Beyond The Basics

WORKSHOP STUDY GUIDE

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Introduction to Option Trading

As you step into the world of options, gaining a firm understanding of the basics is paramount. Critics of options trading always point out how risky, speculative and unnecessary options are. But what these critics either do not understand, or fail to point out, is that options can be a tool for transferring risk from one trader to another and can be used to hedge your investments, as well as create strategies that actually have less risk than your stock portfolio.

Trading options can be complex. There is a lot to learn in order to take full advantage of them. Before you can trade the more complicated option positions, you must first understand their basic building blocks. Below are all the basics you will need to build a firm foundation. At the end of this booklet, you will also find a complete glossary, containing many terms found in the course materials.

Calls and Puts

It is imperative to understand that when buying calls or puts, the potential loss is limited to the amount paid for the calls or puts. When selling calls or puts, the potential loss is unlimited (short puts really have risk limited to their strike price, but are considered unlimited for all intents and purposes). Therefore, when you buy an option, you are limiting your risk by transferring it to whoever sold the option. When you sell an option short, you are accepting the risk from whoever bought the option. Options can offer a great deal of leverage, meaning you can have the risk/reward exposure of a large position in stock for a relatively small amount of money.

You must realize there are always trade-offs in options. You must isolate your speculation; that is, precisely what do you think is going to happen to a stock and when is it going to happen? You must balance potential risk versus potential reward. Always keep in mind that in option trading, you never get anything for free.

Buying Calls

Buying a call is perhaps the most common and straightforward option position. It is a strategy that is used if you think a stock's price will rise, and can be seen as a substitute for buying stock. Buying a call offers leverage and limited risk. It usually costs less to buy an option than it does to buy the underlying stock, and is generally considered less risky than a position in stock. But you have to be confident that the stock price will rise sufficiently before the expiration date of the option. Options expire, stock does not. You can "sit" on a stock and hope that eventually it will rise in price. You can't do that with a call option. If the stock price doesn't rise enough by a certain date, the call option may expire worthless or with a lower price than you originally paid. So, it's not enough to be bullish on a stock in order to figure out which call to buy.

The key is that there are trade-offs between potential risk, the probability of profit and the potential profit. For example, an option's value is continuously whittled down by the passage of time. There is a constant battle between the erosion of your option's value as time passes and waiting for a favorable move in the stock price or an increase in implied volatility that will push the value of the option back up. Therefore, you need to consider the timing and the magnitude of the anticipated rise in the stock's price. Each one of these is a speculation that you are accepting when you trade options.

You also have to decide whether to buy a call with more or fewer days to expiration. An option with fewer days to expiration has a couple things going for it. First, all other things being equal, it is cheaper than an option with more days to expiration. That means you will have a smaller absolute loss if your speculations are incorrect. Second, all other things being equal, if the stock price moves up, it will probably have a greater percentage increase in value than an option with more days to expiration. So why ever consider an option with more days to expiration?

Well, options with more days to expiration have their advantages. First, there is more time for the stock to make a favorable move. For a given level of volatility, a stock will have a chance to make a much greater move up or down if there is more time. There will be a greater opportunity for the stock to rise sufficiently and/or recover from any price declines in order for the call to be profitable. You don't want the stock to make its big move the day after your options expire. Second, an option with more days to expiration will experience less price erosion as time passes, and have a smaller percentage loss if the price of the stock remains unchanged or falls.

Changes in implied volatility affect options with more or fewer days to expiration differently. Calls with more days to expiration are more sensitive to changes in implied volatility than are calls with fewer days to expiration. You have to remember that implied volatility can move up and down, and can hurt badly if it moves against you.

Whether to buy an ITM, ATM, or OTM call is another decision you have to make, because each of them responds differently to changing conditions. An ITM option acts the most like a stock position. Depending on how deeply it is ITM, it will act more and more like stock. It will be affected less by time and changes in volatility, and more by the stock price moving up and down.

An ATM option has the greatest uncertainty. It is the most sensitive to changes in the stock price, volatility and passing time. This can be good or bad.

An OTM option begs for a very large rise in the price of the stock. If you get a big enough move in the stock, an OTM call can deliver a much higher percentage profit than an ITM or ATM call. And if the stock price falls dramatically, the loss on the OTM call will be smaller than on an ATM or ITM call. But remember that a big move in the stock price is less likely than a smaller move, and OTM options will expire worthless if the move in the stock isn't big enough.

Selling Calls Short

Selling a call short is the mirror image of buying a call. It's a speculation that the price of the stock will fall, stay the same, or rise only very little. You have to consider the same things as when buying a call, except in reverse. Just remember, a short call has limited profit potential in exchange for unlimited risk if the stock decides to skyrocket. When thinking about selling a call short, you should probably consider another option strategy that more effectively expresses your market opinion with less risk.

Buying Puts

Buying puts is a strategy that profits from a drop in a stock's price. The only practical difference between buying puts and buying calls is that you want the stock price to go down if you buy a put, and up if you buy a call. The decisions about days to expiration, volatility, ITM, ATM, and OTM are all basically the same for a call and put.

Buying a put is an effective alternative to selling stock short. Short stock can have high margin requirements, and some brokers restrict their customers from shorting stock. Unlike short stock, buying puts has limited risk. Strictly speaking, the potential profit on a long put is the dollar value of the strike price of the put, minus the premium of the put. It is not infinite.

Selling Puts Short

Selling a put short is the mirror image of buying a put. Like the potential profit on a long put, the risk of a short put is the dollar value of the strike price of the put, minus the premium of the put. Because a stock can never have a value less than zero, the potential loss on a short put can be very large, but it is not infinite. When thinking about selling a put, consider other trades that would take advantage of your market opinions with less risk.

When trading options, you have to refine your speculation to incorporate how much you think the stock may move, how much time it will take for the stock to move and how implied volatility might change. Not accounting for these factors is a major reason why novice option traders lose money. Understanding the trade-offs in options will help you understand how and why your option position is acting the way it is.

Using Puts and Calls for Hedging

Using Puts to Hedge Stocks

Puts can be used to protect a stock from major down turns. Remember a put gives you the right to sell the stock at the strike price. Therefore if you own the stock and puts on the stock (a *married put*) you are guaranteed at least a price for the stock equal to the strike price of the put. One put contract gives the holder the right to sell 100 shares of the underlying stock, at the specified strike price, before the expiration date. Therefore, one put would hedge 100 shares of stock, ten puts would hedge 1,000 shares of stock, etc.

It is important to understand that buying married puts is not a cure for poor performing stocks. If the stock continues to decline you will lose money, even if you own puts. The puts will only help reduce the loss. If you own a stock that is not going up, why continue to own it? You can sell it, and buy another stock you believe will go up along with married puts to hedge it. When you hedge with puts, you should be confident that the stock will increase in price more than the cost of the put in the time remaining until its expiration. By purchasing puts, you set the maximum loss on the stock at the put strike price, less the cost of the put plus commissions. In our example, you are guaranteed $79 for the stock (the put strike of 80 less the $1 premium paid for it). You will net at least $79 (less commission) on the stock even if it should go to zero.

When you buy a put, you are buying the right to sell the stock at the strike price, less the cost of the put. If your stock declines, you could sell the put and buy a lower-strike-price put for the next month. If the stock reverses and moves upward, you can participate in the rise, less the cost of the put, while letting the insurance policy (the put) expire. Rather than risking a market downturn, you buy a put to protect your position or profits. When you have a great profit and think the stock may still run higher, buy the puts anyway so you can sleep easy at night.

The Advantage of Buying Puts over Stop-Loss Orders

Stock prices can gap below the stop price, making stop-loss orders poor protection against stock sell-offs. In our example, should XYZ open gap-down at $50, an $80 stop-loss order would be filled at around $50. However, if you owned the $80 strike put, you have the right to sell the stock at $80 any time prior to the option's expiration. Alternatively, you could sell the $80 put which would be worth at least $30, keep the stock and re-hedge with a new put. A stop-loss order can also force an untimely sale. When a stock price reaches the stop, it is automatically sold, thereby eliminating the chance of participating in upward movements should the stock turn around. Owning puts allows the holder to ride out downturns and reversals.

Should your stock decline in price, you have three choices as a married-put holder:

1. You can exercise your right to sell the stock. By doing so, you will be selling your stock at the strike price and losing any time value that may be left in the puts.

2. You could simply sell the put options and keep the stock. This choice is usually better if you wish to keep the stock. Even if you wish to sell the stock, this is the better alternative if the puts have any time value left in them. In such cases you would sell the puts to collect both intrinsic and time value, and simultaneously sell the stock. By doing so, you will end up with more money then you would by exercising your put by an amount equal to the time value in the puts, less commission.

3. At expiration, if the puts close in-the-money by at least $0.25 per share and you have neither exercised your right to sell the stock nor sold the puts, the puts will be automatically exercised and you will have sold your stock at a price equivalent to the strike price of the put (80).

Using Call Options to Hedge a Short Sale

If you sell a stock short, you are bearish and you believe the price of a particular stock is going down. To open this position, you sell stock you do not own and the proceeds from the stock sale are deposited into your margin account. To close the position, you must buy and deliver the stock. If you are right about the stock going down, you will be able to buy the stock back at a lower price than you sold it for and realize a profit. However, if you are wrong and the stock goes up, you are facing considerable risk as the amount a stock could go up is unlimited. In the same way you can use a put to hedge a long stock position, a call can be used to hedge a short stock position.

For example, let's say you sold XYZ short at $83 because you felt the stock was heading down over the next 30 days. To insure this position you buy the near term XYZ 85 calls for $1.30. The 85 call gives you the right to buy XYZ for $85 anytime prior to expiration. Therefore you are limiting a potential loss on your short position to $3.30 per share (excluding commissions), which is the difference between the 85 call strike and the $83 you received on the short sale plus the cost of the put (85-83 +1.30 = 3.30).

If XYZ moves down as you expect by $10, you can buy the stock and close your short stock position. Your profit would be $10 less the $1.30 you paid for the call, or $8.70. Should the stock go up $10, you would only lose $3.30. This is a much better risk/reward ratio than naked short selling the stock, which in this example would make $10 for a $10 move down, but would also lose $10 due to a $10 move up.

The Greeks

Buying an option, whether it's a call or put, is known as buying premium; selling or shorting an option, whether it's a call or put, is known as selling premium. This terminology implies a certain equivalency between calls and puts. Indeed, calls and puts share many characteristics.

Mathematical equations have been developed to help estimate how much an option premium will change as the underlying stock moves and time approaches expiration. These equations are commonly referred to as the “Greeks”.

The Greeks of calls and puts are calculated from the price of the stock, the strike price of the option, the estimate of volatility of the stock, the time to expiration of the option, the current interest rate and any dividends payable on the stock before the expiration date of the option.

Delta

The delta of a position is simply the change in the price of an option relative to a change in the price of the underlying stock when all other factors are held constant. In other words, delta is the rate of change in option theoretical value for a one-unit change in the underlying stock price. The delta of a long call is positive; the delta of a long put is negative. The delta is reversed for short calls and puts. This can be understood by knowing that, all things being equal, a long call makes money if the stock price goes up, and a long put makes money if the stock price goes down. One of the things you will probably watch the most when trading is the delta of your position. Some software presents position deltas in terms of shares of stock (i.e. long 1 call option, representing 100 shares of stock, with a delta of +.75, shows a position delta of +75. Therefore, if you are long 5 calls, each with a delta of +.75, your position delta would be +375.) Keep in mind that some options represent something other than 100 shares of stock. This occurs when there are stock splits, takeovers or mergers. The delta of your position is affected accordingly.

The main factor in the delta of an option is the stock price, relative to the strike price of the option. So, a call that starts out with very little delta can have very large delta if the stock price rises sufficiently. Your exposure in the stock increases as the stock price rises. Time passing and changes in volatility also affect delta. Using analysis pages on certain software platforms can help you see how time passing or a drop in volatility will push the delta of the ITM option closer to the 1.00, and the delta of the OTM option closer to 0.0.

Remember that delta is only a theoretical approximation of your exposure in the stock. So, don't be surprised if your options don't have prices that match what your delta predicted. With the stock price, time and volatility changing, you may have to monitor the delta of your position vigilantly to make sure you have the exposure you want.

Gamma

Gamma is the Greek that gets your delta going. If you look at delta as the "speed" of your option position, gamma is the "acceleration". Gamma is the change in an option’s delta for a one-unit change in the underlying stock price. The gamma of long options, calls or puts, is always positive; of short options, always negative. Gamma is highest for the near-term ATM strike, and slopes off toward the ITM and OTM strikes. One good way of interpreting gamma is that long gamma "manufactures" deltas in the direction the stock is moving. That is, positive gamma is why long calls get more positive delta when the stock price rises, and why long puts get more negative deltas when the stock price falls. With a small gamma, your position delta probably won't change much. The more gamma your position has, the more your position delta can change a great deal, and therefore should be monitored closely.

If you think the price of a stock is going to move a great deal very quickly, you want to buy an option with relatively high gamma. The high positive gamma will increase your deltas if the stock price moves the way you want it to, and reduce your deltas if the stock price moves against you.

Theta

Theta is the dollar value per day that one unit of gamma generates, either positive or negative. It's inescapable. Long calls and puts have negative theta and, all other things being equal, lose money as time passes. Short calls and puts have positive theta and, all other things being equal, make money as time passes. The theta of options is indirectly proportional to gamma. When gamma is big and positive, theta tends to be big and negative. That's the trade-off. A position that has a lot of gamma (good for fast changing stocks) also has a lot of theta that is continuously eroding its value.

It's highest for the ATM strike, and slopes off to the ITM and OTM options, and responds to the passage of time and changes in volatility the same way that gamma does.

Vega

Don't let anyone tell you different: vega is not a Greek letter. So why does it get to be a greek? Vega measures the rate of change in an option's price for a one-unity change in volatility. Long calls and puts both have positive vega and, all things being equal, make money when implied volatility rises. Short calls and puts both have negative vega and, all things being equal, make money when implied volatility falls. Implied volatilities move up and down, sometimes in frighteningly large amounts. When markets are sluggish, implied volatilities often drop, combining with theta to make long option positions cry out for mercy.

The more time there is until expiration, the higher the vega is for an option. Vega also depends on where the price of the stock is relative to the strike price of the option. Like gamma and theta, vega is highest for the ATM options, and drops for the OTM and ITM options. So, ATM options with lots of time to expiration are the most sensitive to changes in implied volatility.

The theoretical assumptions made here are only as good as the data input. Stress testing with changes in overall implied volatility and at each individual strike will help you understand this concept.

From a purely theoretical standpoint, calls and puts would be perfectly opposite were it not for the probability assumption, which implies that calls can theoretically go further in the money than puts and therefore have bigger deltas than puts when they are both at-the-money or equidistant from the money.

Some readers will cite minuscule differences between the greeks of puts and calls at the same strike. For all intents and purposes, gamma, theta, and vega are the same for long calls and long puts. A fair wager would be that there is no way to make or save money by playing for any differences.

Spreads

Once you have calls and puts under your belt, it's time to start thinking about the next step. Calls and puts provide leverage and defined-risk advantages over long or short stock. But, they are subject to risks all their own. Time decay (theta) is the most obvious one. If the stock doesn't move, the value of your long options will be lower and lower as time goes on. There is a chance that your long options will expire worthless unless the stock moves enough to offset the time decay. Also, long options are subject to changes in volatility. If volatility drops, the value of the long options will drop. If volatility goes up, the value of the long options will go up. So, buying long options can also be seen as a speculation that volatility will rise.

Unfortunately, even if you are right on the direction of the stock, it is still possible to lose money on long options due to time decay and drops in volatility. That's why most professional traders use spreads (combinations of long or short calls and puts) to reduce the risks associated with stock and long or short option positions.

Straddles and Strangles

Two of the easiest spread positions to understand are long straddles and strangles, which are long calls and puts simultaneously. Long straddles and strangles make money if the stock price moves up or down significantly. Who cares which way the stock goes, so long as it GOES!

A long straddle is long 1 call and long 1 put at the same strike price and expiration and on the same stock. For example, long 1 XYZ Dec 100 call and long 1 XYZ Dec 100 put. A long strangle is long 1 call at a higher strike and long 1 put at a lower strike in the same expiration and on the same stock. For example, long 1 XYZ Dec 105 call and long 1 XYZ Dec 95 put. Such a position makes money if the stock price moves up or down well past the strike prices of the strangle. Long straddles and strangles have limited risk and unlimited profit potential.

Long straddles and strangles are essentially speculations that the price of the stock will move a lot and that implied volatility is going to go up. Straddles and strangles manufacture long deltas if the underlying stock rallies, and short deltas if the underlying stock falls. Long deltas on the way up, and short deltas on the way down, what's the catch? Straddles and strangles can be expensive to buy, and if the stock price just sits there, or moves very little, losses can be large. With long straddles and strangles, you're battling time decay from the moment you buy it until expiration.

For a straddle, you typically use the strike price that is nearest to the current stock price for both the calls and the puts. For a long strangle the strike price of the call is higher than the stock's current price and the strike price of the put is lower than the stock's current price. Because the calls and the puts used in a Strangle are both out of the money, it is always less expensive than a straddle. In exchange for the Strangle's lower cost, its break-even points are wider and for it to profit the stock will have to move farther up or down more than it would have to for a straddle to profit.

Verticals

Verticals are the most basic option spread. By buying one call or put and selling another one at a different strike price but in the same expiration month, you're hedging one option with another: when one makes money, the other loses money. The idea is that in exchange for relatively low risk, you're giving up the possibility of stratospheric gains. Verticals are popular with professionals because of their limited risk nature. In many stocks, option volatility is so high as to prohibit either buying options outright, whereas verticals typically don't have such high cost. Verticals can offer investors an efficient way of creating long or short exposure in a stock.

A long vertical call spread is long a lower strike call and short a higher strike call. For example, long 1 XYZ Dec 100 call and short 1 XYZ Dec 105 call. A short call vertical is short a lower strike call and long a higher strike call. For example, short 1 XYZ Dec 100 call and long 1 XYZ Dec 105 call.

A long put vertical is long a higher strike put and short a lower strike put. For example, long 1 XYZ Dec 100 put and short 1 XYZ Dec 95 put. A short put vertical is short a higher strike put and long a lower strike put. For example, short 1 XYZ Dec 100 put and long 1 XYZ Dec 95 put.

Long call verticals and short put verticals are bullish. Short call verticals and long put verticals are bearish. Because you are buying one option and selling another, you have less theta (time decay) and vega (volatility) risk in a vertical than you would buying calls or puts.

In addition to bullish and bearish considerations, do you want the passage of time to help you (positive theta), or are you willing to let it hurt you (negative theta)? Do you think implied volatility will rise (positive vega), fall (negative vega), or stay the same (neutral vega) during your time frame? Verticals can be created to meet these requirements by combining in-the-money, at-the-money and out-of-the-money options.

At the expiration of the options, a vertical will always have a value between $0 (when totally OTM) and the difference between the strikes (when totally ITM). For example, if the stock price is $120 at expiration, the 100/105 call vertical will have a value of $5.00, while the 100/95 put vertical will have a value of $0. A bull vertical maximizes its value when the stock price is above the higher strike price at the expiration of the options. A bear vertical maximizes its value when the stock price is below the lower strike price at the expiration of the options.

Short out-of-the-money verticals also have the advantage of making money if the underlying stock doesn't move very much. Time decay works to their advantage, but they have defined-risk. That's why they're a good spread to consider when you're starting out trading options.

While some choose to sell naked option to take advantage of positive time decay, there is a huge risk involved. The short vertical spread has less risk than selling options naked, and has positive time decay.

Time Spreads

Time spreads, are another basic option spread, and involve buying an option in one expiration month and selling another option in a different expiration month but with the same strike as the first option. Specifically, a long call time spread is selling a call in a front month at a certain strike, and buying a call in a deferred month at the same strike. For example, short 1 XYZ Oct 100 call and long 1 XYZ Dec 100 call. A put time spread is selling a put in a front month at a certain strike, and buying a put in a deferred month at the same strike. For example, short 1 XYZ Oct 95 put and long 1 XYZ Dec 95 put. In time spreads, one option in the position expires before the other. You have to keep this in mind because it does present certain risks and necessary adjustments that other types of positions might not.

Time spreads, whether they are with calls or puts, maximize their value when the stock is at the strike price of the options, and the front month option is expiring. Time spreads have their minimum value when the stock is very far away from the strike price of the options. If you buy a time spread, you want the stock price to be at the strike price at expiration. If you sell a time spread, you want the stock price to be as far away as possible from the strike price at expiration. The maximum loss is the amount you paid for the time spread, making them defined-risk.

Time spreads have positive theta (they make money from time passing) and have long vega (they make money if implied volatility rises). Therefore, a long time spread might be a good position if you think the stock price is going to move to, then stay at, a particular strike price until expiration of the front month option. The maximum value depends on the value of the deferred month option when the front month option expires, which depends largely of that option's implied volatility. You can position a time spread to be either bullish, bearish or market neutral, which makes them a very versatile tool.

For example, say you believed ABC stock will stay around its current price of 49.50 for the next 30 days. You could place a calendar spread by selling the near term September 50 calls for 2 and buying the far term October 50 calls for $3. Your net cost of the trade would be $1 ($3 - $2 = $1) which is the most that could be lost on the trade. Should the stock be near $50 at the expiration of September the Sept 50 calls will have no time value left and will expire worthless and the October 50 calls will have approximately one month worth of time value remaining which will be worth about $2 which is what the September 50 calls were worth when the position was opened. In this example you would make a $1 profit on a $1 investment or $100 profit for a $100

investment in the spread. This is a clear example of the benefit of trading options and learning how to benefit from positive time decay (Theta). This trade made a 100% profit, excluding commission, with the stock staying flat!

Opening Transaction		Value at September Expiration	
Sell Sep 50 call @	2.00	Buy Sep 50 Call @	0 (expires worthless)
Buy Oct 50 call @	- 3.00	Sell Oct 50 Call @	2.00
Cost of trade	$1.00	Sale Proceeds	$2.00
		Less Cost	- 1.00
		Profit	$1.00

Long Straddles and Strangles

Strategy Description: This strategy involves buying both a call and a put on a stock or index. Many self proclaimed option experts recommend these trades claiming that you will profit whether a stock moves up or down. The fact of the matter is that long straddles and strangles are seldom become profitable. The reason is that the market has already built the anticipated move of the stock (implied volatility) into the price of the options. So, even if the candidate moves up or down it seldom moves enough or quick enough to be able to profit from the trade. These strategies are seldom used by professional option traders as they typically prefer to sell premium rather than buy it. However, professionals will use this strategy occasionally when a candidate's implied volatility is well below its historical and the trader is anticipating it to increase dramatically. In such situations the increase in volatility causes options prices to increase increasing the probability of the trade's success. At other times Straddles are used by professional to "Gamma Scalp" volatile stocks. These strategies are great choices provided conditions and volatilities are right for the trade.

Position Structure: A long Straddle is the simultaneous purchase of an equal number of calls and puts on the same stock or index. One uses the same strike price for the calls and puts, the one that is nearest to the current stock price, and the same expiration month. A long Strangle differs from a long Straddle only in the fact that the call strike used is the one above the stock or index current price and the put strike used is the one below the stock current price. You would typically place a Straddle when the underlying stock or index is near a strike price and place a Strangle when it is between two strike prices.

Straddle

- **Buy equal number of calls and puts**
- **Same strike price (closest to the stock price)**
- **Same expiration month**
- **Same underlying stock**

i.e., with the stock at 49 you would buy the Sep 50 put and the Sep 50 call.

Strangle

- **Buy an equal number of calls and puts**
- **Buy the call strike just above the stock price**
- **Buy the put strike just below the stock price**
- **Same expiration month**
- **Same underlying stock**

i.e., with the stock at 53 you would buy the Sep 50 put and the Sep 55 call.

Maximum Profit: The maximum profit at expiration is unlimited as there is no limit to how high a stock or index could go. However, should the stock or index drop the profit is limited to the difference between zero and the put strike price less what was paid for the straddle or strangle and commissions.

Maximum Loss: The maximum loss is equal to the entire amount paid for the trade plus commissions.

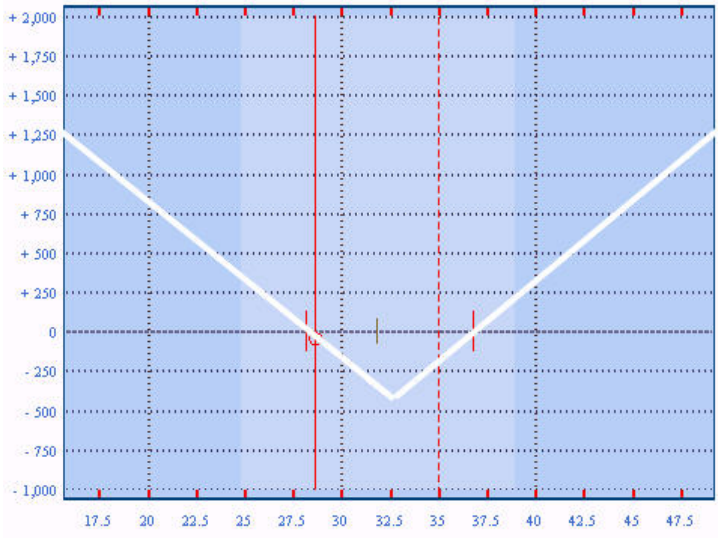
Break-even points: The upside break-even point at expiration is the determined by adding the per-share cost of the straddle or strangle to the call strike price. The downside break-even point is determined by subtracting the per-share cost of the straddle or strangle from the put strike price.

Capital Requirement: The capital requirement for a long Straddle or Strangle is the total cost, that is, the debit of the trade.

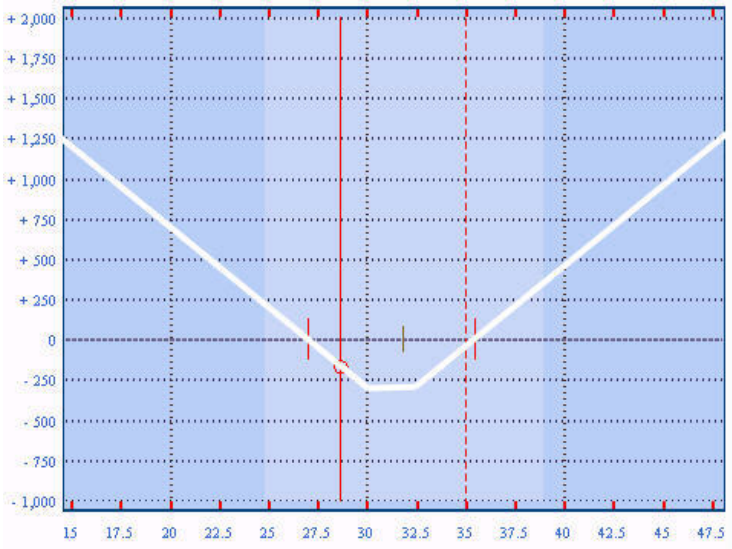
Candidates: Candidates include highly volatile stocks whose implied volatility is lower than its historic volatility. Circumstances such as wide estimates prior to an actual earnings report, stock splits, FDA approvals, takeovers, and companies impacted by world events increase the probability of stock movement. Look for stocks that can make major moves in either direction, even though you are unsure of which direction.

Execution: It is best to execute straddles and strangles as one trade. The likelihood that one side will "get away" from you before you have the entire position established is very high. The result would be a very poor execution price for the Straddle or Strangle.

The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows risk profile of a 32.50 Straddle bought for $4.30 at expiration.



The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows risk profile of a 30-32.50 Strangle bought for $3 at expiration.



Long Vertical Spreads

Strategy Description: This strategy is the most basic spread used by professionals when making a directional trades using options. Seldom do professional traders buy naked options. Long Vertical spreads are the superior choice as it offers reduced risk and smaller moves in the underlying to achieve profits. The Long Vertical spread hedges the trade by buying one call or put and selling another at a different strike further out of the money in the same expiration month. This strategy is commonly used when speculating on a stock's or index's direction. Long Verticals offer defined risk and great returns. With Long Verticals predicting the stock's or index's direction is a major consideration.

Position Structure: The Long Vertical Call Spread is the simultaneous purchase of the lower strike call (buy nearer-to-the-money) and the sale of a higher strike call (sell further-out-of-the-money) of the same expiration month. It is a bullish trade. For example, with the stock at $78, buying a call vertical would be buying the 80 call and selling the 85 call of the same expiration month.

The Long Vertical Put Spread is the purchase of the higher strike put (buy nearer-to-the-money) and the sale of a lower strike put (sell further-out-of-the-money) of the same expiration month. This is a bearish trade. For example, with the stock at $78, buying a put vertical would be buying the 75 put and selling the 70 put of the same expiration month.

Maximum Profit: The maximum profit you could realize is the difference between the spread's two strike prices less the amount paid, less commission. The maximum profit on a Long Vertical spread can only be realized at expiration when the underlying stock or index has move to or above the strike price of the short call or to or below the strike price of the short put. For example if you buy the 75-80 Vertical Call Spread for $1.50 your maximum profit would be $3.50 (taking the difference between the strike, which is 5 and subtracting it from the $1.50 paid for the spread) if the stock was at 80 or above at expiration. If you paid $1.50 for the Long Vertical Put Spread the maximum profit would be $3.50 (5 – 1.50 = 3.50).

Maximum Loss: Long Vertical spreads are executed for a debit, thus they are referred to as debit spreads. The maximum loss is the amount you pay for the spread plus commission. This will occur if the spread expires worthless with the underlying stock or index is at or below the strike price of the long call or at or above the strike price of the long put.

Break-even points: The break-even point at expiration of a Long Vertical Call Spread is equal to the long call strike price plus the per share premium paid for the spread, not counting commissions. The break-even point for the long put spread is equal to the strike price of the long put less the per share premium paid for the spread, not counting commissions For example, if you pay $1.50 for the 75-80 Vertical Call Spread your break-even point at expiration is 76.50 (75 + 1.50 = 76.50). If you pay $1.50 for the 70-75 Vertical Put Spread your break-even point at expiration is 73.50 (75-1.50 = 73.50)

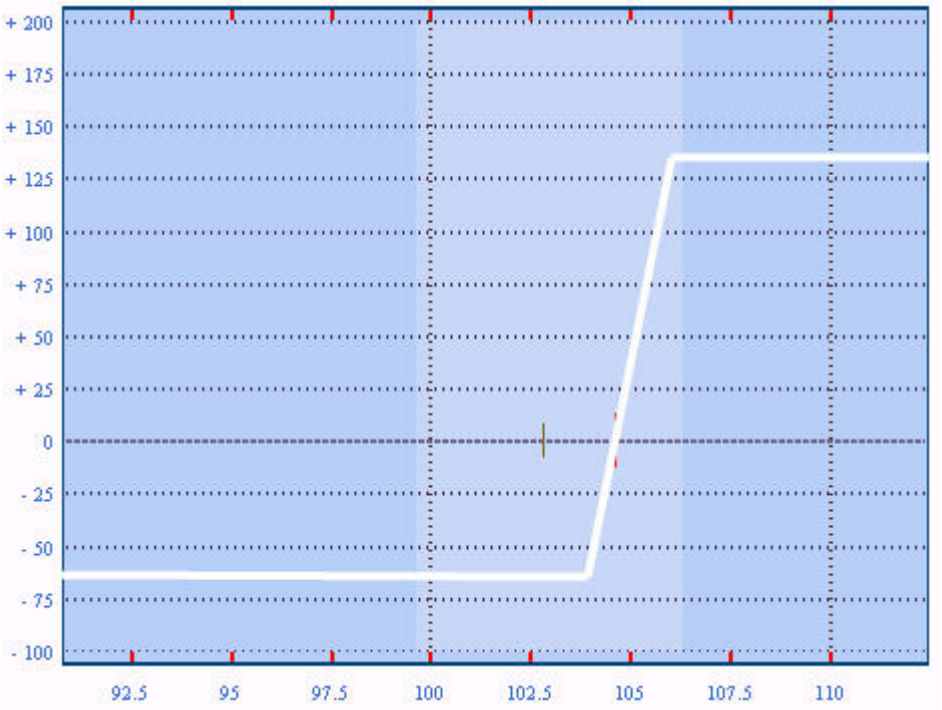
Capital Requirement: The amount of buying power necessary to trade a Long Vertical Spread is equal to the total cost or debit for the trade. For example, if you buy a Vertical Spread for $1.50 your capital requirement is $150 per spread (1.50 x 100).

Candidates: Long Verticals are best used on stock and indices that have medium to high volatility and an ability to move "through" the strike prices within the time remaining until expiration. For example, it would not make sense to place a 75-80 Vertical Call Spread on a stock that does not show enough volatility to be able to reach 80 or beyond by expiration. Your ability to accurately pick the direction is paramount to being successful on this trade.

Execution: It is best to execute Long Verticals as one trade. Attempting to leg into the position can expose you to significant execution risk. The likelihood of one side "getting away" from you

before you have the entire position established is very high. The result can be a very poor price for the trade, resulting in sub-par profit potential and increased overall risk. This trade can be executed online with single click functionality using the thinkorswim software.

The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows risk profile of a Long 104-106 Vertical Call Spread bought for $.65 at expiration.



Short Vertical Spreads

Strategy Description: This strategy is the most basic spread: buying one call or put and selling another at a different strike in the same expiration month. Short Verticals have defined risk and profit from positive time decay (theta). Although Short Verticals have directional risk, they can still profit if the underlying stays where it is or moves in the desired direction, but can still sometimes be profitable if the underlying moves a small amount in the wrong direction.

Position Structure: The Short Vertical Call Spread is the sale of the lower strike call (sell nearer-to-the-money) and the purchase of a higher strike call (buy further-out-of-the-money) of the same expiration month, and is bearish to neutral. For example, with the stock at $78, selling a call vertical would be selling the 80 call and buying the 85 call of the same expiration month.

The Short Vertical Put Spread is the sale of the higher strike put (sell nearer-to-the-money) and the purchase of a lower strike put (buy-further-out-of-the-money) of the same expiration month, and is bullish to neutral. For example, with the stock at $78, selling a put vertical would be selling the 75 put and buying the 70 put of the same expiration month.

Maximum Profit: Short Verticals are executed for credits. The credit collected when you first place the trade, less commissions, is the maximum profit. Maximum profit is realized on a short put vertical if the underlying settles at or above the strike price of the short put at expiration. Maximum profit is realized on a short call vertical if the underlying settles at or below the strike price of the short call at expiration.

Maximum Loss: The dollar value of the difference between the strikes of the short call and long call, or short put and long put, minus the credit received when selling the vertical, plus commissions. Maximum loss occurs if the underlying settles lower than the strike price of the long put or higher than the strike of the long call.

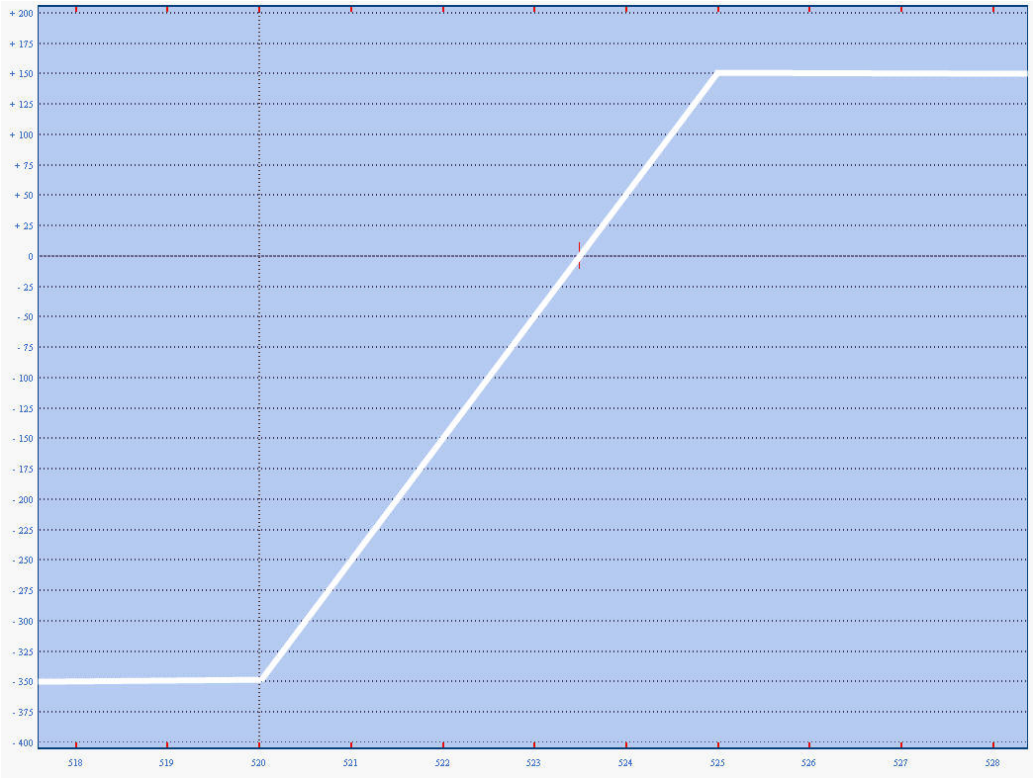
Break-even points: The break-even point at expiration of a short put spread is the strike price of the short put minus the premium that you sold the spread for, not counting commissions. The break-even point at expiration of a short call spread is the strike price of the short call plus the premium that you sold the spread for, not counting commissions. For example, if you sell the 80/85 call spread for $1.75, the break-even point is $81.75.

Capital Requirement: The amount of buying power necessary to trade a short vertical spread is the maximum loss of the position, which is the difference between the strike prices of the long and short options less any credit received. For example, if you sell the 80/85 call spread for a $1.75 credit, the buying power used to do this trade will be $3.25 (5 – 1.75 = 3.25) which works out to be $325 per spread as each contract has a 100 share multiplier.

Candidates: Short Verticals are best used in stocks and indices you believe will have stable price movement in the time duration of your trade.

Execution: It is best to execute Short Verticals as one trade. Attempting to leg into the position can expose you to significant execution risk. The likelihood of one side “getting away” from you before you have the entire position established is very high. The result can be a very poor price for the trade, resulting in sub-par profit potential and increased overall risk. This trade can be executed online with single click functionality using the thinkorswim software.

The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows risk profile of the XEO Short 520-525 Vertical Put Spread at expiration.



Entrance Criteria for Short Vertical Spreads

1. You should consider doing Short Verticals on stocks or indices with which you feel reasonable comfort picking direction or, that you feel won't move very much. Also, it's best to sell verticals when the implied volatility is higher than normal as you will be able to capture more of the premium when volatility drops back.

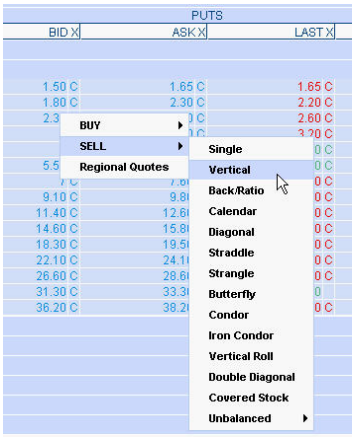
2. The combined open interest the options should be at least twenty times the number of vertical spreads you want to do.

3. Check the news and make sure it helps confirm your anticipated underlying price movement. Also keep in mind that news can affect the volatility. For example, you may want to close out any short spreads on a particular candidate well before earnings announcements as they usually increase the stock's volatility. The rule of thumb is to buy back in low volatility and sell in high volatility.

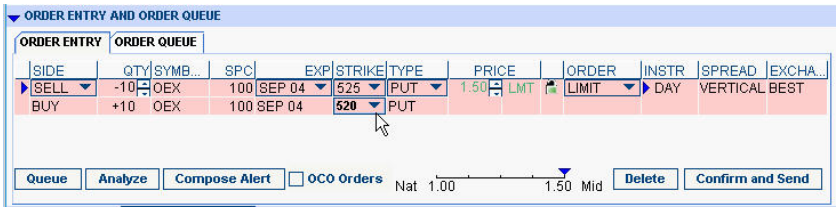
4. Look to place a Short Put Spread if you are bullish. If you are bearish look to place a Short Call Spread. In our XEO Example we are bullish and will look to sell a Short Put Spread.

5. Select the expiration month that will give you between four and eight weeks until expiration. Selling verticals for a shorter period of time typically does not yield enough credit to offset the risk of the position. Selling verticals for a longer period of time is not recommended because the underlying's price behavior becomes too unpredictable and extrinsic value decays at too slow a rate. In periods of low volatility you will usually have to go longer in time to receive a reasonable amount of premium to make the spread worth selling. In periods of higher volatility selling a spread 4 weeks from expiration is reasonable.

6. To evaluate various Short Vertical Spreads using the thinkorswim software, go to the TRADE window and enter your candidate's symbol and then hit enter. Then select the expiration month you wish to trade. Now right click on the bid or ask price of any strike call, if you want to evaluate a Short Call Spread or, right click on the bid or ask price of any strike put, if you want to evaluate a Short Put spread. Move the cursor first to "SELL" and then left click on "Vertical" from the pull down screen. See below.



7. A short spread will now be placed in the "ORDER ENTRY" section at the bottom of the TRADE screen. You can view and adjust various strike prices by left clicking on the down arrows on the "STRIKE" column. **Select the narrowest and furthest out-of-the-money spread available that can be sold for at least 20% of the width of the spread.**



In our XEO example, the adjusted mid price of the 520-525 put spread is shown to be 1.50. Even if we give up $0.10 to $0.15 to fill we will receive more than 20% of the width of the $5 spread which is $1.00. The 525-530 spread can be sold for only slightly more so it makes more sense to sell the spread further OTM because the index can move further in the wrong direction before the trade begins losing money. Although, the 515-520 put spread is even further OTM we can not receive at least $1.00 for selling it (20% of its $5 width). So by process of elimination, the 520-525 spread is the one we will choose.

8. Determine the break-even point of the spread. With a Short Put Spread this is done by subtracting the premium you will receive from the short put strike price. With a Short Call Spread this is done by adding the premium you will receive to the short call strike price.

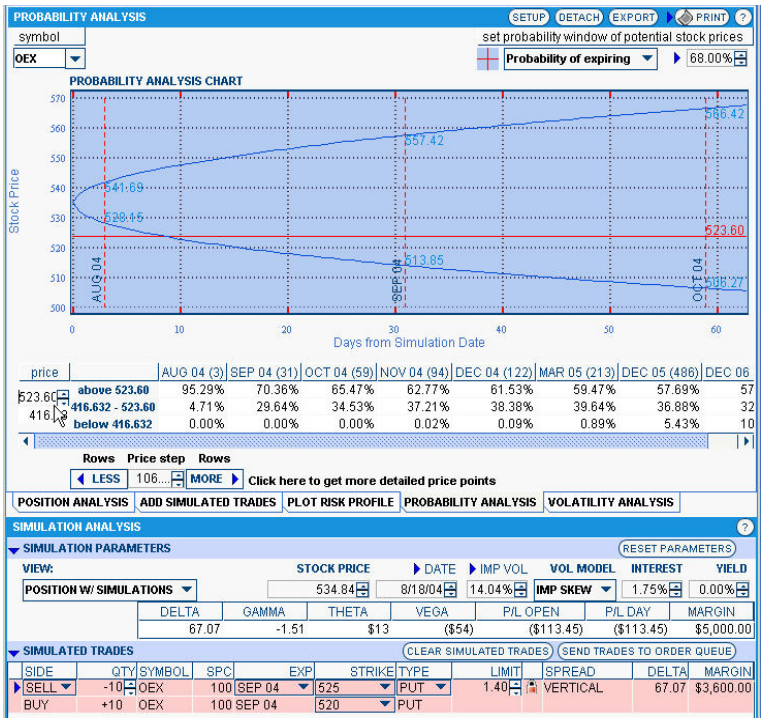
   In our example we are selling the September 525 puts and buying the 520 puts. The adjusted mid price of this short spread is shown to be $1.50. However, it is unreasonable to expect a fill at this price. You will have to give up approximately ten cents from this price to expect a fill so most likely we will receive $1.40 for selling the spread. If you deduct 1.40 from the short put strike of 525, the break-even point at expiration will be 523.60. The "Order Confirmation" Screen of the thinkorswim software calculates the break-even point for you.

9. To determine the trade's probability of success, send the trade to the "ANALYZE" screen by left clicking the "Analyze" button on the bottom of the ORDER ENTRY section of the thinkorswim software's TRADE screen. The trade will now be placed on the ANALYZE screen. Once you have your trade on the ANALYZE page do the following:

   a. Select the "PROBABILITY ANALYSIS" tab by left mouse clicking it.

   b. In the "price" column type in the break-even price point of your trade. With a short put spread the break-even price point will be typed in the top row so it is shown as "above." With a short call spread the break-even price point will be typed in the bottom row so it is shown as "below." In our example, since we are selling a short put spread we have typed in the break-even point of 523.60.

   c. If you are selling a put spread note the probability of the stock or index staying above your break-even point at the option's expiration. If you are selling a call spread note the probability of the stock or index staying below your break-even point. This is the trade's probability of success. In our example, we see that the probability of the XEO staying above 523.60 (our break-even point) by the September expiration is 70.36%



10. If you are comfortable with the trade and would like to place it, click on the "SEND TRADES TO ORDER QUE" button at the bottom of the ANALYZE screen and the trade will be ready for order placement. Make sure that you have adjusted the trade price to one that is likely to fill. You will note in the previous screen shot we have adjusted the $1.50 mid price to $1.40, a price that has a decent probability of filling.

11. Use the following dialogue if you wish to place the trade over the telephone:

    "Sell to open the XEO September 520-525 put spread for a $1.40 credit, ten times. That is buy ten September 520 puts and sell then September 525 puts for a $1.40 credit."

Exit Criteria for Short Vertical Spreads

1. With Short Vertical spreads, you can let the position run to near expiration to let it make its maximum profit. But it may be prudent to close out the position before expiration if any of the following occur:

    a. It usually makes sense to close the entire Short Vertical whenever you can receive 80% of the potential profit, or if the spread can be bought back for $0.15 or less. For example, if you sold a vertical spread for $1.00 and you can close it out for a debit of $0.20, you might want to do so. That allows you to keep most of the profit on the trade and prevents a winner from turning into a loser if the stock or index moves sharply. When the short spread can be bought back so cheap, the extra profit you could make does not offset the risk of holding the position.

    b. Before you buy back the Short Vertical to close it out, first check to see what you can receive for selling the long option in the spread. If it is trading very cheaply, at say $.05, do not close out the entire Short Vertical; only buy back the short

option. You will now own a long option that may become valuable should the stock make a dramatic move.

c. If news is coming out such as an earnings announcement or economic or political news that could dramatically increase the overall market or the stock or index's volatility it is usually wise to close the trade.

Short Iron Condors

Strategy Description: Market-neutral, defined-risk position that profits from positive time decay (theta) and can be profitable over a wide range of stock or index prices at expiration.

Position Structure: A Short Iron Condor is the sale of an out-of the-money vertical call spread (strike prices above the underlying price) and an out-of-the-money vertical put spread (strike prices below the underlying price) on the same underlying in the same expiration month, (i.e., Long Dec 80 put, short Dec 85 put, short Dec 90 call and long Dec 95 call). When the trade shares a common short strike it, is referred to as Short Iron Butterfly, i.e. Long Dec 80 put, short Dec 85 put and short Dec 85 call and long the Dec 90 call.

Maximum Profit: Iron Condors are executed for credits. The credit received when you sell the Iron Condor is the maximum amount you can make on it. Maximum profit occurs if the underlying price settles in between the short put strike and the short call strike at expiration.

Maximum Loss: The dollar value of the difference between the strikes of either the short call vertical or the short put vertical, whichever is greater, minus the credit received when selling the Iron Condor, plus commissions. Maximum loss occurs if the underlying price is below the strike price of the long put or above the strike price of the long call at expiration.

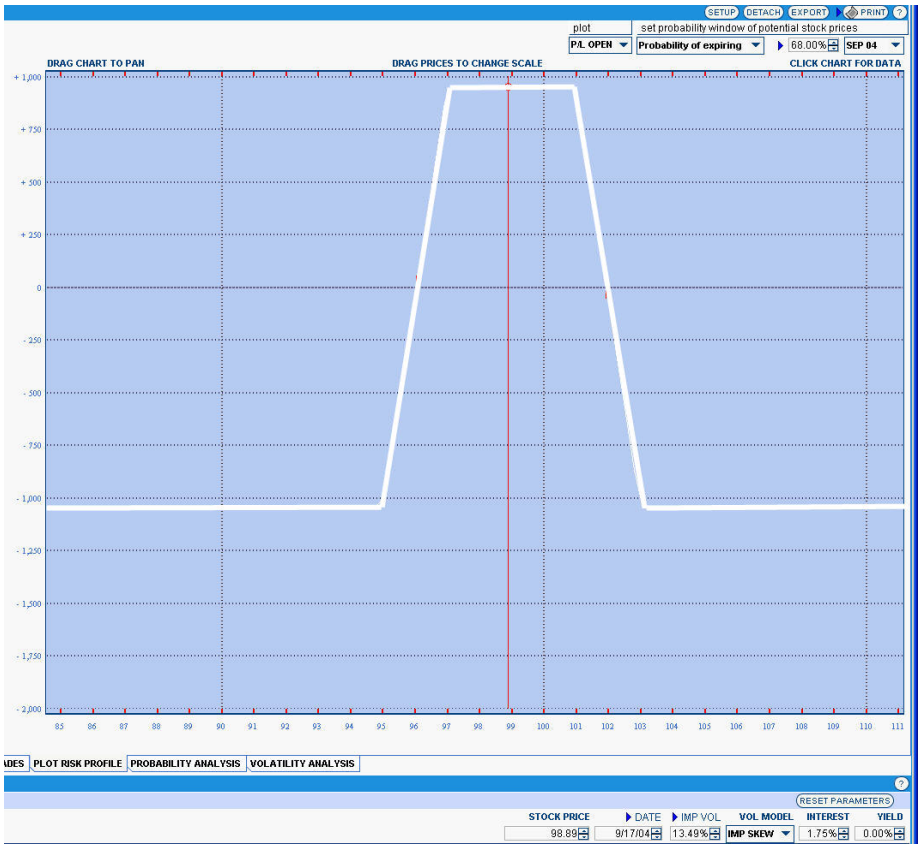
Break-even points: Subtract the total premium received from the short put strike to get the downside break-even point and add the amount received to the short call strike to get the upside break-even point, not counting commission.

Capital requirement: The amount of buying power necessary to trade an Iron Condor is an amount equal to the maximum loss on the entire position. The requirement is NOT the risk of both the short call vertical and short put vertical, because only one can be a loser at expiration. For example, selling the Dec 80/85/90/95 Iron Condor for $2.75 requires you to have $2.25 in buying power in your account.

Candidates: Best used on range-bound stocks or indices that are expected to be relatively stable.

Execution: It is best to execute Iron Condors as one trade. Attempting to leg into the position via four individual calls and puts or via a call vertical and put vertical can expose you to significant execution risk. The likelihood of one side “getting away” from you before you have the entire position established is very high. The result can be a very poor credit for the Iron Condor, resulting in sub-par profit potential and increased overall risk.

The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows the risk profile of the DJX Short 95/97/101/103 Iron Condor at expiration.



Short Iron Condor Entrance Criteria:

1. In placing Iron Condors it is critical to realize that option pricing determines a trader's probability of success. Therefore, if we placed an Iron Condor in which we where risking $1.00 to make $1.00, our probability of success would be approximately 50%, as the reward of the Iron Condor in this example is approximately the same as the risk. The lower the initial credit we receive on the Iron Condor actually increases our probability of success. Probabilities of success should typically range from 50% to 70% for ideal Iron Condors.

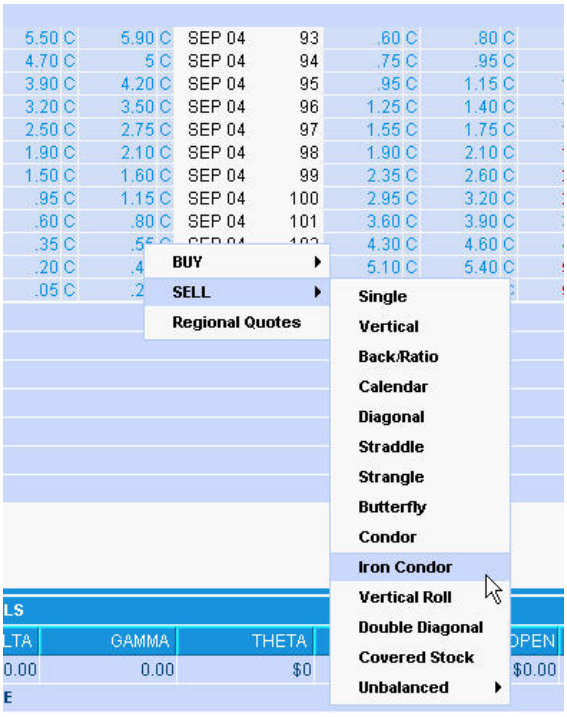
2. Select a candidate that you believe will trade in a range without a strong tendency to trend (subjective). Indices and tracking stocks such as the DJX, DIA, MNX, XEO, QQQQ and SPY are great candidates for Iron Condors, as well as individual stocks priced between $50 and $200 that exhibit range-bound, non-trending price action.

3. Total open interest in all the options of the expiration month you are looking at should be at least 10 times, but ideally closer to 20 times, your trading quantity. This in theory will allow the trader a good execution price and liquidity for both opening and closing the position.

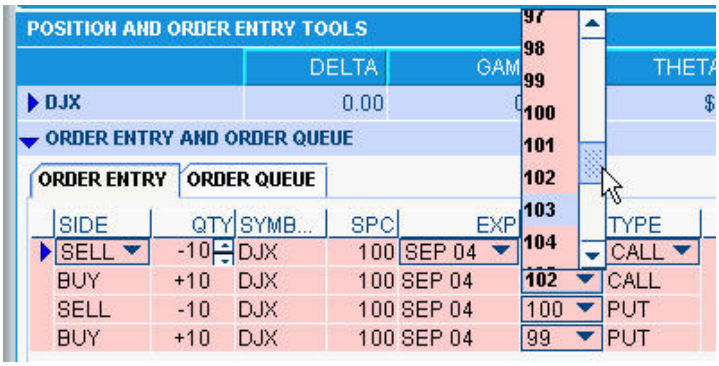
4. The implied volatility of the options is a key determinant in how much credit you will receive for selling the Iron Condor. All other things being equal, the higher the volatility, the greater the credit. However, the higher the volatility the greater the risk in placing the Iron Condor. Iron Condors should be avoided prior to news or earning announcements that could significantly increase the volatility in the stock. For example, before news that could dramatically impact the outlook for a stock, such as drug stocks before an FDA announcement, the uncertainty and fear can increase the implied volatilities to very high levels. High implied volatility generates large credits for Iron Condors and makes them very attractive on paper, but again implies more risk. Conversely, lower volatility generates smaller credits but risk is diminished in accordance with lower implied volatility.

5. Iron Condors are best placed in options that have at least four weeks but no greater than nine weeks before expiration. With less than four weeks, the credit received for Iron Condors is too low to be attractive. Any Iron Condor placed further out than nine weeks can be affected significantly by fluctuations in volatility and may also be affected by interest rates.

6. To execute a Short Iron Condor as one trade, go to the thinkorswim "TRADE" window, enter the symbol and hit "ENTER." Then choose the expiration month and click on the blue arrow to view the options. Right click on the bid or ask price of a call or put near the anticipated trading range and select "SELL" then "Iron Condor."



7. Now adjust the strike prices of the puts and the calls until you have a call spread near the upper anticipated trading range and a put spread near the lower portion of the anticipated trading range. Typically in market-neutral trades such as Iron Condors we attempt to make the short spreads of the Iron Condor equidistant from the price of the underlying as to not impose any directional risk (delta) into the trade.



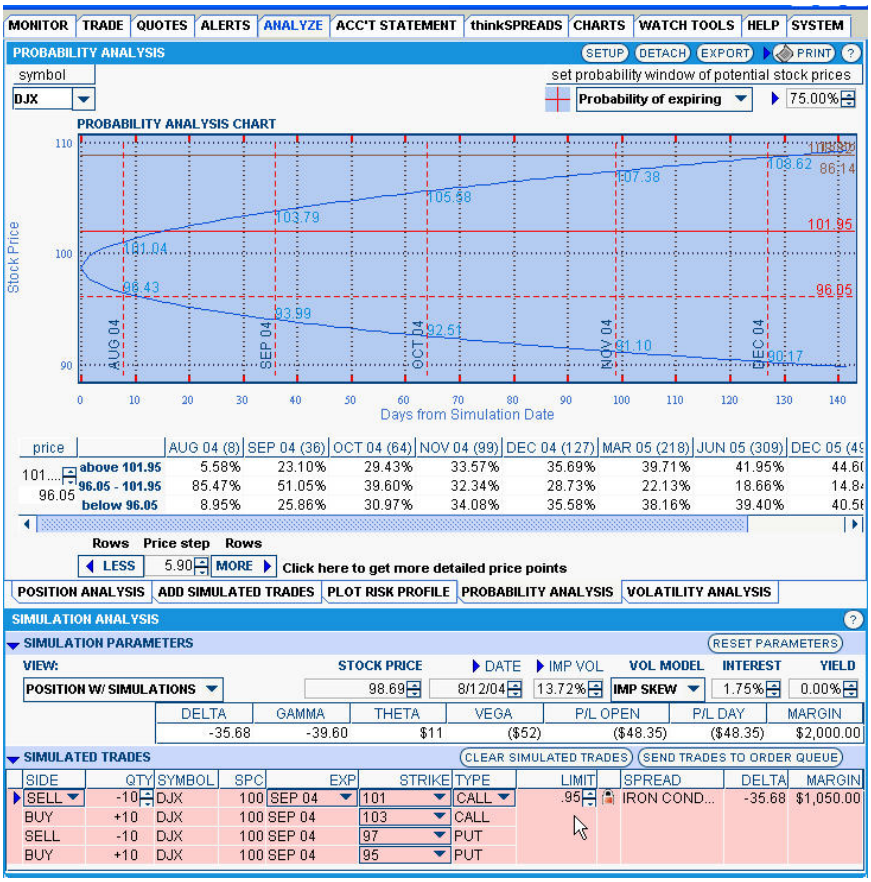
8. Adjust the strikes until you have two spreads that are near the outer portions of the trading range and whose mid price (average of the bid and ask prices of the options in the Iron Condor) is 40-50% of the average width of the spreads. In this example we have chosen the 95/97 put spread and the 101/103 call spread that is trading for mid price of $1.00, which is 50% of the average width of the spreads (2.00 ÷ 1.00 = .50 or 50%).

9. Now calculate the break-even points of the Iron Condor by subtracting the estimated premium you will receive by selling the spread from the short put strike and adding the estimated premium you will receive to the short call strike.

   In our example we will estimate that we will receive $0.95 for the sale of the Iron Condor as we will submit our offer for $0.05 less then the mid price of $1.00. Note that we will have to give up a slight edge from fair value (the mid price) to have any expectations of filling the order. Our break-even points, therefore, will be 96.05 (97 - .95) and 101.95 (101 + .95). If the DJX stays between these break-even points we will make money. Notice that the break-even points are right near our anticipated trading range of 96 and 102. Drawing horizontal lines at the break-even points on the underlying daily chart will help you visualize the underling's probability of staying between these points until expiration.

10. Select the "Analyze" button below the Order Entry section. Then do the following:

    a. Click on the "Probability Analysis" tab.
    b. Type in the upside or downside break-even point in the "price" section.
    c. Type in the distance between the break-even points (5.90) in the "Price step" box.
    d. You will note that the middle row now shows the break-even points (96.05-101.95) and the probability of the underlying price staying between them, calculated for various expirations. You will note that the probability of the stock staying between the break even points by September expiration is 51.05%.



11. Remember, with thinkorswim, the reduction of buying power to do this trade is equal to the maximum potential loss. This amount is shown on the "ORDER CONFIRMATION" screen of the thinkorswim software and is calculated by subtracting the premium received from the distance between the strike prices of the widest spread. If you are using any other broker, check their buying power reduction will most likely be more, so check with them before you do the trade. In our example, the reduction in buying power is $1.05 ($2.00 - .95) or $105.00 per spread.

12. If you are comfortable with the trade and would like to place it, click on the blue arrow to the left of the order in the simulated trades section and choose "Confirm and Send." Make sure that you have adjusted the trade price to one that is likely to fill

13. The following is the dialogue to place the order by telephone:

    "Sell to open the DJX September 95/97/101/103 Iron Condor for a $0.95 credit ten times. That is, sell ten DJX September 95/97 put spreads and sell ten DJX September 101/103 call spreads for a $0.95 credit."

Exit Criteria for Short Iron Condor Spreads

1. With the Short Iron Condor it is usually best to let the position run to near expiration as to allow for sufficient time (theta) decay of the short options. Closing this position is a

function of both time left until expiration and price of the underlying, but an ideal time would typically be 4 to 10 calendar days prior to expiration. The most significant factor in successfully trading an Iron Condor will be the **consistency** of timing (days before expiration) when closing the position. For example, if a trader typically closes a position earlier than previously suggested, it is then prudent to always close his/her future positions out early. Conversely, if a trader allows his/her position to run to or near expiration, then it is highly suggested to always allow future positions to mature in a similar fashion. However, it may be prudent to close out the position before expiration if any of the following occur:

a. If either the call vertical or put vertical is trading at a very cheap price, say $0.15 or less, it may be an opportunity to close it out. Stocks rarely move in one direction non-stop; they typically reverse after a move up or down. If the put or call vertical decreased in value substantially because the stock has moved away from the strike prices, it may be best to take that spread off before the stock begins to retrace that movement.

b. If the long option in any spread is trading very cheaply, at say $0.05, do not close it out. Only buy back the short option. You will now own a long option that may become valuable should the stock make a dramatic move.

c. If news is coming out, such as an earnings announcement or economic or political news that could dramatically increase the overall market or the underling's volatility, it is usually wise to close the trade.

d. It usually makes sense to close the entire trade whenever it will realize you 80% of the potential profit. That is, if you sold an Iron Condor for $2.50 and can close it out for a $0.50 debit, you may want to do so. That takes the profit on the trade and prevents a winner from turning into a loser if the stock or index moves sharply. When the Iron Condor is so cheap, the extra profit you could make by holding onto it does not offset the risk of the position.

Long Calendar Spreads

Strategy Description: This is one of the basic spread positions that is used by traders of all experience levels and is a component of more complex spreads. Calendar spreads feature low capital requirements, zero margin, defined-risk, opportunities to collect premium from rolling short front month options forward, and wide profit ranges. Calendar spreads, also referred to as Time spreads or Horizontal spreads, can be positioned to speculate on market directiona or as a market-neutral strategy that profits from time decay. The trader simply picks the strike price he or she believes the underlying will close at the expiration of the near term option and the trade profits when the underlying moves toward it.

Position Structure: A long Calendar spread is the simultaneous sale of a near (front) term call or put and the purchase of a far (back) term call or put of the same strike price. The long and short options in a Calendar spread are either both calls or both puts.

Long Call Calendar: Short Sept. 50 Calls Long Oct. 50 Calls

Long Put Calendar: Short Sept. 45 Puts Long Oct. 45 Puts

The following table below will help you understand the value of a Calendar spread at expiration.

Sell to Close the Sep.-Oct. 50 Call Calendar Spread at September Expiration					
Stock Price	**Buy September 50 Calls**		**Sell October 50 Calls**		**Total Value**
	Intrinsic Value	Time Value	Intrinsic Value	Time Value	
40	0	0	0	.40	.40
45	0	0	0	.80	.80
50	**0**	**0**	**0**	**2.50**	**2.50**
55	-5	0	+ 5	.80	.80
60	-10	0	+10	.40	.40

Note the following:

- The time value of an option is the highest when it is at-the-money (50). Therefore, the Calendar spread is worth the most money when it closes at-the-money (50) of the near term short option.
- The Calendar spread will be worth the most money the stock is at the same price of the strike selected (50) at expiration of the near term (Sept.). This is when the near term option expires and has no time value left and the far term (Oct.) is at-the-money with one full month left.
- It is worth approximately the same if the selected strike closes an equal distance in-or-out-of-the-money. Note if the stock is at 45 or at 55 at expiration, the spread is worth the same (.80).
- If, in the example in the table above, we paid $0.80 for this Calendar spread we can see that we will profit if the stock is between 45 and 55 at expiration of the near term option.
- Since both options use the same strike prices, any intrinsic value will be the same for both and will cancel each other out because one option you are buying and the other option you're selling. This is shown above at the stock price of 55 and 60. You can only make money on time value, thus Calendar spreads are sometimes referred to as Time spreads.

Maximum Profit: The maximum profit is realized on a Calendar spread when the underlying price settles at the strike price of the short option at expiration. In that case, the front month option expires worthless, and the back month long option has the greatest time (extrinsic) value

because it is at-the-money. If the underlying price doesn't settle exactly at the strike price, any intrinsic value would be cancelled out because both options have the same strike price.

In the case where a Calendar spread is purchased where there is more than one month separating the short and long options, the profit of a Calendar spread can be augmented by "rolling" the short front month option to the next expiration month for a credit. Rolling is the process of buying back the short options near expiration and reselling the same strike for the next expiration month. For example, if you buy a Sep/Dec call Calendar spread, there are two rolls "embedded" in the Calendar spread. You can roll the short Sep call to Oct, and later roll the short Oct call to Dec. The rolls have the greatest value when the underlying price is right at the strike price. That let's you sell the next month option for the greatest amount of time value. However, you can never be certain of the credit you will get for a roll, or even what you can close out a whole Calendar spread for because you can only guess at the value of the long back month option. The value of that back month option depends on its implied volatility, which itself moves up and down. So, it is impossible to quantify precisely the maximum profit of a Calendar spread. However, by estimating what the implied volatility of the long back month option might be, you can get a pretty close estimate of what the profit of the Calendar spread could be.

Maximum Loss: Calendar spreads are executed for debits, and the maximum loss on a Calendar spread is the original debit (cost) of putting on the trade plus commission. This occurs when the underlying price is so far away from the strike price of the Calendar spread that the long back month has $0 extrinsic value.

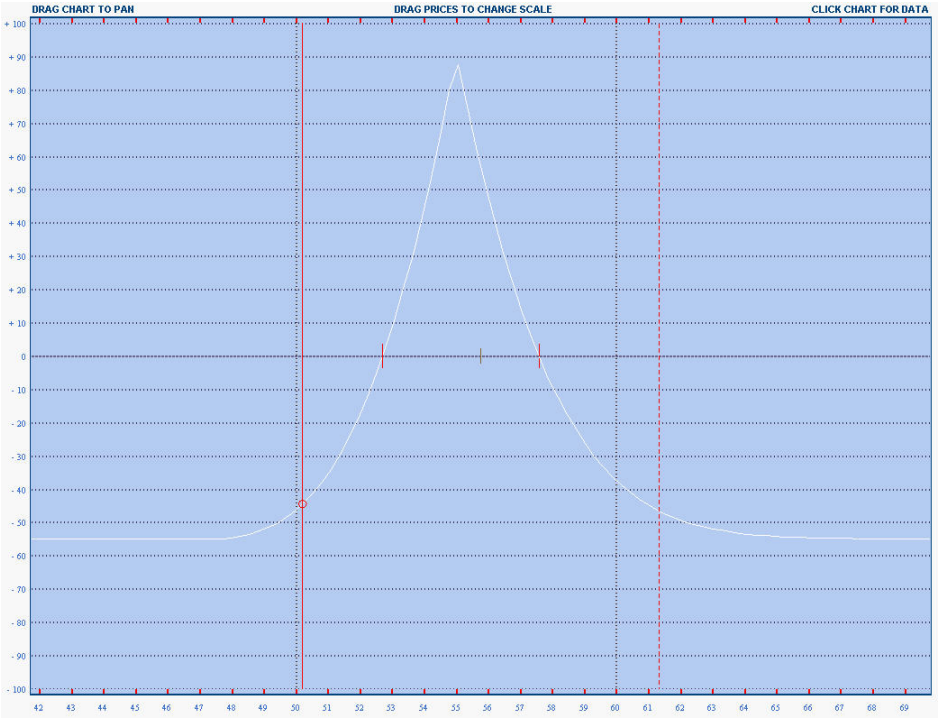
Break-even points: The break-even points of a Calendar spread are the points above and below the Calendar spread's strike price that the underlying can close at the expiration of the near term option where far term option's time value is equal to the amount paid for the spread, not counting commissions. This is hard to quantify as volatilities can and do change and usually an estimate is made based on implied volatility.

Capital Requirement: The capital requirement for a long Calendar spread is simply the net dollar value of the long option premium less the short option premium plus commissions, that is, the debit of the Calendar spread plus commissions.

Candidates: This strategy can be used on a broad range of stocks and indices. The best candidates allow you to buy the long back month option for a lower implied volatility than the short front month option.

Execution: It is best to execute calendars spreads as one trade. The higher the deltas of the individual legs of the Calendar spread are, the greater the likelihood of one side will "get away" from you before you have the entire position established is very high. The result is a very poor execution price for the Calendar spread.

The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows risk profile of the Calendar spread at expiration.



Long Calendar Spread Entrance Criteria:

1. The Calendar spreads that have the best probability of making money are those with at least one roll embedded in them (that is, with a month in between the expiration months of the short and long options) and whose back month options have an implied volatility that is the same, lower, or not much higher than the front month options. The lower the back month volatility is relative to the front month, the cheaper the Calendar spread.

2. The combined open interest of front month options should be at least twenty times the number of Calendar spreads you want to do.

3. Select the expiration month of the near term short option that gives you between 3 and 7 weeks from expiration.

4. The expiration month for the far term long options will usually be the next available month after the expiration month of the near term options as dictated by its expiration cycle. Some traders when using Calendar spreads on indices, as an example, prefer to skip a month or two between the long and short options to give themselves roll opportunities, (i.e. Sep/Nov or Sep/Dec). Having roll opportunities are beneficial when one feels the underlying price will stay near the selected strike for a longer period of time and when the options one to two strikes away from the one selected have a decent amount of time value in them. Otherwise one might be better off going month to month employing Calendar spreads that have no roll opportunities. The advantage is the strike price selected can change from month to month.

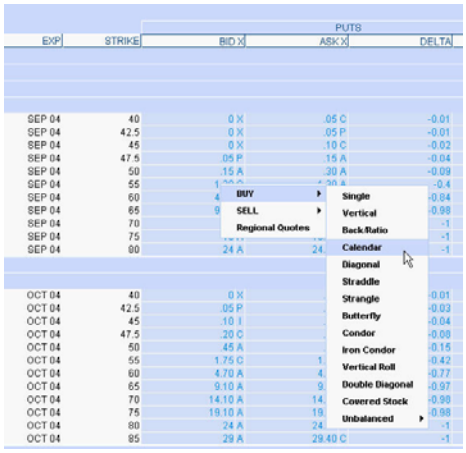
In our example we have selected the month of September for our near term short option as it has approximately 5 weeks until expiration. The next available month for AMGN is October which will be the month we will use for the far term long options.

5. Pick the strike price of the Calendar spread by selecting the strike that is nearest to where you believe the stock will close at the expiration of the near term short options.

6. Choose puts if the strike you selected is below the current stock price and pick calls if the strike you selected is above the current stock price.

7. In the case where you are evaluating a Calendar spread with roll opportunities, check the value of the rolls (one-month Calendar spreads) for the strike of the Calendar spread, and for the two strikes above and below the strike of the Calendar. This will indicate how much credit you might receive when you roll the short front month option forward if the underlying price stays where it is or moves up or down by a couple strikes. If the estimated value of the rolls embedded in the Calendar spread is close to or greater than the debit of the Calendar spread, you have a good candidate. That will give you a chance to recoup the cost of the Calendar spread through its rolls.

8. To execute the time spread as a package, go to the thinkorswim "TRADE" window, right click on the option's strike price bid or ask price and select "BUY" then "Calendar."

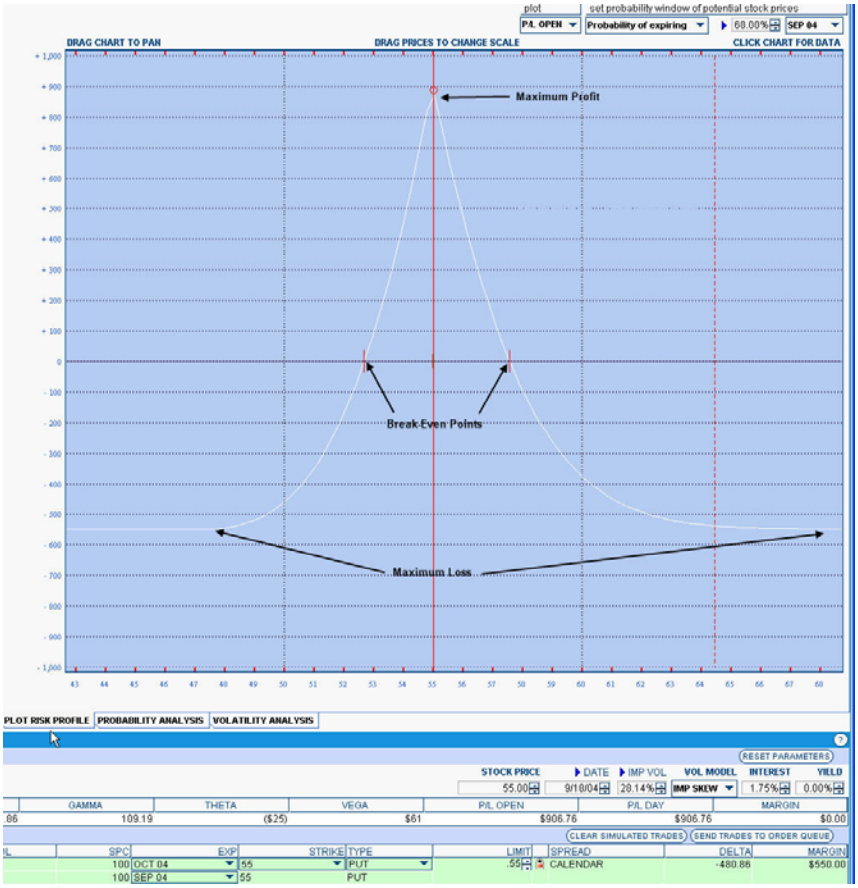


9. The trade will now be placed in the order entry screen. Notice the software has calculated adjusted mid price of the Calendar Spread in the "PRICE" column. This is the best price one could hope to fill on the trade. This is one of the few trades where you have some probability of filling at the adjusted mid price. Pit traders are sometimes willing to trade Calendar spreads for a very small edge to collect the extra time value in the far term long options. If you don't fill at the adjusted mid price of spread within a reasonable period of time, resubmit the trade at a nickel or dime above the adjusted mid price.

10. To determine the profit potential of the selected Calendar Spread, select the “Analyze” button at the bottom left corner of the “ORDER ENTRY” section of the software.

11. Select the “PLOT RISK PROFILE” tab and make the following settings:

    a. In the upper right hand corner of the screen set the expiration month to that of the near term short option (SEP).
    b. In the bottom left portion of the screen, set the stock price to the selected strike price of the Calendar spread (55).



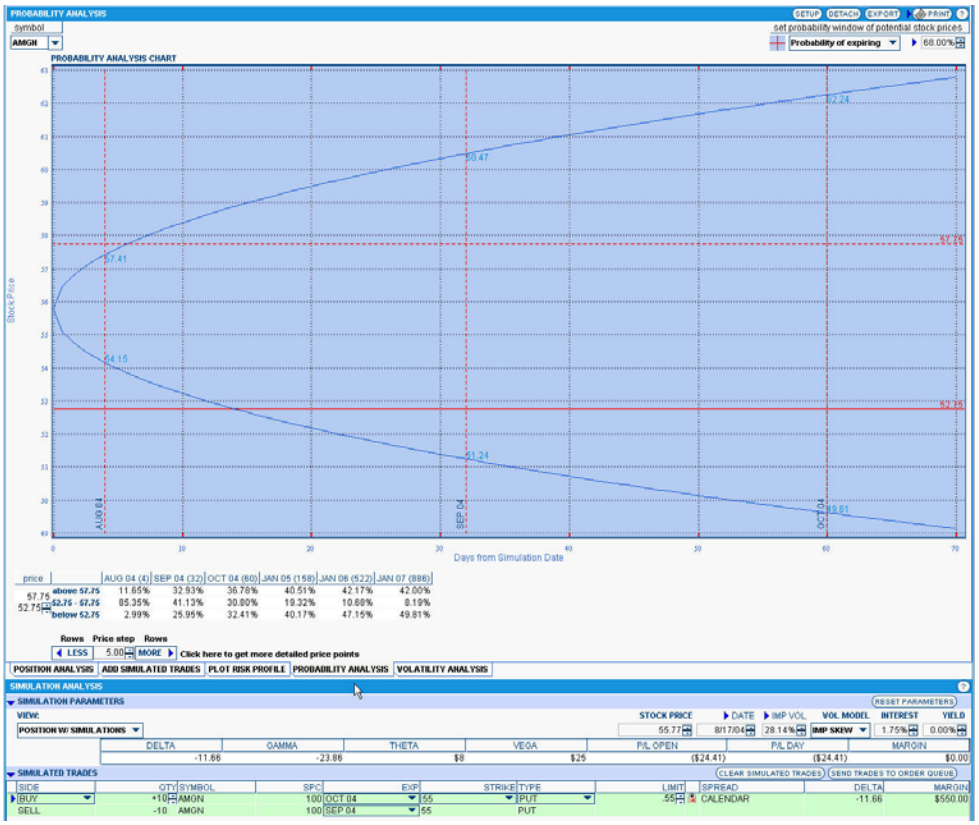
From the resulting graph you will be able to determine the following:

    a. The estimated maximum profit that can be realized on the spread should the stock close at the strike price selected at expiration. We see the maximum profit to be about $.85 or $85 per spread and $850 for ten spreads.

    b. The estimated break-even points or profit window on the trade at expiration. In our example the break-even points are 52.75 and 57.75 giving us a $5 wide profit window.

    c. The estimated price where one would suffer the maximum loss.

12. To determine the trade's probability of success select the "Probability Analysis" tab on the ANALYZER page of the software and adjust the following:



a. Type in the upside (57.75) or downside (52.25) break even price and set the "Price Step" to the distance between the upside and downside break-evens (5).

b. Make sure the date is set to the current date.

c. Looking at the row that indicates the break-even point go to the column that represents the near term option expiration (September) to get the probability of the underlying closing between the break-even points. This will give you the probability of success on the trade. In our example the probability of the success by the September expiration is shown to be 41.13%.

13. If you are comfortable with the trade and would like to place the order, left click the "SEND TRADES TO ORDER QUEUE" button at the bottom of the ANALYZE page and submit the order.

14. Use the following dialogue to place the trade over the telephone:
"Buy to open the AMGN 55 Sep.-Oct. put Calendar Spread for a $O.55 debit, ten times. That is, buy ten AMGN October 55 puts and sell ten AMGN September 55 calls for a $0.55 debit."

Exit Criteria for Calendar Spreads

The following are some considerations for closing out Calendar spreads when the long option's expiration month is the very next month beyond the short option's expiration.

A. Close the position should the value of the spread reaches your loss exit point. A realistic loss exit point is about 50% of the amount paid. For example, if you paid $0.55 for the spread you might consider closing the trade when it could be sold for $0.30 and suffer a $0.25 loss.

B. Close the trade if the value of the spread reaches a realistic profit point. A realistic profit point for a Calendar spread is about twice the amount you are willing to lose. Therefore, in our example, if we are willing to lose $0.25, you should sell the trade if a profit of $0.50 above what you paid can be realized which would be $1.05 in this example.

C. Should news come out that you believe could cause the stock to move the stock outside the break-even points, immediately close the trade.

D. Calendar spreads are worth the most when they are at the money at expiration of the near-term option. The closer to expiration and nearer the stock is to the strike price the greater the profit. So, you should start to look to close the trade as you get into the last week to 10 days before expiration. That will let you avoid having a winning trade turn into a loser with a large move in the underlying close to expiration.

E. If you have not reached your profit or loss exit point by the expiration of the near-month option, close the position. If you don't you will be left with a naked long option that is subject to major price changes due to the underlying's price movement.

The following are some considerations for closing out Calendar spreads with roll opportunities, that is, there are one or more expiration months between the short and the long option's expiration.

A. The key for managing Calendar spreads with roll opportunities is getting as much credit as possible from the rolls. For example, if the front month expiration is September and the back month is November, you will look to buy back the short September options when the premium has decayed and sell the October (the roll) thus increasing the amount of premium received that reduces the risk of the trade.

The way to maximize that amount received from the rolls is to hold on to the short options as long as possible so they will decay as much as possible. But the longer you hold on to your long Calendar spread, the more volatile it can become as you become short more gamma. That's why it makes sense to begin looking to buy the short front-month options back and sell out the same strike options in the next month starting at about 10 days before expiration. Between 10 days away and 4 days away, you should look into rolling the options, unless there is more pressing need to do so earlier.

One exception to this would be if the expiration month you want to roll the options to spikes in implied volatility, it could make sense to do the roll at that time. When the options you want to sell have a higher implied volatility than the options you need to buy, you will receive more credit than you ordinarily would.

B. Once you have rolled to the last month always close the position on or before expiration of the short option. If you don't you will be left with a naked long option that is subject to major price changes due to the underlying's price movement and time decay.

The following considerations should be made if the short option goes in-the-money.

A. Should the time spread go ITM and there is little or no time value left in the near term option you should close the position before you are assigned early. If the short option is trading for more than the difference between the underlying price and the strike price, it still has time value left in it. If there is little or no extrinsic value it is best to close the trade before you are assigned early. Even though early assignment will not create any more risk in the trade (you will be left with a synthetic long call or put), you will usually net more dollars by closing out the position before it happens. If you have a put Calendar spread and your short near term put is early exercised, you will be assigned the stock. Your resulting position would be long stock (that you were assigned) and a long put (the remaining leg of your Calendar spread), which is a synthetic long call. If you have a call Calendar spread and your short near-term call is exercised you are assigned a short stock position. Your resulting position will be short stock and a long call. This is a long synthetic put. If early assignment should happen and you are left in one of these positions, don't panic. Use the following steps:

B. **If you have a call time spread and your short call is early exercised** you will be left with short stock and long call (synthetic put). There are three choices that can be made when in this position which are covered below. If you do not have enough money to cover the margin requirement of the short stock your broker will typically use step "a" or "b" below to close out the position.

1. Exercise the long calls. If there is not enough time value in the long calls to more than cover the commission cost for selling them then simply exercise them. Exercising your right to buy the stock will cover the short stock position by buying back the stock at the same price you were assigned the short stock. Your loss on the trade will be equal to what you paid for the time spread plus commissions.

2. Buy the stock to cover the short sale and sell the long calls. This step should be taken to take advantage of any remaining time value in the calls. Say the stock was at 33 and the 30 calls were trading at $3.50, by buying the stock at 33 and selling the 30 calls for $3.50 you cover your short position and collect fifty cents more per share than you would have by merely exercising the calls.

3. Keep the short stock position with the long call as a hedge. Deposit money to cover the margin requirements of the short stock position and keep the long call as a hedge. If you have enough money in your account to satisfy the margin requirements this will automatically happen. If this does happen and you do not want the short stock position simply follow step "1" or "2" above to close out the position. The only reason to keep this position is if you believe the stock is going down as you will benefit from the short stock position. Regardless, you are never at any more risk than the original cost of the Calendar spread so long as you own the long call which insures that you can buy the stock back at same price you went short. The position should be closed by buying back the stock and selling the call (provided it has any value) prior to the expiration of the long calls. If you wish to be short the stock beyond the term of the long call another call should be purchased for a longer term. Most traders do not keep this position but choose "1" or "2" above and close out the position.

C. **If you have a put time spread and your short put is early** exercised you will be left with long stock and long put (synthetic call). You have three choices neither one can result in more than a loss greater than the cost of the trade. You must make one of the following choices the day after expiration. Otherwise your broker will make the decision for you. If you do not have enough money to cover the margin requirement for the long stock your broker will typically use step "1" or "2" below to close out the position.

1. Exercise the long puts. If there is not enough time value in the long puts to more than cover the commission cost for selling them then simply exercise them. Exercising your right to sell the stock will cover close your long stock position by selling the stock at the same price you were assigned it. Your loss on the trade will be equal to what you paid for the time spread plus commissions.

2. Sell the stock and then sell the long puts. This step should be taken to take advantage of any remaining time value in the puts. Say the stock was at 27 and the 30 puts were trading at $3.50, by selling the stock at 27 and selling the 30 puts for $3.50 you close out the stock position and collect an extra fifty cents more per share than you would have by merely exercising the calls.

3. Deposit enough money to cover the margin requirements of the long stock position and keep the long put as a hedge. If you have enough money in your account to satisfy the margin requirements this will automatically happen. If this does happen and you do not want the short stock position, simply follow step “1” or “2” above to close out the position. The only reason to keep this position is if you believe the stock is going up as you will benefit from the long stock position. Regardless, you are never at any more risk than the original cost of the Calendar spread so long as you own the long puts which insures that you can sell the stock at same price you paid for it. The position should be closed by selling the stock and selling the put (provided it has any value) prior to the expiration of the long puts. If you wish to keep the stock beyond the expiration of the long puts another put should be purchased for a longer term in accordance with the criteria taught in the chapter on “Hedging Your Portfolio.” Most traders do not keep this position but choose “1” or “2” above and close out the position.

Long Double Diagonals and Straddle-Strangle Swaps

Strategy Description: Market-neutral, defined-risk position that profits from positive time decay (theta) as well as collecting credits from rolling short options forward (buy back the short front-month option before their expiration and sell the same strike calls and puts in a further expiration).

Position Structure: A Double Diagonal is the sale of a front-month (near term) strangle and the purchase of a back-month (farther term) strangle with strikes wider than the front-month strangle. For example, Short Oct 85 put and short Oct 90 call and, long Dec 80 put and long Dec 95 call.

A Straddle-Strangle Swap is the sale of front-month straddle and the purchase of a back-month Strangle. For example, Short Oct 85 put and short Oct 85 call and, long Dec 80 put and long Dec 90 call.

The structure above is the net resulting position. In reality Double Diagonals and Straddle-Strangle Swaps are embedded strategies composed of call calendar and put calendar spreads, plus a short vertical call spread and a short vertical put spread in the back month. The only difference between Double Diagonals and Straddle-Strangle Swaps is that the calendar spreads of the Straddle-Strangle Swaps are at the same strike, and for Double Diagonals they are at different strikes. See the example below

Long Calendar Spreads:	Short Oct. 85 puts ~~Long Dec. 85 puts~~	Short Oct. 90 calls ~~Long Dec. 90 calls~~	(Short Strangle)
Short Vertical Spreads:	~~Short Dec. 85 puts~~ Long Dec. 80 puts	~~Short Dec. 90 calls~~ Long Dec. 90 calls	(Long Strangle)

Maximum Profit: The value of a Double Diagonal or a Straddle-Strangle Swap is the greatest when the underlying price is at a short strike at expiration and after you have rolled the short front month options forward for credits. That way, the calendar spread embedded in the position will maximize its value, and the short verticals in the back month will have dropped in value. Because of the calendar spreads embedded in the Double Diagonal and Straddle-Strangle Swaps, you can't quantify their maximum profit specifically because you can't be certain what the implied volatility of the back-month options will be at the front-month expiration. But like a calendar spread, you can estimate it by using current implied volatilities to value the back-month option at the front-month expiration. You can also estimate the amount of credit you can get for rolling the short front-month options.

Maximum Loss: The dollar value of the difference between the strikes of the short front-month call and long back-month call, or short front-month put and long back-month put, whichever is greater, plus any debit paid or minus any credit received when buying the Double Diagonal or Straddle-Strangle Swap, plus commissions. Maximum loss occurs if the underlying settles either lower than the strike price of the long back-month put or higher than the strike of the long back-month call.

Break-even points: The break-even points are very hard to quantify because Double Diagonals and Straddle-Strangle Swaps have at least one opportunity to roll the front-month options to the back month. However, the break-even points are between the strike-prices of the back-month long call and long put, minus any credit received or plus any debit paid for the initial trade.

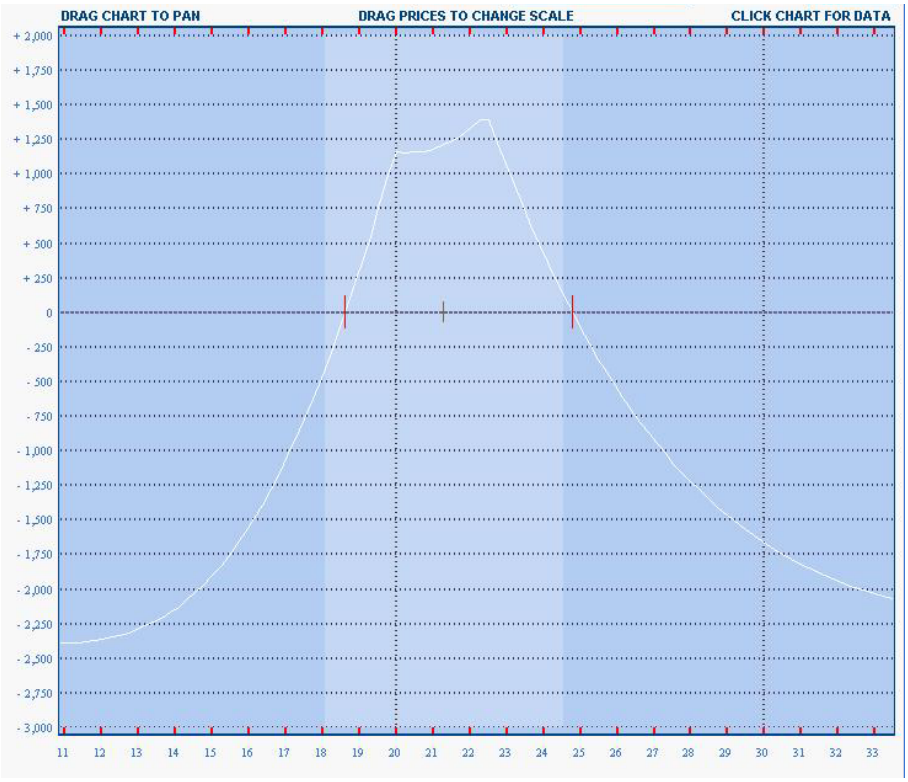
Capital Requirement: The amount of buying power necessary to trade a Double Diagonal or Straddle-Strangle Swap is the amount of the maximum loss on the entire position. The requirement is NOT the risk of both the embedded short call vertical and short put vertical. That is because, like for an Iron Condor, only one of the verticals can be a loser. For example, sell Oct

85 put, sell Oct 90 call, buy Dec 80 put and buy Dec 95 call for $.10 debit requires you to have $510 buying power in your account per spread.

Candidates: Double Diagonals and Straddle-Strangle Swaps are best used on range bound stocks or indices with 1.00 or 2.5 point increments between strikes in order to keep the capital requirements lower. You should also find stocks whose roll values are pretty consistent between the at-the-money roll and a couple strikes up and down.

Execution: It is best to execute Double Diagonals and Straddle-Strangle Swaps as one trade. Attempting to leg into the position via four individual calls and puts or via a straddle and strangle can expose you to significant execution risk. The likelihood of one side "getting away" from you before you have the entire position established is very high. The result can be a very poor price for the trade, resulting in sub-par profit potential and increased overall risk.

The following graph taken from the *Analyze Page – Plot Risk Profile* tab of the thinkorswim trading software shows risk profile of the Long Double Diagonal expiration.



Double Diagonal and Straddle-Strangle Swap Entrance Criteria

1. You should begin your search for Double Diagonals and Straddle-Strangle Swaps in stocks and indices that have a tendency to settle at the same price from one expiration cycle to the next and that have relatively small increments between strikes, say 1.00 or 2.50 points. The reason is that the capital requirements are based on the difference between the strikes. So, lower priced stocks and index products such as QQQ and MNX are candidates. You should also look for stocks and indices that have expiration months that would allow you to have at least two rolls. For example, if the front month expiration is September, you would look for a back month of at least November. The more potential rolls you have, the more credit you can take in to reduce the risk of the position.

2. Double Diagonals and Straddle-Strangle Swaps can be executed for debits or credits. You typically don't want to pay more than a .20 debit for a Double Diagonal with 2.5 points between the strikes. The debit or credit of the trade depends on the amount of time between the expiration months of the short and long options, and the difference between the implied volatilities of the two months. The greater the time between the long and short options, the more expensive the Double Diagonal, but the greater the time, the more credits you can receive for rolling the short front-month options. Also, if the options you are buying have a lower implied volatility than the ones you are selling, they will make the Double Diagonals less expensive. But just because the back month implied volatility is the same or higher than the front month implied volatility doesn't mean you shouldn't do a Double Diagonal. If the lower front month implied volatility reflects lack of short-term movement in the stock, it can ultimately make the Double Diagonal profitable. The less the stock moves, the more credit you can collect when you roll the short front-month options forward. Ultimately, after all the rolls, the Double Diagonal will turn into an Iron Condor in the back month, and a Straddle-Strangle Swap will turn into an Iron Butterfly in the back month. The greater the credits collected from the rolls, the lower the risk and the higher the potential reward of those iron condors and butterflies.

3. The combined open interest in all the options of the expiration month you're looking at should be 20 times your trading quantity. That will let you get a good execution price in both opening and closing the position.

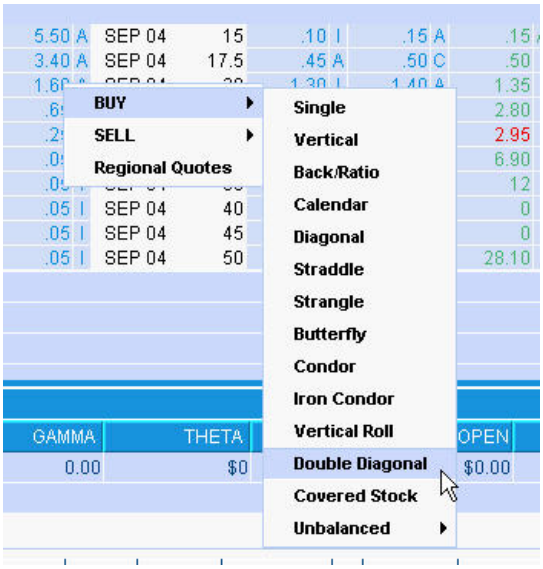
4. Check the news for any upcoming events to make sure there aren't any reports or earning announcements that could increase the short-term volatility of the stock or index. Double Diagonals and Straddle-Strangle Swaps are long Vega, so an overall increase in implied volatilities benefits the position. But front month implied volatility rising faster or more than the implied volatility of the back month can hurt the position.

5. Pick the expiration month for your front-month short options that have between 3 and 6 weeks to expiration. You can use the next further month available in the expiration cycle for the back-month long options, but if you can get another month in between you will have an extra roll. Do not go more than two months between expiration months.

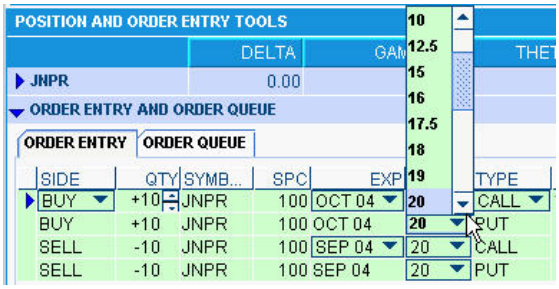
6. Check the potential value of the rolls if the stock moves up or down. The rolls are simply selling calendar spreads (buy front month option, sell back month option). What you're looking for is the credit you might receive when you want to buy the front-month short options back and short the next expiration month options at the same strike prices. Look at the one-month calendar spreads at the strikes you are shorting. Then look at the one-month calendar spreads at one and two-strike intervals away from the at-the-money. For example, if you are selling the 22.5 straddle, look at the 20 and 25 calendar spreads to see how much different they are from the 22.5 calendar spread. The greater the difference between the calendars at different strikes, the harder it will be to collect premium if the stock moves to those strikes. The way you use this information is that if

the stock price is $22.5, the 22.5 calendar spread will have a value close to the 25 calendar spread if the stock drops to $20.

7. From the thinkorswim "TRADE" window, enter in the symbol and hit "ENTER" on the keyboard. Then choose the month and click on the blue arrow to view the options. Right click on the bid or ask price of a call or put near the anticipated trading range and select "BUY" then "Double Diagonal." (The menu does not list Straddle-Strangle Swap because it is a Double Diagonal where the short call and put share the same strike.)



8. The individual strike prices and expiration months that make up the Double Diagonal can now be selected in the "ORDER ENTRY" section of trading platform. Adjust the strike prices of the puts and the calls by left clicking the down arrow in the "STRIKE" section of the software.



9. Select the near term strikes that make up the Straddle or Strangle that you determined to sell in Step 6 above. Then select the far term long (BUY) options by selecting the next strike call above the near term short (SELL) call and the next strike put below the near term short (SELL) put.

Note: In cases where the underlying has $1 strike increments evaluate the trade using the long options that are an additional $1 to $2 further out-of-the-money.

In our JNPR example, we are short (SELL) the September 20-22.50 Strangle and long (BUY) the October 17.50-25 wider Strangle.

10. Determine your bid price for the trade by giving up (slippage) from the adjusted mid price shown by the software as it is highly unlikely to fill at the mid price. Usually you will have to give up ten to fifteen cents. Left click on the up or down arrows in the “PRICE” column of the Order Entry screen to make the adjustment.

    In our example the software is showing us that the mid price of this trade is a $.60 credit. However, it is unlikely we can fill at this price and will have to give up (slippage) about $.10 to have a decent chance to fill on this trade. That means, we will adjust the price and place our order at a $.50 credit.

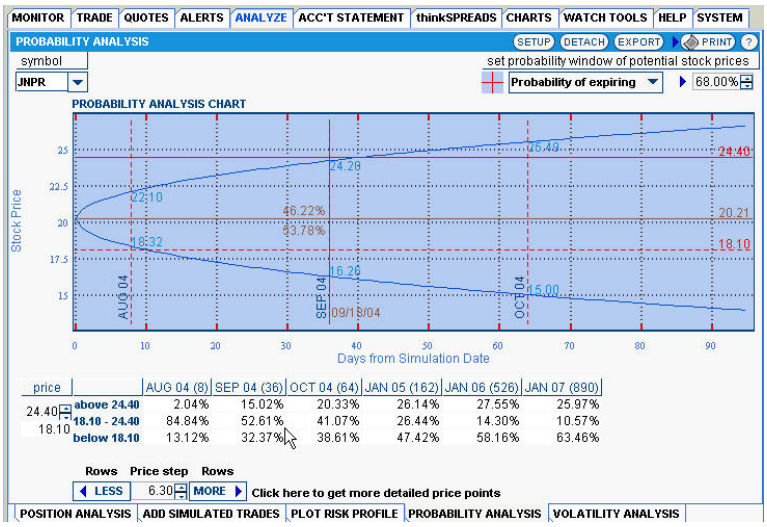
11. The reduction in your accounts buying power to do this trade is equal to the maximum potential loss which is equal to the distance between the strike prices of the two calls or the two puts strike price used in the trade, whichever one is the greatest, less any credit or plus any debit. If you are using any other broker, check with them as they could require more of your buying power to do this trade.

    In our example the maximum potential loss and the thinkorswim reduction in buying power will be $2.00 (or $200 per spread). This was calculated by taking the distance between the widest spread, which in this case is $2.50 (the same for the 22.50 - 25 calls or the 17.50-20 puts), less the .50 credit we will receive for placing the trade.

12. To place this trade you want the probability of success to be at least 45%. You can determine the probability of success by selecting the “Analyze” button (below the “Order Entry” section), then do the following:

    a. Click on the “Probability Analysis” tab.
    b. Type in the upside or downside break-even point in the “price” section calculated in step 6.
    c. Type in the distance between the break even points (6.30) in the “Price step” box.
    d. You will note that the middle row now shows the break-even points (18.10 and 24.40)

    You will note in our JNPR example, that the probability of the stock staying between the break even points by September expiration is 52.6%.



13. Once you are done analyzing the trade and you decide to do it, you can click the "SEND TRADES TO ORDER QUEUE" where it will be ready for order placement.

14. The combined open interest of all the options used in the Double Diagonal must be at least twenty times the number you would like to do. If not, do the trade smaller.

15. The following dialogue should be used if you wish to place the order by telephone:

    "Buy to open the JNPR October 17.50-25 Strangle and Sell the September 20-22.50 Strangle for a $.55 credit, ten times."

Exit Criteria for Double Diagonal and Straddle-Strangle Swaps

1. The key for managing Double Diagonals and Straddle-Strangle Swaps is getting as much credit as possible from the rolls. The way to maximize that amount is to hold on to the short options as long as possible to let them decay as much as possible. But the longer you hold on to them, the more short you become in Gamma and the more sensitive they are to changes in the underlying price. That's why it makes sense to look to buy the short front-month options back and sell out the same strike options in the next month starting at about 10 days before expiration. Between 10 days away and 4 days away, you should look to roll the options unless there is more pressing need to do so earlier. Some exceptions to this are as follows:

    a. If the expiration month you want to roll the options to spikes in implied volatility, it could make sense to do the roll at that time. When the options you want to sell have a higher implied volatility than the options you need to buy, you will receive more credit than you ordinarily would.

    b. If news is coming out such as an earnings announcement or economic or political news that could dramatically increase the overall market or the underlying's volatility it is usually wise to close the trade.

    c. When trading stocks or tracking indices that settle in stock or trust certificates and one of the short options goes significantly in-the-money, with little time value remaining in the short option, it's best to close it out to avoid early exercise risk.

Glossary of Option Terms

An option is a contract that gives the holder the right to buy (a **call**) or sell (a **put**) a particular stock or index (the **underlying**), at a predetermined price (the **strike price**), on or before a particular date (the **expiration date**). For every option (call or put) buyer, there is an option seller. The buyer of an option is referred to as the option **holder**. The seller of an option is referred to as the option **writer**.

Calls
If you are a buyer (holder) of a call option, you pay a premium for the right, but not the obligation, to buy a particular stock at the strike price prior to expiration. You may also choose to sell the option purchased at any time prior to expiration. The most you can lose on a long call is the premium you paid for it, plus commission. Typically the call buyer wants the stock to go up.

If you are the seller (writer) of a call option, you collect the premium and are obligated, if called upon prior to expiration, to sell a particular stock at the strike price. This is likely to happen if the stock price is higher than the strike price (in the money) at expiration. Because there is no limit to how high a stock can go, the risk of selling a call is unlimited as you would have to buy the stock at the current price and sell it at a price equal to the strike price. If the stock is below the call strike price (out of the money) at expiration, the call will expire worthless and you will keep the premium you originally received for selling the call. Typically, the call seller wants the stock to go down.

Puts
If you are the buyer (holder) of a put option, you pay a premium for the right, but not the obligation, to sell a particular stock at the strike price prior to expiration. You may choose to sell the option prior to expiration. The most you can lose on a long put is what you paid for it, plus commission. Typically, the put buyer wants the stock to go down. The put seller is hoping the stock stays above the strike price of the put, so you never exercise your right to sell the stock and the put eventually expires worthless. In such a case, the put seller will keep the entire premium received.

If you are the seller (writer) of a put option, you collect the premium and are obligated, if called upon prior to expiration, to buy a particular stock at the strike price. This is likely to happen if the stock price is lower than the strike price (in the money) at expiration. The maximum loss on a short put is the difference between the strike price and zero, less the premium you received for selling the put, plus commissions. If the stock stays above the strike price (out of the money) , the put will probably expire worthless and you will keep the entire premium received. The put seller wants the stock to stay above the strike price sold.

Contract Multiplier
With equity options, one call is the right to buy 100 shares and one put is the right to sell 100 shares of the underlying stock.

Spread
A position or order involving two or more different options or stocks and options.

Option Strike Price
The strike price is the price at which the option gives someone the right to buy (a call) or sell (a put) the underlying stock or index.

Strike Price Increments
This is the difference between one strike price and the next on higher or lower. The purpose of having increments is to increase liquidity. For example, not having a 41, 42, 43, or 44 strike price creates more liquidity for the 40 and the 50 strike prices. The common strike price increments on stock and index options are as follows:

$1.00	i.e., 99, 100, 101, etc. are offered on some very liquid stock and indices (QQQ, DIA, DJX).
$2.50	i.e., 20-22.250, 25, etc. are typically offered on some indices and most stocks trading from zero to $25 and up to $50 with some high volume stocks.
$5.00	i.e., 50, 55, 60, etc. are usually the lowest strike price increment available on stock above 50 and on some trading above 25.
$10.00	i.e., 200, 210, 220 are typically the minimum strike price increment on stocks trading above 200.
$25.00	i.e., 1,025, 1050, 1075, etc. are sometimes the smallest strike price increment available on stocks or indices trading above 1,000.

Option Expiration Date
The expiration date is the date on which an option expires. Once an option expires, it cannot be exercised. In U.S. securities, options on equities (stocks) officially expire on the Saturday following the 3rd Friday of the month. However, since no one can trade on Saturday, options effectively expire at 4:02 pm Eastern Standard Time on the 3rd Friday of the month. Options on many indices expire at different times than equity options.

American Style Expiration
American style expiration allows an option to be exercised at any time prior to expiration. All U.S. equity (stock) options and some indices such as the QQQ, DIA, OEX, SMH, ONEQ, and the SMH, use the American style expiration.

European Style Expiration
European style expiration does not allow an option to be early exercised. It can only be exercised on the day of expiration. Many of the U.S. indices such as the DJX, MNX, NDX, XEO and the SPX use the European style expiration. European style expiration eliminates early exercise risk.

Cash Settlement Vs Stock or Trust Certificate Settlement
The exercise settlement for options on U.S. stocks or trailing indices such as the QQQ, ONEQ, DIA and SMH is in stock or trust certificates. The exercise settlement on many indices such as the DJX, MNX, OEX, XEO, NDX and SPX is in cash.

Pin Risk
The risk of the stock or index moving in price before one has the opportunity to liquidate the position after being assigned stock or short stock at expiration. Trading cash settled indices this risk, because at expiration the cash value of the option at expiration is immediately placed in the customers account.

Expiration Cycles
Each stock is assigned on of three expiration cycles with four different designated months within a year that options are available for trading. To help create liquidity, the options that are available for trading at any one time on a stock include the current month, the next month (front two months) plus every month in the stocks expiration cycle as shown in the table below.

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Cycle 1	1			1			1			1		
Cycle 2		2			2			2			2	
Cycle 3			3			3			3			3

Open Interest
Open interest is the number of outstanding option contracts of a particular strike price and expiration date that have been bought or sold to open a position. An opening transaction

increases open interest and a closing transaction decreases it. Open interest is calculated at the end of each business day.

Option Volume
Option volume is the number of option contracts that have traded within a day.

Transaction Settlement
Option transaction must be settled (paid for) within one business day.

Option Premium (Price)
The premium is the price that the buyer/holder of an option pays, and the seller/writer of an option receives, for the rights conveyed by the option. Premium is the price negotiated between the buyer (holder) and the seller (writer) in an option market where the option is traded. The premium does not constitute a down payment or a credit towards the purchase of a stock. It is an entirely nonrefundable payment in full from the option holder (buyer) to the option writer (seller) for the rights conveyed by the option. The premium is always quoted on a per-share basis. If the November 90 calls are trading for $5, this means $5 per share. Since one call covers one hundred shares, one call option would cost $500 ($5 x 100).

Premium Price Increments
Options trading under $3 trade in $0.05 increments. Options trading over $3 trade in $0.10 increments. For example, you cannot typically pay $0.47 for an option since it does not trade in penny increments. You will have to pay either $0.45 or $0.50.

Understanding Option Premium
Option premium is made up of two types of value, intrinsic (real) value and extrinsic (time) value.

Premium = Intrinsic Value + Time (Extrinsic) Value

Intrinsic Value = Premium - Time Value

Intrinsic Value
It is the value of the option less any time value. It is as if the option had expired and all time value was gone. The intrinsic value will always be the same regardless of how much or little time remains until the expiration of an option.

The intrinsic value of a call option is equal to the price of the stock less the strike price of the option. For example, the intrinsic value of the 30 call when the stock is trading at 33 is $3. The 30 call would be referred to as being $3 in the money (the “money” refers to the stock price). If the stock was trading at 28, the intrinsic value of the 30 call would be zero (an option cannot have negative value it either has value or is worthless) and the call would be referred to as being $2 out of the money.

The intrinsic value of a put option is equal the strike price less the stock price. For example the intrinsic value of the 30 put when the stock is trading at 28 is $2. The 30 put would be referred to as being $2 in the money. The intrinsic value of the 30 put when the stock is trading at 33 is zero. The 30 put in this case would be referred to as being $3 out of the money.

Time (Extrinsic) Value

The time value is that portion of the option premium over and above its intrinsic value. Time value can be determined by subtracting the intrinsic value of an option from the premium.

Time Value = Option Premium – Intrinsic Value

If an option has no intrinsic value any premium it is trading for is time value. At expiration there is no time value left in an option.

Time value usually diminishes as an option goes further ITM or OTM (at roughly the same amount) or as it moves closer to expiration and eventually it will be reduced to nothing. An option that still has time value left prior to expiration will rarely be exercised, as the holder of the option can realize more by simply selling the option. However, if an option has intrinsic value (ITM) and there is little or no time value remaining, there is a high likelihood it could be exercised. Such an option is now trading at "parity." At expiration, all time value goes away and only intrinsic value remains.

Parity
An option is trading at parity with its stock if it is in the money and has no time value. It will move approximately one point for every one point movement in the price of the underlying stock.

Factors that Influence Time Value
Some of the factors which affect the pricing of an option include:

- The relationship between the value of the stock and the option's strike price
- The stock's volatility
- The time remaining until expiration
- The supply and demand for the options as the underlying stock
- Current interest rates
- Dividends

Time Decay
The time value of an option decreases as the option approaches expiration. This decrease accelerates in a nonlinear fashion, the closer the option gets to expiration. This process is referred to as "time decay."

Time decay benefits the seller of options. For example, because of time decay, the seller of a call option may be able to buy back the call option at a lower price than he originally sold it for, even if the stock does not drop in value. Another example would be if the option is out of the money at expiration it will expire worthless and the option seller will keep the entire premium originally received by selling the option, less commission.

Time decay does not help the option buyer. Even if the stock doesn't move, the option will decrease in value every day due to time decay. The option buyer is hoping the stock moves up quickly so he can retain as much time value as possible.

ATM Options have the most time value
At any given time prior to expiration, an option whose strike price is at the money (ATM) will have more time value than the other strike prices because there is more uncertainty as to its closing in the money or out of the money at expiration. This uncertainty diminishes and therefore, so does the time value, as the option moves more in or out of the money. An option that is already in or out of the money has a greater probability of remaining so. The time value will be approximately the same for options' equal distance ITM and OTM because they have relatively the same amount of uncertainty.

Volatility
Volatility is an estimate of the range of price movement amount of a stock over a given period of time. Generally speaking, stocks that fluctuate over a wide price range have more volatility. Typically, with all other factors being equal, an option's time value will be higher on a stock with greater volatility.

Historical Volatility
Historical volatility is a statistical measurement of a stock's price movements based on history. Typically, it is calculated by taking the standard deviation of the stock's daily closing price over a given period of time, i.e., the past year, thirty days, ninety days, etc.

Implied volatility
Implied volatility is the volatility derived from looking at the current market price of an option. Option prices don't imply a direction of movement for the stock. They only imply a probable distribution, or volatility. Increased volatility increases the expected time value of an option, but not the expected value of a stock. In general, if the stock is flat, volatility should be low. If the stock is fluctuating greatly, volatility should be high. The higher the volatility, the higher the risk, thus, option sellers will demand more premium.

The "Greeks"
Mathematical equations have been developed to help estimate how much an option premium will change as the underlying stock moves and time approaches expiration. These equations are commonly referred to as the "Greeks" and they include Delta, Gamma, Vega and Theta.

Closing Option Positions

1. Buyers and sellers of option contracts may close out their positions in one of the following ways:

2. Let the option expire if it is out of the money and worthless.

3. Offset the option at any time prior to expiration by doing one of the following:

    a. Buying back those options that were sold when opening the position.

    b. Selling those options that were bought when opening the position.

4. Exercise the option if it is in the money.

5. Automatic exercise. If, at expiration, an option is in the money, that is, has intrinsic value, equal to or greater than seventy five cents per share, then the Options Clearing Corporation (OCC) will automatically exercise that option on behalf of the option buyer

    If a call is automatically exercised, on the next business day after expiration (usually the Monday after expiration Friday) the call holder will now have a long stock position and will be required to pay for the stock, at the strike price of the call purchased, by the close of the business day. Alternatively, the holder could elect to sell the stock to pay for it. Any profit the holder keeps; any deficit the holder will have to make up.

    If a put is automatically exercised, on the next business day after expiration (usually Monday, after expiration Friday) the put holder will now have a short stock position and will be required to deposit the margin requirement for a short stock position by the close of the business day. Alternatively, the holder could buy the stock back to close the short position. Any profit the holder keeps and any deficit the holder will have to make up.

Exercising Options
Buyers of option contracts have the right to exercise their option prior to expiration. Sellers of option contracts are obligated to deliver the stock (call seller) or to accept delivery of the stock (put seller) if called upon (assigned) prior to expiration.

Exercising Calls
When you own or hold a long (buy) call position, you have the right to exercise your option to buy the stock prior to expiration. If you are a seller of a call option, the OCC (Options Clearing

Corporation) may randomly call upon you to deliver the stock. As the recipient of an exercise, you are assigned.

If you have sold the call without owning the underlying stock, you were naked short the call (uncovered) and you will have to buy it at the current price to deliver it. You will lose the difference between what you are forced to pay for the stock and the strike price of the call, less the premium received when you sold the call. If you have sold the call and own (long) the stock (covered), your stock is now gone. This is commonly referred to as having the stock called away. It has been delivered to the call owner who exercised his call.

Exercising Puts

This same process works for puts. If you are long a put you have the right to exercise your option to sell the stock prior to expiration. You tell your broker to exercise the put and he in turn instructs the OCC. The OCC then makes a random selection from its list of sellers of the particular put and informs that person to take delivery of the stock. The next business morning, you will have the money for the stock in your account equivalent to the strike price, times 100 shares per contract. Because you exercised your put, your long put position is eliminated. If you own the stock and choose to exercise your option to sell, you are forcing the seller of the put contract to accept delivery of the stock you own at the agreed-upon strike price.

If you are the seller (short) of a put, you may be called upon to accept delivery of stock at the put strike price per share. As the recipient of an exercise, you are assigned. When you are assigned, you become the owner (long) of the stock. This is commonly referred to as having the stock put to you. You must have all the money in your account the next business day to pay for the stock. If you are short the stock, you become flat when the stock is put to you.