

VOLATILITY TRADING MADE EASY

EFFECTIVE STRATEGIES TO SURVIVE SEVERE MARKET SWINGS



Gavin McMaster



Disclaimer

The information provided in this book is delivered for general informational and education purposes only. None of the information provided in this webinar is to be considered financial advice. Any stocks, options and trading strategies discussed are for educational purposes only and do not constitute a recommendation to buy, sell or hold. Options trading, and particularly options selling, involves a high degree of risk. You should consult your financial advisor before making any financial decisions.

The material in this guide may include information, products or services by third parties. Third Party Materials comprise of the products and opinions expressed by their owners. As such, I do not assume responsibility or liability for any Third Party material or opinions.

No part of this publication shall be reproduced, transmitted, or sold in whole or in part in any form, without the prior written consent of the author. All trademarks and registered trademarks appearing in this guide are the property of their respective owners.

www.optionstradingiq.com

©2013 IQ Financial Services, LLC. All Rights Reserved

Introduction

I'd like to start with a thanks for downloading the report: **Volatility Trading Made Easy - Effective Strategies To Survive Severe Market Swings**.

By grabbing this eBook you've shown a lot of faith in my ability to help you understand a crucial aspect of option trading.

When trading options, one of the hardest concepts for beginner traders to learn is volatility, and specifically how to trade volatility. After receiving numerous emails from people regarding this topic, I wanted to take an in depth look at option volatility.

What Are You Going To Learn?

In this report we will cover the following topics:

1. What Option Volatility Is And Why It's Important – A solid foundation on which to build is extremely important
2. The Difference Between Historical Volatility and Implied Volatility - How you can use this in your trading, including examples
3. How Rising And Falling Volatility Affects The Main Option Strategies – Learn how to use volatility in your trading
4. What Is The VIX – Learn to love the FEAR!
5. History of the VIX – Can you imagine the VIX at 172?
6. VIX Derivatives – Learn why you should never, ever buy and hold VXX.
7. Portfolio Allocation Based on Volatility Levels – Learn how to position your option portfolio for different volatility levels
8. Double Diagonals, The Ultimate Long Vega Income Trade – Step by step instructions on how to trade this difficult strategy

There is an insane amount of information that's covered in this report.

So let's get to it...

Option Trading Volatility Explained

Option volatility is a key concept for option traders and even if you are a beginner, you should try to have at least a basic understanding. Option volatility is reflected by the Greek symbol **Vega** which is defined as the amount that the price of an option changes compared to a 1% change in volatility. In other words, an options Vega is a measure of the impact of changes in the underlying volatility on the option price. All else being equal (no movement in share price, interest rates and no passage of time), option prices will increase if there is an increase in volatility and decrease if there is a decrease in volatility. Therefore, it stands to reason that **buyers of options (those that are long either calls or puts), will benefit from increased volatility** and sellers will benefit from decreased volatility. The same can be said for spreads, debit spreads (trades where you pay to place the trade) will benefit from increased volatility while credit spreads (you receive money after placing the trade) will benefit from decreased volatility.

Here is a theoretical example to demonstrate the idea. Let's look at a stock priced at 50. Consider a 6-month call option with a strike price of 50:

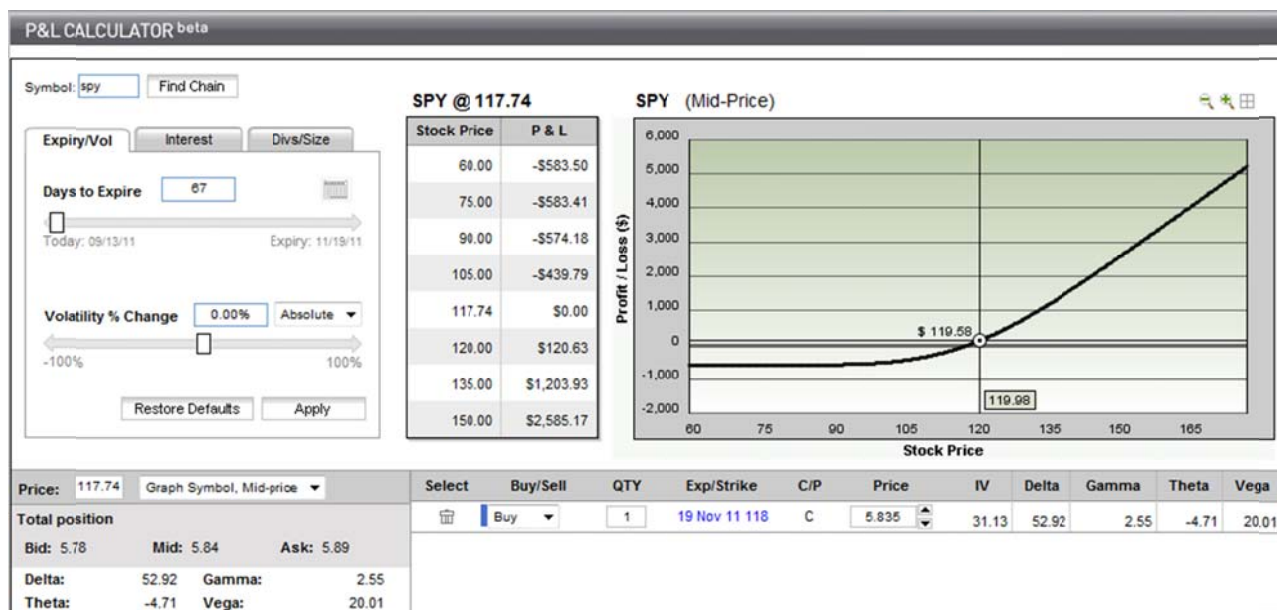
If the implied volatility is 90, the option price is \$12.50

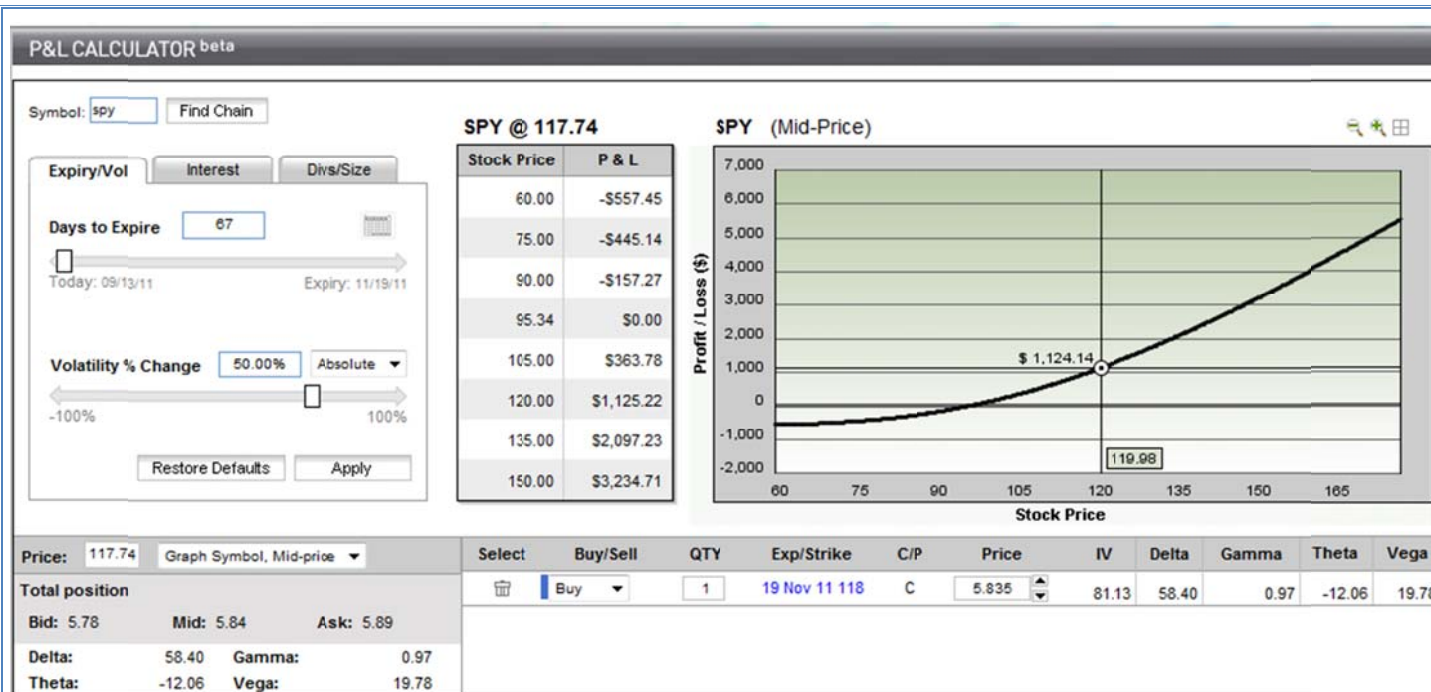
If the implied volatility is 50, the option price is \$7.25

If the implied volatility is 30, the option price is \$4.50

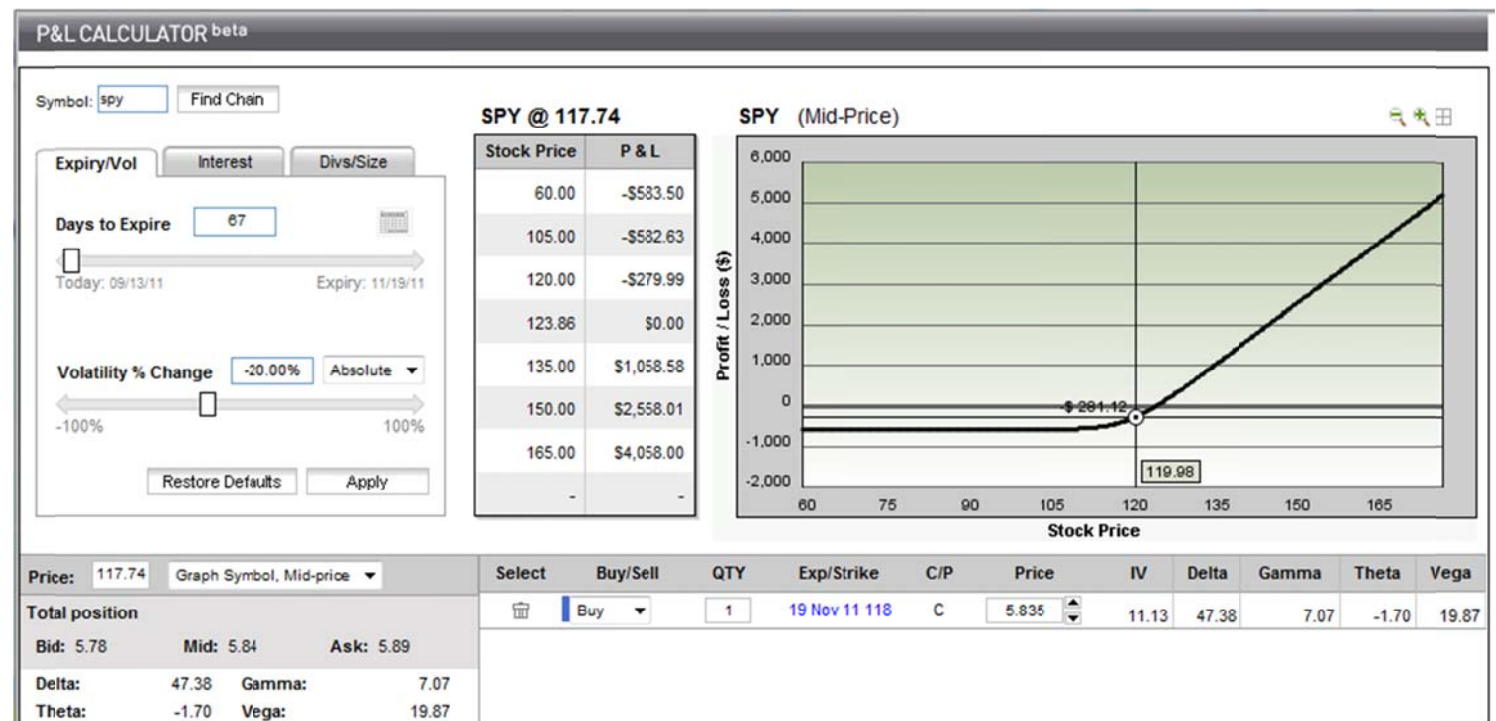
This shows you that, the **higher the implied volatility, the higher the option price**. Below you can see three screen shots reflecting a simple at-the-money long call with 3 different levels of volatility.

The first picture shows the call as it is now, with **no change in volatility**. You can see that the current breakeven with 67 days to expiry is 117.74 (current SPY price) and if the stock rose today to 120, you would have **\$120.63 in profit**.





The second picture shows the call same call but with **a 50% increase in volatility** (this is an extreme example to demonstrate my point). You can see that the current breakeven with 67 days to expiry is now 95.34 and if the stock rose today to 120, you would have **\$1,125.22 in profit.**



The third picture shows the call same call but with **a 20% decrease in volatility.** You can see that the current breakeven with 67 days to expiry is now 123.86 and if the stock rose today to 120, you would have a **loss of \$279.99.**

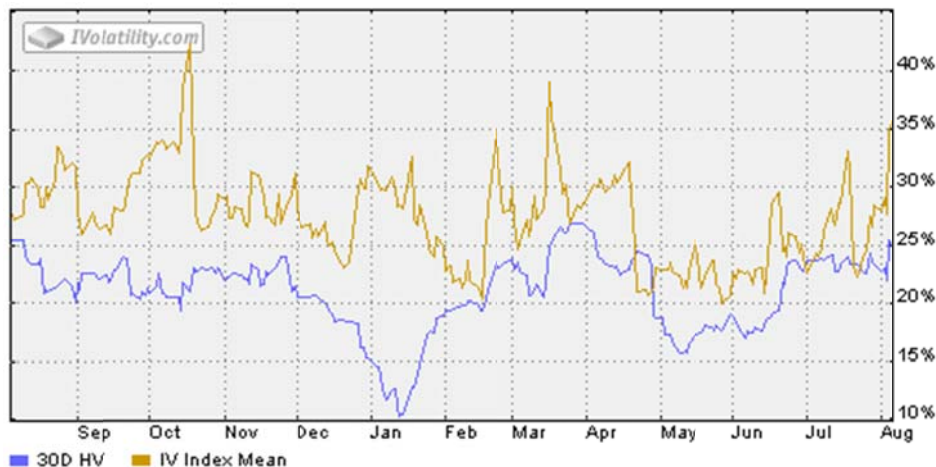
Why Is It Important?

One of the main reasons for needing to understand option volatility, is that it will allow you to evaluate whether options are cheap or expensive by **comparing Implied Volatility (IV) to Historical Volatility (HV)**.

Below is an example of the historical volatility and implied volatility for AAPL. This data you can get for free very easily from www.ivolatility.com. You can see that at the time, AAPL's Historical Volatility was between 25-30% for the last 10-30 days and the current level of Implied Volatility is around 35%. This shows you that traders were expecting big moves in AAPL going into August 2011. You can also see that the current levels of IV, are much closer to the 52 week high than the 52 week low. This indicates that this was **potentially** a good time to look at strategies that benefit from a **fall** in IV.

	Current	1 WK AGO	1 MO AGO	52 wk Hi/Date	52 wk Low/Date
HISTORICAL VOLATILITY ⓘ					
10 days	29.99%	24.78%	24.52%	34.92% - 25-Mar	5.28% - 29-Dec
20 days	27.67%	21.38%	25.43%	29.96% - 21-Mar	7.23% - 31-Dec
30 days	24.94%	23.45%	23.72%	26.93% - 25-Mar	10.27% - 13-Jan
IMPLIED VOLATILITY ⓘ					
IV Index call ⓘ	35.88%	28.96%	24.27%	42.40% - 18-Oct	20.33% - 16-Feb
IV Index put ⓘ	35.26%	27.97%	23.88%	42.35% - 18-Oct	19.87% - 27-May
IV Index mean ⓘ	35.57%	28.47%	24.07%	42.38% - 18-Oct	20.12% - 27-May

Here we are looking at this same information shown graphically. You can see there was a huge spike in mid-October 2010. This coincided with a 6% drop in AAPL stock price. Drops like this cause investors to become fearful and this heightened level of fear is a great chance for options traders to pick up extra premium via net selling strategies such as credit spreads. Or, if you were a holder of AAPL stock, you could use the volatility spike as a good time to sell some covered calls and pick up more income than you usually would for this strategy. Generally when you see IV spikes like this, they are short lived, but be aware that things can and do get worse, such as in 2008, so don't just assume that volatility will return to normal levels within a few days or weeks.



Every option strategy has an associated Greek value known as Vega, or position Vega. Therefore, as implied volatility levels change, there will be an impact on the strategy performance. **Positive Vega strategies** (like long puts and calls, backspreads and long strangles/straddles) **do best when implied volatility levels rise**. Negative Vega strategies (like short puts and calls, ratio spreads and short strangles/ straddles) do best when implied volatility levels fall. Clearly, knowing where implied volatility levels are and where they are likely to go after you've placed a trade can make all the difference in the outcome of strategy.

Historical Volatility And Implied Volatility

We know **Historical Volatility** is calculated by measuring the stocks past price movements. It is a known figure as it is based on past data. I want go into the details of how to calculate HV, as it is very easy to do in excel. The data is readily available for you in any case, so you generally will not need to calculate it yourself. The main point you need to know here is that, in general stocks that have had large price swings in the past will have high levels of Historical Volatility. As options traders, we are more interested in how volatile a stock is likely to be during the duration of our trade. Historical Volatility will give some guide to how volatile a stock is, but that is no way to predict future volatility. The best we can do is estimate it and this is where Implied Vol comes in.

- **Implied Volatility** is an estimate, made by professional traders and market makers of the future volatility of a stock. It is a key input in options pricing models.

- **The Black Scholes model** is the most popular pricing model, and while I won't go into the calculation in detail here, it is based on certain inputs, of which Vega is the most subjective (as future volatility cannot be known) and therefore, gives us the greatest chance to exploit our view of Vega compared to other traders.

- **Implied Volatility** takes into account any events that are known to be occurring during the lifetime of the option that may have a significant impact on the price of the underlying stock. This could include and earnings announcement or the release of drug trial results for a pharmaceutical company. The current state of the general market is also incorporated in Implied Vol. If markets are calm, volatility estimates are low, but during times of market stress volatility estimates will be raised. One very simple way to keep an eye on the general market levels of volatility is to monitor the VIX Index.

How To Take Advantage By Trading Implied Volatility

The way I like to take advantage by trading implied volatility is through **Iron Condors**. With this trade you are selling an OTM Call and an OTM Put and buying a Call further out on the upside and buying a put further out on the downside. Let's look at an example and assume we place the following trade today (Oct 14,2011):

Sell 10 Nov 110 SPY Puts @ 1.16

Buy 10 Nov 105 SPY Puts @ 0.71

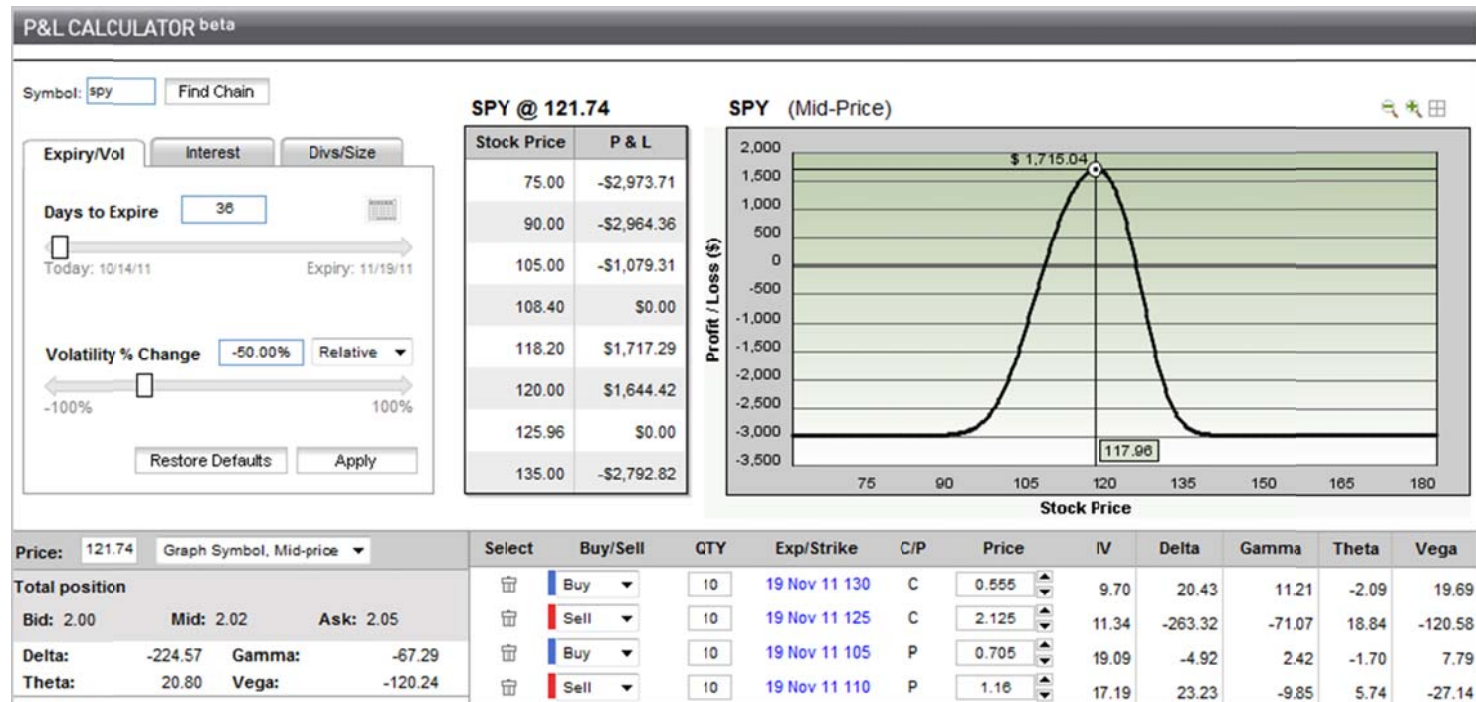
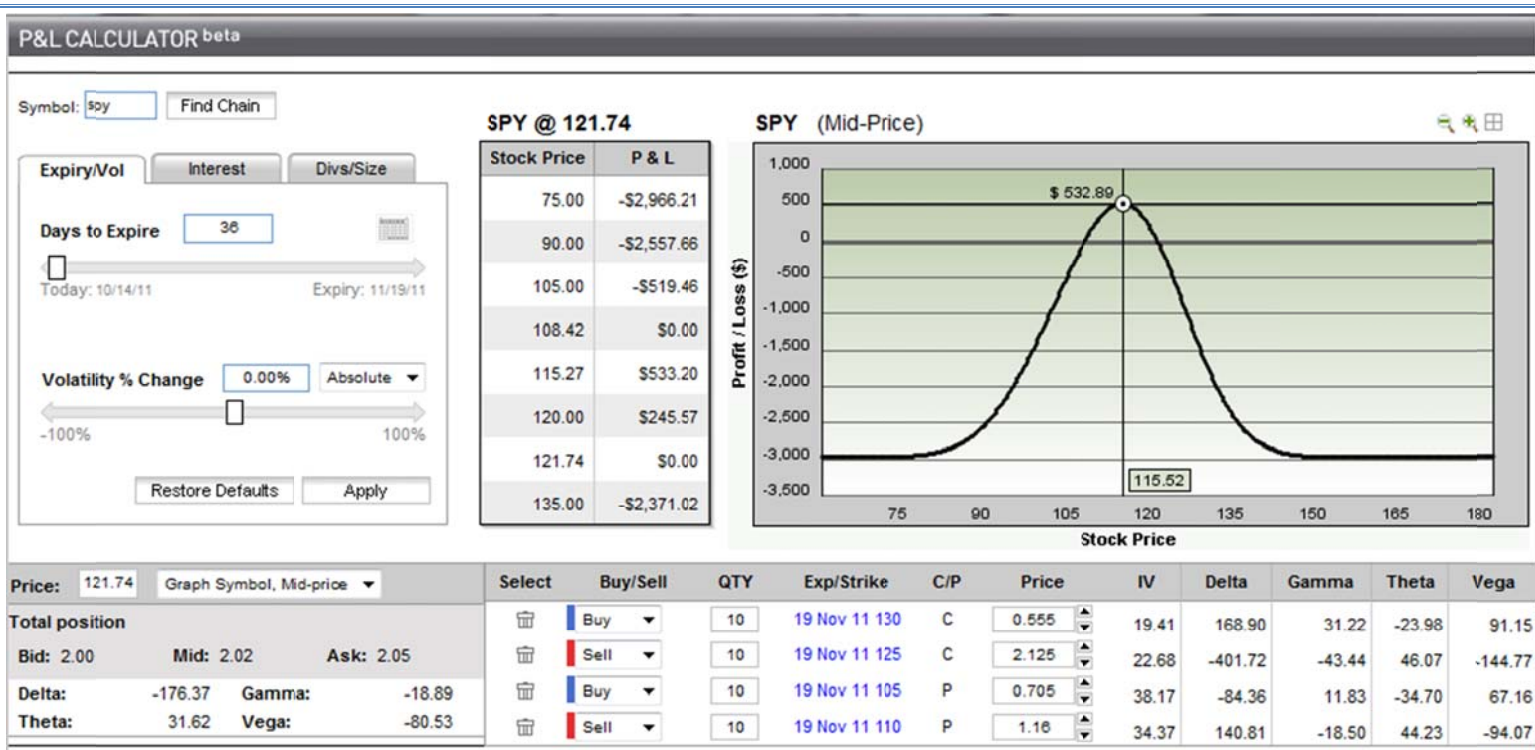
Sell 10 Nov 125 SPY Calls @ 2.13

Buy 10 Nov 130 SPY Calls @ 0.56

For this trade, we would receive a **net credit of \$2,020** and this would be the profit on the trade if SPY finishes between 110 and 125 at expiry. We would also profit from this trade if (all else being equal), implied volatility falls.

The first picture is the payoff diagram for the trade mentioned above straight after it was placed. Notice how we are **short Vega of -80.53**. This means, the net position will benefit from a fall in Implied Vol.

The second picture shows what the payoff diagram would look like if there was a **50% drop in Implied vol**. This is a fairly extreme example I know, but it demonstrates the point.



The CBOE Market Volatility Index or "The VIX" as it is more commonly referred is the best measure of general market volatility. It is sometimes also referred as the Fear Index as it is a proxy for the level of fear in the market. When the VIX is high, there is a lot of fear in the market, when the VIX is low, it can indicate that market participants are complacent. As option traders, we can monitor the VIX and use it to help us in our trading decisions.

Strategy	↕ Vega ↕	↕ Delta ↕	↕ Theta ↕	↕ Max Loss ↕	↕ Max Gain ↕	↕ Experience Level ↕
Long Call	Positive	Positive	Negative	Limited	Unlimited	Beginner
Long Put	Positive	Negative	Negative	Limited	Unlimited	Beginner
Covered Call	Positive	Positive	Positive	Limited	Limited	Beginner
Bull Call Spread	Positive	Positive	Negative	Limited	Limited	Beginner
Bear Put Spread	Positive	Negative	Negative	Limited	Limited	Beginner
Bear Call Spread	Negative	Negative	Positive	Limited	Limited	Intermediate
Bull Put Spread	Negative	Positive	Positive	Limited	Limited	Intermediate
Calendar Spread	Positive	Neutral	Positive	Limited	Limited	Advanced
Butterfly Spread	Negative	Neutral	Positive	Limited	Limited	Intermediate
Long Straddle	Positive	Neutral	Negative	Limited	Unlimited	Expert
Long Strangle	Positive	Neutral	Negative	Limited	Unlimited	Expert
Long Iron Condor	Negative	Neutral	Positive	Limited	Limited	Advanced
Short Straddle	Negative	Neutral	Positive	Unlimited	Limited	Expert
Short Strangle	Negative	Neutral	Positive	Unlimited	Limited	Expert
Short Iron Condor	Positive	Neutral	Negative	Limited	Limited	Expert
Short Put	Negative	Positive	Positive	Limited	Limited	Intermediate
Short Call	Negative	Negative	Positive	Unlimited	Limited	Advanced
Ratio Put Spread	Negative	Positive	Positive	Unlimited	Limited	Expert
Ratio Call Spread	Negative	Negative	Positive	Unlimited	Limited	Expert
Ratio Put Backspread	Positive	Negative	Negative	Limited	Unlimited	Expert
Ratio Call Backspread	Positive	Positive	Negative	Limited	Unlimited	Expert

What is the VIX?

As an option trader, you need to be following the VIX every day. If you're not, you need to start now. Gaining an understanding of the VIX will make a significant difference to your trading. Luckily for you, I've put together the ultimate resource for understanding and trading the VIX and its related derivative products. In this post, I'll explain in detail what the VIX is, what instruments are available to trade volatility and some pros and cons of using VIX derivatives to hedge your portfolio from fat tail or black swan events.

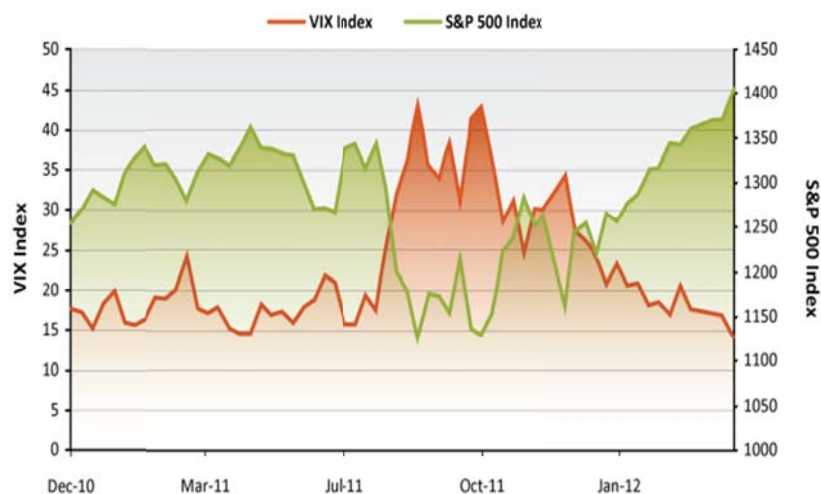
The VIX is a market volatility index created by the [Chicago Board Options Exchange](#) (CBOE) that reflects the markets expectations for volatility over the next 30 days. It is calculated by looking at the implied volatilities of numerous SPX puts and calls. In order to calculate the 30 day volatility, the CBOE has to use options from 2 expiry months and blend them.

You have probably heard the VIX referred to as the Fear Index due its characteristic of gauging future price volatility (high volatility often signals financial crisis). If you're a bit of a nerd like me, you can check out the [CBOE's white paper](#) for full details of how the VIX is calculated.

Why Should You Care?

As the saying goes, "When the VIX is low it's time to go, when the VIX is high it's time to buy". This saying reflects the fact that some of the best times to buy shares is during financial panics (when the VIX is high). In other words, buy when people are fearful (VIX is high) and sell when they are greedy or complacent (VIX is low).

The VIX vs. Stock Movements



History of the VIX

The CBOE introduced the VIX in 1993 based on a formula suggested by Professor Robert Whaley in The Journal of Derivatives. This VIX index was slightly different to the one we know and love today. The calculation of the index was different in that it focused only on at-the-money options rather than the wide range of options used in today's calculation. Also, the original VIX was based on the S&P 100 rather than the S&P 500. The current VIX index was introduced on September 22, 2003, at which time the "old" VIX was assigned the ticker symbol VXO, which is still tracked today. You cannot trade the VIX index, but there are a number of products such as futures, options and exchange traded notes that are based on the VIX which can be traded.

VIX futures were the first derivatives introduced on March 26, 2004. VIX options followed a few years later on February 24, 2006. Two exchange traded notes ([VXX - iPath S&P 500 VIX Short Term Futures ETN](#) and [VXZ - iPath S&P 500 VIX Mid-Term Futures ETN](#)) were added into the mix on January 30, 2009. So while we cannot actually trade the VIX index, there are plenty of choices available to traders which I will discuss below.

While the VIX was only introduced in 1993, the CBOE have used the calculation to reverse engineer the VXO index back to 1986 in order to see what level the volatility index was during the **1987 Black Monday crash**. The figure they came up with was 172! **Can you imagine the VIX at 172?** The scariest thing is that this theoretical index was trading at 28 only 2 days before the crash.

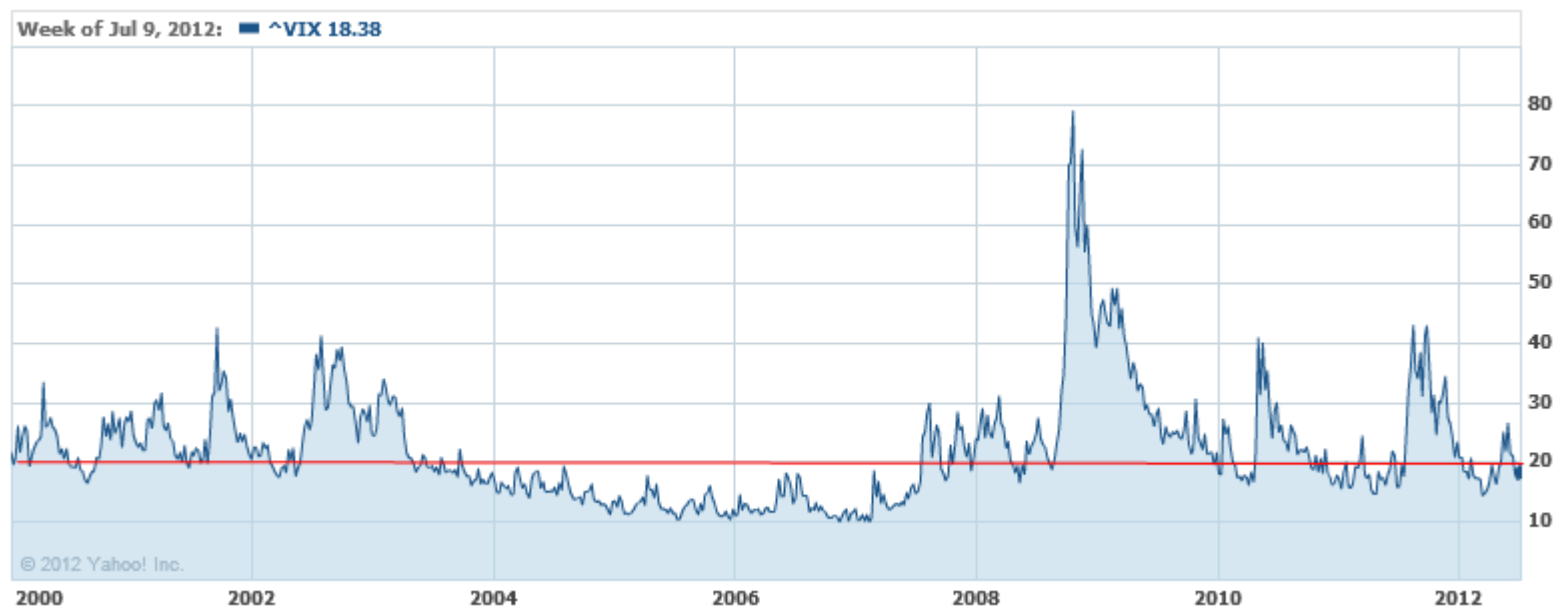
[Download the full VXO data here.](#)

The VIX is a Statistic That Reverts to the Mean

The first thing investors need to understand about the VIX is that it does not behave like a stock. This is because it is a statistic, whereas stocks are based on a business with revenues and expenses. I think Jared Woodard explained it best in his recent article on Condor Options:

*"VIX is just a statistic. It's an estimate of the annualized implied volatility of SPX derived from options at a weighted 30-day horizon. It's not a share entitling you to the cash flows generated by a business in the physical economy. Support and resistance and trend lines and momentum effects all depend on the existence of buyers and sellers in the asset being analyzed. But you can't trade VIX directly, so the VIX can never find "support" because no one previously bought VIX "shares" at that price level. And for those of you who are thinking ahead, the same goes for ETPs: **no one has ever bought VXX shares at 16 as a "deep value" play.**"*

The VIX is a mean reverting, range bound index. This means that it cannot go to zero (the lowest level recorded was 9.39% on December 15th, 2006), and following sharp spikes during market corrections, it will slowly drift back down towards its mean. The mean for the VIX index dating back to 1990 is 20.12 according to Bill Luby of VIX and More. When we get a spike up to the 30 or 40 level, market participants know that eventually the VIX will return down to around 20.



VIX Derivatives

We cannot trade the VIX directly, but there are a number of derivatives available to investors, some better than others. One of the issues with VIX derivatives is that none of them can track the VIX index exactly. They can't track the exact performance of the VIX because they only allow investors to bet on the future value of the VIX rather than its current value. Here is a list of some of the major VIX related products that are now available for trading:

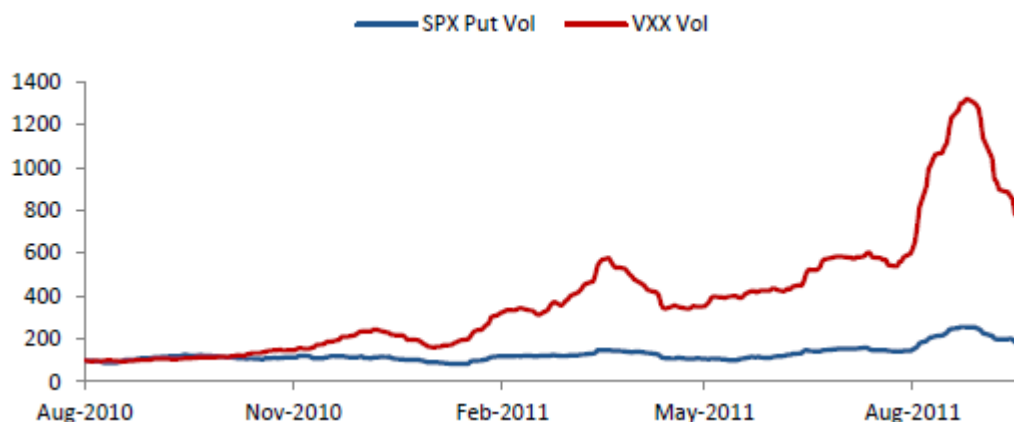
[VXX – iPath S&P 500 VIX Short Term Futures TM ETN](#)

[VXZ – iPath S&P 500 VIX Mid-Term Futures ETN](#)

[TVIX – VelocityShares Daily 2x VIX Short Term ETN](#)

[XIV - VelocityShares Daily Inverse VIX Short Term ETN](#)

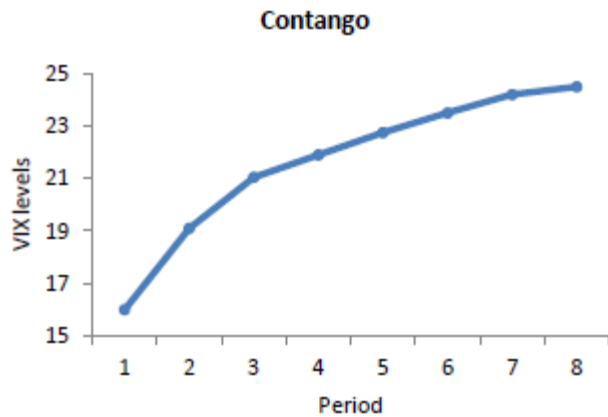
Some of these VIX related products have been incredibly popular, with trading volumes going through the roof. However, despite the increase in volume, the general public's understanding of these VIX derivatives seems to be minor at best at non-existent at worst. To paraphrase a popular Warren Buffet quote, “only invest in things you understand”.



So while ETN's such as VXX, VXZ and TVIX are increasing in popularity, they are not designed to be buy and hold investments. Anyone considering doing so should have their head examined. The reason for this is the cost of rolling the futures to maintain a constant maturity date. To understand this, we first need to understand a little about contango and backwardation.

Contango

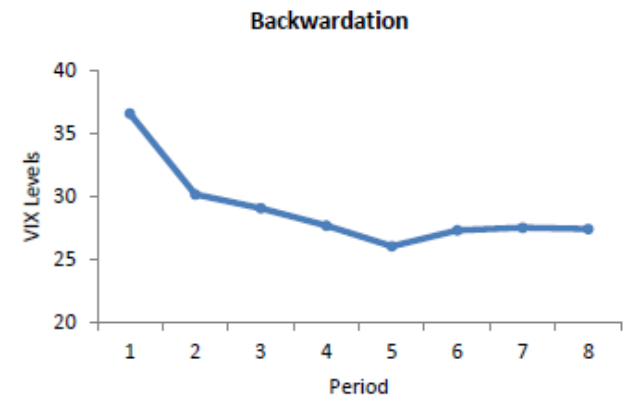
Contango is a term stemming from the futures market, which reflects the most common condition of the market. Contango is when long dated futures are higher than short dated futures. In the futures market this reflects the cost of carry, which would represent the costs of holding and paying for storage of a commodity. The further out in time you go, the higher the storage costs will be, hence the higher the price for the commodity future. Cost of carry on financial instruments would be the cost of financing the position, e.g. interest rate expense rather than storage expense.



Contango occurs with VIX futures as well. When the VIX is very low, the expectation is that it will rise again at some point in the future, back up towards the mean. In this case, long dated VIX futures will be more expensive than short dated futures. This is what contango looks like on VIX futures:

Backwardation

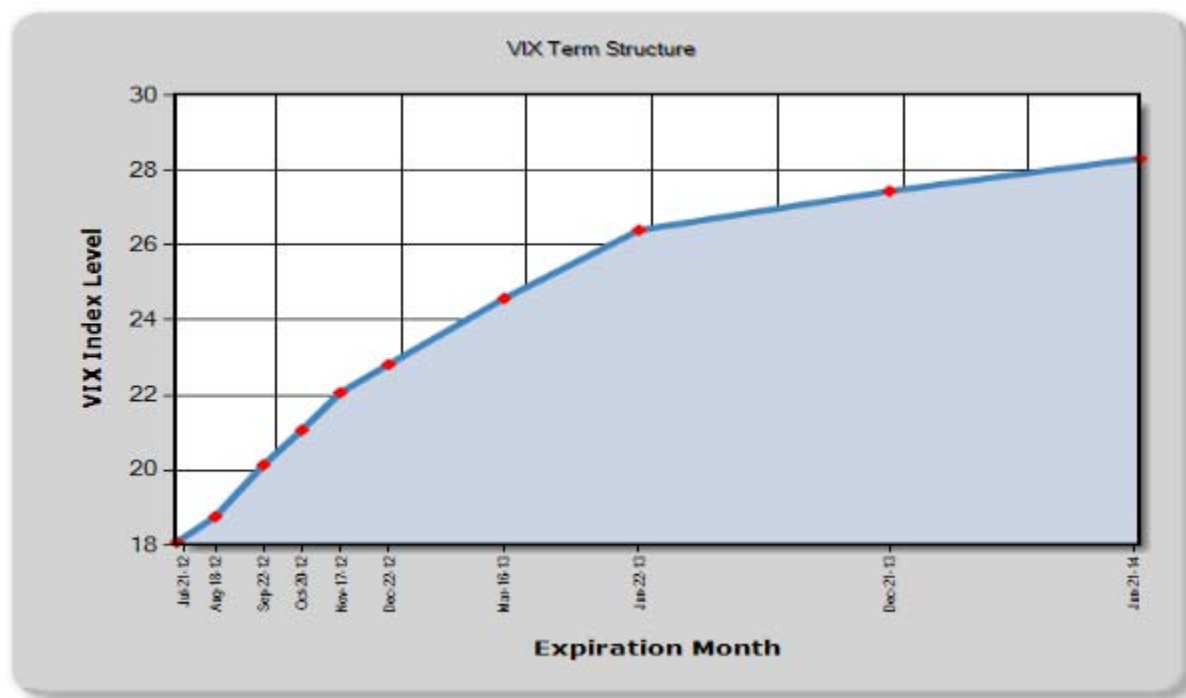
So if we have contango when the VIX is low, what do we have when the VIX is high? Basically the opposite scenario whereby the short dated futures are more expensive than the long dated futures. This is known as backwardation. Here is what backwardation looks like on VIX futures:



RDA Capital put together an excellent paper in September 2011 entitled “Is Volatility as an Asset Class the Missing Link?” You can download the report [here](#), it's a fantastic read, but you may need to read it a few times before it sinks in. Here is an extract from the paper that explains the concepts of contango and backwardation very well:

"When the term structure curve is in contango, the VIX is low and the markets are calm. Anyone buying VIX futures is actually buying insurance against a big jump in the VIX, and is poised to profit if the VIX suddenly increases. Conversely, anyone shorting the futures will essentially be selling “crash insurance”, and as such, will collect the insurance premium when the markets are calm and will lose when the VIX jumps. A similar situation arises once the VIX has reached elevated levels. Since the VIX is expected to revert downwards to its mean, investors who short the futures when the term structure curve is in backwardation should pay a premium to investors who are willing to take the other side of the trade and go long the futures."

You can check out the current state of the VIX term structure at the [CBOE website](#). This is what it looked like as of July 10th, 2012. Notice the nice contango effect and also that the curve is much steeper on the left of the chart. This means the contango effect is at its greatest with short term futures.



You can see from the chart above that in order to roll the futures contract, the ETN's would have to sell August (lower) and buy September (higher).

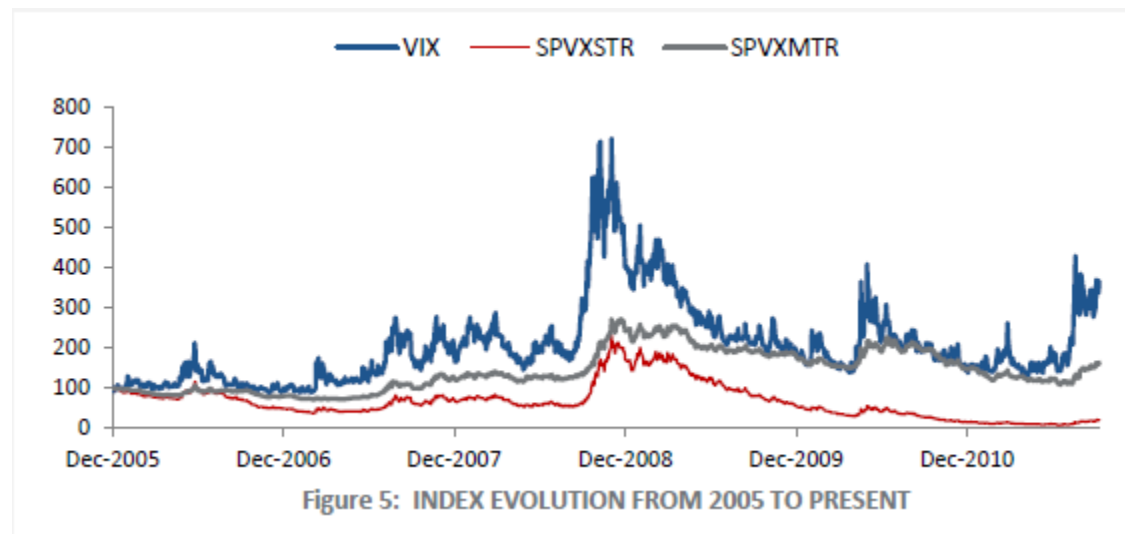
Current VIX Futures

August: 18.76
September: 20.14
October: 21.07
November: 22.07

Using VIX Derivatives to Hedge a Portfolio

Buying volatility in order to hedge a portfolio from fat tails, or black swan events is a popular strategy due to the high negative correlation between the VIX and market indexes such as the S&P 500. However, most investors probably have not given too much thought on exactly how to do this, and too many are blindly holding on to VXX, VXZ and TVIX assuming they are protected from volatility spikes. While that strategy may perform well whenever there is a significant correction and subsequent rise in volatility, holding these ETN's over the long term may be hazardous to your portfolio's health.

You can see below the performance of SPVXSTR (the index on which VXX is based) and SPVXMTR (the index on which VXZ is based). SPVXSTR made an almost 300% gain during the crash of 2008, however since 2005 it has lost over 90% of its value.



Leveraging Up With TVIX

Some traders looking for even greater protection (or to profit) from volatility are trading TVIX – the 2x Leveraged VIX Short Term ETN. This ETN will produce higher returns when the VIX moves up. However, the same roll forward cost applies resulting in significant losses if held for the long term. Even the term sheet for the product says, "**If you hold your ETN as a long-term investment, it is likely that you will lose all or a substantial portion of your investment.**" Wow, sounds great, where do I sign up!!

Just take a look at the chart of TVIX below, is this something you want in your long term portfolio?? VXX has performed about the same. VIXZ is the one that has performed the best losing **only** 50%. This proves the fact that longer term futures suffer less from roll cost.



VXX (iPath S&P 500 VIX Short-Term Futures ETN) NYSE

© StockCharts.com

10-Jul-2012

Open 13.91 **High** 14.78 **Low** 13.70 **Close** 14.53 **Volume** 45.1M **Chg** +0.39 (+2.76%) ▲

100 VXX (Daily) 14.53



VXZ (iPath S&P 500 VIX Mid-Term Futures ETN) NYSE

© StockCharts.com

10-Jul-2012

Open 42.54 **High** 43.48 **Low** 42.16 **Close** 43.20 **Volume** 337.1K **Chg** +0.42 (+0.98%) ▲

100 VXZ (Daily) 43.20



The Optimal Hedge Strategy Using VIX Derivatives

During a contango market, roll forward costs affect short dated futures more than longer dated futures. Therefore, it makes more sense to buy mid-term VIX futures (VXZ) during contango. Here is some more advice from RDA:

"Although these (mid-term) futures are less sensitive to moves in the spot index, and therefore, provide less protection against extreme market events, the amount of protection that investors will receive per unit of roll-yield they pay far exceeds that of short-term futures. Another strategy employed by some ETNs is shorting a small amount of short-term futures when the curve is in contango to cover the roll yield of a larger amount of long mid-term futures. This strategy aims to achieve free or low cost protection against big upwards moves in volatility."

Interesting advice, and I would be keen to hear from anyone who has attempted this strategy of buying VXZ and shorting VXX as a means of protecting their portfolio from black swan events. If anyone has attempted such a strategy, please let me know in the comments section below.

We know that volatility and black swan events are something that most investors and traders fear. Volatility, as measured by the VIX can provide a great hedge due to the high inverse correlation with stocks, however we cannot trade the VIX directly and must rely on VIX derivatives which are becoming increasingly more popular. In the endless search for the perfect portfolio protection, have we found the answer with VXX, VXZ and TVIX? The jury is still out. They do serve a purpose, but cannot be used as a buy and hold strategy due to the roll cost. One idea presented by RDA Capital suggests buying VXZ and selling VXX as the optimal strategy to protect from volatility.

Portfolio Allocation Based on Volatility Levels

In this Chapter, we will look at how you can use volatility, and specifically the VIX index, as a trading tool to help you make decisions on position sizing as well as entry and exit rules.

Position sizing and money management are some of the hardest things for traders to handle. Some people think that once you have your trading plan detailing your entry and exit rules you're set, but that's not the case. Money management is one of the most crucial aspects of successful trading. So, what does volatility have to do with money management?

1. Each option strategy will be either positive or negative Vega. Having a combination of positive and negative Vega trades can help lower your overall volatility risk.
2. You can set entry and exit rules based on volatility levels
3. You can create position sizing rules based on volatility levels

My primary trading strategies are Iron Condors, Bull Put Spreads and Bear Call Spreads which are all net short volatility trades. In order to hedge some of my Vega risk, I like to use some long volatility trades such as Calendar Spreads and Diagonal Spreads.

You can also use volatility as a trading entry signal. On my Iron Condor trading plan, I have 5 entry guidelines. One of these is to enter the positions on a down day (when volatility has spiked) as this will allow me to either a) bring in more premium or b) move my strikes further away from the market.

[<< Click Here To Download a Copy of My Iron Condor Trading Plan >>](#)

Also on my trading plan I include position sizing rules based on where volatility (as measured by the VIX Index) is trading. Below is an example of how you could structure your portfolio based on implied volatility levels. You can see that when the VIX is high, you allocate more capital to short Vega strategies. You can see the various portfolio allocations based on different VIX levels below.

	VIX 15-23	VIX 23-35	VIX 35+		
Iron Condors & C. Spreads	20.00%	35.00%	45.00%	Short Vega	Short Theta
Super Dividend	5.00%	5.00%	10.00%	Long Vega	Short Theta
Diagonal Calls & Puts	5.00%	-	-	Long Vega	Short Theta
Double Diagonals	10.00%	5.00%	-	Long Vega	Short Theta
Speculative	5.00%	5.00%	5.00%		
Cash	55.00%	50.00%	40.00%		
	100.00%	100.00%	100.00%		

TOTAL CAPITAL \$ 133,500.00

	VIX 15-23	VIX 23-35	VIX 35+
Iron Condors & C. Spreads	\$ 26,700.00	\$ 46,725.00	\$ 60,075.00
Super Dividend	\$ 6,675.00	\$ 6,675.00	\$ 13,350.00
Diagonal Calls & Puts	\$ 6,675.00	\$ -	\$ -
Double Diagonals	\$ 13,350.00	\$ 6,675.00	\$ -
Speculative	\$ 6,675.00	\$ 6,675.00	\$ 6,675.00
Cash	\$ 73,425.00	\$ 66,750.00	\$ 53,400.00
	133,500.00	133,500.00	133,500.00

Double Diagonals, The Ultimate Long Vega Income Trade

Double diagonals are not your average options strategy. Let's take a detailed look at this little known strategy and see if it's worthy of adding to your option trading arsenal. We'll look at:

- Trade setup
- Breakevens, max profit and max loss
- How Implied volatility affects the trade
- Managing the trade
- Making adjustments
- A comparison with iron condors
- Using double diagonals in combination strategies

STRATEGY OVERVIEW

A double diagonal spread is made up of a diagonal call spread and a diagonal put spread. It is a fairly advanced option strategy and should only be attempted by experienced traders, and as always, you should paper trade this for 3-6 months before going live. The double diagonal is an income trade that benefits from the passage of time. Implied volatility is a crucial element of this strategy as you will learn below.

TRADE SETUP

You would enter a double diagonal spread when you anticipate minimal movement in the underlying over the course of the next month. As this is a long Vega trade, you may also be of the opinion that implied volatility will rise over the next month. This is the conundrum for double diagonal traders, they want volatility to remain flat or rise, yet they want the underlying to stay within a specified range. Typically, volatility spikes are associated with large movements in the underlying.

Generally when entering a double diagonal trade, the underlying would be somewhere in the center of the two sold strikes. You can also trade this strategy with a bullish or bearish bias, although most option income traders would set it up as delta neutral or as close to it as possible. Here we see a fairly common set up for a trade using RUT:

Date: December 17th, 2012

Stock Price: 835

Underlying Implied Volatility: 19%

Trade Setup:

Sell Jan 17, 2013 810 Put @ \$10.65. IV = 20.03%

Buy Feb 14, 2013 800 Put @ \$15.10. IV = 21.01%

Sell Jan 17, 2013 870 Call @ \$3.35. IV = 16.23%

Buy Feb 14, 2013 880 Call @ \$5.55. IV = 16.32%

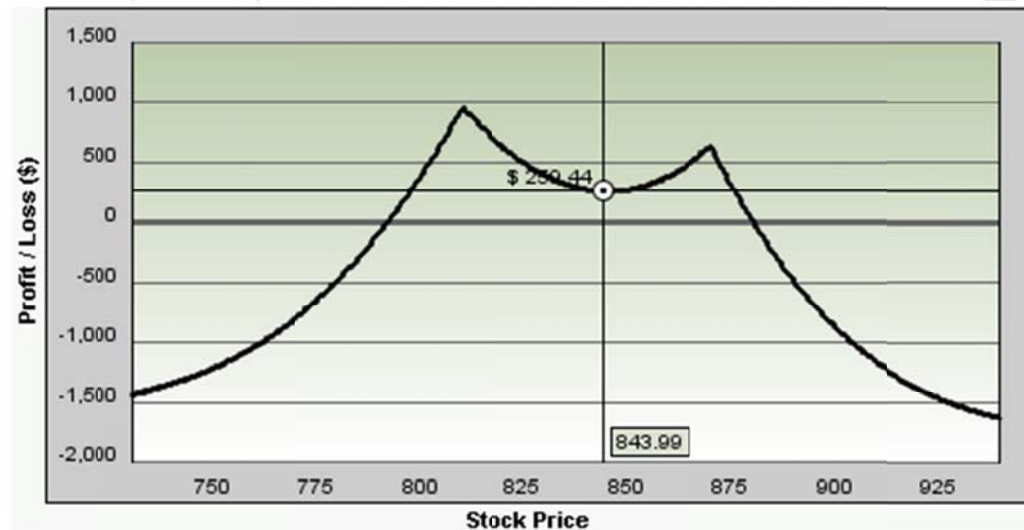
Net Debit: \$665

The below payoff diagram shows the two profit peaks at 810 and 870 with a small dip in the middle. The profit potential at the mid-point of the graph is around \$250 assuming no change in implied volatility. The capital at risk is about \$1,665, so the profit potential in the middle of the graph is roughly 15% with a higher potential towards the peaks.

RUT @ 835.00

Stock Price	P & L
750.00	-\$1,216.14
775.00	-\$645.90
792.00	\$0.00
800.00	\$389.20
810.11	\$954.35
825.00	\$496.85
845.25	\$258.45
850.00	\$272.04

RUT (Mid-Price)



OPTION GREEKS

Looking at the option Greeks for this trade, Delta is basically flat, Theta is 10 and Vega is 62. At the initiation of the trade, Vega has by far the most impact. The two diagrams below show this trade with both a +3% and -3% change in implied volatility after 1 day. You can see that a 3% move in volatility can have a significant effect on the trade.

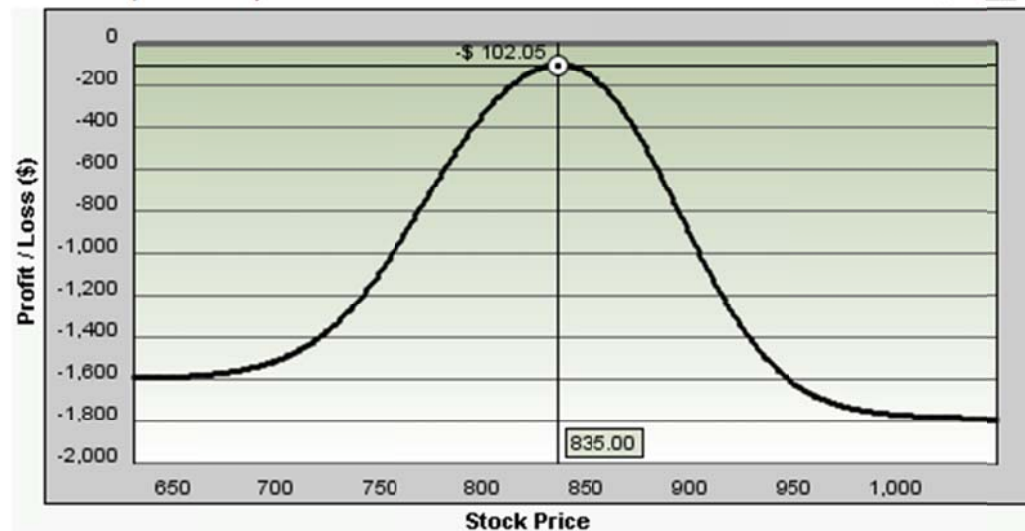
Underlying	Position	Price	Delta (Δ)	Gamma (Γ)	Vega	Theta (Θ)
RUT			3	0	62	10
1/17/2013			14	-1	-148	44
RUT JAN 17 '13 810 Put	-1	10.65	31	-1	-86	27
RUT JAN 17 '13 870 Call	-1	15.10	-17	-1	-62	16
2/14/2013			-11	1	210	-33
RUT FEB 14 '13 800 Put	1	15.10	-31	1	118	-21
RUT FEB 14 '13 880 Call	1	5.55	20	1	92	-13

Option Greeks at trade initiation

RUT @ 835.00

Stock Price	P & L
650.00	-\$1,589.21
700.00	-\$1,511.29
750.00	-\$1,081.93
800.00	-\$335.16
835.84	-\$101.85
850.00	-\$144.08
900.00	-\$920.73
950.00	-\$1,621.13

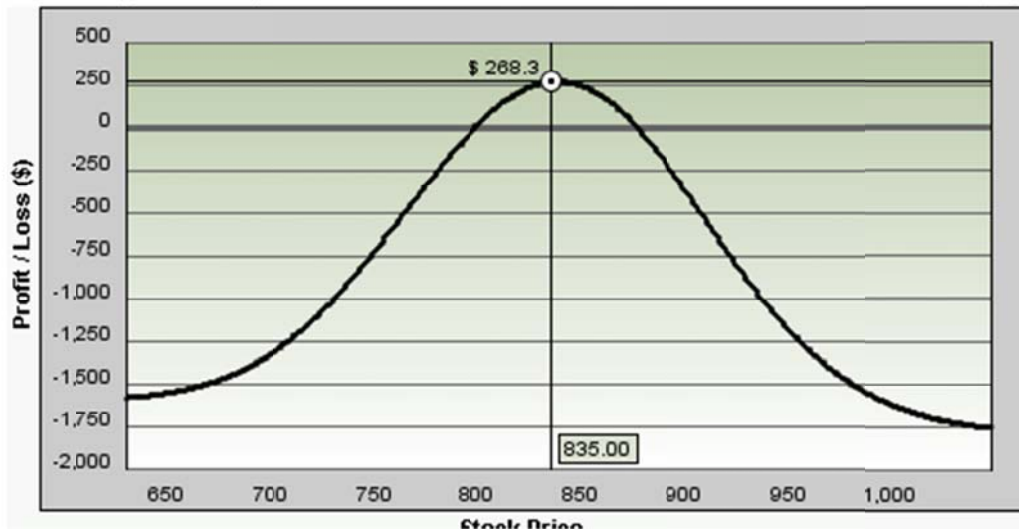
RUT (Mid-Price)



Day 1 with +3% move in Implied Volatility

RUT @ 835.00

Stock Price	P & L
650.00	-\$1,549.98
700.00	-\$1,320.07
750.00	-\$719.94
798.41	\$0.00
800.00	\$19.28
838.35	\$270.73
850.00	\$246.07
876.99	\$0.00

RUT (Mid-Price)

Day 1 with -3% move in Implied Volatility

MAXIMUM POTENTIAL PROFIT

Most standard option strategies have a clearly defined maximum profit. However, calculating the maximum profit, maximum loss and breakevens for advanced option strategies like the double diagonal is an inexact science. This is due to the fact that you are trading options with 2 separate expiry months.

Potential profit for this strategy is limited to the net credit received for the sale of the front month options, plus the net credit received when closing the back month options, less the original net debit paid for the back month options.

The ideal situation for this trade is that the underlying stays in between your short strikes. Some traders may look at an expiry risk graph for a double diagonal and assume that it would be better for the stock to end near the short strikes. It may be the case that you make a bit more when selling the back month options, however, having the underlying near your short strikes near expiry means there is an increased chance of the underlying blowing right past your short strike.

MAXIMUM POTENTIAL LOSS

If you are able to open the position for a net credit, the maximum loss is limited to the difference between the strike prices, less the premium received.

If you open the position for a net debit, the maximum loss is the difference between the strike prices, plus the premium paid.

BREAKEVENS AT EXPIRY

There are too many variables to calculate an exact breakeven at expiry. Most brokers, including [Optionshouse](#), ThinkorSwim and [Interactive Brokers](#) have profit and loss calculators that let you take into account potential changes in implied volatility levels.

The best way to look at your expiry graph would be to assume no change in volatility over the course of the trade. Keep in mind that a decrease in implied volatility will bring your breakevens closer to your short strikes and an increase in implied volatility will move them further away from your short strike.

THE EFFECT OF IMPLIED VOLATILITY

Traders should have a solid understanding of implied volatility before attempting this strategy as it will have a significant impact on the trade. The ideal scenario is for the underlying to stay within the two sold strikes until near expiration when you want volatility to spike up, ideally with a move towards the sold strikes.

NET CREDIT OR DEBIT WHEN OPENING THE TRADE?

When initiating a trade, it is preferable to try and receive a net credit, but it is not always possible, nor is it essential to having a profitable outcome. The trade may be entered for a net debit and still make a profit if you can cover up the debit when you sell the back month options after the front month options. When choosing whether to open a trade, it is more important to look at the expiration profit graph rather than the initial debit or credit.

DAN SHERIDAN'S TIPS FOR ENTERING A DOUBLE DIAGONAL

Dan Sheridan is the guru when it comes to double diagonals, let's take a look at the way he goes about entering a trade:

1. Sell the call option strike (minimum \$0.50 for short option) in the front month, that is the first strike inside 1 standard deviation
2. Sell the put option strike (minimum \$0.50 for short option) in the front month, that is the first strike inside 1 standard deviation
3. Buy a call one to two months out from the short call and up one strike (maximum 1.5 times price of the short call)
4. Buy a put one to two months out from the short call and down one strike (maximum 1.5 times price of the short call)
5. If the profit and loss graph sags in the middle, then bring the short and long options in 1 strike
6. If a negative skew of more than 2 exists (long month minus the short month), then don't do the trade!
7. If a positive skew of 4 or more exists, then investigate
8. Know the earnings date and past gap potential

WHAT INSTRUMENTS TO TRADE

When trading double diagonals, it's important to choose the right underlying stock, index or ETF. Here are a couple of guidelines to keep in mind:

- Stocks that are greater than \$30
- Implied volatility (IV) is in lowest third of its two-year range
- Nontrenders, sideways movers
- Low volatilities (we want sideways movement, not wild swings)
- Skews (volatilities near and far) in line, not more than four points apart
- Nonearnings months -- again, we don't want movement due to news
- Boring, sideways, predictable industries, no biotech startups or the like.

MANAGING THE TRADE

Managing a double diagonal trade need not be as hard as you might think. Here are a few simple rules to follow that will help you achieve success with this strategy.

- Typically a double diagonal would be entered with between 30 and 60 days until expiration of the short options.
- Profit target should be around 15-20%
- Stop loss set at -25%
- If **within 10 days** of putting on the trade, the underlying is approaching one of your short options, you should consider adjusting or taking the entire position off.
- If **after 10 days**, your short strikes are hit, you should consider adjusting or taking the entire position off
- Generally you do not want to hold a double diagonal into expiry week of the short options.
- You can use back month options that are more than one month out from your short options. This will give you a greater long Vega exposure. To do this you would need to have a good understanding of how to roll option positions unless you plan on closing the entire trade when the front month nears expiration.
- You may want to use index options rather than ETF's or stocks to avoid the risk of early assignment
- Avoid a saggy middle – no one likes a saggy middle, options traders included. To avoid a saggy middle on your profit graph, bring all your options in closer to the money

ADJUSTING DOUBLE DIAGONALS

Double diagonals can be tricky to adjust, particularly as you approach expiration. For tips on adjusting double diagonals, let's again go to the master, Dan Sheridan. During a webinar conducted on February 7, 2008, Sheridan gave an example of a trade entered on OIH.

Trade Date: Dec 10th, 2007.

Stock Price: \$185

Underlying Volatility: 30%

Trade Setup:

Buy 1 April 200 OIH Call @ \$8.70

Sell 1 Jan 195 OIH Call @ \$3.30

Sell 1 Jan 175 OIH Put @ \$3.60

Buy 1 Apr 170 OIH Put @ \$7.90

Net Debit: \$970

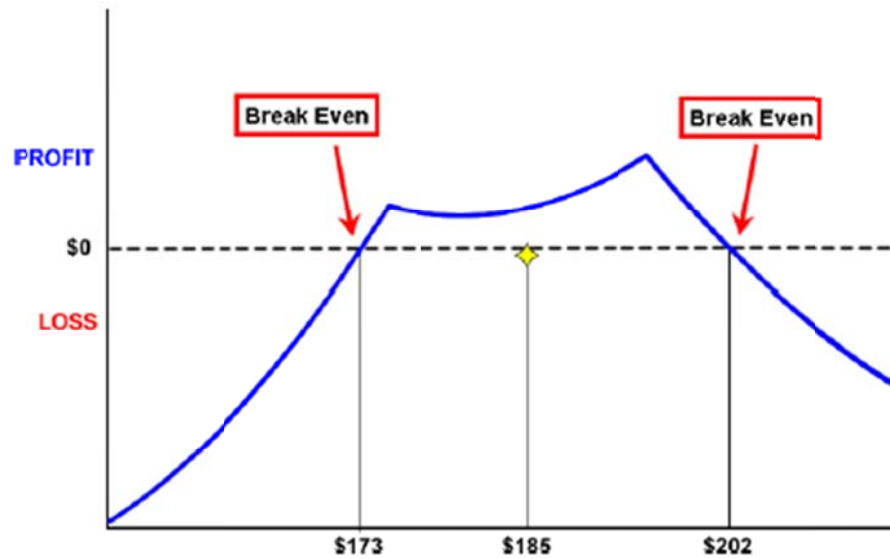
Capital at Risk / Max Loss: \$1,470

Delta	2
Gamma	-2
Vega	38
Theta	6

OIH Double Diagonal – Opening Greeks

OIH Risk Chart

Date: 12/10/2007 Price: \$185

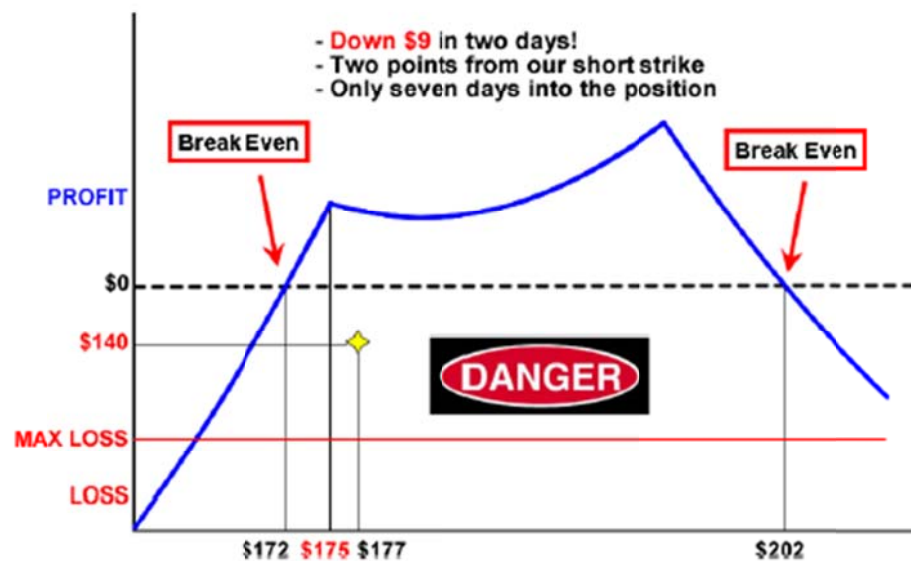


OIH Double Diagonal – Opening Risk Graph

By December 17th, OIH had dropped from \$ 185 to \$177 which was close to the short strike of \$175. This is how the trade looked at this point. As you can see, it was time to make an adjustment.

OIH Double Diagonal

Date: 12/17/2007 Price: \$177 **-\$4.60**



Risk Graph after 7 days and a drop of \$8

Sheridan then goes on to present 3 different adjustment options:

1. Buy to close the Jan 175 puts and Sell to open Jan 170 puts (changes put diagonal into a calendar). With this adjustment, delta is reduced from 16 to 6 while Theta, Vega and Gamma all stay about the same. The adjustment cost \$190.

Buy 1 Jan \$175 OIH Put @ \$6.30

Sell 1 Jan \$170 OIH Put @ \$4.40

Net debit: \$190

Adjustment #1 – Change in Greeks

Position on 12/17/2007

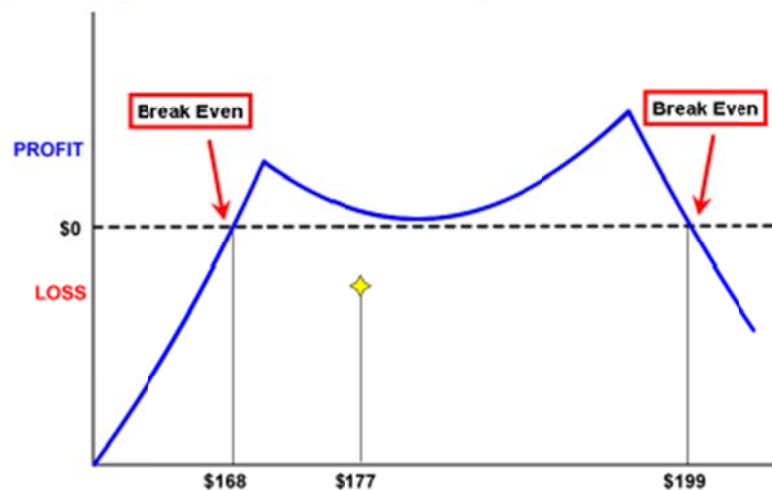
Delta	16
Gamma	-2
Theta	7
Vega	40

Proposed Position

Delta	6
Gamma	-1
Theta	6
Vega	42

OIH Double Diagonal Adjustment #1

Buy Jan 175 puts and Sell Jan 170 puts (changes put diagonal into a calendar)



Adjustment #1 – New risk graph

2. Sell to open Jan 170 puts and Buy to open Apr 175 puts (changes the put diagonal into a double calendar). With this adjustment, delta is reduced from 16 down to 5, Theta is almost doubled from 7 to 12 and Vega is increased by 50% from 40 to 61. The adjustment cost \$800 and increased capital at risk because the position now has a double calendar in place of a single put diagonal.

Sell 1 Jan \$170 OIH Put @ \$4.40
Buy 1 Apr \$175 OIH Put @ \$12.40

Net Debit: \$800

Adjustment #2 – Change in Greeks

Position on 12/17/2007

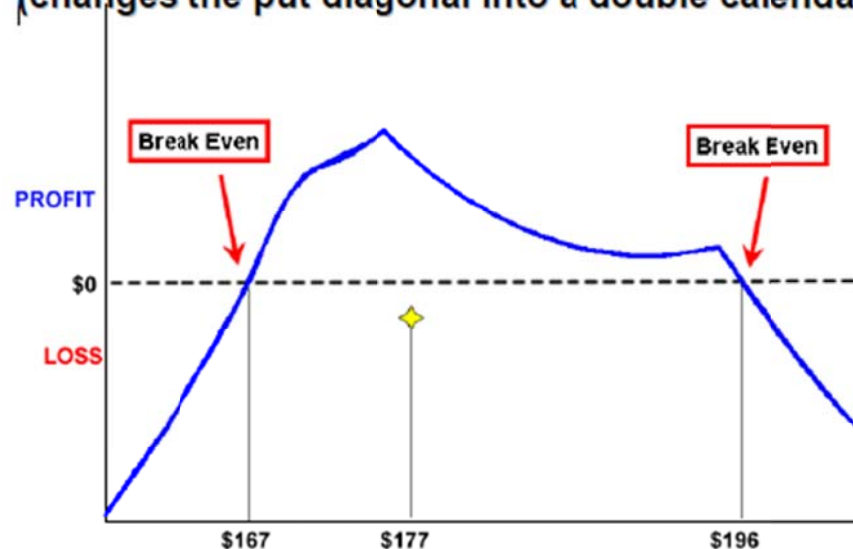
Delta	16
Gamma	-2
Theta	7
Vega	40

Proposed Position

Delta	5
Gamma	-2
Theta	12
Vega	61

OIH Double Diagonal Adjustment #2

Sell Jan 170 puts and Buy Apr 175 puts
(changes the put diagonal into a double calendar)



Adjustment #2 – New risk graph

You can see that this adjustment has a much higher profit potential, but the trade-off is more capital at risk and a higher Vega exposure.

3. Take off entire put diagonal and reposition down one strike for long and short puts. With this adjustment Delta is reduced from 16 to 11, Theta and Vega stay the same and Gamma is down to -1 from -2.

Buy to close 1 Jan \$175 OIH Put @ \$6.30
Sell to close 1 Apr \$175 OIH Put @ \$10.20
Sell to open 1 Jan \$170 OIH Put @ \$4.40
Buy to open 1 Apr \$165 OIH Put @ \$8.50

Net Debit: \$20

Adjustment #3 – Change in Greeks

Position on 12/17/2007

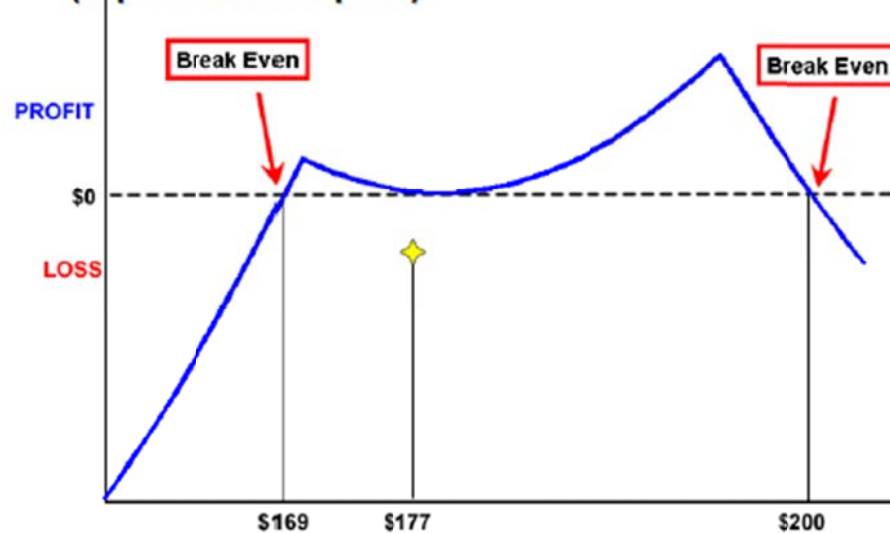
Delta	16
Gamma	-2
Theta	7
Vega	40

Proposed Position

Delta	11
Gamma	-1
Theta	7
Vega	40

OIH Double Diagonal Adjustment #3

Roll Jan and Apr puts down
(reposition the puts)



Adjustment #3 – New risk graph

DOUBLE DIAGONAL VS IRON CONDOR

The double diagonal option strategy is a neutral options strategy that has a similar payoff diagram to an iron condor. Both Iron Condors and Double Diagonals benefit from time decay, however one of the key differences is that double diagonals are long Vega. In other words, increases in volatility will benefit double diagonals whereas they will hurt iron condors. This is one of the major reasons attractions to this strategy, as a way to diversify some of the vega risk from trading iron condors.

The other way double diagonals differ from iron condors is that you are trading different expiry months. Generally you would set up the double diagonal strategy by selling the near month options and buying options further out-of-the-money AND further out in time.

TURNING A DOUBLE DIAGONAL INTO AN IRON CONDOR

One attraction of the double diagonal is that you can turn it into an iron condor after you close out the front month options. To turn a double diagonal into an iron condor, simply close out the front month options, then sell to open options with the same strike in the same expiry month as the back month options. Voila – you have an iron condor.

Some traders might use this strategy rather than simply selling a long term iron condor. The idea being that you can generate twice the income by selling two lots of options. Your rate of Theta decay will be higher using a double diagonal and turning it in to an iron condor as opposed to simply selling a long term iron condor. This is due to the fact that your short options are always in the front month which experiences the highest rate of Theta decay.

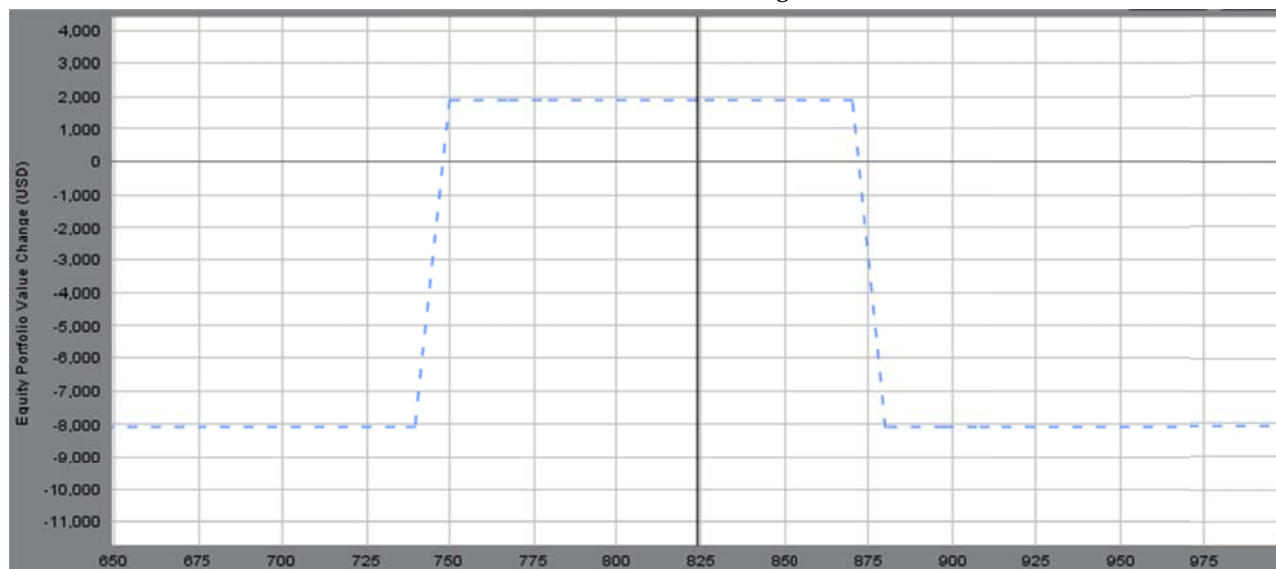
USING DOUBLE DIAGONALS IN A COMBINATION STRATEGY

Double diagonals by themselves may not be an appropriate strategy for you when trading them in isolation. One way to solve this problem is to use them as part of an overall combination strategy. As double diagonal spreads are long Vega, you can use them in conjunction with your iron condors in order to decrease your Vega risk.

Below you see an example of a standard iron condor on RUT with strikes of 750-740 and 870-800 using 10 contracts. You can see that delta is -30, Vega is -207 and Theta is 59. The payoff diagram is that of a standard iron condor.

Underlying	Position	Price	Delta (Δ)	Gamma (Γ)	Vega	Theta (Θ)
RUT			-30	-2	-207	59
1/17/2013			-30	-2	-207	59
RUT JAN 17 '13 740 Put	10	2.92	-93	2	403	-174
RUT JAN 17 '13 750 Put	-10	3.67	112	-3	-463	191
RUT JAN 17 '13 870 Call	-10	2.8	-139	-5	-537	147
RUT JAN 17 '13 880 Call	10	1.66	89	4	391	-104

Jan 2013 RUT iron condor greeks



Jan 2013 RUT iron condor risk graph

Now, we add a double diagonal to the iron condor as such:

Buy 2 Feb 14th 730 Puts @ \$5.64

Sell 2 Jan 17th 740 Puts @ 2.92

Buy 2 Feb 14th 890 Calls @ 3.04

Sell 2 Jan 17th 880 Calls @ 1.66

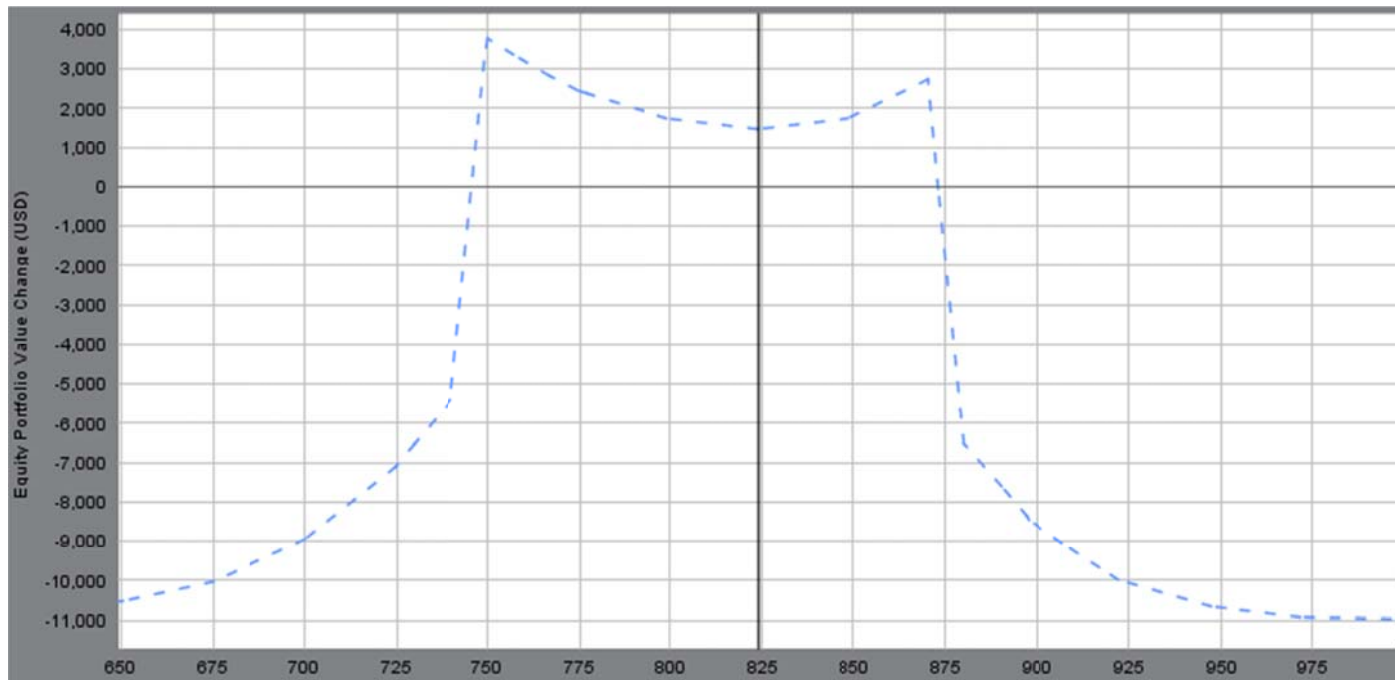
Net Debit: \$820

We now have the following positions. You can see that delta is the same at -30, Vega is -91 and Theta is 65. So Vega has been reduced from -207 to -91 which is a significant reduction. Theta has been increased from 59 to 65. The ratio of Vega to Theta has reduced from 3.5 to less than 1.5. This was using a ratio of 2 double diagonals for every 10 iron condors, but you can play with the numbers to work out a ratio that works for you. You can also create rules in your trading plan depending on the current level of implied volatility. For example, when volatility is low, you might want to add more double diagonals in order to increase your Vega. The opposite is true when volatility is high, you might want to reduce the number of double diagonals in order to decrease your Vega.

Underlying	Position	Price	Delta (Δ)	Gamma (Γ)	Vega	Theta (Θ)
RUT			-30	-2	-91	65
1/17/2013			-29	-3	-365	115
RUT JAN 17 '13 740 Put	8	2.92	-74	2	322	-139
RUT JAN 17 '13 750 Put	-10	3.67	112	-3	-463	191
RUT JAN 17 '13 870 Call	-10	2.8	-139	-5	-537	147
RUT JAN 17 '13 880 Call	8	1.66	71	3	313	-83
2/14/2013			-1	1	274	-50
RUT FEB 14 '13 730 Put	2	5.64	-25	0	138	-31
RUT FEB 14 '13 890 Call	2	3.04	25	1	136	-19

What's the catch you might be asking? Well, you now have more capital at risk in the trade, with \$11,000 at risk now opposed to \$8,000. However, the reduced Vega risk may help you sleep a bit better at night. Iron condor traders are always concerned about volatility spikes, so maybe adding a double diagonal or two is the solution you have been looking for.

Looking at the profit graph below, you can see that your income potential if RUT stays exactly where it is, is reduced from \$2,000 down to around \$1500-\$1600, but how often does an underlying stay in exactly the same spot over the course of a month? How often have you had an iron condor position gradually drift up or down towards your short strikes?



Double diagonals are not a common option strategy, but they are one that many pro traders use. At first glance they might look like a fantastic strategy, but you need to be careful and have a really good understanding of implied volatility and how to manage the position.

When used in isolation, the long Vega exposure might be too much for some traders. However, using them in conjunction with other strategies, might be just the solution you were looking for.

Why don't you go and paper trade some double diagonals and be sure to let me know what you think!

Recommended Reading

There are a couple of books that I recommend, but it depends on what stage of your development you are at. For beginners, who still feel they need to learn some of the basics of options trading, check out the following books:

[The Bible of Options Strategies](#) – Guy Cohen
[Options Made Easy](#) – Guy Cohen

For those who have a good knowledge of options, and want to take things to the next level, check out these books:

[Options As A Strategic Investment](#) – Lawrence McMillan
[Option Volatility and Pricing](#) – Sheldon Natenberg
[Trade Your Way to Financial Freedom](#) – Van Tharp

Definitely check out some of the above books, I guarantee you will not be disappointed.

Final Words From Gav

Congratulations! If you've made it this far, you're well on your way to becoming a successful butterfly spread trader. I put a lot of work into the book, and I REALLY hope it helps you in some way. Here are a few final thoughts to leave I would like to share with you.

YOU CAN DO THIS

Trading iron condors is not rocket science. You don't have to be some whiz at math, or technical analysis. Just start out by sticking to the basics and taking things slowly. Even the greatest traders had to start at the beginning.

EVERYONE MAKES MISTAKES

There's an old proverb (I think it's Japanese, but don't quote me) that says, "fall down seven times, stand up eight". You will make mistakes along the way, I guarantee it. I've made plenty. I've been trading for over 10 years and recently I entered a spread order as a **Buy** to Open rather than **Sell** to Open, before I realized my mistake I was down \$600, then had to pay commissions and slippage just to get the positions back to what I wanted. All up it cost me nearly \$1,000. So if you make a mistake, don't fret about it. Get back up, brush yourself off, and don't make the same mistake again.

KISS – KEEP IT SIMPLE STUPID

Honestly, don't try to overcomplicate or overthink things. Just keep it simple, sometimes the simplest things are the ones that work the best.

DON'T BE AFRAID TO ASK FOR HELP

It's a fabulous time to be alive, never in the history of mankind has communication been so instantaneous and information so easily accessible. There are loads of traders out there who are willing to help you. I'm more than happy to help, so if you have any questions, please don't hesitate to drop me a line.