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Let's Talk About The Greeks & Implied Volatility
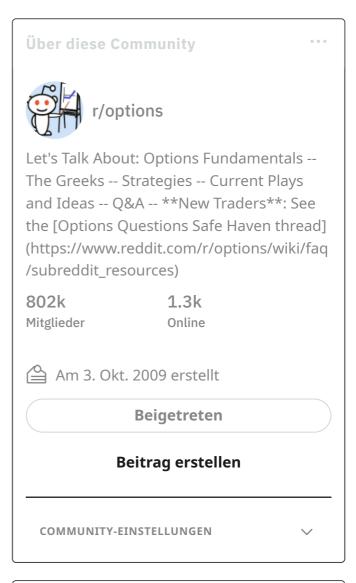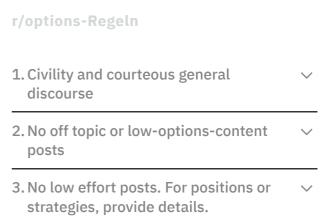
This post is about the Greeks and Implied Volatility and meant for beginners who don't understand them.

The Greeks. Socrates and Tom Hanks, that's what we're going to be learning about today.

Just kidding. This is my favorite options dad jokes btw. But actually, let's talk about the Greeks of options trading...Delta, Gamma, Theta, Gamma & Rho.

Delta - This is a measure of the change in an option's price or premium resulting from a change in the underlying asset. A high Delta option's premium will increase more than a low Delta option's premium for every $1 the stock gains; a high Delta option's premium will also fall more than a low Delta option's premium for every $1 the stock loses. For example, if the Delta is 0.6 then for every $1 the stock rises the premium will rise $0.60. Delta is also commonly used when determining the likelihood of

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an option being ITM at expiration. For example, an OTM call option with a 0.20 Delta has roughly a 20% chance of being ITM at expiration, whereas a deep ITM call option with a 0.95 Delta has a roughly 95% chance of being ITM at expiration. Lastly, Delta is used when determining directional risk. Positive Deltas are long (buy) market assumptions and negative Deltas are short (sell) market assumptions. Neutral Deltas are neutral market assumptions. There are three main things to keep in mind when considering Delta: - Delta tends to increase as expiration approaches for near or ATM options. - Delta is further evaluated by Gamma, which measures Delta's rate of change. - Delta can also change in reaction to implied volatility changes.

Gamma - This measures Delta's rate of change over time as well as the rate of change in the underlying asset. Gamma is used to help forecast price moves in the underlying asset. Since Delta values are constantly changing with the underlying asset's price, Gamma is used to measure the rate of change and provide traders with an idea of what to expect in the future. Since Gamma is a constant that represents the rate of change of Delta, it is useful for determining the stability of Delta, which can be used to determined the likelihood of an option reaching the strike price at expiration. A good way to think of Gamma is the measure of the stability of an option's probability. If Delta represents the probability of being ITM at expiration, Gamma represents

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Useful Information

Weekly Options Questions Safe Haven link, How to ask Smart Questions, Posting Guidelines

the stability of that probability over time. Gamma values are highest for ATM options and lowest for deep ITM or OTM options. For example, suppose that two options have the same Delta value but one option has a high Gamma and one has a low Gamma. The option with the higher Gamma will have a higher risk since an unfavorable move in the underlying asset will have an oversized impact. High Gamma values mean that the option tends to experience volatile swings, which is a bad thing for most traders looking for predictable opportunities. An option with a high Gamma and a 0.75 Delta may have less of a chance of expiring ITM than a low Gamma option with the same Delta. There are three additional things to keep in mind when considering Gamma - is the smallest for deep OTM and deep IMT options. - Gamma is highest when the option gets near the money. - Gamma is positive for long options and negative for short options.

Theta - This measures the rate of time decay in the value of an option or its premium. Time decay is the erosion of an option's value from the passage of time. As time passes, the chance of an option being profitable or ITM lessens. Time decay tends to accelerate as the expiration date of an option draws closer because there's less time left to earn a profit from the trade. Theta is always negative for a single option since time moves in the same direction. Theta is good for sellers and bad for buyers. For example, assume an

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investor is long an option with a Theta of -0.50. The option's price would decrease by $0.50 every day that passes, all else being equal. There are three additional things to keep in mind when considering Theta: - Theta can be high for OTM options if they carry a lot of implied volatility. - Theta is typically highest for ATM options since less time is needed to earn a profit with a price move in the underlying stock. - Theta will increase sharply as time decay accelerates in the last few weeks before expiration and can severely undermine a long option holder's position, especially if implied volatility declines at the same time.

Vega - This measures the risk of changes in implied volatility or the forward-looking expected volatility of the underlying asset price. Vega represents the amount that an option contract's price changes in reaction to a 1% change in the implied volatility of the underlying asset. While Delta measures the actual price changes, Vega is focused on changes in expectations for future volatility. Higher volatility makes options more expensive since there is a greater likelihood of hitting the strike price at some point. Vega tells us approximately how much an option will increase or decrease in the level of implied volatility. Option sellers benefit from a fall in implied volatility, and options buyers benefit from a rise in implied volatility. Long option traders benefit from pricing being bid up, and short option traders benefit from prices being dug down. This is

why long options have a positive Vega and short options have a negative Vega. For example, if the Vega is 0.25 and the implied volatility increase by 1%, then the option's bid-ask price should increase by $0.25. If the Vega of an option is greater than the bid-ask spread, then the option is said to offer a competitive spread. This is just one consideration, as too high of a spread could make getting into and out of trades more difficult and/or costly. There are three additional points to keep in mind when considering Vega: - Vega can increase or decrease without price changes of the underlying asset, due to changes in implied volatility. - Vega can increase in reaction to quick moves in the underlying asset. - Vega falls as the option gets closer to the expiration.

Rho - This measures the change in option premium due to interest rates. For example, if Rho is 0.25 and interest rates are increased by 1%, the price of the contract would increase by 0.25 / $25. If interest rates are decreased by 1%, the price of the contract would decrease by 0.25 / $25.

Rho is usually considered to be the least important of all options Greeks like a red-headed stepchild. Rho gets constant disrespect.

Implied Volatility

Implied volatility is a metric that captures the market's view of the likelihood of changes in a given security's price. Investors can use it to

project future moves and supply and demand, and often employ it to price options contracts.

Impact on Premiums: volatility represents the anticipated volatility of a stock over the life of the option. As these expectations change, so do the options premiums. As expectations/demand for an option increases, the implied volatility will also rise resulting in high-priced premiums. The opposite is also true, options with lower implied volatility will carry cheaper option prices. In order to make a successful premium trade, buy an option with low implied volatility and sell the option when the implied volatility increases.

Impact on Option Duration: Different types of options result in different reactions to implied volatility. Short-dated options will be less sensitive to implied volatility. Long-dated options will be more sensitive to implied volatility. This is because long-dated options have more time value priced into them whereas short-dated options have less. In order to make a successful premium trade for a short-dated option, buy an option with a higher intrinsic value because time value is less priced in. In order to make a successful premium trade for a long-dated option, buy an option with low implied volatility because the time value is more priced in; when implied volatility begins to increase, the higher sensitivity will result in a larger, more dramatic premium increase.

Impact on Strike Price: Each strike price will respond differently to changes in implied volatility. Near The Money (NTM) options are most sensitive to changes in implied volatility while options that are further Outside The Money (OTM) or further Inside The Money (ITM) be less sensitive to implied volatility changes.

When applied to the stock market, implied volatility generally increases in bearish markets, when investors believe equity prices will decline over time. IV decreases when the market is bullish, and investors believe that prices will rise over time. Bearish markets are considered to be undesirable, hence riskier, to the majority of equity investors.

Implied volatility does not predict the direction in which the price change will proceed. For example, high volatility means a large price swing, but the price could swing upward—very high—downward—very low—or fluctuate between the two directions. Low volatility means that the price likely won't make broad, unpredictable changes.

Use the VIX to help measure IV – VIX is a real-time market index that uses price data from near-dated, near-the-money SP500 index options to project expectations for IV over the next 30 days.

% of IV: What this represents is the annual one standard deviation range for the stock based on the options prices that may sound

confusing but let me give you an example, the IV on Tesla at 54% priced at $810 will represent one standard deviation range of $437 over the next year. If you recall from your fancy college Statistics class, one standard deviation is a measurement that represents about 68% of outcomes. When it comes to IV this just means there is an APPROXIMATE 68% chance that Tesla's stock currently priced at $810 will sell between $373 and $1247 one year from now. So IV does NOT help a trader determine direction, it simply measures a stock's uncertainty. When more uncertainty arises from Earnings Reports, Breaking News, CEO sell-offs, there is more demand for insurance so Options rates rise.

Why this stuff matters to an options trader

The Greeks help to provide important measurements of an option position's risks and potential rewards. Once you have a clear understanding of the basics, you can begin to apply this to your current strategies. It is not enough to just know the total capital at risk in an options position. To understand the probability of a trade making money, it is essential to be able to determine a variety of risk-exposure measurements.

Since conditions are constantly changing, the Greeks provide traders with a means of determining how sensitive a specific trade is to price fluctuations, volatility fluctuations, and the passage of time. Combining an understanding of the Greeks with

the powerful insights the risk graphs provide can take your options trading to another level.

Implied volatility is the market's forecast of a likely movement in a security's price. Implied volatility is often used to price options contracts: High implied volatility results in options with higher premiums and vice versa. Supply/demand and time value are major determining factors for calculating implied volatility. Implied volatility usually increases in bearish markets and decreases when the market is bullish.
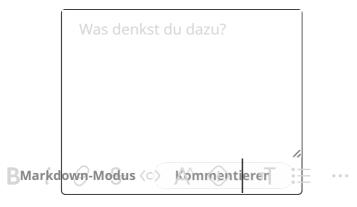
If you're new to options trading and want to learn more, check out my free beginner's course on YouTube.

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Kommentiere als Stefan2412

Was denkst du dazu?

B Markdown-Modus <c> Kommentieren

Sortieren Nach: Beste 🔽

PapaCharlie9 · 3M
Mod 🖤Θ

Good educational post. I think the point about how the greeks change constantly is one that everyone should pay attention to.

⬆ 18 ⬇ 💬 Antworten   Teilen   ···

maxoptionstrading **OP** · 3M

Thanks! The Greeks can be so misunderstood.

⬆ 6 ⬇ 💬 Antworten   Teilen   ···

scaggs12 · 3M

the greeks do change, keep your head on a swivel. expiration on a derivative book is always fun when the options become binomial, essentially futures or not.

⬆ 2 ⬇ 💬 Antworten   Teilen   ···

Baraxton · 3M

A discussion of charm and vanna is in order.

⬆ 2 ⬇ 💬 Antworten   Teilen   ···

DomeCollector · 3M

Where Cem

⬆ 1 ⬇ 💬 Antworten   Teilen   ···

Pigskin_Pete · 3M

Great breakdown.

I also use the OIC data to see how current IV measures up to past IV and to determine if premiums are priced cheaply or otherwise.

⬆ 5 ⬇　💬 Antworten　Teilen　•••

LordOfBirds · 3M

Nice link, thanks for sharing.

⬆ 1 ⬇　💬 Antworten　Teilen　•••

[deleted] · 3M

Yes. You learn all these religiously and sell CC on an option with Delta 0.08, thinking how smart you are and how secure your option is. And then the price of the stock jumps 20% and all your shares get assigned! :-)

⬆ 5 ⬇　💬 Antworten　Teilen　•••

bluchillipepper · 3M

If your delta is 0.08 you probably made a shitton of money anyways.

No sense in regretting lost profits, else I would be crying over not buying bitcoin and gamestop leaps...

⬆ 7 ⬇　💬 Antworten　Teilen　•••

Tryrshaugh · 3M

I would't be too sad about it, you probably still made a good return.

While I believe it's vital to understand greeks well, it's also important to understand that while options may be priced around a risk-neutral probability measure, the real probability measure of future returns of the underlying may be greatly different. Therefore, before selling CCs, you should ask yourself what kind of events can make the stock price jump brutally and if so, how probable is it for them to occur while your short call is still active? Then a simple expectation calculation tells you if it's worth it or not to sell a CC, according to your predictions. Now the real trick is to find stocks/ETFs/indices where you are able to reliably make these predictions and ideally time the market correctly.

⬆ 2 ⬇ 💬 Antworten Teilen ⋯

Azrenon · 3M

I was just looking for exactly this, thank you so much for taking the time to put this into fruition, I feel more like an accredited investor now, not just a fool with a brokerage lol

⬆ 2 ⬇ 💬 Antworten Teilen ⋯

↖ **[deleted]** · 3M · *vor 3M bearbeitet*

Unihuman0420 · 3M

Thank you for your wisdom.

⬆ 1 ⬇ 💬 Antworten Teilen ···

MyPusyTasteLikePepsi · 3M

What's a healthy Implied Volatility %
to not exceed when looking to
purchas 1 & 1/2year to 2 year call
LEAPs?

When people calculate their entry
and exit for point for an option
purchase do most people write out
on paper the math behind it to
calculate if you're getting a good deal
or do most people just do it in their
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⬆ 1 ⬇ 💬 Antworten Teilen ···

> **HoraceBecquet** · 3M
>
> > What's a healthy Implied Volatility
> > % to not exceed when looking to
> > purchas 1 & 1/2year to 2 year call
> > LEAPs?
>
> That really depends on the stock and
> the thesis you have on it.
>
> ⬆ 1 ⬇ 💬 Antworten Teilen ···

baddad49 · 3M

it's all Greek(s) to me!! :D

⬆ 1 ⬇ 💬 Antworten Teilen ···