



Options Primer

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DISCLAIMER

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WHAT IS AN OPTION?

Every human being on this planet must deal, in one way or another, with unexpected events that disrupt their lifestyle. Unfortunately, most of us come to learn this fact after our lives have been disrupted many times! From the guy that doesn't own one worldly possession to the most wealthy of individuals, the possibility of loss always exists. The health and life of people is the most basic asset, an asset which millions of people across the world try to protect. Either by trying to stay healthy and out of harms way through being fit, working out and eating healthy or by having health or life insurance in the event that something does happen. It is built into our DNA that we must constantly weigh the risks and consequences of what we do with the possible rewards and outcomes.

The insurance industry is an empire that deals exclusively with these risks. Through statistical inference and actuarial data tables, an insurance company essentially uses the law of large numbers to their advantage. First of all they provide a service to the general population and for a cost they accept the risk that humans encounter in their daily lives. Through sampling techniques they have proven that any given event has a certain likelihood of occurrence when certain elements are present. Whether it be the average number of years a man age 50 that doesn't smoke, who has low cholesterol and blood pressure will live, to the possibility that an eighteen year old male driving a four wheel truck living in Colorado will wreck. Secondly, the insurance company calculates a premium that over time and through many policies generates more revenue then claims paid. Catastrophic events and anomalies can devastate insurance companies however and cause premiums to increase as this new data is now included in their statistical tables. The industry is designed not to fail over the long run based on this law of large numbers and total premiums collected offset all payouts issued when time takes over the equation. More and different policies can be written to increase the odds of guaranteed returns. Insurance companies will try to cap their risk by selling policies with maximum pay-out values. In other words if disaster strikes and policies get cashed against the writer, they have limited total loss and will survive and prosper long-term in spite of this.

Option contracts share many of the same characteristics with insurance contracts. Some of the basics include; a premium, a stated life of the policy, and an exercise or payout certain conditions are met. As we progress through this course we will begin to see the many similarities, and differences, that options share with insurance contracts.

OPTION HISTORY

Options developed as a means to help manage certain types of risk, not as a vehicle for speculation. They were originally created by merchants that wanted to ensure there would be a market for their goods at a specific time and price. One such merchant was the ancient Greek philosopher Thales. As a student of astrology and general businessman, Thales predicted a great olive harvest in the spring while it was still winter.

With little activity during this time of year in the olive market, Thales negotiated the price he would pay for olive presses in the spring. The great harvest came; Thales collected on his predetermined price and then rented these presses out to other farmers at the going rate.

The most well know historical account of the options contract was the tulip craze in 17th century Holland. Tulip traders and farmers actively traded the right to buy and sell the bulb at a predetermined price in the future as a means to hedge against a poor tulip bulb harvest. A secondary speculation market began to develop that wasn't traded by farmers, but rather speculators. Prices were volatile as the market exploded; members of the public began using their savings to speculate. The Dutch economy collapsed in part because speculators didn't honor their obligations contained in the contracts. The government tried to force people to honor the terms but many never did and a bad reputation of the options contract spread throughout Europe. A similar situation came to fruition about 50 years later in England when the public began buy and selling options on the South Sea Company in 1711. Fascinated by the explosion in the companies stock price because of a trading monopoly secured from the government, speculation increased the stock price by 1000%. When the company's directors began selling stock at these high levels and significantly depressing the price, speculators were unable and unwilling to deliver on their obligations. Option trading was subsequently declared illegal.

Option trading slowly made its way to the United States after the creation of the New York Stock Exchange in 1790. In the late 1800's puts and calls could be traded in the over-the-counter market. Known as "the grandfather of options", Russell Sage a railroad speculator and businessman developed a system of *conversions* and *reverse conversions*. It uses the combination of a call, a put and stock to create liquidity in the options market, a system that is still used today. Despite these positive steps to encourage options as a legitimate trading vehicle, the 1900s took a toll on the reputation of options. Bucket shops, option pools and other shady set-ups lent to the unscrupulous view of the option trader. After the crash in 1929 the Securities and Exchange Commission, SEC, was formed and the regulation of options trading began.

The put/call dealer and author of "Understanding Put and Call Options" Herbert Filer testified before congress during this time, his object was to shed positive light on the option industry. Congress would approach this hearing with the distinct intention of "striking out" options trading. They sited their concern that the vast majority of option contracts expired worthless, 87% to be exact. Congress assumed that all trading was done on a speculative basis but Filer replied, "No sir. If you insured your house against fire and it didn't burn down you would not say that you had thrown away your insurance premium." The SEC ultimately concluded that not all option trading is manipulative and that properly used, options are a valuable investment tool. The Investment Securities Act of 1934, which created the SEC, gave the SEC the power to regulate options.

OPTION EXCHANGES

It wasn't until 1973 when the Chicago Board Options Exchange (CBOE), the first options exchange in the U.S., opened its doors that the options trading world started to look like the empire we see today. Up until this point the right to buy and sell a stock at a specific price, by a specific time was traded in many places and many ways. There was no uniformity to the underlying contracts let alone a predetermined place to go to find liquidity as a buyer or seller. Some contracts represented a thousand shares and expired on the third day of a particular month while other contracts represented 200 shares and expired on the thirteenth day of the month. It was a pivotal time in the future success of options trading and it was answered by a group of individuals that understood options must be standardized, uniform and publicly available. Until there is a physical or virtual location to find liquidity in a fair and orderly manner, markets don't exist efficiently.

The seeds of the CBOE were originally planted in a small room on the Chicago Board of Trade (CBOT) four years earlier in 1969. When the CBOE was officially organized they only traded calls on 16 stocks. Trading became so popular that other option exchanges started opening in 1975. Put options began trading in 1977 on the CBOE.

Index options were introduced in 1983 with the S&P 100 (OEX) and the S&P 500 (SPX) contracts. The popularity of innovations like these required the CBOE members to move from the halls of the CBOT into their own space and in 1984 a 45,000 square foot building became their new home. Technological advances such as the Retail Automatic Execution System (RAES) were part of the new and improved space and have allowed the CBOE to stay at the front of the pack. Another example is the CBOE use of the Modified Trading System (MTS) to conduct its trading business. The MTS arrangement combines both the market maker system and the designated primary market maker system (DPMs). DPM are exchange appointed organizations, stewards over a particular set of classes and functions. They obligate themselves to the highest degree of accountability and are required to provide the full range of services expected of a liquidity provider. Combining DPMs with the support of market makers that add competition enhances the system.

Chicago Board Options Exchange (CBOE)
LaSalle at Van Buren
Chicago, IL 60605 USA
1-800-678-4667
www.cboe.com

American Stock Exchange (AMEX)

Derivative Securities
86 Trinity Place
New York, NY 10006 USA
1-800-843-2639
www.amex.com

Pacific Exchange (PCX)
Options Marketing
115 Sansome Street, 7th Floor
San Francisco, CA 94104 USA
1-800-825-5773
www.pacificex.com

Philadelphia Stock Exchange (PHLX)
1900 Market Street
Philadelphia, PA 19103 USA
1-800-843-7459
www.phlx.com

International Securities Exchange
60 Broad Street
New York, NY 10004
212-943-2400
www.iseoptions.com

The Options Clearing Corporation (OCC)
440 South LaSalle Street
Suite 2400
Chicago, IL 60605 USA
1-800-537-4258
Stock Options Exchanges
www.theocc.com

THE BASICS

STANDARDIZED OPTIONS

The basics of an option are well known and for the most part standardized. The first and most important element of the option contract is the underlying security, the asset that the option is built on top of; either a stock, bond, index, commodity, futures, or interest rate. These standardized contracts trade on the option exchanges, their uniformity allow traders to quickly enter and exit positions without having to negotiate every characteristic of the contract. There is a very small market for some options that are individually structured for a particular investors situation. These products are designed by Structured Products Trading Desks at different brokerage firms, priced and traded over the counter. Their uniqueness makes them illiquid and difficult to access, our conversation will therefore focus on standardized contracts.

An option contract can theoretically be constructed on top of any underlying asset. The most widely traded options are equity and index options; those that are based on stocks and stock indexes. All options derived their existence from an underlying security and are therefore considered derivatives. Futures, Swaps, Forwards and Warrants are other types of derivative products.

100 SHARES

Options that trade in the US were standardized in the 1970's and are backed by the good faith and credit of the Options Clearing Corporation, OCC. Option contracts represent 100 shares unless they have been specially adjusted due to a stock split or corporate merger of some sort. Be aware of adjusted option contracts, if what they represent is not perfectly understood they are hazardous to your trading health. Most adjusted contracts represent a different share amount then the widely accepted 100. 150 is a common number for stocks that have undergone 3 for 2 stock splits. Companies that have listed options which get acquired may have to adjusted their contracts to reflect the merger, instead of a contract representing 100 shares of XYZ is may now represent 80 shares of ABC plus \$3 per contract. These adjustments can and will affect the price of a contract and many individuals have lost sizable amounts of capital because they stumble across something "too good to be true." If it looks like free money, have your broker confirm with the exchange what the contract represents. The CBOE website is also a good resources to confirm the specifications of a particular contract.

PRICING

The factors that affect the price of the option are:

1. price of the underlying stock,

2. striking price of the option itself
3. time remaining until expiration of the option
4. volatility of the underlying stock
5. the current risk-free interest rate
6. dividend rate of the underlying stock

An options price represents how much each share that's represented by the contract is going to cost you, or how much premium you'll receive. Because the contracts are standardized at 100 shares per contract, the formula is easy: # of contracts x 100 x price of option. FYI: this 100 number is called the multiplier and is important to remember for index options. If a contract is quoted \$2.50 bid and \$2.75 ask, a trader would receive \$250 ($\$2.50 \times 1 \times 100$) if they sold the contract and it would cost \$275 ($\$2.75 \times 1 \times 100$) if a trader were to buy the contract. If 10 contracts were traded a seller would receive \$2500 ($\$2.50 \times 10 \times 100$) and a buyer would pay \$2750 ($\$2.75 \times 10 \times 100$). Even if the contract were to represent 150 shares in our 3 for 2 stock split example, the premium would still represent the cost of each share in the contract.

EXPIRATION/EXERCISE

January Cycle				
JAN	JAN	FEB	APR	JUL
FEB	FEB	MAR	APR	JUL
MAR	MAR	APR	JUL	OCT
APR	APR	MAY	JUL	OCT
MAY	MAY	JUN	JUL	OCT
JUN	JUN	JUL	OCT	JAN
JUL	JUL	AUG	OCT	JAN
AUG	AUG	SEP	OCT	JAN
SEP	SEP	OCT	JAN	APR
OCT	OCT	NOV	JAN	APR
NOV	NOV	DEC	JAN	APR
DEC	DEC	JAN	APR	JUL

There are always 2 near-term and 2 far-term months available. The most recently added expiration month is listed in bold. This new expiration month is added on the Monday following the third Friday of the month. These tables do not include LEAPS. LEAPS (long-term options of 1 to 3 years) expire in January of the LEAPS' specific year.

Option contracts all expire in a uniform and consistent manner; the Saturday following the third Friday of the month they represent. They will, however stop trading on different days based upon the exercise style: American or European. American options stop trading on the third Friday of the month and can be exercised at any time during the life of the contract. European options stop trading on the Thursday before the third Friday of the

February Cycle				
JAN	JAN	FEB	MAY	AUG
FEB	FEB	MAR	MAY	AUG
MAR	MAR	APR	MAY	AUG
APR	APR	MAY	AUG	NOV
MAY	MAY	JUN	AUG	NOV
JUN	JUN	JUL	AUG	NOV
JUL	JUL	AUG	NOV	FEB
AUG	AUG	SEP	NOV	FEB
SEP	SEP	OCT	NOV	FEB
OCT	OCT	NOV	FEB	MAY
NOV	NOV	DEC	FEB	MAY
DEC	DEC	JAN	FEB	MAY

options, if you as an owner of an option contract would like to exercise your right to either buy or sell shares, you must call you broker and instruct them to do so. At expiration the option will either

March Cycle				
JAN	JAN	FEB	MAR	JUN
FEB	FEB	MAR	JUN	SEP
MAR	MAR	APR	JUN	SEP
APR	APR	MAY	JUN	SEP
MAY	MAY	JUN	SEP	DEC
JUN	JUN	JUL	SEP	DEC
JUL	JUL	AUG	SEP	DEC
AUG	AUG	SEP	DEC	MAR
SEP	SEP	OCT	DEC	MAR
OCT	OCT	NOV	DEC	MAR
NOV	NOV	DEC	MAR	JUN
DEC	DEC	JAN	MAR	JUN

potential disasters, you should inform your broker you would like to exercise your position instead of leaving it up to them to decide. Confirm with you broker what this amount is however and how they handle expiration, this is very important to understand. Monday morning is the effective day or trade date of the exercised position in the account so if the net position is long or short, Monday will be your first chance to trade the shares after expiration.

While equity options require that stock be used to settle the terms of the contract if an exercise or assignment takes place, index options settle in cash. Given the multiplier is still 100 just like equities, a trader can figure if they own a 100 strike call and the particular index closes expiration at 105, the 5 point difference is the amount of cash that will be credited to your account (\$5 x 100 multiplier x # of contracts). It would be impossible to deliver full and fractional shares of the S&P 500 or other similar indexes and for this reason cash settlement is used.

SYMBOLGY

Option symbols are unique and are constantly changing. Each option has a root symbol that represents the underlying security, this root symbol can have one, two or three characters, but no more. The last two letters in an option symbol always represent the

month. All equity options are American many index option are European. For example, the OEX, the S&P 100 is American while the SPX, the S&P 500 is European. There are a number of other differences between the two expiration styles and we will not attempt to discuss them all, our focus will be on American style options.

Prior to expiration for American style

Be ITM or out-of-the-money (OTM). If it is OTM the contract will expire worthless and literally disappear from your trading account before the market reopens. If it expires ITM or and you are short contracts you will most likely be assigned and either buy or sell stock. If you are long contracts and expire ITM, the contracts will automatically be exercised on your behalf by the OCC if you're ITM by a certain amount. To remove any confusion or

month first, then the strike price second. (put in a visual for this) A - L represent the month for calls while M - X are used for the month with puts. Most options strikes are given in five point increments starting with the letter A for 05, B for 10, C for 15 and so on. Option chains on software trading platforms or the Internet are the best way to determine an option symbol. However, many option traders have kept themselves out of trouble because they have learned the basics of the symbology. For example, you give an order to buy DELL puts to open and your broker reads back the symbol DLQAJ. You're able to catch his error because you know that the letter A is for calls, not puts.

SETTLEMENT

The settlement period for options is T+1 (Trade date + 1 day) meaning the option trade settles the next business day, stocks trades on the other hand have a T+3 settlement period which requires the trades to be paid for by the third business day after the trade is executed. This means for most of us that funds have to be in the account before a trade is placed. Most brokerage firms will not allow an options trade unless the account already has the required capital at the time of the trade.

MONINESS

The reference to an option as being either in-the-money, at-the-money, or out-of-the-money is a way to communicate that the stock price is above, below or at the strike price of a particular call or put contract. The money reference is not a statement about the profitability of the particular option, in fact a trader can not make any assumptions about the profitability of an option based upon its moniness. Call strikes below the stock price are in-the-money, strikes at the stock price are at-the-money and call strikes above the stock are out-of-the-money. Put strikes that are above the stock are in-the-money, strikes at the stock price are at-the-money and strike prices below the stock prices are out-of-the-money. Options have intrinsic value to the amount they are in the money. An out-of-the-money option has no intrinsic value.

RIGHTS vs OBLIGATION

Options trades can be entered four basic ways; buy to open, sell to open, buy to close and sell to close. We will discuss the nature of the opening and closing designations but ultimately you will either be long or short the contracts in your account; it is the initial trade that opens the position. Buying to open gives you the right to exercise the terms of the contract when it is favorable to do so. If you've bought calls to open, you have the right to buy stock at the strike price of your option contract. If you buy puts to open you have the right to sell stock at the strike price of your contract.

Traders that sell to open have the obligation to abide by the terms of the contract and must either buy or sell shares at the price that is being assigned to them. If a trader sells

calls to open they have the obligation to sell stock at the stated strike price of the agreed upon contract. If one of the parties does not live up to their end of the agreement, the OCC will initially cover the defaulting side of the trade. They will then pass all responsibility to the brokerage firm to settle the difference. These types of situations are why clearing firms require brokerage firms to make initial clearing deposits in the millions and millions of dollars.

OPENING and CLOSING TRANSACTIONS

Later in the course we will take you through actual option trades; from launching the trading platform and watching the market, to charting options and eventually trading them. One of the concepts to know in advance is how option trades are either OPENING or CLOSING. Opening a trade establishes the option position in the traders account while closing a trade removes the position from the account. Whether a trade is opening or closing is an indication that must be made at the time the trade is placed. The following are the possible order entry combinations: Buying Calls to Open, Selling Calls to Open, Buying Calls to Close, Selling Calls to Close, Buying Puts to Open, Selling Puts to Open, Buying Puts to Close and Selling Puts to Close.

OPEN INTEREST

As mentioned, when an option trade is entered through an electronic platform or directly with a broker, the order must indicate whether it is opening or closing. This indication does not affect the ability of the order to get traded but it does effect open interest. Open interest is the number of positions open across all exchanges in one particular contract. For example, the first time a series is rolled out all contracts in that series have zero open interest, nobody has traded the newly issued series let alone established any positions. If a contract has zero open interest and one trader enters an order to buy to open at \$3 and another trader sells to open at \$3, this trade creates 1 open interest. If these two traders agree to close out their position before the end of the day, open interest would be back to zero. The open interest number is calculated on a net basis at the end of the day, i.e. all opening versus all closing trades. If the trade examined in the previous example was done many times in one day, volume may end up being heavy but the open interest may hardly change.

The Options Clearing Corporation, know as the OCC, is responsible for clearing all option trades at the end of the day and confirming that each buy order is matched with a sell order at the right time, at the right price, for the right contract and the right amount. During this clearing process open interest is determined as each trade is matched and cleared. Before the market opens the next day, the OCC reports the newly calculated open interest from the previous day to all the exchanges, brokerages houses and quote vending firms that have requested the information.

Open interest is a measure of activity and liquidity and it is not a coincidence that the front month at-the-money contracts typically have the most open interest. Institutional and active traders use these contracts in a number of different styles and strategies but the

majority of volume for these at-the-money contracts comes from the creation of institutional synthetic positions and delta hedging. This additional open interest provides liquidity when it is needed. For example, if a particular option has 20 open interest and one trader wants to open a 100 contract position, the trade may eventually get done but the price will be up for discussion as liquidity is found at a higher or lower price. This one trader will eventually represent 83% of the option's market and when it comes time to close the position liquidity will become an issue again.

Like a stock, illiquid options have larger spreads, there just aren't as many players jockeying for the inside position. If a large trader wants to buy an illiquid stock the price can increase substantially as he tries to find sellers at higher and higher prices. In the options market, market makers have additional liquidity tools at their disposal. The options market maker can use a combination of stock and options to provide liquidity for the customer through the use of synthetic positions.

OPENING ROTATION

The world doesn't stand still when the US equity markets close, events continue to take place and prices continue to change even after we go to bed. US stocks listed on foreign markets, futures trades that take place throughout the night on the GLOBEX System, these different market locations allow traders to work throughout the day and night. Trading in Europe and Asia can significantly affect the perceptions and attitudes of those that trade the US markets. Events such as these will cause price vacuums or gaps to occur when markets open for trading. Options are derivatives and derive their price from the underlying security, these securities must first be priced before the option can be priced. Each option exchange must re-price each contract every day before trading begins. This event is called opening rotation. Each market maker will consider the opening price of the stock, any changes in historical and implied volatility and how the remaining time until expiration affects the price of each option. Any orders entered before the open which the market maker is aware of may also effect the opening option price. Market makers traditionally went through each option in a predetermined fashion, calling out to the crowd for their market. Members of the crowd would call back prices they were willing to quote and hence the opening price was established. The advent of computers has moved option exchanges almost entirely to electronic systems, allowing for opening rotation to be completed at the click of a button. It still takes some time so option quotes typically don't display on quotes systems for one to 10 minutes after the stock has opened. If traders want their orders to be considered in the opening rotation sequence of events, orders must be received before the market opens.

CHARTING: PROFIT, LOSS and PRICING

Option profit and loss charts are used throughout the industry to help demonstrate the characteristics of certain positions and strategies. These charts are often referred to as "hockey stick" charts because of the shapes they end up taking on. Before we begin to

look at the plethora of different stock and option positions, let's first begin with an introduction and explanation of these charts.

The CBOE Options Tool Box and Work Bench
www.cboe.com

POSITIONS

LONG STOCK

Long stock is the street's way of saying that you own the stock. A trader has three different positions available when it comes to the stock market; long stock, short stock or no stock, i.e. cash. Ownership has its privileges and stock ownership offers its own rewards. Investors often buy stock not just for the price appreciation possibilities, but rather for the dividend rights and ownership rights. The mechanics behind hostile take-overs involve one entity purchasing the majority of issued shares. Dividends have been used by many wealthy investors as a way to increase their income, a conservative approach when compared to the reasons a trader would use. Long stock is the American way, people are born bulls and that's what stockbrokers preach, to the benefit or demise of their clients. The vast majority of stock owners do so for the possibility of price appreciation hoping they can sell the shares higher than where they were purchased.

SHORT STOCK

Short stock is a little more complicated than simple being the opposite of long stock. Traders who go short stock are trying to accomplish the same thing a long stock trader is; buy low and sell high. Short traders accomplish this by reversing the order of events, instead of buying low first and then selling high, short traders will attempt to sell high first and then buy low to close the position. The trader virtually borrows the shares from someone else's account to sell on the open market, when its time to replace those borrowed shares they repurchase them in the open market and put them back in the account. Not every stock can be borrowed for shorting, the stock must first be marginable, it then has to be above \$5 and to execute the trade it must be done on an up-tick. These additional requirements and restrictions are why traders who believe a stock is headed lower will use options to take a bearish position instead of shorting stock.

LONG CALL

I mentioned earlier that buying calls to open gives the call purchaser the right to buy stock at the stated strike price up until expiration of the contract. If a trader buys one of the XYZ October 40 Calls, owning this contract gives him the right to buy, or “call away” XYZ stock at \$40 any time before the October expiration. This is very popular strategy for traders with a bullish opinion and the most widely used for a couple of reasons. The first is that long calls are very easy to understand. The second reason is that buying calls is a cheap way for traders to bet that the stock is going up.

SHORT CALL

Selling calls to open obligates the seller (writer) to sell stock at the stated strike price any time before expiration. If a trader sells one of the XYZ October 40 calls, he is obligated to sell (deliver) stock at \$40, he is being “called out” of the stock. Short calls are most often used when a trader already has stock in the account, selling a call against this stock is referred to as a “covered call”. If the short call writer is called out, the request is covered by the stock that already exists in the account. If there is nothing to cover the obligation of being called out, then the net effect will be a short position in the account.

LONG PUT

Buying puts to open gives the purchaser the right to sell stock at the stated strike price up until expiration of the contract. Put buyers are doing just the opposite of long call buyers. Long puts traders are betting that the stock is going to go down. If a trader buys an XYZ October 40 put he has the right to “put” the stock to another trader at \$40 any time before the October expiration. In other words he would be selling the stock at a state price, hopefully at a higher level than what is being offered in the open market. Going long puts is a cheap way to capitalize on a stock price decrease instead of shorting the stock, it is also used quite widely as an insurance policy on long stock that a trader might have. As the stock price decrease the put price increases, it is identical to an insurance policy on an asset.

SHORT PUT

Selling puts to open obligates the writer to buy stock at the stated strike price any time before expiration. It is the opposite of buying puts to open and therefore obligates the put seller to “get put the stock” at the strike price. If a trader were to sell puts to open on XYZ at \$40 they would have to buy the stock at \$40 any time before expiration if they were exercised. Short put writes are often done as a way to “get paid to place a limit order”. If a stock is trading at \$50 but the trader is thinking about placing a limit

order to buy at \$40, instead of just waiting to have the stock price drop they could instead sell puts and collect the premium while waiting for the stock to drop.

SYNTHETICS

As a trader comes to instinctively learn the mechanics of options, who is obligated to do what versus who has the right to do what, they learn that combining different positions can give them the same net affect as another position. An off-shoot of this position creation is what is known as Conversions and Reversals. Market makers on the floor who's responsibility it is to provide liquidity along with a fair and orderly market, use these conversions and reversal combinations to synthetically create positions. For example, if a trader off the floor wanted to buy 100 calls to open in an option that had never traded before, the market maker might only be offering 10 contracts at the inside market. To complete the trade the market maker would have to sell calls to open, which would leave him naked and completely exposed to upward stock movement. To cover the naked calls he would need to purchase stock. That would however leave him exposed on the down side with the long stock, to hedge this the trader would go long puts. This creates a cycle that the trader deals with on a daily basis, it is part of his job and requires sophisticated software to keep track off all the different positions. The market maker is constantly adjusting his positions throughout the day to make sure he has no market exposure, meaning he doesn't make or lose money from the market moving up or down, he makes it buy providing liquidity and charging transaction fees. One of the benefits of market making is that they have little or no transactions fees themselves and can afford to trade many, many times a day in an effort to remain "delta neutral", a term we will shortly explore.

While conversions and reversals are the combination of three positions to neutralize a fourth, synthetics are the combinations of two positions to replicate a third. Before entering a larger option position (50 to 100 contracts or more) it should be considered whether the outright position or the synthetic is price better.

The following information is required to calculate the synthetic position price:
(In each formula, each call and put has the same strike price and expiration.)

- Current stock price
- Option strike price
- Dividend payment dates and amounts
- Days to option expiration
- Cost to Carry the synthetic position
(Cost to Carry = Applicable Interest Rate x Strike Price x Days to Expiration/360)

- Long Stock = Long Call & Short Put
Synthetic Long Stock = Strike price - (-Put Price - +Call Price + Cost to Carry)

- Short Stock = Short Call & Long Put
Synthetic Short Stock = Strike price - (+Put Price - Call Price - Cost to Carry)
- Long Call = Long Stock & Long Put
Synthetic Long Call Price = (+Put Price + Stock Price + Cost to Carry) – Strike Price
- Short Call = Short Stock & Short Put
Synthetic Short Call Price = (-Put Price – Stock Price – Cost to Carry) + Strike Price
- Long Put = Long Call & Short Stock
Synthetic Long Put Price = (+Call Price + Strike Price – Cost to Carry) – Stock Price
- Short Put = Short Call & Long Stock
Synthetic Short Put Price = (-Call Price – Strike Price + Cost to Carry) + Stock Price

If at option expiration the underlying stock closes at the strike price of the options used to create a synthetic position, uncertainty is created if you do not buy back the short option. This is because your decision to exercise your long option would depend upon whether the short option was going to be exercised.

We now have two different ways to acquire a building block; we can purchase (sell) the building block directly, or we can purchase (sell) it synthetically. In order to determine whether to put a position on directly or synthetically, we need to calculate the price of the synthetic position.

Putting on a building block synthetically always involves a combination of the other building blocks. In the case of calls, this means using puts and stock. In the case of puts, it means using calls and stock; and, in the case of stock, it means using puts and calls. The rule is that when puts and stock are combined, they are always either both bought, or both sold. When calls are combined with either puts or stock, if the call is purchased then the other leg is sold and vice versa.

Completion of any two sides of the triangle is a Synthetic. Completion of all three sides is a Reversal or Conversion.

(KEY: C = Call, P = Put, S = Stock, n = Synthetic, + = Long, - = Short)

Synthetic (Formula)	Closing Synthetic	Reversal / Conversion
+ Cn = + P + S	- C	Conversion
+ Pn = + C - S	- P	Reversal
- Cn = - P - S	+ C	Reversal
- Pn = - C + S	+ P	Conversion
+ Sn = + C - P	- S	Reversal
- Sn = - C + P	+ S	Conversion

PRICING MODELS

Option contracts are priced based upon the underlying agreements of the contract. Just like an insurance policy is priced differently for different cars, different health and medical conditions, option contracts must take into consideration additional characteristics when they are present. As we've discussed the vast majority of contracts that are ever traded have been standardized so that each one is made up of the same underlying components; 100 shares, expiring on the third Saturday of each month with clearing and settlement being handled by the OCC. This standardization has allowed for uniform pricing models; mathematical calculations that take into consideration the agreements of an option's contract and theoretically determine a value of such an agreement.

The Black-Scholes Model

The Black-Scholes model is used to calculate a theoretical call price (ignoring dividends paid during the life of the option) using the five key determinants of an option's price: stock price, strike price, volatility, time to expiration, and short-term (risk free) interest rate.

The original formula for calculating the theoretical option price (OP) is as follows:

$$OP = SN(d_1) - Xe^{-rt}N(d_2)$$

Where:

$$d_1 = \frac{\ln\left(\frac{S}{X}\right) + \left(r + \frac{v^2}{2}\right)t}{v\sqrt{t}}$$

$$d_2 = d_1 - v\sqrt{t}$$

The variables are:

S = stock price

X = strike price

t = time remaining until expiration, expressed as a percent of a year

r = current continuously compounded risk-free interest rate

v = annual volatility of stock price (the standard deviation of the short-term returns over one year).

ln = natural logarithm

N(x) = standard normal cumulative distribution function

e = the exponential function

Significantly, the expected rate of return of the stock (i.e. the expected rate of growth of the underlying asset which equals the risk free rate plus a risk premium) is *not* one of the

variables in the Black-Scholes model (or any other model for option valuation). The important implication is that the price of an option is completely independent of the expected growth of the underlying asset. Thus, while any two investors may strongly disagree on the rate of return they expect on a stock they will, given agreement to the assumptions of volatility and the risk free rate, always agree on the fair price of the option on that underlying asset.

Whilst the fact that a prediction of the future price of the underlying asset is not necessary to price an option may appear to be counter intuitive it can be easily demonstrated to be correct using Monte Carlo simulation to derive the price of a call using dynamic delta hedging. Irrespective of the assumptions regarding stock price growth built into the Monte Carlo simulation you always end up deriving an option price from the simulation which is very close to the Black-Scholes price.

Putting it another way, whether the stock price rises or falls after, e.g., writing a call, it will always cost the same (providing volatility remains constant) to dynamically hedge the call and this cost, when discounted back to present value at the risk free rate, is as you would expect, very close to the Black-Scholes price. This key concept underlying the valuation of all derivatives -- that fact that the price of an option is independent of the risk preferences of investors -- is called *risk-neutral valuation*. It means that all derivatives can be valued by assuming that the return from their underlying assets is the risk free rate.

Dividends are ignored in the basic Black-Scholes formula, but there are a number of widely used adaptations to the original formula which enables it to handle both discrete and continuous dividends accurately.

However, despite these adaptations the Black-Scholes model has one major limitation: it cannot be used to accurately price options with an American-style exercise as it only calculates the option price at one point in time -- at expiration. It does not consider the steps along the way where there could be the possibility of early exercise of an American option. As all exchange traded equity options have American-style exercise (i.e. they can be exercised at any time as opposed to European options which can only be exercised at expiration) this is a significant limitation. The exception to this is an American call on a non-dividend paying asset. In this case the call is always worth the same as its European equivalent as there is never any advantage in exercising early. Various adjustments are sometimes made to the Black-Scholes price to enable it to approximate American option prices but these only work well within certain limits and they don't really work well for puts. The main advantage of the Black-Scholes model is speed -- it lets you calculate a very large number of option prices in a very short time. So where high accuracy is not critical for American option pricing Black-Scholes may be used.

The Binomial Model

The binomial model breaks down the time to expiration into potentially a very large number of time intervals, or steps. A tree of stock prices is initially produced working forward from the present to expiration. At each step it is assumed that the stock price will move up or down by an amount calculated using volatility and time to expiration. This produces a binomial distribution, or recombining tree, of underlying stock prices. The tree represents all the possible paths that the stock price could take during the life of the option.

At the end of the tree -- i.e. at expiration of the option -- all the terminal option prices for each of the final possible stock prices are known, as they simply equal their intrinsic values.

Next the option prices at each step of the tree are calculated working back from expiration to the present. The option prices at each step are used to derive the option prices at the next step of the tree using risk neutral valuation based on the probabilities of the stock prices moving up or down, the risk free rate and the time interval of each step. Any adjustments to stock prices (at an ex-dividend date) or option prices (as a result of early exercise of American options) are worked into the calculations at the required point in time. At the top of the tree you are left with one option price. The big advantage the binomial model has over the Black-Scholes model is that it can be used to accurately price American options. This is because with the binomial model it's possible to check at every point in an option's life (i.e. at every step of the binomial tree) for the possibility of early exercise (e.g. where, due to e.g. a dividend, or a put being deeply in the money the option price at that point is less than the its intrinsic value). Where an early exercise point is found it is assumed that the option holder would elect to exercise, and the option price can be adjusted to equal the intrinsic value at that point. This then flows into the calculations higher up the tree and so on. The binomial model basically solves the same equation, using a computational procedure that the Black-Scholes model solves using an analytic approach and in doing so provides opportunities along the way to check for early exercise for American options.

The same underlying assumptions regarding stock prices underpin both the binomial and Black-Scholes models. As a result, for European options, the binomial model converges on the Black-Scholes formula as the number of binomial calculation steps increases. In fact the Black-Scholes model for European options is really a special case of the binomial model where the number of binomial steps is infinite. In other words, the binomial model provides discrete approximations to the continuous process underlying the Black-Scholes model.

The Cox, Ross & Rubinstein binomial model and the Black-Scholes model ultimately converge as the number of time steps gets infinitely large and the length of each step gets infinitesimally small this convergence, except for at-the-money options, is anything but smooth or uniform.

Other Models used for American Options

For rapid calculation of a large number of prices, analytic models, like Black-Scholes, are the only practical option on even the fastest PCs. However, the pricing of American options (other than calls on non-dividend paying assets) using analytic models is more difficult than for European options.

For American calls on underlying assets without dividends it is never optimal to exercise early and the values of European and American calls are therefore the same. Where there is a dividend it may be optimal to exercise the call just before an ex-dividend date. In this case the American call could be worth more (sometimes significantly more) than the European call, particularly if the ex-dividend date is close to expiration.

American calls on assets paying a continuous dividend will be worth slightly more than their European equivalents, but the difference between American and European options is much less than if the dividend is discrete. Unlike American calls, American puts are *always* worth more than their equivalent European puts as on both non-dividend and dividend paying assets there may be times when it is optimal to exercise early (when the put is deeply in the money).

Roll, Geske and Whaley

The RGW formula can be used for pricing an American call on a stock paying discrete dividends. Because it is an analytic solution it is relatively fast. It is also an exact solution, not an approximation.

Barone-Adesi and Whaley

An analytic solution for American puts and calls paying a continuous dividend. Like the RGW formula it involves solving equations iteratively so whilst it is much faster than the binomial model it is still much slower than Black-Scholes.

Put-call parity doesn't hold for American options so you can't just derive the put price from the call price like you can with European options. Luckily American put prices, except for deeply in-the-money puts, are closer to European put prices than American call prices are (sometimes) to European call prices. One or more of the models mentioned here can be used to calculate the prices of puts on dividend paying stock where a high degree of accuracy is less important than speed of calculation.

GREEKS

DELTA

Delta is the most common of all the Greeks and is sometimes referred to as the Hedge Ratio Factor. Delta is generally defined as referring to the rate of change that an option will move in relationship to the underlying security.

Long Call Options always have a positive delta. This is because their prices increase as the stock price increases and decreases as the stock declines. Long put options always have a negative delta because the put option price will decrease as the stock price increases, and will increase as the stock price declines.

An equity put struck at-the-money would have a negative delta of 50. If we exercise the put, we will end up being short the stock. Similarly, shorting a call implies a negative delta and shorting a put implies a positive delta.

Position Delta

A strategy may involve one or more options in combination with the underlying security. An easy way of evaluating the basic outlook of the strategy is to determine the net deltas of all the options and the underlying security that make up the strategy. This net number is called the position delta. A position with a positive delta would tend to be bullish and a position with a negative delta would tend to be bearish. A position with little or no delta, also known as “flat delta”, would tend to be neutral as to stock direction.

The measurement of how much an option’s price is expected to change for a \$1 change in the price of the underlying stock. Each share of stock always has a delta of 1. So, if an option has a delta of .75, you have an option that will move .75 of a point for every 1 point move in the underlying index. First, every call option has a delta that ranges from 0 to 100. Second, every put option has a delta that ranges from 0 to -100. This percentage difference is very important to understand as a buyer or seller of calls or puts. Many traders become very frustrated because the options they purchase do not move in tandem with the underlying index. They feel for some reason if the index moves 20 points, at-the-money options should also move 20 points. Unfortunately, a lot of this frustration is due to a lack of understanding of how delta functions in the purchase or selling of options. The closer to at-the-money the option is to the underlying security, the closer the deltas are to 50 or in other words, they will move 0.5 point for every full point move in the security. Hence, the deeper in the money the option the greater its delta, hence the greater the move in relationship to the security.

An option deep in the money could have a delta of 85%-95% in relationship to the security. Eventually an option could become so deep in the money that it could have a delta almost at 100. However, we all know that options have time value associated with them so it is most unlikely that any option in reality will have an absolute 100 delta in relationship to the security.

The delta is also an approximation of the probability that an option will finish in the money. For example, have you noticed that when the security moves whether fractionally or significantly, at-the-money options seem to move only a percentage as fast as the security itself? As the index moves upward the option, depending on how deep in the money, at the money, or out of the money will move proportionally to the security based on its underlying delta.

Put options have a negative delta because their values increase as the underlying security decreases. Hence, as the security decreases in value an option with a delta of - 25 would move 0.5 of a point for every 1 full point the index decreased. The importance of delta in regards to put options is the ability to determine a hedge ratio. The hedge ratio is used to determine the number of put options that are needed to protect against an adverse move in the price of the underlying security. For example: You would need 4 Put options with a delta of 25 to fully hedge the underlying contract. The main term you need to become familiar with in the use of deltas is the amount of change. That is how much change in relationship to the underlying security. When the security falls, the value of the put increases because we are dividing a negative number by a positive number. So we end up with a delta with a negative number. This difference between a negative and positive delta will be important when you start combining spread positions.

A delta position is a directional position. If you want to reduce some of the risk of a delta position, you would sell/buy the opposite delta position. This is called a hedge.

Delta Position	Hedge Position
Long Stock	Sell Call
	Buy Put
Short Stock	Buy Call
	Sell Put
Long Call	Sell Call
	Buy Put
	Sell Stock
Short Call	Buy Call
	Sell Put
	Buy Stock
Long Put	Sell Put
	Buy Call
	Buy Stock
Short Put	Buy Put
	Sell Call
	Sell Stock

For Example:

Delta = 0.75

If the share price changes by a small amount, then the option price should change by 75 % of that amount. In other words, if a European call option on 100,000 shares is sold, then 75000 shares must be bought to hedge the position.

GAMMA

The Gamma of an option tells you how much the delta of an option changes as underlying security changes. Every option has a delta, but we need to expand on that knowledge to include the fact that the value of that delta changes as the security changes. As the security goes up or down in value, the delta also changes.

A call option that is near the money and has a delta of 50 would see an increase or decrease in that delta as the price of the security rises or falls. If a hypothetical security was at 100 and went up 20 points and the securities 100 call increased 10 points, the delta, which was at 50 may change and go up to a delta of 60. The higher the security goes, the greater the delta becomes of that option as it moves deeper into the money. Gamma tells you the rate at which the option will increase or decrease as the underlying moves up or down. If the security's 100 call had a gamma of 3, this would mean that the delta would increase 3% for every point rise in the security. With the security trading at 100, a delta of 50 and a gamma of 4, if the security goes to 105, the option would go up to 6 and the new delta would increase 52 because of the gamma of 4. If the security goes up another 5 points to 110, the option would go up to 9 1/8, and the delta of 52 would now go up to 54 because of the gamma of 4.

Puts and calls have gamma values, and understanding gamma will help you to determine how much the delta of your option will change. By using gamma, you know how much the delta will change and gamma will let you know how quickly you must adjust your positions. Please keep in mind that this would require constant monitoring and a lot of time. Unless you are a trader who wants to constantly monitor positions, this should just be a lesson for you to become familiar with how gamma and delta work together, and give you a better understanding of their inter-workings. Option hedgers are always adjusting positions attempting to keep these positions delta neutral.

The gamma is highest when the option is at the money. The further out of the money the option is, the greater decreases in the gamma, meaning slower and smaller changes of the delta. Also, as we get closer to expiration, gamma will change.

Gamma is significant because it helps you manage and measure how much risk you are taking. We learned that delta was important because it taught us that options move at varying amounts in relationship to the security, and you might also need several options to get the same result as the move of the underlying security. If we know delta, we can determine how many options we need to equal the move of the underlying security.

Gamma becomes important because delta is always changing and as it changes we learned that one may need to readjust one's positions. Knowing gamma helps to determine how quickly the delta is going to change and put you in a position to make adjustments. Most traders use positions with relatively low gammas to reduce their risk. The reason is because they want their deltas to change less, hence they don't have to re-adjust their positions as much. Big gamma positions are usually considered riskier, because you could be caught long or short much quicker than you would like to.

Gammas, like deltas have a negative or positive designation:

- Long Positions = Positive Gammas
- Short Positions = Negative Gammas

The greater the convexity of the option curve, the more bang for our long option buck and the more pain we will endure if we are short the option, in a volatile environment. Convexity is described by the greek letter called "gamma". Mathematically, gamma is the second derivative of the option's price with respect to the underlying cash price. Intuitively, it is the sensitivity of the delta (or rate of change of the delta) with respect to the cash price.

Position Gamma

Position Gamma is the measurement of the position's curvature, and of how much your position deltas will change for a 1-point move in the underlying security.

Long/Positive Gamma is the same as long curvature. The position needs directional movement to gain rewards. Long Gamma is known in the trade as "back spreading". Back spreaders are looking for swings in the underlying security and for increasing volatility.

Short/Negative Gamma is the same as short curvature. The position is a neutral outlook and requires no directional movement. Short Gamma is known in the trade as "front spreading". Front spreaders are selling premium; looking for a decrease in volatility, and speculating on low, to no, movement of the underlying security. Long options contracts will create long gamma. Short option contracts will create short gamma. Stock has no gamma.

For Example:

Gamma = 0.03621

If the share price changes by a small amount, then the delta should change by 0.03621 times that amount. In other words, if the share price increased by 1, then the delta should change by 0.03621 .

VEGA

Vega is the Greek name which has had a variety of names used interchangeably. Vega has been referred to as Omega, Sigma Prime, Kappa and Zeta. However, for the sake of our discussion we will refer to Vega as just Vega.

Vega is a measurement of change in volatility. The vega is noted in point change in theoretical values for each 1% point change in volatility. The sensitivity of an option's price to changes in its implied volatility, all other things being constant, is called the "vega". Vega value tells you how much an option will increase in value as the volatility increases. In other words, vega tells you how much the premium will increase in value as the volatility increases or decreases based upon your outlook. As volatility of an option changes, we know that the premium you pay for an option increases. The more a market fluctuates, the higher the volatility. Vega tells us how much the premium is going to change for every point increase in volatility.

Volatility changes are critical because of the major impact that they have on an option premium. This is why vega is all about changes in volatility. Vega also tends to decrease as you get closer to expiration date. So the fewer days we have left to expiration, the less important changes in volatility become. The lesser risk of volatility changes, the more vega is reduced. Notice there is a close relationship between volatility and time. Please realize that vega may not be emphasized nearly as much as delta or gamma, but it is important when viewed in relationship to all the Greeks and how they interact with each other as a group.

For Example:

Vega = 2.678

If the volatility changes by a small amount, then the option value should change by 2.678 times that amount. In other words, if the volatility increased by 0.01 (from 20-21%), then the option value should change by 0.027 .

THETA

We have all learned from past experiences the time value of an option decreases as an option gets close to expiration. The rate at which time decays as time goes by is defined by Theta. In essence, theta is the rate at which an option loses its value as time passes. The value of this time decay is usually defined in points and percentages of points that the premium erodes as we near expiration. Delta and gamma are constantly changing; Theta or time decay is priced on the assumption that there are no other changes in market price of market conditions. Any changes in other factors all will have an influence on the value of theta. Depending on whether you are long or short theta will work for or against you.

When you buy options you are concerned about having an option with a low theta because the time decay would be a minor. This is a plus for the option buyer, as time would decay very slowly. On the other hand, if you are selling options for premium, you are looking for high theta values that can generate profits quicker because of decaying option time value. Theta is very important when you are examining a spread strategy. If you are buying vertical spreads it is a good idea to determine how time value will work for or against you

Theta expresses the amount of time decay on a daily basis. As time goes by and less premium in an option contract remains, theta acts like insurance. As time passes the value of the insurance is reduced. Theta values are calculated right along with delta and gamma. Time value decay is positively expressed in numbers. Theta is expressed as a negative number to express the erosion of time value. A long put option has a negative theta showing how much of the premium is to be lost due to time erosion each day, assuming that everything else remains constant. As a buyer of an option, the negative theta tells you how much each passing day costs you in option premium erosion.

The short position holder, will have a positive theta, meaning that everyday passing, he would be making a profit because of option premium erosion, as long as everything else remained constant. Now let's see if we can relate theta to both delta and gamma. In the previous parts of this course on gamma we stated that long positions have positive gammas, and short positions have negative gammas. This means if you have a positive gamma, you will have a negative theta. If you have a negative gamma you will have a positive theta. The reason this is important to you as a trader is you now have a way to determine risk and risk management. If your gamma has a larger positive number, you are going to have a larger theta number, which means you are going to have a more risky position. The desire for greater return on a position requires greater risk. Knowing theta and gamma helps you to determine how much risk you're taking on.

It is highly unlikely that everything else in the market that could influence the price of the option would remain a constant, it just doesn't happen. What theta does do for you is to give you an idea of the time decay involved in an option contract.

If you are selling options, you should examine theta values to determine which options will generate you the best income. So if you total your cumulative theta values you can determine how much your total position will benefit on a day-to-day basis. Just remember as a seller of options, attempting to increase your income by increasing your theta, you must conversely increase your gamma, which increases your risk.

For Example:

Theta = -4.506

If the time to maturity changes by a small amount, then the option value should change by -4.51 times that amount. In other words, (*assuming 250 trading days in the year*): If 3 day passes (1.2% of a year), the option value should change by -

0.054 ; assuming there is no other change in the parameters (e.g. share price, volatility).

THE GAMEPLAN

Most of us have seen those option trading “hype” ads that claim to win 90+% of all option trades with tiny losses and mind-blowing gains. This is a catalyst for many new option traders entering the game filled with false confidence that trading is easy and risk of loss low with chance for gain exceedingly high. In every case with no exception, new traders painfully discover that there is no easy money or sure way to win in the financial world. No “super secret” systems that reduce the trading world to an effortless money machine. Hopefully you will resist that to arrive at the conclusion there is no sure thing, no easy way to trading success or wealth.

Such false hype success stories are based on two powerful human emotions: Greed for gain and fear of loss. Deep down we all want to win over and over without experiencing any loss in the process. Wouldn't that be nice?

In the real world of trading to achieve a 75% winning record when buying premium is above average and far more than necessary to enjoy substantial gains over time. The real secret to trading success is proper account management, but winning a significant number of trades is of course vital to the equation as well. Remember that trading, to a large degree, is just a matter of staying in the game so you can get another chance to swing the bat. If you swing for the fence every time you'll end up striking out far more often than if you were to go for base hits when you had the chance.

So if its not about being a hero then what is it all about? Successful options trading involves implementation of the same sound trading rule that is used in equity trading which is; plan your trade then trade your plan. I've often described successful trading to be similar to that of successful house building. First, you've got to know all the rules of building a house before you even start. You must choose your piece of property to build on, land that isn't in a flood zone, land that has the potential to increase in value because of its location. You must determine how much the house is going to cost in advance so that a construction loan can be secured. A blueprint must be designed so that the roof is compatible with the foundation that supports it. It requires the owners to decide what they want and to design a layout. Change orders are expensive and a two-room blueprint doesn't allow for a three-room modification without a hefty price tag. All of this is done before the first hole is dug or nail pounded. The mentality is built on the old carpenter's creed to “measure twice, cut one.”

PLAN YOUR TRADE THEN TRADE YOUR PLAN

Successful trading demands adherence to the same principles of planning and executing that any endeavor would. By asking even the most basic questions of yourself the principles of trading will be revealed. These answers will eventually generate the plan needed to begin a successful trading business. Some of the most basic can be taken from our home construction example and modified:

- What trading style and time frame will be used and what types of returns should be expected?
- What is the underlying security and what method will be used to choose it, technical or fundamental analysis?
- What capital requirements, drawdowns, return on investment situations can be afforded to achieve the end result of making money?

The first question that should be asked is, “What time frame will be used to determine trading strategies?” Will a shorter term, more active style be employed or can a longer term, less active style reach our profitability expectations. Answering this question will begin to form our trading plan. It will help determine:

- what type of companies should be researched as trading candidates,
- what type of money management techniques to incorporate,
- which trading platforms must be enabled and,
- what option strategies are therefore appropriate.

Traders without access to live market action throughout the day should not try to incorporate an active trading style, it goes against one of the rules of active trading. On the other hand, this does not mean their position has to be that of a longer-term trader. They might be more comfortable with an approach that would allow them to do research at night, place stop or limit orders in the morning to then walk away and let time take over.

Like any business we must be flexible enough to know what does and doesn't work and to react accordingly. We may need a plan that takes into consideration the organic nature of trading, that one part affects the whole and the whole affects the one part. Whether we have decided on our overall approach to trading, or on our approach to the next trade, we need to constantly be aware of all of the components of our plan and not just the one in which we are currently engaged.

Let me mention this before we continue, if planning and building a house with conventional tools like hand-saws and hammers is synonymous with building a trading plan and subsequently trading equities, option trading is like adding electricity and having power tools. The house can be built much quicker, but the finger will be removed with the same swiftness if attention is not paid. For example, institutional traders and floor traders have different styles because of the larger positions that can be taken. Volatility spreads and theoretical pricing models are strategies that might be used by this type of trader. Other professional traders try to take advantage of discrepancies in the market place with arbitrage by benefiting from price discrepancies in different locations

and different securities. Knowing the rules to a particular approach will literally dictate what you need to do, in other words, create a system.

Try paper trading longer-term options and compare the results with shorter-term options on the same stock. There are differences and you need to decide which is best for you. Option trading does not have to resemble gambling but if it does remember this, even professional gamblers (the ones that make money) know the statistics and probability of the games they play. These statistics and probabilities calculations are used in a plan by the gambler to reduce his risk of ruin.

BUSINESS BUILDING QUESTIONS

No matter what plan you end up adopting, it's the adoption and execution of the plan that matters. Simply walking yourself through the following questions will help focus you in your pursuit of this trading endeavor.

SHORT TERM TRADING

- Why short term and what are the rules for this style?
- What type of stocks/options should be traded and how will they be found?
- What trading applications are necessary for short-term or active trading?
- What strategies will be used to enter and exit both long and short?
- What money management tactics will be employed?

MEDIUM TERM TRADING

- Why medium term and what are the rules for this style?
- What type of stocks/options should be traded and how will they be found?
- What trading applications are necessary for medium-term, momentum or swing trading?
- What strategies will be used to enter and exit both long and short?
- What money management tactics will be employed?

LONGER TERM TRADING

- Why longer-term trading or investing and what are the rules for this style?
- What type of stocks/options should be traded and how will they be found?
- What trading applications are necessary for longer-term trading or investing?
- What strategies will be used to enter and exit both long and short?
- What money management tactics will be employed?

The bottom line with trading is clarity. When the objective hasn't been defined and the process articulated, traders typically find themselves on the wrong side of the profit and loss sheet. In the rest of this course, we will begin to discuss the facts of options and

what they do in different market environments and how they work when combined with each other. We will come to the conclusion that no matter what we do, our understanding of the underlying security must always be the first step in the options trading process, that the stock is first examined before the options are considered. We will also uncover some of the unique situations where information about the trading activity of options can help us become more clear about the direction of the stock and the market overall. Put/call ratios, open interest and historical and implied volatility are used as contrarian and leading indicators among stock traders.

ACCOUNT MANAGEMENT

It would be really nice if we never needed to discuss this topic but we all know that Murphy's Law is alive and well. Before you enter a trade, you should always know how much you are willing to lose. I said LOSE. I know from experience that most will enter a \$3 option with the idea that you will sell if it hits \$6 or \$2. Profit and loss. Now in reality the closer the price gets to either number human nature takes over and we start changing the plan. On the loss side, the closer it gets to \$2 the more you will start rationalizing that the stock chart looks like a bottom is forming. I will sell it when it gets to \$1.50. It had to be just a large block order. The drop is market related. I will sell it when it gets to \$1.25. The earnings' warning was from another company. It will bounce soon. I will sell it when it gets to \$1.00. It has to come back up. I will sell it when it gets to \$.50. Why did the jobs report impact my stock. I wish it would go back up so I could get \$1.00 for it.

Lose means sell for a loss. Not hold for a loss. Before a \$3 option can sell for \$1 it has to sell for \$2.50, and \$2 etc. The trend is going against you and yet for some reason we always convince ourselves that it is just temporary. Once you understand the following principle and act on it, selling for a loss will be a lot easier. Here is the principle: You can buy it back.

When you are in the trade you cannot think clearly and objectively. Maybe you are that one individual that can always do this but I have never met anyone that does. We all know that when a trade is going against us, the minute we sell for a loss is the minute the stock will rebound like a rocket. This keeps us from exercising rational judgment and closing the trade. In reality this is always made worse by our procrastination to sell in the first place. If we had sold that option at \$2, we would not have had the problem of rationalizing a sell for a bigger loss at \$.50.

If we are in a trade and we researched every conceivable way before making the trade and the trade goes against us then the answer that should instantly pop into our minds is: OOPS! That was not the entry point! I will sell it and wait for a better entry point. If we had that attitude then everything else in trading would be easy. Instead, we all take the position that "It will come back" and our fate is sealed. We agonize over every .25 drop in the stock and corresponding drop in the option. We are totally focused on this position and are missing other winning plays because we are trying to "hope it back up."

Think about it. If you liked the stock/option at \$3.00 you should really like it at \$1.00. If you had sold it at \$2.50 and the stock was bouncing then you would love to be back in at \$2.00.

The essential point here is the decision you make to get back in. If you had not made the first trade, would you buy this option on this stock at this time at this price? This should be an entirely different decision. Not one based on a previous play. Many times traders will jump right back into the fire they just escaped from simply because they felt the first loss was just a mistake. Make sure the second buy is based on sound reasons.

When you enter the first trade, you should know exactly where your loss exit will be. This number can either be based on the option price or the stock price. There are pros and cons to both. Basically, the option price is loosely tied to the stock price. Depending on the time remaining and the ITM/OTM depth of the strike price the option price can move more OR less than the stock price.

TRADE MANAGEMENT

By setting a stop loss based on the option price, either physically or mentally, you are not filled until the option price actually hits that price. Sometimes the stock can be moving so fast that the option price lags the actual stock move. By the time the option price hits your stop and then you get executed it could be much lower than you expected. When stocks are moving rapidly the spread between bid and ask on options widens.

Stops based on the Stock Price

Recently another way of setting stop losses has been developed. That is setting the stop loss or sell order based on the stock price. I believe this way has merits for many situations. If you are setting stops that are very close to the current option price then you should use the option price method. Let's say you bought a \$3 option that is now trading for \$6 and you want to set a profit stop loss at \$5.50. When the offer hits \$5.50 your order turns into a market order instantly and you execute at the bid, which will almost always be lower than \$5.50 in this case. Stops based on the stock price are better utilized as catastrophe insurance. If your \$3 option was trading at \$6 and you wanted to protect yourself against intraday spikes in the option price due to order volume or small swings in the stock price then you could use a stock price stop. If the stock price was \$65 you could enter the order to sell your option if the stock price touches \$58.50. It would take a full \$6.50 or 10% downward move in the stock price to execute your sell but you would be protected against a major disaster. The example is extreme but I think you get the idea. I like the stock price concept since the stock price is what drives the option price. If some event caused a quick drop in the stock price your order could be executed before the option price had a chance to fully equalize and possibly get you out quicker and for a higher sell. There are very few trading platforms that offer this, Terra Nova and Realtick being one of those that do.

SELLING FOR A PROFIT

The best offense is a limit sell for a predetermined amount. If you are happy with a 100% profit then place a \$6.00 limit sell for your \$3.00 option once your order is executed. Once you set your limit sell you can become the market at any time. If the stock moves quickly and the order flow is thin then the market maker may not want to cover you and the next “market” buy order that comes in can take you out even when the posted prices are different. This should not happen in an electronic market but it does. Whenever humans are involved human nature plays a big part in execution.

Set a sell immediately after you buy! What to sell for?

I will not go into the different rationales for when to sell but you know my thoughts. I like to take a profit over and over instead of trying to make a homerun on every play. I feel like the longer you have an open position the more chances of a market event turning your profit into a loss. With a \$10,000 account, if you took a 25% profit once every two weeks for a year you would have \$62,500 profit without the benefits of compounding. Read that again. If you never invested more than \$10,000 total at one time, and only closed the trade once every two weeks, you could make over \$62,500 in one year. Granted, some positions will lose money but even if you are in the market you will also have many positions that will make more than 25% due to news events or gap opens. Different personalities of course will want to risk larger losses for the possibilities of larger profits. That is your choice. Just don't bad mouth options trading if you get your account cleaned from time to time.

TYPES OF CLOSES

The simple way out is of course to sell your entire position at once when your profit target is reached. Too simple? Too limiting? Not enough upside? Not everyone likes coffee either.

Optional exits include selling only a portion of your position at predetermined exits. This allows for greater profits on the remaining contracts while locking in a minimal return on the early contracts. Lets say you bought 20 contracts at \$2.00 and sold 5 contracts at +37.5%, 5 contracts at +50%, 5 contracts at +62.5% and 5 contracts at +75%. Your total profit would be \$5,000 and you would have only \$500 at risk after the first ten contracts are sold.

- Buy 20 x \$2.00 = \$4,000
- Sell 5 x \$3.00 or 50% = \$1,500 or 37.5%
- Sell 5 x \$4.00 or 100% = \$2,000 or %50
- Sell 5 x \$5.00 or 150%= \$2,500 or 62.5%
- Sell 5 x \$6.00 or 200%= \$3,000 or 75%

You can adjust this scenario any way you want. Maybe 10 @ 50% and 10 @ 150%. The downside of course is the length of time in the trade. The first sell may be in only a day or two and the last sell could be two weeks later. My thoughts are always on limiting my time in a trade. The longer you are at risk the better chance of that risk biting you. Of course my trading goals and risk profile is much shorter than 90% of most option traders. If you are committed to holding options rather than trading them then this is a good strategy for reducing your risk. After the first half sell, the trade is almost risk free and you can ride it indefinitely.

Exiting On The Upside

Lets say you have been in a play for some time. Your \$3 call option for the \$70 strike is now worth \$6 and the stock is at \$73. You could just sell for the \$6 and have a homerun but you feel that even though the stock is looking tired it may still have some room to move. How can you maximize this position? Consider this. Sell the \$75 call option to close the play. If the stock is at \$73 the \$75 option is might be \$2.50 or more depending on the time remaining on the option. By selling a higher priced strike you lower your cost on the play. If you sell the \$75 for \$2.50 your \$3 option now has a cost basis of \$.50. If the stock finishes under \$75 your higher strike expires worthless and you book what you sold it for less \$.50 as profit. If the stock goes over \$75 your upside on the \$70 call is now limited to \$5 (the difference between \$70 and \$75) but you made \$2.5 on the higher call. At expiration you exercise your \$70 call to cover the \$75 call you sold. The net to you is \$4.5. This type of play should be used on tired stocks that may have peaked and you expect them to finish around the strike price you sold. The risk is having to hold the \$70 call longer to remain covered on the \$75 call. Of course, you could close both positions at any time the stock price started falling. You should still be profitable on both since the OTM \$75 call will decay faster than the ITM call.

Exiting On The Downside

Yes, it happens. You did not sell when it hit your stop loss. Now you are wishing you had sold but the stock just does not want to cooperate. Your \$70 call for \$3 is now only worth \$.75 and the stock price is \$66 and dropping. How can you salvage some capital? Consider this: Sell the \$65 call for \$2.50 using your worthless \$70 call for collateral (margin). If the stock price is \$66 but sliding then the ITM call for \$2.50 is soon to be out of the money and worthless also. You recover \$3 of your investment in the \$75 call. If the stock continues to less than \$70 then both options will expire worthless and you keep the \$3 or half of your starting investment. Your risk is that the stock will have a miraculous recovery and bounce off \$70 and move up again. This is good news! You should close the position on the call you sold when it passes what you received for it. The good news is that your previously worthless call is now appreciating in value and the play you started with is alive again. If you did not cover in time the most you could be out is \$2.00 even if the stock went to \$100. That is the difference between \$70 and \$75 (\$5) minus the \$3 you received as premium. The way to avoid this is to maintain a buy to

close stop loss of say \$4.00. Your total out of pocket would be \$1.00 and you are still long an appreciating \$75 option.

It is always better to manage profitable positions than losing positions. Be proactive on the profit side and totally inflexible on the down side. Set your stops and take small losses.

POSITION STRATEGY

COVERD CALL

Covered Call Writing is a strategy in which an investor owns the underlying security and writes (sells) a call option against this position. The option can be sold at any time after the stock position is established or it can be sold in conjunction with the purchase of the stock. If the call is sold at the same time the stock is purchased, the trade is referred to as a buy-write. A buy-write is when the investor purchases the underlying security and writes (sells) a call option simultaneously.

Investors that own stock and have a belief that in the near future the stock may trade sideways or move slightly lower might implement a covered call strategy. If an investor owns 1000 shares of XYZ and they wanted to write a covered call on the entire position they would sell 10 calls to open. Each contract represents 100 shares; therefore 10 contracts would cover the entire 1000 shares. The position is referred to as covered for the following reason; if an investor were to sell 10 calls to open, they have the obligation to sell 1000 shares of stock at the stated strike price of the contract if so requested. If this same call seller were to have his 10 contracts assigned, or was "called out", 1000 shares would leave this seller's account. At the same time an offsetting credit for the sale of the shares would be posted to this seller's account. If this seller does not have the 1000 shares of stock already in the account, the stock is debited to reflect a net short position. If the stock is already in the account however, the existing shares are used to cover the assignment.

This strategy is very popular and its implications must be thoroughly understood. Before covered calls are used, traders should think through the possible outcomes. For example, XYZ is currently trading at \$50, with one month until expiration the 55 call can be sold for \$3 dollars. If a trader were to purchase stock at \$50 and then turn around and sell the call for \$3, the breakeven level on the stock becomes \$47 (the trader paid \$50 but brought in \$3 for a net cost of \$47). Let's say a month passes and on expiration the stock is trading at \$60, what does the profit or loss look like for this position?

The trader would get called out of the stock at \$55, the strike price, so the gain from \$50 to \$55 is profit and the \$3 premium for selling the call is also profit, a total of \$8 dollars. The numbers work out the same if you take the difference between our breakeven of \$47 and the strike price of \$55.

The picture looks different as the cost basis of the stock is changed. What if the stock was originally purchased at \$60 but the trader waited until the stock was at \$50 before he sold the \$55 call? Again, the stock moves up to \$60 over the next month and finally, at expiration, the stock gets called out of the account at \$55. A \$5 loss on the stock itself is incurred for being purchased at \$60 and then sold at \$55, the loss is then offset by \$3 for the premium received resulting in a net loss of \$2. In the end, traders that sell calls on stock in which they have losses guarantee that loss unless they carefully choose the strike price and manage the position as the underlying moves.

One disadvantage could be the lost opportunity if the stock significantly increases. This happens when the price of the underlying security increases beyond the sum of the exercise price plus the premium received. When this happens, the writer (seller) has relinquished the opportunity to profit from further price gains of the underlying security.

If the covered call writer holds the contract through expiration and the stock is above the strike price, the call writer can expect to have this in-the-money contract assigned. The degree to which this seller realizes profits depends upon what strike price was chosen and how much premium was received.

As the covered call strategy is looked at closer and closer, it becomes clear that the strategy is for those investors that are ultimately bullish on the stock but would like to create a little additional income in the short run. They are investors that don't need much price appreciation in the stock immediately, either because the stock increased before the calls were sold or their time horizon is much longer. Selling covered calls is not a hedge, it does not ultimately protect against a falling stock and should not be used as such. At the same time, if you own a stock that has turned against you, selling covered calls is not the strategy to employ for making your money back. Think about it, the calls are probably being sold closer to the bottom than the top, if the stock does bounce with a covered call on it you've eliminated the possibility of breaking even. If you don't like the stock then sell it. If you're really bullish on the stock then buy more.

Now that we've determined the covered call strategy is used by traders in specific situations, what is the next step? One place to start is to determine what percent return you need from this strategy to make it worthwhile. When covered calls are used a trader must consider the possible total returns of the position. If stock is purchased at \$50 and a \$55 strike is written for \$3 which expires in one month, some of the possible outcomes are as follows: \$8 is the maximum gain or a 16% return in one month. The stock movement represents 10% while the option premium represents the other 6%. If the stock expired at \$50 in a month, the same price at which it was purchased, the \$3 premium would represent a 6% return. What you should begin to notice is that a covered call strategy will always outperform owning the stock by itself, with one exception. In the event the stock were to move more than 16% in this one month period, the covered call writer would not receive any additional return because the stock would get called away.

Traders that have clear objectives for their stock ownership will find choosing the correct strike and expiration and easy challenge. Those that walk into selling covered calls because they are attracted to the idea of bring cash into their account, those that don't consider the possible outcomes, will always be disappointed when the stock begins to increase but the call limits their upside potential.

Some traders will create a covered call position and then actively trade the call with no intention of holding the position through expiration. This is no longer a covered call strategy... yes the calls are covered by the stock, but the strategy is not the same. Margin and option approval levels factor into why a trader would do this but typically the scenario is played out like this; a trader/investor has been holding a stock during a significant move higher. They consider selling the stock and taking profits but tax consequences, commissions, a longer-term bullishness causes them to hold. The traders uses the call premium increase to his advantage and sells a covered call with the belief the stock will pull back in the short term and the call can be purchased and closed out at a lower price.

COVERED PUT

Covered puts use the exact same fundamentals that covered calls do except the underlying securities are short stock and short puts. There are, however, very few traders who employ this strategy because the very nature of short selling involves a short-term approach. Nobody in their right mind is going to bet against the longer term prospects of the market going up so short traders are usually looking out the next couple of days or weeks, but rarely months or years. An income producing option strategy depends more on time than on market movement, it is going to be more conservative and short sellers are speculative by definition. Trying to combine speculation with conservation creates a conflict that doesn't work.

MARRIED PUTS

We purchase stock with the hope that its price will go up and increase our net worth. However, as a stockowner, we also are at risk of a loss. Given that we want to remain in the market, the question is *what can be done to limit or moderate that risk of loss.*

Stop orders are the traditional method of taking a limited loss or locking in a gain if the stock sells off. If the stock gaps down, however, the stop order becomes ineffective. Also, if the stock trades down to the stop loss point, stops you out, and then rebounds, you are out of the stock at the lower price.

Out-of-the-money puts are an alternative to stop orders. Although more expensive than a stop order because of the payment of the option premium, these options provide certain advantages over stop orders. For one, these puts provide protection when the stock gaps down. For another, if the stock price drifts down towards your exercise price, you have

the luxury of waiting to see what the stock does while knowing that you can exercise your option at any time prior to its expiration.

A Married Put results when stock and puts are purchased at the same time. The married put position gives the purchaser a downside stop until the put option expires. For this strategy, the *at-the-money* or *out-of-the-money* puts are purchased, depending on how much downside stop loss the trader is willing to incur. This strategy is used when purchasing a stock in a volatile situation, such as upcoming earnings, news event, etc., where you believe the potential reward is substantial, but the downside risk is significant.

Puts may also be used to protect unrealized profits. If a stock has appreciated in value after initial purchase and the holder does not want to sell the stock but is concerned about short term downside risk, he can purchase a put to protect the unrealized profit.

MARRIED CALLS

Married calls use the exact same fundamentals that married puts do, except that the underlying securities are short stock and long calls.

LONG CALLS

Calls can be used to take short-term speculative long positions. If the stock does increase dramatically in price, this approach will result in substantially more gain *if the same amount of money is invested in the options as would be in purchasing the stock*. This is a result of being able to purchase the upside potential of many more shares of stock using options than would be the case if buying the stock.

In-the-money, *at-the-money*, and *out-of-the-money* calls may be used. Each type has its own risk/ reward profile.

Out-of-the-money options are cheaper than the *at-the-money* or *in-the-money* options, but they require a quick and large increase in stock price in order to be effective.

At-the-money options have a greater chance of becoming *in-the-money* than the *out-of-the-money* calls, but you will have to pay a higher premium for them.

In-the-money calls will react much like stock; most of the cost will be intrinsic value with less premium. These are more expensive than the *at-the-money* or *out-of-the-money* calls, but they are most likely to finish in the money.

At expiration, if the call option is not *in-the-money*, it will have no intrinsic value and will expire worthless.

LONG PUTS

Like selling stock short, puts can be used to create short positions in the market place. While most brokerage firms require a huge amount of capital to allow a client to sell stock short, there are no margin requirements to purchasing puts. Just as long calls can create a speculative upside position, puts allow you to create speculative downside positions with limited risk. The risk is the premium you pay for the put.

In-the-money, *at-the-money*, and *out-of-the-money* puts may be used. Each type has its own risk vs. reward profile.

Out-of-the-money puts are cheaper than the *at-the-money* or *in-the-money* puts, but they need a quick and large decrease in stock price in order to be productive.

At-the-money puts have a greater chance of becoming *in-the-money* than the *out-of-the-money* puts, but you will have to pay a higher premium.

In-the-money puts will react most similarly to short stock; most of the cost will be intrinsic value with less premium. These are more expensive than the *at-the-money* or *out-of-the-money* puts, but they are most likely to finish *in-the-money*.

At expiration, if the put option is not *in-the-money*, it will have no intrinsic value and will expire worthless.

SPREAD TRADING

Long calls and puts is by far the most popular. Buy & hold option trading done right from the long side enjoys unlimited upside potential with totally limited risk. However, it is critically important to still hit entry points well and be correct in major market movement over time. We must be able to do this more often than not in order to succeed over the long-term with long calls and puts. Credit spreads and debit spreads allow you to quantify potential profit returns and limit risk to capital.

In general parlance, a hedging transaction is one entered into to reduce the risk of loss of another position. The original position is then considered to be “hedged.” In options parlance, hedging is generally achieved via a spread, which is simply any strategy consisting of a combination of stock and/or options positions. The changes in value of the hedge positions offset one another.

Spreads offer the investor an array of strategies that can be used to attempt to benefit from almost any anticipated market condition with reduced risk. For example, a spread can be used to take a bull position or bear position, for selling high volatility and buying low volatility, or to finance the purchase of other options. The degree of risk reduction

varies among the different types of spreads. While some spreads have limited risk, others have risk comparable to buying the underlying security outright.

Two basic types of spread trades exist: debit and credit spreads.

DEBIT SPREADS

Bullish Debit Spreads

Also known as Bull Call Spreads, this position incorporates buying a call to open and selling a call to open. The expiration months are the same but the strike prices are different, the lower priced strike is purchased while the higher strike price is sold.

For example:

QQQ trading at 45 in March
Buy Calls to Open Apr 50
Sell Calls to Open Apr 55

Max loss is debit paid, max gain is strike price difference minus debit paid

Bearish Debit Spreads

Also known as Bear Put Spreads, this position incorporates buying a put to open and selling a put to open. The expiration months are the same but the strike prices are different, the higher priced strike is purchased while the lower strike price is sold.

For example:

QQQ trading at 45 in March
Buy Puts to Open Apr 40
Sell Puts to Open Apr 35

Max loss is debit paid, max gain is difference in strikes minus debit paid

In each case spread trades allow us to minimize total cost or trade risk, while limiting or capping potential profit in the process. Spreads can be used to construct risk/reward parameters to our trading approach based upon all of the values suited best for each individual.

A general guideline for money management with spread trading is no more than 20% of a trading account's capital for any similar series of trades. An account of \$100,000 should never risk more than \$20,000 in margin held or used to implement spreads.

Horizontal Time Spreads

The Horizontal Time Spread gives you the ability to use time as your ally when you are expecting a move in a direction, but you are or may be confronted by an event that you know will drag on for a period of time. The biggest enemy of the call or put option buyer is the time premium. You also know that as a wasting asset, an option erodes in value the longer we hold it. This type of strategy incorporates buying a further out call and selling a nearer term call at the same strike price. The intent is for the short call to expire worthless in the near term, the proceeds of the short call help offset the cost of the long call.

Example:

QQQ trading at 45 in March
Buy Call to Open Sept 55
Sell Call to Open Apr 55

Max gain is unlimited and max loss is the initial debit. The gain and loss of this trade however, depend the most on how the position is managed.

Long Ratio Bear Spread

In a long bear spread we are buying the higher put strike and selling the lower to create a debit, we want the stock to move below the lowest strike so the puts expire in the money and we make our maximum profit. In a long ratio bear spread, a trader starts off with the intention of buying puts up to a certain risk level and is willing to accept some additional limited risk with the bear put spread.

Example:

QQQ trading at 45 in March
Buy 10 Puts to Open Apr 40
Sell 5 Puts to Open Apr 35

Max loss is debit paid, max gain is combination of debit spread plus long puts.

Long Ratio Bull Spread

In a long bull spread we are buying the lower call strike and selling the higher to create a debit, we want the stock to move above the highest strike so the calls expire in the money and we make our maximum profit. In a long ratio bull spread, a trader starts off with the intention of buying calls up to a certain risk level and is willing to accept some additional limited risk with the bull put spread.

Example:

QQQ trading at 45 in March
Buy 10 Calls to Open Apr 50
Sell 5 Calls to Open Apr 55

Max loss is debit paid, max gain is combination of debit spread plus long calls.

CREDIT SPREADS

Credit spreads involve the act of selling one option strike nearer to current price action or expiration to capture premium value while buying one further away in expiration time, distance or both to cap potential loss. The initial transaction results in a premium value credited to the account that is kept if the trade expires in our favor. Maximum possible loss is controlled by us.

Credit spreads are option plays where one contract at a certain strike is sold short for a price while another is bought long to cap maximum risk to the credit spread seller. The option sold is closer to the money and more valuable than the respective option bought to cap maximum risk. This creates a net-credit in one's trading account. Although we use the term "capped risk" that is not entirely true. If one trades American-settled options (most equity options and a few indexes) the possibility exists of being assigned the short option without the long option being offset to end the play. Should the market make a large move against the remaining option prior to notification, losses can exceed the expected. Just be aware that risk is involved with any option strategy and credit spreads are not completely exempt.

Therefore, a margin-account is required by brokers to ensure those trading this method are able to withstand such unusual but possible occurrences. This requirement varies between brokers and it is important that you communicate directly with prospective brokers to decide which if any are best for you.

Using quantitative software programs or option calculators, we can insert a combination of figures and data to identify potential credit-spread plays that theoretically place the odds of success in our favor. However, we must manage these trades on a somewhat frequent basis in order to operate profitably over time.

A credit- spread is offset through buying it back as a debit spread and the difference enables our market makers existence.

We prefer not to buy-close credit spreads unless necessary because of higher commission rates on all spread orders to open and also close. We won't hesitate to buy them back if threatened but there are other choices as well. I like to use a 100% above credit received buy-stop on my spreads. Using a mental or physical stop to protect from maximum loss is my approach. If we had fear of adverse market movement, selling an equal-value credit spread in the opposite direction is a good tactic to consider. If our call credit was in danger by a rallying market we could simply sell a put-credit spread and hold a short-spread strangle. Now we hold a bear-call and bull- put, credit-spread strangle. The idea is we generated a new credit to our account that can be used together with our credit

received in the first place to buy- close with debit spreads at twice our entry credit received.

If we must close one, we still hold the other open and at risk with no possible profit. We are at breakeven for both trades if the second expires worthless, but what if it doesn't? Again we can sell the opposite side again for a third play and use that credit to buy the second one back if it goes underwater.

Credit spreads give us much more margin for error. We have the chance to win if the market moves in the direction guessed, if the market trades sideways or even if it moves against us a little bit depending on the strike prices we chose for our spread. These plays enjoy easy entry. We could simply enter the sell- limit order for the price desired and walk away from there. If it fills, that's great. After that our trade management is simple as well.

Bullish Credit Spreads

Also known as Bull Put Spreads, this position incorporates buying a put to open and selling a put to open. The expiration months are the same but the strike prices are different, the higher priced strike is sold while the lower strike price is purchased. A net credit is will be received.

Example:

QQQ trading at 45 in March
Sell Puts to Open Apr 45
Buy Puts to Open Apr 40

Max gain is credit received, max loss is difference in strike price minus credit.

Bearish Credit Spreads

A Call-Credit spread often referred to as a "Bear-Call spread" is established for a net credit (money coming into your trading account). The trader will sell the lower strike and buy the higher strike.

Example:

QQQ trading at 45 in March
Sell Calls to Open Apr 45
Buy Call to Open Apr 50

Max gain is credit received, max loss is difference in strike price minus credit.

Short Ratio Bull Spread

In a short bull spread we are selling the higher put strike and buying the lower to create a credit, we want the stock to move above the highest strike so the puts expire worthless

and we keep the credit. In a short ratio bull spread, a trader starts off with the intention of selling naked puts up to a certain risk level and is willing to accept some additional limited risk with the bull put spread.

Example:

QQQ trading at 45 in March
Sell 10 Puts to Open Apr 45
Buy 5 Puts to Open Apr 40

Max gain is credit received; max loss is the combination of the credit spread and naked puts.

Short Ratio Bear Spread

In a short bear spread we are selling the lower call strike and buying the higher to create a credit, we want the stock to move below the lowest strike so the calls expire worthless and we keep the credit. In a short ratio bear spread, a trader starts off with the intention of selling naked calls up to a certain risk level and is willing to accept some additional limited risk with the bear call spread.

Example:

QQQ trading at 45 in March
Sell 10 Calls to Open Apr 45
Buy 5 Calls to Open Apr 50

Max gain is credit received; max loss is the combination of credit spread plus naked call.

Spread trading is option investing instead of speculating: we merely need to manage our capital accounts in the proper manner to let time and the natural law of large numbers take over from there.

SHORT CALL

Also known as a naked call, this strategy has the second most potential for loss next to a naked straddle. This position involves selling calls to open, collecting the premium with the objective the stock will expire below the strike price. Traders will use naked call most typically when they believe a stock became over extended on the upside in a very quick manner. This increased volatility may lead the trader to believe that premiums have become inflated. They will sell the calls not only expecting the stock to retrace some of its gains, but also for the volatility to settle down and a natural decrease in the option premium. The obvious risk with selling naked calls is the very real possibility the stock keeps running higher and the call becomes very expensive to buy back. A trader can lose more money than they have in the account.

Example:

QQQ trading at 45 in March
Sell 5 Calls to Open Apr 45

Max gain is credit received; max loss is unlimited.

SHORT PUT

Short puts, unlike short calls, are not as risky and usually are used for a completely different investment objective. Most short puts writers have chosen stock they wouldn't mind owning but at a lower price. Instead of placing a good till canceled limit order below the current market and waiting for the stock to move down, short put writers sell puts with a strike at their desired entry level and collect premium. If the stock starts to slide and moves below their strike, they run the risk of getting put the stock and it continuing to move even lower. Hence the reason for writing puts on securities you wouldn't mind owning.

Example:

QQQ trading at 45 in March
Sell 5 Puts to Open Apr 45

Max gain is credit received, max loss is cost basis of stock to zero.

STRADDLES & STRANGLES

During times of imminent large-range moves expected ahead, we can initiate near-month contract long straddles or strangles to capitalize on the pending move in either direction. During periods the trader believes the security will trade sideways, we can initiate short straddles or strangles to collect premiums on both sides of the market.

Short Straddle

Short straddles involved selling a put to open and selling a call to open with the belief the stock will stay flat and won't run in one direction or the other past your break even point. If the security acts as the trader intends and stays flat, the ultimate outcome is the trader keeping the premium collected for both the call and the put.

Example:

QQQ trading at 45 in March
Sell 5 Calls to Open Apr 45
Sell 5 Puts to Open Apr 45

Max gain is net premium received; max loss is unlimited.

Short Strangle

Short straddles and short strangles essentially have the same objective; the stock to trade sideways and the call and put positions to expire worthless. The difference is the strike price. A straddle consists of the same strike price for both the call and the put, a strangle will have the call's strike price above the current security value and the put strike price below the current value. It's up to the trader to determine how much risk they wish to assume and choose their strike prices accordingly.

Example:

QQQ trading at 45 in March
Sell 5 Calls to Open Apr 50
Sell 5 Puts to Open Apr 40

Max gain is net premium received; max loss is unlimited.

Long Straddle

Used when a trader believes volatility is on the schedule but the direction is not clear. The trader purchases a call and a put at the same strike price. A stock may be very volatile then settle down for a period of sideways trading and consolidation. The trader may have technical indications the stock will shortly be returning to its volatile personality and open a long straddle. This case would present the trader with not only a directional move to capitalize on, but also increased volatility which would affect the premium.

Example:

QQQ trading at 45 March
Buy 5 Calls to Open Apr 45
Buy 5 Puts to Open Apr 45

Max loss is debit paid; max gain is unlimited

Long Strangle

Same strategy as a long straddle except the strike prices used are not the same. The positions purchased can either be in the money or out of the money depending upon the trader's objectives.

Example:

QQQ trading at 45 in March
Buy 5 Calls to Open Apr 50
Buy 5 Puts to Open Apr 40

Max loss is debit paid; max gain is unlimited

COMPLEX STRATEGIES

Long Butterfly

A Butterfly consists of three consecutive strikes: buying one contract of a lowest strike and selling two contracts of the middle strike, while simultaneously buying the highest strike. Ultimately the trader has put on a debit and credit spread with the intention of the stock expiring near the inside price.

Example:

QQQ trading at 45 in March
Buy 5 Calls to Open Apr 40
Sell 10 Calls to Open Apr 45
Buy 5 Calls to Open Apr 50

Max gain is 10 minus debit paid, max loss is debit paid.

Short Butterfly

A Short Butterfly consists of three consecutive strikes: selling one contract of a lowest strike and buying two contracts of the middle strike, while simultaneously selling the highest strike. Ultimately the trader has put on a debit and credit spread with the intention of the stock expiring near the inside price.

Example:

QQQ trading at 45 in March
Sell 5 Calls to Open Apr 40
Buy 10 Calls to Open Apr 45
Sell 5 Calls to Open Apr 50

Max gain is credit received, max loss is one spread expiring in the money and one spread expiring out of the money.

Iron Butterfly

Sell *At-The-Money* Straddle and Buy the *Out-Of-The-Money* Strangle or Sell a Call Spread and Sell a Put Spread = Receive a Credit

QQQ trading at 45 March
Sell 5 Calls to Open Apr 45
Sell 5 Puts to Open Apr 45
Buy 5 Calls to Open Apr 50
Buy 5 Puts to Open Apr 40

Max gain is credit received, max loss is 10 minus credit received.

Short Iron Butterfly

Buy *at-the-money* Straddle and sell the *out-of-the-money* Strangle or Buy Call Spread and Buy Put Spread = Debit Paid

QQQ trading at 45 March
Buy 5 Calls to Open Apr 45
Buy 5 Puts to Open Apr 45
Sell 5 Calls to Open Apr 50
Sell 5 Puts to Open Apr 40

Max gain is 10 less debit paid, max loss is debit paid.

Long Condor

A long Condor consists of buying one contract of each of the outside strikes, while simultaneously selling one contract of each of the inside strikes. One of these inside strikes should be the *at-the-money* strike. The options must all be of the same type. This strategy can be done with all calls or all puts.

QQQ trading at 45 March
Sell 5 Calls to Open Apr 40
Sell 5 Calls to Open Apr 45
Buy 5 Calls to Open Apr 50
Buy 5 Calls to Open Apr 35

Max gain and loss are the results of each spread.

Short Condor

A short Condor consists of selling one contract of each of the outside strikes while simultaneously buying one contract of each of the inside strikes. One of these inside strikes should be the ATM strike.

QQQ trading at 45 March
Buy 5 Calls to Open Apr 40
Buy 5 Calls to Open Apr 45
Sell 5 Calls to Open Apr 50
Sell 5 Calls to Open Apr 35

Max gain and loss are the results of each spread.

RISK COLLAR or FENCE

This option strategy is used to provide low cost risk protection. The cost of purchasing the risk protecting options is financed by selling the opposite option position.

- Long Underlying Security)
 - Buy an *out-of-the-money* put + sell an *out-of-the-money* call.

The *out-of-the-money* call sale finances the *out-of-the-money* put purchase, which is the downside protection for the underlying security.

- Short Underlying Security Buy an *out-of-the-money* call + sell an *out-of-the-money* put.

(The *out-of-the-money* put sale finances the *out-of-the-money* call purchase, which is the upside protection for the underlying short security.)

STOCK and OPTION REPAIR

Stock Repair

The stock price repair strategy uses a risk reducing option trade to cost effectively replicate this second stock position. Suppose a trader buys 100 shares of QQQ at 45. Sometime later the stock declines to \$37.50 per share. The trader believes the long-term outlook merits holding the stock for higher prices but is left with a \$750 unrealized loss.

The repair strategy is essentially a covered call sold on the existing position and the proceeds invested in a debit bull call spread.

With QQQ at \$37.50 per share the following options in QQQ Apr series are available:

QQQ Apr 38 @ 3.20 Ask
 QQQ Apr 42 @ 1.60 Bid

To execute the repair trade, the trader would buy one Apr 38 at \$3.20 and sell two Apr 42 @ \$1.60 for a net cost of zero.

The account would now hold the following:

Long 100 QQQ
 Long 1 Apr 38 Call
 Short 2 Apr 42 Call

It is important to note we have no naked option positions. One 42 call is covered by the stock and the other is spread against the 38 call. This trade must be done in a margin account.

Stock Price	37	38	39	40	41	42	43	44	45
100 QQQ	-800	-700	-600	-500	-400	-300	-200	-100	0

1 Apr 38	-320	-320	100	200	300	400	500	600	700
2 Apr 42	320	320	320	320	320	320	120	-80	-280
Net Position	-800	-700	-180	20	220	420	420	420	420

Option Repair

You purchased a call option with the greatest of expectations only to have your hopes and desires squashed within the first day or two of trading. Seeing these call options, that have such high premiums, drop 20-30% of their values has to be very frustrating to say the least. However, some relief may be in the cards if you follow this little strategy.

Let's say you have been long a calls while the market has moved down, now you need it to go up higher then before just to break even. However, if you still feel that this play has profit potential, there is still something that you can do to enhance your opportunity for profit, while incidentally reducing your cost basis slightly.

Here is what we do. We will buy 1 additional call at the money. This now lowers our cost basis. Then sell an two out of the money calls, creating a bullish call spread. This strategy helps keep you in the game, lowers your breakeven, reduces your out of pocket and gives you a chance to make as much profit as you would on your original position for ½ of the upward movement needed by the original trade to create a 100% return.

The "Repair Strategy" is an excellent strategy to consider when you want to hang on to a position that you really believe in, that has went a little south on you. So when your option has fallen, and it won't go up (as much), this might be a strategy for you to rely on as an alternative to just holding your long position.

Buy Beware. When it comes down to it the trader in this example is doing nothing more than doubling down, a psychological fumble. The reason for demonstrating such an approach is to once again illustrate the nature of options.

OPTIONS INDICATORS

Put/Call Ratios

Open Interest

Triple Witching

LEAPS

You might be familiar with LEAPS. Introduced in 1990 by the CBOE, LEAPS are Long-Term Equity Anticipation Securities (simply long-term options.) A strategy that can be

quite profitable that also requires very little monitoring is the use of LEAPS on indexes used like we would a stock as an underlying security.

Since LEAPS can be purchased for 1, 2 or 3 years in length, they have certain inherent value that we do not get from a short-term option. That inherent value is MORE TIME. Remember, time is one of if not the most important factor involved in option trading. We've done credit spreads in the past using puts or calls, depending on our disposition. How about using puts, calls or better still, both in the form of credit spreads and use the underlying LEAP as our long commodity or substitute for stock? The trade is basically an income generator and our sole mission is to generate income every month until the option needs to be sold or is ready to expire next January.

Why buy when you can sub-lease? Everyone knows that if you own individual securities, you can always sell options against your stock positions to receive premiums giving your right to take the stock from you at a higher price. This concept with individual equities is called covered call writing used by numerous owners of individual securities. A similar effect can be accomplished by using LEAPS (Long-Term Equity Anticipation Securities).

INDEX OPTIONS

Index options are very similar to stock options, except that they carry no underlying security. The price of the index option is determined by the index price instead of a stock price. The index price is an average of a group of stocks (sometimes weighted). Index options are sometimes used by trading firms to hedge risk on stock portfolios. There are many indices and some of them offer index options.

There are two main differences between regular options and index options. First, many are European Style options, which means that you cannot exercise them before expiration. Second, many index options exercise for cash instead of an underlying security.

MARGINS

For the most part, options are **not** marginable securities. This means that an options value cannot be borrowed against; i.e. Buying Power is **not** used to determine if an options transaction can be opened in the account. Instead, cash available for withdrawal is used.

Position	Initial Requirement	Maintenance Requirement
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Long Calls Long Puts	Pay premium for each call or put in full.	None required (no loan value)
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Position	Initial Requirement	Maintenance Requirement
Short Calls (Naked) Short Puts (Naked)	\$100,000 minimum equity 100% of option premium received plus 25% of underlying security.	\$10,000 minimum equity. Greater of the following three: 25% of underlying security <i>minus</i> out of the money (if any) <i>plus</i> current option premium <i>times</i> number of contracts <i>times</i> the multiplier. 15% of underlying security <i>plus</i> current option premium <i>times</i> number of contracts <i>times</i> multiplier. \$250 per contract.

Position	Initial Requirement	Maintenance Requirement
Short Calls and Short Puts (Naked Straddle)(Naked Strangle)	\$100,000 minimum equity. The greater of the naked requirements on either the call or the put.	Same as initial

Position	Initial Requirement	Maintenance Requirement
Debit Call Spread (Bull Call Spread) Debit Put Spread (Bear Put Spread)	Pay for total net debit.	Same as initial.

Option Position	Initial Requirement	Maintenance Requirement
Credit Call Spread (Bear Call Spread) Credit Put Spread (Bear Put Spread)	<i>Difference</i> in strike prices <i>times</i> number of contracts <i>times</i> multiplier <i>minus</i> credit received.	<i>Difference</i> in strike prices <i>times</i> number of contracts <i>times</i> multiplier.

Position	Initial Requirement	Maintenance Requirement
Covered Calls Covered	None required on covered calls or covered puts.	None required on covered calls or covered puts. Long (Short) underlying position must be valued at lower (higher)

Puts		of current market price or the call (put) exercise price for margin equity purposes.
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TAXES

www.cboe.com

The CBOE has published a brochure entitled “Taxes and Investing - A guide for the Individual Investor”, by far the most informative resource regarding the tax implication of options trading. If you haven’t already noticed, every major firm at one time or another will make the statement “you should consult you tax advisor before making any decisions”. Unfortunately many traders do not address the tax implications of their trading until after they have done it and by then it’s too late. This pamphlet should be read by anyone trading options especially those traders who will be using options in conjunction with stock they have owned. For example, options trading can turn a long term stock gain into a short term gain without ever selling the stock and it can create the opposite effect just as easily. The following is the table of contents for this pamphlet:

- Introduction
- Capital Gains and Losses
- Short Sales and Constructive Sales
- Wash-Sale Rule
- One-Sided Equity Option Positions
 - Long Stock and Long Calls
 - Short Calls
 - Long Puts
 - Short Puts
- Offsetting Positions
 - Exceptions to Offsetting Position Rules
 - Covered Calls-Special Rules
- Stock and Non-Equity Index Instruments
- Exchange Traded Fund Shares
- Mixed Straddles
- Bonds and Other Debt Instruments
 - Original Issue Discount
 - Market Discount
 - Short-Term Obligations
 - Amortizable Bond Premium
 - Convertibles and Exchangeables
- Conversion Transactions
- Investment Income and Other Investment Expenses
- Appendix I
 - In-the-Money Qualified Covered Calls for Stock Priced \$25 or Less
- Appendix II
 - Effects of Various Strategies
- For More Non-Tax Related Information
- For More Tax-Related Information

TRADING APPLICATIONS

Trading applications are the systems used to enter option orders to received executions. Such applications are offered by a number of different brokerage firms and software companies. Some trading firms will give you the ability to place option orders through their web site with certain restrictions. Other brokerage firms will require the trader to install a software program through which option trades can be placed. All firms still offer access to individual brokers on the firms trading desks for complex, multi-legged orders or for assistance when the computers don't work the way they should.

Firms advertise their trading applications through different sources. They advertise in trade magazines, on the Internet and through direct mailings. Any application that an individual ultimately decides to use should be fully understood before using.

Questions should be asked in advance:

- How do you electronically connect to the brokerage firm, i.e. T1, dial-up, frame relay?
- Who should be contacted when something doesn't work right regarding electronic connections, application support, trade support, customer service for statement and other processing questions?
- How are orders eventually represented at the exchange, do they get to the auto-ex systems or to floor brokers?
- How are orders routed, are they sent to the exchange with the best price and volume or is the route predetermined?
- Will you have the capability to route your orders directly to your exchange of choice?
- Does the firm have experienced option traders/brokers that anticipate situations and have experience with the nuances of each exchange?
- Who will be your contact when something goes wrong?

ORDER ENTRY

Option trading requires attention to detail at every level, from choosing the underlying and the contract, to entering the order and managing the position. When it comes time to enter an order a trader must clearly see where they are and where they want to be, they need to literally visualize the position in the account. The trader needs to see how the option will or will not be paired to another option or stock position. This visualization has helped me many times when trading for myself or others. I was acting as the broker for a large trader who I had placed many orders for previously. His knowledge of option's trading was above normal and so was his account balance. We had been working on different covered call and spread strategies for weeks and I had come to learn his style when giving me orders. What I learned was this guy wasn't focused on the correct things when giving the trade, he would often read out the full name of the option, XYZ Dec 25 Call, but would then give me the symbol for the Sept 15 Put. Once I learned his style I knew I had to be extra cautious for his sake and mine, unfortunately his appreciation for my style was lacking. During one trade in which he was obviously in a hurry he order 1000 call contracts to be sold to open, after repeating the order three times to confirm the size, I was told to place it. Needless to say it was not what he ultimately wanted but because this trader would not hesitate to put on larger positions like this, the order has some aspect of legitimacy.

The four different option order instructions; buy to open, buy to close, sell to open and sell to close, must be indicated at the time of the trade. Any mistake in the delivery of these instructions can create nightmares. Entering option orders, either through and electronic application or with a live person, is much more complicated then entering stock orders. Not only does the individual have to understand the basics about bids and offers, buying and selling, but they must also understand the movement differences in calls and puts, opening versus closing, and the different markets with different prices.

For the most part, equity options now trade on five different exchanges simultaneously. Each market place is entitled to make it's own market and publish it own autonomous bid and offer. An option order placed on the Pacific is not necessarily entitled to the price reflected on the American, CBOE, Philly or ISE. This reality may be frustrating if a trader is trying to get filled at the inside market but their order is not getting executed.

Options come in two flavors as well; calls and puts. A individual must understand the nature of these two different types when entering an order. The type must be identified either directly by telling the trader or broker when entering the order, or indirectly through the option symbol. It must also be stated whether the trade is to open or close. This is used for open interest calculations at the end of the day in the particular option class and series but is most important in determining whether risk is being put into or removed from the account.

OPTION RESOURCES

The Internet is abound with free sources of information regarding option trading, the following links are the ones I have found to be the most useful.

The Chicago Board Options Exchange

www.cboe.com

The Chicago Mercantile Exchange

www.cme.com

The Options Industry Council

www.optionscentral.com

Ivolatility.com

www.ivolatility.com

Derivative Strategies.com

www.derivativesstrategy.com

Option Maverick

www.optionmaverick.com

The Options News Network

www.onn.theocc.com

Larry McMillan

www.optionstrategist.com

GLOSSARY OF OPTION 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 that gives the holder the right to buy an underlying instrument, such as a stock, a futures contract or an index value, at a specified price for a certain, fixed period of time.

Clearing Corporation (or Clearing House): the business entity through which transactions executed on the floor of an exchange are settled using a process of matching purchases and sales.

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.

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.

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

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

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

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

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 options or futures contracts in the exchange market or in a particular class or series. Refers to unliquidated purchases or sales.

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 options pays to the option writer for the rights conveyed by the option contract.

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.

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

Writer: the seller of an option contract.