

# VOLATILITY SPREADS

HOW TO TRADE VOLATILITY WITH OPTIONS



AMIT GHOSH

# Volatility Spreads

Trading Volatility with Delta Neutral Option Trading Strategies

AMIT GHOSH

UNOFFICED

## AMIT GHOSH

E: dexter@aeron7.com

W: [www.amitghosh.net](http://www.amitghosh.net)

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First eBook edition: 12th April 2020

*To Kavita*

*For her advice, her patience, and her faith,*

*Because She always understood.*

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# Preface

My name is Amit Ghosh and I'm founder of Unofficed, a community which believes in financial independence backed by the idea of making money from home.

The Stock Market is an incredible source of financial independence. You can just work from home at your ease without having a boss on your top. Fascinated by many rags to riches stories you must have been in the same situation which I used to be in my earlier days, reading stories of how people like Rakesh Jhunjhunwala earned their money and built their empires.

## **But there is no road map!**

Being an online entrepreneur, I was always intrigued by stock market trading because the stock market is an apt way of making money using money. But all good books, resources were directed towards the US markets. Also, There was no good like-minded community. So I joined the Forex factory and started with currency trading - Forex.

In my later days, I joined Quora, Tradingview and a few other forums where I was able to interact with many like-minded traders and with them, I started the Unofficed community.

Volatility doesn't only create irrational pricing in stock prices only. It also creates irrational pricing in every other instrument which includes options as well. Our aim is to capture this mispricing.

The aim of this book is to understand the effect of option pricing in cases of volatility contraction and volatility expansion.

**The book is not for beginners.** Pardon me but the basic concepts are already out there on the Internet and if we discuss all of them, the book will surpass the size of Harry Potter and the Order of Phoenix.

Amit Ghosh

12 Apr 2020

# Introduction

*October: This is one of the peculiarly dangerous months to speculate in stocks. The others are July, January, September, April, November, May, March, June, December, August and February.*

- Mark Twain, *Pudd'nhead Wilson*

## The Olive Press

Ancient Greece was famous for Olive. Olives and olive oil have long been some of the main ingredients of the Greek diet, no matter how poor people may have been or what other means of survival they had.



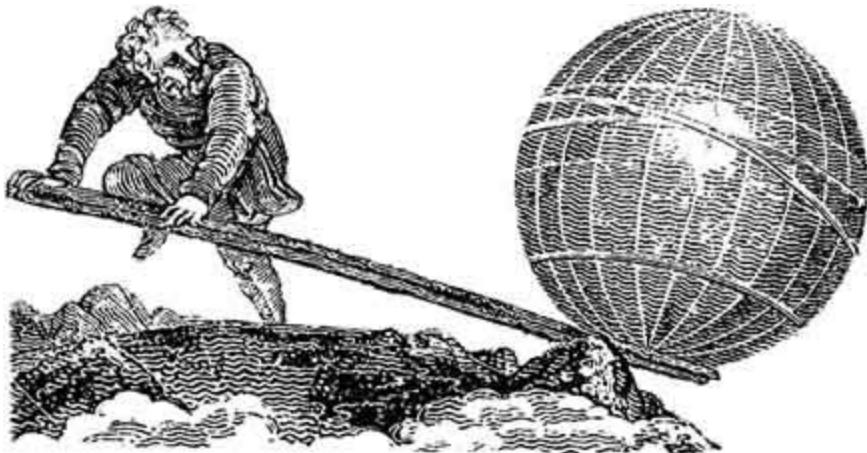
I'm married to a Rajasthani Wife. She cannot survive without Ghee in Chapatis. Well, in her defense, She will tell, Bengalis cannot survive without potatoes and sugar. Well, that's fair!

Given the importance of Olive oil, even the tiniest villages in ancient Greece used to have multiple (mostly 3) olive presses. In those days, the barter system was still valid. People exchanged services and goods for other services and goods in return. In India, We used to exchange cows. Imagine spending 10 cows on an iPhone. So most of the olive presses provided the facility to the villagers in exchange for a fee - traditionally 1/10th of the olive oil produced.

The annual olive picking season would typically take place in autumn. The rest of the year, it is like the off-season. We, Indians, chase Govt jobs like a madman. In those days, working in the olive press was a well compensated good job. There are anecdotal stories of men using family ties or other connections to find their way to a working spot in the press. Times were truly different.

Aristotle wrote in his book “Politics” about Thales of Miletus. Thales having good knowledge of meteorology was able to predict that there was likely to be a heavy crop of olives next summer.

Thales wanted to bank on this idea with leverage. The solution he came up with is considered as the first documented example of derivatives.



Generally, Olive presses go unused in Summer because Olive used to harvest in Autumn. So Thales put a down payment in the early years, for the hire of all olive-presses in Miletus and Chios (a large area in Ancient Greece) for the entire summer; and he managed to get at very very low rates because there was no higher offer available in the market.

When the summer came and simultaneous demand kicked in for olive presses, he profited on a huge scale.

**That's why and how it was invented - for Leverage!**

### The Rainfall

Let's talk about two cases - The chance of having rainfall in the next 1 day (Case A) and the chance of having rainfall in the next 10 days (Case B). It is obvious, predicting a shorter duration has a higher probability of winning!



So, it is quite easy to assume, You'll bet (read, gamble) less money in Case A than Case B because uncertainty increases with Case B so your chance of winning in Case B is higher.

If you're in a dilemma in choosing between Case A and Case B. That's normal because of perceptive human nature. Introduce Case C which is The chance of having rainfall in the next 100 years.

Now you can see Case C has a higher probability of winning/profit (POP) than Case B whereas, Case B has higher POP than Case A.

POP (Case C) > POP (Case B) > POP (Case A)

So, think of the guy who is betting against you. He will ask for more money for Case B than Case A. His chance of winning is going less. It's obvious. So, you've to pay more money for Case B than Case A now.

# Volatility

Volatility is the statistical measure of the riskiness of a given security. It tells how much the price of the underlying asset has moves/moving on a timeframe. The higher the volatility, the riskier the security.

**Volatility Trading:** Any security whose price moves, exhibits price volatility. Volatility trading is simply buying and selling the expected future volatility of the instrument. Rather than predicting whether the price of an asset will move up or down, volatility traders are concerned with how much movement, in any direction, will occur.

The most common way to trade volatility is via options. Anyways, There are two types of volatility an options trader need to be aware of -

- Historical Volatility/Realized Volatility
- Implied Volatility/Expected Volatility

# Implied Volatility

Implied Volatility is an estimate of expected movement in a particular stock or security or asset. It basically tells what the market is “implying” about the volatility.

It is derived from the price of an option in the market. The price of the options contract has to be put in the Black-Scholes formula<sup>1</sup> and the volatility component gets reverse calculated.

The implied volatility is high when the expected volatility/movement or uncertainty is higher and vice versa.

This expected volatility may be higher due to a variety of reasons like corporate announcements, macroeconomic announcements, financial result updates, etc. Due to these, the markets may expect a knee jerk reaction in the prices of the underlying asset which shall result in heightened activity and high volatility in prices i.e. a higher IV or implied volatility.

**Note:**

- Implied Volatility is a property of options.
- Options have expiration price. So, Implied Volatility of a deep OTM option will be dynamically lower compared to an ATM option.
- Demand for Put and Call strikes will be different arising asymmetry or so called skewness to the IV of those aforesaid options.
- Implied volatilities are computed using the Black-Scholes option pricing model.

Generally, for sake of discussion and decision making, the IV of the ATM strike prices are summed and averaged. In some places, one ATM and two subsequent near ATM strike price's IVs are taken and averaged.

<sup>1</sup> Black-Scholes is one of the most popular options pricing models. However, choice of pricing models varies on traders.

PUTS											
Strike Price	Bid Qty	Bid Price	Ask Price	Ask Qty	Net Chng	LTP	IV	Volume	Chng in OI	OI	
18500.00	20	335.00	338.00	180	-379.50	337.00	81.50	17,863	45,540	56,860	
18600.00	60	369.70	409.00	20	-361.65	369.70	83.14	245	1,560	1,860	
18700.00	20	342.00	435.00	20	-354.60	445.70	77.27	112	640	1,040	
18800.00	20	421.05	494.05	200	-260.25	450.00	85.40	143	880	1,100	
18900.00	20	423.00	470.00	20	-494.80	430.00	82.26	100	480	560	
19000.00	40	487.00	488.00	80	-452.85	487.00	79.29	35,328	104,260	124,240	
19100.00	40	401.05	580.80	40	-378.00	522.05	79.36	326	1,520	1,600	
19200.00	40	544.05	593.95	40	-257.05	545.00	79.96	639	2,600	2,780	
19300.00	20	601.00	687.70	200	-625.00	675.00	78.56	522	1,920	1,980	
19400.00	80	600.00	666.95	40	38.65	666.40	76.08	321	1,840	1,840	
19500.00	20	671.00	681.00	80	-527.65	680.00	77.24	25,966	64,920	68,160	
19600.00	20	715.90	749.00	40	63.25	749.00	82.05	732	4,680	4,680	
19700.00	40	750.00	819.95	60	34.00	750.00	-	338	3,400	3,400	
19800.00	20	737.20	820.00	20	52.85	800.00	-	274	3,440	3,440	
19900.00	160	870.00	900.00	60	91.65	870.00	-	60	760	760	
20000.00	20	902.00	925.00	20	-598.30	920.00	74.77	8,405	40,740	41,880	
20100.00	2,000	705.00	1,176.75	2,420	-	-	-	-	-	-	
20200.00	2,000	805.00	1,253.90	2,420	-	-	-	-	-	-	
20300.00	2,000	525.00	1,339.15	2,420	-	-	-	-	-	-	
20400.00	2,000	801.00	1,375.85	2,420	-	-	-	-	-	-	
20500.00	20	1,164.45	1,220.00	20	672.55	1,215.00	85.55	188	3,080	3,080	
20600.00	1,000	901.00	1,457.70	2,420	-	-	-	-	-	-	

BankNIFTY's last traded price is 19913.60. The above price is from an option chain<sup>2</sup> provided by the National Stock Exchange(NSE).

In some cases, We can see blank fields in IV due to illiquidity of the said contracts.

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<sup>2</sup> An option chain, also known as an option matrix, is a listing of all available option contracts, both puts and calls, for a given security within a given maturity period.

# Historical Volatility

Historical volatility is the actual computed volatility of the stock/security/asset over the past year.

It acts as a reference point for understanding whether the IV is higher or lower as compared to the historical volatility.

Options are insurance contracts, and when the future of an asset becomes more uncertain, there is more demand for insurance on that asset. When applied to stocks, this means that a stock's options will become more expensive as market participants become more uncertain about that stock's performance in the future.

When the uncertainty related to a stock increases and the option prices are traded to higher prices, IV will increase. This is sometimes referred to as an "**IV expansion.**"

On the opposite side of IV expansion is "**IV contraction.**" This occurs when the fear and uncertainty related to a stock diminishes. As this happens, the stock's options decrease in price which results in a decrease in IV.

## **How to know when an option is underpriced or overpriced?**

This is sort of the most important question for any traders and specially, the ones who trade volatility.

Take historical volatility of an asset and put it to Black Scholes model, You will get the Call and Put options for various strike prices and that can be compared with current option prices. (But, We generally only tally ATM options as complexities kick in with far strike prices.)

However, this is all a theoretical approach. Generally, if IV is higher than historical IV, It can be easily assumed that options are overpriced by this theory.

You should remember that the IV's are usually high ahead of any specific event or announcement and fall after the same and hence option prices may not move exactly the same way as the stock/contract does due to the change in the IV.



As can be seen in the above diagram, Option values will be higher if the IV is greater and vice versa.

In the current case, if the IV went up from the current levels of 15% to 20%, the value of the option would go up to 96.41 and in case the IV went down to 10%, the value of the option would go down to 55.70.

To check the IV's for a variety of contracts of the same underlying, you can check the same on the Option chain available on the NSE Website.<sup>3</sup>

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<sup>3</sup> We are assuming you are trading in Indian options and using NSE as your stock exchange. Anyways, every stock exchange which allows options trading also provides Option Chain.

# Volatility Skew

Volatility Skew refers to the difference in implied volatility of each opposite, equidistant option.

Theoretically,

- Call options and Put options of the same strike price should have the same/similar amount of IV.
- Options in OTM Puts which are equally far from the Options in OTM Calls should have the same/similar amount of IV.

But it doesn't happen! Because, after the crash of Black Monday (Oct 19, 1987), there is an asymmetry or skewness in the pricing of put options and call options. The market fell sharply.

And, velocity attributes to skewness.

The OTM put options have been much more attractive to buyers because of the possibility of a massive payoff. **So, IV in OTM puts is usually higher than the equivalent OTM calls.**

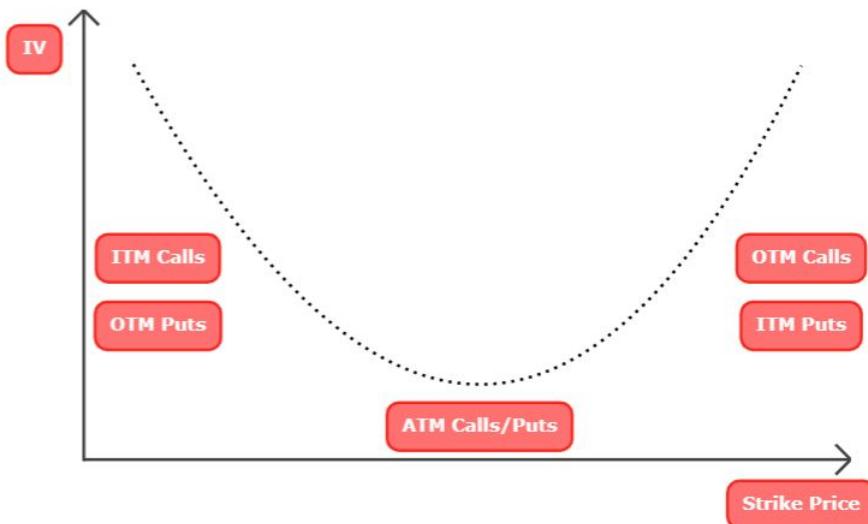
The inverse relationship between the stock price and IV is a result of historical market evidence demonstrating that markets fall much more quickly than they rise.

**In short, IV rises when markets decline; IV falls when markets rally.**

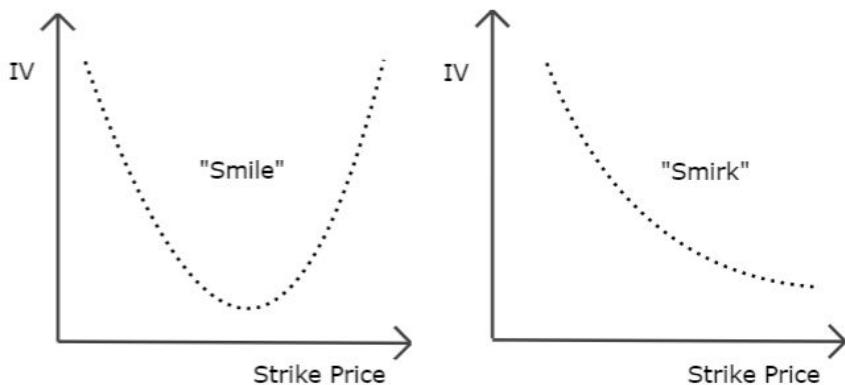
## Volatility Smile

If we plot the shape of IV as a function of strike price for options of the same expiry cycle across the option chain, We should get a flat curve according to the theory of Black Scholes model.

So, When ATM options have lower IV than OTM options, the situation is known as Volatility Smile. We encounter an upward sloping graph as we move away from ATM options to OTM options.



Also, When OTM Put Options which are equally far from the OTM Call Options should have different IV, the situation is known as Volatility Smirk.



#### Notes:

- Volatility skew tells not all options on the same underlying and expiration have the same IV.
- Both the cases of Volatility Smile and Volatility Smirk falls are variants of skewness of Volatility.
- The OTM options are usually more expensive.
- OTM Puts are usually more expensive than OTM call options.

## Prospect Theory

Our reasoning behind Volatility Skew is summed by one of the main findings of Prospect Theory, for which the Economics Nobel was given to Kahneman and Smith in 2002 is that people tend to be more risk seeking when down and tend to be more risk averse when up.

A real life example of this many can relate to is increased risk seeking when losing in poker vs. decreased risk seeking when up.

The same magnitude of loss hurts more than the same amount of gain is pleasurable (or relatedly, missing out on greater potential gains), so people will act to minimize losses and lock in gains.<sup>4</sup>

The volatility skew showing greater IV at lower strike prices would imply that people are willing to pay more to avoid the pain of a loss, than to capture the pleasure of a gain.

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<sup>4</sup> This is also called Disposition Effect.

# Implied Volatility Rank

IV Rank is measurement of current IV from 0 to 100 range based on the historical implied volatility range (High IV - Low IV) of that instrument on a certain timeframe. We usually look at a time frame of one year.

It is impossible to take note of all historical IV and keep doing calculations to compare it with current IV. IVR does the job.

## Calculations:

IV Rank is calculated using the formula.

$$\text{IV Rank} = \frac{(Current\ IV - 52-\text{Week}\ IV\ Low)}{(52-\text{Week}\ IV\ High - 52-\text{Week}\ IV\ Low)} * 100$$

Let's say the IV range is 30-60 over the past year. Thus the lowest IV value is 30, and the highest IV value is 60. We need to compare the current IV value to this range to understand how the current IV ranks in relation to its historical IV range.

If the current IV value is 45, then this would equate to an IV Rank of 50% since it falls in the middle of this range.

## Usage:

When IV Rank approaches a value of greater than 50, then option sellers can use this to their advantage to take in rich options premium with the expectation that this implied volatility will decrease.

- Comparing one stock's implied volatility to another isn't apples-to-apples.
- Comparing one stock's implied volatility rank to another is an apples-to-apples comparison!

### **Drawbacks:**

One of the drawbacks with IV Rank is that it doesn't take extreme IV spikes into account. If there is any fundamental event like corporate earnings, it can shoot IV to 300% for a few hours. But, IV rank will be stuck at 100 because of our choice of range.

Also, because of this same reason - When IV falls after a massive surge in implied volatility, IV rank readings will be low even when the implied volatility of the stock is still relatively high.

IV Rank doesn't tell the whole story. IV Percentile takes care of this flaw.

# IV Percentile

Many traders get confused with the concept of Implied Volatility Rank (IVR) and Implied Volatility Percentile (IVP) and use them interchangeably.

IV Percentile is the percentage number of days over the past one year the IVs are under the current IV. In other words, an IV percentile of 60% means implied volatility traded below the current level for 60% of the days in the past 52-week.

So, it means that implied volatility at current price is higher than usual.

IV Rank	IV Percentile
Measurement of current IV from 0 to 100 range based on its yearly high and low IV.	Percentage of days over the past year that were below the current IV.

Now, when the implied volatility of a stock spiked to 40% which is way beyond its high of the historical IV. The IV rank will shoot to 100%. But, what would happen if it stayed at 40% for an extended period of time?

Well, IV rank would be pinned at 100%, telling you that the 40% IV is the highest implied volatility the stock has seen over the past year. However, IV percentile would fall, as the 40% IV becomes more "normal."

So, when a market's implied volatility personality changes, IV percentile will be the first to let you know. IV percentile doesn't suffer from the flaw of IV rank after an abnormally large increase in implied volatility.

IV percentile takes account of the recent changes, tells you more of the story and also serves as a "mean-reversion" indicator.

## VOLATILITY SPREADS

Although IV percentile is superior to IV rank, what is more important is the Implied Volatility itself. Different traders have their own preference.

# The Option Greeks

If you're an options trader, you may have heard about "Greeks," but perhaps you don't know exactly what they are or, more importantly, what they can do for you.

To discuss volatility spreads, it is important to discuss greeks. Various risk variables attached to an option position are typically associated with Greek symbols. Each greek symbol is based on assumptions based on various things like correlations between themselves as well.

Each greeks have a different meaning and importance and are used by traders to assess risk of their position or portfolio and to estimate the outcomes of the payoff graph.

In short, it gives us a mathematical understanding. Greeks are calculated using a theoretical options pricing model.

Delta, Gamma, Theta, and Vega - which are the first partial derivatives of Black Scholes options pricing model are the more common ones.

# Delta

The Delta of an option estimates the rate of change in the price of the option given a 1 point move in the underlying asset. In short, it gives us a better understanding of our directional exposure.

Delta hovers between -

- 0 to 1 for a call option.
- -1 to 0 for a put option.

Many traders use -100 to 100 scale instead of -1 to 1.

For example, if a stock option has a delta value of 0.5, this means that if the underlying stock increases in price by 1 per share, the option on it will rise by 0.5 per share, all else being equal.

Right now, NIFTY's LTP is 9111.9.

So NIFTY 16th Apr 9100PE is considered as an ATM put option. It's trading at 253.7.

Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 16APR20 9100PE	58.63	47.41	2361.01	-0.06	-448.31

## The Concept of Rupee Delta

In this case, Delta of 47.41 means we gain 47.41 when stock goes up by 1 point and lose 47.41 Rs when stock goes down by 1 point.

But, We are forgetting one thing i.e. lot size. In America, when the concept of Delta kicked in, the common lot size was 100. In case of NIFTY, the lot size is right now 75.<sup>5</sup>

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<sup>5</sup> The Lot size keeps changing time to time.

The above position is about 1 Lot 16APR20 9100PE  
i.e. 75 quantity of 16APR20 9100PE.

But the Delta of 47.41 is based on an assumption of 100 quantities of 16APR20 9100PE. We need to convert the Delta according to the lot size of our position.

Delta's value for 100 quantity = 47.41

Delta's value for 1 quantity = .4741

Delta's value for 75 quantity =  $.4741 * 75 = 35.5575 \sim 35.56$

Similarly, We need to do the same for all the greeks -

Position	IV	Delta	Theta	Gamma	Vega
-1x 16APR20 9100PE	58.63	35.56	1770.79	-0.05	-336.23

Now, it is correct. It's called the Rupee Delta or "Delta in Rupees". We can extend the term to Rupee Theta, Rupee Gamma and Rupee Vega.

Although Options Greeks initially started assuming with 100 quantity lot size. Now-a-days, the lot sizes of security varies expiration cycle wise as well as exchange wise.

So, we must ensure that the greeks are calculated to the proper lot sizes directly. Anyways, We shall just continue to say plain Delta, Theta, Gamma, Vega assuming they are properly calculated with the lot size.

## The Confusion in Calculation

If NIFTY falls to 9000, then what shall be the price of our 1 Lot NIFTY 16APR20 9100PE?

- Fall in NIFTY = 9111.9 - 9000 = 111.9 points
- Delta of 16APR20 9100PE = 35.56
- Premium of 16APR20 9100PE = 253.7 points =  $253.7 * 75$  INR.
- Expected Increase in Premium =  $35.56 * 111.9$  INR.
- Expected Increase in Premium per 1 qty =  $(35.56 * 111.9) / 75$  points  
= 53.05552 points  $\sim$  53.1 points

So, the price of our 1 Lot NIFTY 16APR20 9100PE will be (253.7+53.1) points = 306.8 points.

If it looks confusing but it is necessary to the root of it -

- By 1 point we mean the impact of 1 quantity only. And, We took a position of 1 lot which is 75 quantities.
- The Delta of the position -1x 16APR20 9100PE is 35.56. [Note that, the number of lots is mentioned here]
  - In this case, Delta of 35.56 means we gain 35.56 when stock goes up by 1 point and lose 35.56 Rs when stock goes down by 1 point.
  - **We are holding 1 lot which is 75 quantities in this case!**
- The Delta of 9100PE is 47.41
  - In this case, Delta of 47.41 means we gain 47.41 when stock goes up by 1 point and lose 47.41 Rs when stock goes down by 1 point.
  - **We are holding 100 quantities!**

### The Concept of Share Equivalency

Each share of stock is 1 delta, so 75 shares of stock would equal 75 positive deltas. Now a short OTM put sold with a .3 Delta can be viewed as a purchase of .3 shares.<sup>6</sup>

Here is a table that gives approximation of Delta values -

Option Type	Approx value (CE)	Approx value (PE)
Deep ITM	+ 0.8 to + 1	- 0.8 to - 1
Slightly ITM	+ 0.6 to + 1	- 0.6 to - 1
ATM	+ 0.45 to + 0.55	- 0.45 to - 0.55
Slightly OTM	+ 0.45 to + 0.3	- 0.45 to - 0.3
Deep OTM	+ 0.3 to + 0	- 0.3 to - 0

---

<sup>6</sup> In case we sell 1 Lot Nifty, It will be equivalent of  $.3 \times 75 = 22.5$  shares.

It's important to remember that deltas change, so if the stock price dropped the put deltas would increase significantly. So, one needs to keep managing the delta actively!

Note: If it is written about selling a put option with 30 delta. It will mean .3 only. As said earlier, many traders use -100 to 100 scale!

### **Greeks in Decimal**

While discussing the Greeks Calendar Spread, Time Butterfly Spread and Diagonal Spread We have shown the Greeks in decimal value as the theta column gets too high.

It assumes the quantity as 1. We can multiply this value with the lot size to get the correct figure for the position.

# Probability of Profit

Usually, the Probability of Profit or, POP of an option trade means the chance of making at least 0.01 INR in that option trade (In other words, Not making loss!). It is roughly calculated using the greek Delta.

If you buy or sell an ATM option which has a delta of around 50, the probability of the option expiring in-the-money (ITM) or out-of-the-money (OTM) respectively is 50%, i.e. the trade has a success of 50% of being profitable at expiry.

Similar probability calculations are also done for the OTM options.

For an option buyer, a far OTM call/put option with a delta of 16 has a 16% probability of expiring ITM and profitable or 84% (100-16) chance of expiring OTM and worthless at expiry. For an options seller, it is 84% chance of making profit.

Also, We shall be calculating the POP with respect to the entire position i.e. we need to make sure delta reflects the lot size too while calculating.

It's easy to calculate POP for naked puts or calls but gets a little complicated when calculating it for multi-legged strategies like strangle, straddle, ratio spreads, jade lizard etc.

Position	IV	Delta	Theta	Gamma	Vega
-1x 16APR20 9100PE	58.63	35.56	1770.79	-0.05	-336.23

**What is the POP of the option seller who sells 1 lot 9100PE?**

$$100 - 35.56 = 64.44\%$$

**But, if we sell 2 lot 9100PE, the delta becomes 71.12. What is the POP?**

It stays the same obviously! The probability does not change if you increase the amount in the position. To calculate POP, We need to

consider 1 lot only. But as said, it becomes complex with more advanced strategies.

## Linear Relationship

Just for clarification, delta and probability of expiring in the money are not the same thing. What we meant is that delta is usually a close enough approximation to the probability.

One way to think about it is to look at the probabilities and deltas of In the Money, Out of the Money, and At the Money options.

- A deep in the money option has a really high chance of expiring in the money, around 100%, and it has about 100 delta
- A far out of the money option has a really low chance of expiring in the money, around 0%, and it has about 0 delta
- An at the money option has about 50% probability of being in the money because there is a 50-50 chance the stock will go up or down, and it has about 50 delta

In these cases, the delta and probabilities are about the same. In fact if you look at an options chain with delta and probabilities, you can see that they are all about the same. In other words, there is a linear relationship between delta and probability.

Also note that - Delta varies as implied volatility changes. So does our POP.

Here is an example of increasing complexity of POP calculation. Let's calculate the POP of an ATM short straddle. Before we dive into more details, we need to discuss two important concepts of mathematics.

## Bayes Theorem

Bayes' Theorem is a way of finding a probability when we know certain other probabilities.

The formula is:

$$P(A | B) = \frac{P(B | A) \cdot P(A)}{P(B)}$$

It tells us how often A happens given that B happens, written  $P(A|B)$ .

**When we know:**

- How often B happens given that A happens, written  $P(B|A)$
- And how likely A is on its own, written  $P(A)$
- And how likely B is on its own, written  $P(B)$

**Probability of Independent Events**

But, Let's say, there is no connection between two events.

$$P(A|B) = P(A).$$

$$P(B|A) = P(B).$$

- The probability of A, given that B has happened, is the same as the probability of A.
- Likewise, the probability of B, given that A has happened, is the same as the probability of B.

This shouldn't be a surprise, as one event doesn't affect the other.

So, there are two cases -

- When two events, A and B, are independent, the Probability of both occurring is  $P(A \text{ and } B) = P(A) * P(B)$ .
- When two events, A and B, are independent, the Probability of one of them occurring is  $P(A \text{ or } B) = P(A) + P(B)$

**Probability of Profit for Straddles**

Right now, NIFTY's LTP is 9111.9. Let's say we have sold 9100PE and 9100CE of 16th Apr expiry to form a short straddle setup. The call options lower the breakeven of downside while the put options lower the breakeven of upside. Hence, POP of this setup is dependent on each other.

**Current Setup -**

- Sell NIFTY 16th Apr 9100PE at 213
- Sell NIFTY 16th Apr 9100CE at 253.7

Position	IV	Delta	Theta	Gamma	Vega
----------	----	-------	-------	-------	------

-1x 16APR20 9100CE	47.43	-39.41	1496.81	-0.06	-321.78
-1x 16APR20 9100PE	61.2	35.59	1931.36	-0.05	-321.78
Positional Greeks		-3.82	3428.17	-0.11	-643.56

To calculate POP, The correct approach is to find the Breakevens of this setup. In this case -

- Lower Breakeven:  $9100 - (213 + 253.7) = 8633.3$
- Upper Breakeven:  $9100 + (213 + 253.7) = 9566.7$

As we notice, Chances of breaking Lower Breakeven and Upper Breakeven are independent events! And, in a similar manner, We can calculate the POP of our breakeven breaking.

We can restructure the question as follows -

- What is the POP of 8650PE?
- What is the POP of 9550CE?

We need to take the nearest ITMs with respect to the Breakeven points.

- Delta of 8650PE is 23.32
- Delta of 9550CE is 21.63

So,

- Probability of Profit if we buy 8650PE is 23.32% or .2332
- Probability of Profit if we buy 9550CE is 21.63% or .2163

Now, if one of our breakeven breaks i.e. if one of 8650PE and 9550CE buy goes into profit, that will be our probability of profit for the short straddle.

$$P(A \text{ or } B) = P(A) + P(B)$$

$$\begin{aligned} P(\text{Buy 8650PE or Buy 9550CE}) \\ = P(\text{Buy 8650PE}) + P(\text{Buy 9550CE}) \\ = .2332 + .2163 \\ = .4495 \end{aligned}$$

This is our probability of loss for the short straddle. So, the Probability of profit for the short straddle will be  $1 - .4495 = 0.5505 \sim 55.05\%$

## VOLATILITY SPREADS

Here is a quick summary of POP calculation of few other strategies based on the above theory -

Strategy	POP Calculation
Naked Put	Strike Price - Premium = Breakeven. 100 - (Probability of Breakeven ITM) = POP.
Covered Call	Stock Price - Premium = Breakeven. Probability of Breakeven ITM = POP.
Vertical Spread	100 - ((Credit Received/Width of the Spread)*100) = POP.
Short Strangle Short Straddle	Put Strike - Premium =Breakeven. Call Strike - Premium =Breakeven. 100 - (Probability of Breakeven1 ITM + Probability of Breakeven3 ITM) = POP.
Iron Condor Iron Butterfly	100 - ((Credit Received/Width of the Spread)*100) = POP.

Statistically, POP can be utilized in conjunction with the statistics based strategy of having a high number of trading occurrences. At the end of the day, probabilities are probabilities. If we risk our entire account on one trade that has a POP. of 80%, we may win; however, the statistics tell us that we will lose approximately 20% of those trades over time. If one of those times happens to be now, we would be wiped out with no cash left to put on more trades!

Also, the higher the POP, the lower the profit potential. ATM options have lower POP than OTM options in terms of selling.

# Extrinsic & Intrinsic Value

Option Price = Intrinsic value + Extrinsic value

**Extrinsic value** is time & volatility value.

This is affected by time until expiration and implied volatility. All options have some level of extrinsic value as long as there is time left until the expiration of the option.

**Intrinsic value** is the real value at expiration.

If the strike allows the option owner to buy shares at a discount (calls), or sell shares at a higher price than the market (puts), the option will have intrinsic value and be considered to be in the money. Calls that are below the stock price have intrinsic value. Puts that are above the stock price have intrinsic value.

NIFTY 50 INDEX	○	9915.25
NIFTY AUG 10200 CE	○	36.20
NIFTY AUG 10200 PE	○	284.80
NIFTY JUL 9600 CE	○	309.90
NIFTY AUG 9600 PE	○	39.40

In the above image,

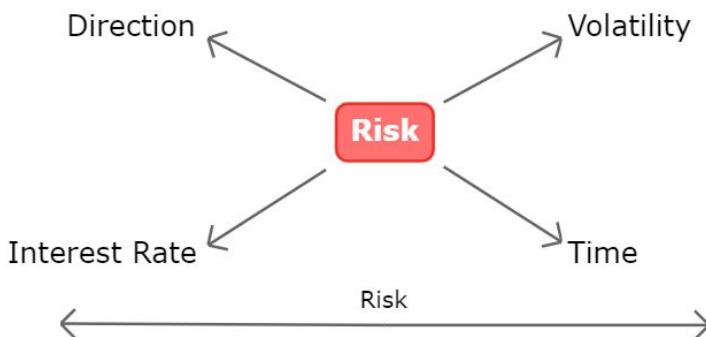
- Intrinsic value of 10200 CE is 0.
- Intrinsic value of 10200 PE is  $10200 - 9915.25 = 284.75$
- Intrinsic value of 9600 CE is  $9915.25 - 9600 = 315.25$ .
- Intrinsic value of 9600 PE is 0

For OTM options, there is no intrinsic value. Extrinsic Value always becomes zero at the expiration.

# Theta

The option's theta is the rate of decline in the value of an option over time. The theta measures the rate at which options lose their value. It basically tells about the decay of an option's extrinsic value.

But theoretically, Theta assumes implied volatility and price movement stays at the same place. But implied volatility and any price movement inflates the extrinsic value.



The more rise in risk, the more rise in extrinsic value and vice versa. This is a linear relationship.

- Theta of +100 means you gain 100 Rs per day.
- Theta of -100 means you lose 100 Rs per day.

Option writers love Theta. Selling options means having positive theta and buying options means we have negative theta.

- ITM options have theta of almost 0 as they do not lose value on a daily basis.
- The extrinsic value is highest on the ATM options. So, the effect of theta is highest on the ATM options.

# Vega

Vega is the change in the option price when the Implied Volatility of the underlying asset moves up or down 1%. Our profits/loss from IV collapse will be determined by Vega.

Volatility is calculated by a few things, namely -

- Change on the price.
- The speed at which the change in the price happened.
- Historical Price changes. (If the markets have gapped down over three times in the last three days, there is a high chance it can gap down tomorrow as well, Right?)
- Expected price movements. (Like Fundamental Events)

## **Vega's Relation with Expiry:**

The far the expiry, the higher the uncertainty and hence the more premiums than to those which expire immediately. Hence, The more time remaining to option expiration, the higher the vega.

This makes sense as the time value (i.e extrinsic value) makes up a larger proportion of the premium for longer-term options and it is the time value that is sensitive to changes in volatility.

## **Vega's Relation with Options' Direction:**

Options tend to be more expensive when volatility is higher. Options are insurance! When the volatility is high, the fear is high. When the fear is high, insurance becomes expensive.

Thus, whenever volatility goes up, the price of the option goes up and when volatility drops, the price of the option will also fall. When calculating the new option price due to volatility changes, we add the vega when volatility goes up but subtract it when the volatility falls.

**Therefore, Long Options and Spreads have positive Vega while Short options and Spreads have negative Vega.**

- Calendar Spread and Diagonal Spreads have long vega exposures.

## VOLATILITY SPREADS

- Naked options, Strangles, Straddles, Iron Condors, Short Vertical Spreads have negative vega.

In short,

- An increase in IV will benefit long option holders.
- A decrease in IV will benefit short option holders.

Straddles and Strangles are Delta neutral option strategies. So, Large moves are bad for these. The more the theta and IV (Hence, Vega) goes down, the more profit we will make here. Normally, We hold short vega portfolios as options sellers. We are exposed to a volatility spike.

### Vega's Relation with Market Crash:

Market going down spikes the fear and irrationality and hence, it also spikes the volatility. So, it has a negative correlation with the markets. The market falls with more velocity while falling but it rises up slow. (Fear always triumphs over greed!). So, volatility expansion also happens at a rapid pace. So it is always better to manage our vega.



Here is a side by side image of a spike in Volatility in Indian Markets along with the Stock Market Crash.

# Gamma

Gamma tells how delta will change when the underlying asset moves.

Like, A gamma of 0.0032 means We will gain ₹0.0032 delta for every ₹ 1 the underlying asset goes up by. It is a second order derivative of Delta.

Gamma is supposed to move opposite of Theta.

- Gamma is always positive when you buy an option.
- Theta is always negative when you buy an option.

And vice versa.

## Gamma Scalping

But there are cases where Gamma and Theta both decrease. These events are highly rare and extremely profitable if captured properly.

Amit\_Ghosh published on TradingView.com, April 09, 2020 01:23:31 IST  
 NSE:BANKNIFTY, 1D 18946.45 ▼ -116.05 (-0.61%) O:18799.40 H:20324.10 L:18482.90 C:18946.45



TradingView

## VOLATILITY SPREADS

These types of events will create extreme long wicks or long tails. Like, We can see an Inverted Hammer has been created showing extreme rejection from shorters in Intraday.

Amit\_Ghosh published on TradingView.com, April 09, 2020 01:25:49 IST  
NSE:BANKNIFTY, 15 18946.45 ▼ -116.05 (-0.61%) O:18878.15 H:18964.20 L:18875.00 C:18936.20



TradingView

The option's strike price selection should be based on technicals. Although, that will hence vary person to person as there will be different perception over different time frames.

12:30:26	BUY	BANKNIFTY 9th APR 20000 CE NFO	MIS	40 / 40	183.93	COMPLETE
10:28:41	SELL	BANKNIFTY 9th APR 20000 CE NFO	MIS	40 / 40	612.00	COMPLETE

### Notes:

- **Theta** is a "greek" that represents time decay. All other things equal, the longer the time elapsed before the maturity date, the less the value of the option. That is, theta is negative over time.
- **Gamma** refers to the "second derivative" of the price of the underlying asset. (The option captures the "delta," or the first

derivative).

As it is a second derivative, gamma is positive when the price of the underlying asset moves towards the strike price of the option, and negative when it moves away. So depending on the price movements, gamma could be either positive or negative, while theta is negative, and the two could thus be positively or negatively correlated.

We already know that maximum Theta erosion happens on the ATM strike price. Now, We can see the effect of Gamma erosion is highest in the ATM strike price again.

## Expiration Risk

The most important factor about Gamma is expiration risk. If there is sudden movement of the spot when the expiry is near, then the effect could be devastating for the naked options short holder.

Published on TradingView.com, April 09, 2020 01:44:37 IST  
 BANKNIFTY2040921000CE:NFO-OPT:14741250, 5 O:13.85 H:14.10 L:12.50 C:13.00



Here is a graph of 9th Apr 21000CE which shows the effect of gamma based on the huge movement as shared in the previous image.

In the image, One can also notice the rapid erosion of premium as the very effect of Gamma starts fading.

It is hard to explain Expiration Risk in a layman way without the help of math but here is a quick summarized version -

- The probability of very deep OTM options going ITM at the end of the expiry is very low. So, the delta's too small. Hence, the delta will become very high if it becomes ITM.
- So, the rate of change of delta i.e. the gamma will be highly aggressive in this case. The more improbable scenario happens, the more aggression!

### **Gamma Vs Vega**

In volatility spreads,

- Delta is supposed to be neutral.
- Theta is supposed to be moving opposite of Gamma

So, Let's compare the effect of Gamma and Vega only with respect to the market conditions that will benefit the net positions.

Gamma	Vega	Movement of the Underlying Contract	IV
+ve	+ve	More	Rise
-ve	-ve	Less	Fall
+ve	-ve	More	Fall
-ve	+ve	Less	Rise

This is the most important table that is needed for the construction and rebalance of volatility spreads.

# Effect of Interest Rates

## What is Interest Rate in Options Trading?

People often make the mistake of assuming that the interest rate you get from the bank while putting your money is the same interest rate being discussed in Options Trading!

The “interest rate” referred in relation to Options Trading is known as “Risk-Free Interest Rate”. Now, what do you mean by the Risk-Free Interest rate? The Risk-Free Interest Rate is the interest an investor would expect from an absolutely risk-free investment over a given period of time.

Since this interest rate can be obtained with no risk, it is implied that any additional risk taken by an investor should be rewarded with an interest rate higher than the risk-free rate.<sup>7</sup>

Most of the world uses the London Interbank Offered Rate (LIBOR) which is sort of a benchmark interest rate for major global banks. If not LIBOR, Mostly the overnight interbank offered rate of that country is chosen. In India, We use Mumbai Interbank Offer Rate (MIBOR).

You can see live MIBOR rates at <https://fbil.org.in/>. It's 4.61% for 3rd April 2020.

Now, By investing in another financial instrument such as Options or buying a stock, the trader is foregoing the risk-free interest they can get on their money. So, option pricing models involve risk-free interest rates!

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<sup>7</sup> The risk in government bonds doesn't come from default since the government can print as much as it likes. But the risk comes from the devaluation of the currency due to inflation (caused by said money printing). Refer to *Venezuela, Zimbabwe*

The annualized continuously compounded rate on MIBOR is then taken into consideration in the Black Scholes Model for the calculation of theoretical options price as the options greek "Rho".



### **Effect of Interest Rates on Call Options**

Premium of Call options rises when the interest rate rises and vice versa.

Anyways this is obvious because of the Interest Rate Component (Rho) changes in the Black Scholes Options Pricing model. But what can be real life justification for this effect?

Risk Free Interest rate is the opportunity cost for the trader who invests in other financial instruments such as stocks or options. When interest rates are high, the opportunity cost of buying stocks becomes higher. This is what makes buying call options more attractive than buying stocks as we pay a fraction of the cost of the money it takes to buy the actual stocks. The rest of the money is assumed better utilized with risk free returns! Anyways, it theoretically justifies for slightly higher premiums of call options assuming other factors unchanged.

Also, There is the quote: " As interest rates in the economy increase, the expected return required by investors from the stock tends to increase. In addition, the present value of any future cash flow received by the holder of the option decreases". So, We are supposed to pay a higher premium for the future obligation of ownership of the stock.

## **Effect of Interest Rates on Put Options**

Premium of Put options falls when the interest rate rises and vice versa.

We can use the same arguments used above in case of call options to build up rational reasoning over this comment.

## **Effect of Interest Rates on Realistic Trading**

Interest rate only affects the extrinsic value of an option and not the intrinsic value. So, OTM options having a high extrinsic amount get more affected as well as options with a far expiration cycle get more affected because of the same reason.

But, actually, interest rates rise so slowly that its effects are overshadowed by the price fluctuations caused by other options greek. Interest rate change is a high volatility event which triggers implied volatility and hence, vega! That affects extrinsic value significantly more than interest rates does.

# Effect of Dividends

## What is Dividend?

When a company makes profit and wants to reward the shareholders for investing in the company, the board of the directors issue payoff per share which is known as Dividend.

Dividend reduces the cash holdings and hence, the total book value of the company. So, An increase in dividends lowers the forward price of the stock and vice versa. The stock price is expected to drop by the amount of the dividend on the ex-dividend date. (Typically, the investor who buys the stocks on its ex-dividend date or later will not be eligible to receive dividends!)

## Effects of Dividends on Stock Options

Many options traders are ignorant about the effects of dividends on stock options. In India, We trade European options. Black-Scholes model was designed to evaluate European options only which don't permit early exercise. So it does not even take dividends into consideration in the calculation of theoretical options premium.

Dividends, however, have the opposite effect on stock options as changes in interest rates.

## Effects of Dividends on Put Options

If a stock is expected to drop by a certain amount, that drop would already have been priced into the intrinsic value of its put options way beforehand.

Let's have a slightly different analogy. If you are short a dividend paying stock, you would be expected to pay back the dividends declared while no

such payback is needed if you own its put options instead. This makes owning put options on dividend paying stocks more desirable than shorting the stocks itself.

So, if seen in the reverse way, sellers of put options in dividend paying stocks are assumed to give the dividends.

So, Dividend means higher put premiums.

### **Effects of Dividends on Call Options**

All the previously discussed analogies can be justified for Call options too.

In short, sellers of call options on dividend paying stocks are assumed to receive the dividends and hence the call options can get discounted by as much as the dividend amount.

So, Dividend means lower call premiums.

### **Effect of Dividends on Calendar Spreads**

- If all the options have the same expiry cycle, the effect of dividend eases out as it will have almost equal effect on all the options. So, the change in the value of the spread will be negligible.
- But, We are having a calendar spread here! If atleast one dividend payment is expected between the expiration cycles, the dividend will cause a call calendar spread to narrow (like premiums of call options get contracted) and will cause a put calendar spread to expand.

A notable fact is - If the stocks pay no dividend, then the value of a call calendar spread should always have more value than 0. It will be at least the worth of cost of carry.

Although there are no greeks associated with dividend risk, we can safely say a call option/spread/calendar spread has negative dividend risk and vice versa.

# Volatility Spreads

*The true investor welcomes volatility ... a wildly fluctuating market means that irrationally low prices will periodically be attached to solid businesses.*

- Warren Buffet

Volatility doesn't only create irrational pricing in stock prices only. It also creates irrational pricing in every other instrument which includes options as well. Our aim is to capture this mispricing.

Our main task is to understand the effect of option pricing in cases of volatility contraction and volatility expansion. Fear tends to manifest itself much more quickly than greed, so the downside markets tend to be highly volatile. Whereas, in upside markets, volatility tends to gradually decline.

## Delta Neutrality

Anyways, Let's start with the most important concept of delta neutrality which is the first necessary step to dynamically hedge options.

Let's say we have a sell position on BankNIFTY 9th Apr 19500CE at 141. Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 09APR20 19500CE	88.46	-5.45	2958.78	-0.008	-64.85

Now as we can see the Delta is -5.45. It means we shall lose ₹5.45 for every ₹ 1 BANKNIFTY goes up by. Our primary job is to make it near 0.

We can do it by two ways <sup>8</sup>- Either We need to sell Put Options or We need to buy Call Options. Let's buy 9th Apr 20000CE at 60.

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<sup>8</sup> We are not talking about Calendar Spreads, Diagonal Spreads etc. Let's talk about options with the same expiry as of now.

Position	IV	Delta	Theta	Gamma	Vega
-1x 09APR20 19500CE	88.46	-5.45	2958.78	-0.008	-64.85
+1x 09APR20 20000CE	92.64	1.09	-591.76	0.0016	12.97
Positional Greeks		-4.36	2367.02	-0.0064	-51.88

The delta reduced. If we buy two lots it will be near 0. But the more we buy call options the more theta decreases and we make less money with the time value. Here is another approach -

Position	IV	Delta	Theta	Gamma	Vega
-1x 09APR20 19500CE	88.46	-5.45	2958.78	-0.008	-64.85
+1x 09APR20 20000CE	92.64	1.09	-591.76	0.0016	12.97
-1x 09APR20 17000PE	128.4	.94	1272.12	-0.002	-19.16
-1x 09APR20 17500PE	120.9	1.9	2067.46	-0.002	-165.33
Positional Greeks		-1.52	5706.6	-0.0104	-236.37

We have sold 9th Apr 17000PE and 17500PE. As we can see, there are many ways to hedge our initial call trade setup. But, whatever is the results, it will be affected by the greeks -

- Delta - As we have already discussed, each spread should be approximately near 0 i.e. Delta Neutral.
- Vega - The less vega, the less sensitivity towards change of IV.
- Gamma - It tells about how delta will change when the underlying asset moves. So, the less gamma, the better!
- Theta - The more theta, the more time decay, the more money!
- Obviously, the movement of the spot itself!

So, Volatility spread means -

**A delta-neutral option spread which is usually established in order to take a view on changes of market volatility rather than the market direction.**

We shall be looking into most common types of volatility spreads.

### **India VIX<sup>9</sup>**

In India, We gauge the “volatility” (or, “fear” or, “risk”) in the stock market by the India VIX index.

It is based on the NIFTY Index Option prices. From the best bid-ask prices of NIFTY Options contracts, a volatility figure (%) is calculated which indicates the expected market volatility over the next 30 calendar days.

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<sup>9</sup> (“VIX” is a trademark of Chicago Board Options Exchange, Incorporated (“CBOE”) and S&P’s has granted a license to NSE, with permission from CBOE, to use such mark in the name of the India VIX and for purposes relating to the India VIX.)

# Straddle

*The two most powerful warriors are patience and time*

- Leo Tolstoy, War and Peace

A Straddle consists of a call option and a put option that have the same strike price and same expiration date.

**Directional Assumption:** Neutral

**Setup:**

- Sell/Buy ATM Call
- Sell/Buy ATM Put

**Ideal Implied Volatility Environment:** High

**Variations of Straddle:**

Long Straddle	Short Straddle
- Buy Call of same strike price - Buy Put of same strike price	- Sell Call of same strike price - Sell Put of same strike price

If both options are purchased then it is called Long Straddle and vice versa.

We mostly choose ATM strike price. The reason we execute straddles in ATM strike price is because it makes it almost delta neutral as delta values of ATM calls and puts are respectively -50 and +50 almost.

Anyways let's revisit the concept of ATM options. Let's assume that the NIFTY Spot price is 9925. What do you call an ATM option in this case? 9925CE or 9925PE doesn't exist. Then?

The nearest strike price is 9900 and 9950. Theoretically, none are ATM options. 9950 and 9900 is equidistant from 9925. So, to make it simple, if

## VOLATILITY SPREADS

NIFTY is trading between 9900 to 9924 we take 9900 as an ATM and if it is trading between 9925 to 9950 we take 9950 as an ATM.

### Risk Measures:

Long Straddle	Short Straddle
+ Gamma, - Theta, + Vega	- Gamma, + Theta, - Vega

- Gamma means movement on the underlying will hurt the position.
- + Theta means the more time goes, we will get money.
- Vega means the value of the position decreases .

### When to do straddle?

- The day before the expiry of that option because theta and vega drops exponentially at the last.
- When IV is too high. Generally when there is Company Returns, Corporate Announcements, Board Meetings - Companies having any kind of strong fundamental news, the IV goes high. But, it has both pros and cons in these types of scenarios.



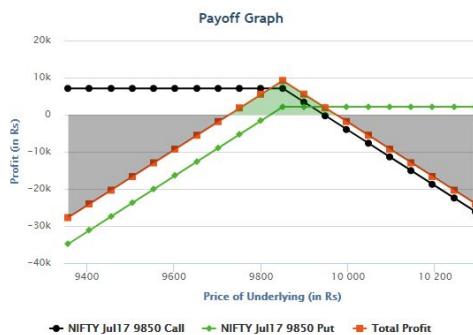
Let's look at the above chart here and Let's assume we want to short straddles. Now as discussed, the setup is Selling ATM Call and ATM Put. But, Unless you have algorithms to execute it when the NIFTY spot is

perfectly 9900 you can not catch ATM strike prices perfectly. (Like, We are supposed to sell 9900PE and 9900CE when NIFTY touches 9900 right?)

So You have three options here -

Sell 9850 CE, Sell 9850 PE

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	JUL 27 2017	Call	9850	-75	94.55	₹
NSE	Options	NIFTY	JUL 27 2017	Put	9850	-75	28.25	₹

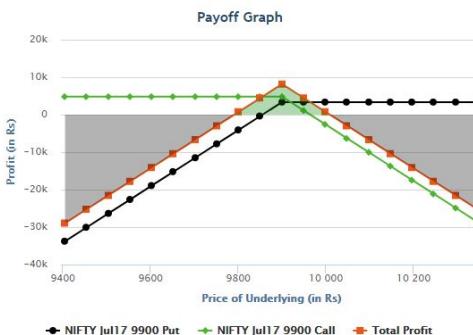


Required margin for this strategy

Span Margin	₹ 44,700.00
Exposure Margin	₹ 44,325.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -9,210.00
Total Amount Required	₹ 98,235.00

Sell 9900 CE, Sell 9900 PE

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	JUL 27 2017	Put	9900	-75	44.8	₹
NSE	Options	NIFTY	JUL 27 2017	Call	9900	-75	64.2	₹



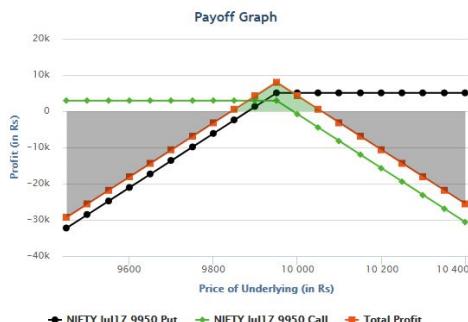
Required margin for this strategy

Span Margin	₹ 44,700.00
Exposure Margin	₹ 44,550.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -8,175.00
Total Amount Required	₹ 97,425.00

## VOLATILITY SPREADS

Sell 9950 CE, Sell 9950 PE

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	JUL 27 2017	Put	9950	-75	67.5	₹
NSE	Options	NIFTY	JUL 27 2017	Call	9950	-75	39.2	₹



Required margin for this strategy

Span Margin	₹ 44,700.00
Exposure Margin	₹ 44,775.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -8,002.50
Total Amount Required	₹ 97,477.50

### Now you have three options-

- You will stay in profit if NIFTY stays between 9750 and 9950.
- You will stay in profit if NIFTY stays between 9801 and 9999.
- You will stay in profit if NIFTY stays between 9850 and 10050.

See the charts and take the decision. Here is an image of poll organized in our trading group -

What will you take seeing the hourly chart?

1 You will stay in profit if NIFTY stays between 9750 and 9950. 1 yyogeshwar

2 You will stay in profit if NIFTY stays between 9801 and 9999 . 9 prvashisht, akhil, ajitsomaiya, saifuddinbadani, vijax, rd, shyam, mohakagr, sarath

3 You will stay in profit if NIFTY stays between 9850 and 10050. 3 desipplz, pranavrai, sampatjay

### Q. How to choose which one is most profitable?

A. Which one is more profitable comes late. Which one has more success in winning comes first. However, Every trader will have their own personal view. Right now if we see the daily chart of NIFTY -

The assumption/bet is that NIFTY will make resistance in the red line.



If we zoom into 1 hour timeframe further -



We get a range as marked with the red line. Anyways, Mass psychology will follow price action as that is the definition of price action. That's why the majority chose the second setup!

A straddle is a technique which we just discussed. Now the choice of those three options and their rationality will depend on the application of knowledge over technicals and perception of the user which will differ.

**Q. What about taking Fundamental Analysis in consideration also?**

A. You can not predict NIFTY or any index with Fundamental Analysis. When the market dropped because of coronavirus, the buyers are thinking that the market will go up shortly and the sellers are thinking that the market will not go up anytime too and will go down.

It is hard to quantify rationality and perception of different users.

**The concept of Stop Loss:**

You just close the trade when you see it doesn't satisfy the underlying concept. So, in this case, the trade should be closed if NIFTY crosses the range as marked by the red line. It invalidates our initial bet. So, in that case, the straddle needs to be closed or hedged with a new bet.

Anyways your chance of staying in profit is high because - Theta decay. If it moves beyond the range when it is near expiry, there is a high chance that erosion in extrinsic value would compensate for the increase in intrinsic value in the option premium.

**How to Calculate Breakeven(s):**

- **Downside:** Subtract initial credit from Put strike price.
- **Upside:** Add the initial credit to the Call strike price.

So, in this case -

NIFTY JUL 9900 CE                    -5.85      ↓      60.50

NIFTY JUL 9900 PE                    -0.35      ○      44.45

- Initial credit =  $44.45 + 60.50 = 104.95$
- Downside:  $9900 - 104.95 = 9795.05$
- Upside:  $9900 + 104.95 = 10004.95$

The spread of 104.95 between downside and upside will keep decreasing each day because the value of both 9900 CE/PE will tend to decrease due to theta decay giving the option sellers profit!

**Q. But, can we draw a line like this?**



A. Yes. That's why different people have different views and perceptions. This is a matter of technical analysis which is not a subject of discussion here. But we can see an interesting observation that the channel is broken if seen like this -



# Strangle

A Strangle consists of a call option and a put option that have a different strike price and same expiration date. The only difference between straddle and strangle is - In straddle, we have the same strike price!

It is a neutral strategy that profits when the stock stays between the short strikes as time passes, as well as any decrease in implied volatility.

**Directional Assumption:** Neutral

**Setup:**

- Sell/Buy OTM Call
- Sell/Buy OTM Put

**Ideal Implied Volatility Environment:** High

**Variations of Strangles:**

Long Strangle	Short Strangle
- Buy Call - Buy Put of different strike price	- Sell Call - Sell Put of different strike price

If both options are purchased then it is called Long Strangle and vice versa.

Let's consider The NIFTY spot price is at 9915.25. Now -

- Sell 9800PE, Sell 10000CE
- Sell 9800CE, Sell 10000PE

Both are strangles. But it sounds confusing. To remedy that, It is assumed that strangles are constructed with OTM options. The second variant which has both ITM options is known as Inverted Strangle or guts.

Also Note that the risk characteristics of a strangle (in terms of greeks) are almost similar to those of a straddle.

Although this is not enforceable, most traders chose their strike price in strangle so that the put delta and call delta are almost equal making the position delta neutral.

Also, price action traders don't heed to delta but they choose the strike price based on technicals. Here is one such example -



The NIFTY spot price is at 9915.25 and here is our setup -

- Sell NIFTY August 10200CE at 39.25
- Sell NIFTY August 9600PE at 36.7

But one may ask now what is the reason for choosing a 300 points' spread instead of just selling call options?

$$9900 + 300 = 10200 \text{ and } 9900 - 300 = 9600.$$

Basically, when it is about the choice of next expiry I am looking at a higher timeframe of the daily chart. It is consolidating right now and although it looks like it is going to mean revert there is also a possibility of a breakout which we should not ignore!

Now, if the question comes to why the choice of 9600. And, Why not 9700 or 9500? That answer lies with Fibonacci as can be seen below. Although,

## VOLATILITY SPREADS

again, discussion on technical analysis and price action is out of our current purview, it will be unsatisfying not to disclose the proper rationale.



**Max Profit:** Net Credit received

= Total Premium Received

= Credit from short put + Credit from short call

=  $(36.7 + 39.25)$

= 75.95

**How to Calculate Break-even(s):**

- **Downside:** Subtract initial credit from Put strike price.
- **Upside:** Add the initial credit to the Call strike price.

So, in this case -

- Initial credit = 75.95
- Downside:  $9600 - 75.95 = 9524.05$
- Upside:  $10200 + 75.95 = 10275.95$

So we make money as long as it stays between 9524.05 and 10275.95. Like Straddle, IV plays a huge role in selection of strike prices in strangle too.

A higher IV means higher premiums i.e higher credits which ultimately means we will have wider breakeven points since we can use the credit to offset losses we may see to the upside or downside.

At the end of the day, a larger relative credit results in a higher probability of success with this strategy. But, the higher IV is a resultant of an event. As the outcome is uncertain, it becomes more risky too.

Like, IV gets insanely higher on results days' of scrips or other fundamental events making it an amazing opportunity for strangle.

# Ratio Straddle

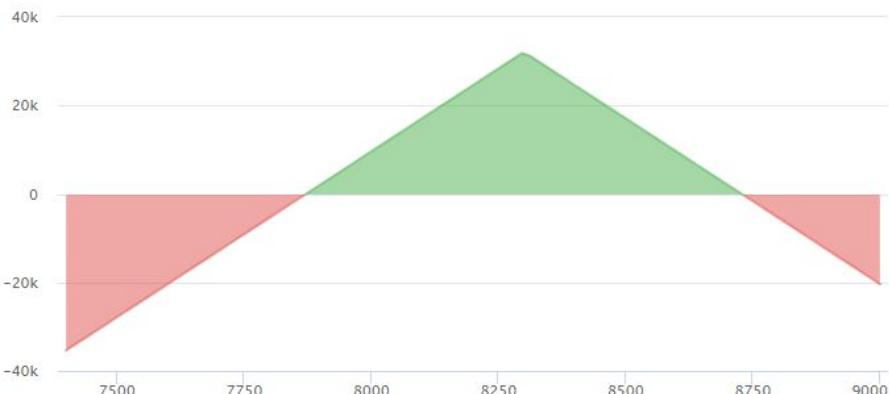
As we discussed about Straddle, We saw that we mostly use ATM options to make it delta neutral. What if we do not do that?

To understand the concept of Ratio Straddle, We need to discuss Bull Straddle and Bear Straddle<sup>10</sup>.

## Bull Straddle

Let's say NIFTY is trading at 8100. Right now, instead of selling ATM strike prices i.e 8100PE and 8100CE. But, instead of 8300 Let's take this following setup with 8100 -

- Sell NIFTY 9th Apr 8300PE at 327.4
- Sell NIFTY 9th Apr 8300CE at 101.1



Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 09APR20 8300PE	60.64	64.92	2420.9	-0.07	-308.44

<sup>10</sup> Note - Bull Straddle and Bear Straddle are not delta neutral and hence, it doesn't fall under the category of volatility spreads!

-1x 09APR20 8300CE	56.03	-33.73	2204.34	-0.08	-303.96
Positional Greeks	31.19	4625.24	-0.15	-612.4	

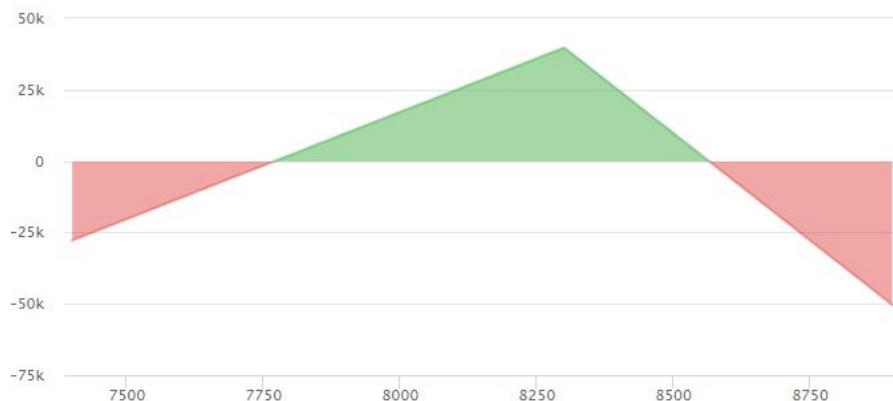
We are getting a delta of 31.19. **It is called a Bull Straddle** as we will make more profit if the spot moves towards upside.

### Bear Straddle

Similarly, if we sell 7700PE 7700CE it will be a Bear Straddle.

### Ratio Straddle

Now, what if we want our Bull Straddle and Bear Straddle to be delta neutral? We will need to add more contracts. In this example of Bull Straddle we need to sell 2 8300CEs (Delta = -33.73) to balance 1 8300PE (Delta = 64.92)



This is called Ratio Straddle. Although we have more theta, but the gamma and vega increases as well making this strategy unpopular!

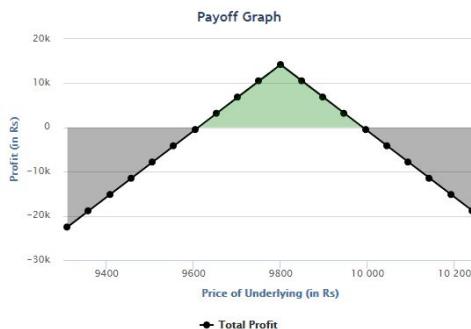
Position	IV	Delta	Theta	Gamma	Vega
-1x 09APR20 8300PE	60.64	64.92	2420.9	-0.07	-308.44
-2x 09APR20 8300CE	56.03	-67.46	4430.47	-0.16	-606.43
Positional Greeks		-2.53	4625.24	-0.23	-914.12

## VOLATILITY SPREADS

# Iron Butterfly

Let's talk about Short Straddle which gives us a range for where we can get our profit. Assuming, NIFTY 50 is at 9837.4 right now.

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Call	9800	-75	-+	121.05
NSE	Options	NIFTY	AUG 31 2017	Put	9800	-75	-+	68.6



Required margin for this strategy

Span Margin	₹ 44,700.00
Exposure Margin	₹ 44,100.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -14,223.75
Total Amount Required	₹ 103,023.75

Here is our straddle of 9800 CE and 9800 PE.

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Put	9800	-75	-+	68.6
NSE	Options	NIFTY	AUG 31 2017	Call	9850	-75	-+	89.3

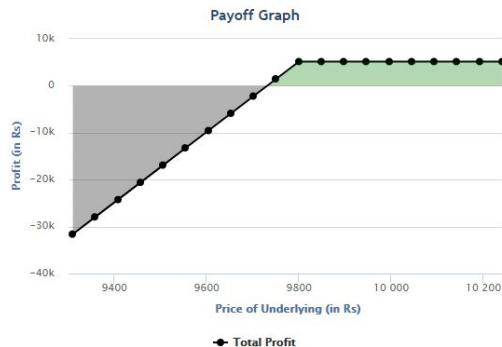


Required margin for this strategy

Span Margin	₹ 44,700.00
Exposure Margin	₹ 44,212.50
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -11,842.50
Total Amount Required	₹ 100,755.00

Here is a short strangle of 9800 PE and 9850 CE. But it is very close to our straddle's work. It gives us a range where our profit lies.

But both have an unlimited downside! How can we convert them to limited loss? Let's work separately -

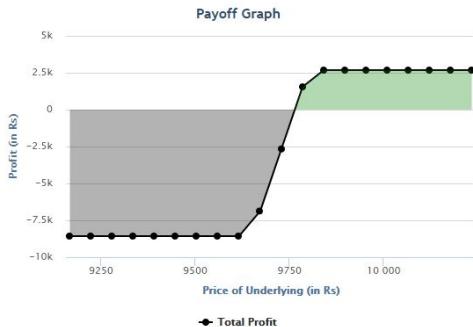


Required margin for this strategy

Span Margin	₹ 22,350.00
Exposure Margin	₹ 22,050.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -5,145.00
Total Amount Required	₹ 49,545.00

For 9800 PE we can just buy PE at the lower strike price (OTM). So buy 150 points away i.e. 9650 PE.

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Put	9800	-75	68.6	↙
NSE	Options	NIFTY	AUG 31 2017	Put	9650	75	32.85	↙



Required margin for this strategy

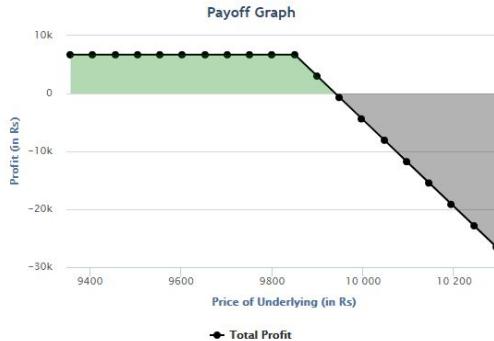
Span Margin	₹ 22,350.00
Exposure Margin	₹ 22,050.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -2,681.25
Total Amount Required	₹ 47,081.25

Well, it limited the unlimited loss part but we had to sacrifice a significant amount of profit for doing so too because the put option premium debited will be a loss if the trade moves into our direction (i.e upside as we are betting on 9800 PE sell).

## VOLATILITY SPREADS

What we did here is Sell OTM Put (closer to spot) - Buy OTM Put (away from the spot) which is also known as Short Put Vertical Spread!

Similarly, let's look at 9800 CE -

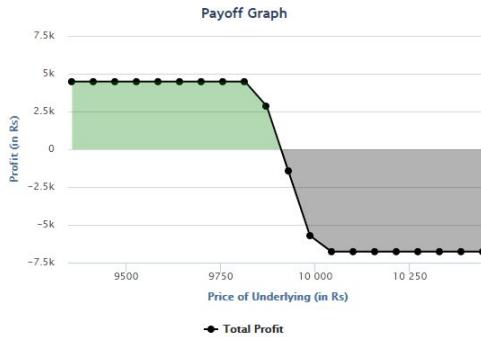


Required margin for this strategy

Span Margin	₹22,350.00
Exposure Margin	₹22,162.50
Value At Risk Margin	₹0.00
Extreme Loss Margin	₹0.00
Net Premium	₹-6,697.50
Total Amount Required	₹51,210.00

To limit unlimited loss; let's buy a call option at a higher strike price which is at a lower premium as it is away above from the strike price. Let's buy 150 points away i.e. 10000 CE

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Call	9850	-75	-+	89.3
NSE	Options	NIFTY	AUG 31 2017	Call	10000	75	-+	29.65



Required margin for this strategy

Span Margin	₹22,350.00
Exposure Margin	₹22,162.50
Value At Risk Margin	₹0.00
Extreme Loss Margin	₹0.00
Net Premium	₹-4,473.75
Total Amount Required	₹48,986.25

Well, it limited the unlimited loss part but we had to sacrifice a significant amount of profit for doing so too because the call option premium debited will be a loss if the trade moves into our direction (i.e downside as we are betting on 9850 CE sell).

What we did here is Sell OTM Call (closer to spot) - Buy OTM Call (away from the spot) which is also known as Short call Vertical Spread!

So combining Short put Vertical Spread and Short call Vertical Spread gives us our short straddle with limiting the unlimited loss part.

**This is called Iron Butterfly.**

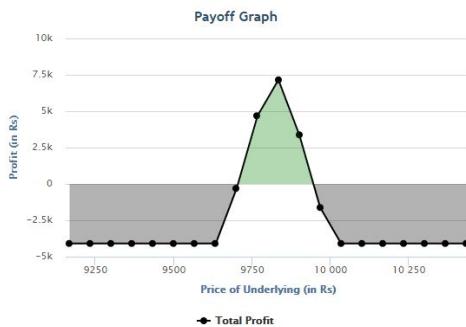
Let's combine both setups into one -

- Short OTM Put Vertical Spread
- Short OTM Call Vertical Spread

So, in this case -

- Short OTM Put Vertical Spread - Sell 9800 PE; Buy 9650 PE
- Short OTM Call Vertical Spread - Sell 9850 CE; Buy 10000 CE

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Call	10000	75	-+	29.65
NSE	Options	NIFTY	AUG 31 2017	Put	9650	75	-+	32.85
NSE	Options	NIFTY	AUG 31 2017	Put	9800	-75	-+	68.6
NSE	Options	NIFTY	AUG 31 2017	Call	9850	-75	-+	89.3



Required margin for this strategy

Span Margin	₹ 44,700.00
Exposure Margin	₹ 44,212.50
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -7,155.00
Total Amount Required	₹ 96,067.50

So it has a range of profit as well as our loss is limited too.

**Ideal Implied Volatility Environment: High**

It's a short-selling setup hedged towards both upside and downside but it is a net credit setup. So, the more IV, the more premium.

**Max Profit:**

## VOLATILITY SPREADS

- The maximum profit potential for an Iron Butterfly is the net credit received.
- The maximum profit is realized when the underlying settles between the short strikes of the trade at expiration.

### **Max Loss:**

(Short Put Strike - Long Put Strike - Credit Received) Or, (Long Call Strike - Short Call Strike - Credit Received)

Max Loss Occurs When Price of Underlying  $\geq$  Strike Price of Long Call or, Price of Underlying  $\leq$  Strike Price of Long Put

### **How to Calculate Breakeven(s):**

- Upside: Short Call Strike + Credit Received
- Downside: Short Put Strike - Credit Received

# Iron Condor

Similarly like Iron Butterfly, When we have Strangle with similar setup with limited loss, We call it Iron Condor.

The name condor came from vultures. The payoff graph of Iron Condor looks similar to the picture of a vulture flying. We approached Iron Butterfly setup with vertical spreads in the last discussion. Let's have a different approach this time with a live trading scenario.

Let's take an example of Ashok Leyland -



This month We're betting on the range of 116-132. So if Ashok Leyland stays in this range We'll make a profit.

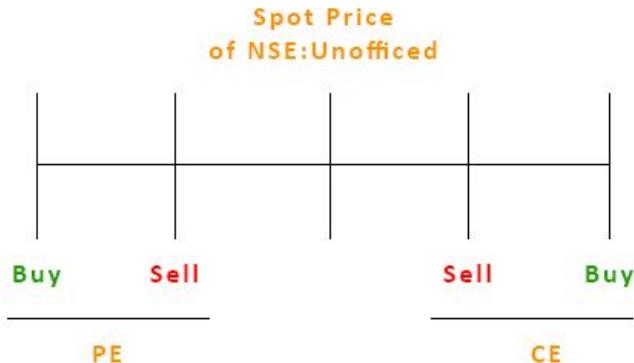
But wait, We have a fundamental event - budget! It can give wild movement and can break our range costing us six-figure loss (as the lot size of Ashok Leyland is 7000; a one-point move means 7000 INR).

So how to limit the loss? We use Iron Condor.

- Short a Put Options (closer to spot).
- Hedge the downside by buying a put option ( away from the spot)
- Short a Call Options (closer to spot).
- Hedge the downside by buying a call option ( away from the spot).

## VOLATILITY SPREADS

Calculations of Breakevens, Max profit etc. and effects of greeks will be the same as Iron Butterfly. And, if we visualize the strategy, it will look like this-



And here is the screenshot after execution -

NRML	ASHOKLEY18FEB115PE NFO	+7000	1.75	1.70	-350.00	-2.86%	>
NRML	ASHOKLEY18FEB120PE NFO	-7000	3.15	3.20	-350.00	+1.59%	>
NRML	ASHOKLEY18FEB130CE NFO	-7000	3.95	4.20	-1750.00	+6.33%	>
NRML	ASHOKLEY18FEB135CE NFO	+7000	2.55	2.70	+1050.00	+5.88%	>

The payoff graph will look like -

Payoff graph



# Ratio Spreads

When we are discussing Volatility spreads, it is not necessary for traders to have no view in the market. In Ratio Spreads, the trader benefits if there is a movement towards one direction. We have already discussed one such variation of Ratio Spreads namely Ratio Straddle!

Here, The term “Ratio” comes because the options trader is constructing the strategy with buying/selling unequal ratios of put options and call options, mostly to keep the net strategy delta neutral.

- A ratio spread where more options are purchased than sold is sometimes referred to as back spread.
- A ratio spread where more options are sold than purchased is sometimes referred to as front spread.

Under the assumption of Black Scholes Model, if we construct delta neutral ratio spreads, even when the options are purchased more than sold, will always result in a net credit.

Generally, the Ratio Spreads have all PEs or all CEs. If it has all PEs, it is referred to as Put Ratio Spread and if it has all CEs, it is referred to as Call Ratio Spread.

## Call Ratio Front Spread

Call Ratio Front Spread is a neutral to bearish strategy with no upside risk. It is doing by selling a far OTM call option to Long Call Vertical Spread. **It is also known as the 1CE2CE Strategy.**

### Setup:

- Buy ATM/OTM Call Option - 1 Lot
- Sell Far OTM Call Options - 2 Lots

**Ideal IV Environment:** High

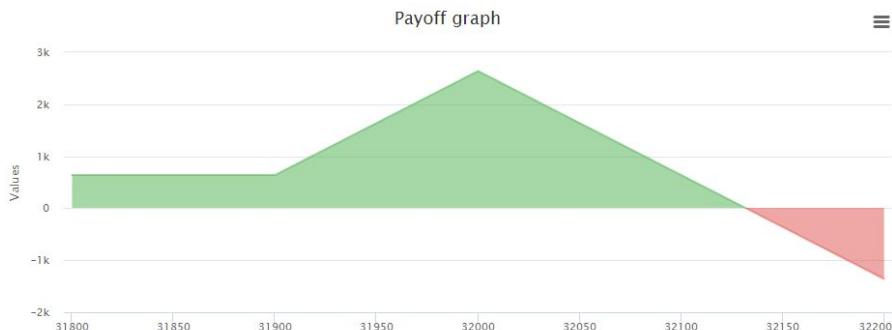
**Maximum Profit:** Distance between the strikes + Credit received

### How to Calculate Breakeven(s):

- Upside: Short Call Strike + Maximum Profit Potential (Maximum Profit/Lot Size)
- Downside: None

### Example:

- Short 32000CE at 70.5 - 2 Lot
- Buy 31900CE at 110 - 1 Lot



### Put Ratio Front Spread

Put Ratio Front Spread is a neutral to a bullish strategy with no upside risk. It is doing by selling a far OTM put option to Long Put Vertical Spread. [It is also known as the 1PE2PE Strategy.](#)

#### Setup:

- Buy ATM/OTM Put Option - 1 Lot
- Sell Far OTM Put Options - 2 Lots

**Ideal IV Environment:** High

**Maximum Profit:** Distance between the strikes + Credit received

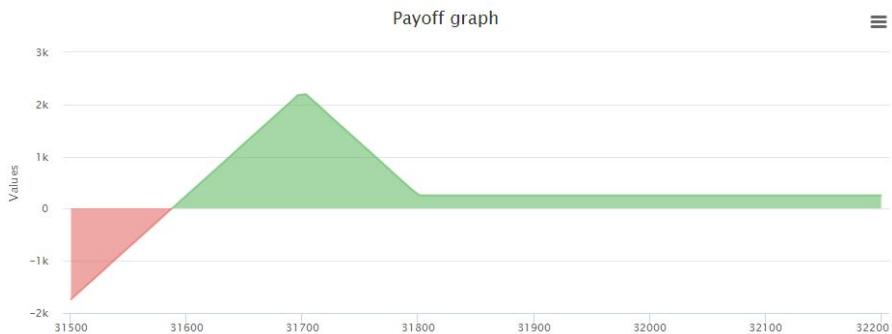
#### How to Calculate Breakeven(s):

- Upside: None
- Downside: Short put strike - Maximum Profit Potential (Maximum Profit/Lot Size)

### Example:

- Short 31700PE at 42 - 2 Lot

- Buy 31800PE at 71 - 1 Lot



## Notes

- Although It sounds confusing, traders use different combinations of nomenclature. So, Front Ratio Call Spread or Call Ratio Front Spread means the same thing.
- Call Ratio Front Spread behaves like a short straddle when it comes to the movement in payoff graphs when the impact of Theta is negligible like when DTE (Date to Expiry) is far.
- Similarly, Call Ratio Back Spread behaves like a long straddle.
- The highest profit happens when there is a movement towards the maximum profit zone near the expiry. But, if there is a significant movement when DTE is far i.e. Theta's impact is negligible, a Call Ratio Front Spread will do almost similar damage like a short straddle. We will discuss that later with payoff graphs.

The points discussed above are also applicable to the Put Ratio Spreads.

In Short, the Ratio Spreads mimic Straddles but limits the risk or the reward in one direction.

# Christmas Tree

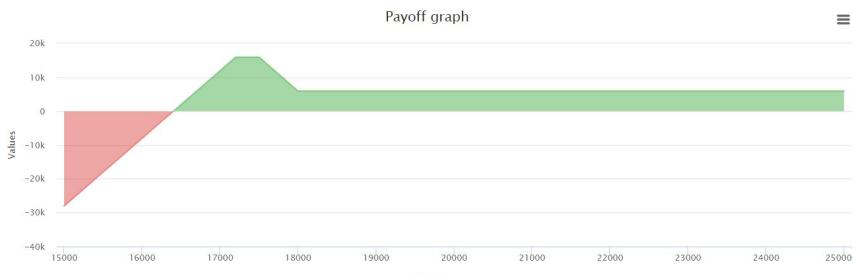
When we construct strangles instead of straddles in a similar manner we have done for Ratio Spread i.e. to mimic strangles but limits the risk or the reward in one direction, the strategy is called Christmas Tree.

It is also known as ladders.

Let's discuss the Long Put Christmas Tree setup with a live example and study the effect of Break Even points during various DTEs.

NIFTY BANK INDEX EVENT	1.81 %	▲ 19969.00
BANKNIFTY 1 <sup>st</sup> APR 18000 PE	-30.55 %	▼ 583.35
BANKNIFTY 1 <sup>st</sup> APR 17500 PE	-30.56 %	▼ 480.00
BANKNIFTY 1 <sup>st</sup> APR 17200 PE	103.30 %	▲ 400.00

The payoff graph looks like -



So, Our Lower Breakeven point in this strategy is 16300. It means if it stays above 16300 on expiry day, We will not be in loss.

Let's talk about the Lower BEP of what happens to it on the next trading day?

## VOLATILITY SPREADS

- How does the unrealized loss work here?
- Do we get a huge profit if a sudden downside move happens?

However, note that “DTE” is an acronym for Days to Expiry.

### Effect of Breakeven Points during various DTE in Put Ratio Spread

DTE			BEP	Decrement
5	Friday	27th Mar	20000	
4	Saturday	28th Mar	19400	600 (-3%)
3	Sunday	29th Mar	18600	800 (-4.12%)
2	Monday	30th Mar	17800	800 (-4.3%)
1	Tuesday	31st Mar	16900	900 (-5.06%)
0	Wednesday	1st Apr	16300	600 (-3.55%)

As of 27th Mar, BN LTP = 20000

[unofficed.com](http://unofficed.com)

So, as long as the BankNIFTY index doesn't fall steadily more than that %, the unrealized losses will not pop up. It is unusual to fall like this as anyways the breakeven point of 16300 where actual realized loss may happen is nearly 18.5% from the current point.

But, last week, BN fell 18.5% in the Friday itself shooting unrealized loss off the charts! Now, as we have seen how the unrealized loss works here. We shift to the next question - “Do we get a huge profit if a sudden downside move happens?”



Let's see the pay off graph each day assuming the IV stays the same! The above image is the payoff graph of Friday.



Saturday (The market is closed so we can skip thinking about this)



Sunday (The market is closed so we can skip thinking about this)

When we take the trade, the loss is happening when we breach the BEP on Thursday but in this case, we are studying unrealized losses in previous days. Like, If BankNIFTY doesn't break 17800 this position will show a profit on Monday.

But, this spread has more options sold (-gamma,+theta,-vega) than bought so the effect of movement of underlying affects very badly when the effect of Theta hasn't kicked in prominently.

## VOLATILITY SPREADS



Monday



Tuesday

We can see the effect of Theta here. There is a sudden jump in the profits as well as the breakeven points. This is non symmetrical.

Till before today, the options payoff was almost the same as the payoff of short straddle over various DTEs. So, when constructing this type of Long Christmas Trees. (It is called the Long Put Christmas Tree because it has unlimited loss towards the downside. It has nothing to do with credit or debit as it will always be credit spread).

However, if the strategy is executed near expiry, it will be a debit spread as the impact of theta and vega is more on the OTM strike prices as they

have more extrinsic value. So, if it is executed near DTE, change in IV and change in spot will positively impact the payoff.

In fact, we can also buy more OTM options with the premium received from ATM options. Anyways, this is the final payoff graph that happens on Wednesday. (The expiry is on Wednesday in case of this contract.)



A movement towards the downside will give maximum profit. But, as said, the more it is near to DTE, the better the chances of profit maximization.

# Long Butterfly Spreads<sup>11</sup>

*Short term volatility is greatest at turning points and diminishes as a trend becomes established. By the time all the participants have adjusted, the rules of the game will change again.*

- George Soros

What about a neutral position that's used when a trader believes that the price of an underlying asset is going to stay within a relatively tight range.

Let's recall our vertical spreads. We see four strategies with this following properties -

- 'Bullish direction; Low IV'
- 'Bullish direction; High IV'
- 'Bearish direction; Low IV'
- 'Bearish direction; High IV'.

## Now, What if we cross the strategies?

Like combining 'bullish direction; low IV' with 'bearish direction; high IV' as shown above. That will create two neutral strategies.

Combining -

- 'Bullish direction; Low IV' with 'Bearish direction; High IV'.
- 'Bullish direction; High IV' with 'Bearish direction; Low IV'

## Creates a Long Butterfly Spread!

We get neutrality in direction as well as some amount of neutrality in IV.

**Directional Assumption:** Neutral

**Setup:** This spread is typically created using a ratio of 1-2-1 (1 ITM option, 2 ATM/near ATM options, 1 OTM option).

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<sup>11</sup> Similarly, We can construct Short Butterfly spreads but as the discussion is trivial, We are skipping it.

- Buy Call/Put (above short strike)
- Sell 2 Calls/Puts
- Buy Call/Put (below short strike)

A butterfly will be delta neutral by construction. A long butterfly<sup>12</sup> will act like a short straddle while a short butterfly will act like a long straddle!

But, unlike straddles - It has limited loss on both sides as well as there is no mix up of call options and put options. Either it will be constructed with all put options or call options!

	Direction : Bullish	Direction : Bearish
Implied Volatility : Low	Long Call Vertical Spread Buy ITM Call - Sell OTM Call	Long Put Vertical Spread Buy ITM Put - Sell OTM Put
Setup		
Max Profit	Distance Between Call Strikes – Premium	
Breakeven(s)		Long Call Strike - Debit Paid
Max Loss		Debit Paid
Implied Volatility : High	Short Put Vertical Spread Sell OTM Put (closer to spot) - Buy OTM Put (away from spot)	Short Call Vertical Spread Sell OTM Call (closer to spot) - Buy OTM Call (away from spot)
Setup		
Max Profit	Credit received	
Breakeven(s)		Short Put Strike - Credit Received
Max Loss		Difference between the strike price - Credit Received

But this is a low probability trade as it is generally awkward to assume that price will stick to one same price! So, the Market compensates us for taking this approach.

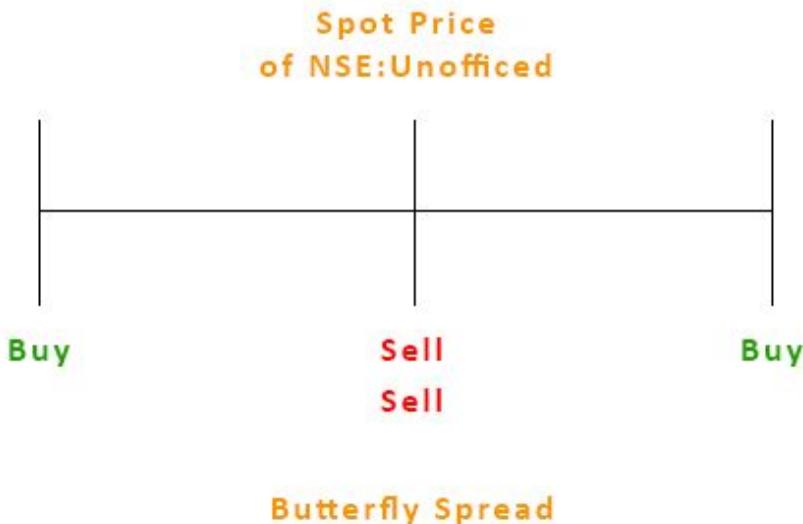
If a long butterfly has reduced risk when the trader is wrong, it will also have increased profit when the trader is right. As there is a very tight range of profit - the probability of that profit is very low!

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<sup>12</sup> The term “Long” comes from the fact that it **mostly** generates a Debit Spread.

**Ideal Implied Volatility Environment:** High<sup>13</sup>

This following image will help in visualization -



#### How to Calculate Breakeven(s):

- Upside: Higher Long Option Strike - Debit Paid
- Downside: Lower Long Option Strike + Debit Paid

In other words, The butterfly will fly worthless if the spot goes above or below the outside strike prices.

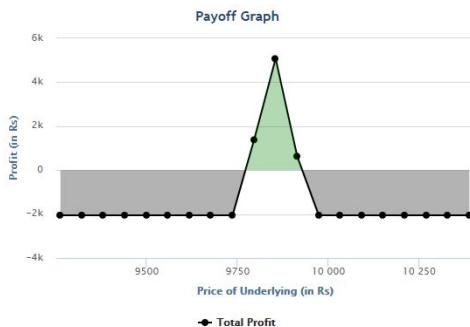
Also, it is almost delta neutral as we are choosing ATM strike prices to sell and equidistant strike prices to buy.

The current NIFTY Spot price is 9857.05. Our assumptive ATM call is hence 9850 CE and 9850 PE. Let's take 100 points on both sides for constructing Butterfly's wings.

<sup>13</sup> Although it looks like it should be neutral. But, A long butterfly will tend to act like a short straddle, while a short butterfly will tend to act like a long straddle but the risk is limited in this case.

## Long Call Butterfly Spread

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Call	9850	-150	-+	66.5
NSE	Options	NIFTY	AUG 31 2017	Call	9750	75	-+	139.35
NSE	Options	NIFTY	AUG 31 2017	Call	9950	75	-+	21



Required margin for this strategy

Span Margin	₹ 44,400.00
Exposure Margin	₹ 44,325.00
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ 2,051.25
Total Amount Required	₹ 88,725.00

So here is our setup with CEs -

- Buy 1 Call option (below short strike) ~ Buy 9750 CE at 139.35
- Sell 2 Call options ~ Sell 9850 CE at 66.5
- Buy 1 Call option (above short strike) ~ Buy 9950 CE at 21

$$\text{Debit Paid} = 139.35 + 21 - 66.5 = 27.35$$

Upper Breakeven:

$$\text{Higher Long Option Strike} - \text{Debit Paid} = 9950 - 27.35 = 9922.65$$

Lower Breakeven:

$$\text{Lower Long Option Strike} + \text{Debit Paid} = 9750 + 27.35 = 9777.35$$

Max Profit

= The distance between the short strike and long strike - Debit Paid

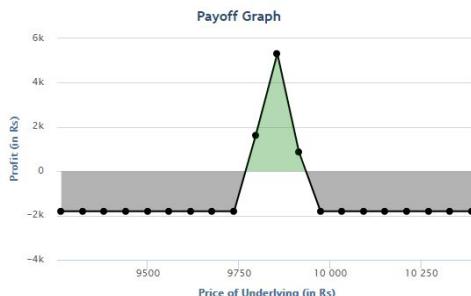
$$= 9850 - 9750 - 27.35$$

$$= 72.65$$

## VOLATILITY SPREADS

### Long Put Butterfly Spread

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Put	9850	-150	- +	42.6
NSE	Options	NIFTY	AUG 31 2017	Put	9750	75	- +	19.35
NSE	Options	NIFTY	AUG 31 2017	Put	9950	75	- +	90



Required margin for this strategy

Span Margin	₹44,400.00
Exposure Margin	₹44,325.00
Value At Risk Margin	₹0.00
Extreme Loss Margin	₹0.00
Net Premium	₹1,811.25
Total Amount Required	₹88,725.00

So here is our setup with PEs -

- Buy 1 Put option (below short strike) ~ Buy 9750 PE at 19.35
- Sell 2 Put options ~ Sell 9850 PE at 42.6
- Buy 1 Put option (above short strike) ~ Buy 9950 PE at 90

$$\text{Debit Paid} = 19.35 + 90 - 42.6 - 42.6 = 24.15$$

Upper Breakeven:

$$\text{Higher Long Option Strike} - \text{Debit Paid} = 9950 - 24.15 = 9925.85$$

Lower Breakeven:

$$\text{Lower Long Option Strike} + \text{Debit Paid} = 9750 + 24.15 = 9774.15$$

Max Profit

= The distance between the short strike and long strike - Debit Paid

$$= 9950 - 9850 - 24.15$$

$$= 75.85$$

# Long Condor Spreads<sup>14</sup>

The Condor Spread is an advanced neutral option trading strategy which profits from stocks that are stagnant or trading within a tight price range (Range Bound). It is a cousin of the butterfly spread but involves 4 strike prices instead of 3 strike prices, resulting in a much wider profitable range at the cost of a lower maximum profit.

	Condor Spread	Iron Condor Spread	Butterfly Spread	Iron Butterfly Spread
Debit/Credit	Debit	Credit	Debit	Credit
Max Profit	Low	High	Higher	Highest
Max Loss	Highest	Higher	High	Low
Position Cost	High	Very Low	Low	Very Low
Profit Range	Wide	Widest	Narrow	Wider

## Call Condor Spread

**Directional Assumption:** Neutral

**Setup:** Bull Call Spread + Bear Call Spread

- Bull Call Spread : Buy 1 Lot Far ITM + Sell 1 Lot ITM
- Bear Call Spread : Sell 1 Lot OTM + Buy 1 Lot Far OTM

**Ideal Implied Volatility Environment:** High

A call condor spread will be delta neutral by construction.

<sup>14</sup> Similarly, We can construct Short Condor spreads but as the discussion is trivial, We are skipping it.

## VOLATILITY SPREADS

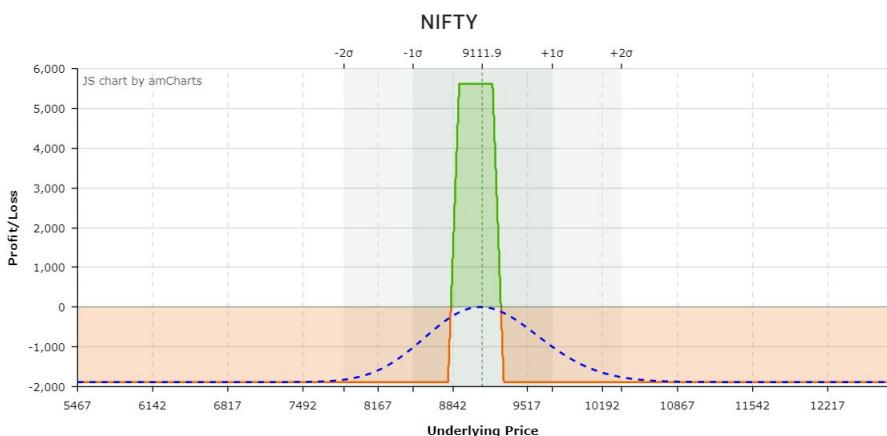
### Choice of Strike Price:

- The choice of which strike prices to buy the long legs at depends on the range within which the underlying asset is expected to trade in.
- The further away from the money the 2 long legs are, the lower the risk (as the underlying stock needs to move further in order to exit the breakeven range), and the lower the potential profits (as the further in the money options will cost a lot more to buy).
- Similarly, the choice of which strike prices to buy the two short legs at depends on how wide you want the range within which the maximum profit will occur.
- The further from each other the two short legs are, the wider the price range will be where you will get the maximum profit potential of the Condor Spread at the cost of a lower maximum profit.

Right now, NIFTY's LTP is 9111.9.

Here is an example of a payoff graph where -

- Buy NIFTY 16th Apr 9300CE at 124.65
- Buy NIFTY 16th Apr 8800CE at 394.6
- Sell NIFTY 16th Apr 9200CE at 164.3
- Sell NIFTY 16th Apr 8900CE at 329.8



### Breakeven:

As you can see,

- It will be profitable between the strike prices where we have bought the long legs i.e. 8800-9300.
- **Maximum Profit Range:** The maximum profit happens between the strike prices where we have sold the short legs i.e. 8900-9200

**Max Profit:** Net Extrinsic Value in the position i.e. The distance between the short strike and long strike, less the debit paid.

In this case,  $100 - (124.65 + 394.6 - 164.3 - 329.8) = 74.85$  points. As the lot size of NIFTY comes to  $75^{15}$ , the max profit will come to  $74.85 * 75 = 5613.75$

#### How to Calculate Breakeven(s):

- **Upside:** Higher Long Option Strike - Debit Paid
- **Downside:** Lower Long Option Strike + Debit Paid

### Put Condor Spread

**Directional Assumption:** Neutral

**Setup:** Bull Put Spread + Bear Put Spread

- Bull Put Spread : Buy 1 Lot Far ITM + Sell 1 Lot ITM
- Bear Put Spread : Sell 1 Lot OTM + Buy 1 Lot Far OTM

**Ideal Implied Volatility Environment:** High

A put condor spread will be delta neutral by construction.

Right now, NIFTY's LTP is 9111.9.

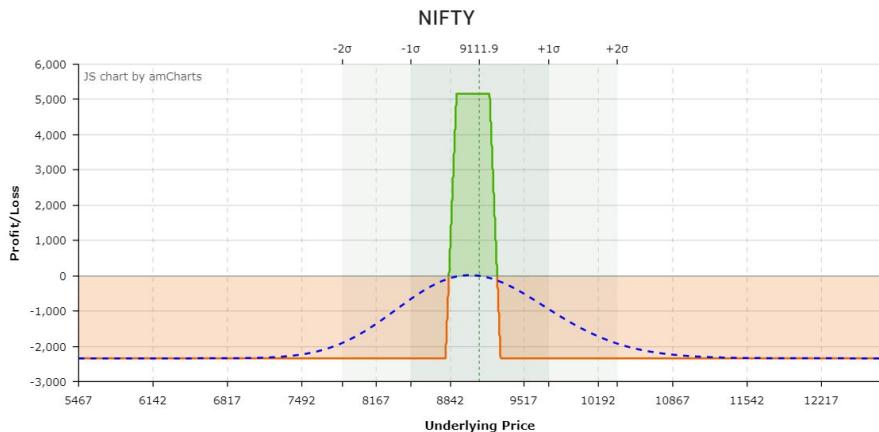
Here is an example of a payoff graph where -

- Buy NIFTY 16th Apr 9300PE at 364.5
- Buy NIFTY 16th Apr 8800PE at 137.7
- Sell NIFTY 16th Apr 9200PE at 303.1
- Sell NIFTY 16th Apr 8900PE at 167.9

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<sup>15</sup>Note that Lot sizes change from time to time.

## VOLATILITY SPREADS



### Breakeven:

As you can see,

- It will be profitable between the strike prices where we have bought the long legs i.e. 8800-9300.
- **Maximum Profit Range:** The maximum profit happens between the strike prices where we have sold the short legs i.e. 8900-9200

**Max Profit:** Net Intrinsic Value in the position i.e. The distance between the short strike and long strike, less the debit paid.

In this case,  $100-(364.5+137.7-303.1-167.9) = 68.8$  points. As the lot size of NIFTY comes to 75, the max profit will come to  $68.8*75 = 5160$

### How to Calculate Breakeven(s):

- **Upside:** Higher Long Option Strike - Debit Paid
- **Downside:** Lower Long Option Strike + Debit Paid

# Long Calendar Spreads<sup>16</sup>

A long Calendar Spread, which is also referred to as Time Spread or Horizontal Spread, is a trading strategy for derivatives is a direction neutral and low-risk strategy that profits from theta (i.e. profit increases with time) as well as from an increase in vega.

**Direction Assumption:** Neutral

**Setup:**

- Sell Call/Put options of near term expiry.
- Buy Call/Put options of long term expiry.

**Ideal Implied Volatility Environment:** Low

**Notes on Selection of Strike Prices:**

- ATM Strike prices have the most extrinsic value. So, they are the best selection for Theta.
- OTM Strike prices get more impact on rising IV (hence, vega) than ATM options.

**Choice of Strike Price and Max Profit:**

The maximum profit is very hard to calculate as we have options of different expiry cycles. So, We shall be discussing the cases of both legs separately.

**The “Sell Near Term Expiry” Leg:**

- Theta - The maximum profit happens if we select the ATM Strike price as We're eating the Theta by selling this. The maximum profit happens if the market stays at the current point.
- Vega - Vega doesn't impact Near Term options.
- Choice of Strike - The impact of Vega is lower in ATMs than OTM. So choosing the ATM strike price is sound!

<sup>16</sup> Similarly, We can construct a Short Calendar spread but as the discussion is trivial, We are skipping it.

### The “Buy Long Term Expiry” Leg:

- Theta - As Theta follows a curve of exponent, it increases rapidly at the end and stays almost flat at beginning. So, the impact of Theta will be very less in this option until the expiry of the near term options.
- Vega - An increase in implied volatility, all other things held the same, would have a positive impact on this strategy because longer-term options are more sensitive to changes in volatility. So, there will be a rise in the premium as volatility spikes up.
- Choice of Strike - The choice of ATM options is again popular in this case as well as the intrinsic and extrinsic value is properly balanced.

The extrinsic value of Long Term options get positively impacted by Vega and negatively by Theta.

### How to Calculate Breakeven(s):

- The break-even for a calendar spread cannot be calculated properly due to the different expiration cycles being used.
- Both of the options can have different implied volatility because we are talking about future volatility as well as the present volatility.

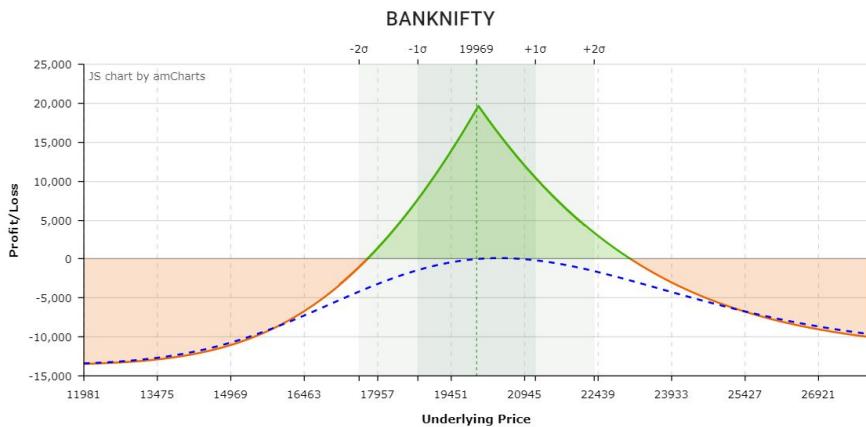
In cases of singular fundamental events, where the event had a small impact as per historical data- Like FM's speech during the market time. The shorter expiry options may have more volatility than longer expiry ones till the uncertainty which is a caveat.

**So, conceptually, there are two breakeven points, one above the strike price of the calendar spread and one below.**

### Long Call Calendar Spread

Here is an example of a payoff graph where -

- Sell BankNIFTY 1st Apr 20000CE at 1050
- Buy BankNIFTY 30th Apr 20000CE at 1729.35



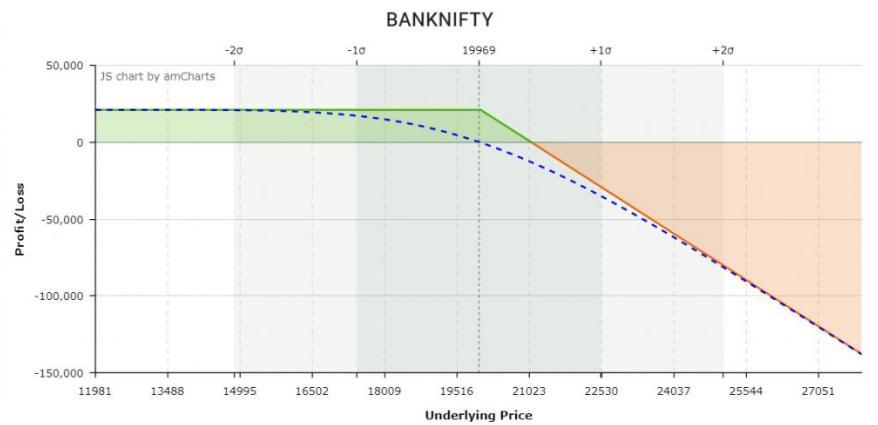
In this image, the movement of the second leg is shown in the blue dotted line!

**Directional Assumption: Neutral**

**Now, How do these break even points constructed?**

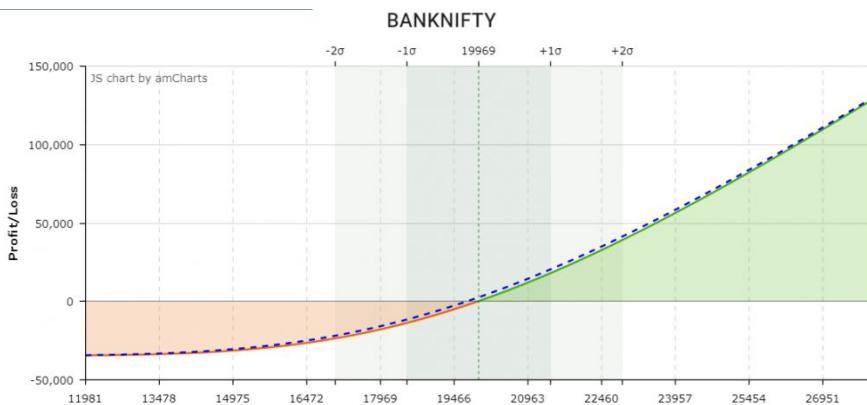
We need to see both the legs differently in an assumption that the two options will not trade at the different implied volatility.

-1 x 01 Apr 20000CE



+1 x 30 Apr 20000CE

## VOLATILITY SPREADS



On the left side, We have the first leg's break even on its expiry day. On the right side, We have the same for the second leg! Now the assumption here is there is no change of Implied Volatility! The more the implied volatility increases, the lower will be the breakeven of the second leg.

### Max Loss

Although we can not calculate the maximum profit. The maximum loss in the case is easy to calculate. This is a debit spread!

- In the above trade, You are getting a premium from the first leg and giving a premium for the second leg.
- The second leg has a more premium as it has expiry in the far-term!
- So, You end up giving a premium which is the maximum loss.

This is why it is called “Long” Calendar Spread as We are giving premiums like we have to do for buying(read, “Long”) options.

In this case, the maximum loss will be (Premium of the second leg - Premium of the first leg) \* Lot Size =  $(1729.35 - 1050) * 20 = 13587$

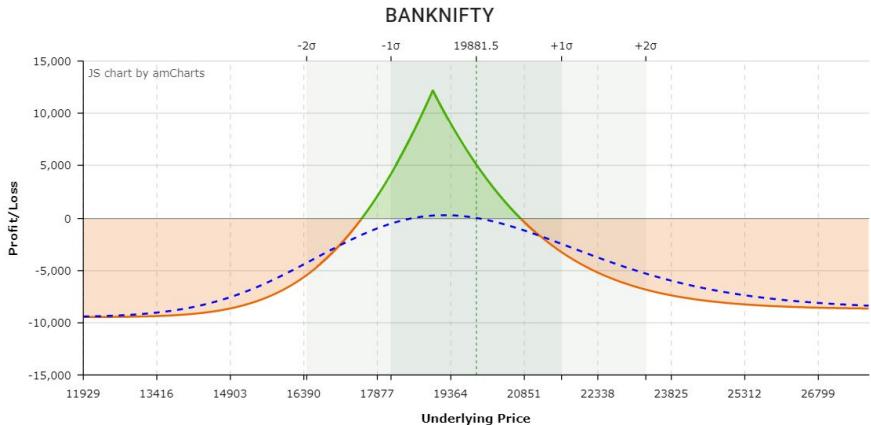
But, the second leg can not goto 0 practically right on the expiry day of the first leg? So, The max loss will be quite lesser than this figure.

### Long Put Calendar Spread

Note that, the construction of Spreads having multiple expiries is highly dependent on the last traded price of the underlying asset. Right now, BankNIFTY's LTP is 19913.6.

Let's construct a Long Put Calendar Spread like we did for call spread. Here is an example of a payoff graph where -

- Sell BankNIFTY 16th Apr 19000PE at 471.5
- Buy BankNIFTY 30th Apr 19000PE at 907.15



#### **Directional Assumption: Neutral**

Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 16APR20 19000PE	80.49	6.32	1150.43	0	-192.22
+1x 30APR20 19000PE	71.81	-7.51	-619.19	0	357.4
Positional Greeks		-1.19	531.24	0	165.18

We can say it is delta neutral as delta is almost 0.

# Long Time Butterfly<sup>17</sup>

A Long Time Butterfly or Time Fly is a variation of Calendar Spread, which is also referred to as Time Spread, is a trading strategy for derivatives is a direction neutral and low-risk strategy that profits from theta (i.e. profit increases with time).

Although it is said to be having maximum profit if there is no directional movement, it also profits from extreme movements. So, the effect of vega is very complex as it has a dynamic payoff.

**Direction Assumption:** Neutral and Extreme Moves

**Setup:** Like Butterfly Spread, this is also typically created using a ratio of 1-2-1.

- Sell Call/Put options of ATM strike price of the nearest expiry.
- Buy 2 Call/Put options of ATM strike price of slightly far expiry.
- Sell Call/Put options of ATM strike price of ever far expiry.

All options must be the same type (either all calls or puts), with approximately the same amount of time between expirations. Like, in weekly options, if we do first week, second week and take the last week (i.e. monthly expiry) instead of the third week (assuming third week is not the last week), it will create asymmetry. It is fine but is not recommended!

**Ideal Implied Volatility Environment:** High

**Variations of Time Butterflies:**

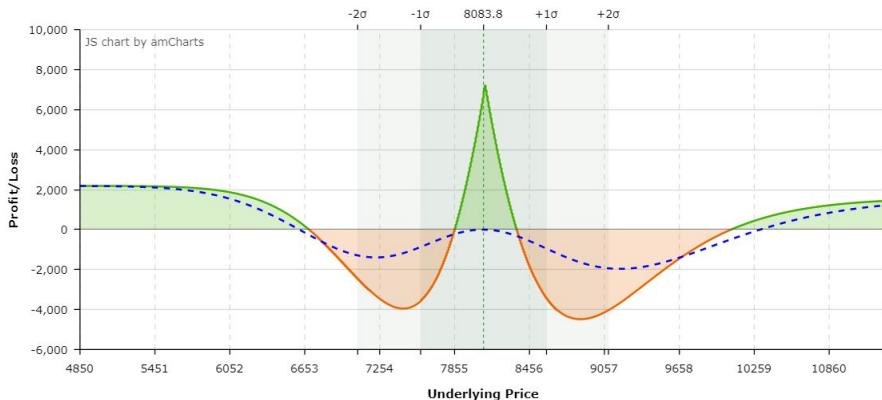
Long Call Time Butterfly	Long Put Time Butterfly
-1 NIFTY 9th Apr 8100CE +2 NIFTY 16th Apr 8100CE -1 NIFTY 30th Apr 8100CE	-1 NIFTY 9th Apr 8100PE +2 NIFTY 16th Apr 8100PE -1 NIFTY 30th Apr 8100PE

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<sup>17</sup> Similarly, We can construct a Short Time Butterfly spread but as the discussion is trivial, We are skipping it.

Before we go into more details, Let's have a look at the payoff graph of a trade setup where -

- Sell NIFTY 9th Apr 8100PE at 216
- Buy NIFTY 16th Apr 8100PE at 330 - 2 Lots
- Sell NIFTY 30th Apr 8100PE at 465.05



Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 30APR20 8100PE	54.37	46.87	889.93	-0.03	-869.86
-1x 09APR20 8100PE	52.95	49.44	1894.57	-0.08	-398.72
+2x 16APR20 8100PE	55.01	-96.13	-2620.4	0.1	1197.72
Positional Greeks		0.18	164.1	-0.01	-70.86

Here is another visualization -

Time Butterfly	Long Calendar Spread	Short Calendar Spread
-1x 30APR20 8100PE -1x 09APR20 8100PE +2x 16APR20 8100PE	-1x 09APR20 8100PE +1x 16APR20 8100PE	-1x 30APR20 8100PE +1x 16APR20 8100PE

So, basically a Time Butterfly is a combination of a Long Calendar Spread and Short Calendar Spread of different time cycles.

### Choice of Strike Price and Max Profit:

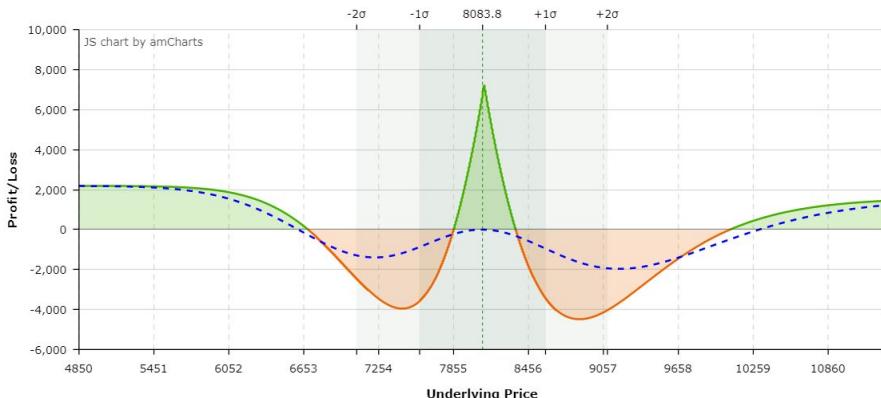
Like, Calendar Spreads, The maximum profit is very hard to calculate as we have options of different expiry cycles. It is even harder as we have three different expiry cycles here!

But, the maximum profit happens, in this case of Long Time Butterfly, if all the options remain at the money, as the time passes i.e the spot moves nowhere! In sum, a long time butterfly has characteristics similar to those of a long calendar spread. We shall be discussing the effect of volatility and time in details with more payoff graphs as it has complex outcomes.

### How to Calculate Breakeven(s):

- The break-even for a calendar spread cannot be calculated properly due to the different expiration cycles being used.
- All the options can have different implied volatility because we are talking about future volatility as well as the present volatility.

**So, Conceptually, there are four breakeven points as we can see in this payoff graph which was being discussed earlier -**



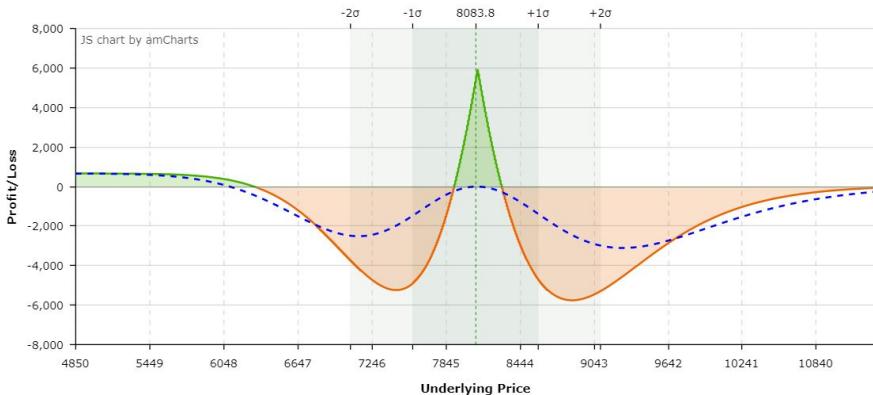
- Point A to B - Loss Zone
- Point B to C - Profit Zone
- Point C to D - Loss Zone

- Below Point A and Above point D there are profit zones.

However, there can be asymmetry based on option prices!

Here is an example of a payoff graph where -

- Sell NIFTY 9th Apr 8100CE at 188.95
- Buy NIFTY 16th Apr 8100CE at 326.5 - 2 Lots
- Sell NIFTY 30th Apr 8100CE at 472.85



In this payoff graph, there is no profit zone in the extreme right i.e. the point D as previously discussed.

We are making the assumption here that the implied volatility of all expirations is the same. If the implied volatility differs across expiration months, a long time butterfly might in fact result in a credit.

This call long time butterfly spread is a credit spread as we can see we are in fact getting premium of  $472.85 + 188.95 - (2 \times 326.5) = 8.8$  points

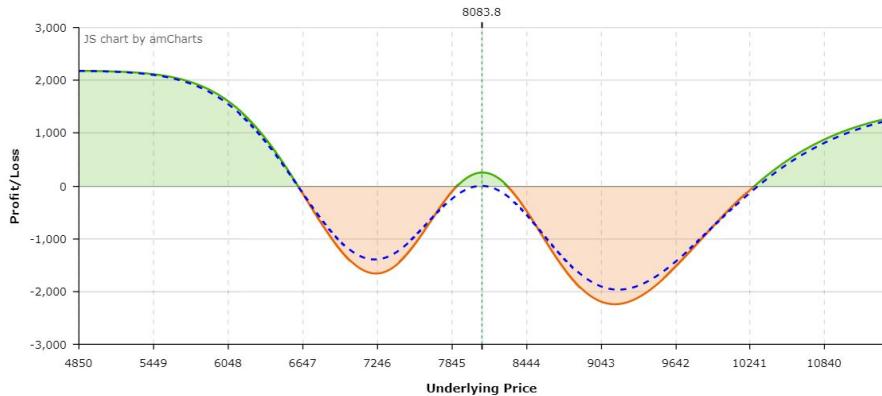
### **Now, How do these break even points constructed?**

Similarly, Like we did for long calendar spreads, we made an assumption that there is no change of volatility and we projected the options payoff towards the first expiry and summed them up!

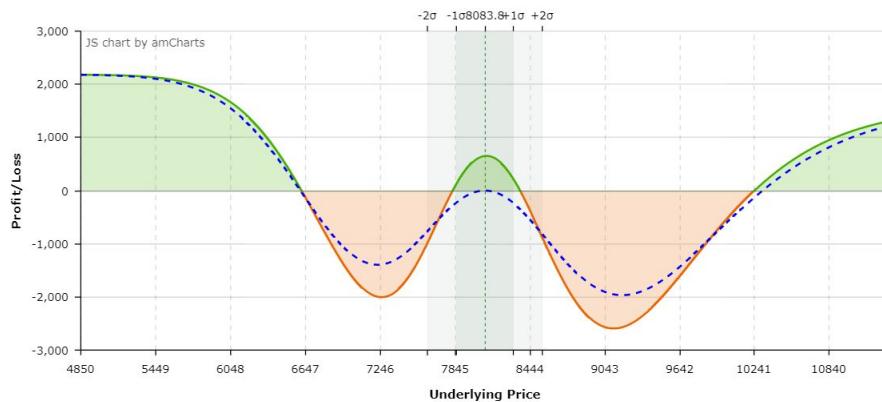
### **Effect of Time on Long Time Butterfly**

To understand the effect of time with this spread, We need to study the payoff graphs.

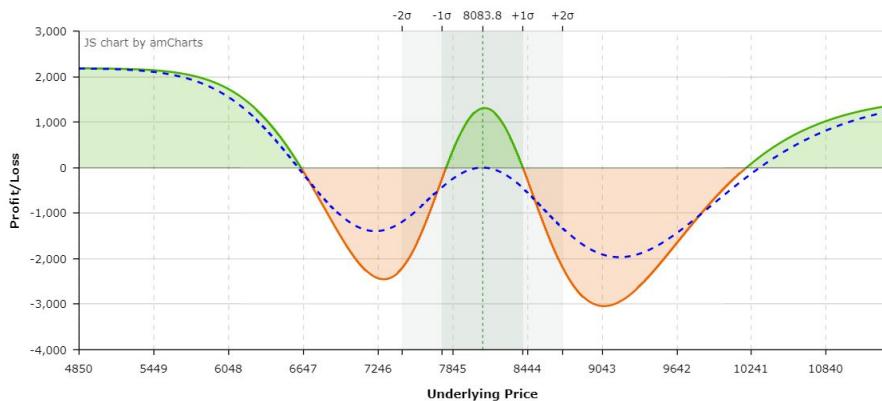
## VOLATILITY SPREADS



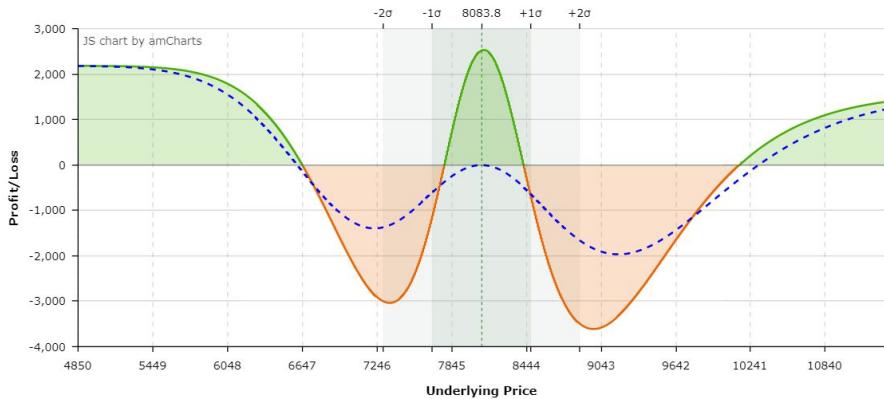
Payoff Graph when DTE = 4



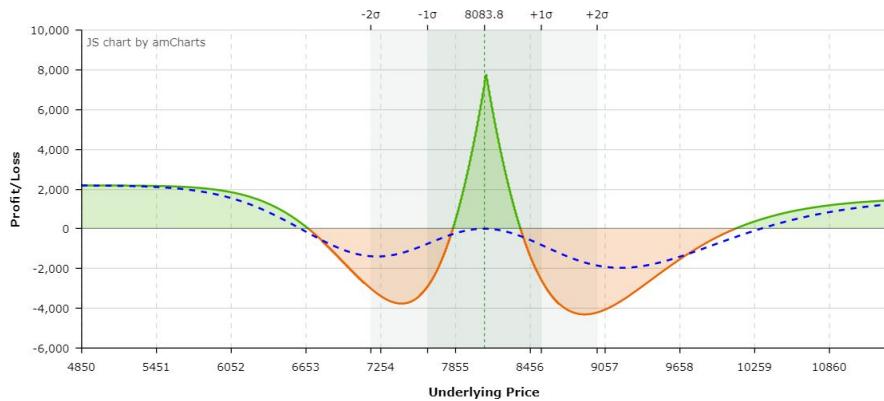
Payoff Graph when DTE = 3



### Payoff Graph when DTE = 2



### Payoff Graph when DTE = 1



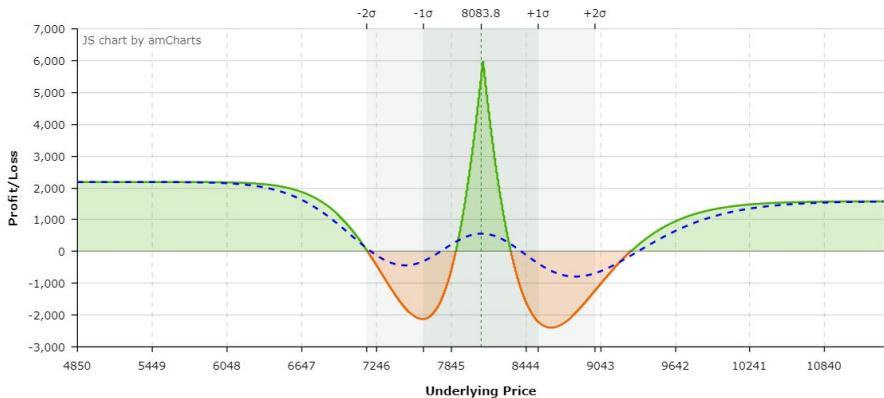
### Payoff Graph when DTE = 0 i.e. expiry day

The IV has been kept the same! The profit amount between B to C increases exponentially as we go near the expiry. Also the loss amounts are also increasing but the impact is not substantial.

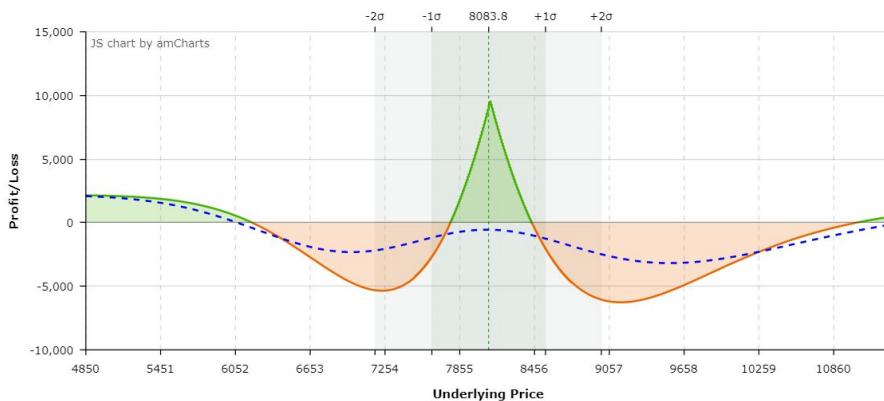
### Effect of Volatility on Long Time Butterfly

To understand the effect of volatility with this spread, We need to study the payoff graphs once again. This time, we will study the effect of IV keeping the DTE same. Let's take DTE = 0 i.e. the expiry day!

## VOLATILITY SPREADS



Payoff Graph when IV decreases 30%



Payoff Graph when IV increases 30%.

There are lots of noticeable changes. It is quite dynamic in that sense!. As the volatility rises -

- The area where loss happens increases huge! (So, The extreme far points where again profit happens gets shifted too).
- The amount of loss gets minimal increment.
- The area where profit happens gets minimal increment.
- The amount of profit increases huge!
- Change of Profit in the farthest area decreases slightly.

## Max Loss

This is hard to calculate. This is generally a debit spread but there can be cases of credit spread as well!

Anyways, the loss can not be theoretically more than the difference of premium of the 3rd leg and the 2nd leg. So, in the case where,

- Sell NIFTY 9th Apr 8100CE at 188.95
- Buy NIFTY 16th Apr 8100CE at 326.5 - 2 Lots
- Sell NIFTY 30th Apr 8100CE at 472.85

The max loss will be  $472.85 - 326.5 = 146.35$ .

But, there can be cases which can make an asymmetric impact!

## Effect of Interest Rate Change on Long Time Butterfly

As discussed earlier, Interest Rates affect options having higher expiry cycles more than the ones having near expiry cycles. Also, call options and put options have opposite effects when it comes to interest rate!

An increase in interest rates will reduce the value of a put calendar spread and an increase in dividends will reduce the value of a call calendar spread. But, as said, it is insignificant unless there are options with too far expiry cycles are involved like December options.

# Diagonal Spreads

In Calendar Spread and Time Butterfly Spread, We have the same strike prices but When we implement a different combination of strike prices it is called a Diagonal Spread.<sup>18</sup>

Like, Options in calendar aka horizontal spread strategy has the same strike with different expirations, This uses various strikes over various expirations which leads to large numbers of variants. Anyways, We can declare Time Butterfly strategies as a type of horizontal spread in that sense.

Spreads	Expiries	Strikes	Example
Vertical	Same	Different	Short Put Vertical Spread Long Call Vertical Spread Long Put Vertical Spread Short Call Vertical Spread
Horizontal	Different	Same	Calendar Spread Time Butterfly Spread
Diagonal	Different	Different	Short Put DiagonalSpread Long Call DiagonalSpread Long Put DiagonalSpread Short Call DiagonalSpread

The primary goal here is to create Diagonal Spreads with options having the same delta. In that case it will move almost similar to our normal calendar spreads in the payoff graph. Anyways, as different strike price and expiration increases the complexity of greeks, each diagonal spread has to be analyzed separately.

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<sup>18</sup>In Options Chain, Options are listed like a matrix of strike prices and expiration dates. The names like Horizontal, Vertical, Diagonal Spreads come from that only.

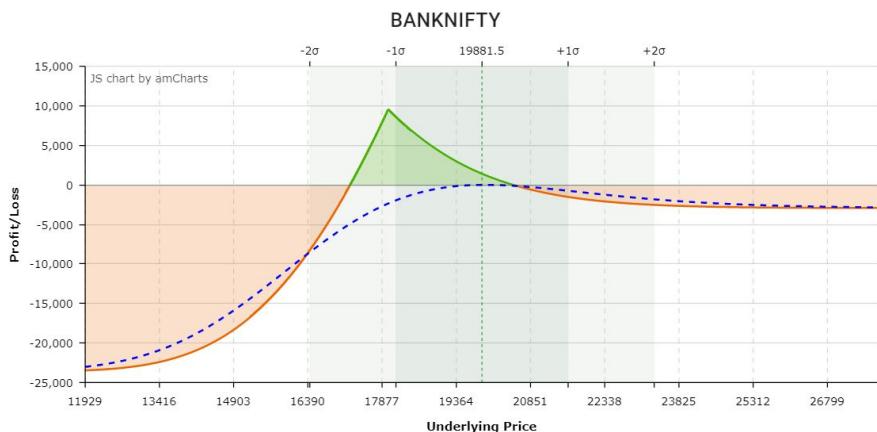
But, keeping an eye to our need for delta neutrality, We can discuss four important variants. Anyways, if the delta is positive or negative, the underlying movement will significantly affect the payoff as the calendar spreads because of its affiliation with vega.

### Short Put Diagonal Spread

Right now, BankNIFTY's LTP is 19913.6.

Here is an example of a payoff graph where -

- Sell BankNIFTY 16th Apr 18000PE at 220.15
- Buy BankNIFTY 30th Apr 17000PE at 367.1



Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 16APR20 18000PE	83.44	3.46	857.47	0	-138.12
+1x 30APR20 17000PE	7.88	-3.65	-468.58	0	249.34
Positional Greeks		-0.19	388.89	0	111.22

**Ideal IV Environment:** Low

**Directional Assumption:** Moderately Bullish

## VOLATILITY SPREADS

It looks similar to the payoff graph of a Put Ratio Front Spread. But, while the Put Ratio Front Spread doesn't like an increase in IV, this setup mostly gets benefited by an increase in IV.

The delta is almost neutral here.

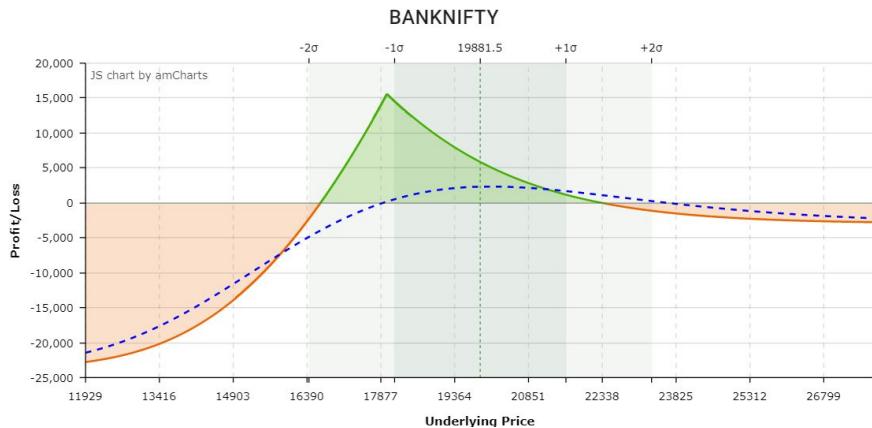
- The selection of strike price of the near-term expiration cycle is independent.
- The selection of strike price of the far-term expiration cycle is dependent as we choose the strike price in a way that the delta becomes almost zero.

The names of these setups, like in this case - "Short Put" comes from the similarity of choice of strike prices with vertical Spreads.

But, While "Short Put Vertical Spread" is credit spread, "Short Put Diagonal Spread" **mostly** results in a debit spread. It is because the premium of the far expiry cycle usually results in higher premium.

### Setup:

- Sell an OTM put option in a near-term expiration cycle
- Buy further OTM put option in a longer-term expiration cycle



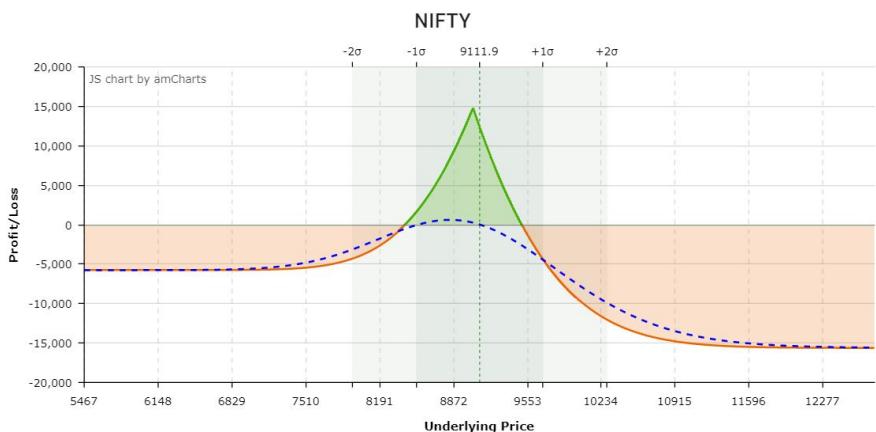
Here you can see the payoff graph of the same setup where IV is increased by 30%. Mathematically, The probability of profit increases from 57.25% to 87.08%.

## Long Put Diagonal Spread

Right now, NIFTY's LTP is 9111.9. Similarly, like Short Put Diagonal Spread, Let's construct Long Put Diagonal Spread.

Here is an example of a payoff graph where -

- Sell NIFTY 16th Apr 9050PE at 231.8
- Buy NIFTY 30th Apr 9200PE at 440.1



Let's have a look at the greeks for better understanding -

Position	IV	Delta	Theta	Gamma	Vega
-1x 16APR20 9050PE	54.39	44.35	1990.18	-0.06	-485.7
+1x 30APR20 9200PE	47.17	-52.17	-983.65	0.04	860.69
Positional Greeks		-7.82	1006.53	-0.02	374.99

This is definitely will result in a debit spread and the effect of implied volatility will be more extreme due to high vega because of the buy leg satisfies all best possible cases -

- It is a put option.
- It is ITM.
- The expiry cycle is far.

**Ideal IV Environment:** Low

**Directional Assumption:** Bearish

Like the previous setup, The delta is almost neutral here.

**Note:** Usually, it is widely followed that the net debit paid is not more than 75% width of the strike prices. It is because if IV decreases, the loss will be more steep! But, the construction of this strategy while keeping the delta neutral satisfies the previous condition most of the time.

In this case,

- Net Debit =  $440.1 - 231.8 = 208.3$
- Width of the Strike Prices =  $9200 - 9050 = 150$

Net Debit > 75% of Width of the Strike Prices in this case.

So, the trade doesn't look healthy.<sup>19</sup> It happened because - the underlying asset i.e. NIFTY is trading at 9111.9, the LTP of NIFTY futures is 9086.7.

Generally, the futures trade higher than the spot and the option prices will have similar reflection.

**Setup:**

- Buy ITM put option in a longer-term expiration cycle
- Sell OTM put option in a near-term expiration cycle

**Poor Man's Covered Put<sup>20</sup>**

The “Long Put Diagonal Spread” strategy is also popularly known as Poor Man’s Covered Put (PMCP). It is because it has limited risk compared to a normal covered put<sup>21</sup>.

As the risk is limited, the margin requirement is also low.

<sup>19</sup> This is specific to this example only. It is not a general statement.

<sup>20</sup> Similarly, “Long Call Diagonal Spread” is called Poor Man’s Covered Call.

<sup>21</sup> Covered Put is constructed by Sell 1 lot futures + Sell 1 lot ATM put options.

# Choosing the right Volatility Spread

Before we check into the more details into the choice among so available spreads, let's dive into the greeks. As volatility spreads are delta neutral, we can classify the spreads into broad three categories based on - Gamma, Theta and Vega.

## Summary of Common Volatility Spreads

### Type A: (Gamma/Theta/Vega = +/-/+)

Spread	Gamma	Theta	Vega
Long Straddle	+	-	+
Long Strangle	+	-	+
Long Ratio Straddle	+	-	+
Long Ratio Strangle	+	-	+
Put Ratio Back Spread	+	-	+
Put Ratio Back Spread	+	-	+
Short Put Christmas Tree	+	-	+
Short Call Christmas Tree	+	-	+
Short Put Butterfly Spread	+	-	+
Short Call Butterfly Spread	+	-	+
Short Put Condor Spread	+	-	+
Short Call Condor Spread	+	-	+
Long Iron Butterfly	+	-	+
Long Iron Condor	+	-	+

### Type B: (Gamma/Theta/Vega = -/+/-)

## VOLATILITY SPREADS

Spread	Gamma	Theta	Vega
Short Straddle	-	+	-
Short Strangle	-	+	-
Short Ratio Straddle	-	+	-
Short Ratio Strangle	-	+	-
Put Ratio Front Spread	-	+	-
Call Ratio Front Spread	-	+	-
Long Put Christmas Tree	-	+	-
Long Call Christmas Tree	-	+	-
Long Put Butterfly Spread	-	+	-
Long Call Butterfly Spread	-	+	-
Long Put Condor Spread	-	+	-
Long Call Condor Spread	-	+	-
Short Iron Butterfly	-	+	-
Short Iron Condor	-	+	-

### Type C: Calendar Spreads

Spread	Gamma	Theta	Vega
Long Put Calendar Spread	-	+	+
Long Call Calendar Spread	-	+	+
Short Put Calendar Spread	+	-	-
Short Call Calendar Spread	+	-	-

We have not discussed the variations of Time Butterfly Calendar Spread and Diagonal Spreads. There can be lots of possible combinations. Also, As

they spanned out into multiple expiration cycles and multiple strike prices, there is no uniform output of greeks.

As Theta and Gamma stay on the opposite side (apart from unusual cases of Time Butterfly Calendar Spreads and Diagonal Spreads), Our first focus is on Vega. Implied Volatility inflates the extrinsic value.

So,

- If IV is high, Options are generally said to be overpriced. So, We look spread with negative vega.
- If IV is low, Options are generally said to be underpriced. So, We look spread with positive vega.

Calendar Spreads is about estimation of future IVs.

- If IV is low and is supposed to rise in the future, then look for Long Calendar Spread.
- If IV is high and is supposed to fall in the future, then look for Short Calendar Spread.

Also, the correct strategy matters on many things -

- **Exit Time:** Instead of selling Far OTM strangles, the probability of profit is also highly attractive when you sell ATM straddles for a short time i.e. with a time based stop loss.
- **Payoff Graphs:** Selling options do not say that you have to hold it till the expiry day. It is all about the breakevens of the payoff graph of the day you want to exit.
- **Statistical Outputs:** When RBI declares interest rate, 87% of the time the decision turns out to be priced into the markets making it a nonevent. So, We can bet on IV contractions for that short period of time. There can be many events like this where options price lead into asymmetry.

# Bull and Bear Spreads

*Derivatives are financial weapons of mass destruction.*

- Warren Buffet

Although volatility spreads are based on the foundation of delta neutrality, it will be unfair to ignore the very basics of directional spreads.

# Vertical Spreads

While thinking of vertical spread; there are two cases which you need to think of -

- **Direction** - What is the direction you want to bet? Is it bullish or bearish?
- **Implied Volatility** - What is the implied volatility? Do you think it will consolidate? Also, Will it move up or down doing this consolidation?

Anyways, Let's come back to the discussion of vertical spreads. There are four types of spreads. Let's say, We are bullish in NIFTY.

Published on TradingView.com, November 11, 2019 14:18:35 IST  
 NIFTY 50:INDICES:256265, 120 O:11871.20 H:11897.10 L:11861.60 C:11896.25



Created with TradingView

We will discuss why we have a bullish view later on. Right now, note that the spot is at 11896.25

## VOLATILITY SPREADS

### Short Put Vertical Spread

The strategy we are going to construct is called “Short Put Vertical Spread”.

#### Setup:

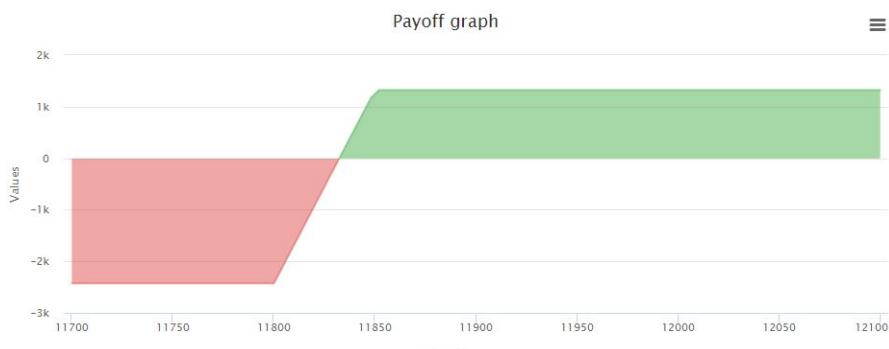
- Sell OTM Put.
- Buy Further OTM Put.

<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11800 PE NFO	75	27.15	27.10	-3.75	-0.18%
<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11850 PE NFO	-75	44.75	44.90	-11.25	0.34%

In this case -

- We sold 11850PE at 44.75
- We bought 11800PE at 27.15

The payoff graph will look like -



**Directional Assumption:** Bullish

**Ideal Implied Volatility Environment:** High

- We will get the highest loss at and below 11800.
- We will get the highest profit at and above 11850.

Please note that We have to take the strike price of the same expiry for constructing this.

#### How to Calculate Breakeven(s):

Here is how to calculate the BEP in this case

= Short Put Strike - Credit Received

$$= 11850 - (44.75 - 27.15)$$

$$= 11832.4.$$

So, as long as, NIFTY closes above or at 11832.4 on the day of expiry; there is no loss.

### Long Call Vertical Spread

Now, there is another similar strategy that we can construct if we have a bullish view. It is called “Long Call Vertical Spread”.

#### Setup:

- Buy ITM Call.
- Sell OTM Call.

<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11850 CE NFO	75	76.30	73.35	-221.25	-3.87%
<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11900 CE NFO	-75	51.55	49.50	+153.75	-3.98%

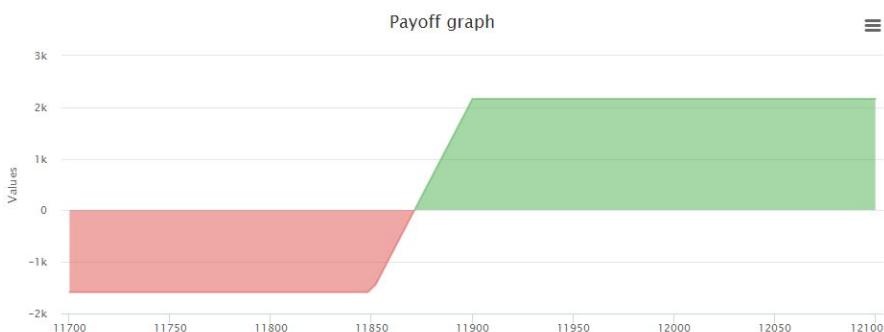
In this case -

- We bought 11850CE at 76.30
- We sold 11900CE at 51.55

So,

- We will get the highest loss at and below 11850.
- We will get the highest profit at and above 11900.

The payoff graph will look like -



**Directional Assumption: Bullish**

## VOLATILITY SPREADS

### Ideal Implied Volatility Environment: Low

#### How to Calculate Breakeven(s):

Here is how to calculate the BEP in this case

$$= \text{Long Call Strike} + \text{Net Debit Paid}$$

$$= 11850 + 76.30 - 55.15$$

$$= 11871.15$$

Also, NIFTY shot up while we were discussing this. Anyways, that was my view as well for intraday.

<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11800 PE NFO	0	0.00	13.00	-1,143.75	0.00%
<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11850 CE NFO	0	0.00	97.75	+1,927.50	0.00%
<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11850 PE NFO	0	0.00	24.25	+1,612.50	0.00%
<input type="checkbox"/>	NRML	NIFTY 14 <sup>th</sup> NOV 11900 CE NFO	0	0.00	67.50	-1,313.75	0.00%

The setups shared made a nice profit of 1082.5 INR.

The difficult part is to find the directional view! As per price action theory, the intraday direction for burst was like clean and was supported by many theories. Here is the detailed rationale -

PRZ 1: It has technical support

Published on TradingView.com, November 11, 2019 15:37:04 IST  
 NIFTY 50:INDICES:256265, 1D O:11879.20 H:11932.55 L:11854.05 C:11912.75



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### PRZ 2: Open Interest Support

### PRZ 3: Bounce Downtrend break + PRZ 4: Double Bottom Breakout

Published on TradingView.com, November 11, 2019 15:39:22 IST  
 NIFTY 50:INDICES:256265, 4 O:11915.55 H:11915.55 L:11908.15 C:11912.75



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### PRZ 4: Weekend Buy

## VOLATILITY SPREADS

Published on TradingView.com, November 11, 2019 15:39:22 IST  
NIFTY 50:INDICES:256265, 4 O:11915.55 H:11915.55 L:11908.15 C:11912.75



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Our discussion is not about getting the direction view but about the implementation method of the view using options having a limited loss. PRZ means Potential Reverse Zone. NIFTY was falling and We did a counter bet which is supported by four theories as explained above.

**How do you decide short put vertical and not long call vertical, in other words how to decide what strategy to execute?**

In Short Put Vertical Spread, We are earning by the put sold and In Long Call Vertical Spread, We are earning by the call bought.

**When shorting options is better?**

- **When IV is high.**

So, When IV is high, Short Put Vertical Spread is better.

- **When Impact of Theta is high.**

So, When Theta is high i.e. one day before the expiry day or at the expiry day itself, Short Put Spread is better.

**Important Notes:**

- If there is sudden movement, it inflates IV; Long Call Spread is better. It made 613.75₹ while Short Put Spread made 468.75₹.
- In case of expiry days, Short Put will always have more advantage over Long Call due to massive theta no matter what the IV is.

## Long Put Vertical Spread

The strategy we are going to construct is called “Long Put Vertical Spread”.

### Setup:

- Buy ITM Put.
- Sell OTM Put.

In this case (Assume LTP of NIFTY is 9837.4) -

- We bought 10000PE at 167.6
- We sold 9600PE at 26.45

This is a debit spread.

Debit Paid

$$\begin{aligned} &= \text{Premium Paid} - \text{Premium Received} \\ &= 167.60 - 26.45 \\ &= 141.15 \end{aligned}$$

**Directional Assumption:** Bearish

**Ideal Implied Volatility Environment:** Low

**How to Calculate Breakeven(s):**

Here is how to calculate the BEP in this case

$$\begin{aligned} &= \text{Long Put Strike} - \text{Debt Paid} \\ &= 10000 - 141.15 \\ &= 9858.85 \end{aligned}$$

**Max Profit:** Distance Between Put Strikes - Net Debit Paid =  $(10000 - 9600)$   
- 141.15 = 258.85

Max Profit Achieved When Price of Underlying  $\leq$  Strike Price of Short Put  
 $\leq$  9600 Maximum loss cannot be more than the initial debit taken to enter the spread position. Max Loss = Debit Paid = 141.15 Max Loss Occurs When Price of Underlying  $\geq$  Strike Price of Long Put  $\geq$  10000

The payoff graph will look like -

## VOLATILITY SPREADS

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Put	10000	75	-+	167.6
NSE	Options	NIFTY	AUG 31 2017	Put	9600	-75	-+	26.45



This payoff graph is interesting as it shows the impact of both legs and their resultant effect into the same graph.

### Short Call Vertical Spread

The strategy we are going to construct is called “Short Call Vertical Spread”.

#### Setup:

- Sell OTM Call..
- Buy Further OTM Call.

In this case (Assume LTP of NIFTY is 9837.4) -

- We sold 9850CE at 89.3
- We bought 9900CE at 64.45

This is a credit spread.

#### Credit Received

$$\begin{aligned}
 &= \text{Premium Received} - \text{Premium Paid} \\
 &= 89.3 - 64.45 \\
 &= 24.85
 \end{aligned}$$

#### Directional Assumption: Bearish

## Ideal Implied Volatility Environment: High

### How to Calculate Breakeven(s):

Here is how to calculate the BEP in this case

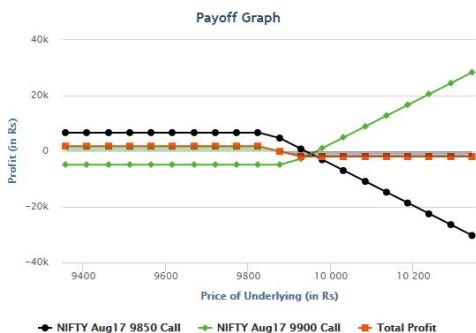
$$\begin{aligned}
 &= \text{Short call strike} + \text{Credit received} \\
 &= 9850 + 24.85 \\
 &= 9874.85
 \end{aligned}$$

**Max Profit:** Credit received = 24.85

Max Profit Achieved When Price of Underlying  $\leq$  Strike Price of Short Call  
 $\leq 9850$  Max loss = Difference between the strike price - net credit received =  $(9900-9850) - 24.85 = 50 - 24.85 = 25.15$  Max Loss Occurs When Price of Underlying  $\geq$  Strike Price of Long Call  $\geq 9900$

The payoff graph will look like -

Exchange	Segment	Ticker	Expiry	Option Type	Strike	Quantity	Price	
NSE	Options	NIFTY	AUG 31 2017	Call	9850	-75	89.3	₹
NSE	Options	NIFTY	AUG 31 2017	Call	9900	75	64.45	₹



Required margin for this strategy

Span Margin	₹ 22,350.00
Exposure Margin	₹ 22,162.50
Value At Risk Margin	₹ 0.00
Extreme Loss Margin	₹ 0.00
Net Premium	₹ -1,863.75
Total Amount Required	₹ 46,376.25

## Summary

Let's summarize the strategies -

## VOLATILITY SPREADS

	Direction : Bullish	Direction : Bearish
<b>Implied Volatility : Low</b>	Long Call Vertical Spread	Long Put Vertical Spread
	Buy ITM Call - Sell OTM Call	Buy ITM Put - Sell OTM Put
	Distance Between Call Strikes – Premium	
	Long Call Strike + Debit Paid	Debit Paid
<b>Implied Volatility : High</b>	Short Put Vertical Spread	
	Sell OTM Put (closer to spot) - Buy OTM Put (away from spot)	
	Short Call Vertical Spread	
Setup	Sell OTM Call (closer to spot) - Buy OTM Call ( away from spot)	
	Credit received	
	Short Put Strike - Credit Received	
Max Profit	Difference between the strike price - Credit Received	
	Short Call Strike - Credit Received	
	Debit Paid	

We also refer to the terms “Long” as “Bull” and “Short” as “Bear”. So -

- Long Call Vertical Spread = Bull Call Spread
- Long Put Vertical Spread = Bear Put Spread
- Short Put Vertical Spread = Bull Put Spread
- Short Call Vertical Spread = Bear Call Spread

To remember the usage of the options with respect to IV, You need to remember that -

- Long, “Bull Call”, “Bear Put” is low IV.
- Short, “Bull Put”, “Bear Call” is high IV.

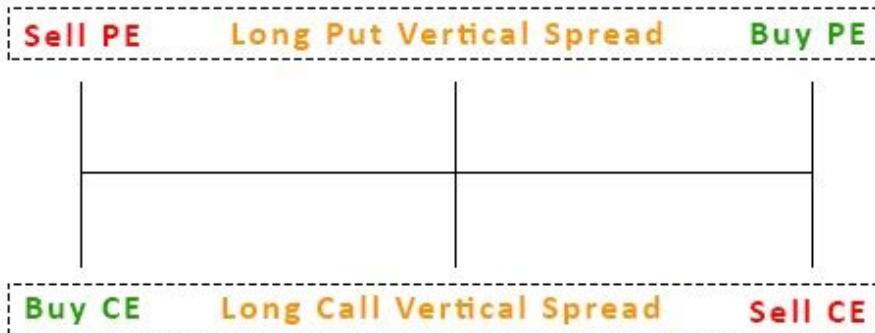
### Conclusion -

We prefer to sell credit spreads in high IV environments, and sell debit spreads in low IV environments. The term “long” comes from the fact that we are giving premium like we do for “longing” options and vice versa.

In the following illustration, one can visualize the credit spreads at one go

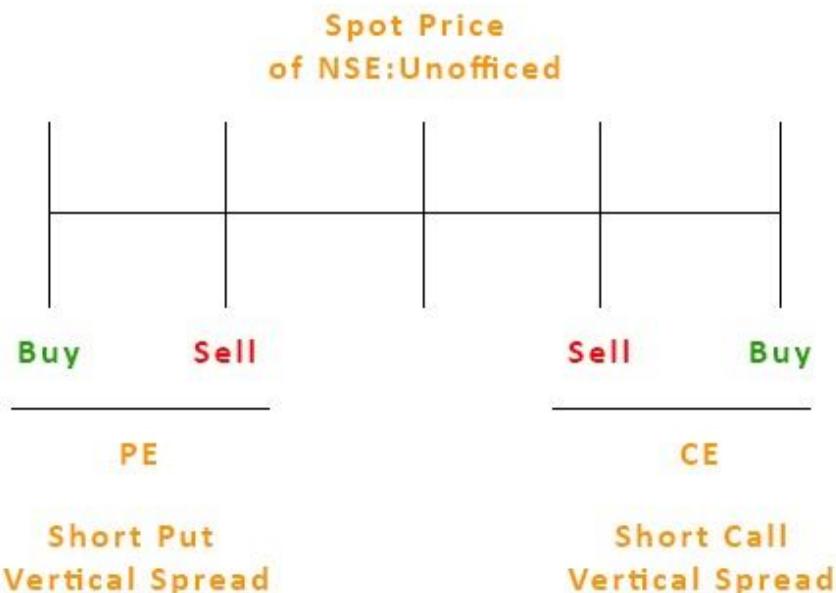
-

Spot Price  
of NSE:Unofficed



It shows the location of strike prices in the same image! Similarly here is another illustration to showcase the credit spreads.

## VOLATILITY SPREADS



### Examples of Vertical Spreads

Here are some examples of vertical spread trade setups with outcomes.

#### Chola Short Call Spread

Amit\_Ghosh published on TradingView.com, November 13, 2019 10:03:58 IST  
NSE:CHOLAFIN, 1D 300.20 ▲ +3.45 (+1.16%) O:296.75 H:301.90 L:296.75 C:300.20



Created with TradingView

**Setup:**

- Sell Chola 300 CE at 11.4
- Buy Chola 310 CE at 6.55

**Outcome:**

<input checked="" type="checkbox"/> Instrument	LTP	Realized P/L	Unrealized P/L	
<input checked="" type="checkbox"/> CHOLAFIN 28 Nov 2019 310.0 CE Qty: 2500 Avg Price: 6.55		31.45	0.0	+62,250.0
<input checked="" type="checkbox"/> CHOLAFIN 28 Nov 2019 300.0 CE Qty: -2500 Avg Price: 11.40		33.40	0.0	-55,000.0

Delta: -235 Theta: -304 Gamma: 7,8489 Vega: 108 Realized P/L: 0.0 Unrealized P/L: +7,250.0

**JUBLFOOD Short Call Spread****Setup:**

- Short Jublfood 1640CE at 27.25
- Buy Jublfood 1680CE at 15.6

**Outcome:**

<input checked="" type="checkbox"/> Instrument	LTP	Realized P/L	Unrealized P/L	
<input checked="" type="checkbox"/> JUBLFOOD 28 Nov 2019 1640.0 CE Qty: -500 Avg Price: 27.25		20.20	0.0	+3,525.0
<input checked="" type="checkbox"/> JUBLFOOD 28 Nov 2019 1680.0 CE Qty: 500 Avg Price: 15.60		9.90	0.0	-2,850.0

Delta: -67 Theta: 245 Gamma: -0.4175 Vega: -108 Realized P/L: 0.0 Unrealized P/L: +675.0

**BankNIFTY Call Spread**

## VOLATILITY SPREADS

Published on TradingView.com, November 19, 2019 12:13:04 IST  
**NIFTY BANK:INDICES:260105, 15 O:31229.05 H:31262.45 L:31211.45 C:31217.55**



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### Setup:

- Short BankNIFTY 31200CE at 236
- Buy BankNIFTY 31300CE at 189

### Outcome:

<input checked="" type="checkbox"/>	Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑
<input checked="" type="checkbox"/>	BANKNIFTY 21 Nov 2019 31200.00 CE Qty: -20 Avg Price: 236.00	<button>EXIT</button> 216.70	0.0	+386.0
<input checked="" type="checkbox"/>	BANKNIFTY 21 Nov 2019 31300.00 CE Qty: 20 Avg Price: 189.00	<button>EXIT</button> 170.15	0.0	-377.0

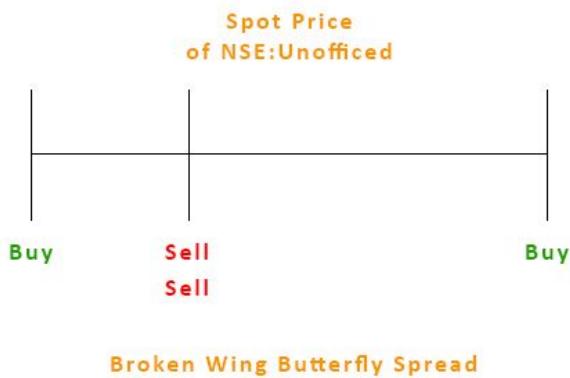
Delta: -2 ⚠ Theta: 31 ⚠ Gamma: 0.0001 ⚠ Vega: -2 ⚠ Realized P/L: 0.0 Unrealized P/L: +9.0

*Don't focus on making money; focus on protecting what you have.*

- Paul Tudor Jones

# Broken Wing Butterfly Spreads<sup>22</sup>

In the Butterfly Spread, it was equidistant strike prices where we were buying the options. Instead of that let's make the distance unbalanced. It will give a directional bias.

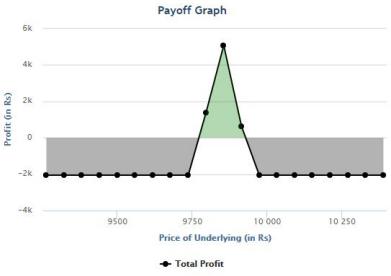



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<sup>22</sup> Similarly, We can construct Broken Wing Condor spreads but as the discussion is trivial, We are skipping it.

## Broken Wing Long Butterfly Spreads

Now, Let's recall our old setups discussed in Butterfly Spreads -

Long Put Butterfly Spread	Long Call Butterfly Spread
<p>Buy 9750 PE - 1 lot Sell 9850 PE - 2 lot Buy 9950 PE - 1 lot</p>  <p>Payoff Graph Profit (in Rs) Price of Underlying (in Rs)</p> <p>◆ Total Profit</p>	<p>Buy 9750 CE - 1 lot Sell 9850 CE - 2 lot Buy 9950 CE - 1 lot</p>  <p>Payoff Graph Profit (in Rs) Price of Underlying (in Rs)</p> <p>◆ Total Profit</p>

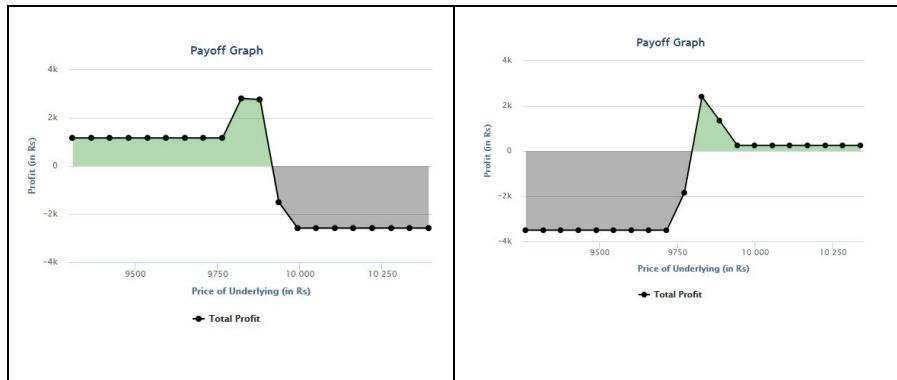
## Broken Wing Long Put Butterfly Spread

In the case of Broken Wing Long Put Butterfly Spreads -

- We reduce the lower strike price closer to the ATM to give more leg room towards the downside.
- We reduce the higher strike price higher to the ATM to give more leg room towards the upside.

Now, let's break the wings of Long Put Butterfly Spread -

Long Put Butterfly Spread (Closer OTM Strike)	Long Put Butterfly Spread (Closer ITM Strike)
<p>Buy 9800 PE - 1 lot Sell 9850 PE - 2 lot Buy 9950 PE - 1 lot</p>	<p>Buy 9750 PE - 1 lot Sell 9850 PE - 2 lot Buy 9900 PE - 1 lot</p>



### Broken Wing Long Call Butterfly Spread

In the case of Broken Wing Call Put Butterfly Spread -

- We reduce the lower strike price closer to the ATM to give more leg room towards the upside.
- We reduce the higher strike price higher to the ATM to give more leg room towards the downside.

Now, let's break the wings of Long Call Butterfly Spread -

Long Call Butterfly Spread (Closer OTM Strike)	Long Call Butterfly Spread (Closer ITM Strike)
Buy 9750 CE - 1 lot Sell 9850 CE - 2 lot Buy 9900 CE - 1 lot	Buy 9800 CE - 1 lot Sell 9850 CE - 2 lot Buy 9950 CE - 1 lot

A Broken Wing Long Butterfly<sup>23</sup> is a long butterfly spread with long strikes that are not equidistant from the short strike. This leads to one side having greater risk than the other, which makes the trade slightly more directional than a standard long butterfly spread.

**Directional Assumption:** Neutral to Slightly Directional

**Max Profit:**

Width of narrower spread + Credit Received

Or, Width of narrower spread - Debit Paid

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<sup>23</sup> Similarly, We can construct Broken Wing Short Butterfly spreads but as the discussion is trivial, We are skipping it.

# Lizards

## **Jade Lizard**

Jade lizard is a popular strategy yet not so very known among traders. It is because of the name which sounds like a historical artifact but actually was coined by former CBOE floor traders, Liz Dierking and Jenny Andrews, on the Liz & Jny Show on the Tastytrade Network.

It is a slightly bullish strategy but having no upside risk if we make sure the net premium collected is more than the width of OTM Vertical Call Spread to have no upside loss.

### **Setup:**

1. Sell OTM Put
2. Sell OTM Vertical Call Spread

**Ideal IV Environment:** High

**Maximum Profit:** Net Credit received

### **Max Loss:**

- No loss on the upside.
- Unlimited loss in the downside.

### **How to Calculate Breakeven(s):**

- Downside: Strike Price of short put - credit received
- Upside: None

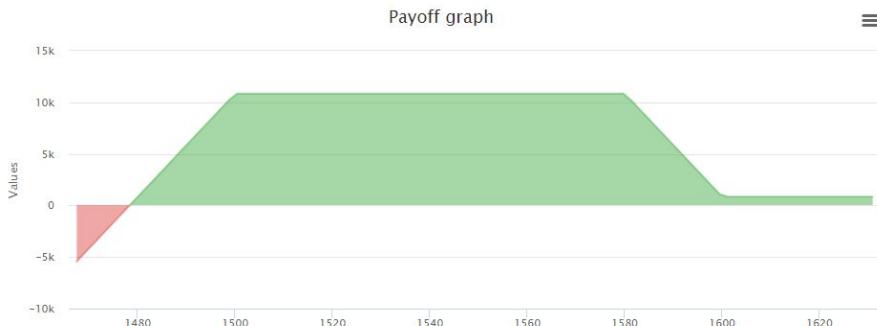
### **Example:**

- Short Reliance 1580CE at 43.9.
- Long Reliance 1600CE at 35.
- Short Reliance 1500PE at 12.8.

If the total credit is greater than the width of the Vertical Call Spread, then there is no upside risk. In this case, Total Credit = (43.9+12.8-35) =21.7 > Width of the Vertical Call Spread = (1600-1580) = 20.

## VOLATILITY SPREADS

The payoff graph looks like -



An alternative way to view the setup is - **Sell Strangle + Buy OTM Call**.

### When do we do Jade Lizards?

To get proper scenario in this case, We need to find an instrument in which there is an asymmetry in the implied volatility in the options.-

- Implied Volatility of OTM puts are higher than the ATM puts.
- Implied Volatility of OTM calls are lower than the near OTM calls.

In short, We are selling volatility that is rich (in terms of put options) and purchasing volatility that is less expensive (in terms of call options).

### Big Lizard

If we sell straddle instead of strangle along with the OTM call buy, it is called Big Lizard. The term “Big” in “Big Lizard” comes from the fact that selling straddle yields “**bigger**” credit in premium than strangle.

Here is a table for quick graphical representation -

Jade Lizard	Sell Strangle + Buy OTM Call
Big Lizard	Sell Straddle + Buy OTM Call

# Twisted Sister

This is basically the opposite of Lizards.

It is a slightly bearish strategy but having no downside risk if we make sure the net premium collected is more than the width of OTM Vertical Put Spread to have no downside loss.

## **Setup:**

3. Sell OTM Call
4. Sell OTM Vertical Put Spread

**Ideal IV Environment:** High

**Maximum Profit:** Net Credit received

## **Max Loss:**

- No loss on the downside.
- Unlimited loss in the upside.

## **How to Calculate Breakeven(s):**

- Downside: None
- Upside: Strike Price of short call - credit received

## **Example:**

- Short NIFTY 9300CE at 124.65.
- Short NIFTY 8600PE at 87.95.
- Long NIFTY 8500PE at 69.45.

If the total credit is greater than the width of the Vertical Put Spread, then there is no downside risk. In this case, Total Credit =  $(124.65+87.95-69.45) = 143.15 > \text{Width of the Vertical Put Spread} = (8600-8500) = 100$ .

As usual, An alternative way to view the setup is - **Sell Strangle + Buy OTM Put**. But unlike Big Lizard, there is no big twisted sister here because the strategy is not so popular enough to have another name to itself.

So, **Sell Straddle + Buy OTM Put** also falls under Twisted Sister

## VOLATILITY SPREADS

Anyways The payoff graph from the previous setup looks like -



Here is a table for quick graphical representation -

Twisted Sister	Sell Strangle + Buy OTM Put
	Sell Straddle + Buy OTM Put

# Market Overview

*Tell me where I'm going to die so that I won't go there.*

- Charlie Munger

The market overview and subsequent analysis are highly sensitive to time. So, if there is any update towards the trade setup or analysis, time will be duly mentioned. And, these setups are not necessarily trying to maintain delta neutrality.

These discussions happened live in Unofficed Trading Forum and verifiable through logs and thousands of active users.

# Live Expiry Trading Using Strangle and Strangle

We shall have a look at a trading diary of 10th August Expiry. So, We will write the trade commentary with proper times along with the images.

As it is intraday, there can be lots of decision making flaws and errors as we have a small window of decision making! As this monologue is a part of discussion which happened in our trading forum, there are questions which are marked in bold followed by answers.

So our first trade is shorting the PE of OTM strike price to keep us a safety buffer.



**9:38 AM**

So we are continuing to hold PE. BankNifty is going in our direction now.

**9:44 AM**

Crashed and hit TSL. So our AB=CD setup is invalid now but we're happy to make money out of it. Now we are waiting for the next opportunity.

### 9:51 AM

Now it is showing a red candle; so we are selling a far OTM CE i.e. 24400 CE at 12.65 (as the market is already in a downtrend in long time frame) along with 24200 PE again as it is up that our initially sold price (from the closed trade).

- Shorted 24200 PE 42.95
- Shorted 24400 CE at 12.65

### 9:53 AM

Update the TSL of 24200pe at 40

### 9:56 AM

Close the TSL of 24200pe at 35. Some people encounter the margin problem towards MIS conversation when the unrealized is high. In that case, close the position and re-open it on MIS again.

### 10:10 AM

Let's execute this straddle now -

NIFTY BANK INDEX	-0.64 %	 24217.85
BANKNIFTY 10th AUG 24200 CE	-67.01 %	 73.75
BANKNIFTY 10th AUG 24200 PE	+63.62 %	 42.05

Refer -

MIS	BANKNIFTY10AUG1724200CE NFO	-40	75.65	78.45	-112.00	+3.70%	
MIS	BANKNIFTY10AUG1724200PE NFO	-40	41.50	37.30	+168.00	-10.12%	

We have seen this has started consolidation. We shall book the profit or update the trailing stop loss when we get 25% of our initial credit.

## VOLATILITY SPREADS



### When to shift to the lower timeframe?

Suppose we are looking into a scrip that is going in a downtrend and started making a green candle in a 15m timeframe. How to ensure that it will stay green during the complete formation of a 15m candle.

### You can't tell that right?

You can not tell that while the candle is forming in the first minute. But you can take a guess based on the candles forming the lower timeframe in the first 5 minutes also but you can take a better guess based on the candles forming the lower timeframe in the first 10 minutes. The probability of your guess increases with the time spent. After 15 mins, the candle is formed anyway. So, I shift to a 5m candle timeframe sometimes in this case.

### The shorter timeframe is a leading indicator to the higher timeframe!

**Did you short PE and CE based on support and resistance level for intraday and also by checking direction on a higher time frame?**

Two cases -

The first time I did a strangle and closed one pair.

- Shorted 24200 PE 42.95
- Shorted 24400 CE at 12.65

- Closed 24200 PE here.

So it became naked CE. We took the help of a higher timeframe here.  
Some risk is always there but how can you then earn money without the risk.

Then we did the straddle -

- Shorted 24200 CE at 73.75
- Shorted 24200 PE at 42.05

**Also, how did you start to strangle when it was consolidating at one level?**

We saw that in the lower timeframe, there is consolidation which is there to sustain with good probability.

**Case of Stop loss -**

Supposed we have shorted 24200 PE 42.95. It means we are at a loss if Bank NIFTY ends lower than  $24200 - 42.95 = 24157.05$ .

The best way to hedge this in a consolidating market is to deploy a straddle which is 24200CE at 73.75 in this case! Earlier you were protected till 42.95 points downside. Now you have  $42.95 + 73.75 = 116.7$  points on both sides. If that consolidates in that 116.7 points; we are in profit. Also if the market is going aggressively in one direction; you can ladder CE PEs. Like in this case - 24200CE to 24100CE.

Laddering totally depends on the risk appetite. Generally as an aggressive trader; I ladder up while most institutions ladder down.

**Would you have closed the straddle if it breached that 24320 level?**

When we get into a trade.

- It will either start going into immediate loss.
- It will either start going into immediate profit.
- In the first case, I close it at -1000 or -2000 INR.

In the second case, I keep my profits as SL with a -100 to -500 INR buffer. Sometimes thinking with a number after you enter the trade helps. But we shall close the trade when in the chart it crosses the underlying.

Right now our previous straddles are going good -

## VOLATILITY SPREADS

10:15 AM

MIS	BANKNIFTY10AUG1724200CE NFO	-40	75.65	75.05	+24.00	-0.79%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-40	41.50	38.30	+128.00	-7.71%	<a href="#">&gt;</a>

Apart from this straddle; this is also a logical setup -

NRML	BANKNIFTY10AUG1724200PE NFO	-40	40.25	36.50	+150.00	-9.32%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-40	12.65	11.55	+44.00	-8.70%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724500PE NFO	-40	13.30	231.70	-8736.00	+1642.11%	<a href="#">&gt;</a>

In the case of the straddle, an underlying bet is it will stay within the 100 point range of 24200. Strangle bet is a bit aggressive but the breakeven range is good giving you laddering opportunity. Note, 24500PE is a past trade.

Right now Bank NIFTY is still in consolidation -



10:41 AM

We just let the consolidation happen and keep slaughtering the premium. Here is an update of the positions deployed at different times.

MIS	BANKNIFTY10AUG1724200CE NFO	-40	75.40	65.40	+400.00	-13.26%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-40	41.78	45.00	-10.00	+7.72%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-40	31.85	26.90	+198.00	-15.54%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-40	15.62	8.80	+202.00	-43.65%	<a href="#">»</a>
<hr/>							
MIS	BANKNIFTY10AUG1724200CE NFO	-40	75.65	68.45	+288.00	-9.52%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-40	41.50	41.95	-18.00	+1.08%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-40	32.90	28.40	+180.00	-13.68%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-40	10.33	9.30	+68.00	-9.93%	<a href="#">»</a>

**10:47 AM**

The consolidation is being continued. So we are going with a straddle.



As we have already had a past straddle we are just increasing the quantity. I have increased my straddle quantity.

**10:55 AM**

Here we can see a possible chance of upside break. As it is consolidating and moving towards the upside. In the below image you can see the support is getting moved along with the tilt line. The tilt shows narrowing support on the downside.

## VOLATILITY SPREADS



**10:59 AM**

Now it is supposed to reverse but's call it the moment of decision because it can break it this time as it has tested this level couple of time and the upside retracement has a lot of room -



**11:03 AM**

Here is an update to our positions -

MIS	BANKNIFTY10AUG1724200CE NFO	-80	71.83	76.00	-334.00	+5.81%	>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.45	34.75	+536.00	-16.16%	>
MIS	BANKNIFTY10AUG1724300CE NFO	-40	32.90	30.95	+78.00	-5.93%	>
MIS	BANKNIFTY10AUG1724400CE NFO	-40	10.33	10.30	+28.00	-0.24%	>
MIS	BANKNIFTY10AUG1724400PE NFO	-40	147.75	149.60	-74.00	+1.25%	>
MIS	BANKNIFTY10AUG1724500PE NFO	-40	24.50	233.00	-8340.00	+851.02%	>

The straddle is in profit. One can just close it but as we have a 24500 PE open we can afford to keep 24200 CE open as it will act as a hedge to it.

**11:12 AM**

So it broke and went up and was facing resistance.



It is the potential reverse zone right now. Greed will tell to short PE and logic guided me to sell (increase 1 more lot) on 24300 CE due to two things

## VOLATILITY SPREADS

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	94.60	-1896.00	+33.43%	>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	29.45	+1098.00	-29.40%	>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	39.60	-362.00	+12.90%	>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	13.50	+534.00	-22.28%	>
MIS	BANKNIFTY10AUG1724500PE NFO	-120	16.67	214.65	-23758.00	+1187.90%	>

- We need more CE with a higher premium to balance it and obviously betting on slight reversal.
- 24200 CE PE gives me 100 points break even on both sides!

**11:17 AM**

It has already started consolidating



**11:20 AM**

It cracked!



Now, will this level act as support? Or is it irrelevant?



## VOLATILITY SPREADS

It "may act" as support then we shall close the straddle of 24200 and sell 24300 PE to create a straddle of 24300. we already have 24300 CE at a better price.

**11:27 AM**



It took it as support and started consolidation.

**11:31 AM**

Estimating Slight fall if that level holds.



Assuming we have a straddle of 24200 CE and 24200 PE and 24300 CE. We shall close 24200 CE then 24300 CE and 24200 PE will act like our further setup. But there is a strong chance it will just consolidate there.

**11:39 AM**

Now it should bounce -



**11:46 AM**

We got a slight bounce as expected. let's hope it holds -



**11:55 AM**

## VOLATILITY SPREADS

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	77.10	-496.00	+8.74%	>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	29.90	+1062.00	-28.33%	>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	30.50	+366.00	-13.04%	>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	9.50	+1014.00	-45.31%	>
MIS	BANKNIFTY10AUG1724500PE NFO	-120	16.67	229.50	-25540.00	+1277.00%	>

**11:59 AM**

It is again in the range of consolidation



**12:13 PM**

As it started consolidating in this level - Adding 24300PE to form straddle on 24300. We will close the 24200 straddles anytime.

Here are our updated positions -

## AMIT GHOSH

MIS	BANKNIFTY10AUG1724200CE NFO	-80	71.83	73.05	-98.00	+1.71%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.45	30.00	+916.00	-27.62%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.90	27.00	+712.00	-24.79%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-40	10.33	7.90	+124.00	-23.49%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724400PE NFO	-40	147.75	146.65	+44.00	-0.74%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724500PE NFO	-40	24.50	234.80	-8412.00	+858.37%	<a href="#">&gt;</a>
MIS	BANKNIFTY17AUG1724300PE NFO	-40	164.80	163.80	+40.00	-0.61%	<a href="#">&gt;</a>



**12:17 PM**

When Bank NIFTY goes down this time we shall close up 24200 CE. Here is our current updated position -

Product	Instrument	Qty.	Avg. price	LTP	P&L	Chg.	
MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	67.20	+296.00	-5.22%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	30.85	+986.00	-26.05%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	24.80	+822.00	-29.29%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	6.85	+1332.00	-60.56%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724500PE NFO	-120	16.67	239.25	-26710.00	+1335.50%	<a href="#">&gt;</a>

24245 is the current resistance!

## VOLATILITY SPREADS

**12:20 PM**

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	64.85	+484.00	-8.53%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	33.30	+790.00	-20.18%	<a href="#">»</a>

It has got a good amount from its initial credit so we can just close it. However, so far, we have talked about different conditions on Bank NIFTY hedge -

**Setup1**

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	69.10	+144.00	-2.54%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	30.75	+994.00	-26.29%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	25.80	+742.00	-26.44%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	77.40	+158.00	-4.86%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	7.05	+1308.00	-59.41%	<a href="#">»</a>

**Setup2**

MIS	BANKNIFTY10AUG1724200CE NFO	-80	71.83	68.85	+238.00	-4.14%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.45	31.55	+792.00	-23.88%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.90	25.30	+848.00	-29.53%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-40	10.33	7.00	+160.00	-32.20%	<a href="#">»</a>

**Setup3**

MIS	BANKNIFTY10AUG1724200CE NFO	-40	67.00	69.80	-112.00	+4.18%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	38.13	31.20	+804.00	-18.16%	<a href="#">»</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-40	28.20	26.10	+120.00	-7.45%	<a href="#">»</a>

**12:24 PM**



Here you can clearly see boxes of consolidation. All the trades are based on basic candlesticks.

**12:36 PM**

The positions we have are called hedged positions!

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	63.50	+592.00	-10.44%	>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	32.90	+822.00	-21.13%	>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	21.85	+1058.00	-37.70%	>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	82.40	-42.00	+1.29%	>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	5.60	+1482.00	-67.76%	>

We know the rationale behind each trade. We know what is the underlying concept and when to exit and we can afford to go to the bathroom for a while as it is not directional.

## VOLATILITY SPREADS



**12:45 PM**

Here goes an updated screenshot of the positions.

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	71.50	-48.00	+0.85%	>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	28.00	+1214.00	-32.88%	>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	26.15	+714.00	-25.45%	>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	74.45	+276.00	-8.48%	>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	6.30	+1398.00	-63.75%	>

Now it is time for Bank NIFTY to shoot up anytime breaking the consolidation!



The reason for speculating why it may shoot up lies in the higher timeframe where we can see breach of parabolic SAR.



**12:51 PM**

MIS	BANKNIFTY10AUG1724200CE NFO	-80	70.90	67.45	+276.00	-4.87%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	28.00	+1214.00	-32.88%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	23.60	+918.00	-32.72%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	75.45	+236.00	-7.25%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	5.65	+1476.00	-67.47%	<a href="#">↗</a>

We are closing 24200 CE now.

**1:01 PM**

Basically, We are analysing the trend as the time goes by. It tells when we will act and based on what.

## VOLATILITY SPREADS



**1:09 PM**



BN support broke. Here is an update of the last positions -

MIS	BANKNIFTY10AUG1724200PE NFO	-80	41.72	36.85	+506.00	-11.67%	>
MIS	BANKNIFTY10AUG1724300CE NFO	-80	35.08	13.65	+1714.00	-61.08%	>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	94.00	-506.00	+15.55%	>
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	3.00	+1794.00	-82.73%	>

This is the closed position.

MIS BANKNIFTY10AUG1724200CE NFO 0 0.00 43.70 +488.00 NA >

It is showing a huge retracement in terms of Fibonacci -



And we can see our new swing is created -



But if you see with more candles you can see a big consolidation -

## VOLATILITY SPREADS



So we are increasing our lot size -

MIS	BANKNIFTY10AUG1724200PE NFO	-40	33.80	33.20	+24.00	-1.78%	<a href="#">&gt;</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-40	30.65	14.60	+642.00	-52.37%	<a href="#">&gt;</a>

**1:34 PM**

Bank NIFTY cracked 24200. We sold 24200 CE again to get more breakevens. We can see BANK NIFTY is at crucial support; breaking which we need to close all the PEs.



**1:41 PM**

Bank NIFTY bounced from the support and here is our updated position -

Product	Instrument	Qty.	Avg. price	LTP	P&L	Chg.
MIS	BANKNIFTY10AUG1724200CE NFO	-40	56.60	43.05	-114.00	-23.94%
MIS	BANKNIFTY10AUG1724200PE NFO	-120	40.17	25.10	+1864.00	-37.52%
MIS	BANKNIFTY10AUG1724300CE NFO	-120	27.97	11.90	+1928.00	-57.45%
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	80.00	+54.00	-1.66%
MIS	BANKNIFTY10AUG1724400CE NFO	-120	17.37	3.05	+1788.00	-82.44%

If you ask where the stop loss for PE was; it was here -

## VOLATILITY SPREADS



Breaking this line means straight 100 points down!

**1:44 PM**

We closed 24400 CE at 1.75 and opened 24300 CE. Here you go -

MIS	BANKNIFTY10AUG1724200CE NFO	-80	51.13	45.05	-608.00	-11.88%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-120	40.17	27.95	+1522.00	-30.43%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-240	17.56	12.35	+1250.00	-29.66%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	81.00	+14.00	-0.43%	<a href="#">↗</a>

**2:36 PM**

We shall close the straddles as it reaches sufficient profit and there can be a huge move on expiry! So here is where we end -

Product	Instrument	Qty.	Avg. price	LTP	P&L	Chg.	
MIS	BANKNIFTY10AUG1724200CE NFO	-80	51.13	22.80	+1172.00	-55.40%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724200PE NFO	-120	40.17	27.40	+1588.00	-31.80%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724300CE NFO	-240	17.56	2.85	+3530.00	-83.77%	<a href="#">↗</a>
MIS	BANKNIFTY10AUG1724300PE NFO	-40	81.35	90.85	-380.00	+11.68%	<a href="#">↗</a>

# Adjustments of Diagonal Spreads

**Friday, March 27th, 8:58 PM**

As per the concepts of Uptrend specified in the bounce theory, We're in Uptrend in India VIX as you can see here -



<https://www.tradingview.com/x/6yrvbNBF/>

BankNIFTY broke the downtrend today but We need to take note that today we had an RBI event!

So if we give the leeway of this fundamental aspect, (Fundamental events sometimes trigger unnecessary and unrelated chaos) We will still consider it as a Downtrend.

Anyways, with rising cases of Corona Viruses and as World markets are currently going down, it is highly unlikely that the high of today's will be broken on Monday.

So, Today, we have basically Swing high. (which in my personal opinion, is lower high of the downtrend).

## VOLATILITY SPREADS



<https://www.tradingview.com/x/Z3dLyIKJ/>

**My current view is** - It should trade between “Resistance I” to “Support”

**My current fear is** -

- **Rising VIX** - VIX is a metric of volatility. IndiaVIX is the metric of India's volatility. It is technically in an uptrend. Volatility increases when irrationality kicks in. Irrationality kicks in when fear kicks in. Fear kicks in when the market goes down. It is as simple as that!

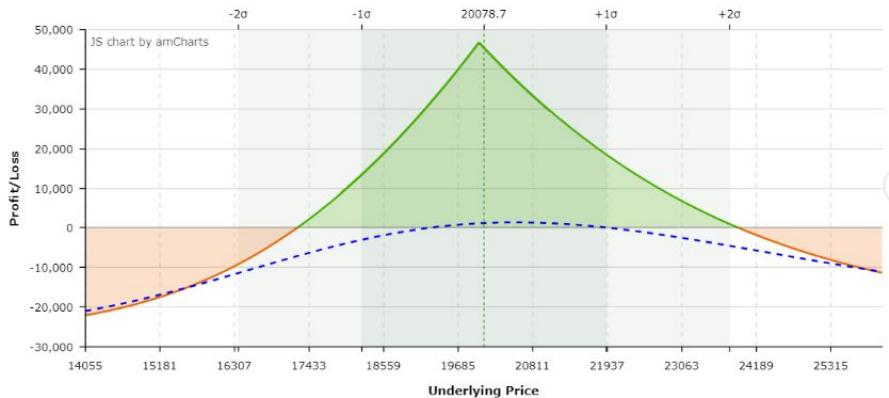
When VIX goes high, the prices of options also go high! So, it is also possible that CE prices shot up as the market fell. Now, it makes no sense to sell our usual strangle or straddle.

- **Wide Spread** - The spread (High and low) of a week is huge which is leading to huge unrealized losses in the middle.

**Setup 1:**

- +1x 30APR2020 20000PE - ₹ 1884.75
- +1x 30APR2020 20000CE - ₹ 1903.9
- -1x 01APR2020 20000PE - ₹ 1330.9
- -1x 01APR2020 20000CE - ₹ 1786.15

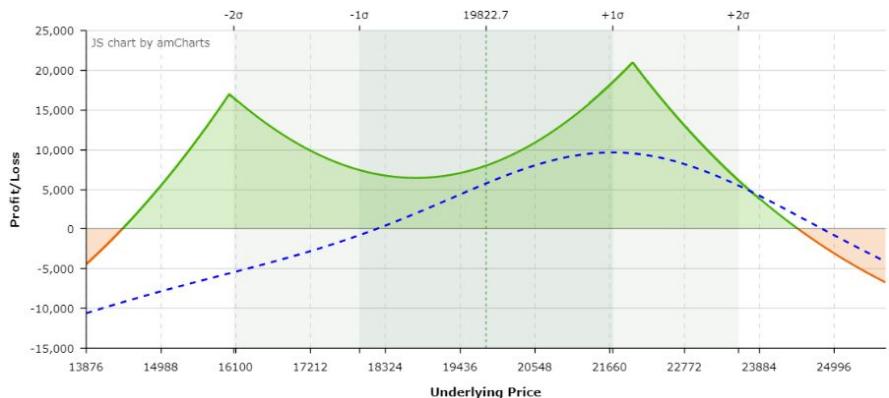
Breakevens: 17247-23915 (Considering the IV stays same)



### Setup 2:

- +1x 30APR2020 16000PE - ₹ 834.15
- +1x 30APR2020 22000CE - ₹ 900.6
- -1x 01APR2020 16000PE - ₹ 294.7
- -1x 01APR2020 22000CE - ₹ 362.65

Breakevens: 14409-24458 (Considering the IV stays same)



**Monday, March 30th, 10:49 AM**

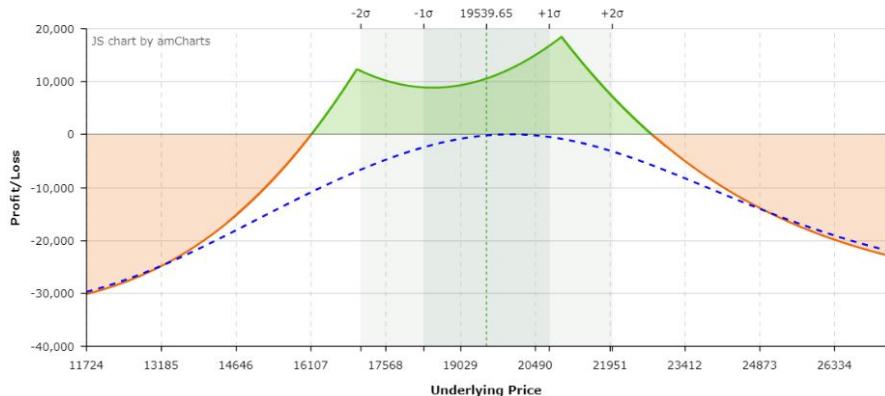
Here comes the important part i.e. managing the trade. Although apart from the above two setups we have taken lots of other similar setups. But, Let's talk about what we did in a nutshell.

Basically, The market kept consolidating but the IV was not increasing either. So, We decided to contract our breakevens.

## VOLATILITY SPREADS

- +1x 30APR2020 17000PE - ₹ 1047
- +1x 30APR2020 21000CE - ₹ 1231.5
- -1x 01APR2020 17000PE - ₹ 278.3
- -1x 01APR2020 21000CE - ₹ 389

Breakevens: 16110-22771(Considering the IV stays same)



The drawback of these scenarios - The maximum loss potential kept increasing!

**Wednesday, April 1st, 5:09 AM**

<input checked="" type="checkbox"/>	Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑	
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 20000.0 CE Qty: 20 Avg Price: 1153.54	EXIT	75.00	0.0	+21,207.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 20000.0 PE Qty: 20 Avg Price: 1380.00	EXIT	1128.00	0.0	+5,040.0
<input checked="" type="checkbox"/>	BANKNIFTY 30 Apr 2020 20000.0 CE Qty: 20 Avg Price: 1820.05	EXIT	1175.00	0.0	-12,901.0
<input checked="" type="checkbox"/>	BANKNIFTY 30 Apr 2020 20000.0 PE Qty: 20 Avg Price: 1990.00	EXIT	2143.80	0.0	+3,076.0

Delta: 11 Ⓢ Theta: 3,240 Ⓢ Gamma: -0.0078 Ⓢ Vega: 760 Ⓢ Realized P/L: 0.0 Unrealized P/L: +16,422.0

We closed both the setups on Wednesday Morning in most of the places!

<input checked="" type="checkbox"/>	Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑	
<input checked="" type="checkbox"/>	BANKNIFTY 30 Apr 2020 22000.0 CE Qty: 20 Avg Price: 900.60	EXIT	515.00	0.0	-7,712.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 16000.0 PE Qty: 20 Avg Price: 294.70	EXIT	12.45	0.0	+5,645.0
<input checked="" type="checkbox"/>	BANKNIFTY 30 Apr 2020 16000.0 PE Qty: 20 Avg Price: 834.15	EXIT	720.65	0.0	-2,270.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 22000.0 CE Qty: 20 Avg Price: 362.65	EXIT	5.50	0.0	+7,143.0

Delta: 1 Ⓢ Theta: 323 Ⓢ Gamma: 0.0018 Ⓢ Vega: 654 Ⓢ Realized P/L: 0.0 Unrealized P/L: +2,806.0

As you can see, it is a snapshot of the second setup unchanged. If it is changed as it was suggested, the profit will be more.

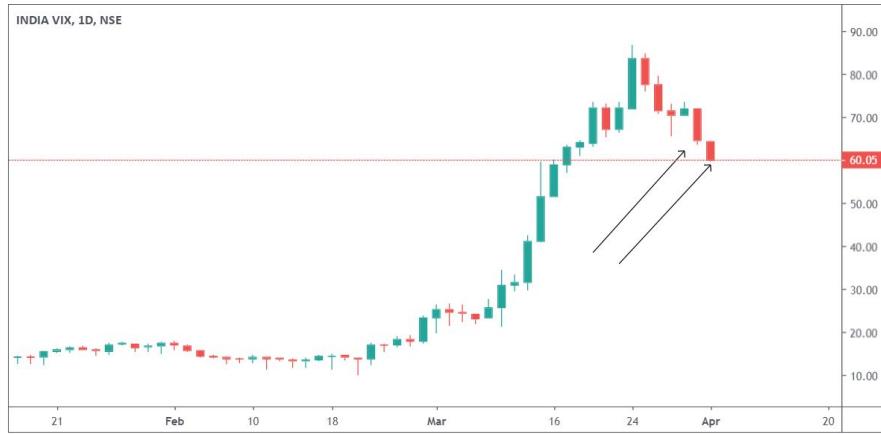
## Thursday

But if it was not closed and kept open till Thursday, there would've been a significant loss of profits in both setups.

<input checked="" type="checkbox"/> Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑
<input checked="" type="checkbox"/> BANKNIFTY 01 Apr 2020 20000.0 CE <span style="background-color: #ffccbc; border: 1px solid #d9e1f2; padding: 2px;">Expired</span>	<span style="border: 1px solid #ffccbc; padding: 2px;">EXIT</span>	0.15	0.0
<input checked="" type="checkbox"/> BANKNIFTY 01 Apr 2020 20000.0 PE <span style="background-color: #ffccbc; border: 1px solid #d9e1f2; padding: 2px;">Expired</span>	<span style="border: 1px solid #ffccbc; padding: 2px;">EXIT</span>	1779.00	0.0
<input checked="" type="checkbox"/> BANKNIFTY 30 Apr 2020 20000.0 CE Qty: 20 Avg Price: 1820.05	<span style="border: 1px solid #ffccbc; padding: 2px;">EXIT</span>	680.00	0.0
<input checked="" type="checkbox"/> BANKNIFTY 30 Apr 2020 20000.0 PE Qty: 20 Avg Price: 1990.00	<span style="border: 1px solid #ffccbc; padding: 2px;">EXIT</span>	2566.10	0.0

Delta: -7 ⚡ Theta: -855 ⚡ Gamma: 0.0043 ⚡ Vega: 743 ⚡ Realized P/L: 0.0 Unrealized P/L: +3,445.0

Amit\_Ghosh published on TradingView.com, April 03, 2020 04:32:19 IST  
NSE:INDIAVIX, 1D 60.05 ▼ -4.35 (-6.76%) O:64.41 H:64.41 L:59.78 C:60.05



TradingView

<https://www.tradingview.com/x/K6Du3Q7B/>

It is because in the last two days (as marked), there is significant erosion of volatility. Volatility, as discussed earlier, affects the strike prices with a far expiration date more than the nearer ones.

Volatility also affects the far OTM strike prices even more. So, if kept open, The second setup would also dive into a complete loss.

## VOLATILITY SPREADS

<input checked="" type="checkbox"/>	Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑	
<input checked="" type="checkbox"/>	BANKNIFTY 30 Apr 2020 22000.0 CE Qty: 20 Avg Price: 900.60	EXIT	262.00	0.0	-12,772.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 16000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	EXIT	0.10	0.0	+5,892.0
<input checked="" type="checkbox"/>	BANKNIFTY 30 Apr 2020 16000.0 PE Qty: 20 Avg Price: 834.15	EXIT	771.65	0.0	-1,250.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 22000.0 CE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	EXIT	0.15	0.0	+7,250.0

Delta: -2 ⚡ Theta: -763 ⚡ Gamma: 0.0030 ⚡ Vega: 584 ⚡ Realized P/L: 0.0 Unrealized P/L: -880.0

Hence, it is very important to manage the trades here as apart from breakeven, We have other metrics to worry about - Volatility!

### Key Points

So, in case of volatility drop, it is more advisable to close Calendar Spreads on Tuesday (The most impact of vega happens on Wednesday and Thursday.) and to deploy models that are profitable on high implied volatility.

Short Strangles, Short Iron Condors, Short verticals, Covered calls, Naked Put, Credit Spreads - are such examples. Here are outcomes of two such models deployed on Wednesday -

<input checked="" type="checkbox"/>	Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 18000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	1.35	0.0	-11,640.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 17500.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.35	0.0	+9,593.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 17000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.20	0.0	+7,279.0

Delta: 0 ⚡ Theta: 0 ⚡ Gamma: 0.0000 ⚡ Vega: 0 ⚡ Realized P/L: 0.0 Unrealized P/L: +5,232.0

This is a put ratio spread.

<input checked="" type="checkbox"/>	Instrument	LTP ↑	Realized P/L ↑	Unrealized P/L ↑
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 20000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	1779.00	0.0	-3,580.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 19000.0 CE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.40	0.0	+12,172.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 16000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.10	0.0	+2,558.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 17000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.20	0.0	+5,116.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 18000.0 PE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	1.35	0.0	+10,050.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 20000.0 CE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.15	0.0	+5,097.0
<input checked="" type="checkbox"/>	BANKNIFTY 01 Apr 2020 21000.0 CE <span style="background-color: #ffcccc; border: 1px solid red; padding: 2px;">Expired</span>	0.15	0.0	+1,977.0

Delta: 0 ⚡ Theta: 0 ⚡ Gamma: 0.0000 ⚡ Vega: 0 ⚡ Realized P/L: 0.0 Unrealized P/L: +33,390.0

This is a combination of short strangles and straddles. This one is extremely risky and not advisable!

Vix drops over various reasons. News, Neutrality to the sentiment for which it rose in the first place, like, in this case, any positive news on coronavirus or crude oil will do the work. Also, in an environment of fear, no news is also good news!

## Epilogue

Please let me know if you have a comment or suggestion regarding any strategies. Have you implemented any strategy anywhere? How were your gains or losses? What's your journey to the sharemarket? Would you recommend this book to someone else?

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