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October 18, 2022

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How Dividends Can Affect Options

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The Dividend Effect

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OCC is the world's largest equity derivatives clearing organization. OCC provides financial stability and risk management to the U.S. listed-options marketplace.

Core Functions

- Issuance + Guarantee of U.S. Listed Contracts
- Clearing + Settlement
- Risk Management

2021 Performance Highlights

9.93B CONTRACTS CLEARED	$225B MARGIN HELD AT YEAR END
39.4M AVERAGE DAILY VOLUME	$16.2B CLEARING FUND HELD AT YEAR END

Products We Clear

- Options
- Futures
- Securities Lending

Participant Exchanges

16 OPTIONS EXCHANGES	2 FUTURES EXCHANGES	1 STOCK LOAN ALT. TRADING SYSTEM

As December 31, 2021

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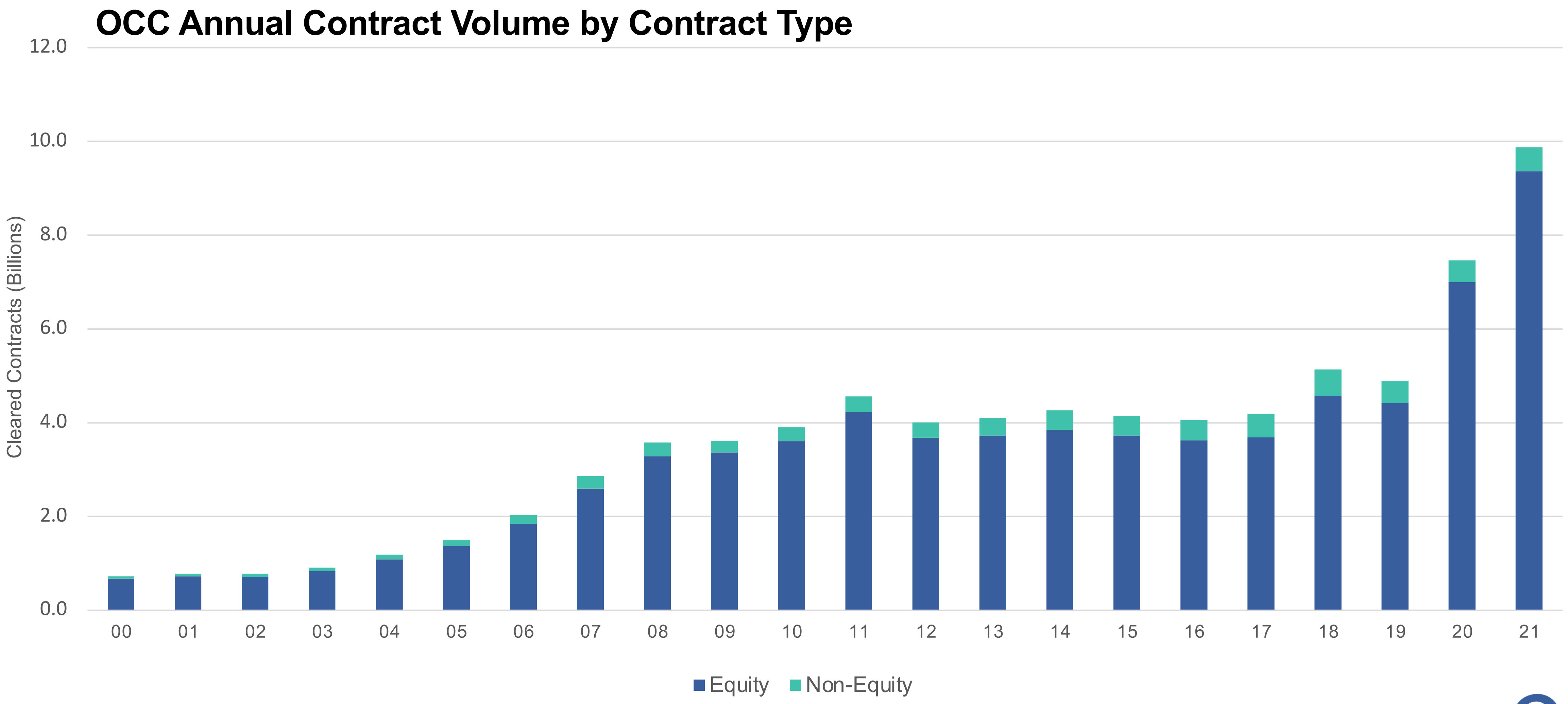
Public

About OIC

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

Annual Options Volume 2000-2021



Presentation Outline

- Options Pricing Recap
- Impact of Dividends on Option Pricing
- Early Exercise and Assignment Risk
- What Happens When a Dividend is Reduced or Eliminated?
- Non-ordinary Dividends and Options Adjustments
- Q&A

Options Pricing Recap

Options Pricing

Who makes options prices?

- All market participants (buyers & sellers)
- Individual & Institutional investors
- Professional market-makers
- Best bid/ask is consensus of all bids and offers

What is an option ultimately worth?

- What the market is willing to pay
- Pricing models used as guideline
- **Supply/demand** & market dynamics can override theoretical values

Options Pricing Models

Mathematical formulas that can be a useful tool in establishing a trading plan

- **Pricing Model Inputs**
  - Stock price
  - Strike price
  - Volatility
  - Time until expiration
  - Cost of money (interest rates less dividends)
- **Output**
  - Call and put premiums (theoretical values)

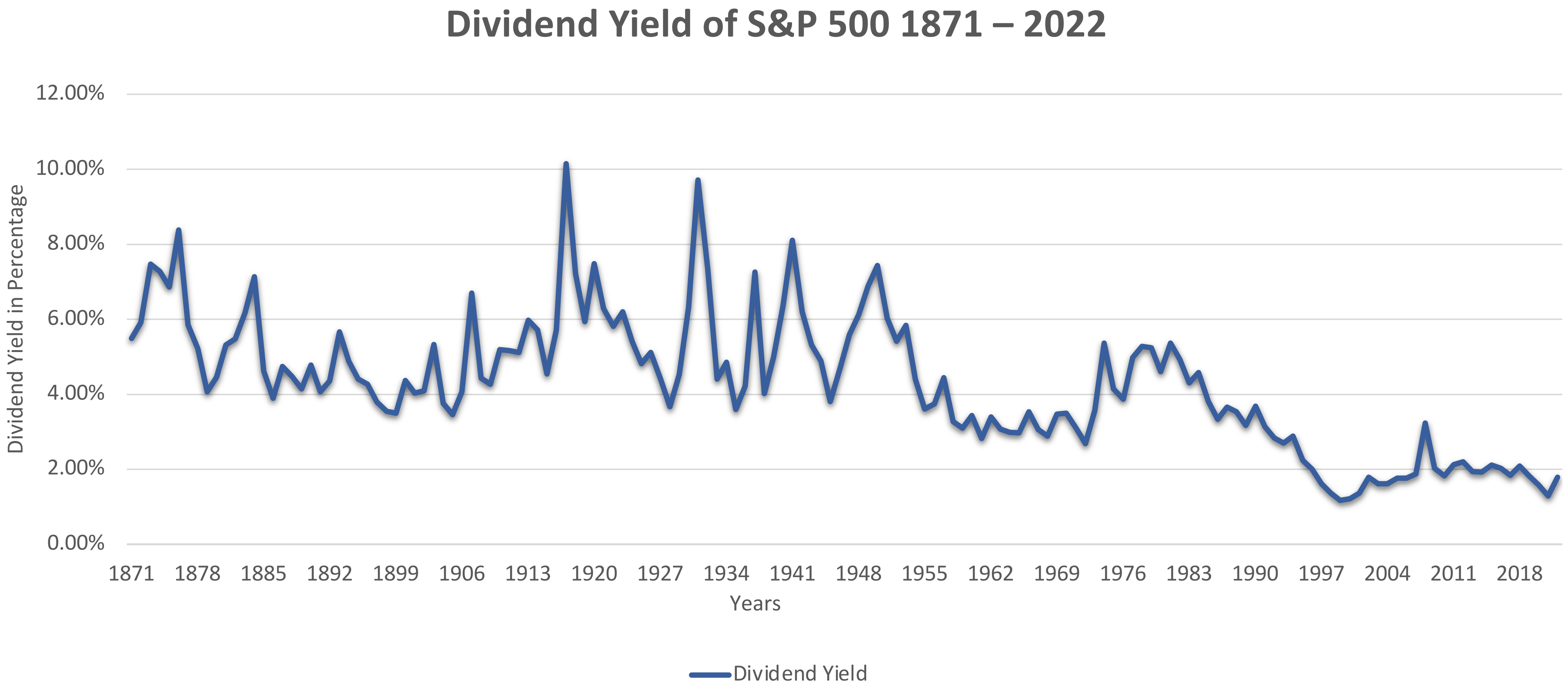
In addition to pricing factors there is unpredictable ***supply and demand***

The Dividend Effect

The History of Dividends and Yield

- Over history, cash dividends are the most common form of payment, generally administered as electronic funds transfer or printed paper check
- Dividends are paid per share owned, so a person who owns 100 shares of a stock paying a $.50 dividend would be paid $50.00
- In financial history, the first company to pay a regular dividend was the Dutch East India Company
  - Annual dividend yield for VOC works out to roughly 18% yield for almost 200 years (1602-1800)
- Dividend Yield is calculated by taking the Annual Dividends Per Share and dividing by the Stock Price per Share
  - Dividend Yield $= \frac{\textit{Annual Dividends Per Share}}{\textit{Price Per Share}}$

Dividend Yield of the S&P 500 Over time



Dividend Dates and the General Timeline

Dividend Timeline

Declaration Date
- On the declaration date, the Board of Directors announces the dividend, the size of the dividend, the record date, and the payment date

Ex-Div Date
- The date when new shareholders are disqualified from earning the dividend
- Investors who buy shares on or after the ex-dividend date will NOT earn a dividend
- The shares trade “ex-dividend” (without a dividend) on this date

Record Date
- The date the company takes a snapshot of its books to record who is a shareholder of record, and thus will receive the dividend
- Is generally at least 1 or 2 days after the Ex-div date

Payable Date
- The date that the dividend is paid out to shareholders of record, as determined on the record date
- This is the date that you can expect to see a dividend payment hit your account

Dividends

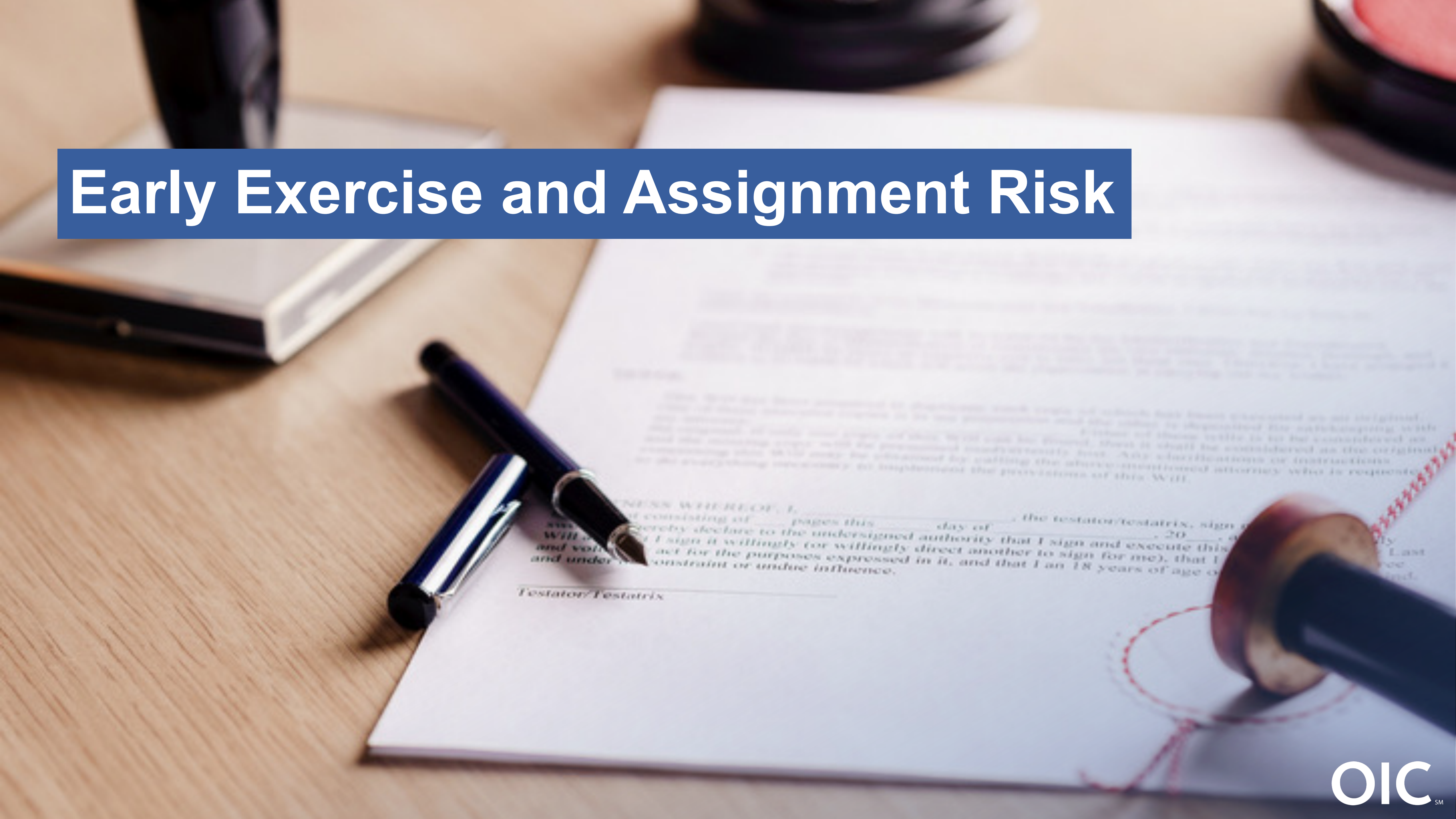
- A dividend is generally a cash payment, typically paid quarterly to shareholders based on company profits
- A call holder isn’t entitled to the dividend unless they exercise their contract(s)
- When dividends are paid the stock price is usually reduced by the amount of the dividend
- The price of a stock and the price of its options are connected

Dividend Pricing and the Associated Options

Increase in Dividends		*Decrease in Dividends*	
Call Premiums	**Put Premiums**	**Call Premiums**	**Put Premiums**

Higher dividends imply lower future stock prices, which result in lower call premiums and higher put premiums.

Early Exercise and Assignment Risk



Assignment Risk Regarding Dividends

- An investor must purchase the stock before the ex-dividend date to receive the dividend
- Early assignment may occur in the event of a dividend, and generally occurs prior to the ex-dividend date (Calls)

- If the time premium (extrinsic value) left in the call option is less than the amount of the dividend then that option could be a strong candidate to be exercised early for the dividend

❖ Trade Tip – See what the corresponding put is trading for and if the value is less than the dividend you might consider covering your calls.

To Exercise or Not to Exercise

Stock Price $100 / DTE 8 Dividend $0.50 / Ex. Date Tomorrow

Strike	Call Market	Fair Value	Intrinsic Value	Extrinsic Value	Div Value	Put Fair Value	Y/N
$85	$14.80 - $15.20	$15.00	$15.00	< $0.05	$0.50	$0.0001	Y
$90	$9.80 - $10.20	$10.00	$10.00	<$0.05	$0.50	$0.0095	Y
$95	$4.90 - $5.10	$5.00	$5.00	<$0.10	$0.50	$0.2622	Y
$100	$1.30 - $1.50	$1.40	0	$1.40	$0.50	$1.90	N
$105	$0.10 - $0.30	$0.20	0	$0.20	$0.50	$5.70	N
$110	$0.00 - $0.25	$0.01	0	<$0.05	$0.50	$10.50	N

- If the extrinsic value is less than the amount of the dividend then the call is a strong candidate for early exercise
- Under normal pricing scenarios the value of the put will show you the amount of extrinsic value left in the call
- The value of the ITM and ATM puts is $0.50 more than the value of the calls – Efficient options pricing

What happens when a dividend is reduced or eliminated?

- Option prices generally account for potential dividends through price discovery
- As increased dividends generally lower the value of calls and raise the value of puts, a dividend reduction would have just the opposite effect
- Call values would increase and put values would decrease in order to allow put/call parity to hold
- A stock may experience a decline following a dividend cut as this may indicate a weakening financial position
- Given all other inputs, you can use pricing models to solve for the “implied dividend” that the options market is expecting

Non-ordinary Dividends and Potential Option Adjustments

Non-ordinary Dividend Distributions

Contract Adjustments in General

- When adjustments are made for non-ordinary cash distributions, the following terms can typically be modified:
  - Deliverable
  - Strike prices
  - Option symbol
- Exactly which terms are affected is dictated by the event that necessitates the adjustments
- Depending on the nature of a possible adjustment, a new class of options may be relisted with standard terms

Non-ordinary Cash Dividend Example #1

- Company XYZ announces a non-ordinary cash dividend
  - $3.75 per XYZ share held by its stockholders

Adjustments: XYZ $3.75 / share Non-ordinary Dividend	
Number of contracts	Unchanged
Deliverable	Unchanged (100 Shares)
Strike prices	Reduced by $3.75 dividend amount
Multiplier	Unchanged (remains 100)
Option symbol	Unchanged (remains XYZ)

- Before dividend: Long 1 XYZ Dec 16 22 50.00 call - **XYZ Dec 16 22 50.00 call**
- After dividend: Long 1 XYZ Dec 16 22 **46.25** call - **XYZ Dec 16 22 46.25 call**

Non-ordinary Cash Dividend Example #2

- Company XYZ announces a non-ordinary cash dividend
  - $5.00 per XYZ share held by its stockholders

Adjustments: XYZ $5.00 / share Non-ordinary Dividend	
Number of contracts	Unchanged
Deliverable	Adjusted 100 shares and $500 (fixed)
Strike prices	Unchanged
Multiplier	Unchanged (remains 100)
Option symbol	Adjusted, becomes XYZ1

- Before dividend : **XYZ Dec 16 22 10.00 call**
- After dividend: **XYZ1 Dec 16 22 10.00 call (with a $500 cash deliverable added)**

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XYZ and XYZ1 at Expiration

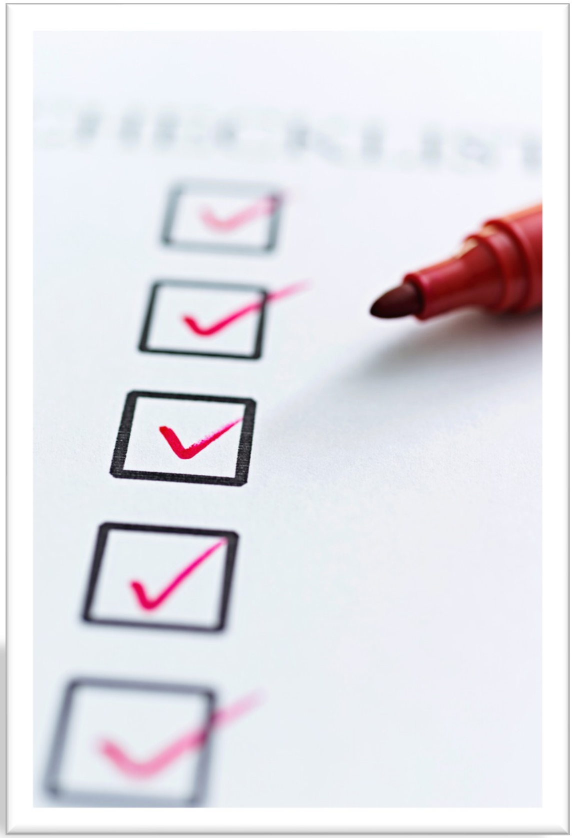
- Depending on nature of the adjustment, a new class of options <u>might</u> be relisted with standard terms after the contract adjustment. If so, and XYZ closes at $7.50 per share:

- **Standard XYZ Dec 16 22 10.00 call is out of the money and has <u>zero</u> intrinsic value.**

- **Adjusted XYZ<u>1</u> Dec 16 22 10.00 call is in the money and has intrinsic value ($7.50 + 5.00) of $2.50!**

Dividend Takeaways

- Higher dividends imply lower call premiums and higher put premiums
- An investor must purchase the stock before the ex-dividend date to receive the dividend
- A call holder isn't entitled to the dividend unless they exercise their contract(s)
- Early assignment may occur in the event of a dividend, and generally occurs prior to the ex-dividend date (Calls)
- If the extrinsic value left in the call option is less than the amount of the dividend then that option could be a strong candidate to be exercised early for the dividend



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