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The 'Mathless' Greeks – Learning the Option Greeks Using Metaphor

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As with all investments, your capital is at risk

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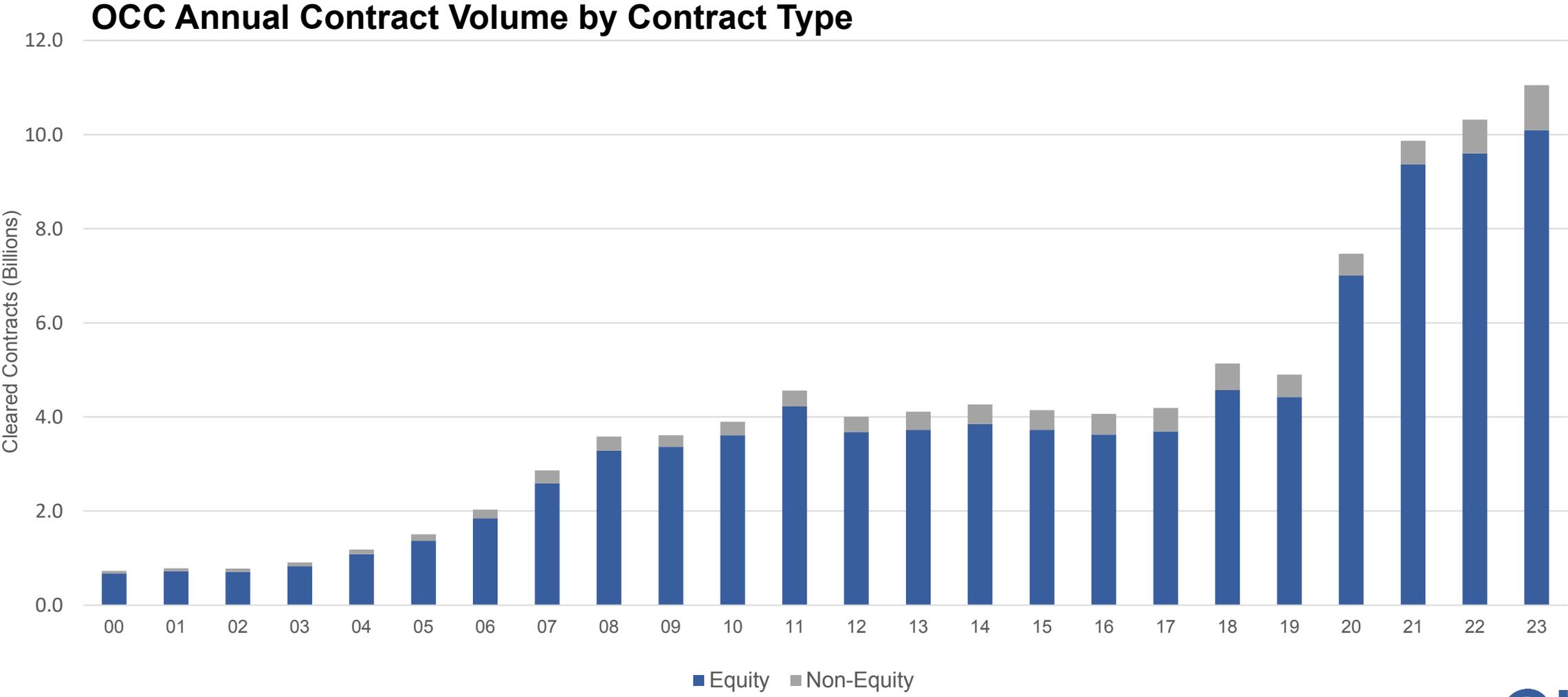


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Annual Options Volume 2000-2023

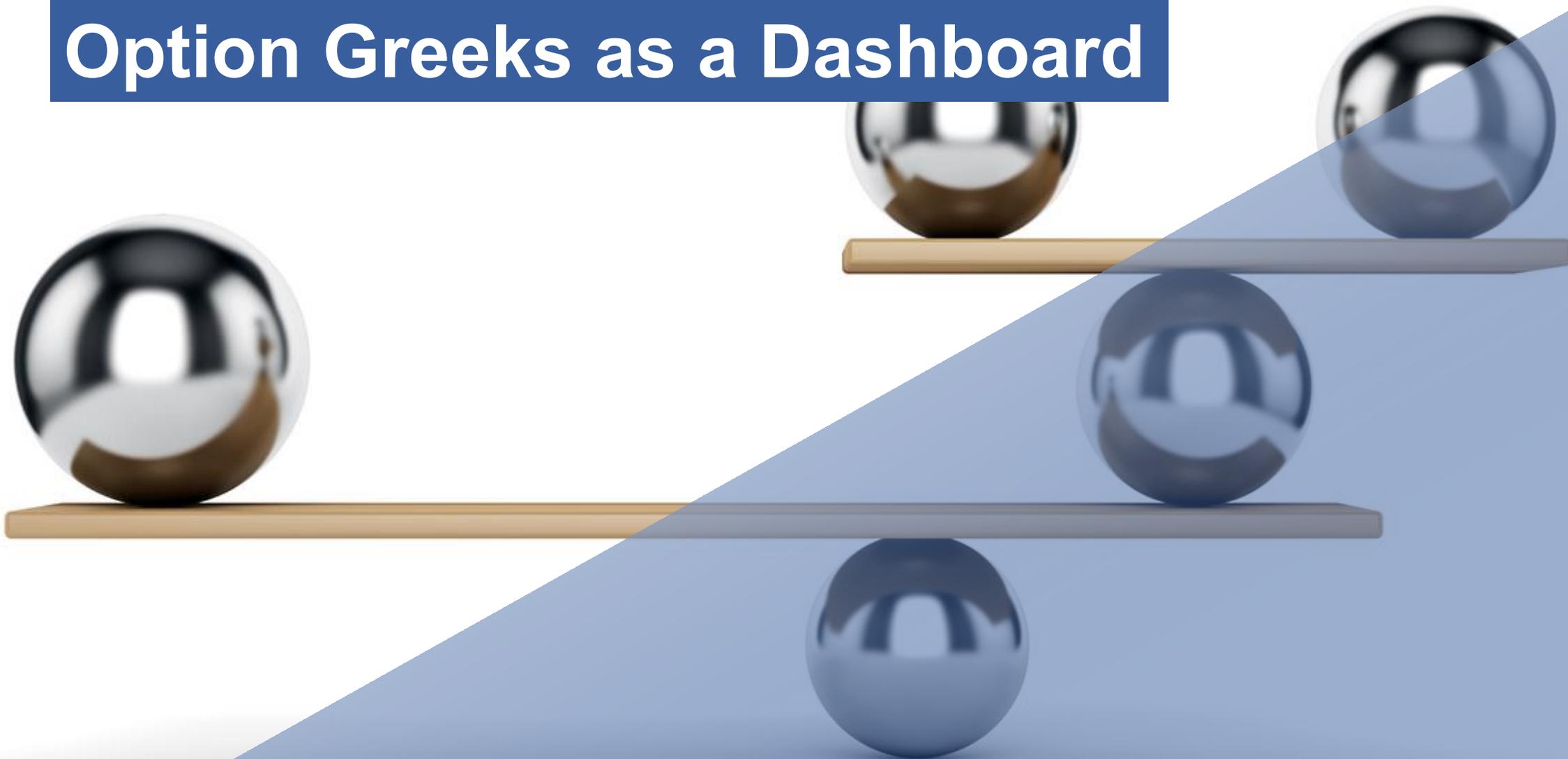


Presentation Outline

- The Full Greeks Dashboard
- Definition of Delta
- Delta through Metaphor
- Definition of Gamma
- Gamma through Metaphor
- Definition of Theta
- Theta through Metaphor
- Q & A



Option Greeks as a Dashboard



The Option Greeks as a Dashboard

Hear:

Delta



Gamma



Theta



Think:

Speed

Acceleration

Decay



Consider option Greeks to be like the dashboard of a car. They can help you to monitor risk holistically. You don't need to open the hood of your car to see if it is running. **Option Greeks give you that same ability with your option positions.**

The Definition of Delta

A man in a blue suit is sitting at a desk in a bright office. He is looking at a laptop screen and has his hand on his chin, appearing to be in deep thought. On the desk, there is a white coffee cup and some papers. The background shows a white shelf with a potted plant. A large blue diagonal shape is overlaid on the right side of the image.

Option Delta – A Technical Definition



Delta: An Option's value sensitivity to stock price

The *expected* change in an option's price (up or down) for each \$1.00 move in underlying security price

Deep in-the-money options

- High Delta approaching 100% (or 1.00)

At-the-money options

- Deltas around 50% (or .50)

Far out-of-the-money options

- Low Delta approaching 0% (or 0)



Delta

Delta Through Metaphor



Delta Explained Through Metaphor

Imagine Delta like a speedometer for an options portfolio.

Just like a car's speedometer tells you how fast you're going, Delta can tell you how much an option's price should theoretically change for every one-point move in the underlying.



Delta Explained Through Metaphor

Just like speed in a car can change, an option's Delta can change as well.

The faster you go (the higher an option's Delta) the more sensitive to changes in the underlying that option's price will be.

Just like movement in a car going 100 Mph reacts much differently to **1** movement than a car going 10 Mph - so too does the movement in an option price with 100 Delta versus an option with a 10 Delta.



The Definition of Gamma



Option Gamma – A Definition

Gamma: Delta's sensitivity to stock price

The anticipated change in the Delta value for a \$1.00 move in the underlying security

- All other pricing factors constant
- In decimal form (e.g., .002)
- **Adjustment to Delta**

Only options have Gamma

Gamma

Gamma through Metaphor



Gamma Explained Through Metaphor

Think of Gamma as the potential change in an option's Delta.

Gamma measures how quickly the Delta of an option can change.

When Gamma is high, an option's Delta can accelerate or decelerate quickly in response to changes in the stock price.



Gamma Explained Through Metaphor

High Gamma options have high potential to change quickly.

You can think of different Gamma profiles of options like different types of cars.

Sports cars have the potential to change direction quickly, or accelerate or decelerate rapidly. This is similar to how options with high Gamma profiles can react to movement in the underlying.

Gamma Explained Through Metaphor

Low Gamma options have low potential to change as quickly.

You can think of different Gamma profiles of options like different types of cars, or trucks.

Large trucks require significant force to accelerate or decelerate. This is similar to how options with low Gamma profiles can react to movement in the underlying.



The Definition of Theta



Option Theta (Time Decay) – A Definition



Theta: An option's value sensitivity to time

Expected time decay in option value

- With the passage of 1 day
- Expressed in decimal form (-.080)
- Decay is per calendar day, not per trading day
- Represents cash amount per option
- All other pricing factors constant

Calls and puts both have negative theta amounts



Theta

Theta Through Metaphor



Theta Explained Through Metaphor

Theta is the theoretical decay of an option's value over the course of one day.

Consider theta like the sand in an hourglass, constantly moving from one side of the hourglass to the other.

As time passes, and at any given moment, there is less sand in the upper part of the hourglass, and more sand in the bottom part of the hourglass. You can think of this like options decay.



Theta Explained Through Metaphor

Unlike the hourglass, however, Theta is not a pure linear decay function.

As time passes and option expiration approaches, the Theta of options accelerates.

In this way, you can think of Theta like a race where a runner speeds up as they get closer to the finish line.



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