Greeks and Their Role
Lesson 7

Beginner Options Teaching Lessons

Visual Greeks

SHADOW TRADER

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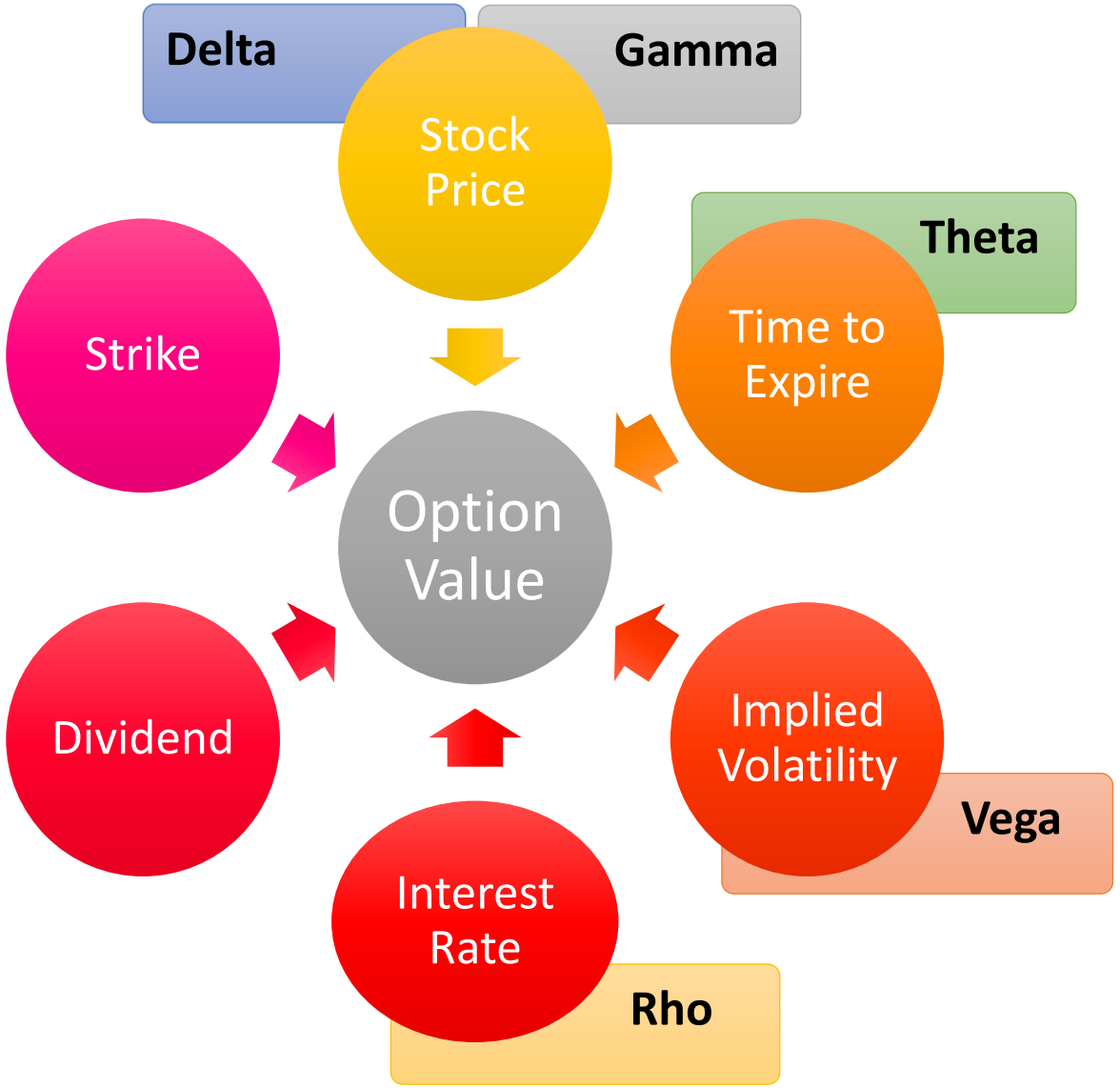
Topics for this Lesson:

- Review
- Underlying Price Correlation
- Option price impact calculations
- Monitoring trade by the Greeks
  - Trigger points

Overview & Review



- A note before concerning the greeks…

- The greeks are derived values calculated using the “**last**” price that an option traded at
- They are expressions of the EXPECTED change in an option’s value based on each of the variables that are considered in any option pricing model
- Be careful – the values displayed may NOT accurately predict the change in an option’s price in the future

Definition - Delta

- Delta: The amount by which an option's value will change if the underlying equity moves by 1 dollar
- A positive delta value optimizes a bullish trend
- A negative delta value optimizes a bearish trend
- Delta values can range from 0.0 to 1.0 for long calls and short puts (bullish), and from -1.0 to 0.0 for long puts and short calls (bearish)
    - Therefore, an increase in an equity's price creates an INCREASE in your portfolio value for long calls and short puts, and a DECREASE in value for long puts and short calls
    - A decrease in equity value would have exactly the opposite effect

Definition - Gamma

- Gamma: The **rate of change of delta** with respect to the underlying equity
- Gamma is greatest for the strike price that is at the money for a given expiration series
- For a given strike price, gamma decreases as you go further out in time
- Gamma reaches it's maximum at options expiration for the at the money option
- Mathematically it is the first derivative of delta
- *Gamma can give you an idea of the sensitivity of delta and how it can change*

Definition – Theta

- Theta: Measures the **extrinsic value decay** of a position

- If theta is a negative number (e.g. -0.08) it means that the option will lose 8 cents per day if all else remains unchanged

- If theta is a positive value, it means that the position will be GAINING on a daily basis if all else remains unchanged

- Theta decays the EXTRINSIC value of an option's price

- Short term at the money options have the largest theta values

- The difference between theta values of shorter term options near the money can be significant

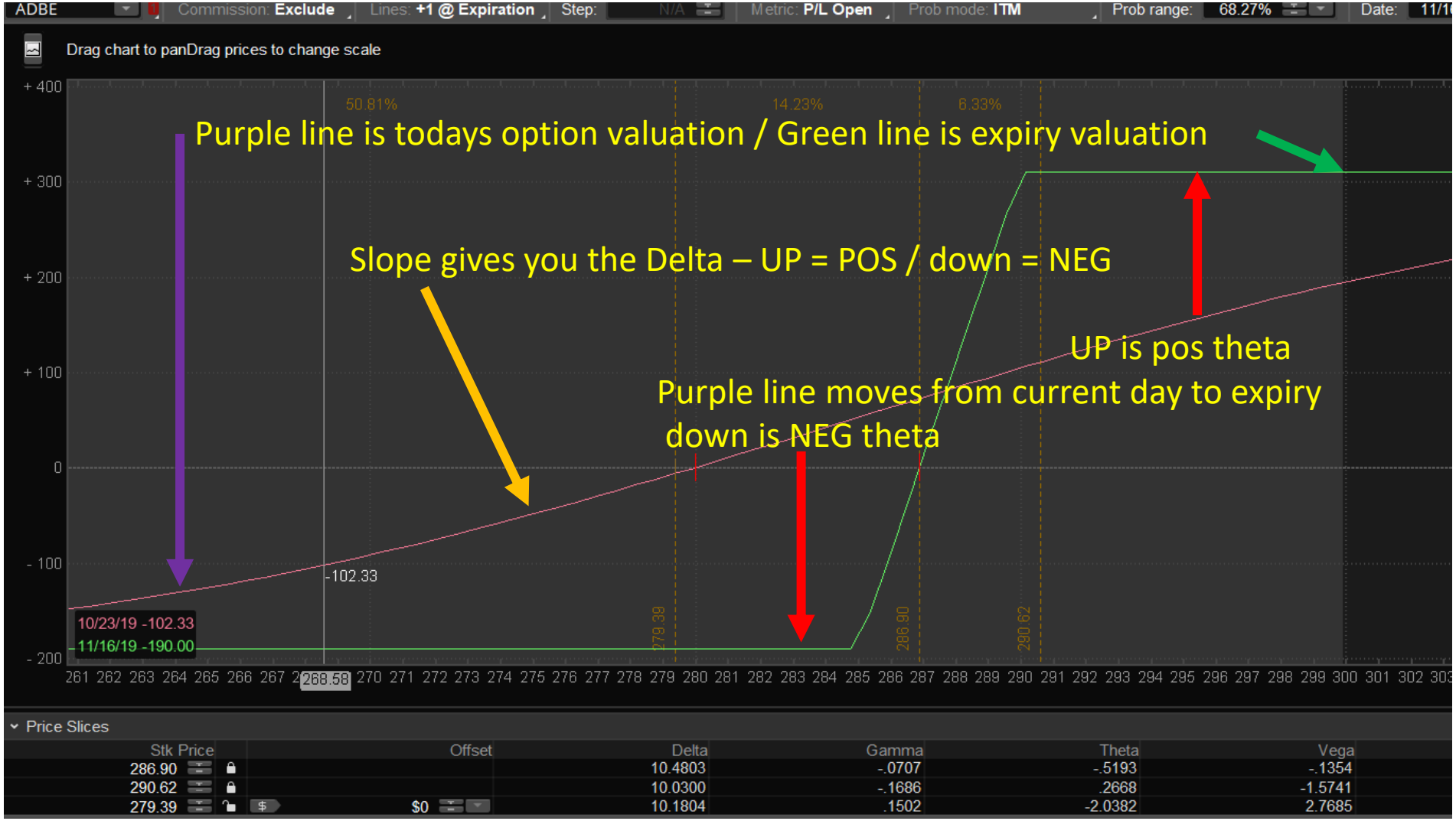
Definition - Vega

- Vega: Quantifies the impact of **implied volatility changes** on the extrinsic value of an option's price
- If implied volatility increases, the extrinsic value of the option's price (call and/or put) will increase, and if implied volatility decreases the extrinsic value of the option's price (call and/or put) will decrease
- The value of vega taken from an option chain represents the amount by which an option's extrinsic value changes when implied volatility changes by +/- one percentage point
- Vega is positive for long options (increases in implied volatility increase the extrinsic value of the option which is desired since a long option is owned)
- Vega is negative for short options (a decrease in implied volatility decreases the extrinsic value of the option which is desired since a short option was sold)

Conclusion - Determining what impacted your trade

osition	U/L Price	Mark	Mark Chg	Mark % Chg	Today's Mkt Gain	Cost Basis	YTD Mkt Gain	Delta	Gamma	Vega	Theta
-5 Apr11 122/123/136/1	129.29	0.175	-0.025	-12.50%	12.50	0.32	72.50	2.31	-6.47	-10.50	3.11
+5 Apr11 122 puts								65	15.62	40.97	-19.33
-5 Apr11 123 puts								75	-17.86	-45.31	20.82
-5 Apr11 136 calls		0.12	-0.045	-27.27%	22.50	0.61	245.00	-35.90	-15.75	-23.89	5.90
+5 Apr11 137 calls		0.075	-0.01	-11.76%	-5.00	0.43	-177.50	24.11	11.52	17.74	-4.29

Off of the presentation to TOS demonstration



The Greeks - Conclusion

- All options will expire at options expiration. The question is: will they be in the money or not?
- In the short term however, the value of an option will be affected more by the underlying equity's price movement and/or volatility than time decay
- In the money options have intrinsic value and extrinsic value
- Extrinsic value is commonly known as time value