

Twitter Thread by Subhadip Nandy



Subhadip Nandy

@SubhadipNandy



This friend had trouble making money in options though he was directionally right. Let us see how a basic understanding of greeks would have helped him, This thread will be about two attributes of option pricing, extrinsic value and theta

Sir, today [#niftybank](#) was continue making new high, but 31700 CE was struggling to go up. I bought at 140, somehow managed to sell it at 200. I m ok, in identifying directional edge but options behave differently.

— Vikash Shrivastava\U0001f1ee\U0001f1f3 (@VikashS28) [May 27, 2019](#)

An option has two parts, intrinsic and extrinsic value. Think of a pack of Lay's potato chips. When you buy and open the pack, what you find is some chips and a lot of air. Intrinsic value is the chips, extrinsic value is air

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Intrinsic and Extrinsic Value

An option's value is composed of two components :

Intrinsic Value : The value of the option if it were exercised at current price

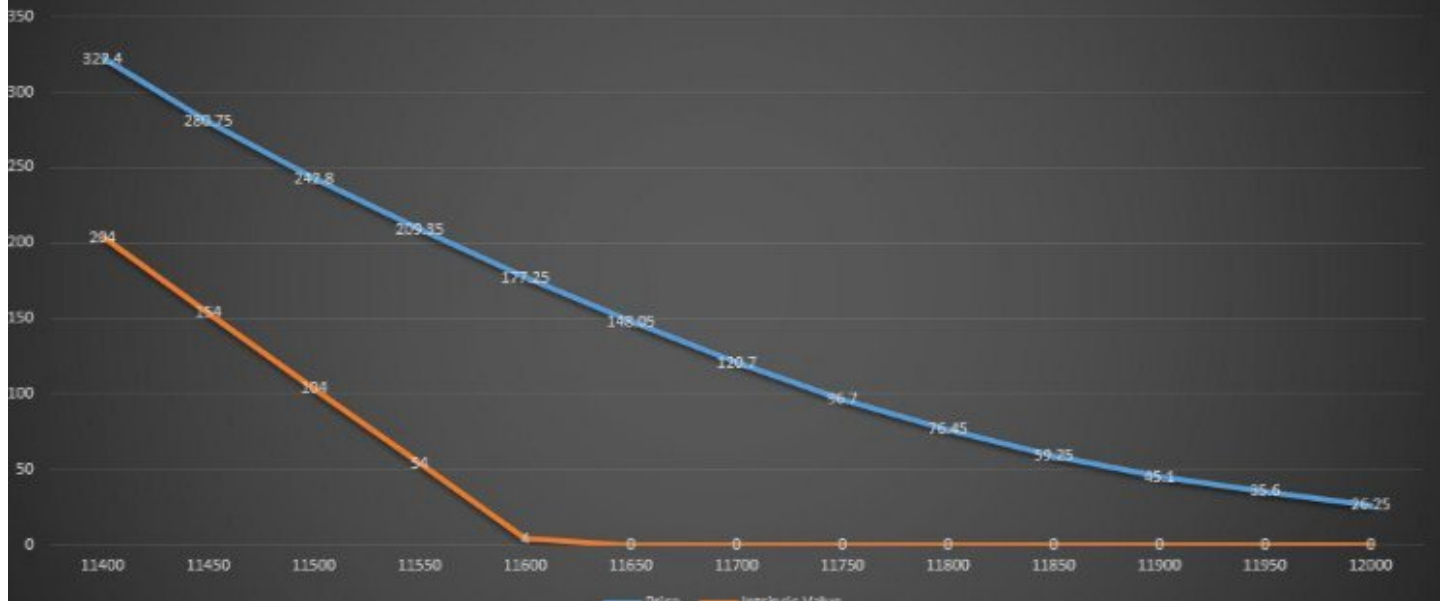
Extrinsic Value : The total value of time in the option

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ATM and OTM options are 100% extrinsic value while ITM options have more intrinsic and less extrinsic value with further ITM strikes



Nifty 11604



<https://t.co/icWmqSLENW>

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Intrinsic value calculation

In the money call options:

Intrinsic Value = Price of Underlying Asset - Strike Price

In the money put options:

Intrinsic Value = Strike Price - Price of Underlying Asset



<https://t.co/vHA6azEmbQ>

Extrinsic value key points

Lower as we go deeper ITM

Highest at ATM

Lower as we go OTM

All call options ATM and above strikes are 100% extrinsic value

All put options ATM or below strikes are 100% extrinsic value

Let us stop for a second here. When our friend was buying the 31700CE, he was buying pure extrinsic value, i.e, AIR

He has a second problem, theta.

What is theta ?

What is theta ?

Theta is a measure of the rate of decline in the value of an option due to the passage of time. It can also be referred to as an option's time decay. If everything is held constant, the option loses value as time moves closer to the maturity of the option.

Watch this example for theta. These are actual calculations of greeks

11750 CE as on 28th April 2019 for expiry 30th May 2019 . Spot = 11754

CALL OPTION PREMIUM	PUT OPTION PREMIUM	CALL OPTION DELTA	PUT OPTION DELTA	OPTION GAMMA
286.63	214.74	0.556	-0.444	0.0006
CALL OPTION THETA	PUT OPTION THETA	CALL OPTION RHO	PUT OPTION RHO	OPTION VEGA
-5.063	-2.824	5.480	-4.758	13.741

<https://t.co/kxHNu8eGYy>

11750 strike Call option premium = 286
 Intrinsic Value = Price of Underlying Asset -
 Strike Price (11754-11750) = Rs.4
 Extrinsic value = 286-4 = 282
 Per day theta = 5.063
 DTE = 31
 Total theta = 5.063*31 = 157
 286 not equals to 157, why ?
 Why Rs.129 extra ?

<https://t.co/lqXzrssx5f>

Theta decay of an OTM option does not equal the extrinsic value. This is because theta decay isn't LINEAR

Options decay at the squareroot of time

Theta is an option's sensitivity to time decay

Theta decay accelerates approaching expiration sucking out the remaining extrinsic value if the option remains OTM

<https://t.co/w1KFFZVZkh>

Any long option position is negative theta.
Negative theta means everyday that passes you are paying to hold that position.
If the underlying does not make the intended move in your direction, you are burning capital waiting for a move to take place.

What is your theta burn rate ?

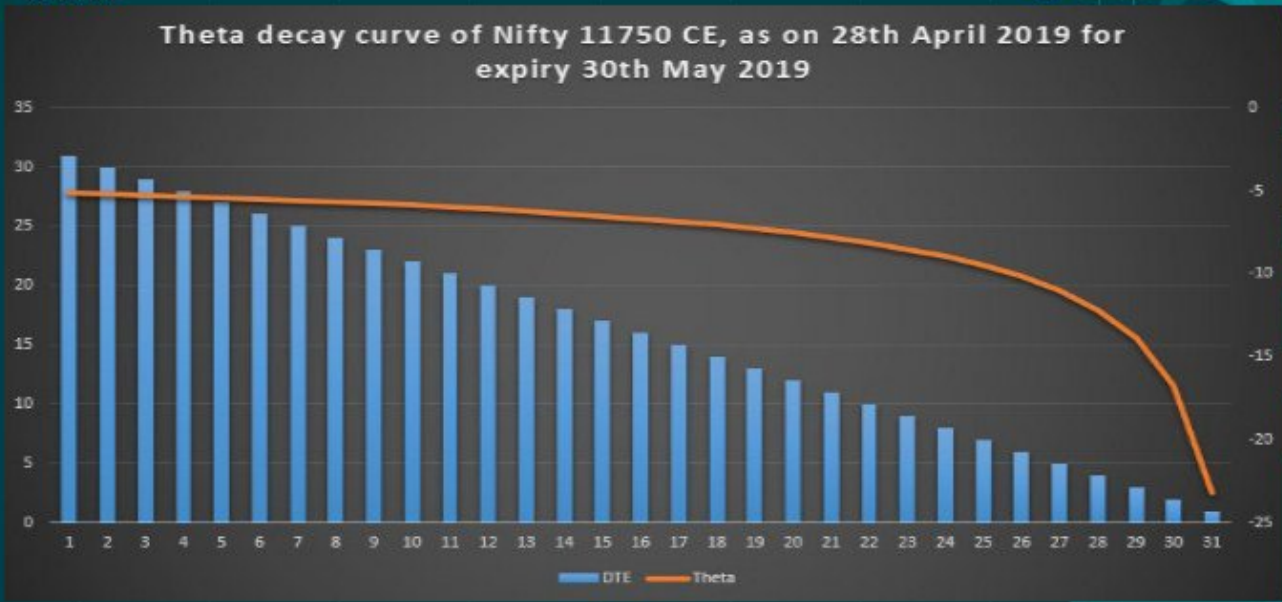
Are you positive or negative theta ?

Are you theta neutral ?

DTE = Days to expiration. Watch that the theta decay curve is not linear, it speeds up as we approach expiration

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Theta decay accelerates approaching expiration sucking out the remaining extrinsic value if the option remains OTM



<https://t.co/wWYA331uQi>

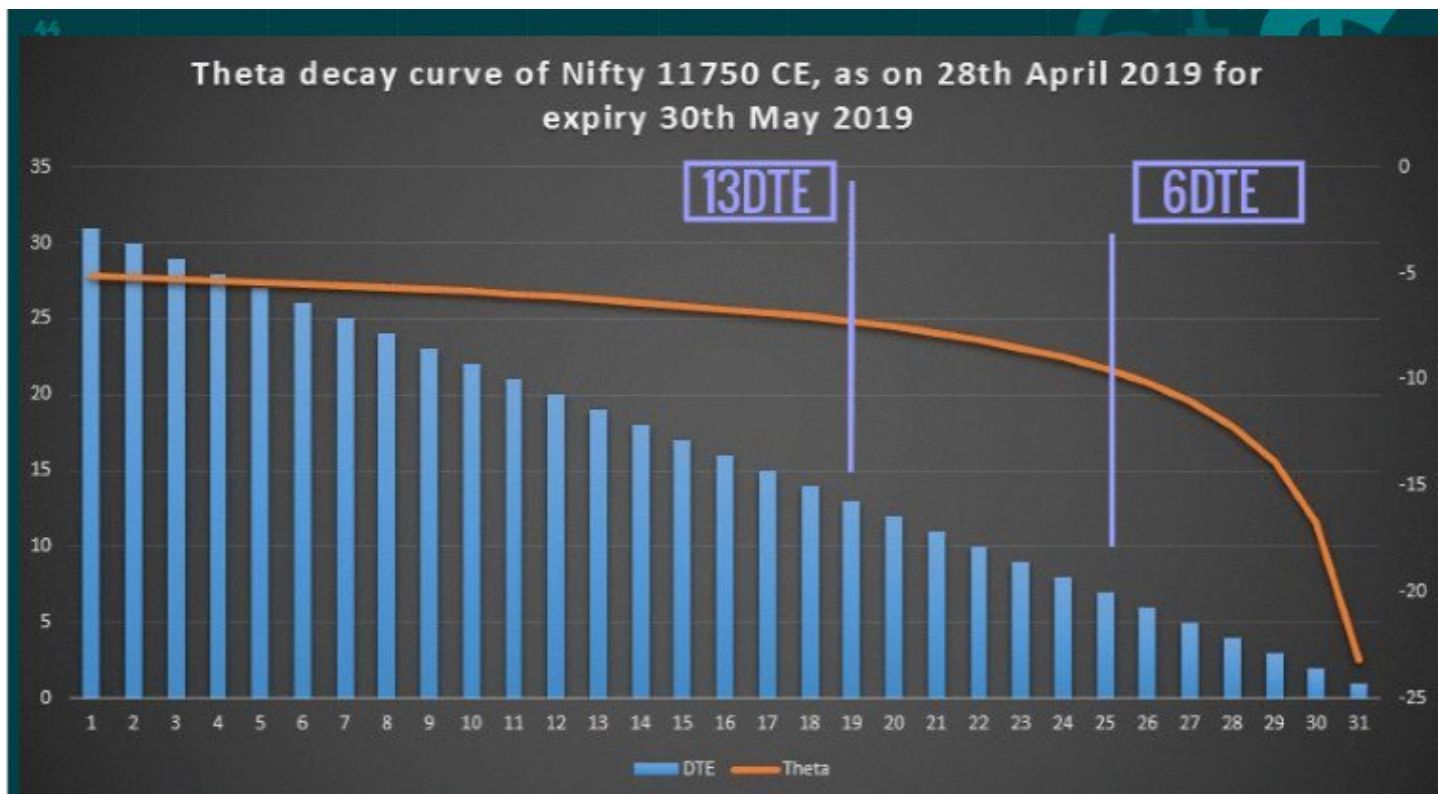
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Theta decay of the 11750CE

DTE	Theta
31	-5.129
30	-5.194
29	-5.263
28	-5.335
27	-5.411
26	-5.492
25	-5.577
24	-5.668
23	-5.764
22	-5.867
21	-5.978
20	-6.096
19	-6.224
18	-6.362
17	-6.513
16	-6.677
15	-6.857

14	-7.057
13	-7.279
12	-7.529
11	-7.812
10	-8.136
9	-8.513
8	-8.959
7	-9.497
6	-10.165
5	-11.025
4	-12.189
3	-13.896
2	-16.76
1	-23.221

Theta decay starts to accelerate at 13 DTE. From 6DTE, it just accelerates like crazy . This is true for all options



So our friend in this example was hit by a double whammy (triple actually, due to vega, but vega on a later day. Explaining vega will confuse if you are a novice).

1. He was playing pure extrinsic value
2. He has a high theta burn rate so close to expiry, the highest

Hence, his 31700 call was not moving up fast. It was continuously losing theta. Being an OTM option with pure extrinsic value, the theta burn was very high

So what is the solution ? An options buyer has to negate theta burn to a certain degree. Best way ? Should have used a bull call spread. What you lose due to theta in your bought option can be somewhat covered by theta gain in the sold option

I can or anyone knowing greeks can make a position almost theta neutral thru spreads

THIS IS HOW GREEKS HELP YOU !

I understand that when one opens an options book, the maths seems daunting. It's supposed to be, Black and Scholes won the Nobel prize for making that formula ■ To be very frank, if you ask me the total maths, I will also have trouble explaining

So, focus on the graphs. Using graphs is the easiest way to understand options. Whatever strategy you use, plot it graphically and play around with vols, DTE and direction

1. <https://t.co/LpbzrggvaH> (web based)
2. <https://t.co/5AHY0EmfH9> (software)

BOTH FREE, use them