Introduction to Options Trading

The Leader in Rule-Based Trading™

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This book discusses in detail how TradeStation is designed to help you develop, test and implement trading strategies. However, TradeStation Securities does not provide or suggest trading strategies. We offer you unique tools to help you design your own strategies and look at how they could have performed in the past. While we believe this is very valuable information, we caution you that simulated past performance of a trading strategy is no guarantee of its future performance or success. We also do not recommend or solicit the purchase or sale of any particular securities or securities derivative products. Any securities symbols referenced in this book are used only for the purposes of the demonstration, as an example ---- not a recommendation.

Finally, this book shall discuss automated electronic order placement and execution. Please note that even though TradeStation has been designed to automate your trading strategies and deliver timely order placement, routing and execution, these things, as well as access to the system itself, may at times be delayed or even fail due to market volatility, quote delays, system and software errors, Internet traffic, outages and other factors.

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Options trading is not suitable for all investors. Your account application to trade options will be considered and approved or disapproved based on all relevant factors, including your trading experience. Automated trading, as it relates to direct-access electronic placement and execution of equity options trades, requires manual one-click verification before order is sent. Please visit www.TradeStation.com to view the document titled Characteristics and Risks of Standardized Options.

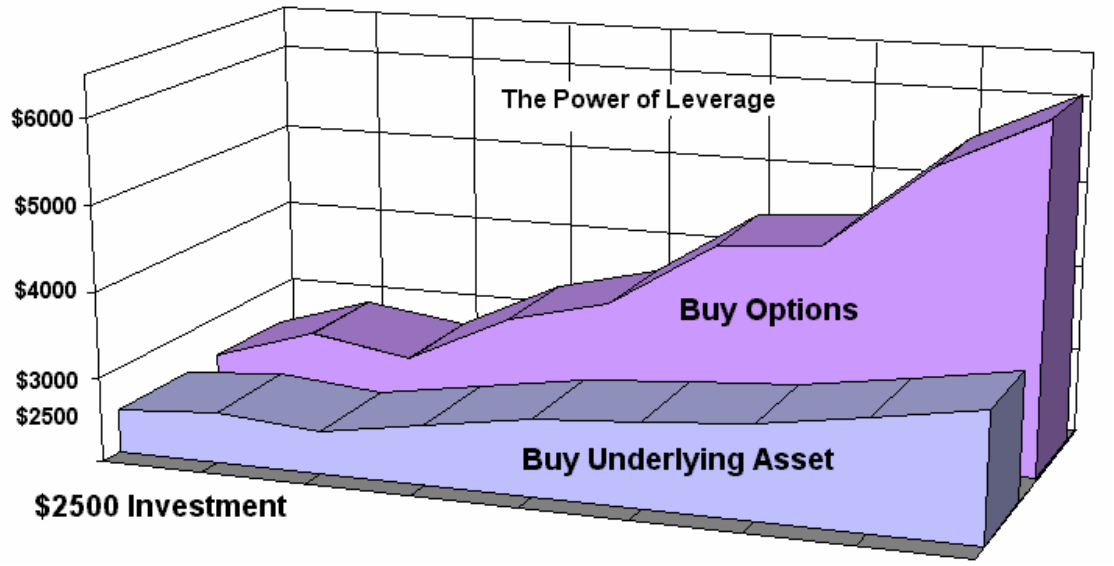
Benefits of Trading Options

The options markets are booming; more traders are turning to options as their investment of choice because of the many benefits option trading provides. Many traders turn to options because they can get started with just a fraction of the money that would be required to trade the underlying stocks or futures. And they like the fact that buying Calls or Puts offer unlimited profit potential, with limited risk.

Experienced traders have always used options to hedge their portfolios, and to use the flexibility of options to take advantage of market conditions that ca not be traded with just the underlying stock or futures.

Leverage

Option trading has the advantage of leveraging capital by allowing a small amount of capital to control a larger dollar value amount of the underlying asset. At the current price of $52 it would cost $52,000 to purchase 1000 shares of Intel. Even on margin it would cost $26,000. However you can control the same number of shares using options for a fraction of that amount. This tremendous leverage means that for a smaller investment, the profit potential can be the same as if you owned a much larger underlying asset position.



An investment of $2500 in options versus $2500 in the underlying asset results in much greater profits.

Flexibility

Options provide a very flexible investment tool. Options are available for many types of underlying assets such as stocks, futures, indices, and other markets such as currencies. At any given time, you can buy or sell options with a wide selection of strike prices and various contract expiration periods. In fact, stocks and indices offer LEAPS, which are long duration options, giving you flexible expiration dates that can be years away.

Because of their unique risk/reward structure, options can be bought and sold in many different combinations to take advantage of almost any market condition. Option strategies can be created to make money in rising or declining markets, markets with no price movement, explosive markets where the direction is unclear, as a hedge to protect profits.

When you only trade the underlying asset, you can only benefit from directional movement. But with options you can benefit from other market conditions.

Trading Opportunities with Only the Underlying Asset

Market is Moving Higher
Market is Moving Lower

Trading Opportunities with Options

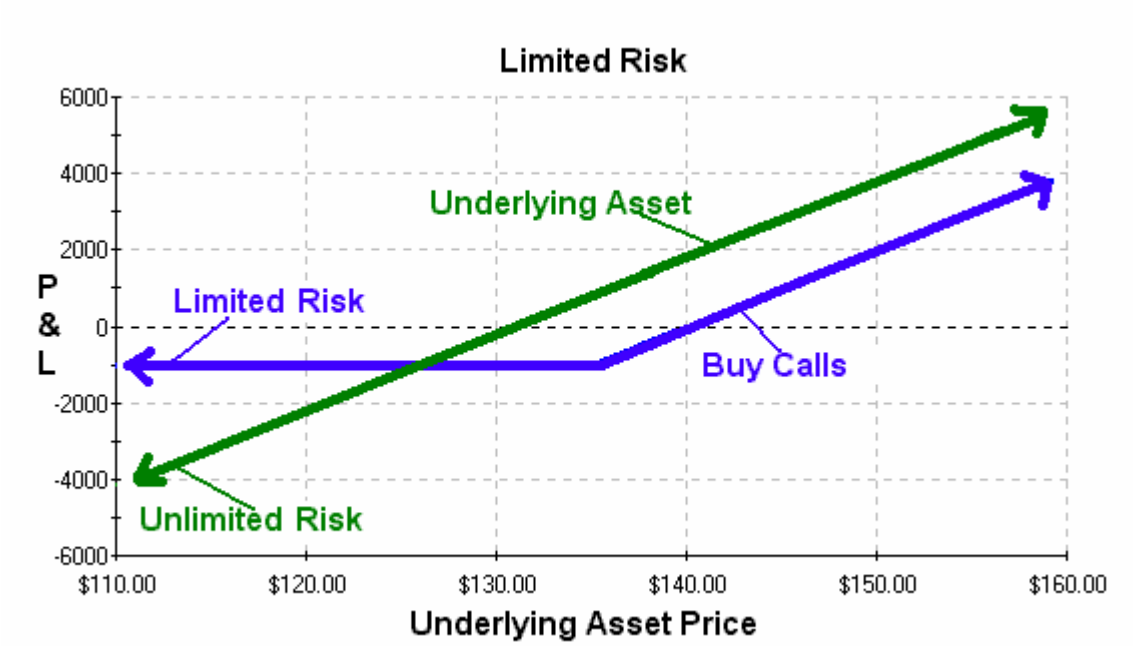
Market is Moving Higher
Market is Moving Lower
Quiet Market Little Movement
Active Market Direction Unclear
Volatility Increasing
Volatility Decreasing

Limited Risk - Unlimited Profits

Whenever you buy an option contract the maximum loss that you can incur is limited to the amount of money you paid for the option contract. On the other hand, you have the potential for unlimited profits. This limited risk, unlimited profit investment profile is very attractive to many investors who want to know what their risk potential is at any point in time.

Trading options also gives you an extra edge in limiting the way you expose your investment to risk. Factors that can affect the risk of an option position include asset price, volatility, time, and interest rates. Option strategies can be created and adjusted to limit your risk for these factors when the market is going against you.

Portfolio protection is also possible by hedging your stock or futures position by purchasing options to protect your holdings from adverse asset movements. Individual options can be used to hedge an individual asset, or index options can be used to hedge a basket of stocks in one transaction.



When you purchase the underlying stock or futures you have unlimited profit and unlimited loss potential. But, when you purchase an option, you have limited risk, but still have unlimited profit potential.

What is an Option?

An option is the right either to buy or to sell a specified amount or value of a particular underlying interest, at a fixed price, by exercising the option before its specified expiration date.

The options markets provide a mechanism where many different types of market players can achieve their specific investment goals. An options investor may be looking for long term or short term profits, or they may be looking to hedge an existing stock or commodity position. Whatever your objectives may be, you need a thorough understanding of the markets you will be trading, and the ability to communicate your objectives to others.

An option is a financial instrument, termed a derivative, and can be traded itself. It is termed a derivative because the option contract derives its price and value from the underlying asset on which it is based, and the option value can fluctuate as the price of the underlying asset rises or falls in price. The option contract value can also affected by other market conditions, such as changes in; volatility, stock splits, interest rates, and dividends.

Underlying Asset

Each option is based on an underlying asset, such as shares of stock or the value of an index, or a Futures contract.

Two Types of Options

Call Option

A Call option is a contract that gives the buyer of the option the right, but not the obligation, to **purchase** a fixed number of contracts or shares of the underlying asset at a fixed price, on or before a set date.

Put Option

A Put option is a contract that gives the buyer of the option the right, but not the obligation, to **sell short** a fixed number of contracts or shares of the underlying asset at a fixed price, on or before a set date.

Contract Specifications

Strike Price

The strike price (or exercise price) is the price at which the underlying asset may be bought by the holder of a call or sold by the holder of a put.

Expiration Date

This is the date on which an option expires. Options held to this date and not yet exercised cease to exist.

Two Styles of Options

American style

American style options may be exercised anytime until their expiration. Generally, US-traded equity options are American style.

European style

European style options may be exercised only in a defined period at expiration. Some US-traded index and currency options are European style.

Settlement

Physical Delivery

Physical delivery options entitle the holder to receive actual delivery (for a call) or to make actual delivery (for a put) of the underlying asset upon exercise.

Cash Settlement

Cash settlement options do not permit actual delivery of the underlying asset. Instead, if held to term, they culminate in a cash credit or debit for the difference in value from purchase to expiration.

Exercise and Assignment

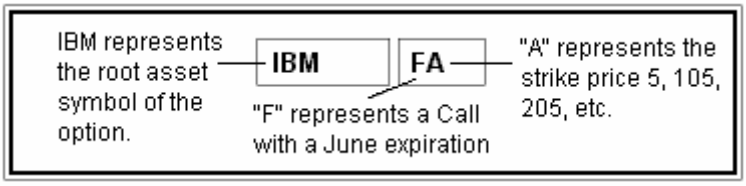
An option holder (also known as the buyer or ‘long’) may choose to use the rights under the option. Use of these rights is known as exercise of the option.

The option writer (also known as the seller, grantor or ‘short’) must comply with his obligations under the option if the holder exercises. This is known as assignment of the option.

Note: The option specifications are determined by the exchange on which the option trades.

Symbology

An option symbol is constructed (or built) using several different components representing the underlying asset and information about the individual option contract. The option symbol is built by using the root symbol, the expiration month, the strike price, and the option type. Most symbols represent these components, but the method in which they are built and how they appear varies between data feed vendors.



Stock Option Symbol Examples:
IBM FA = IBM June 105 Call
IBM RA = IBM June 105 Put

Stock and Index Option Symbol Reference

Expiration Month Codes

Month	*Calls*	*Puts*
January	*A*	*M*
February	*B*	*N*
March	*C*	*O*
April	*D*	*P*
May	*E*	*Q*
June	*F*	*R*
July	*G*	*S*
August	*H*	*T*
September	*I*	*U*
October	*J*	*V*
November	*K*	*W*
December	*L*	*X*

Strike Price Codes

A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*	*L*	*M*
5	10	15	20	25	30	35	40	45	50	55	60	65
105	110	115	120	125	130	135	140	145	150	155	160	165
205	210	215	220	225	230	235	240	245	250	255	260	265

N	*O*	*P*	*Q*	*R*	*S*	*T*	*U*	*V*	*W*	*X*	*Y*	*Z*
70	75	80	85	90	95	100	7 ½	12 ½	17 ½	22 ½	27 ½	32 ½
170	175	180	185	190	195	200	37 ½	42 ½	47 ½	52 ½	57 ½	62 ½
270	275	280	285	290	295	300	67 ½	72 ½	77 ½	82 ½	87 ½	92 ½

LEAPS

LEAPS (Long-term Equity Anticipation Securities) are long term options with expiration dates that can be up to 3 years away. Not all optionable stocks and indices have LEAPS available. Like any product in the market place, the exchanges only create LEAPS for a stock if they feel there is a market demand for them. This is the same reason why not all stocks have trading options. LEAPS can be used for long term speculation or hedging. LEAPS on many of the index option markets like SPX, OEX, and NDX are now available as well. LEAPS symbols are given their own option root symbol designation, which is usually very different from the option or asset root symbol. For example, Intel's stock symbol is INTC, its option root symbol is INQ, and its LEAPS symbols are LNL and ZNL.

Option Premiums and Pricing

The price paid for an option is called the premium, it is the price paid by the buying, and the price received by the writer or seller of the option. The premium is determined by various pricing factors and open market transactions.

Options Pricing

If you are going to trade options, you should understand all of the factors that can affect the price of an option and therefore the performance of your trades. We are not going to explore the exact details of the various pricing formulas for options, but there are many good references on the subject.

Many factors impact the value of an option premium. Intrinsic value and time value are the primary components that determine the price/premium of an option.

Intrinsic value

This Is the portion of the premium equal to the amount an option is in-the-money, or intrinsically profitable, if at all.

The terms, *in-the-money*, *out-of-the-money*, and *at-the-money* describe the relationship of the price of the underlying asset to the strike price of the option contract

Time Value

Option time value includes factors such as volatility, days to expiration, and interest rates that impact intrinsic and time value.

In-the-Money, Out-of-the-Money, and At-the-Money

These terms are key to understanding the value of your option contract at any point in time over the period of the contract. These terms describe the relationship of the underlying asset relative to the strike price of the option. This is true for any kind of option (i.e., stock, futures, index, etc.).

Call Option Contract at Expiration

Purchase 1 IBM 160.00 Call at $2.00 for a cost of $200 for the position

Stock Price	Intrinsic Value	Profit at Expiration	Position
150	$ 0	$ -200.00	Out of the Money
160	$ 0	$ -200.00	At the Money
165	$ 5	$ 300.00	In the Money
170	$ 10	$ 800.00	In the Money

Put Option Contract at Expiration

Purchase 1 IBM 160.00 Put at $2.00 for a cost of $200 for the position

Stock Price	Intrinsic Value	Profit at Expiration	Position
150	$ 10	$ 800.00	In the Money
155	$ 5	$ 300.00	In the Money
160	$ 0	$ -200.00	At the Money
170	$ 0	$ -200.00	Out of the Money

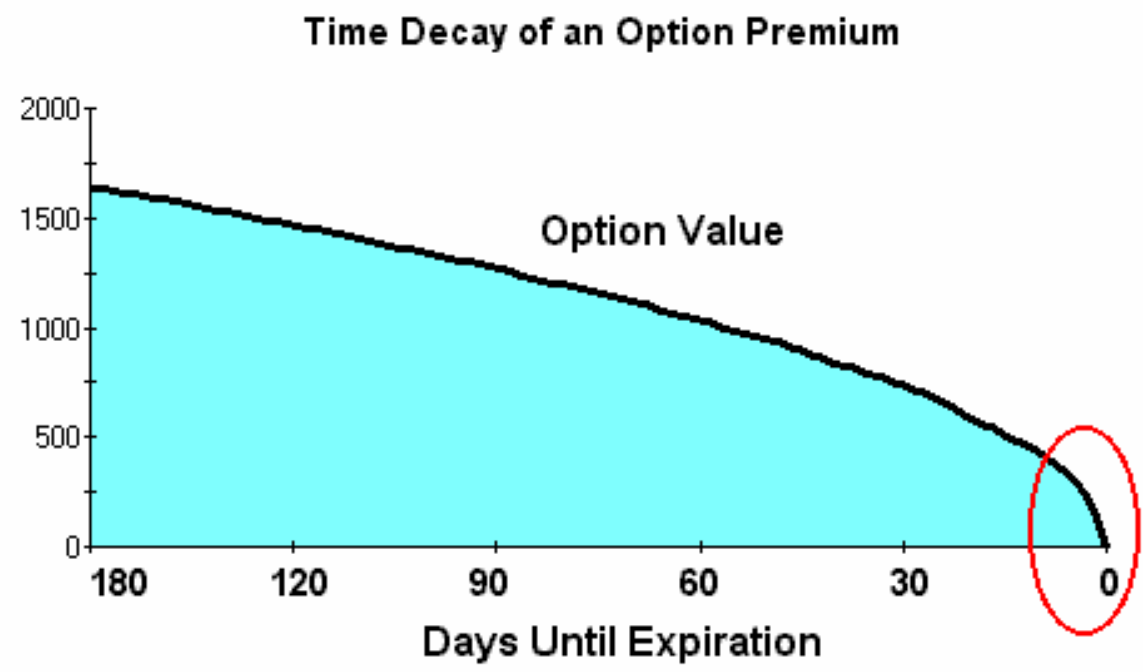
(Note: Each stock option contract represents 100 shares of stock.)

A Call option is said to be in-the-money (ITM) if the underlying asset price is higher than the strike price. This is because the Call option becomes profitable when the underlying asset price rises above the strike price. Remember, Call options are bullish and benefit from an increase in the price of the underlying asset. Conversely, a Call option is considered out-of-the-money if the underlying asset price is lower than the strike price.

Time

Days to Expiration

The time remaining in days to expiration is an important time factor. An option is considered a wasting asset, and as the option's expiration date gets closer, the value of the option decreases. The more time remaining until expiration, the more time value the option contract has. If the underlying asset price falls far below or far above the strike price of the option, the underlying asset becomes more dominant in determining the price of the option. On the day the option expires, the only value the option contract has is its intrinsic value; that is, the amount by which the option contract is in-the-money.



Volatility

Volatility of the Underlying Asset

Volatility refers to the price fluctuations exhibited by the underlying asset. An option's premium will be influenced by the likelihood, in the eyes of the market participants, that the underlying asset will move above or below the various strike prices.

Generally, higher volatility means higher option premiums.

Volatility is the amount in annual percent terms that the underlying asset has moved or is expected to move, from its current price, on an annual basis. This number can help us forecast short-term price ranges and can also help us determine the relative value for an option price.

There are two types of volatility that we can work with in our options analysis:

Historical Volatility

The first is historical or sometimes called statistical volatility, which is volatility based on the historical price movement of the underlying asset. This volatility number measures what the volatility has been in the past. Historical volatility is generally based on daily bars looking back 20, 30, and 60 days.

Implied Volatility

The second kind of volatility we work with is implied volatility, which is an implied value based on the current option prices for an underlying asset. This kind of volatility is much more valuable in trading, because it gives us an insight to what the market is saying about the potential asset price movement. When option prices rise because of increased volatility or nervousness in the market, this may tell us that something important may about to be announced. So when option prices rise independently of asset prices, higher implied volatility is driving the options prices up. Therefore, implied volatility can be seen as a measurement of risk; higher implied volatility generally means higher risk for the option seller, and that sellers are trying to mitigate that risk.

Interest Rates

The cost of money, as reflected by market interest rates, also affects option premiums. As one of the inputs into the option pricing formula, it is the risk-free interest rate for the remaining time until expiration. In most cases you can use the 90-day T-Bill rate. For longer term options or LEAPS, you can find a suitable substitute in the 180-day and 1 or 2 year Bonds.

Dividends

Dividends are payments made to holders of shares of stock. Neither option holders nor writers, of either calls or puts, receive or pay dividends. As such, dividends reflect a difference in the cash flow of the underlying asset vs. an option. These differences are generally recognized in the option premiums.

Note: Neither option holders nor writers, of calls and puts, receive or pay dividends.

Corporate Actions

'Corporate actions' is a general name for a variety of actions a corporation may take that affect its capital structure. These include special cash distributions, stock dividends, stock splits, spin-offs and many others. In most cases, the terms of an option will be adjusted to make such a corporate action neutral to the option holder and writer. This may mean adjusting the strike price of the option or quantity of the underlying asset.

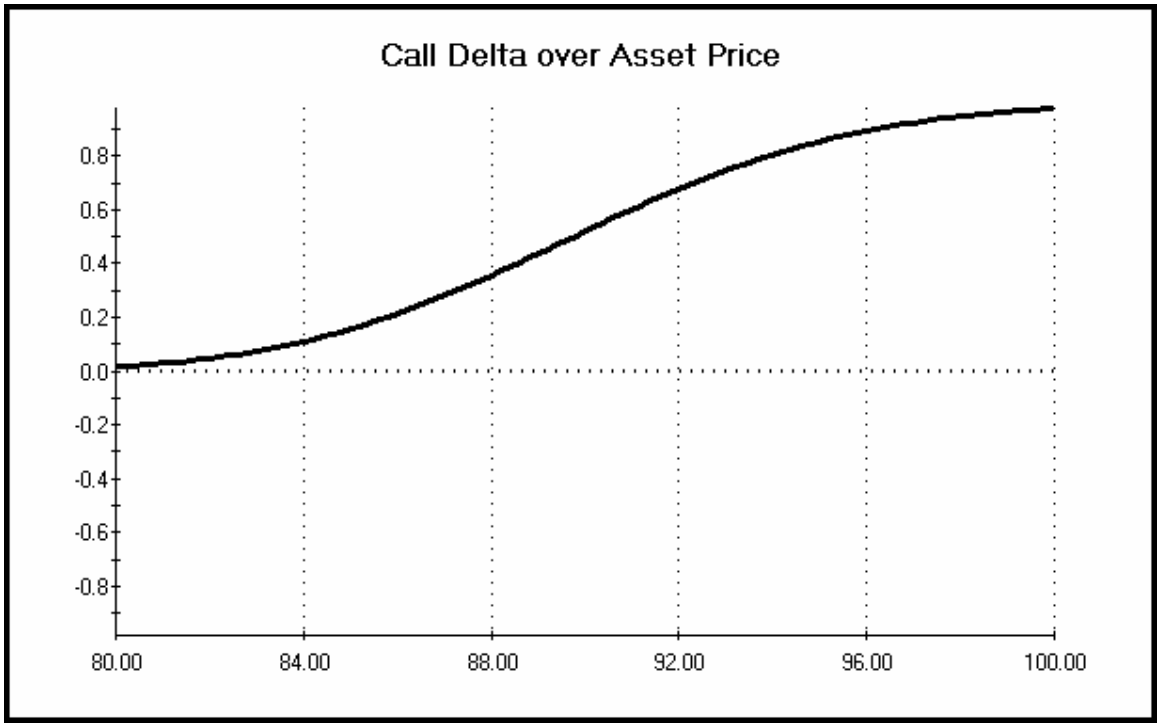
Greeks

Options analysts use several Greek (and pseudo-Greek) letters to represent the risk factors affecting an option premium. Known collectively as 'the Greeks,' these variables represent the estimated impact of changes in price, time volatility, and interest rates on the premium of an option.

Delta

Delta is the expected change in an option premium for a 1-point change in the price of an asset. For example, an option with a delta of .5 may be expected to move .50 for a 1-point move in the asset.

In-the-money options have higher delta values than out-of the money options.
At-the money options generally have a delta of .5.



Equivalent Stock Positions

You can use Delta to calculate the exact number of option contracts to purchase to approximate an equivalent stock position. This is valuable in determining the exact number of options to purchase to hedge your portfolio.

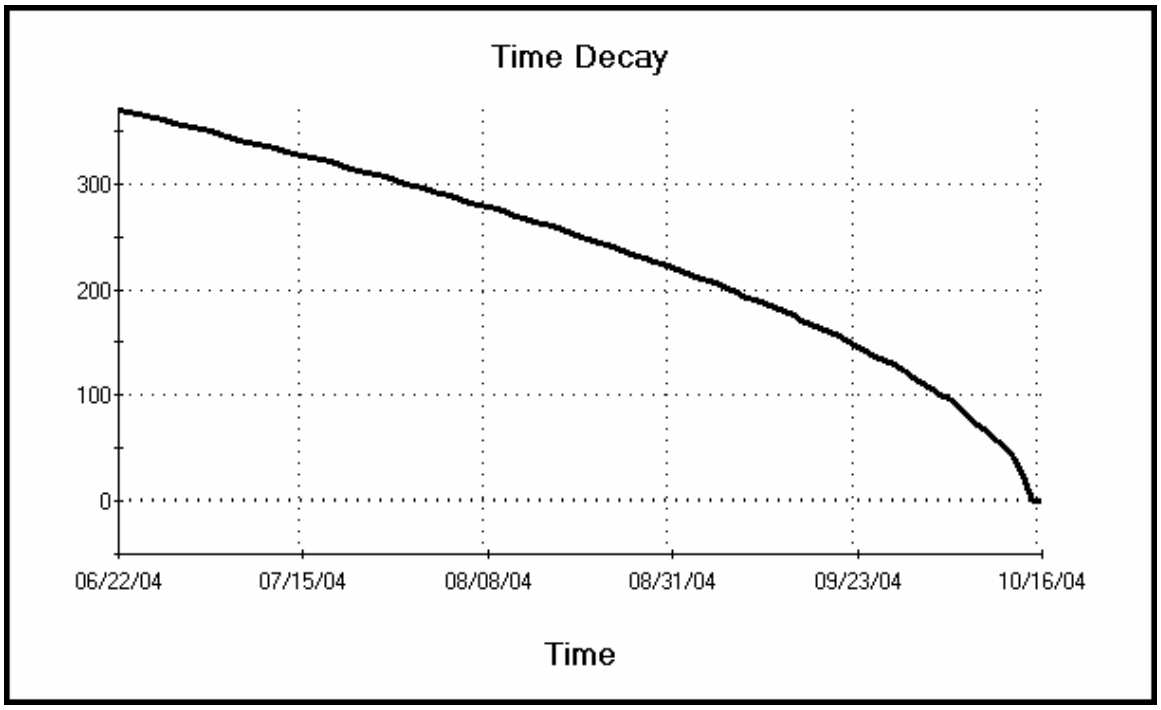
Gamma

Gamma measures the expected rate of change for an option's Delta for every 1 point change in the price of the underlying asset. This Greek is used in conjunction with Delta to judge at what price the Delta may move or change to.

For example, a Delta neutral position that has a high Gamma will require more frequent adjustments to maintain a neutral position, than a Delta neutral position with a lower Gamma. This is because a high Gamma indicates more movement in the Delta than a lower Gamma. If the Delta keeps moving, you will probably need to keep adjusting to maintain a neutral position.

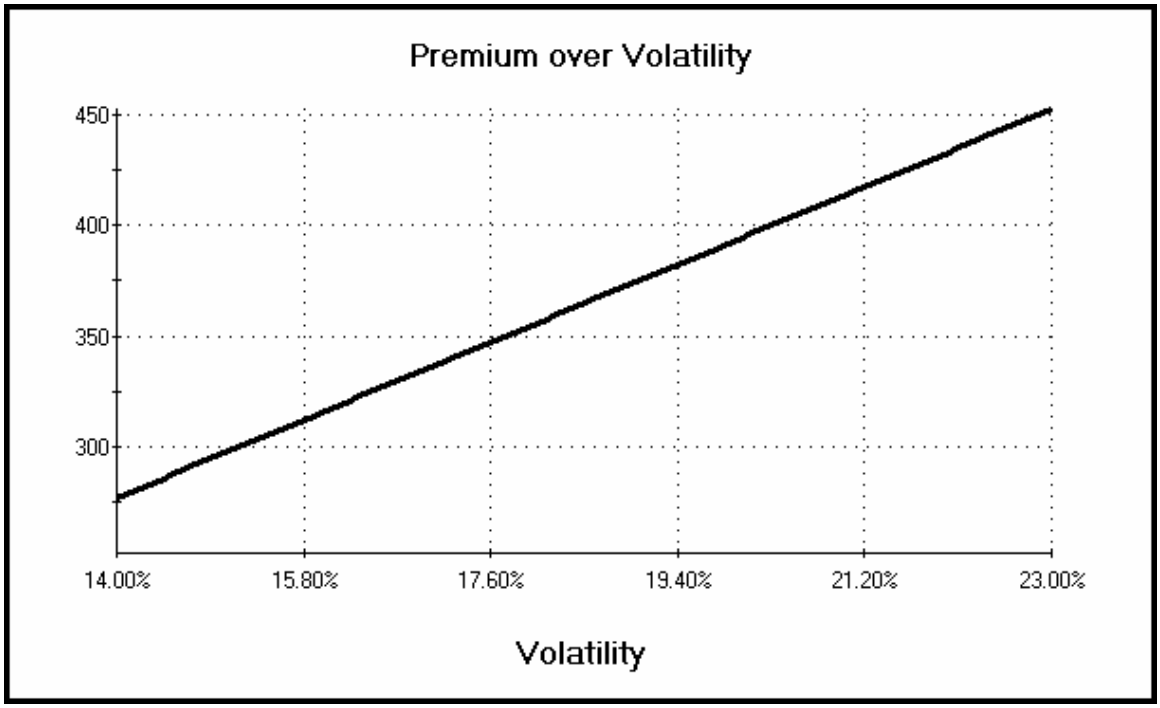
Theta

Theta is the expected change in an option premium for a single day's passage of time. That is, if all other factors are not changed then when tomorrow arrives an option premium should be lower by the theta value.



Vega

Vega is the expected change in an option premium for a 1 percentage-point change in volatility.



Rho

Rho is the expected change in an option premium for a 1 percentage-point change in interest rates.

OPTION STRATEGIES

Four Basic Building Blocks

In options trading, understanding the various option strategies and knowing which ones to use in a given market and situation are key to profitability.

Options strategies are created using a combination of the four basic option positions or legs -- long Call, short Call, long Put, short Put.

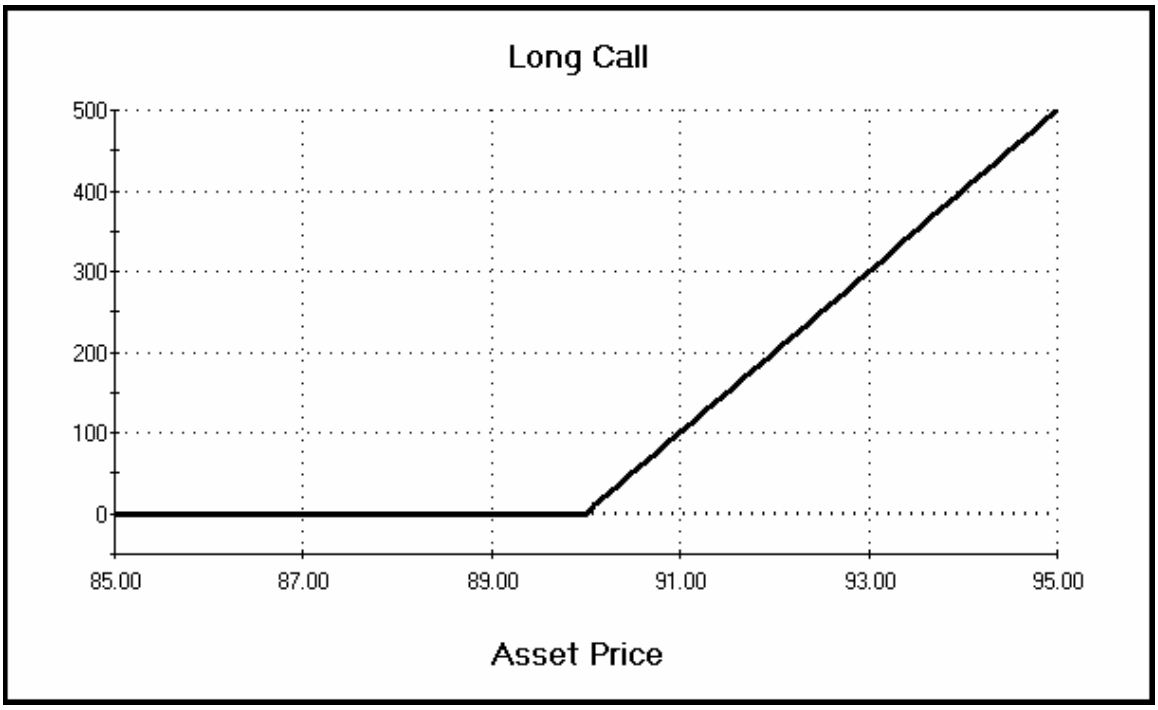
Option strategies can provide opportunities in rising, declining, active, or stagnant markets, even creating the potential for profit if you do not know which way the market will go. By combining different option contract months, strike prices, and number of contracts traded, an options strategy can be created to take advantage of almost any market action or condition.

Long Call

A Call purchase is a long Call, which is a bullish or very bullish position. It gives the holder the right, but not the obligation, to buy the underlying asset at a fixed price or amount on or before a specific period of time. The risk for the holder is limited to the premium paid for the option. The reward is unlimited. The Call purchase strategy benefits from an increase in the price of the underlying asset.

Buying Calls is a bullish strategy that can be used as an alternative to the outright purchase of the underlying asset, giving you the benefits of limited risk and increased leverage.

Market bias	Bullish
Risk	Premium paid
Potential reward	Unlimited
Premium	Paid-in-full at purchase; no margin calls

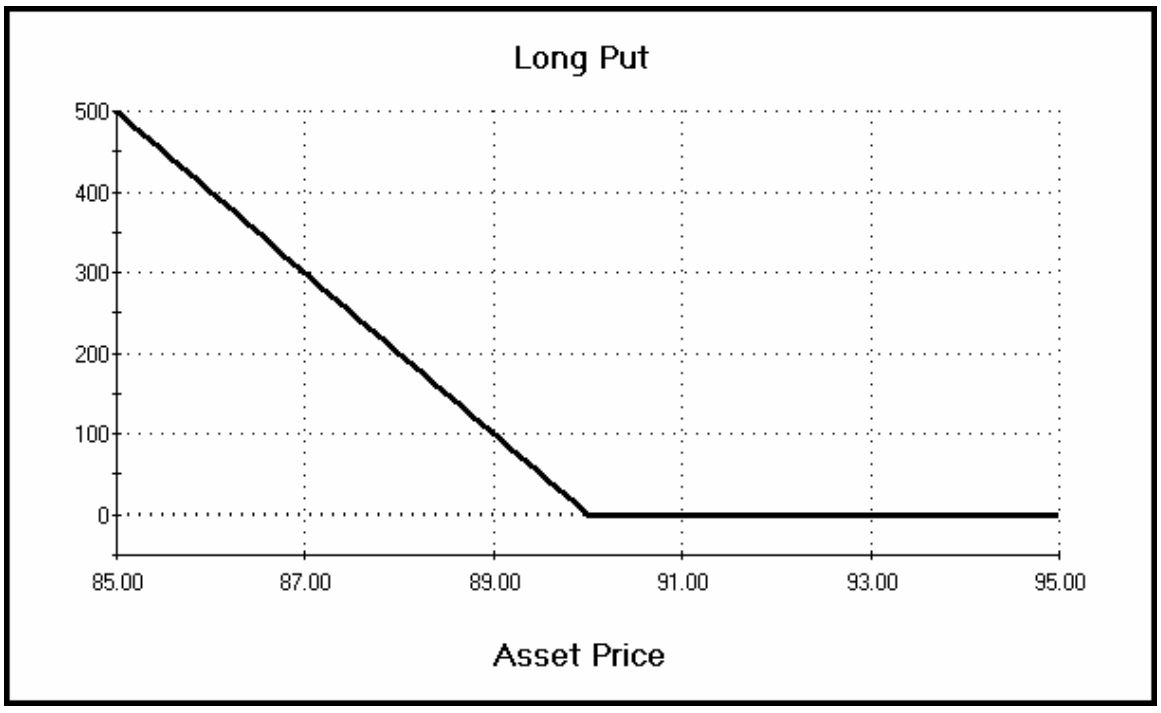


Long Put

A Put purchase is a long Put, which is a bearish or very bearish position. It gives the holder the right, but not the obligation, to sell the underlying asset at a fixed price or amount on or before a specific period of time. The risk for the holder is limited to the premium paid for the option. The reward is unlimited to an underlying price of 0. The Put purchase strategy benefits from a decrease in the price of the underlying asset.

Put purchases are used if you are bearish on the underlying asset. They can be used as an alternative to shorting (or selling) the underlying asset. A Put purchase can also be used to protect a currently held position with the underlying asset by locking in a selling price (via the strike price).

Market bias	Bearish
Risk	Premium paid
Potential reward	Limited to difference between strike price and 0, less premium paid
Premium	Paid-in-full at purchase; no margin calls

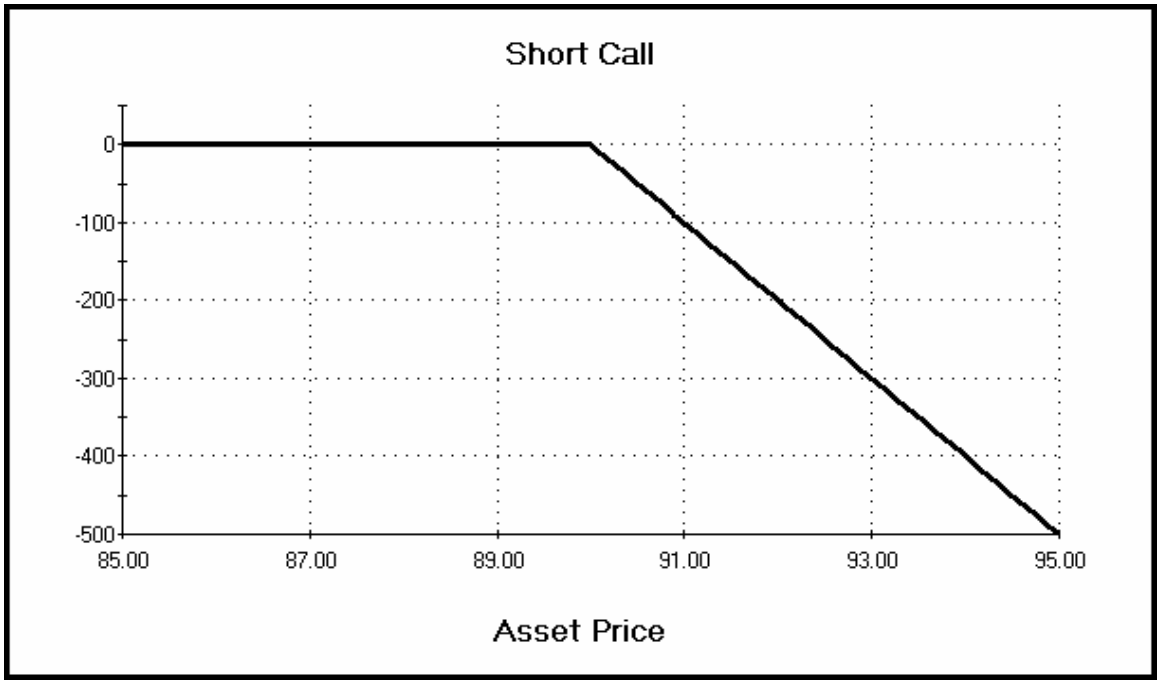


Short Call

Writing a Call represents a short Call, which is a slightly bearish or neutral position. This strategy entails writing (selling) the Call option with an obligation to sell a fixed number or amount of the underlying asset to the holder at a fixed price on or before a specific period of time upon exercise. The trader or investor who executes this strategy is called the writer. The risk inherent of Naked Call writing can be extremely high and always carries margin requirements.

The reward in this strategy is limited to the premium received for selling the Call option. The risk is unlimited. Writing Calls is used if you are bearish on the underlying asset, and is used basically to collect the premium when a trader or investor feels that the Call option contract will expire worthless, or will be worth less than the premium received.

Market bias	Bearish
Risk	Unlimited
Potential reward	Premium received
Premium	Premium received; Subject to margin calls

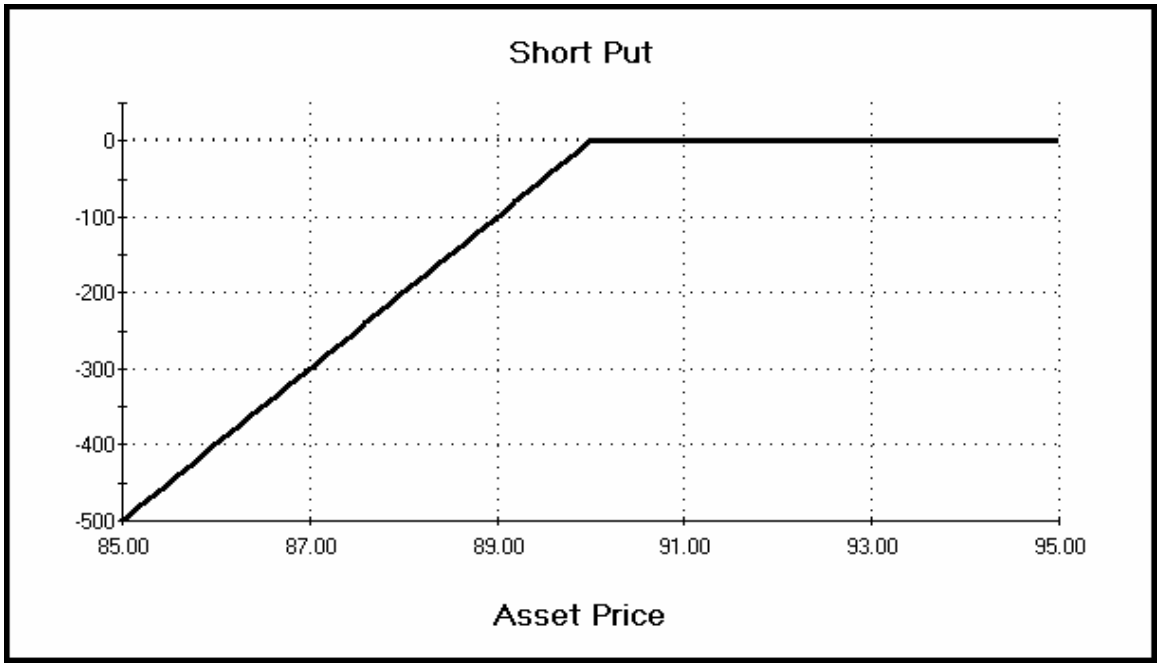


Short Put

Writing a Put represents a short Put, which is a slightly bullish or neutral position. This strategy entails writing (selling) the Put option with an obligation to buy a fixed number or amount of the underlying asset from the holder at a fixed price on or before a specific period of time. The trader or investor who executes this strategy is called the writer. The risk inherent of Naked Put writing can be extremely high and always carries margin requirements.

The reward in this strategy is limited to the premium received for selling the Put option. The risk is unlimited. Writing Puts is used if you are bullish on the underlying asset, and is used basically to collect the premium when a trader or investor feels strongly that the Put option contract will expire worthless, or will be worth less than the premium received.

Market bias	Bullish
Risk	Limited to difference between strike price and 0, less premium paid
Potential reward	Premium received
Premium	Premium received; Subject to margin calls



Combining Legs into Strategies

General Option Spread Strategy Theory

Now that we have looked at the four basic options strategies, we can use these strategies as building blocks to create more complex option strategies known as spreads, to create new trading opportunities that can take advantage of virtually any market situation.

An option spread position is an option position that has two or more different option contracts (legs) in combination. Usually, a spread is comprised of buying and writing different option types, strike prices, or expiration dates in order to take advantage of some market situation, or to increase the leverage of capital. When writing options in combination with buying options, the options you are buying can cover the options you are writing, reducing or eliminating a margin requirement.

Any time you create/open an option spread position with a debit, (a debit is created whenever the options you are buying are more expensive than the options you are selling), the debit of the positions is usually the maximum amount you can lose on the position. When you create/open a spread position with a credit, the credit is usually the maximum gain of the position, and there will be a margin requirement equal to the maximum loss of the position.

The maximum gain point of a spread position is the underlying asset price at the strike price of the options you are selling, and the maximum loss price point is at the strike price of the options you are buying.

Example: Call Debit Spread

Long *1 XYZ OCT* ***60*** *Call (****maximum loss*** *price point for the underlying asset =* ***60****)*
Short *1 XYZ OCT* ***65*** *Call (****maximum gain*** *price point for the underlying asset =* ***65****)*

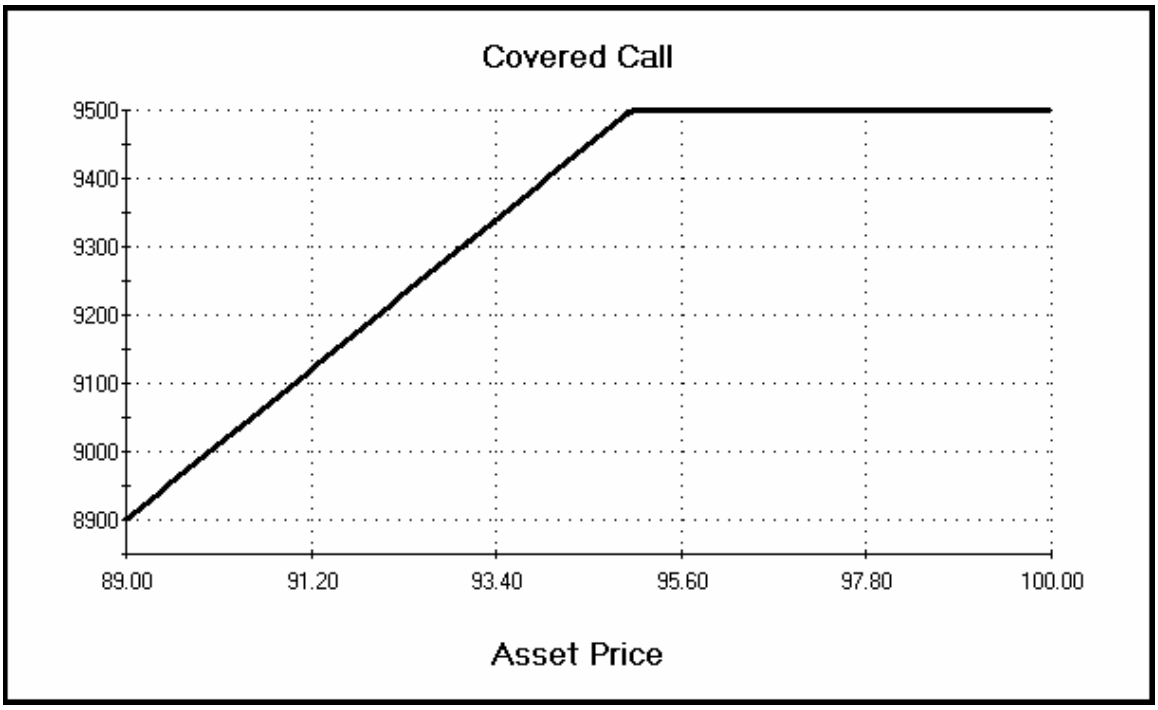
Finally, the maximum profit or maximum loss of any spread position is only achieved on the expiration date of the options; this is when the options that make up the strategy are only worth the difference of the spread; in other words, the intrinsic value.

Covered Call

Writing or selling a Call against a current stock position represents a Covered Call strategy. This entails owning a certain number of shares or contracts of the underlying asset, and then writing (selling) Call options in the correct ratio.

The reward in this strategy is limited to the premium received for selling the Call option, and any asset price movement up to the strike price of the option sold. Covered Call writers want the price of the stock to remain as close as possible to, but below, the strike of the option sold for maximum profit, since the option sold would then expire worthless.

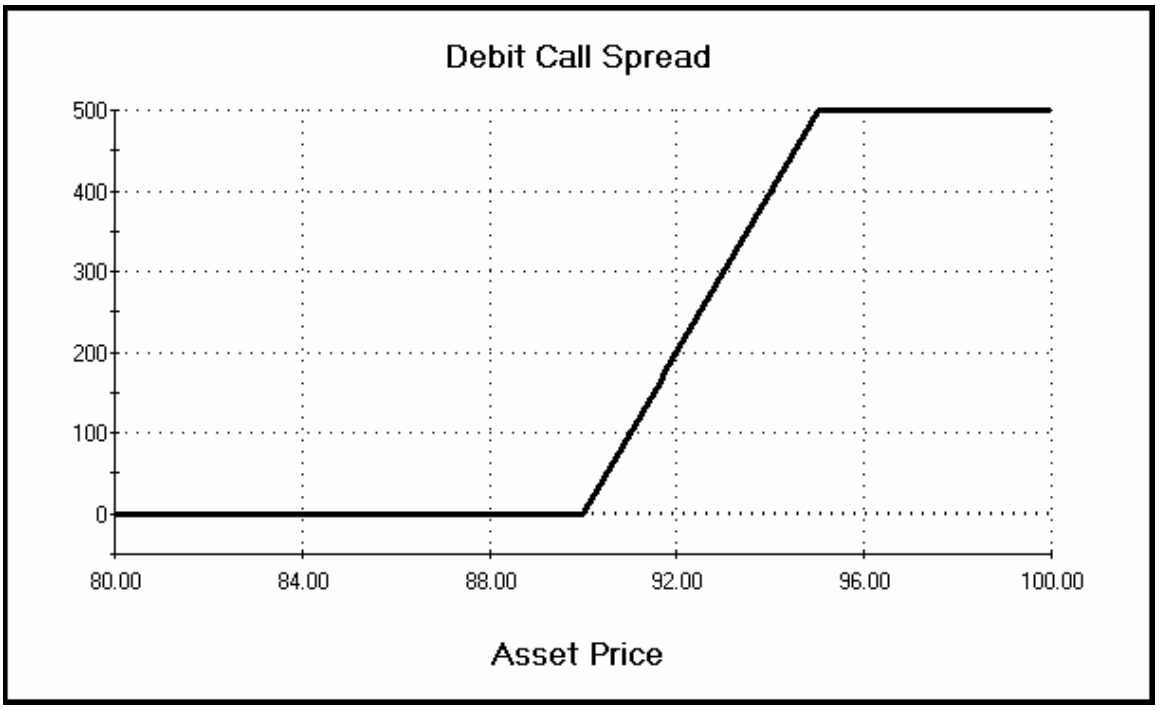
Market bias	Moderately bullish
Risk	Asset price of 0 less premium received
Potential reward	Difference between price paid for asset and option strike price plus premium received
Premium	Asset must be paid for, or margined; if margined, subject to asset margin calls



Debit Call Spread

A Debit Call Spread involves the purchase of one of more calls and the sale of an equal number of calls with a higher strike price. If the asset price rises, the long leg should create a profit greater than the loss on the short leg. If the asset price declines, the net premium (the debit) paid for the spread would be a smaller loss than a long call position alone.

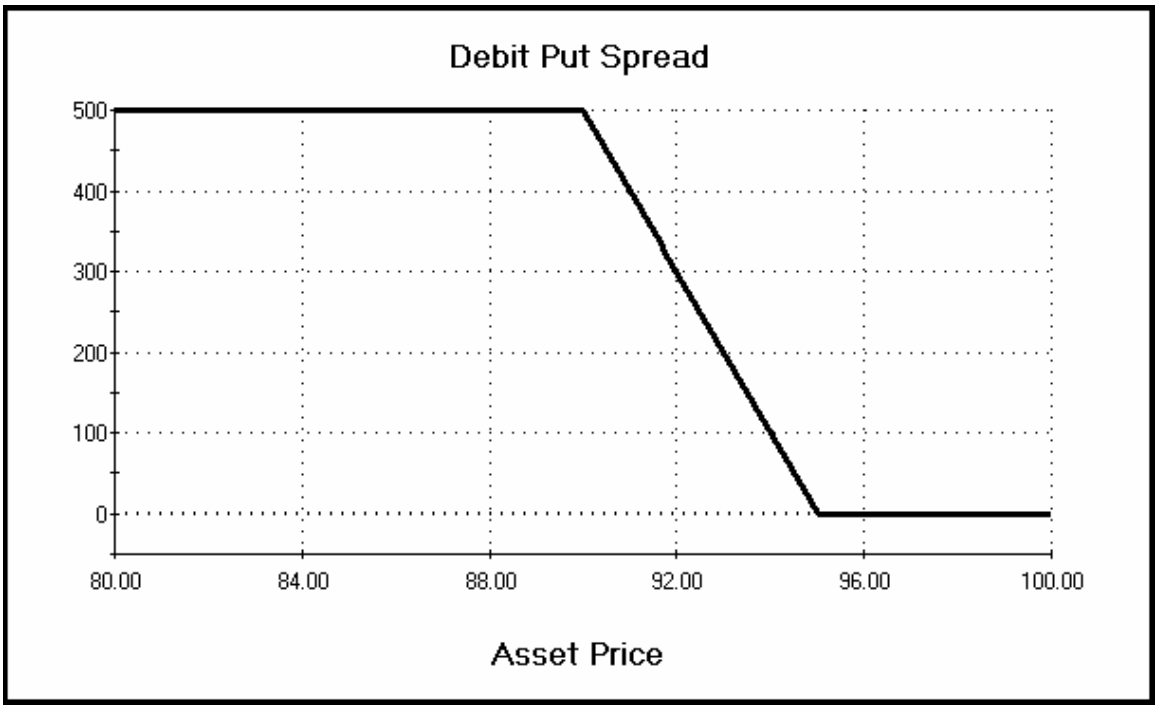
Market bias	Moderately bullish
Risk	Net premium paid (debit)
Potential reward	Difference in strike prices less premium paid
Premium	Net premium paid at purchase; not subject to further margin calls



Debit Put Spread

A Debit Put Spread involves the purchase of one of more puts and the sale of an equal number of puts with a lower strike price. If the asset price falls, the long leg should create a profit greater than the loss on the short leg. If the asset price rises, the net premium (the debit) paid for the spread would be a smaller loss than a long put alone.

Market bias	Moderately bearish
Risk	Net premium paid (debit)
Potential reward	Difference in strike prices less premium paid
Premium	Net premium paid at purchase; not subject to further margin calls



Other Available Option Strategy Names:
(See on-line help for more information and descriptions)

Butterfly Call - Buy
Butterfly Call - Sell
Butterfly Put - Buy
Butterfly Put - Sell
Calendar Call - Buy
Calendar Put - Buy
Calendar Call - Sell
Calendar Put - Sell
Calls - Buy
Calls - Sell
Condor Call - Buy
Condor Call - Sell
Condor Put - Buy
Condor Put - Sell
Covered Stock
Credit Call Spread
Credit Put Spread
Debit Put Spread
Debit Call Spread
Diagonal Call - Buy
Diagonal Call - Sell
Diagonal Put - Buy
Diagonal Put - Sell
Iron Butterfly - Buy
Iron Butterfly - Sell
Iron Condor - Buy
Iron Condor - Sell
Married Put
Puts - Buy
Puts - Sell
Ratio Backspread Call 1-2
Ratio Backspread Call 1-3
Ratio Backspread Call 2-3
Ratio Backspread Put 1-2
Ratio Backspread Put 1-3
Ratio Backspread Put 2-3
Ratio Spread Call 1-2
Ratio Spread Call 1-3
Ratio Spread Call 2-3
Ratio Spread Put 1-2
Ratio Spread Put 1-3
Ratio Spread Put 2-3
Straddle - Buy
Straddle - Sell
Strangle - Buy
Strangle - Sell
Synthetic Long
Synthetic Short

Learning more about Options:

TradeStation Help:

CBOE Website: WWW.CBOE.COM

Options as Strategic Investment

by Larry McMillan

Option Volatility and Pricing

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