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Analytical Study on Max Pain Theory and PCR is the Novel Strategy in Options Trading

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Key words: Options trading, max-pain theory, put call ratio, option pain, maximum loss

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Abstract: In the endless rundown of questionable theories of stock market, the theory of "Option Pain" absolutely finds a spot. Option pain or here and there alluded to as 'Max Pain' has a huge number of people wants to learn it and most likely an equivalent number of individuals who dislike it strongly. It is to be straightforward that in the underlying long periods of following option pain, it was always unable to bring in reliable returns. In any case, extra time has discovered strategies to ad-libitum on this theory to suit understand the maximum risk in terms of pain and agile in positive investment decision. However, presently this is to introduce the option pain theory and converse with all about what is positive and negative about max pain analysis. Option pain theory expects us to be acquainted with the idea of 'Open Interest'. Hence, this research focuses the max pain model of options trading and this will help the investors to diligently view the risk spot and maximum loss, so that, it creates inquisitiveness in investment decisions.

INTRODUCTION

The investor should revise or remix his or her portfolio at regular intervals or as when the situation warrants[1-3]. But an options contract as the name suggests is in some sense an optional contract. An option is the right but not the obligation to buy or sell something at a stated date at a stated price[4]. It is seen that the option spread trading has become increasingly popular with active traders. Option spread strategies is a best way to counter the effect of implied volatility. Neither time variation in the demands to buy or sell options nor public order imbalances for particular option series will affect option price. Depending on where the underlying asset is in relation to the option strike price, the option can be in out or at the money[1]. Thus, majority felt that existing measures on derivatives education are inadequate[5]. On account of trade-war there has been a further downward revision in the world-wide progression prediction for 2019 and 2020[6]. Option spreads and combinations are used to create trading portfolios. And this involves financial planning takes into account one's risk appetite, investment time horizon, present and prospective future expenses and anticipated financial obligations[1-3]. The findings suggest that options-based strategies can be useful in improving the risk-return characteristics of a long equity portfolio. It is imperative that the finance manager has constantly scale up the shareholders funds than the outsiders funds to retain the earning, eventually looking for equity funds in any means[6]. Options are a distinct class of derivative instruments. Rural development is a process and cannot be hastened. But a

proper environment for it can be created[7]. There currently is no theoretical model for put options given that a call option is unbounded upward in terms of the underlying security price movement whereas for a put option the underlying security is bounded by a zero price[8] . The research can help guide portfolio allocation decisions both by helping us to understand the kinds of errors that investor's tend to make in managing their mutual funds[9]. Knowledge has revolutionized the processes and order explosion has sparked off remarkable changes in the way the world market has been operating. Change has become unexpected experience[10]. The actual trading on the security market is recorded in terms of price changes. Derivatives market helps shift of speculative trades from unorganized market to organized market[7]. Options combinations that are short volatility significantly outnumber those that are long[11]. Options are leveraged instruments, i.e., they permit traders to enhance the advantage by risking littler sums than would some way or another be required if exchanging the underlying assets itself[1-3]. The roots of Option Pain dates backs to 2004, one might say, this is as yet an exceptionally youthful theory. To the extent we know that there are no scholarly/educational researches in this novel field of study. The theory of options pain roots as inference that 90% of the options lapse useless, henceforth options writers/venders will in general bring in return all the more regularly, more reliably than the option purchasers. If this consensus and announcement is valid at this juncture we can make a lot of consistent reasoning's:- At any point just any one can bring in return that is either option vendors or option purchasers and yet not both. The aboveboard enunciation unmistakably the vendors are the ones bringing in return. If option vendors will in general bring in most extreme return at that point it likewise implies that the cost of the option on expiry day ought to be headed to a point where it would make least measure of misfortune to option writers. If point 2 is valid at that point it further suggests that choice costs can be controlled at any rate upon the arrival of expiry. If point 3 is valid at that point it further suggests that there exists a group of traders who can control the options costs at any rate upon the arrival of expiry. If such a group exists then it must be the option vendors since it is accepted that they are the ones who bring in most extreme return/reliably bring in return trading options. Presently contemplating about all the above focuses, there must exist a solitary value point where on the off chance that the market lapses at that point it would make least measure of agony the option writers (or cause most extreme measure of torment to alternative purchasers). On the off chance that one can distinguish this value point at that point almost certainly; this is where markets will expire. The 'option pain' theory does only this recognize the cost at which the market is probably going to terminate considering least measure of pain is caused to option writers.

RESEARCH OBJECTIVES

- Identify the method of operations of the theory max-pain
- Create a model with computation of total loss with different scenarios
- Create a model with computation of option pain total value
- Create a model for PCR computation with suitable deliberations

MAX PAIN MODUS OPERANDI

Here, is a step by step guide to calculate the Max Pain value. At this stage, people may find this a bit complex, but the following steps will get clearer once we take up a model (Fig. 1).

If the strike price at which money lost by the option writer is minimum is the point at which maximum pain caused to option buyers. With this idea the market price is most likely to expire.

Model-1: Here, we have to take up an extremely basic model to comprehend the entire game. It is accepted that there are just three NIFTY strike prices to be taken from the market and the open enthusiasm for both call and put options for the particular strike price (Table 1).

Scenario 1-assume markets expires at strike price Rs. 7700: Account when you compose a call option you will lose return just if the market moves over the strike price. In such a way that when you compose a put option you will lose return just when the market moves beneath the strike price.

In our model-1, if the market expires-strike price Rs.7700, none of the call option writers will lose return. That is call option writers of Rs.7700, Rs.7800 and Rs.7900 strike price will hold the premiums got. In any case, the put option writers will be in a tough situation. We should begin with the Rs.7900 PE writers: at Rs.7700 expiry, 7900 PE writers would lose 200 points. Since, the Option Interest is Rs.25,59,375/- the Rupee value of loss would be (Table 2).

When market expires at strike price Rs.7,700/- put-together the return lost by the option writers would be: Total return lost in Call Option writers+Total return lost in Put Option writers = 0+Rs.51,18,75,000+ 48,64,12,500 = Rs. 99,82,87,500.

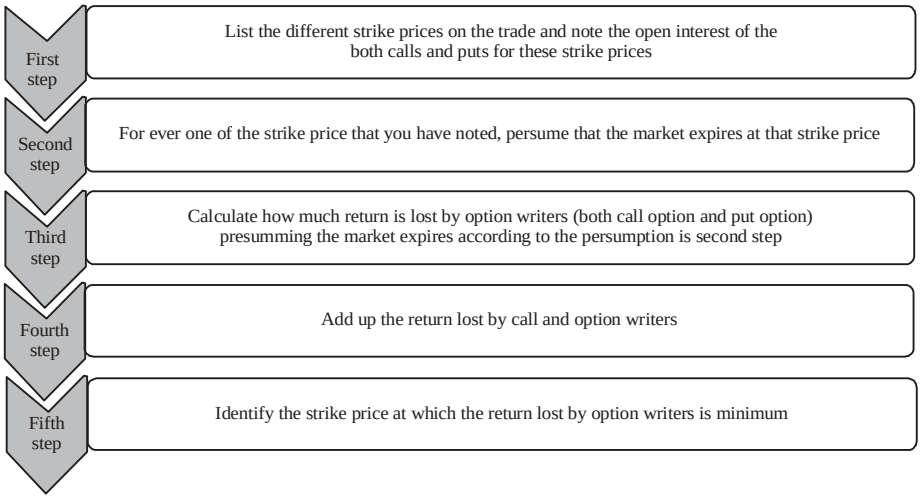

Fig. 1: Step-by-step guide for arriving max pain value

Table 1: Model-1 strike price and option interest

Strike price	Call option (Option interest)	Put option (Option interest)
7,700/-	18,23,400/-	57,83,025/-
7,800/-	34,48,575/-	48,64,125/-
7,900/-	53,67,450/-	25,59,375/-

Scenario 1 Assume markets expires at Strike Price Rs.7700/-

Table 2: Computation of Total Loss when market expires at strike price Rs.7700/

Strike price	Diff. in expiries	Call option (Option Interest)	Put option (Option Interest)	Loss value of calls	Loss value of puts	Total loss
7,700/-		18,23,400/-	57,83,025/-	0	0	99,82,87,500/-
7,800/-	100/-		48,64,12,500/-	0		48,64,12,500/-
7,900/-	200/-		51,18,75,000/-	0		51,18,75,000/-

Table 3: Computation of total loss when market expires at strike price Rs.7,800/-

Strike price	Diff. in expiries	Call option (Option interest)	Put option (Option interest)	Loss value of calls	Loss value of Puts	Total loss
7,800/-		34,48,575/-	48,64,125/-		0	43,82,77,500/-
7,700/-	100/-		18,23,40,000/-	18,23,40,000/- 0		
7,900/-	100/-		25,59,37,500/-	0	25,59,37,500/-	

Table 4: Computation of total loss when market expires at strike price Rs.7,900/-

Strike price	Diff. in expiries	Call option (Option interest)	Put option (Option interest)	Loss value of calls	Loss value of puts	Total loss
7,900/-		53,67,450/-	25,59,375/-	0	0	70,95,37,500/-
7,700/-	200/-		36,46,80,000/-	36,46,80,000/-		0
7,800/-	100/-					
\34,48,57,500/-	34,48,57,500/-		0			

Scenario 2 If strike price expires at Rs.7,800/- , the following call option writers would lose return (Table 3) Total return lost for call options writers when market expires at Rs.7,800/- would be: = 18,23,40,000/-+ 25,59,37,500/- = Rs.43,82,77,500/-

Scenario 3 if the strike price expires at Rs.7,900/-,the following call option writers would lose return (Table 4). Total return lost call option writers when market expires strike price at Rs.7,900/- would be: = 36,46,80,000/- + 34,48,57,500/- = Rs. 70,95,37,500/.

So, therefore at this juncture, we have to calculate the absolute return lost for call option writers at each conceivable expiry level. The overall view of the return lost tabulated as in one table as follows (Table 5).

Interpretation: Since, it has recognized the consolidated loss of call option writers with different strike price expiry level, this clearly distinguish where the market is probably going to lapse. According to the option pain theory, the market will lapse at such a point where there is least measure of pain to call option vendors. In reading the above table carefully this point happens to be strike price at Rs. 7,800/- where the total loss has around Rs. 43,82,77,500 or about Rs.43.82 Crores which is a lot lesser contrasted with the total loss of Strike price at Rs.7,700/and Rs.7,900/-.

Model-2: The computation is as simple as that. Be that as it may are utilized just 3 strike prices in the model for

Table 5: Computation of total loss when market expires at three different strike prices

Strike price	Call option (Option interest)	Put option (Option interest)	Loss value of calls	Loss value of puts	Total loss
7,700/-	18,23,400/-	57,83,025/-	0	99,82,87,500/-	99,82,87,500/-
7,800/-	34,48,575/-	48,64,125/-	18,23,40,000/-	25,59,37,500/-	43,82,77,500/-
7,900/-	53,67,450/-	25,59,375/-	70,95,37,500/-	0	70,95,37,500/-

Table 6: Computation of option pain total value

Strike price	Call option interest	Put option interest	Cumulative call	Cumulative put	Total values
7,000/-	14,04,300/-	40,87,050/-	0	2069,11,80,000/-	2069,11,80,000/-
7,100/-	3,35,700/-	10,29,150/-	14,04,30,000/-	1739,81,92,500/-	1753,86,22,500/-
7,200/-	4,82,100/-	29,77,875/-	31,44,30,000/-	1420,81,20,000/-	1452,25,50,000/-
7,300/-	4,22,475/-	19,75,650/-	53,66,40,000/-	1131,58,35,000/-	1185,24,75,000/-
7,400/-	9,63,900/-	23,36,700/-	80,10,97,500/-	862,11,15,000/-	942,22,12,500/-
7,500/-	9,99,975/-	45,48,450/-	116,19,45,000/-	616,00,65,000/-	732,20,10,000/-
7,600/-	7,85,550/-	36,90,900/-	162,27,90,000/-	415,38,60,000/-	577,66,50,000/-
7,700/-	18,23,400/-	57,83,025/-	216,21,90,000/-	251,67,45,000/-	467,89,35,000/-
7,800/-	34,48,575/-	48,64,125/-	288,39,30,000/-	145,79,32,500/-	434,18,62,500/-
7,900/-	53,67,450/-	25,59,375/-	395,05,27,500/-	88,55,32,500/-	483,60,60,000/-
8,000/-	65,10,975/-	14,47,125/-	555,38,70,000/-	56,90,70,000/-	612,29,40,000/-
8,100/-	59,00,325/-	3,10,500/-	780,83,10,000/-	39,73,20,000/-	820,56,30,000/-
8,200/-	51,13,350/-	2,48,775/-	1065,27,82,500/-	25,66,20,000/-	1090,94,02,500/-
8,300/-	38,44,500/-	3,55,725/-	1400,85,90,000/-	14,07,97,500/-	1414,93,87,500/-
8,400/-	21,35,625/-	2,55,525/-	1774,88,47,500/-	6,05,47,500/-	1780,93,95,000/-
8,500/-	22,52,250/-	4,88,475/-	2170,26,67,500/-	58,50,000/-	2170,85,17,500/-
8,600/-	10,83,750/-	58,500/-	2588,17,12,500/-	0	2588,17,12,500/-

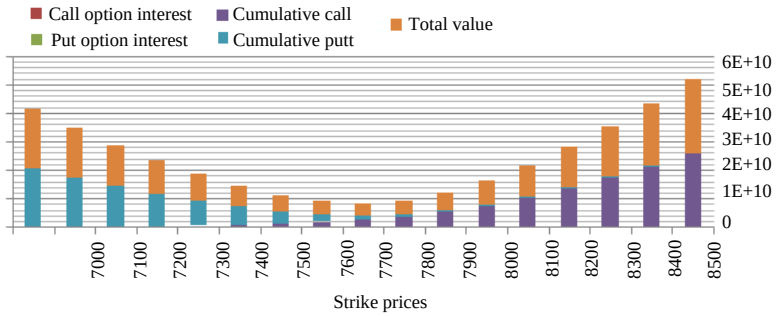

Fig. 2: Option pain total value

straightforwardness. In any case, in actuality there are numerous strikes for a given underlying asset, particularly Nifty. Computations become somewhat complex and befuddling, henceforth one would need to fall back on an instrument like excel. The option pain value starting today (15th, May, 2020) as follows.

Interpretations: For all the accessible strike prices, we accept market would lapse by then register the Rupee estimation of the loss of misfortune for Call strike price expiry and put strike price expiry by the option writers. This value has appeared in the above table titled as "Total Value". When you check out total loss value, we essentially need to recognize where minimal measure of return is lost by the option writers. The same is figured out as follows (Table 6).

Interpretation: In view of Table 6 and Fig. 2, it has no doubt that Rs.7,800/- strike price is where the option writers has lose minimal measure of return, so therefore, according to the option pain theory, Rs.7,800/- strike price is the price where the market has probably going to expiry for the May-2020 series with least measure of misfortune or loss. Most traders utilize this maximum pain level to attribute the strike prices with which they can compose. For this situation, since, RS.7,800/-strike price is the normal expiry level, one can decide to compose call options over Rs.7,800/- or put options below Rs.7,800/- strike price and gather all the premiums (Table 7).

Model-3; The Put Call Ratio (PCR): The PCR is the proportion encourages distinguishing extraordinary bullishness or bearishness in the market. Put call ratio is generally, viewed as a contrarian marker. Which means, on the off-chance that the put call ratio shows extraordinary bearishness at that point we anticipate that the market should switch, thus, the vendors turns bullish. Moreover, on the off-chance that put call ratio demonstrates extraordinary bullishness at that point vendors anticipate that business sectors should opposite

Table 7: Computation of put call ratio

Strike price	Call option interest	Put option interest
7,000/-	14,04,300/-	40,87,050/-
7,100/-	3,35,700/-	10,29,150/-
7,200/-	4,82,100/-	29,77,875/-
7,300/-	4,22,475/-	19,75,650/-
7,400/-	9,63,900/-	23,36,700/-
7,500/-	9,99,975/-	45,48,450/-
7,600/-	7,85,550/-	36,90,900/-
7,700/-	18,23,400/-	57,83,025/-
7,800/-	34,48,575/-	48,64,125/-
7,900/-	53,67,450/-	25,59,375/-
8,000/-	65,10,975/-	14,47,125/-
8,100/-	59,00,325/-	3,10,500/-
8,200/-	51,13,350/-	2,48,775/-
8,300/-	38,44,500/-	3,55,725/-
8,400/-	21,35,625/-	2,55,525/-
8,500/-	22,52,250/-	4,88,475/-
8,600/-	10,83,750/-	58,500/-
Total Rs.	428,74,200/-	370,16,925/-
	PCR	0.863385

and decrease. To compute put call ratio, one should simply isolate the all out open interest of Puts by the all out open interest of the Calls. The resultant worth for the most part changes in and around one.

As on 15th May 2020, the option interest of puts and the option interest of calls have been computed and arrived the proportion between the put option interest divided by call option interest, then it gives us the PCR ratio:- 370,16,925 / 428,74,200 = 0.863385.

Interpretation: The general consensus of PCR is over 1 at that point it brings that there are more puts being purchased contrasted with calls; this has suggests that the business sectors have turned very bearish and thusly kind of oversold and the other way around. Obviously, the nonexclusive way to deal with put call proportion is the qualities somewhere in the range of 0.7 and 1 can be ascribed to normal trading activity and can be disregarded. What might truly bode well is to truly plot the day by day put call proportion for say 1-2 years and distinguish these outrageous qualities. For instance NIFTY put call proportion, for example, 1.4 can demonstrate outrageous bearishness, yet for state NIFTY something like 1.15 could be likewise extraordinary bearishness. It is likewise test that the put call proportion is utilized as a contrarian marker, the clarification is somewhat precarious, yet, the general feeling is this on the off chance that the merchants are bearish/bullish at that point the majority of them have just taken their individual position (henceforth, a high/low put call proportion) and accordingly there are very few different players who can come in and drive the situations in the ideal heading. Consequently the position will in the long run be made right which would drive the stock/record the other way. So, accordingly put call proportion may go over numerous variations of this and some like to take the complete exchanged an incentive rather than choice intrigue, some even like to take the volumes.

CONCLUSION

It seen that maximum pain and put call proportion technique is more than adequate for retail merchants to exchange Options expertly. Pushing ahead with specialized headway everybody will experience many extravagant alternative methodologies, maybe-'extravagant' doesn't generally, mean benefit. A considerable lot of the best alternative trading techniques are straightforward, rich and simple to execute. By considering the less unpredictability in count and wanted rate of return in options it is demonstrated with the above models that maximum pain and put call proportion are more than adequate.

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