IBKRWEBINARS.COM

February 17, 2022

OCC

What to Know Before Buying Options

Mathew Cashman
Principal / OCC Investor Education
OCC

Exchange and Industry Sponsored Webinars are presented by unaffiliated third parties. Interactive Brokers LLC is not responsible for the content of these presentations. You should review the contents of each presentation and make your own judgment as to whether the content is appropriate for you. Interactive Brokers LLC does not provide recommendations or advice. This presentation is not an advertisement or solicitation for new customers. It is intended only as an educational presentation.

IBKRWEBINARS.COM

IBKRWebinars
by InteractiveBrokers

Disclosure:

Options involve risk and are not suitable for all investors. For information on the uses and risks of options, you can obtain a copy of the Options Clearing Corporation risk disclosure document titled Characteristics and Risks of Standardized Options by calling (312) 542-6901.

Futures are not suitable for all investors. The amount you may lose may be greater than your initial investment. Before trading futures, please read the CFTC Risk Disclosure. For a copy visit interactivebrokers.com.

There is a substantial risk of loss in foreign exchange trading. The settlement date of foreign exchange trades can vary due to time zone differences and bank holidays. When trading across foreign exchange markets, this may necessitate borrowing funds to settle foreign exchange trades. The interest rate on borrowed funds must be considered when computing the cost of trades across multiple markets.

The Order types available through Interactive Brokers LLC's Trader Workstation are designed to help you limit your loss and/or lock in a profit. Market conditions and other factors may affect execution. In general, orders guarantee a fill or guarantee a price, but not both. In extreme market conditions, an order may either be executed at a different price than anticipated or may not be filled in the marketplace.

There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations.

- IRS Circular 230 Notice: These statements are provided for information purposes only, are not intended to constitute tax advice which may be relied upon to avoid penalties under any federal, state, local or other tax statutes or regulations, and do not resolve any tax issues in your favor.

- Interactive Brokers LLC is a member of NYSE FINRA SIPC

OIC The Options Industry Council

What to Know Before Buying Options

Mat Cashman
Principal, Investor Education
OCC

www.OptionsEducation.org

Business Sensitive

Disclaimer

Options involve risks and are not suitable for everyone. Individuals should not enter into options transactions until they have read and understood the risk disclosure document, Characteristics and Risks of Standardized Options, available by visiting OptionsEducation.org, or by contacting your broker, any exchange on which options are traded, or The Options Clearing Corporation at 125 S. Franklin St., #1200, Chicago, IL 60606.

In order to simplify the calculations used in the examples in these materials, commissions, fees, margin, interest and taxes have not been included. These costs will impact the outcome of any stock and options transactions and must be considered prior to entering into any transactions. Investors should consult their tax advisor about any potential tax consequences. Any strategies discussed, including examples using actual securities and price data, are strictly for illustrative and educational purposes only and are not to be construed as an endorsement, recommendation, or solicitation to buy or sell securities. Past performance is not a guarantee of future results.

The strategy suggestions presented are the ideas of the presenter and not those of The Options Clearing Corporation, or The Options Industry Council, an industry resource provided by The Options Clearing Corporation (collectively "OCC"). **OCC makes no recommendation with respect to any financial education firm or presenter.** OCC does not control, nor has it developed or reviewed the relevant content, and does not make any warranty, express or implied, as to the accuracy, usefulness, timeliness or even the continued availability or existence of information created or maintained by others. **Opinions expressed by others are not necessarily those of OCC, nor does OCC endorse, warrant, or guarantee products, services or information described or offered by such firms.**

Copyright © 2022. The Options Clearing Corporation. All rights reserved.

Business Sensitive

OIC℠

Presentation Outline

- Rights vs. Obligations
- Exercise and Assignment
- Introduction to the Greeks
- Intrinsic vs. Extrinsic Value
- Historic vs. Implied Volatility

Business Sensitive

Rights of Option Buyers

Rights of Option Buyers

- Buyers of **call** options have the right to buy stock at the strike price
- Buyers of **put** options have the right to sell stock at the strike price
    - *IF they **exercise** their option contract*
- To exercise, the buyer issues an exercise notice to their brokerage firm (or Auto-ex)
- For this right, buyers pay a premium—the cost of the option (usually multiplied x $100)
    - *Example: an option premium of $3.00 (x $100) = $300*
- The option premium also represents the amount of risk at stake for the buyer for any given strategy

Business Sensitive

What is Exercise?

Example: XYZ trading $79.00

Investor buys 1 XYZ September 20, 2022 80 call paying $1.50

On September 20th, XYZ now trading $84.00 & buyer exercises this call

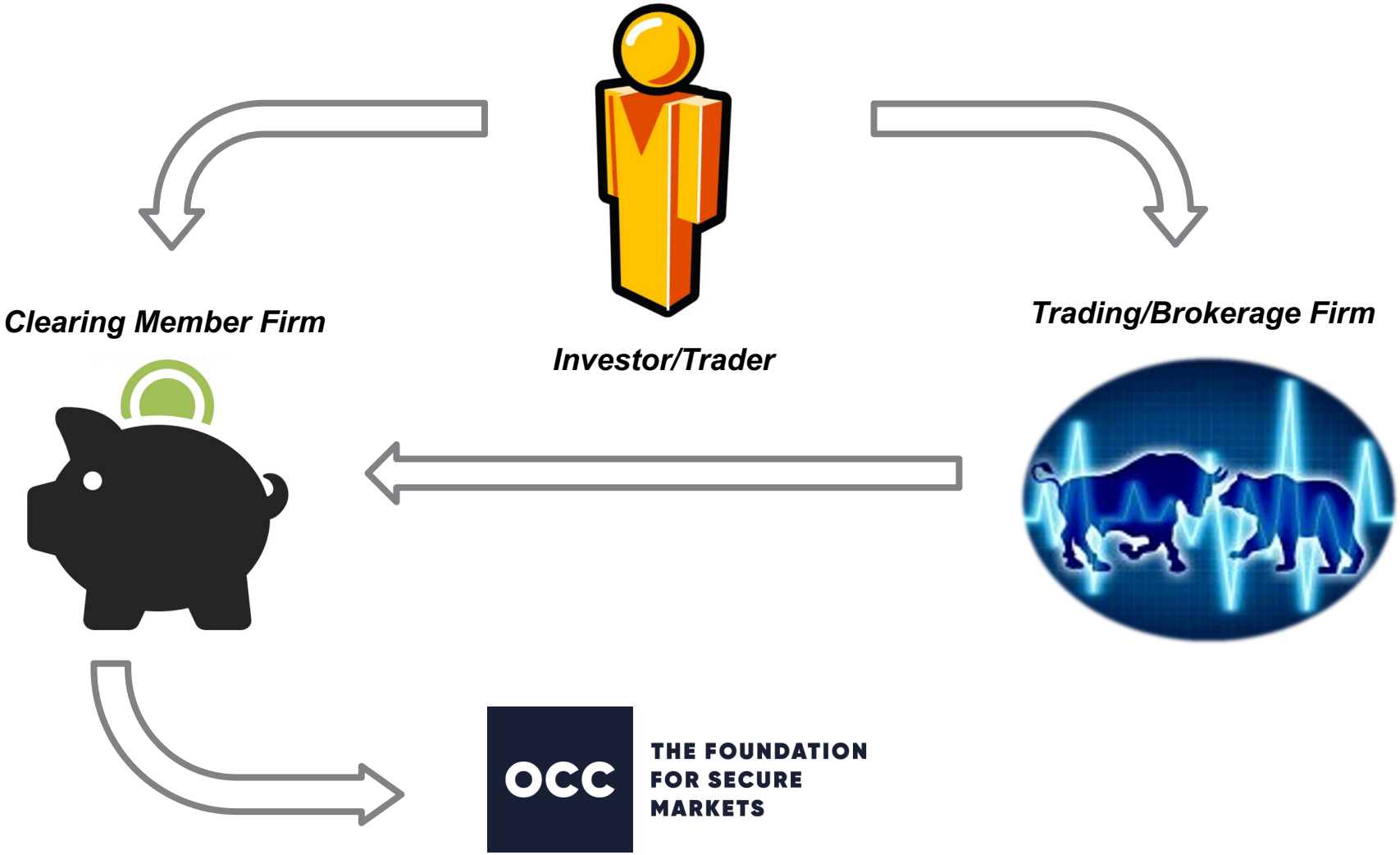
- Investor pays strike price x $100 (80 x $100) or $8,000 and takes delivery of 100 shares XYZ (valued at $8,400)
- Unrealized profit is $250 ($8,400 - $8,000 - $150 premium already paid)
- Investor now has risk/reward of being long 100 shares from $81.50

—OR—

- Option now worth $4.00 and investor sells back to market to close position (est. profit $250)

Business Sensitive

Exercise Process



Business Sensitive

Introduction to the Greeks

Introduction to the Greeks

Δ	**Delta**	*Expected change in option value with respect to changing underlying stock price*
Γ	**Gamma**	*Expected change in option **delta** with respect to changing underlying stock price*
Θ	**Theta**	*Expected change in option value with passage of time (**time decay**)*
K	**Vega**	*Expected change in option value with respect to changing implied volatility*
P	**Rho**	*Expected change in option value with respect to changing risk-free interest rate*

Business Sensitive

Delta and Direction

Introduction to the Greeks – Delta

Delta: Option sensitivity to stock price

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

Deep in-the-money options

- High deltas approaching 100% (or 1.00)

At-the-money options

- Deltas around 50% (or .50)

Far out-of-the-money options

- Low deltas approaching 0% (or 0)

Business Sensitive

Introduction to the Greeks – Delta

Calls have <u>positive</u> (long) deltas

- Positive correlation to underlying stock price change
- Stock price ⬆ → call delta ⬆
- Stock price ⬇ → call delta ⬇
- Call deltas range from 0 to +1.00

Puts have <u>negative</u> (short) deltas

- Negative correlation to underlying stock price change
- Stock price ⬆ → put delta ⬇
- Stock price ⬇ → put delta ⬆
- Put deltas range from 0 to –1.00

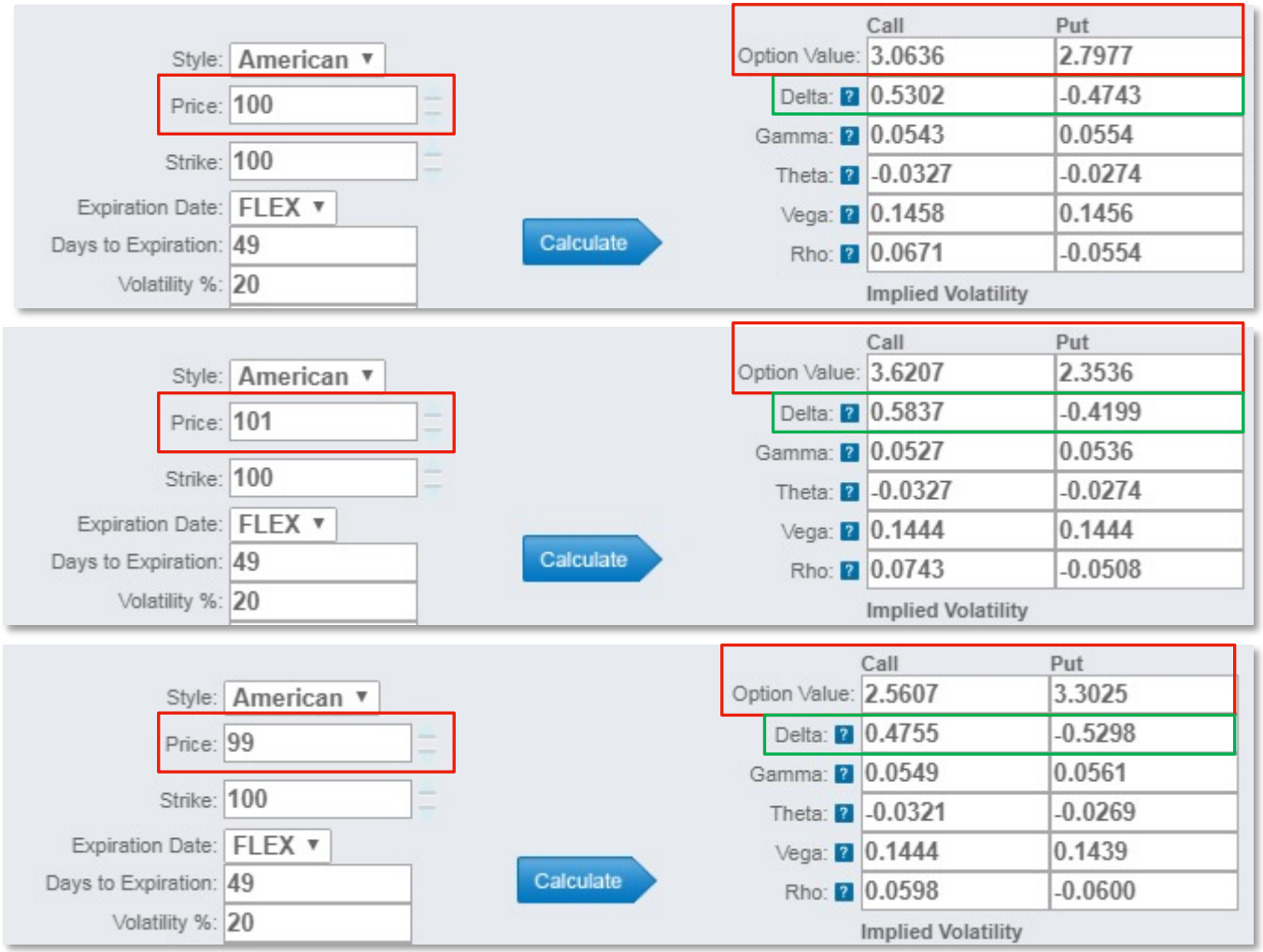
Business Sensitive

Introduction to the Greeks – Delta

Starting Point:
Stock = $100

Stock up $1.00
Stock = $101

Stock down $1
Stock = $99



Business Sensitive

Introduction to the Greeks – Delta

Another way investors might use delta is to determine **probability of option finishing ITM**

- Buying a 70-delta call could indicate a 70% chance of the option finishing ITM, and
- Selling a 30-delta call could indicate a 70% chance of the option finishing OTM

ITM/OTM does not equate **PROFITABILITY**

Business Sensitive

Theta and Time

OIC

Introduction to the Greeks – Theta

Theta: Option value's sensitivity to time

Expected time decay in option value

- With the passage of 1 day
- Expressed in decimal form (-.080)
- Represents cash amount per option
- All other pricing factors constant

Generally, long option positions have negative theta while short option positions have positive theta

Theta

Business Sensitive

Introduction to the Greeks – Theta

- Decay is per **calendar day**, not per trading day
- Theta is “rent” buyers pay and sellers receive:
  - Buyers want time / iterations for favorable move in stock price
  - Writers sell that time
- Buyers hope delta gains will offset theta loss
- Only time value decays
  - At expiration option worth only intrinsic value (if any)

Business Sensitive

Introduction to the Greeks – Theta

An option is trading today at $3.50

- Theta of -$.030 (-$.03)
- Contract is worth $3.50 x 100 shares = $350.00

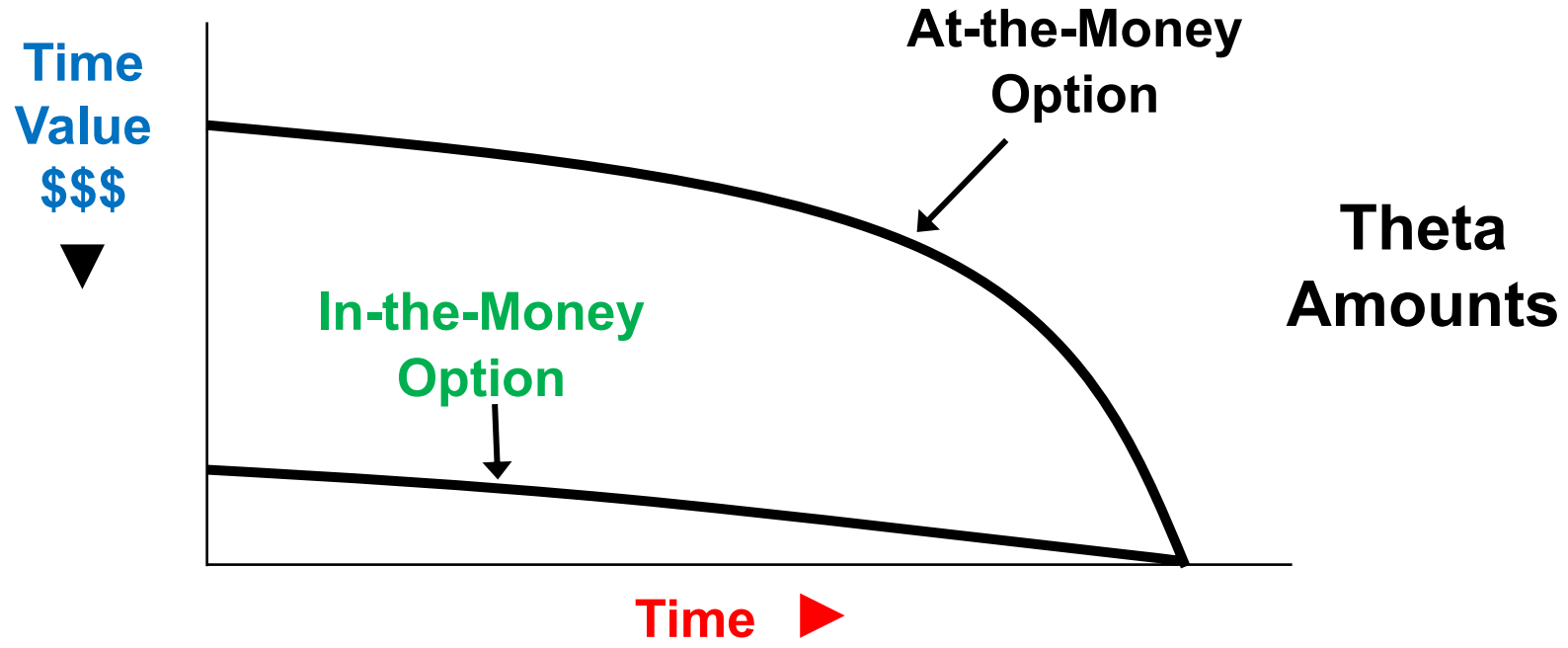
Expected value tomorrow = $3.50 - $.03 = $3.47

- Contract is worth $3.47 x 100 shares = $347.00
- Theta -$.03 → $3.00 loss per contract

Assuming other pricing factors constant

Business Sensitive

Introduction to the Greeks – Theta



Overall rate of time decay is exponential (it **accelerates** towards expiry)

ATM = decay exponential = volatility is the key decay factor

ITM = decay linear = cost-of-carry (interest rate) is the key decay factor

Business Sensitive

Intrinsic Value vs. Extrinsic Value

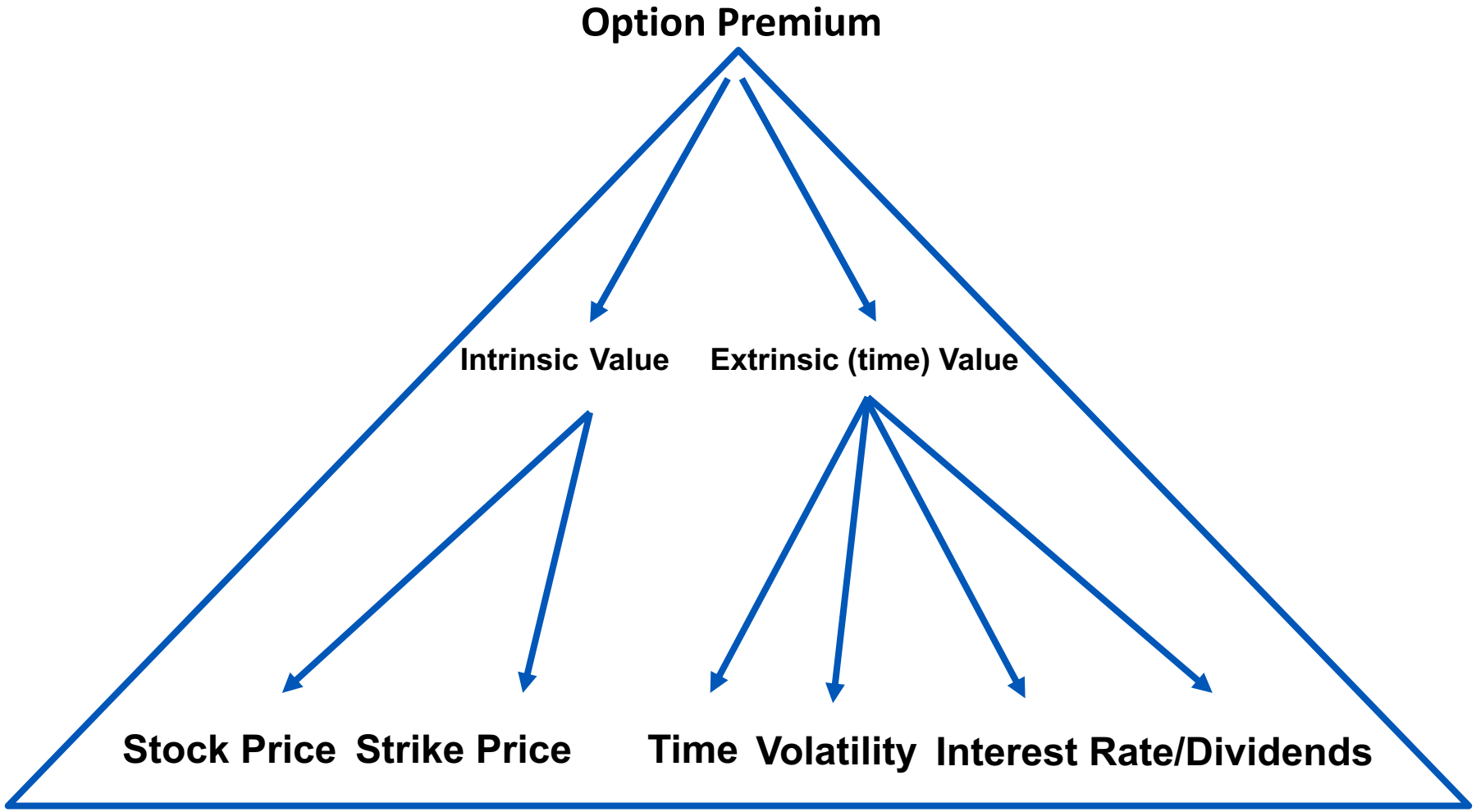
Intrinsic Value vs. Extrinsic (time) Value

Option Premium: Intrinsic Value (if any) + Extrinsic (time) Value

- Intrinsic value
  - in-the-money amount
- Extrinsic (time) value
  - any premium in excess of intrinsic value
  - decays with time as expiration approaches (“time decay”)
- At expiration option worth only **intrinsic value**
  - no time remaining
  - when exercised, only the intrinsic value of an option is received/delivered—time value (if any) is **lost**

Business Sensitive

Intrinsic Value vs. Extrinsic (time) Value



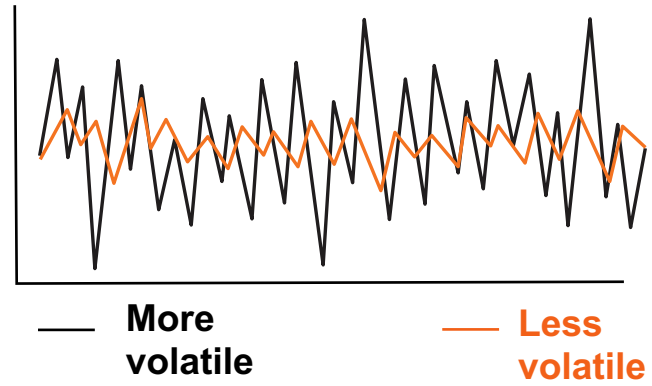
Business Sensitive

Types of Volatility

Volatility: Two Different Types

Historical (delivered) Volatility (HV):

- Price movement of the stock in the past
- Factual/measurable/quantifiable
- No future guarantees



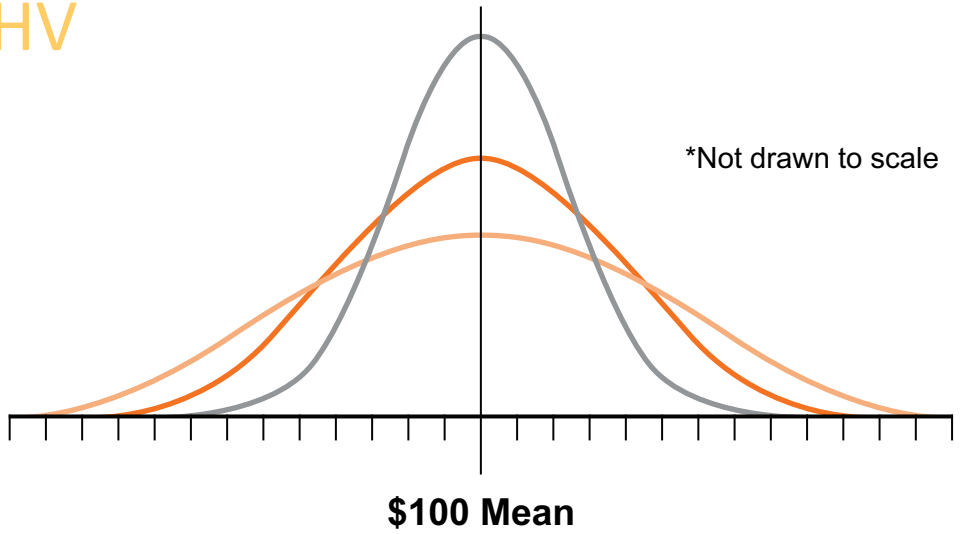
Implied Volatility (IV):

- Volatility that is in the market price of an option
- Implied volatility is the market's forecast of the future volatility of the stock's price.

Business Sensitive

Comparing HV Distributions

- Compare distributions of three stocks – each with different volatility
  - Stock A = 15% HV
  - Stock B = 25% HV
  - Stock C = 35% HV



Business Sensitive

Implied vs. Historical Volatility

- Will an option's implied volatility return to its underlying stock's historical volatility level?
  - Not necessarily
  - Not safe to assume it will
- Why be concerned about implied volatility?
  - Directly affects market value of your options (time value)
  - Not predictable
  - Can explain option price movement you might not expect or understand

Business Sensitive

Implied Volatility: Effect on Option Prices

- A change in underlying stock historical volatility may or may not affect an option's market price. However…
- **Other pricing factors remaining constant, a change in IMPLIED volatility will affect option prices:**
- As implied volatility increases ↑
  - both call and put prices will increase ↑
- As implied volatility decreases ↓
  - both call and put prices will decrease ↓

Business Sensitive

Historical Implied Volatility

- By tracking IV over time, an investor can map out Historic levels of Implied Volatility
- Historical IV can help an investor make sense of current IV levels and how they relate to both historic volatility and recent IV
- If the current level of IV is higher or lower than historic levels, will it revert to the mean?

Business Sensitive

The Options Industry Council

OIC is dedicated to increasing the awareness, knowledge and responsible use of exchange-listed options.

OCC Learning - a self-guided eLearning destination with coursework tailored to a variety of learning styles and experiences levels.

Download our podcasts and videos.

Attend webinars and learn from the pros.

Live options help from industry professionals with Investor Services.

OptionsEducation.org

Business Sensitive

For More Information

www.OptionsEducation.org

Investor Services: options@theocc.com

OIC YouTube Channel

LIKE us on Facebook

Follow us on Twitter @Options_Edu!

Business Sensitive