4,000.

If the price of XYZ stock increases to \$50 per share and the premium of your option drops to 7/8, your stock position is now worth \$5,000 but your put is out-of-the-money. Your profit, if you sell your stock, is \$800 (\$1,000 profit on the stock less the amount you paid for the put option, \$200). However, if the price increase occurs before expiration, you may reduce the loss on the put by selling it for whatever time value remains, \$87.50 in this case if the July 40 put can be sold for 7/8.

If the price of XYZ stock instead had fallen to \$30 per share, your stock position would only be worth \$3,000 (an unrealized loss of \$1,000) but you could exercise your put, selling your stock for \$40 per share to break even on your stock position at a cost of \$200 (the premium you paid for your put).

This strategy is significant as a method for hedging a long stock position. While you are limiting your downside risk to the \$200 in premium, you have not put a ceiling on your upside profit potential.

## III. Buying puts to protect unrealized profit in long stock

If you have an established profitable long stock position, you can buy puts to protect this position against short-term stock price declines. If the price of the stock declines by more than the cost of the put, the put can be sold or exercised to offset this decline.

If you decide to exercise, you may sell your stock at the put option's strike price, no matter how far the stock price has declined.

Assume you bought XYZ stock at \$60 per share and the stock price is currently \$75 per share. By buying an XYZ put option with a strike price of \$70 for a premium of 1 1/2, you are assured of being able to sell your stock at \$70 per share during the life of the option. Your profit, of course, would be reduced by the \$150 you paid for the put. The \$150 in premium represents the maximum loss from this strategy.

For example, if the stock price were to drop to \$65 and the premium increased to 6, you could exercise your put and sell your XYZ stock for \$70 per share. Your \$1,000 profit on your stock position or \$150 would be offset by the cost of your put option resulting in a profit of \$850 (\$1,000 - \$150). Alternatively, if you wished to maintain your position in XYZ stock, you could sell your in-the-money put for \$600 and collect the difference between the premiums received and paid, \$450 (\$600 - \$150) in this case, which might offset some or all of the lost stock value.

If the stock price were to climb, there would be no limit to the potential profit from the stock's increase in price. This gain on the stock, however, would be reduced by the cost of the put or \$150.

### **Selling calls**

As a call writer, you obligate yourself to sell, at the strike price, the underlying shares of stock upon being assigned an exercise notice. For assuming this obligation, you are paid a premium at the time you sell the call.

### **Covered Call Writing**

The most common strategy is writing calls against a long position in the underlying stock, referred to as covered call writing. Investors write covered calls primarily for the following two reasons:

- to realize additional return on their underlying stock by earning premium income; and
- to gain some protection (limited to the amount of the premium) from a decline in the stock price.

Covered call writing is considered to be a more conservative strategy than outright stock ownership because the investor's downside risk is slightly offset by the premium he receives for selling the call.

As a covered call writer, you own the underlying stock but are willing to forsake price increases in excess of the option strike price in return for the premium. You should be prepared to deliver the necessary shares of the underlying stock (if assigned) at any time during the life of the option. Of course, you may cancel your obligation at any time prior to being assigned an exercise notice by executing a closing transaction, that is, buying a call in the same series.

A covered call writer's potential profits and losses are influenced by the strike price of the call he chooses to sell. In all cases, the writer's maximum net gain (i.e., including the gain or loss on the long stock from the date the option was written) will be realized if the stock price is at or above the strike price of the option at expiration or at assignment. Assuming the stock purchase price is equal to the stock's current price:



- If he writes an at-the-money call (strike price equal to the current price of the long stock), his maximum net gain is the premium he receives for selling the option;
- If he writes an in-the-money call (strike price less than the current price of the long stock), his maximum net gain is the premium minus the difference between the stock purchase price and the strike price;
- If he writes an out-of-the-money call (strike price greater than the current price of the stock), his maximum net gain is the premium plus the difference between the strike price and the stock purchase price should the stock price increase above the strike price.

If the writer is assigned, his profit or loss is determined by the amount of the premium plus the difference, if any, between the strike price and the original stock price. If the stock price rises above the strike price of the option and the writer has his stock called away from him (i.e., is assigned), he forgoes the opportunity to profit from further increases in the stock price. If, however, the stock price decreases, his potential for loss on the stock position may be substantial; the hedging benefit is limited only to the amount of the premium income received.

Assume you write an XYZ July 50 call at a premium of 4 covered by 100 shares of XYZ stock which you bought at \$50 per share. The premium you receive helps to fulfill one of the objectives of a call writer: additional income from your investments. In this example, a \$4 per share premium represents an 8% yield on your \$50 per share stock investment. This covered call (long stock/short call) position will begin to show a loss if the stock price declines by an amount greater than the call premium received or \$4 per share.

If the stock price subsequently declines to \$40, your long stock position will decrease in value by \$ 1,000. This unrealized loss will be partially offset by the \$400 in premium you received for writing the call. In other words, if you actually sell the stock at \$40, your loss will be only \$600.

On the other hand, if the stock price rises to \$60 and you are assigned, you must sell your 100 shares of stock for \$5,000. By writing a call option, you have forgone the opportunity to profit from an increase in value of your stock position in excess of the strike price of your option. The \$400 in premium you keep, however, results in a net selling price of \$5,400. The \$6 per share difference between this net selling price (\$54) and the current market value (\$60) of the stock represents the "opportunity cost" of writing this call option.

Of course, you are not limited to writing an option with a strike price equal to the price at which you bought the stock. You might choose a strike price that is below the current market price of your stock (i.e., an in-the-money option). Since the option buyer is already getting part of the desired benefit, appreciation above the strike price, he will be willing to pay a larger premium, which will provide you with a greater measure of downside protection. However, you will also have assumed a greater chance that the call will be exercised.

On the other hand, you could opt for writing a call option with a strike price that is above the current market price of your stock (i.e., an out-of-the-money option). Since this lowers the buyer's chances of benefiting from the investment, your premium will be lower, as will the chances that your stock will be called away from you.

In short, the writer of a covered call option, in return for the premium he receives, forgoes the opportunity to benefit from an increase in the stock price which exceeds the strike price of his option, but continues to bear the risk of a sharp decline in the

value of his stock which will only be slightly offset by the premium he received for selling the option.

### **Uncovered Call Writing**

A call option writer is uncovered if he does not own the shares of the underlying security represented by the option. As an uncovered call writer, your objective is to realize income from the writing transaction without committing capital to the ownership of the underlying shares of stock. An uncovered option is also referred to as a naked option. An uncovered call writer must deposit and maintain sufficient margin with his broker to assure that the stock can be purchased for delivery if and when he is assigned.

The potential loss of uncovered call writing is unlimited. However, writing uncovered calls can be profitable during periods of declining or generally stable stock prices, but investors considering this strategy should recognize the significant risks involved:

- If the market price of the stock rises sharply, the calls could be exercised. To satisfy your delivery obligation, you may have to acquire stock in the market for more than the option's strike price. This could result in a substantial loss.
- The risk of writing uncovered calls is similar to that of selling stock short, although, as an option writer, your risk is cushioned somewhat by the amount of premium received.

As an example, if you write an XYZ July 65 call for a premium of 6, you will receive \$600 in premium income. If the stock price remains at or below \$65, you may not be assigned on your option and, if you are not assigned because you have no stock position, the price decline has no effect on your \$600 profit. On the other hand, if the stock price subsequently climbs to \$75 per share, you likely will be assigned and will have to cover your position at a net loss of \$400 (\$1000 loss on covering the call assignment off-set by \$600 in premium income). The call writer's losses will continue to increase with subsequent increases in the stock price.

As with any option transaction, an uncovered call writer may cancel his obligation at any time prior to being assigned by executing a closing purchase transaction. An uncovered call writer also can mitigate his risk at any time during the life of the option by purchasing the underlying shares of stock, thereby becoming a covered writer.

### **Selling Puts**

Selling a put obligates you to buy the underlying shares of stock at the option's strike price upon assignment of an exercise notice. You are paid a premium when the put is written to partially compensate you for assuming this risk. As a put writer, you must be prepared to buy the underlying stock at any time during the life of the option.

### **Covered Put Writing**

A put writer is considered to be covered if he has a corresponding short stock position. For purposes of cash account transactions, a put writer is also considered to be covered if he deposits cash or cash equivalents equal to the exercise value of the Option with his broker. A covered put writer's profit potential is limited to the premium received plus the difference between the strike price of the put and the original share price of

the short position. The potential loss on this position, however, is substantial if the price of the stock increases significantly above the original share price of the short position. In this case, the short stock will accrue losses while the offsetting profit on the put sale is limited to the premium received.

### **Uncovered Put Writing**

A put writer is considered to be uncovered if he does not have a corresponding short stock position or has not deposited cash equal to the exercise value of the put. Like uncovered call writing, uncovered put writing has limited rewards (the premium received) and potentially substantial risk (if prices fall and you are assigned). The primary motivations for most put writers are:

- receive premium income; and
- acquire stock at a net cost below the current market value.

If the stock price declines below the strike price of the put and the put is exercised, you will be obligated to buy the stock at the strike price. Your cost will, of course, be offset at least partially by the premium you received for writing the option. You will begin to suffer a loss if the stock price declines by an amount greater than the put premium received or \$5 per share. As with writing uncovered calls, the risks of writing uncovered put options are substantial. If instead the stock price rises, your put will most likely expire.

Assume you write an XYZ July 55 put for a premium of 5 and the market price of XYZ stock subsequently drops from \$55 to \$45 per share. If you are assigned, you must buy 100 shares of XYZ for a cost of \$5,000 (\$5,500 to purchase the stock at the strike price minus \$500 premium income received).

If the price of XYZ had dropped by less than the premium amount, say to \$52 per share, you might still have been assigned but your cost of \$5,000 would have been less than the current market value of \$5,200. In this case, you could have then sold your newly acquired (as a result of your put being assigned) 100 shares of XYZ on the stock market with a profit of \$200.

Had the market price of XYZ remained at or above \$55, it is highly unlikely that you would be assigned and the \$500 premium would be your profit.

## Conclusion

The intended purpose of this document is to provide an introduction to the fundamentals of buying and writing stock options, and to illustrate some of the basic strategies available.

You have been shown that exchange-traded options have many benefits including flexibility, leverage, limited risk for buyers employing these strategies, and contract performance under the system created by OCC's Rules. Options allow you to participate in price movements without committing the large amount of funds needed to buy stock outright. Options can also be used to hedge a stock position, to acquire or sell stock at a purchase price more favorable than the current market price, or, in the case of writing options, to earn premium income.

Whether you are a conservative or growth-oriented investor, or even a short-term, aggressive trader, your broker can help you select an appropriate options strategy. The strategies presented in this document do not cover all, or even a significant number, of the possible strategies utilizing options. These are the most basic strategies, however, and will serve well as building blocks for the more complex strategies available.

Despite their many benefits, options involve risk and are not suitable for everyone. An investor who desires to utilize options should have well-defined investment objectives suited to his particular financial situation and a plan for achieving these objectives.

The successful use of options require a willingness to learn what they are, how they work, and what risks are associated with particular options strategies.

Armed with an understanding of the fundamentals, and with additional information and assistance that is readily available from many brokerage firms and other sources, individuals seeking new investment opportunities in today's markets will find options trading challenging, often fast moving, and potential rewarding.

## For More Information

American Stock Exchange

Derivative Securities

86 Trinity Place

New York, NY 10006 USA

1-800-THE-AMEX

212-306-1000

OR 2 London Wall Buildings London Wall

London EC2M 5SY ENGLAND

44-71-628-5982

Chicago Board Options Exchange

LaSalle at Van Buren

Chicago, IL 60605 USA

1-800-OPTIONS  
(312)786-5600  
New York Stock Exchange  
Options and Index Products  
11 Wall Street  
New York, NY 10005 USA  
1-800-692-6973  
(212) 656-8533  
The Options Clearing Corporation  
440 South LaSalle Street  
Suite 2400  
Chicago, IL 60605 USA  
1-800-537-4258  
(312)322-6200  
Pacific Stock Exchange  
Options Marketing  
115 Sansome Street, 7th Floor  
San Francisco, CA 94104 USA  
1 -800-TALK-PSE  
(415)393-4028  
Philadelphia Stock Exchange  
1 900 Market Street  
Philadelphia, PA 19103 USA  
1-800-THE-PHLX  
(215)496-5404  
OR European Office  
12th Floor, Moor House  
119 London Wall London EC2Y 5ET ENGLAND  
44-71-606-2348

---

# **Glossary of Options Related Terms**

## **American-Style option**

An option contract that may be exercised at any time between the date of purchase and the expiration date. Most exchange-traded options are American-style.

## **Assignment**

The receipt of an exercise notice by an option writer (seller) that obligates him to sell (in the case of a call) or purchase (in the case of a put) the underlying security at the specified strike price.

## **At-the-money**

An option is at-the-money if the strike price of the option is equal to the market price of the underlying security.

## **Call**

An Option contract that gives the holder the right to buy the underlying security at a specified price for a certain, fixed period of time.

## **Capped-style option**

A capped option is an option with an established profit cap or cap price. The cap price is equal to the option's strike price plus a cap interval for a call option or the strike price minus a cap interval for a put option. A capped option is automatically exercised when the underlying security closes at or above (for a call) or at or below (for a put) the Option's cap price.

## **Class of options**

Option contracts of the same type (call or put) and Style (American, European or Capped) that cover the same underlying security.

## **Closing purchase**

A transaction in which the purchaser's intention is to reduce or eliminate a short position in a given series of options.

**Closing sale**

A transaction in which the seller's intention is to reduce or eliminate a long position in a given series of options

**Covered call option writing**

A strategy in which one sells call options while simultaneously owning an equivalent position in the underlying security or strategy in which one sells put options and simultaneously is short an equivalent position in the underlying security.

**Derivative security**

A financial security whose value is determined in part from the value and characteristics of another security, the underlying security.

**Equity options**

Options on shares of an individual common stock.

**European-style options**

An option contract that may be exercised only during a specified period of time just prior to its expiration.

**Exercise**

To implement the right under which the holder of an option is entitled to buy (in the case of a call) or sell (in the case of a put) the underlying security.

**Exercise price**

See Strike price

**Exercise settlement amount**

The difference between the exercise price of the option and the exercise settlement value of the index on the day an exercise notice is tendered, multiplied by the index multiplier.

**Expiration cycle**

An expiration cycle relates to the dates on which options on a particular underlying security expire. A given option, other than LEAPS, will be assigned to one of three cycles, the January cycle, the February cycle or the March cycle.

**Expiration date**

Date on which an option and the right to exercise it, cease to exist.

**Expiration time**

The time of day by which all exercise notices must be received on the expiration date.

**Hedge**

A conservative strategy used to limit investment loss by effecting a transaction which offsets an existing position.

**Holder**

The purchaser of an option.

**In-the-money**

A call option is in-the-money if the strike price is less than the market price of the underlying security. A put option is in-the-money if the strike price is greater than the market price of the underlying security.

**Intrinsic value**

The amount by which an option is in-the-money (see above definition).

**LEAPS®**

Long-term Equity Anticipation Securities, or LEAPS®, are long-term stock or index options. LEAPS®, like all options, are available in two types, calls and puts, with expiration dates up to three years in the future.

**Long position**

A position wherein an investor's interest in a particular series of options is as a net holder (i.e., the number of contracts bought exceeds the number of contracts sold).

**Margin requirement (for options)**



The amount an uncovered (naked) option writer is required to deposit and maintain to cover a position. The margin requirement is calculated daily.

### **Naked writer**

See Uncovered call writing and Uncovered put writing

### **Opening purchase**

A transaction in which the purchaser's intention is to create or increase a long position in a given series of options.

### **Opening sale**

A transaction in which the seller's intention is to create or increase a short position in a given series of options.

### **Open interest**

The number of outstanding option contracts in the exchange market or in a particular class or series.

### **Out-of-the-money**

A call option is out-of-the-money if the strike price is greater than the market price of the underlying security. A put option is out-of-the-money if the strike price is less than the market price of the underlying security.

### **Premium**

The price of an option contract, determined in the competitive marketplace, which the buyer of the option pays to the option writer for the rights conveyed by the option contract.

### **Put**

An option contract that gives the holder the right to sell the underlying security at a specified price for a certain fixed period of time.

### **Secondary market**

A market that provides for the purchase or sale of previously sold or bought options through closing transactions.

### **Series**

All option contracts of the same class that also have the same unit of trade, expiration date and strike price.

### **Short position**

A position wherein a person's interest in a particular series of options is as a net writer (i.e., the number of contracts sold exceeds the number of contracts bought).

### **Strike price**

The stated price per share for which the underlying security may be purchased (in the case of a call) or sold (in the case of a put by the option holder upon exercise of the option contract).

### **Time value**

The portion of the option premium that is attributable to the amount of time remaining until the expiration of the option contract. Time value is whatever value the option has in addition to its intrinsic value.

### **Type**

The classification of an option contract as either a put or a call.

### **Uncovered call writing**

A short call option position in which the writer does not own an equivalent position in the underlying security represented by his option contracts.

### **Uncovered put writing**

A short put option position in which the writer does not have a corresponding short position in the underlying security or has not deposited, in a cash account, cash or cash equivalents equal to the exercise value of the put.

### **Underlying security**

The security subject to being purchased or sold upon exercise of the option contract.

**Volatility**

A measure of the fluctuation in the market price of the underlying security. Mathematically, volatility is the annualized standard deviation of returns.

**Writer**

The seller of an option contract.