

A STUDY ON INDEX OPTIONS

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Introduction

Derivatives are one of the predominantly part multifaceted of instruments. The articulation "Derivative" comes from the action word 'to determine'. It demonstrates that it has no needy worth. In account, a subsidiary is an agreement that gets its qualities from the show of a basic substance. This essential element can be an advantage, file or interest cost. What's more, is frequently basically called the basic.

Derivatives can be utilized for a numeral of purposes. Counting guaranteeing against value activities (supporting), ascents experience to value developments for hypothesis or gaining admittance to other shrewd difficult to-exchange resources or markets.

Derivatives are contracts among two gatherings that recognize conditions under which installments are to be made between the gatherings. Every so often, subordinates are likewise utilized for exchanging explicit areas, for example, abroad trade, value, depository bills, and so on,

Index Option:

A record alternative is a monetary derivative that gives the proprietor the right, yet not the commitment, to purchase or sell the estimation of a basic list, for example, the Standard and Poor's (S&P) 500, at the expressed exercise cost at the very latest the end date of the option. No real stocks are purchased or sold; list alternatives are consistently money settled and are naturally European-style options.

Need of the study:

The present study title "A STUDY ON INDEX OPTIONS" states the concept of derivatives with due high opinion to "options" and also helps in considerate the movement of premium charges and practice of their settlement. This would also help the investors to assessment the payoffs of index options.

Objectives:

- To understand the movement of premium charges.
- To study index options contracts and their settlements.
- To present the payoffs for nifty index options.

Scope:

The study is limited to index option traded in NSE. The analysis is needy on day to day market price of nifty index. For the analysis purpose I have taken into account strike price expiration date, spot price and option premium.

Data time required: 3months.

Research Methodology:

The data collected has been analyzed in following ways which were determined the pay offs for the investors by namely:

- CALL OPTIONS
- PUT OPTION

Time period

- 3 Months (30th September 2019 to 26th December 2019)
- index option contracts.
- Tools used : M.S Excel

Literature Review

Naveen Edamana: expressed this critique on exchanging file choices dependent on file energy:

This particular venture aim is set up and examine a file option exchanging unit determined by the list's impulse. The exchanging report alternative design is actually planned with the following measures of the brain:

- Slightest selection of boundaries for signage.
- Preventive monetary danger due to unforeseen events.

• Low and NIL advantage prerequisite.

The exchanging file options model mindful in this particular job utilizes day by day OHLC DATA of NIFTY and the options of its. The symptoms are made for expanded situations in CALL or maybe PUT market prices .

Sanjay Sehgal and Vijay Kumar.N(2009):

Expressed this article based on Tests of evaluating productivity of the Indian choices market : This model is a decent descriptor of alternative valuing in the Indian setting. We use information for average poor CRISIL NSE INDEX 50 (S&P CNX NIFTY INDEX) choices from first January 2004 to 31st December 2005. We operationalise the dark and scholes model utilizing two substitute proportions of flightiness. 1. Authentic unpredictability and 2. Weighted suggested instability.

Kelvin Mutuum, Ashim KR.Das: Lower Boundary Conditions And Efficiency Testing Of Indian Index Options Market:

Empirical Evidence From Nifty 50 Index: Vol-13, Issue-3 March-2019: This article inspected the evaluating skill of the clever 50 file choices market by observationally testing the lower marginal conditions (LBCs) a without model methodology. The examination covered a period from April first to walk 31st 2018. The infringement of LBCs showed that alternatives be undervalued (mispriced).

N.B Singh , U. Sarita Singha Vol-12, Issue-10, October-2018 :

The data analysis purpose S&P CNX Nifty Index: This article inspected the inadequacy of the Indian file alternatives commercial center by utilizing the crate expand exchange estimating relationship the information made for the examination comprised of the day by day shutting costs of S&P CNX clever record choices contracts from April first 2012 to walk 31st 2017. The investigation confirmed an incessant infringement of box spread equality.

Data Analysis

OPTION TYPE CALL OPTION AND PUT OPTIONS

OPTION TYPE	For a Call	For a Put
ITM	$S > K$	$S < K$
OTM	$S < K$	$S > K$
ATM	$S = K$	$S = K$

In the below table: EX- Expiry, ST- Strike Price, O- Open, H- High, L- Low, C- Close, UV- Underlying Value, IV- Intrinsic Value, T- Time Value.

CALL OPTION FOR STRIKE PRICES 11500

Data for OPTIDX-CE from 30-09-2019 to 31-10-2019												
NAME	Date	EX	CE/PE	ST	O	H	L	C	UV	I.V	T	TYPE
NIFTY	30-Sep-19	31-Oct-19	CE	11500	233.65	242.45	176.6	217.95	11474.5	-25.55	243.5	out of the money
NIFTY	01-Oct-19	31-Oct-19	CE	11500	231.7	258	130.3	169.7	11359.9	-140.1	309.8	out of the money
NIFTY	03-Oct-19	31-Oct-19	CE	11500	143.6	165.25	126.15	145.55	11314	-186	331.55	out of the money
NIFTY	04-Oct-19	31-Oct-19	CE	11500	160	169	83.8	88.6	11174.8	-325.25	413.85	out of the money
NIFTY	07-Oct-19	31-Oct-19	CE	11500	91.75	97.85	64	68.2	11126.4	-373.6	441.8	out of the money
NIFTY	09-Oct-19	31-Oct-19	CE	11500	62.15	115.8	52.45	110.75	11313.3	-186.7	297.45	out of the money
NIFTY	10-Oct-19	31-Oct-19	CE	11500	92.2	99	67.8	73.85	11234.6	-265.45	339.3	out of the money
NIFTY	11-Oct-19	31-Oct-19	CE	11500	77.2	115.35	65.8	93.3	11305.1	-194.95	288.25	out of the money
NIFTY	14-Oct-19	31-Oct-19	CE	11500	96.3	128.95	80.2	89.1	11341.2	-158.85	247.95	out of the money
NIFTY	15-Oct-19	31-Oct-19	CE	11500	94	136	92.3	119.4	11428.3	-71.7	191.1	out of the money
NIFTY	16-Oct-19	31-Oct-19	CE	11500	129.15	138.35	104.1	125.15	11464	-36	161.15	out of the money
NIFTY	17-Oct-19	31-Oct-19	CE	11500	119.45	200	112.1	186.7	11586.4	86.35	100.35	in the the money
NIFTY	18-Oct-19	31-Oct-19	CE	11500	164.5	254	159.5	232.25	11661.9	161.85	70.4	in the the money
NIFTY	22-Oct-19	31-Oct-19	CE	11500	217.9	257.45	176.9	189.85	11588.4	88.35	101.5	in the the money
NIFTY	23-Oct-19	31-Oct-19	CE	11500	178.4	228	152.25	179.65	11604.1	104.1	75.55	in the the money
NIFTY	24-Oct-19	31-Oct-19	CE	11500	202.1	220	131.45	161.35	11582.6	82.6	78.75	in the the money
NIFTY	25-Oct-19	31-Oct-19	CE	11500	175	175	82.35	141.4	11583.9	83.9	57.5	in the the money
NIFTY	27-Oct-19	31-Oct-19	CE	11500	150	174.95	138.5	147.75	11627.2	127.15	20.6	in the the money
NIFTY	29-Oct-19	31-Oct-19	CE	11500	161	328.2	153.5	301.35	11786.9	286.85	14.5	in the the money
NIFTY	30-Oct-19	31-Oct-19	CE	11500	348	378.65	290.05	339.75	11844.1	344.1	-4.35	in the the money
NIFTY	31-Oct-19	31-Oct-19	CE	11500	381.85	446.45	358.8	380.1	11877.5	377.45	2.65	in the the money

PUT OPTION FOR STRIKE PRICES 11500

Data for OPTIDX- NIFTY-PE from 30-09-2019 to 31-10-2019

NAME	Date	EX	CE/PE	ST	O	H	L	C	UV	I.V	T	TYPE
NIFTY	30-Sep-19	31-Oct-19	PE	11500	184.2	232	164.65	182.7	11474.5	25.55	157.15	in the money
NIFTY	01-Oct-19	31-Oct-19	PE	11500	166.15	325.9	149	238.8	11359.9	140.1	98.7	in the money
NIFTY	03-Oct-19	31-Oct-19	PE	11500	268.85	314.95	247.4	284	11314	186	98	in the money
NIFTY	04-Oct-19	31-Oct-19	PE	11500	243.2	385	237.7	373.15	11174.8	325.25	47.9	in the money
NIFTY	07-Oct-19	31-Oct-19	PE	11500	378.2	417.35	334	409.2	11126.4	373.6	35.6	in the money
NIFTY	09-Oct-19	31-Oct-19	PE	11500	395.7	437.3	250.05	261.65	11313.3	186.7	74.95	in the money
NIFTY	10-Oct-19	31-Oct-19	PE	11500	291	347.85	279.25	317.15	11234.6	265.45	51.7	in the money
NIFTY	11-Oct-19	31-Oct-19	PE	11500	275.4	373.75	229.8	278.35	11305.1	194.95	83.4	in the money
NIFTY	14-Oct-19	31-Oct-19	PE	11500	278.7	288.75	195	247.95	11341.2	158.85	89.1	in the money
NIFTY	15-Oct-19	31-Oct-19	PE	11500	241.15	241.15	163.2	179.55	11428.3	71.7	107.85	in the money
NIFTY	16-Oct-19	31-Oct-19	PE	11500	174.05	184.45	143	149.15	11464	36	113.15	in the money
NIFTY	17-Oct-19	31-Oct-19	PE	11500	142.85	157.7	81.6	87	11586.4	-86.35	173.35	out of themoney
NIFTY	18-Oct-19	31-Oct-19	PE	11500	90	98	59.2	63.35	11661.9	-161.85	225.2	out of themoney
NIFTY	22-Oct-19	31-Oct-19	PE	11500	66.35	73.6	43.9	65.15	11588.4	-88.35	153.5	out of themoney
NIFTY	23-Oct-19	31-Oct-19	PE	11500	67.55	78.15	45.25	56.1	11604.1	-104.1	160.2	out of themoney
NIFTY	24-Oct-19	31-Oct-19	PE	11500	44.7	75.4	34.45	50.3	11582.6	-82.6	132.9	out of themoney
NIFTY	25-Oct-19	31-Oct-19	PE	11500	44.95	81.65	25	30.85	11583.9	-83.9	114.75	out of themoney
NIFTY	27-Oct-19	31-Oct-19	PE	11500	24.05	28.2	16.1	22.5	11627.2	-127.15	149.65	out of themoney
NIFTY	29-Oct-19	31-Oct-19	PE	11500	12.3	16.55	4.3	4.75	11786.9	-286.85	291.6	out of themoney
NIFTY	30-Oct-19	31-Oct-19	PE	11500	1.8	5	1.55	1.8	11844.1	-344.1	345.9	out of themoney
NIFTY	31-Oct-19	31-Oct-19	PE	11500	0.4	0.65	0.05	0.05	11877.5	-377.45	377.5	out of themoney

Call option for buyers

The investor enters into market with the trader by purchasing NIFTY CALL OPTION with three different strike prices dated 30th September 2019 which determines the pay offs for holder of the option and writer of the option.

ST	Underlying price	Option market price
11,500.00	11,474.50	217.95

Intrinsic value (IV) = {max, (0, S-K)}

The following calculation for intrinsic value

- Strike Price-Market Price =I.V
= (11,474.50)-(11,500.00) =0

$$\begin{aligned} \text{Time value} &= C- IV \\ &= 217.95 -0.00 = 217.95. \end{aligned}$$

Interpretation and observation:

11,500.00 the strike price for call option 11,474.50 the market settled at 217.95 is the market option price. 11,600.00 the strike price for call option 11,786.85 the market settled at 360.95 is the market option price. 11,700.00 The strike price for call option 12,037.70 the market settled at 479.95 is the market option price. **Call option price positive means in investor get profit.**

Put option for buyers

ST	Underlying price	Option market price
11,500.00	11,474.45	182.70

Intrinsic value (IV) = {max, (0, K-S)}

STRIKE PRICE-MARKET PRICE =I.V

- Strike Price-Market Price =I.V
(11, 500.00)-(11,474.4) = 25.6

$$\begin{aligned} \text{Time value} &= C- IV \\ &= 182.7-25.6 = 157.1. \text{ (Investor making profit).} \end{aligned}$$

Interpretation:

The strike price of the call option is 11,500.00 index options trading at 11,474.45 the calculated I.V is 183 , the strike price of the call option is 11,600.00 index options trading at 11,786.85 the calculated I.V is 122 , the strike price of the call option is 11,700.00 index options trading at 12,037.70 the calculated I.V is 6

Call option for sellers

ST	Underlying price	Option market price
11,500.00	11,474.50	217.95

Intrinsic value (IV) = {max, (0, S-K)}

The following calculation for intrinsic value

- Strike Price-Market Price =I.V

$$= (11,474.50) - (11,500.00) = 0$$

$$\begin{aligned} \text{Time value} &= C - IV \\ &= 217.95 - 0.00 = 217.95 \text{ (investor making profit).} \end{aligned}$$

Interpretation:-

11,500.00 is the strike price of the put option make profit of 217.95 making a profit. 11,600.00 is the strike price of the put option make profit of 174.1 making a profit. 11,700.00 is the strike price of the put option make profit of 142.25 making a profit.

Put option of sellers

ST	Underlying price	Option market price
11,500.00	11,474.45	182.70

$$\text{Intrinsic value (IV)} = \{\max, (0, K-S)\}$$

$$\text{STRIKE PRICE} - \text{MARKET PRICE} = \text{I.V}$$

- $\text{Strike Price} - \text{Market Price} = \text{I.V}$
 $= (11,500.00) - (11,474.4) = 25.6$

$$\begin{aligned} \text{Time value} &= C - IV \\ &= 182.7 - 25.6 = 157.1 \end{aligned}$$

Interpretation:-

11,500.00 is the strike price of the put option make profit of 182.7, 11,600.00 is the strike price of the put option make profit of 122.3, 11,700.00 is the strike price of the put option make profit of 62.6.

Findings

1. The optimum payoff for call/put holder happens when intrinsic worth is much more than selection premium & minimum payoff happens when intrinsic value is under option premium.
2. The optimum payoff of call/put alternative author happens when alternative isn't exercised (whole premium is the profit) of his & least premium happens when intrinsic worth is under selection premium.

Suggestions

- It is advisable to see INDEX options as being a hedging tool rather compared to speculative instrument.
- Trading in INDEX OPTIONS is advisable as they've somewhat low risk as well as low cash flow.
- It is perfect for those who wish to speculate for risk that is low and manage portfolio efficiently.
- Retail investors are able to protect the assets of theirs, with the easy strategy they are able to purchase a put OPTIONS and cover the danger of falling markets.
- Never write a put option contract shot as it is going to result in great losses in case the market turns in an additional round.
- Nevertheless, in India stock index future is much more ideal whereas inventory index choices have become the 2nd choice. Nevertheless, through the years choices volumes have increased.

Conclusions

- From the options holders' perspective, the damage to holders is constantly likely limitless, though the profit is restricted.
- In contrast, from the possibility writers' perspective the gain possibilities are limited but loss odds are unrestricted.
- We are able to determine from findings which the benefit of the options holder is comparable to the loss of the possibility writer the other way round.
- Since the call options provides the customer with the chances to purchase at a greater price tag, as the strike cost increases, choice premium increases.
- As the put options provides the seller with the best to promote at a lower price tag, as the strike cost increases, the choice premium decreases.

- As the call options providing the holder, to purchase at less if the spot price tag is much more the choice premium increases together with the increased the spot price.

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