IBKRCampus

IBKRWebinars

www.ibkrcampus.com/webinars

www.ibkrcampus.eu/webinars

May 12, 2025

## The Options Industry Council (OIC)

# Option Conversions and Reversals

**Mathew Cashman**
Principal, OCC & Instructor, The Options Industry Council
OCC / The Options Industry Council (OIC)

IBKRCampus

IBKRWebinars

www.ibkrcampus.com/webinars

www.ibkrcampus.eu/webinars

# 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 visiting ibkr.com/occ. Multiple leg strategies, including spreads, will incur multiple transaction costs.

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 your local Interactive Brokers Website.

Security futures involve a high degree of risk and are not suitable for all investors. The amount you may lose may be greater than your initial investment. Before trading security futures, please read the Security Futures Risk Disclosure Statement. For a visit copy your local Interactive Brokers Website.

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 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

Interactive Brokers Canada Inc - Is a member of the Canadian Investment Regulatory Organization (CIRO) and Member - Canadian Investor Protection Fund

Interactive Brokers (U.K.) Limited is authorised and regulated by the Financial Conduct Authority. FCA Register Entry Number 208159

Interactive Brokers Ireland Limited is regulated by the Central Bank of Ireland. CBI, reference number C423427

Interactive Brokers Australia Pty. Ltd. - ABN 98 166 929 568 is licensed and regulated by the Australian Securities and Investments Commission AFSL: 453554

Interactive Brokers Singapore Pte. Ltd. - Is licensed and regulated by the Monetary Authority of Singapore. MAS, Licence No. CMS100917

Interactive Brokers Hong Kong Limited is regulated by the Hong Kong Securities and Futures Commission, and is a member of the SEHK and the HKFE

Interactive Brokers India Pvt. Ltd. member: NSE, BSE, SEBI. Regn. No. SEBI Registration No. INZ000217730; NSDL: IN-DP-NSDL-301-2008

Capital you invest is at risk

OIC The Options Industry Council®

# Option Conversions and Reversals

**Mat Cashman**
Principal / Investor Education / OCC
Instructor / The Options Industry Council (OIC)

# Disclaimer

**Options involve risks and are not suitable for everyone.** Individuals should not enter into options transactions until they have read and understood the options 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 and should not be construed as an endorsement, recommendation, or solicitation to buy or sell securities. Past performance is not a guarantee of future results.**

All content in this document is owned, or licensed, by The Options Clearing Corporation ('OCC'). Unauthorized use is prohibited without written permission of OCC. While reasonable efforts have been made to ensure that the contents of this document are accurate, the document is provided strictly "as is", and no warranties of accuracy are given concerning the contents of the information contained in this document, including any warranty that the document will be kept up to date. OCC reserves the right to change details in this document without notice. To the extent permitted by law no liability (including liability to any person by reason of negligence) will be accepted by OCC or its employees for any direct or indirect loss or damage caused by omissions from or inaccuracies in this document.

**OCC makes no recommendation with respect to any firm or organization, nor does it endorse, warrant, or guarantee products, services or information described or offered by any such entity.**

# Trademarks

The following trademarks, logos, and service marks displayed are owned by The Options Clearing Corporation:

| | |
|---|---|
| The Options Clearing Corporation® | OCC® |
| The Options Industry Council® | OIC® |

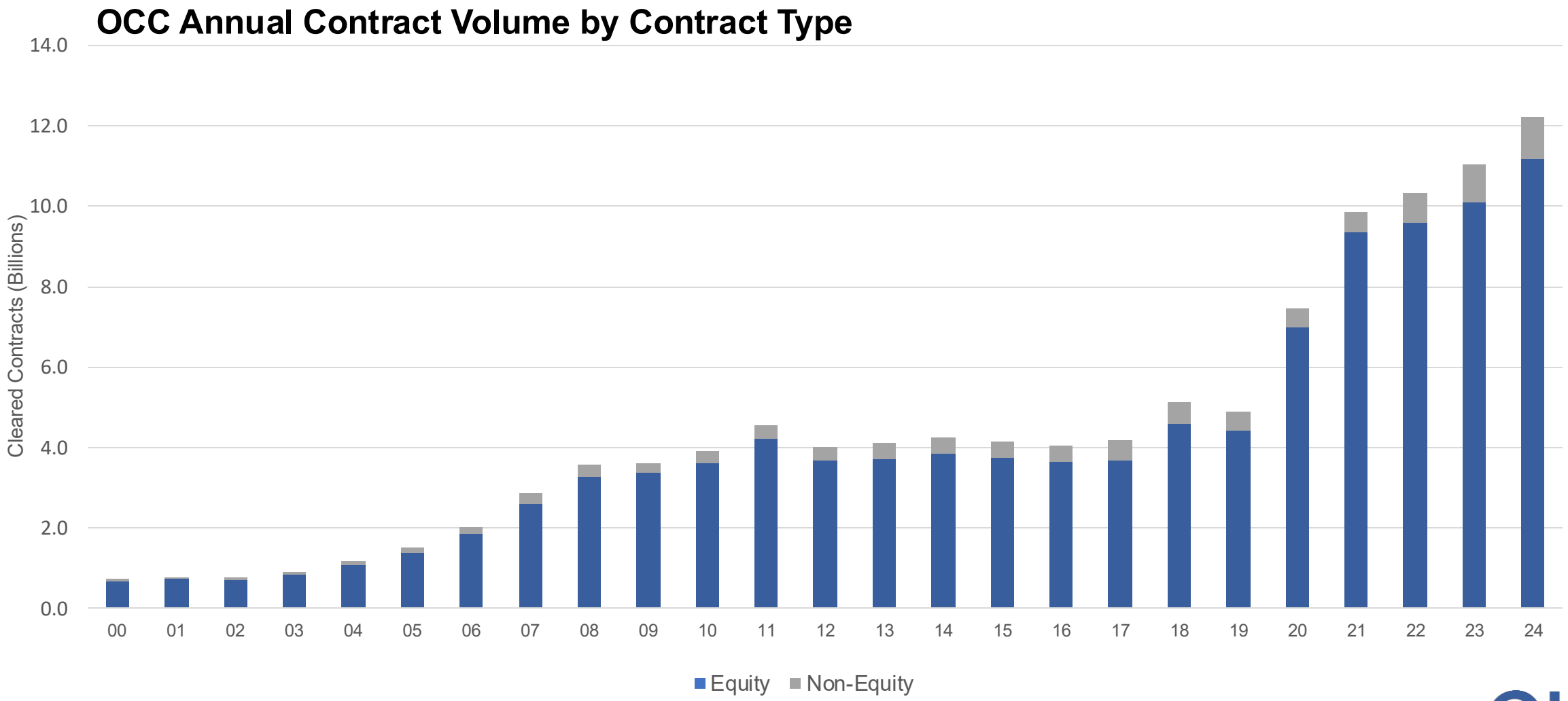
# About OIC

- **FREE** unbiased and professional options education
- OptionsEducation.org
- Online courses, podcasts, videos, & webinars
- Contact Investor Education at *options@theocc.com*

OIC The Options Industry Council®

OCC THE FOUNDATION FOR SECURE MARKETS®

# Annual Options Volume 2000-2024



# Presentation Outline

- Put / Call parity
- What are Conversions / Reversals?
- The Building Blocks of the Strategies
- Implied Forward Stock Prices
- Interest Rate effects on Conversions / Reversals
- Dividend effects on Conversions / Reversals

# Put Call Parity

# Put / Call Parity

- **Put / Call Parity** is a concept that describes the relationship between call and put prices on the same strike
  - Knowing value of the call can imply value of the put, and vice versa using put / call Parity
- Holds prices of various financial instruments (incl. options) in check
  - Tighter bid/ask spreads
  - Minimal pricing irregularities

# Put / Call Parity

Synthetics:  It's possible to recreate the P & L and risk profile of an option using a combination of other options and/or stock

These are generally referred to as "Synthetic" positions

# The Simple Put / Call Parity Formula

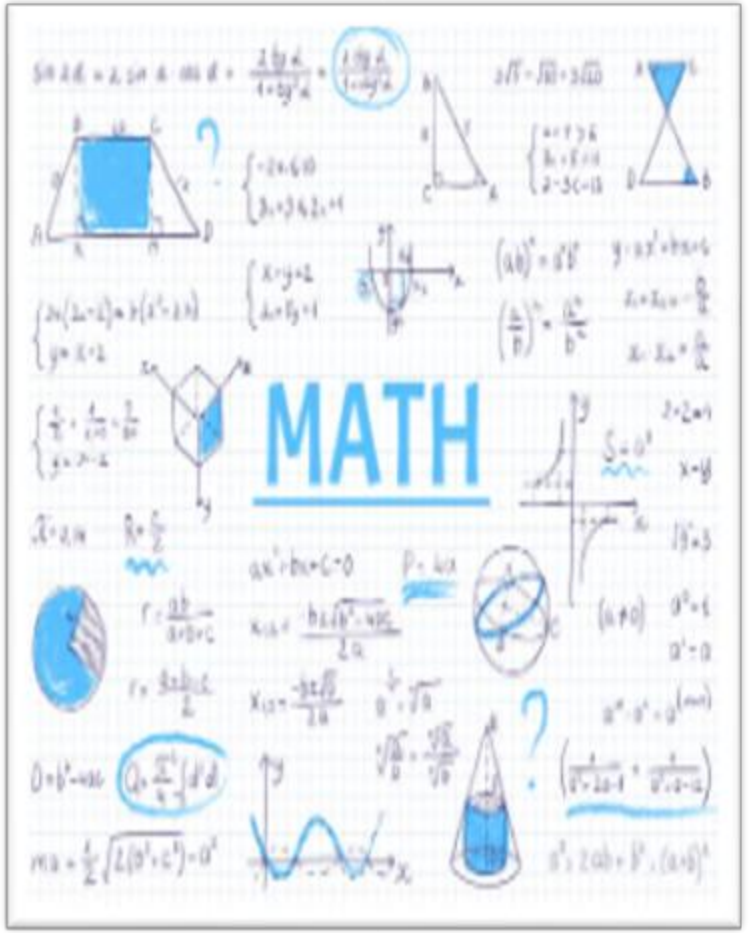
**Simple Put / Call Parity Formula:**

$$Call - Put = Stock\ Price - Strike\ Price$$

If this does not add up in some way, there is likely an arbitrage or a discount factor that needs examination

Possible discount factors can include:

- **Interest Rates (carry costs)**
- **Dividends (timing and amount)**



# Put / Call Parity Example

- Stock trading for **$99**
  - 100 strike call trading **$4.00**
  - 100 strike put trading **$5.00**
- Investor can buy call (long deltas) and sell put (long deltas) for $1 credit
  - If assigned on the short put, investor is long shares from $99 (100 strike minus $1 credit)
  - If the long call is exercised, investor is long shares from $99 (100 strike minus $1 credit)

# What Are Conversions and Reversals?

# What are Conversions and Reversals?

- **Synthetic Stock vs. Physical Stock:** Conversions and reversals combine synthetic stock positions with actual stock to create a delta neutral strategy focused on some type of risk arbitrage.
- **Conversion Strategy:** A long stock position is paired with a synthetic short stock position (long put + short call ) to create a **delta neutral position**
- **Reversal Strategy:** A short stock position is combined with a synthetic long stock position (long call + short put) to create a **delta neutral position**


***Let's focus first on the synthetic stock positions – what are their component pieces?***

# Long Synthetic Stock

# Long Synthetic Stock

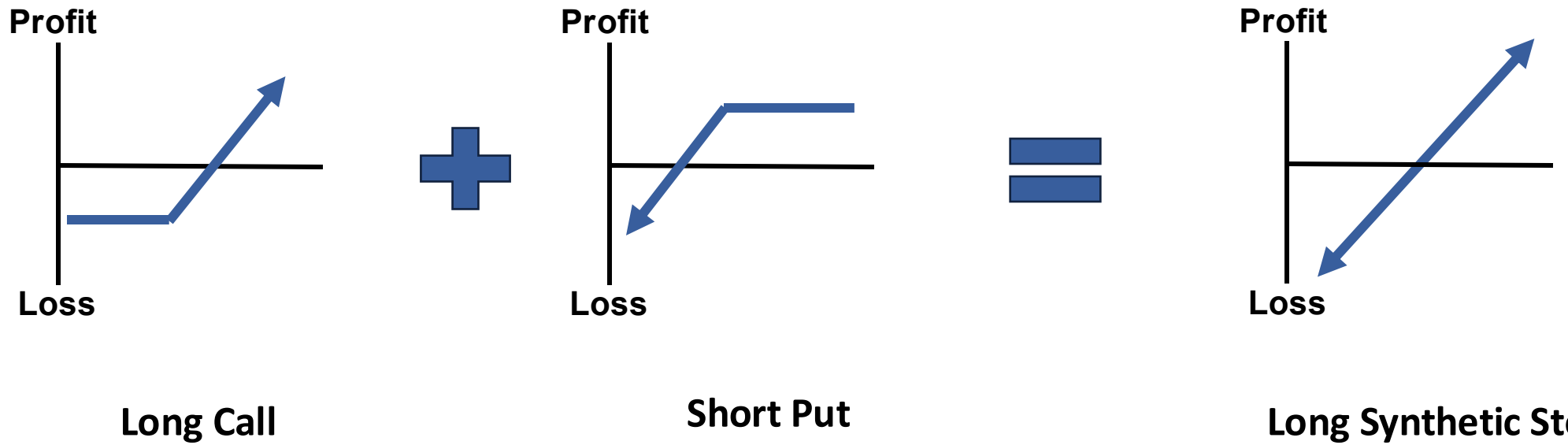
- Long Synthetic Stock is generally created through the combination of a long call and short put position on the same strike

**Long Call + Short Put =**

**Long Synthetic Stock**

# Long Call + Short Put = Long Synthetic Stock

Both Option Positions are Long Delta – when combined they mimic the P & L characteristics of a Long Stock position – **Long Synthetic Stock**



# Short Synthetic Stock

# Short Synthetic Stock

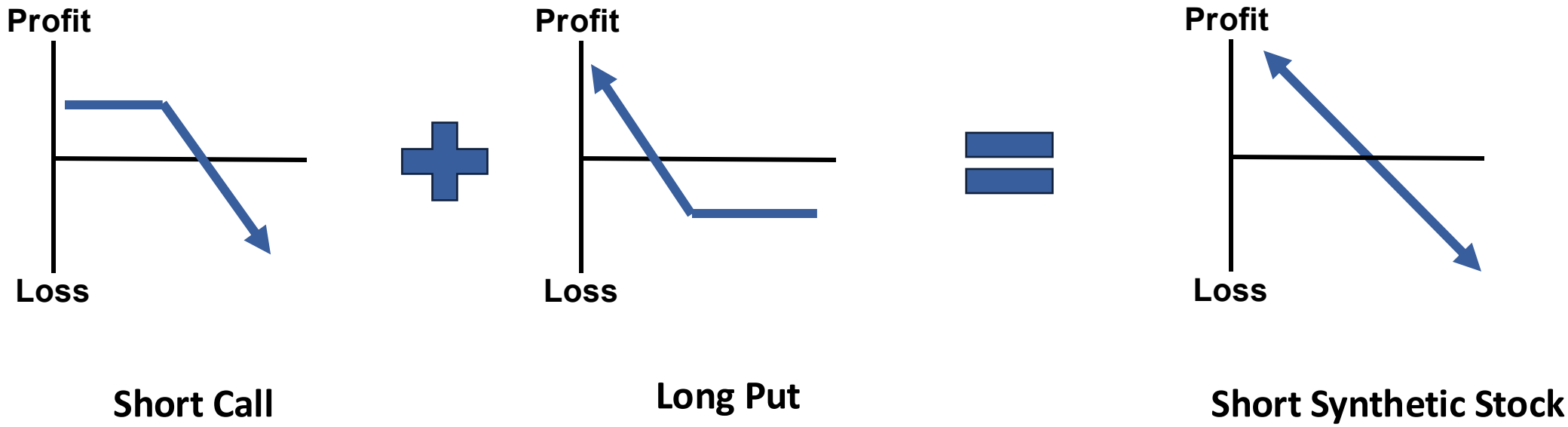
- Short Synthetic Stock is generally created through the combination of a short call and long put position on the same strike

**Short Call + Long Put =**

**Short Synthetic Stock**

# Short Call + Long Put = Short Synthetic Stock

Both Option Positions are Short Delta – when combined they mimic the P & L characteristics of a Short Stock position – **Short Synthetic Stock**




***So how do we calculate the implied price of the synthetic stock from the prices of the options?***

# Calculating Implied Forward Stock Prices (Using Options)

# Calculating Implied Forward Stock Prices (using options)

$$(Call - Put) + \text{Strike} = \text{Implied Forward Price of Synthetic Stock}$$

Call and Put prices of the same strike and expiration can be used to calculate an Implied Forward value for a synthetic stock position executed at that strike.

If you are looking at a 30 DTE call and put on the same strike, the implied value of the synthetic stock position can be calculated for the next 30 days according to those option prices.

***Now, Let's look at some examples….***

# Calculating Synthetic Forward Prices (using options)

The Implied Forward price of the Synthetic stock is calculated using **three** data points.

| Calls | Strike | Puts |
|---|---|---|

**Let's look at an example:**

| Calls | Strike | Puts |
|---|---|---|
| $ 5.50 | 50.00 | $ 4.50 |

In this case, with the Calls trading over the Puts, the Implied Forward price is:
(Call Price – Put Price) + Strike Price = Implied Forward Price of Synthetic Stock

**($ 5.50 - $ 4.50) + 50.00 = $51.00**

# Calculating Synthetic Forward Prices (using options)

The Implied Forward price of the Synthetic stock is calculated using **three** data points.

| Calls | Strike | Puts |
|---|---|---|

**Let's look at an example:**

| Calls | Strike | Puts |
|---|---|---|
| $ 1.50 | 50.00 | $ 4.50 |

In this case, with the Puts trading over the Calls, the Implied Forward price is:
(Call Price – Put Price) + Strike Price = Implied Forward Price of Synthetic Stock

**($ 1.50 - $ 4.50) + 50.00 = $47.00**

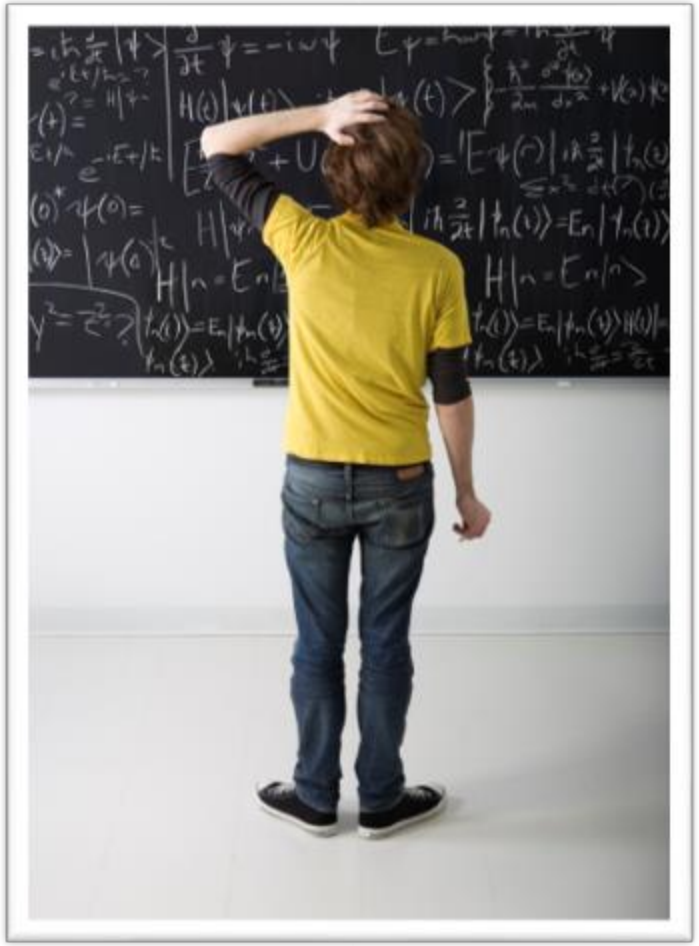
# Conversions and Reversals: Which is Which?

OIC

# Conversions and Reversals – Which is Which?

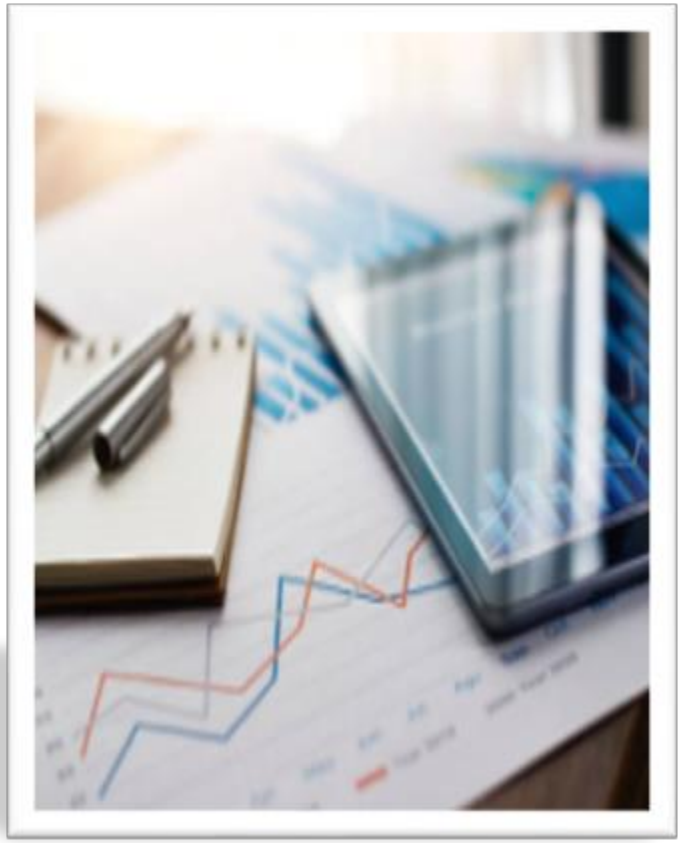
**Conversion Strategy:** A long stock position is paired with a synthetic short stock position (long put + short call ) to create a **delta neutral position**

**Reversal Strategy:** A short stock position is combined with a synthetic long stock position (long call + short put) to create a **delta neutral position**



# Conversions and Reversals - General P & L Dynamics

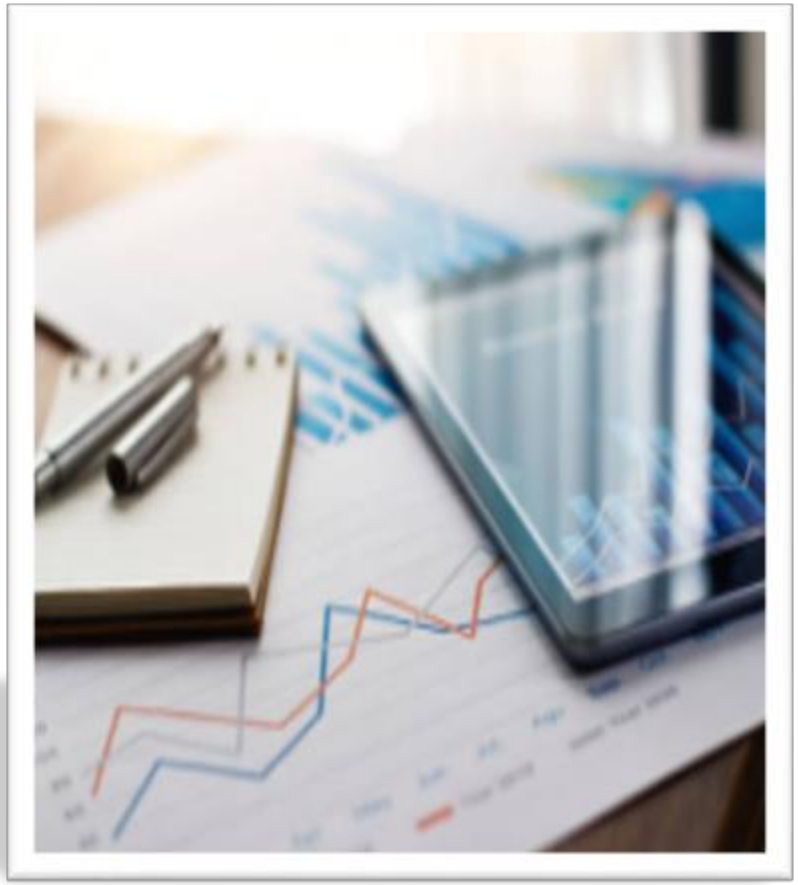
- The value of the stock in the open market will be different from the value of the implied forward stock price as calculated through the synthetic position using options.
- By trading a physical stock position against a synthetic stock position at an implied forward price, you are trading – and carrying - the **spread** between those two prices.
- **Conversions** and **Reversals** are effectively a **spread** trade between those two prices (Stock Price vs Implied Forward Stock Price)
- Gains or losses can be experienced if the spread narrows or expands.



**So how does this spread narrow or expand?**

# Conversions and Reversals - General P & L Dynamics

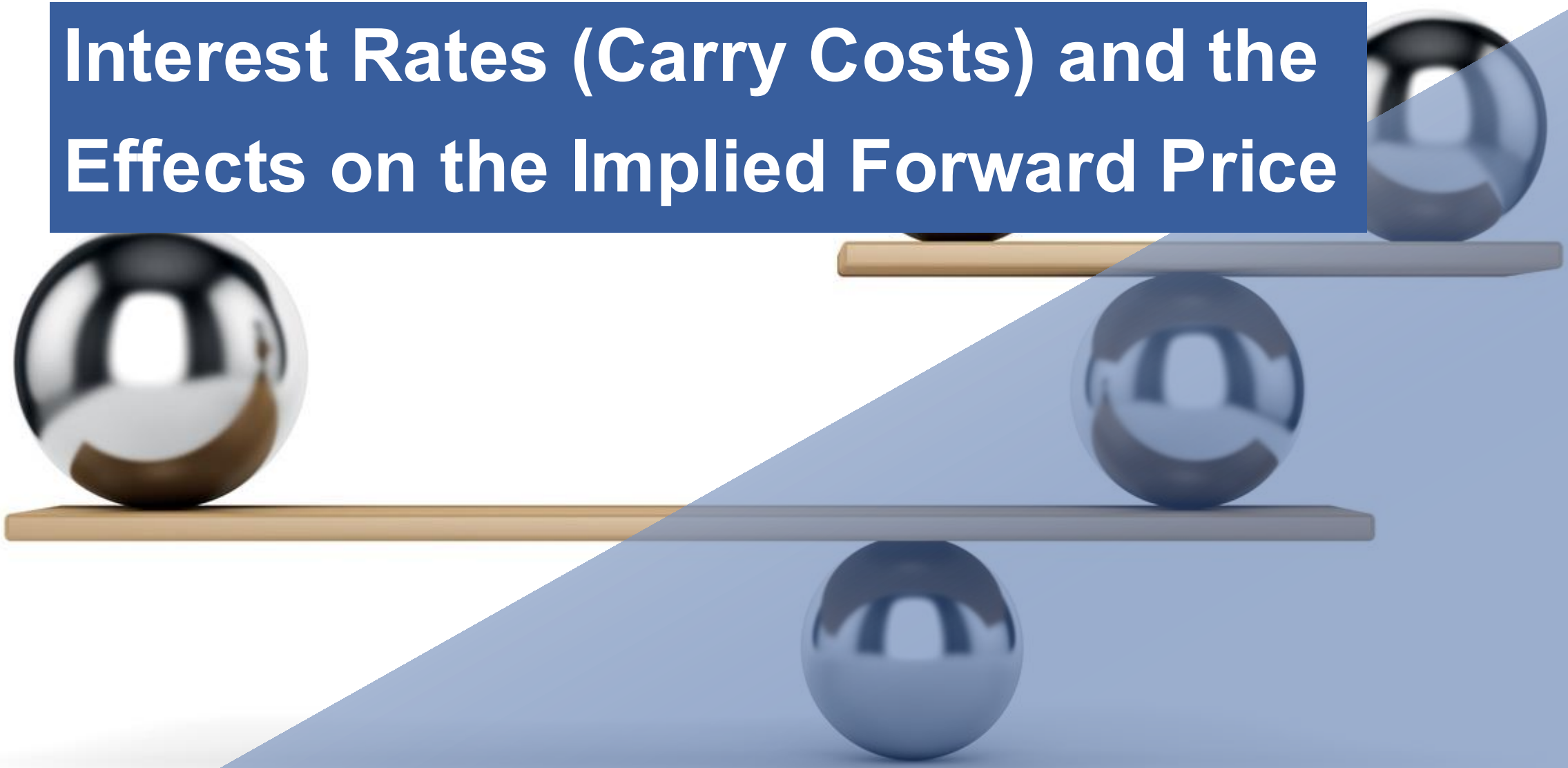
- Theoretically, the physical stock and the synthetic stock should move at roughly the same rate and in the same direction because of the forces of put / call parity
- However, there are factors that can affect the synthetic implied forward price that don't affect the physical stock in the same way. These are the discount factors mentioned earlier. Let's look at two of those discount factors more closely.



**Interest Rates (carry costs)**

**Dividends (timing and amount)**

# Interest Rates (Carry Costs) and the Effects on the Implied Forward Price



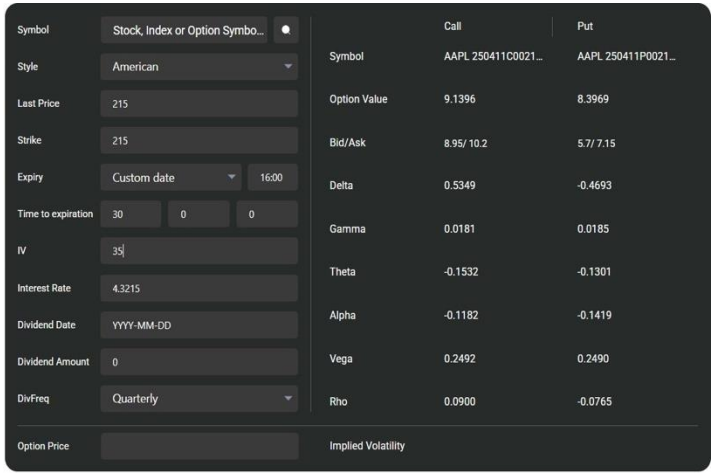
OIC

# Interest Rates (30 day Carry Costs) and the Effects on the Implied Forward Price

Notice below there are two identical scenarios – Same options, Same Inputs with one key difference. On the left, the Interest Rate assumption is **4.32% for 30 days** – on the right, the Interest Rate assumption is **8.32% for 30 days**. Let's look at how it affects the Implied forward stock price.

**$(Call - Put) + Strike = Implied\ Forward\ Price\ of\ Synthetic\ Stock$**

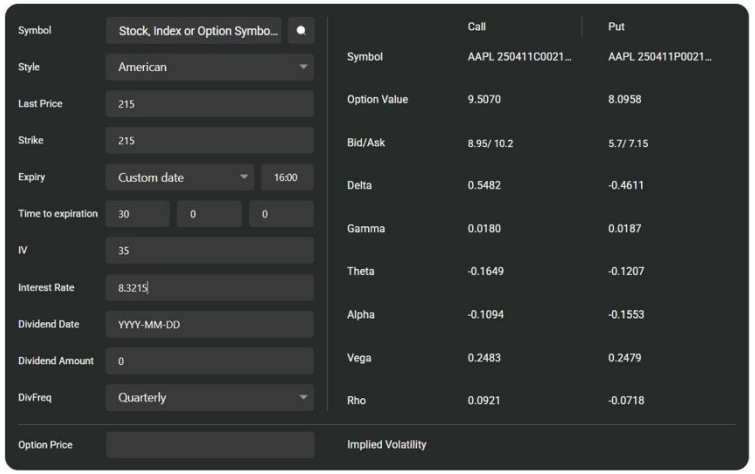
## 4.32% Interest Rate




Calculate the Implied Forward Price

$(9.13 - 8.39) + 215.00 = 215.74$

## 8.32% Interest Rate



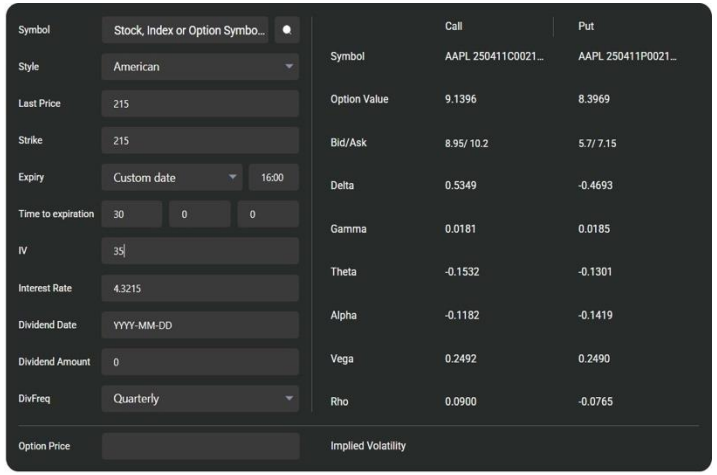

Calculate the Implied Forward Price

$(9.50 - 8.09) + 215.00 = 216.41$

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations, or an invitation or inducement to trade a particular financial instrument or to engage in an investment activity. There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

# The Cost of the 30 Day Conversions / Reversals

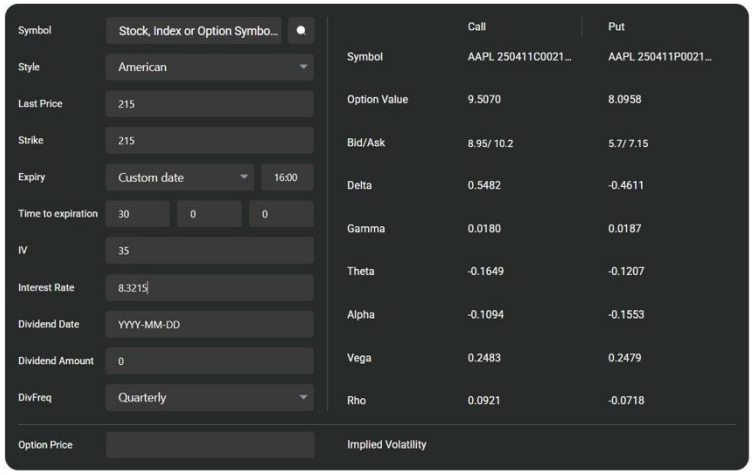
## 4.32% Interest Rate




Calculate the Implied Forward Price

$(9.13 - 8.39) + 215.00 = \mathbf{215.74}$

## 8.32% Interest Rate




Calculate the Implied Forward Price

$(9.50 - 8.09) + 215.00 = \mathbf{216.41}$

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations, or an invitation or inducement to trade a particular financial instrument or to engage in an investment activity. There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

**Let's assume you traded these as reversals and sold physical stock at the strike price of $ 215.00**

Calculate the Spread (the cost of the Reversal)

$215.74 - 215.00 = \$\,\mathbf{.74}$

Calculate the Spread (the cost of the Reversal)

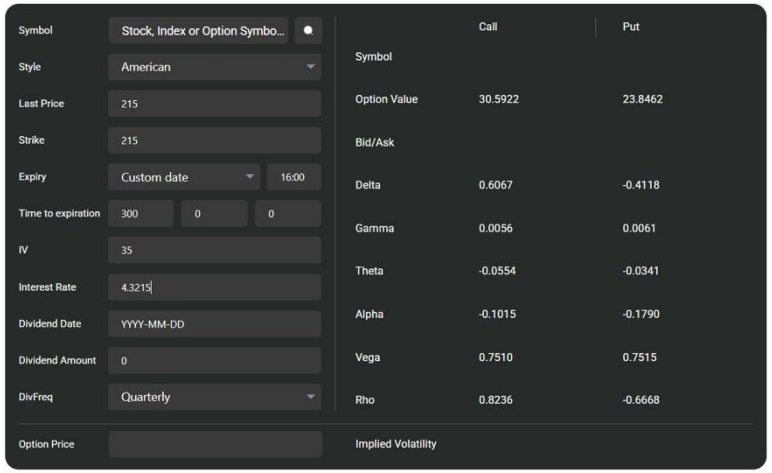
$216.41 - 215.00 = \$\,\mathbf{1.41}$

# Interest Rates (300 Day Carry Costs) and the Effects on the Implied Forward Price

Notice below there are two identical scenarios – Same options, Same Inputs with one key difference. On the left, the Interest Rate assumption is **4.32% for 300 days** – on the right, the Interest Rate assumption is **8.32% for 300 days**. Let's look at how it affects the Implied forward stock price.

$$(Call - Put) + \text{Strike} = \text{Implied Forward Price of Synthetic Stock}$$

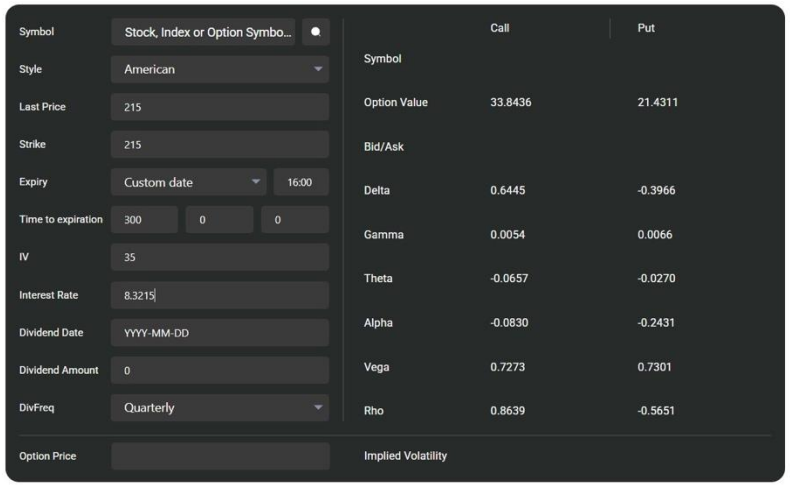
## 4.32% Interest Rate




Calculate the Implied Forward Price

$$(30.59 - 23.85) + 215.00 = 221.74$$

## 8.32% Interest Rate



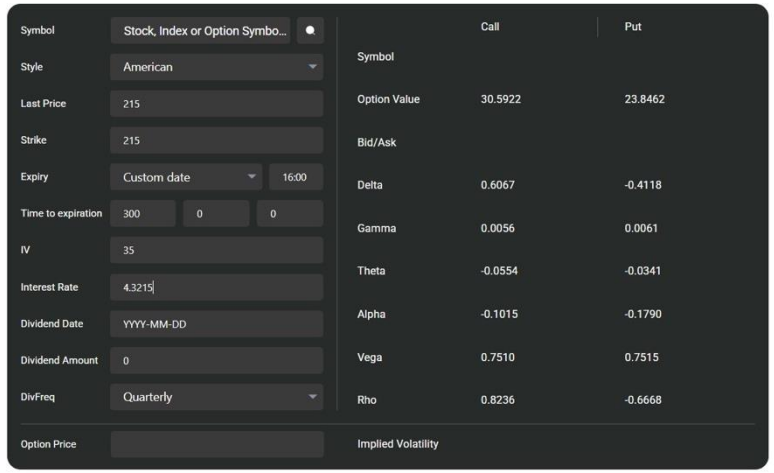

Calculate the Implied Forward Price

$$(33.84 - 21.43) + 215.00 = 227.41$$

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations, or an invitation or inducement to trade a particular financial instrument or to engage in an investment activity. There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

# The Cost of the 300 Day Reversals / Conversions

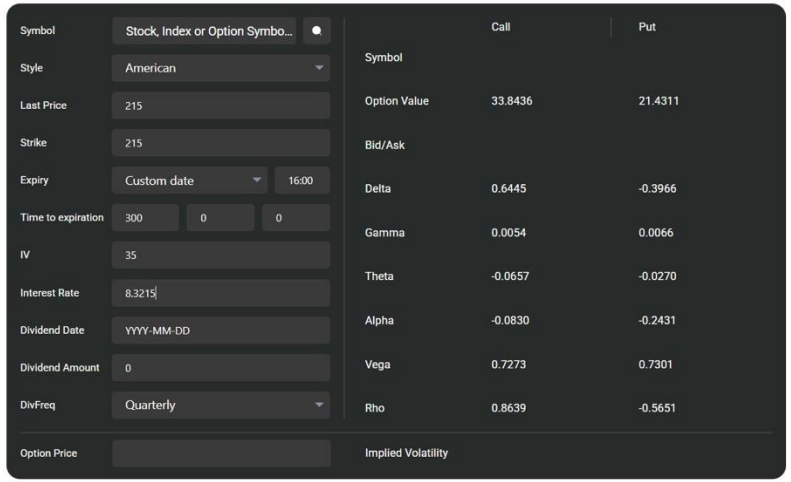
## 4.32% Interest Rate




Calculate the Implied Forward Price

$(30.59 - 23.85) + 215.00 = \mathbf{221.74}$

## 8.32% Interest Rate




Calculate the Implied Forward Price

$(33.84 - 21.43) + 215.00 = \mathbf{227.41}$

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations, or an invitation or inducement to trade a particular financial instrument or to engage in an investment activity. There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

**Let's assume you traded these as reversals and sold physical stock at the strike price of $ 215.00**

Calculate the Spread (the cost of the Reversal)

$221.74 - 215.00 = \$\,\mathbf{6.74}$

Calculate the Spread (the cost of the Reversal)

$227.41 - 215.00 = \$\,\mathbf{12.41}$

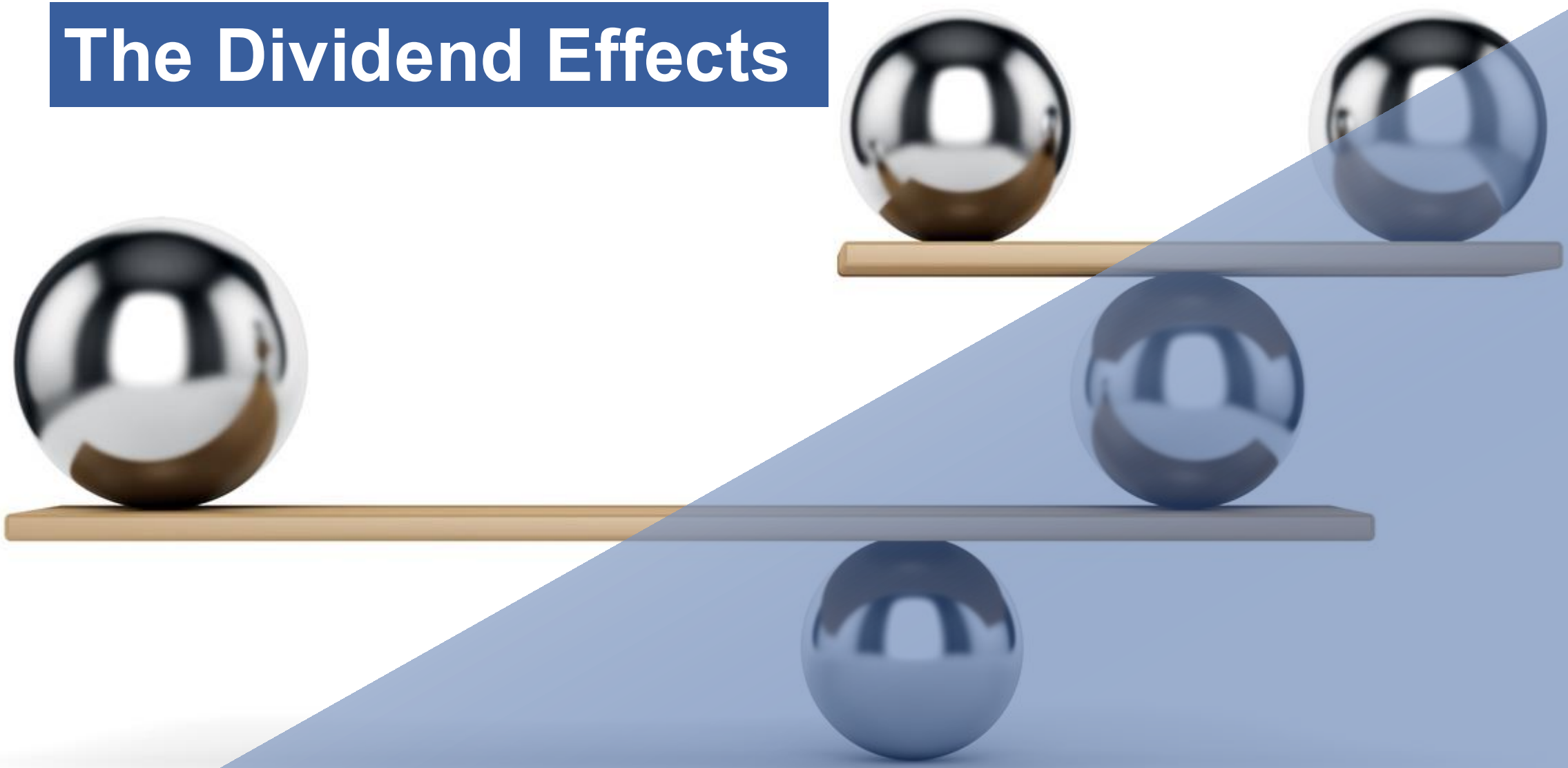
# What are the Effects of the Interest Rate?

- First and foremost, the interest rate difference here (4.32% to 8.32%) is quite stark – it is selected to prove a point.
- Secondarily, as you add time to these options (30 day difference vs. 300 day difference) - the difference compounds, just like interest normally compounds – but you see it in the Implied Forward Stock Price through the prices of the options.
- You'll see that difference in both the calls and the put prices – As interest rates **rise**, generally **call prices rise**, and **put prices decrease** and as interest rates fall, the reverse is generally true

# What are the Effects of the Interest Rate?

- Changes in interest rates affects the Implied Forward Stock Price significantly over longer periods of time through the prices of the calls and puts.
- Higher rates and higher forward values are consistent with the ability to earn a higher amount on cash over that duration
- Assuming no dividends, the difference between the current stock price and the implied Forward stock price will generally reflect the amount of interest that could be earned on cash in the amount of the stock price over that time

# The Dividend Effects



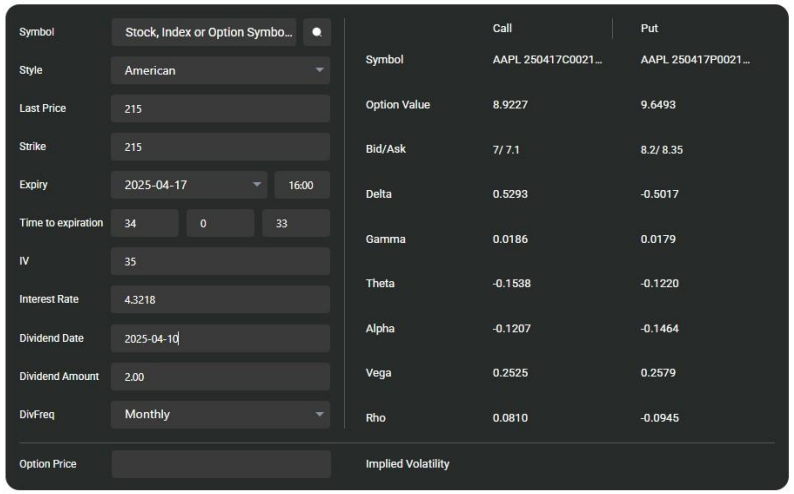
OIC

# Dividends and Implied Forward Stock Prices

Now below we have two scenarios – on the left a $2.00 Dividend is scheduled to be paid before the options in question expire. However, on the right, all the inputs are exactly the same - except the dividend is scheduled to be paid after the options expire. Take a look at how the Implied Forward Stock Prices differ and by how much.

$$(Call - Put) + \text{Strike} = \text{Implied Forward Price of Synthetic Stock}$$

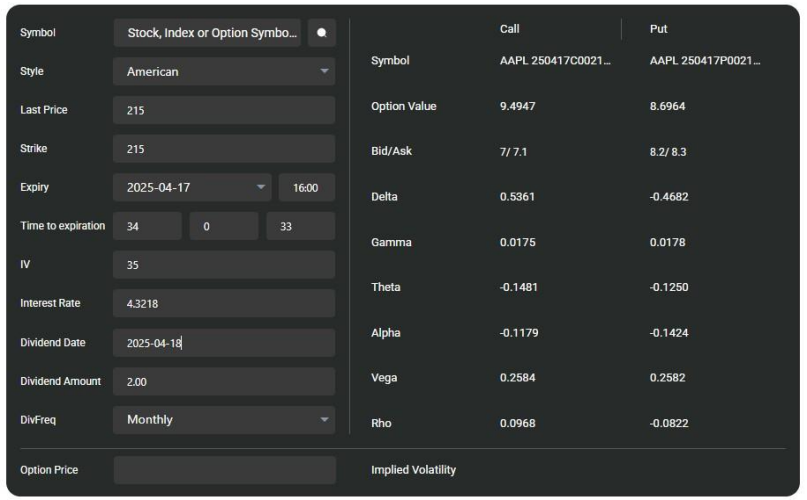
## Dividend Included




Calculate the Implied Forward Price

$$(8.92 - 9.65) + 215.00 = 214.27$$

## Dividend Excluded



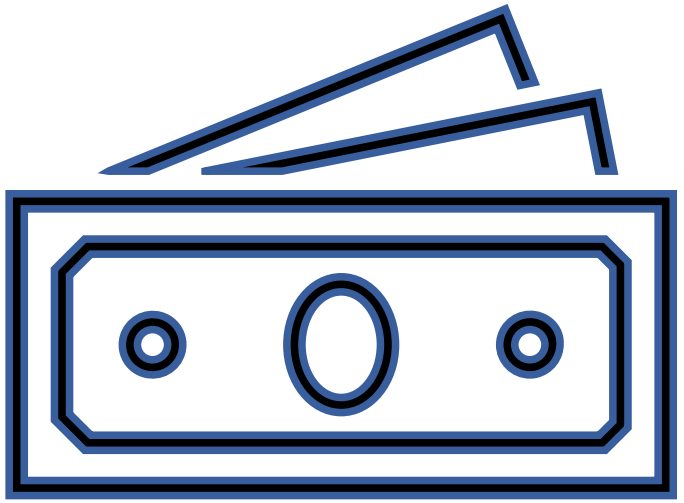

Calculate the Implied Forward Price

$$(9.49 - 8.69) + 215.00 = 215.80$$

Any stock, options or futures symbols displayed are for illustrative purposes only and are not intended to portray recommendations, or an invitation or inducement to trade a particular financial instrument or to engage in an investment activity. There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results.

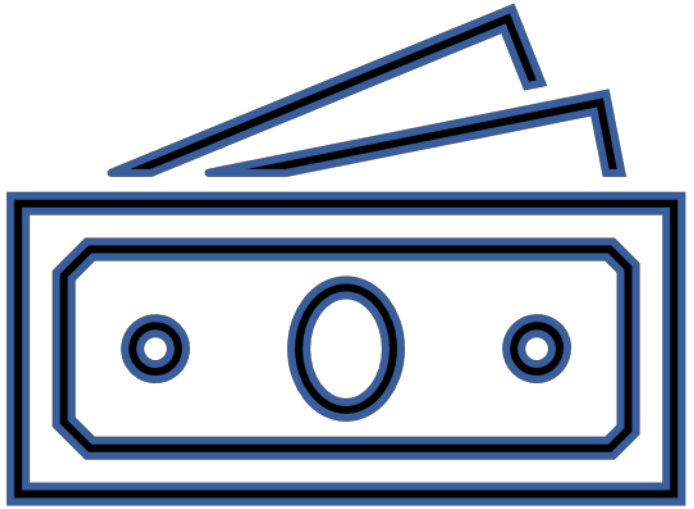
# What are the Effects of the Dividend?

- When a company pays a dividend, the stock price typically drops by the dividend amount on the ex-dividend date. Since call options derive their value from the stock price, a lower expected future price reduces the value of calls.
- Again, you'll likely see the difference in both the calls and the put prices – As dividend expectations rise, generally call prices fall, and put prices increase
- This affects the Implied Forward Stock Price significantly, through the prices of the calls and puts.



# What are the Effects of the Dividend?

- Consider also, that in the case of these possible scenarios, you might be trading stock against these Implied Forwards at the same price of $ 215.00 to trade the conversion or the reversal at significantly different prices – depending on dividend expectations
- Early exercise of options when dividend expectations change is always a risk and should be considered when trading these strategies
- Conversions and Reversals involve a stock position, which might result in the investor receiving or delivering a dividend payment



# 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**

# For More Information

www.OptionsEducation.org

Investor Education: options@theocc.com

OIC YouTube Channel

LIKE us on Facebook

Follow us on Twitter @Options_Edu