Disclosures

- Options trading entails significant risk and is not appropriate for all investors. Certain complex options strategies carry additional risk. Before trading options, please read Characteristics and Risks of Standardized Options, and call 800-544-5115 to be approved for options trading. Supporting documentation for any claims, if applicable, will be furnished upon request.

- Examples in this presentation do not include transaction costs (commissions, margin interest, fees) or tax implications, but they should be considered prior to entering into any transactions.

- The information in this presentation, including examples using actual securities and price data, is strictly for illustrative and educational purposes only and is not to be construed as an endorsement, recommendation.

- Active Trader Pro PlatformsSM is available to customers trading 36 times or more in a rolling 12-month period; customers who trade 120 times or more have access to Recoginia anticipated events and Elliott Wave analysis.

- Greeks are mathematical calculations used to determine the effect of various factors on options.
Goal of this webinar
Demystify what Options Greeks are and explain how they are used in plain English.

What we will cover:

- What the Greeks are
- What the Greeks tell us
- How the Greeks can help with planning option trades
- How the Greeks can help with managing option trades
The Greeks

What the Greeks are:

- Delta
- Gamma
- Vega
- Theta
- Rho

But what do they mean?
Greeks
What do they tell me?

In simplest terms, Greeks give traders a theoretical way to judge their exposure to various options pricing inputs.

**Delta** – A measure of the rate of change in an options theoretical value for a one-unit change in the price of the underlying security.

**Gamma** – A measure of the rate of change in an options delta for a one-unit change in the price of the underlying. In other words, the rate of change in delta. Measured in Delta not dollars

**Vega** - A measure of the rate of change in an option’s theoretical value for a one-unit change in implied volatility.

**Theta** - A measure of the rate of change in an option’s theoretical value for a one-unit change in time to the option’s expiration date.

**Rho** - A measure of an option’s theoretical sensitivity to changes in the risk-free interest rate.
Extrinsic Value

Option Greeks only affect extrinsic value (time value) of an option!

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**Greeks**

*D Delta, Delta, Delta... How it can help ya, help ya, help ya...*

There are 3 common ways traders may use Delta in options trading:

1. It can be used to tell you how much your option contract’s *price* will change based on a dollar move in the underlying

2. It can give you share equivalency, i.e. how many shares of the underlying your option contract is equivalent to

3. It can give you an approximation of the probability that the option contract will expire in/out of the money

**Example:** A long call with a 50 Delta; should move approximately $0.50 with a $1 move in the underlying (all else being equal):

- This is the equivalent of being long 50 shares of the underlying, and has a 50% chance of being in/out of the money at expiration
Greeks

Gamma

Gamma tells you how much the Delta should change based on a $1 move in the underlying.

Remember, Gamma is measured in Delta!!!

• All other Greeks are measured in dollars. Its “job” is to get the Delta to 0 or 100 at expiration. In other words, either the option will be worthless or the equivalent of 100 shares of the underlying at expiration.

What does this mean?

• Ex. If your At The Money call contract has 50 Delta & 10 Gamma, and the stock moves up $1 (all else being equal), your option should now have 60 Delta and a lower Gamma ~7.

The Gamma will decrease in this example because now the Gamma doesn’t have to work as hard to get Delta to 0 or 100 at expiration!
Greeks

**Theta**

Theta tells you how much the option contract’s value should change based on 1 day’s passage of **time**.

What does this mean?

- Ex. If you have Theta of .05, your option’s price will theoretically lose ~$0.05 of for one day's time passage, all else being equal.

**Remember!!!** Greeks are not static! $0.05 loss today could be significantly different next day/week/month. At the Money options experience non-linear time decay, and it’s decay accelerates around the last 30-45 days of the contract’s life!
Greeks

Vega

Vega tells you how much the option contract’s value should change based on 1 percentage point change in **Implied Volatility**.

What does this mean?

• Ex. If you have Vega of .05, your option’s price should gain or lose $0.05 for a 1% change in Implied Volatility, all else being equal.

Remember!!! Implied Volatility is the “X factor” in options pricing. If there is more demand for an option, IV should increase and therefore so will the option’s prices. If there is less demand for an option, IV should decrease and thus the options prices should decrease as well. Again, remember a change in IV should directly affect the options price, but it will also impact all of the Greeks.
## Greeks

### Rho

Rho tells you how much the option contract’s value should change based on 1 percentage point change in **Interest Rates**.

What does this mean?

- Ex. If you have Rho of .10, your option’s price should gain or lose $0.10 for a 1% change in interest rates, all else being equal.

**Remember!!!** Interest rates can move gradually, i.e. 0.25% per quarter, meaning that it would take a full year of 0.25% rises to equal 1%. This is why LEAP option traders are generally the most concerned with Rho.
It is important to understand that the Greeks do not work in a vacuum. They are constantly changing, and a change in one can affect all the other Greeks!
Greeks

How can the Greeks help me plan a trade?

• The Greeks give you a way to measure the theoretical exposure of an option or option strategy to the various risks it is exposed to. Not only do Greeks help you understand these risks but they can help you to tailor a trade to your outlook.

Example:

• You want to minimize your exposure to **directional movement**.

• What do you do?
Greeks

How can the Greeks help me plan a trade?

Answer:

- You may consider using the Greek Delta to plan a trade with as close to Zero Delta as possible.
- It can be very difficult, or even impossible, to completely neutralize some exposures, but the Greeks can help you measure how much theoretical exposure you will have.

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<th>Bid</th>
<th>Ask</th>
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Greeks

How can the Greeks help me manage a trade?

- You can use the Greeks to help assess your theoretical exposure.
- If we continue with our last example, as time goes by we can see how our directional exposure has changed by looking at what our Delta has become. We can use that information to help you determine if you may want to consider adjusting the trade (and therefore the Delta), or leave it alone.

Let’s look at our previous example after the passage of some time.
Greeks

How can the Greeks help me manage a trade?

Original Delta Exposure:

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New Delta Exposure:

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<td>-51.922</td>
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You started with **Positive** 4.478 Delta, and now you are **Negative** 51.922 Delta! Is this still a trade you want to be in?
Greeks

In Summary:

• The Greeks can help you examine your exposure to various option’s centric risks.

• Greeks are dynamic and constantly changing.

• Greeks can help you plan your trades to take advantage of, or avoid/minimize, the effects of these risks.

• Greeks can help you manage your trades by showing how the trade’s various exposures have changed regarding:
  • Time (Theta)
  • Price (Delta/Gamma)
  • Volatility (Vega)
  • Interest Rates (Rho)
Option Greeks Demystified

This concludes today’s Presentation

Thank you for attending!

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