OPTION CHAIN ANALYSIS – A Kaleidoscopic view - WITH REFERENCE TO INDEX BANKNIFTY OPTIONS AND INDEX NSE OPTIONS

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Abstract

The derivatives market is considered to be very volatile in nature as it fluctuates frequently which in turn makes it more risky. A careful analysis of the financial instruments is to be carried out in order to minimise the risk and earn unlimited returns. Options are mostly used for the purpose of hedging as they help to limit and minimise the risk element. Options allows the investors to enjoy the right as they are not obliged to execute the contract at a certain price on a future date. Option chain analysis is one of the methods used by the researchers to predict the market trends in case of options trading. This is usually done by significantly analysing the components of the option chain such as open interest, LTP, volume and the respective changes in these components. The present study attempts to evaluate the functioning of the option chain using open interest, LTP, volume and their respective changes by considering the index BankNifty options and the index NSE options.

Keywords: Options, hedging, open interest, LTP.

INTRODUCTION

Derivatives

According to NISM, a derivative is a financial instrument that derives its value from an underlying asset. The underlying assets can be equity shares or index, precious metals, commodities, currencies, interest rates, etc.Derivatives were first introduced in the year 1930 in a Rice Exchange called Dojima in Osaka (Japan).

Derivatives in India were first started in NSE Index Futures in the year 2000. Further the NSE Index Options were started in India in the year 2001.In India, the commodity and equity derivatives are regulated by SEBI whereas the currency and interest rate derivatives are regulated by the RBI.

The derivatives were introduced with an intention of hedging which is a strategy that tries to limit and minimize the risk element in the financial assets.

Types of derivatives

There are mainly four types of derivatives which are as follows:

1. Forwards
2. Futures
3. Options
4. Swaps

- **Forwards:** A forward contract is a contract that takes place in between of two parties to buy or sell an asset on a future date at a certain price. In India, there are no regulatory bodies to regulate forward contracts.
- **Futures:** A future is a kind of derivatives contract that takes place in between two parties to buy or sell an asset at a certain price on a particular date in future. The futures are regulated by the regulatory bodies in India. These regulatory bodies collects advances called as margins from both the parties and keeps it with them until the contracts are executed.

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- **Options:** An option is a contract that gives a right to the buyer, but not the obligation, to buy or sell an underlying asset at a specified strike price by a certain expiration date. There are two types of options: Call option and Put Option.
    - The buyer of the call option and the seller of the put option are bullish in nature whereas the buyer of put option and the seller of call option are bearish in nature. The individuals that are bullish in nature expects that the prices would increase in the near future. On the other hand, the individuals that are bearish in nature expects that the prices would fall down in the near future.
- **Swaps:** Swap refers to an exchange of one financial instrument for another between the concerned parties. Swap are not exchange oriented and are traded over the counter. They are usually carried out by the banks.

Option chain Analysis

Options chain is also known as option matrix. An Option chain is the list of all the available option contracts for a specific security in the market. It shows the lists of the calls, puts, their strike price, their expiration and volume and pricing of the underlying assets with a specified maturity date. In simple terms, when all the strike prices are chained together in a specific manner, it leads to the formation of option chain.

When an individual stock is traded in an option chain, the expiry date of the contract would be the last Thursday of each month whereas in the case of options where the underlying asset is the market index, the expiry date can be the Thursday of every week or every month except for Banknifty wherein the expiry date would be the last Friday of every month with effect from 7th July, 2023.

The option chain consists of the following components:

- **Spot price:**

Spot price refers to the current market price (CMP) of a security or an index. It reflects the true market price of the underlying asset and is the most essential component for determining the price of the derivatives. In the case of options, it is usually used as an indicator wherein it helps in determining the moneyness or the intrinsic value of a particular option by comparing the spot price with the strike price.

- **Strike price:**

Strike price is the predetermined price at which the buyer and the seller of an option agree on a contract or exercise a valid and unexpired contract. In the case of call options, the strike price is where the security can be bought by the option holder, whereas for put options, the strike price is the price at which the security can be sold. In simple terms, it is the price at which the underlying security can be either bought or sold once exercised.

For call options, the strike prices lower than the market price are said to be In-the-money (ITM), since one can exercise the option to buy the stock at a price less than the market and can immediately sell it at a higher market price.

On the other hand, in case of put options, In-the-money puts are those which carry higher strike price in comparison with market which in order gives the right to the holder to sell the option above the current market price.

The call options pursuing higher strike price than the market price or the put options with low strike prices are considered to be Out-of-the-money (OTM).

- **Open interest:**

Open interest refers to the total number of open derivative contracts, such as options or futures that have not been settled. In other words, the total number of contracts that have been created but not yet executed. Higher level of OI depicts a higher level of liquidity whereas lower level of OI depicts a lower level of liquidity.

  - **Spurts in OI**

  An OI spurt is a sudden and large increase or decrease in the open interest of a particular stock or an index. The factors used in determining the signals in open interest or spurts in OI are volume and price as they both follow each other and create interest in opening or closing positions. In many cases, traders combine price, volume and open interest to create bullish or bearish market signals.

Open Interest	Volume	Prices	Market Position	Market Trend
Up	Up	Rising	Strong	Bullish
Down	Down	Rising	Weak	Bearish
Up	Up	Declining	Weak	Bearish
Down	Down	Declining	Strong	Bullish

  Case 1: Rise in price with rise in volume and open interest indicates that more number of traders are interested in buying the options which in turn develops a strong market position and is considered as a bullish market.

  Case 2: Rise in price with a decline in volume and open interest implies that the strong selling is occurring which in turn establishes a weak market and gives rise to a downtrend in the market. This kind of situation is termed as bearish market.

  Case 3: Decline in price with increase in the volume and open interest stipulates that the more number of sellers are exiting the market. It implies that new money is coming into the market which in turn leads to a continuation of a downtrend and bearish condition.

  Case 4: Decrease in price along with decrease in volume and open interest implies that sellers are adopting short selling which in turn forcing the sellers to liquidate their positions. Creating a strong market position for the bulls.

- **Change in open interest:**

Open interest is a measure of the flow of money into a futures or options market. The open interest number only changes when a new buyer and seller enters the market by creating a new contract.

A high open interest reflects the interest of the investors in buying or selling the options contract whereas a low open interest indicates that more number of traders have started closing their respective contracts.

- **Last Traded Price (LTP):**

The last traded price is the recent price at which the trade occurred in the options contract. The occurrence of the last traded price usually depends on the liquidity of the market. In an option chain, the LTP represents the premium that is to be paid in order to enter the options contract.

In a call option, if the premium has gone up along with an increase in open interest then, it indicates a strong support depicting that the call buyers are going right and earning money. Similarly, in the case of put option, if the premium has gone up with an increased OI, it reflects that the put buyers are making profits.

- **Change in LTP:**

A change in the LTP in options usually occurs due to the change in the underlying asset. The positive change means a rise in price and are indicated in green whereas a negative change means decrease in price and are indicated in red.

- **Implied Volatility (IV):**

Implied volatility is the market's forecast of a likely movement in a security's price. It is often used to price option contracts where high implied volatility results in options with higher premium and vice versa. Supply, demand and time value are the major determining factors in order to calculate the implied volatility. A higher IV is good for an option seller because they can sell an option with a higher premium.

In order to earn higher profits in buying options contract one needs to take on more risk by purchasing contracts with lower IV.

IV usually increases in bearish markets and decreases when the market is bullish.

- **Volume:**

Volume in an option chain refers to total number of contracts of an option for a particular strike price that are traded in the market. It is calculated on a daily basis. It is an indicator of the traders interest in a particular strike of an option.

PROBLEM STATEMENT

Most of the people trade in futures contract which in turn creates an obligation to execute the contract. Only 2 percent of the people trade in options contract as they are very volatile in nature. But options contract gives an advantage to the people that after entering into the contract it is not at all compulsory for them to execute the contract at a specific price on a future date. In simple terms, it gives the right not the obligation to the investors to execute the contract. To understand the option chain, a sincere attempt is made in order to analyse the options.

OBEJCTIVES OF THE STUDY

1. To study the concept of functioning of option chain.
2. To analyse the option chain of BankNifty and NSE.
3. To give valuable suggestions on the basis of analysis made.

METHODOLOGY

- A random sample of options of BankNifty and Nifty from the Indian Derivatives Market has been considered for the study
- The data collected is purely a real time data.
- Option chain analysis is taken into consideration for analysing the options of the selected indices.

ANALYSIS

BankNifty – Spot price = 43769.05

CALLS							PUTS					
OI	CHNG IN OI	VOLUME	IV	LTP	CHNG	STRIKE	CHNG	LTP	IV	VOLUME	CHNG IN OI	OI
300	151	482	26.69	912.75	-368	42,800.00	-1	2.55	17.97	4,39,932	23,352	57,007
111	5	770	23.94	812.35	-351.55	42,900.00	-1.2	2.9	16.58	5,21,427	28,431	47,496
2,386	-128	17,849	21.91	700	-355.95	43,000.00	-1.15	3.65	15.27	18,58,887	1,33,119	2,18,673
1,027	473	5,131	19.43	600	-362.4	43,100.00	-1.35	4.05	13.74	9,12,485	34,094	64,534
3,016	2,074	20,861	16.78	499.35	-372.85	43,200.00	-0.95	5.35	12.4	14,63,912	73,467	1,16,050
5,804	4,751	61,002	15.11	401.2	-363.85	43,300.00	-0.1	7.6	11.13	22,43,508	68,818	1,28,335
12,891	10,601	1,77,673	12.99	306.45	-366.25	43,400.00	2.3	12.75	10.16	36,49,600	1,11,366	1,73,169
52,059	44,516	8,02,879	11.61	221	-353.8	43,500.00	8.6	23.7	9.45	70,74,784	2,09,661	3,12,788
1,21,356	1,09,019	16,47,994	10.62	141.4	-340.45	43,600.00	24.7	46.7	8.85	79,67,358	1,97,286	2,63,649
2,98,859	2,76,882	41,25,577	10.23	84.15	-310.5	43,700.00	54	87.3	8.51	99,60,030	1,72,880	2,46,247
3,98,892	3,55,161	64,53,179	10.29	46.45	-266.7	43,800.00	98.9	149.85	8.34	96,16,441	18,627	1,29,528
4,00,983	3,44,959	78,79,526	10.94	26.2	-211.2	43,900.00	152.65	229	7.83	76,39,172	-23,266	74,351
5,16,729	2,58,390	91,58,580	11.91	16.6	-154.3	44,000.00	210.1	320.65	-	55,58,560	-1,35,235	76,030
3,49,803	1,55,018	54,67,052	13.19	11.3	-107	44,100.00	257.7	414.95	-	19,44,476	-25,125	44,266
2,72,388	56,468	45,48,893	14.61	8.85	-68.85	44,200.00	296.45	513.1	-	11,34,381	-23,567	23,416
2,00,055	57,820	29,42,590	16.27	7.3	-41.1	44,300.00	322.55	610.75	-	4,55,303	-11,489	10,588
1,37,139	16,786	21,88,886	17.99	6.7	-22.55	44,400.00	342.1	710.8	-	1,51,027	-5,158	7,241
2,46,948	82,066	26,20,340	19.77	6.2	-11.75	44,500.00	350.55	808.65	-	1,22,802	1,312	13,083
1,08,793	14,226	14,12,368	21.42	5.85	-5.4	44,600.00	353.55	906	-	19,106	-841	3,066
92,219	-10,940	11,96,617	23.22	5.65	-1.95	44,700.00	365.05	1,012.65	-	5,779	-744	2,685

At the strike price of 43,700, the OI for 2,98,859 contracts were still in the process and 2,76,882 contracts were created on that particular day. It implies that there is more chance of Bullish market situation. On the go the rise in LTP of Rs. 84.15 also showed significant increase. When increase in OI and LTP signifies that more buyers are entering into contract which is always a positive sign.

At the strike price of 44,000, the OI for the call option is the highest with a total number of 5,16,729 open contracts with an LTP of 16.6 with a negative change of 154.3. This indicates that though a greater number of people are interested in buying the call option contract at strike price of 44,000, the sellers are not ready to sell. This depicts a higher demand and lower supply of call contracts at the given strike price.

At the strike price of 43,700, the OI for put options stands at 2,46,247 with a positive change of 1,72,880 with a LTP of 87.3 which is much lower than the LTP's with higher strike prices. The change in the LTP at strike price of 43,700 is a positive of 54.00, which indicates a strong support at which the investors/traders are gaining interest in buying the put options.

At the strike price of 43,500, the OI for the put option is the highest with a total number of 3,12,788 open contracts with an LTP of 23.7 with a positive change of 8.6. This indicates that the highest number of investors/traders are interested to buy the put option along with an adequate supply. This creates a strong support to buy the put options at the given strike price.

At the strike price of 42,800, the OI for call options is 300. This is the lowest OI in the above table for call options. Similarly at the strike price of 44,700 the OI for the put option stands at 2685 which is the lowest in the given table.

This lower OI indicates the least interest of the investors/traders in buying the call or put option at the strike price which are more deviated from the spot prices. The investors do not expect high level of fluctuations in the prices of the underlying assets and therefore lower number of investors/traders are interested in buying or selling the options contract which are highly deviated from the spot prices.

Nifty – Spot Price = 18762.05

CALLS							PUTS					
OI	CHNG IN OI	VOLUME	IV	LTP	CHNG	STRIKE	CHNG	LTP	IV	VOLUME	CHNG IN OI	OI
1,618	293	860	18.16	801.2	84.05	18,000.00	-1.5	2.7	16.33	2,38,804	33,233	86,081
65	-	3	20.69	754.4	85.85	18,050.00	-1.65	2.95	15.51	47,169	8,735	13,777
677	5	91	17.6	701.05	82.55	18,100.00	-2	3.25	14.91	1,68,404	37,944	69,229
129	3	20	14.01	644.2	74.7	18,150.00	-2.35	3.5	14.15	79,388	21,315	28,843
905	157	538	15.72	603	81.4	18,200.00	-3	3.85	13.39	2,06,917	25,825	62,023
336	4	135	14.58	555.45	83.45	18,250.00	-3.6	4.2	12.66	1,07,128	17,371	28,707
1,898	36	912	13.46	504.5	78.65	18,300.00	-4.7	4.85	11.97	2,54,450	21,478	66,645
738	5	191	12.05	450.95	73	18,350.00	-6.3	5.75	11.36	1,80,659	12,906	33,062
2,089	238	3,094	11.88	408.95	77.55	18,400.00	-8.75	7.1	10.8	2,74,286	25,729	62,258
1,114	79	1,427	11.26	358.55	73.75	18,450.00	-11.45	9.25	10.32	2,18,969	18,277	35,653
8,037	116	27,235	10.95	311.85	68.9	18,500.00	-15.4	12.45	9.93	4,48,036	35,922	88,207
2,908	1,312	15,535	10.28	265.4	62.55	18,550.00	-19.45	17.05	9.55	2,56,676	18,913	42,845
21,593	7,393	1,50,872	10.01	223.7	59.05	18,600.00	-25.9	23.15	9.22	4,97,715	37,155	93,580
21,835	7,710	1,46,947	9.57	180.95	50.4	18,650.00	-33.15	31.75	8.88	4,00,603	36,506	58,948
1,57,859	6,384	7,88,932	9.15	144.8	44.55	18,700.00	-41.95	42.8	8.59	10,87,254	1,14,987	2,58,326
90,825	28,564	9,57,386	8.85	109.15	34.95	18,750.00	-47.5	60.35	8.35	9,59,085	96,538	1,25,805
2,06,818	46,961	14,35,529	8.56	80.4	28.7	18,800.00	-56	80	8.03	10,47,682	99,562	1,73,900
1,06,931	74,883	6,64,896	8.25	54.5	19.55	18,850.00	-63.2	105.95	7.78	2,32,761	27,839	34,911
87,530	32,866	6,51,077	8.08	36.05	12.85	18,900.00	-70.25	136.7	7.52	1,98,915	22,821	33,038
58,770	24,453	3,89,308	7.96	22.45	7.9	18,950.00	-75.7	173.1	7.29	33,977	3,655	6,511
1,22,320	50,878	6,63,042	7.89	13.35	4.2	19,000.00	-77.95	214.85	6.95	42,908	5,340	8,965
81,550	47,475	3,99,390	7.88	7.7	1.95	19,050.00	-83	256.05	6.79	2,949	416	680
1,07,997	62,901	3,62,187	8.01	4.7	0.5	19,100.00	-83.5	304.7	6.35	2,894	138	745
40,715	23,626	1,39,217	8.48	3.45	0.2	19,150.00	-86.4	350.35	-	329	58	144
1,14,454	41,418	2,84,611	9.13	2.85	-0.15	19,200.00	-86.55	401.3	7.86	794	139	415
37,065	13,270	80,801	9.72	2.4	-0.3	19,250.00	-83.2	452	-	58	6	23
88,373	19,700	2,57,010	10.4	2.1	-0.35	19,300.00	-84.95	501.15	-	321	34	377
16,375	8,568	47,584	11.04	1.9	-0.2	19,350.00	-13.75	550	-	14	9	12
39,120	10,466	1,17,125	11.76	1.8	-0.1	19,400.00	-78	605	-	45	20	33
8,405	2,196	25,698	12.47	1.7	-0.05	19,450.00	-80.4	654.1	-	16	-10	104

At the strike price of 18,750, the OI for call option stands at 90,825 with a additional positive change of 28,564 new contracts with an LTP of 109.15 which is much lower than the LTP's with lower strike prices. The change in the LTP at strike price of 18,750 shows a positive figure of 34.95 indicating a strong support and a bullish trend in the market which is very favourable for the buyers of the call option.

At the strike price of 18,800, the OI for the call option is the highest with a total number of 2,06,818 open contracts which is inclusive of additional 46,961 new contracts being created till date. The LTP at the given strike price is 80.04 with a positive change of 28.7. This indicates that more number of investors/traders are interested in entering a call buy options contract in order to gain profit at the given strike price of 18,800.

At the strike price of 18,750, the OI for put option stands at 1,25,805 inclusive of the new additional contracts of 96,538. The LTP at the given strike price stood at 60.35 with a negative change of 47.5. The negative change in the LTP indicates a weak market which is not favourable for the buyers.

At the strike price of 18,700, the OI for the put option is the highest with a total number of 2,58,326 open contracts with an LTP of 42.8 with a positive change of 41.95. This indicates that the highest number of investors/traders are interested to buy the put option along with an adequate supply. This creates a strong support to buy the put options at the given strike price.

At the strike price of 18,050, the OI for call options is 65. This is the lowest OI in the above table for call options. Similarly at the strike price of 19,350 the OI for the put option stands at 12 which is the lowest in the given table. This lower OI indicates the least interest of the investors/traders in buying the call or put option at the strike price which are more deviated from the spot prices. The investors do not expect high level of fluctuations in the prices of the underlying assets and therefore lower number of investors/traders are interested in buying or selling the options contract which are highly deviated from the spot prices.

From the above two tables, we can conclude that more number of open contracts are created near the strike prices which is not widely deviated from the spot prices of the market. This depicts that the investors do not expect a very drastic change in prices of the underlying assets in a short period. Even though there might be exceptions for the above statement such as in times of COVID-19 lockdown, the market fell drastically in the first three months; but in a normal case scenario the investors do not expect very drastic changes in the market.

CONCLUSION

Options are used for hedging which is a strategy that helps to limit and minimise the risk. As options are very volatile in nature, therefore people hesitate to trade in options contract. Due to this an efficient analysis of the option chain is required while trading in options. The options contract gives the investors the right and not the obligation to execute the contract. This creates a possibility of having unlimited rewards while having limited risk factor. The study conducted clearly depicts the use of open interest, last traded price (LTP) and their changes helps in analysing and predicting the market conditions that are suitable to enter the options contract. By analysing all the factors, one can take a decision of whether he should enter the options contract in the current market scenario.

REFERENCE

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