



Introduction to Options -- The Basics



Dec. 8th, 2015

Disclosures

- ✓ Options trading entails significant risk and is not appropriate for all investors. Prior to trading options, you must receive a copy of Characteristics and Risks of Standardized Options, which is available from Fidelity Investments, and be approved for options trading. Supporting documentation for any claims, if applicable, will be furnished upon request.
- ✓ Examples in this presentation do not include transaction costs (commissions, margin interest, fees) or tax implications, but they should be considered prior to entering into any transactions.
- ✓ **Characteristics and Risks of Standardized Option**
- ✓ The information in this presentation, including examples using actual securities and price data, is strictly for illustrative and educational purposes only and is not to be construed as an endorsement, recommendation.



Goal of this webinar Series

The goal of this series is to introduce options to those who are option novices. We will primarily cover the fundamentals of options. To do this, we will cover topics such as; what are options, what kinds of options are there, and key terms and concepts option traders need to be familiar with.

Topics that will be covered in Part I

- What are options?
- How are they quoted and where?
- What are Exercise and Assignment?
- What are In the money, At the money, and Out of the money?
- What is Intrinsic versus Extrinsic value?



What is an Option?



An option is simply a contractual agreement between two parties, the buyer and the seller.

The contract stipulates:

- *Expiration date (Usually the third Friday of the month)*
- *Strike price*
- *Underlying (can be stock, ETF, or index) that the contract will be based upon*
 - *A standard option represents 100 shares of the underlying*
- *When the holder can exercise the option (convert to the underlying)*
 - *Anytime before expiration (American style)*
 - *Only at expiration (European Style)*

Why do People Trade Options?

People trade options for many different reasons. Since we are focusing on options basics today, we will focus on the most common reasons.

1. **Leverage:** As stated on the last slide, one option contract controls 100 shares of the underlying's stock
2. **Capital outlay:** You can purchase an option for significantly less than purchasing the underlying stock outright.

What's the tradeoff?

1. **Time:** Options have a finite expiration date. They are a “wasting” asset. They will either expire worthless or be turned into long/short shares of the underlying.
2. **Leverage:** Leverage goes both ways, it can hurt you as much as it helps you. We will show an example shortly.



Call or Put?

There are two types of options, Calls and Puts

➤ Call

- Call option is a contract that allows the option **holder** (buyer) to **buy** 100 shares (typically) at the strike price up to the defined expiration date. Said to be **LONG** the call. **Bullish**
- Call options **obligate** the **seller** (writer) to **sell** 100 shares (typically) of the underlying at the strike price up to the defined expiration date. Said to be **SHORT** the call. **Bearish**

➤ Put

- Put option is a contract that allows the option **holder** to **sell** 100 shares (typically) at the strike price up to the defined expiration date. **Long** the put. **Bearish**
- Put options **obligate** the **seller** to **buy** 100 shares (typically) of the underlying at the strike price up to the defined expiration date. **Short** the put. **Bullish**



Call or Put?

In the last example we said “typically,” why?

When we talk of options we generally talk of standardized options where one contract represent 100 shares of the underlying. But what happens when something like a stock split occurs in the underlying, or a company takeover/merger?

Options can be adjusted in a number of ways to account for corporate events. These are called Adjusted options. Lets look at what happens when there is a stock split.

You own 1 contract for XYZ stock with a strike price of \$75.00, the company announces a 3 for 2 stock split. How is the option contract adjusted?

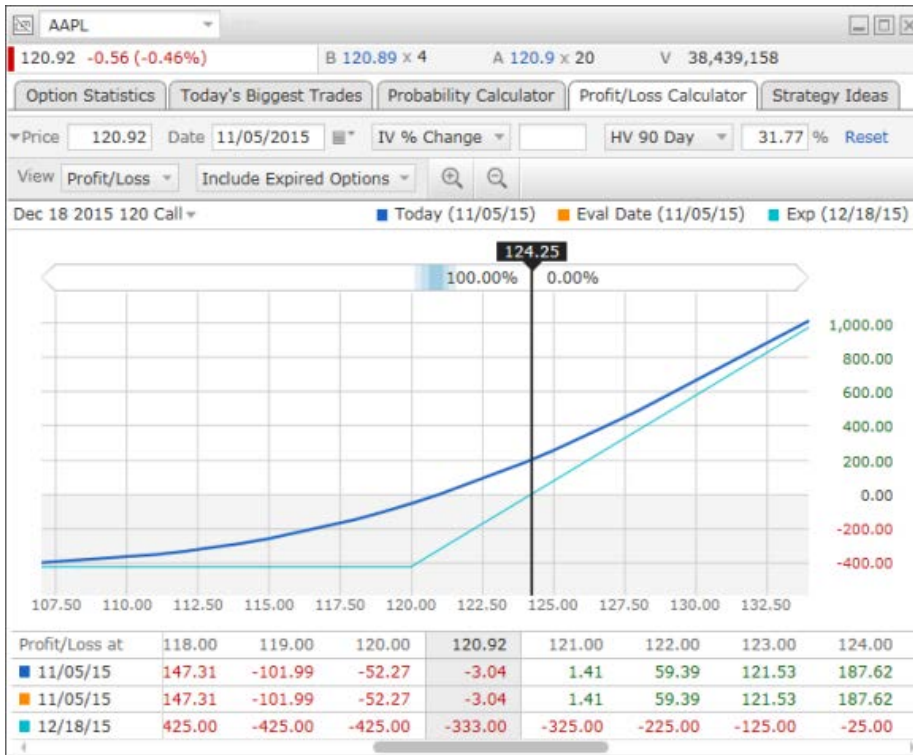
Old option contract $100 \times \$75 = \7500

New option contract $150 \times \$50 = \7500

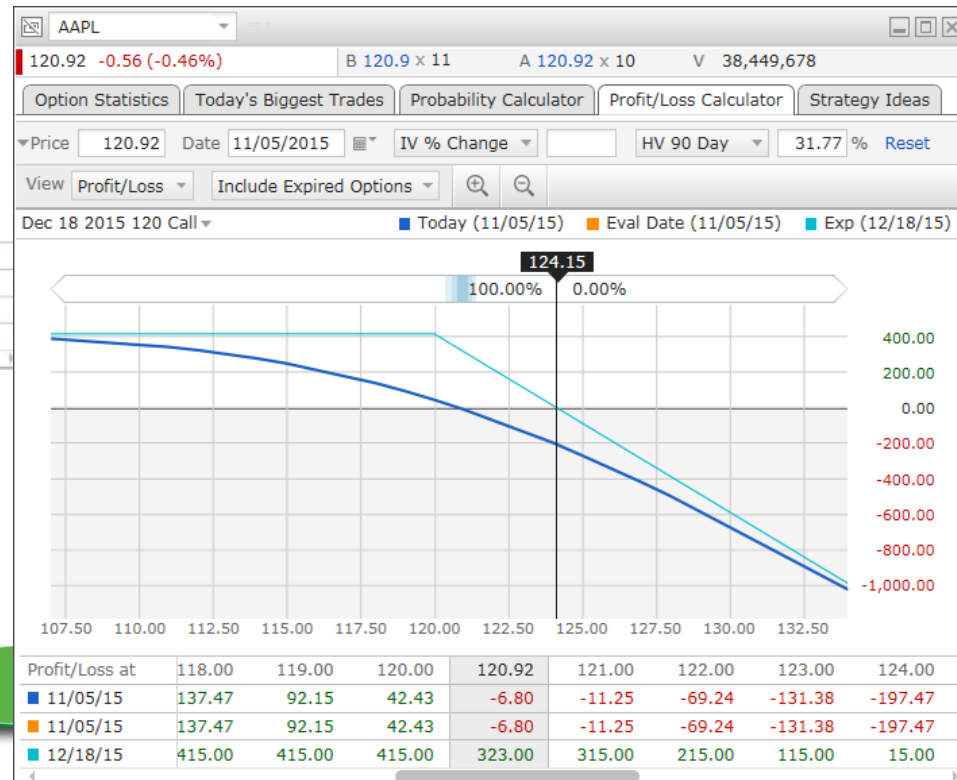
The adjustment keeps the notional value the same, the number of shares and the strike price are adjusted to maintain the notional value of the contract post split. Other adjustments may occur from corporate actions. Terms can be found in the option chain or check with the Options Clearing Corp to find out the new terms of an adjusted option.



Call Profit and Loss Graphs

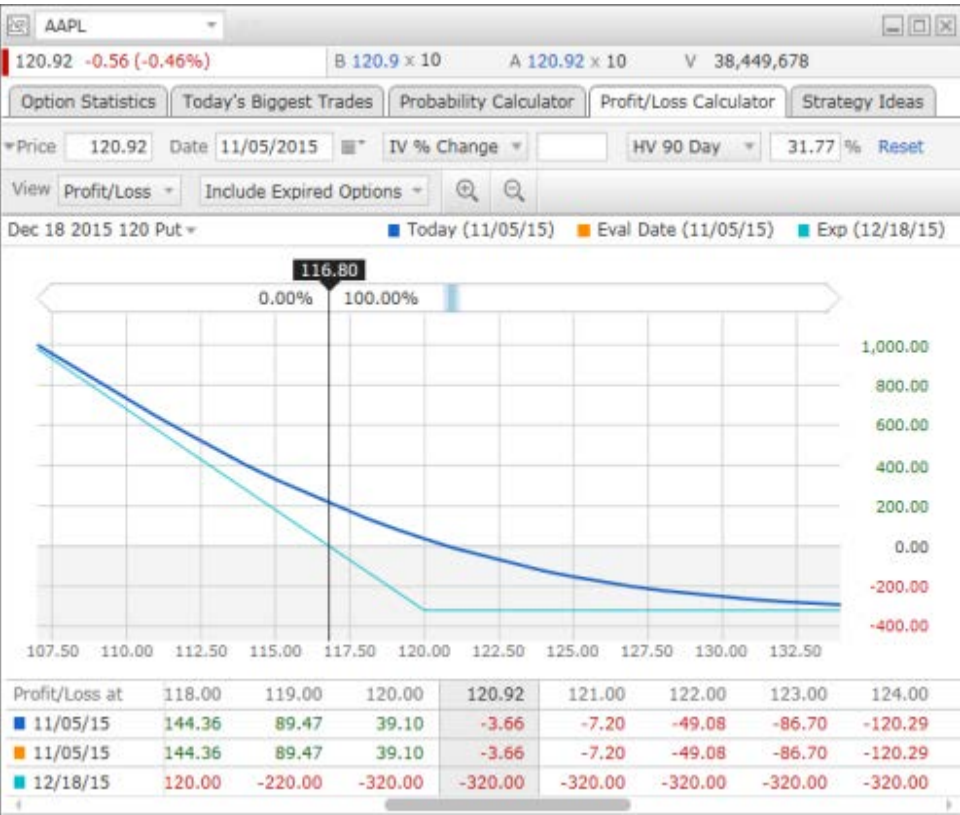


← Long Call (Buyer)
Bullish



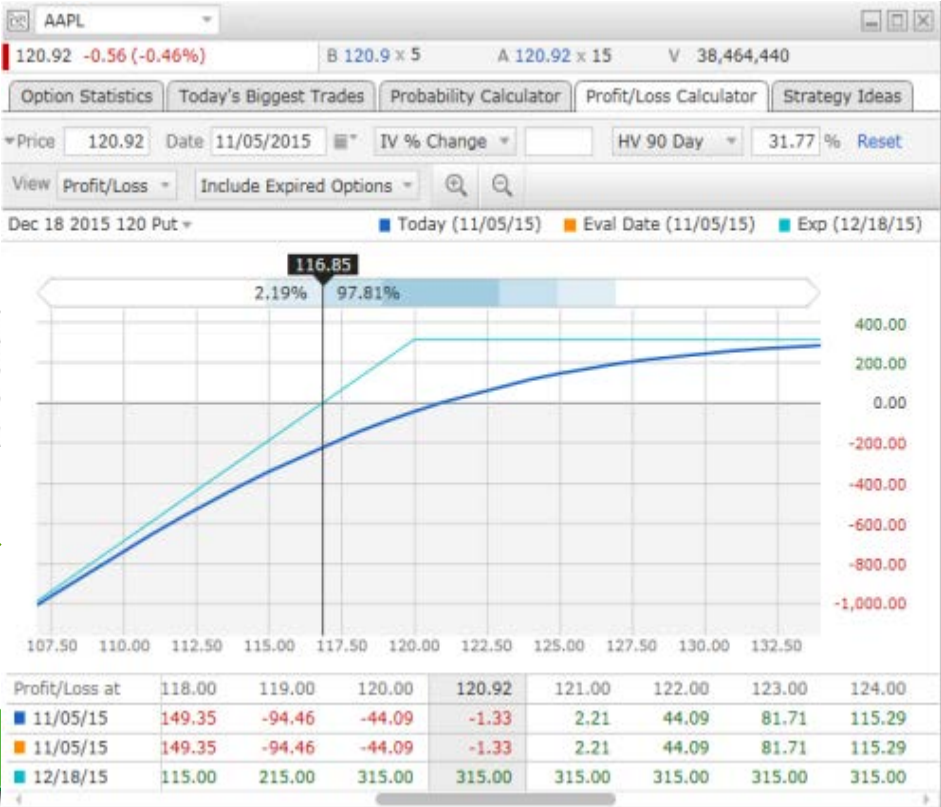
Short Call (Seller) →
Bearish

Put Profit and Loss Graphs



← Long Put (Buyer)
Bearish

Short Put (Seller) →
Bullish



Buyer or Seller?

With options, you can either be a buyer or seller

➤ Buyer

- Have a right to Exercise and buy or sell 100 shares of the underlying
- ***Also called a call/put holder (long the option)***

➤ Seller

- Have obligation to buy/sell at Assignment 100 shares of the underlying
- ***Also called a call/put writer (short the option)***

Many option novices are confused by the terms Buy to Open and Sell to Open versus Buy to Close and Sell to Close. Think of it this way, any time you are creating a new position in your account, you are OPENING and you are either buying or selling the option to Open that new position. Anytime you are removing a position from your account, you are CLOSING it out and either buying it back or selling it to Close the position.



Anatomy of an Options Symbol

-SPY151219C211



What does all that mean?

-SPY is the symbol of the underlying
15 is the year of the expiration
12 is the month of the expiration
19 is the day of the expiration
C indicates that this is a Call option (as opposed to a P for a Put option)
211 is the Strike Price

This means that a holder (buyer) of this call has the right to BUY 100 shares of SPY at \$211 per share at any time until December 19, 2015



Bid, Ask, Volume?

Bid: The highest price that a buyer is willing to pay for the option. Similar to a Bid on stock (options are typically quoted in \$0.01 or \$0.05 increments)

Ask: The lowest price that a seller is willing to sell the option at. Also, similar to an Ask on a stock

Volume: The total number of that particular contract that has traded on that trading day. Once again, similar to stock

AAPL151218C120	
AAPL DEC 2015 120.0000 CALL	
4.40 ↓	B 4.35 x 1,445
0.25 (6.02%)	A 4.45 x 1,681
	V 1,443

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The Option Chain

Where can you find options quotes and information?

Strike	Last	Chg	Bid	Bid Size	Ask	Ask Size	Volume	Open Int	IV Mid	Delta	Gamma	Vega	Theta
Dec 18 CALLS													
100	21.56	0.2	21.15	294	21.45	1658	135	1,929	36.95 %	0.942	0.0077	0.0487	-0.0206
105			16.35	299	16.60	1665	27	1,205	32.09 %	0.9106	0.0123	0.0678	-0.025
110	12.25	0.4	11.70	379	11.90	1574	271	20,175	27.63 %	0.8532	0.0202	0.0958	-0.0308
115	7.73	0.16	7.55	6	7.65	393	953	45,338	24.78 %	0.7374	0.0319	0.1348	-0.0394
120	4.25	0.10	4.25	1	4.25	268	1,449	45,191	22.79 %	0.5548	0.0421	0.1625	-0.044
125	2.01	0.10	1.95	1	1.97	70	3,241	45,620	21.82 %	0.3422	0.0408	0.1514	-0.0391
130	0.80	0.04	0.79	107			3,023	51,344	21.70 %	0.1748	0.0287	0.1075	-0.0271
135	0.33	0.01	0.33	116			509	30,625	22.73 %	0.085	0.0166	0.066	-0.017
140	0.17	0.01	0.17	50	0.18	147	6	32,258	24.58 %	0.0449	0.0093	0.0405	-0.0111
145	0.11	-0.01	0.10	190	0.12	294	136	5,286	27.04 %	0.0277	0.0057	0.0275	-0.0081

Image above is from a customized Option Chain in Active Trader Pro

The Option Chain

What is Open Interest?

-Open Interest is the number of ALL of those contracts in the world. It is not static! The number is updated daily based on the previous day's trading activity.

Strike	Last	Chg	Bid	Bid Size	Ask	Ask Size	Volume	Open Int	IV Mid	Delta	Gamma	Vega	Theta
Dec 18 CALLS													
100	21.56	0.29	21.15	294	21.45	1658	135	1,929	36.95 %	0.942	0.0077	0.0487	-0.0206
105	16.55	0.15	16.35	299	16.60	1665	27	1,205	32.09 %	0.9106	0.0123	0.0678	-0.025
110	12.25	0.40	11.70	379	11.90	1574	271	20,175	27.63 %	0.8532	0.0202	0.0958	-0.0308
115	7.73	0.16	7.55	692	7.65	26	953	45,338	24.78 %	0.7374	0.0319	0.1348	-0.0394
120	4.25	0.10	4.20	134	4.27	7	3,241	45,191	22.79 %	0.5548	0.0421	0.1625	-0.044
125	2.01	0.10	1.95	134	1.97	7	3,241	45,620	21.82 %	0.3422	0.0408	0.1514	-0.0391
130	0.80	0.04	0.79	107	0.81	107	3,023	51,344	21.70 %	0.1748	0.0287	0.1075	-0.0271
135	0.33	0.01	0.33	116	0.35	299	509	30,625	22.73 %	0.085	0.0166	0.066	-0.017
140	0.17	0.01	0.17	50	0.18	147	6	32,258	24.58 %	0.0449	0.0093	0.0405	-0.0111
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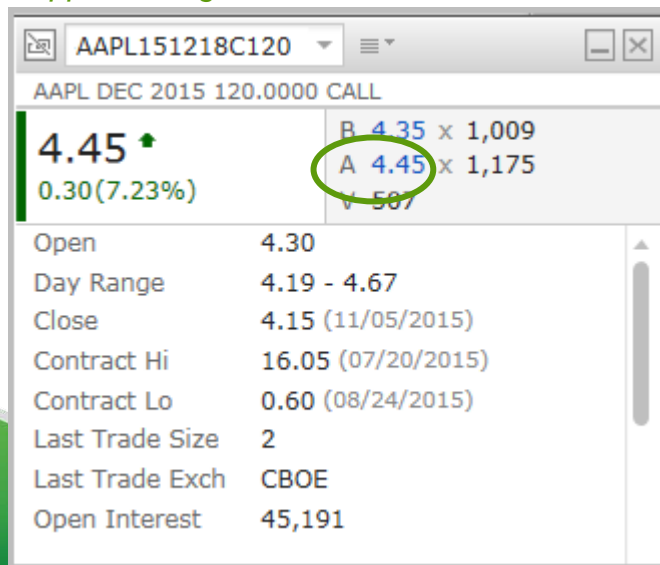
Image above is from a customized Option Chain in Active Trader Pro

What is Premium?

Premium is the amount that you pay for the option contract, or the proceeds that you receive from the sale of a contract.

Example: You buy the AAPL December 2015 120 Call shown below. The **premium** you would pay is \$4.45 (*the A next to the price stands for ASK, which is the price someone is willing to sell the contract for*)

Apple trading at \$121.35 at the time



AAPL151218C120	
AAPL DEC 2015 120.0000 CALL	
4.45 [▲]	B 4.35 x 1,009
0.30 (7.23%)	A 4.45 x 1,175
	V 587
Open	4.30
Day Range	4.19 - 4.67
Close	4.15 (11/05/2015)
Contract Hi	16.05 (07/20/2015)
Contract Lo	0.60 (08/24/2015)
Last Trade Size	2
Last Trade Exch	CBOE
Open Interest	45,191

Remember! The option contract represents 100 shares, so you would actually pay \$4.45 X 100 or \$445.00

If you were the seller of the call in this example, you would have received the premium of \$445.00

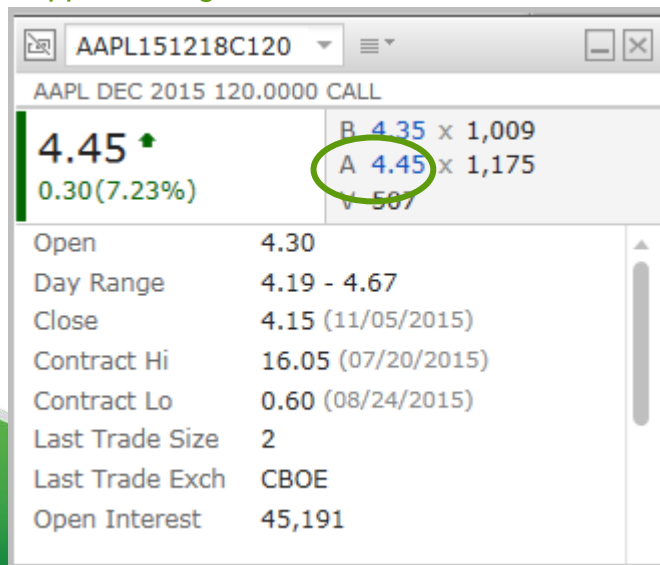


What is Breakeven?

Breakeven is the price the underlying needs to be trading at expiration for your trade to “breakeven” that is, to not gain or lose any money.

Example: You buy the AAPL December 2015 120 Call shown below. The premium you pay is \$4.45. Your breakeven on this trade would be \$124.45. Why? Because you have the right to buy AAPL at \$120, but you paid \$4.45 for the right.

Apple trading at \$121.35 at the time



AAPL DEC 2015 120.0000 CALL	
4.45 [▲]	B 4.35 x 1,009
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Last Trade Size	2
Last Trade Exch	CBOE
Open Interest	45,191

Strike price +/- the premium paid or received = breakeven
 $120 + 4.45 = 124.45$

Remember, most options are actually closed out prior to expiration!



Exercise and Assignment

Long options get exercised, Short options get assigned.

What is Exercise?

- *Exercising a call is when the option holder opts to buy the underlying at the strike price (Typically 100 shares)*
- *Exercising a put is when the option holder opts to sell the underlying at the strike price (Typically 100 shares)*
- *If the option has intrinsic value of at least \$0.01 at expiration, it will be automatically exercised.*
- *If your account cannot support the position that will be created by auto exercise, you should close the option position!*



Exercise and Assignment

What is Assignment?

- *Assignment of a call is the option writer fulfilling their obligation to sell the shares at the strike price. (Typically 100 shares). A short option can be assigned at any time!*
- *Assignment of a put is the option writer fulfilling their obligation to buy the shares at the strike price (Typically 100 shares).*
- *As an option seller, you do not choose if/when assignment will occur. The option buyer controls this, assignment happens when they choose to exercise their option.*
- *Remember! A short (sold) option can be assigned at any time! Even if it has no intrinsic value.*



Exercise and Assignment Value Examples

If we use the previous AAPL example what would Exercise of a call look like?

If you exercised your long AAPL call, you would purchase 100 shares of AAPL at 120. $100 \times \$120 = \$12,000$

Remember, many people use options for leverage, if you had 10 of those contracts and exercised them, it would be $10 \times 100 \times \$120 = \$120,000!$

Each contract controls 100 shares of stock. If you only want to buy 100 shares of the underlying, only buy 1 call contract.

If we use the same example, what would Assignment look like?

If you were assigned on the one call, you would need to deliver 100 shares of AAPL and you would receive \$120 per share, $100 \times \$120 = \$12,000$. But what if you didn't already own the shares? You would have to go into the market and buy them at whatever price they were trading it, which would likely be higher than \$120 per share!

Example, what if AAPL was now trading at \$130?

It would now be $100 \times \$130 = \$13,000$

Exercise and Assignment Value Examples

This time lets substitute an AAPL 120 put for the call. Now what would Exercise of the put look like?

If you exercised your long AAPL put, you would sell 100 shares of AAPL at 120. You would receive proceeds of $100 \times \$120 = \$12,000$

If we use the same example, what would Assignment look like?

If you were assigned on the one put, you would need to buy 100 shares of AAPL and you would pay \$120 per share, $100 \times \$120 = \$12,000$.

Once again remember leverage, if you sold 10 of the puts it would be $10 \times 100 \times \$120 = \$120,000$ you would be paying for 1000 shares of AAPL stock!



Exercise and Assignment Value Examples

*The previous examples were based on options with Stock or ETF's as their underlying.
Index options are slightly different.*

Index options are “European” style, meaning they can only be exercised at expiration, as opposed to “American” style which can be exercised at any time. Additionally, because index options are based on an index (which cannot be delivered) they are settled in cash!

Let's look at an example on .SPX (S&P 500 Index)

You are Long (Own) 1 SPX call expiring on 12/19 with a strike of 2080

If your one SPX call were exercised because SPX closed at 2081 on expiration, you would receive **\$100 CASH** into your account.

Your option has \$1 of intrinsic value X the multiplier for SPX which is \$100 = \$100



What is ITM, ATM and OTM?

1. ITM stands for In the Money

- In the money options are those options that have intrinsic value.
- Calls with strikes below where the underlying is currently trading
- Puts with strikes above where the underlying is currently trading

2. ATM stands for At the Money

- At the money options are options that have a strike price closest to where the underlying is currently trading

3. OTM stands for Out of the Money

- Out of the money options are those which have no intrinsic value.
- Calls with strikes above where the underlying is currently trading
- Puts with strikes below where the underlying is currently trading

What is intrinsic value?



Intrinsic versus Time Value

There are 2 components to an option's price – Intrinsic value and Time value

AAPL																	
120.42 -1.06 (-0.87%)		V 28,650,597		HV30 25.51 IV30 22.17		C/P Ratio: BULLISH BEARISH											
Calls & Puts		Standard		10 Strikes		All Volume & Open Int		(W) Adj									
Nov 20		Dec 18		Jan 15 2016		Feb 19		Apr 15		Jun 17		Jul 15		Jan 20 2017		Jan 19 2018	
Bid	Ask	Volume	Open Int	Intrinsic Value	Time Value	Strike		Bid	Ask	Volume	Open Int	Intrinsic Value	Time Value				
				CALLS		Nov 20	PUTS										
5.25	5.35	287	3,740	4.405	0.895	116		0.85	0.86	1,012	3,823	0.00	0.845				
4.50	4.55	585	6,518	3.465	1.085	117		1.07	1.08	1,993	4,625	0.00	1.065				
3.75	3.80	1,000	6,660	2.415	1.385	118		1.33	1.35	2,000	6,074	0.00	1.34				
3.10	3.15	876	5,275	1.415	1.71	119		1.67	1.68	3,415	3,595	0.00	1.67				
2.51	2.53	6,985	77,882	0.425	2.105	120		2.07	2.09	6,451	20,248	0.00	2.075				
2.00	2.01	6,381	11,801	0.00	2.005	121		2.54	2.56	3,738	3,330	0.575	1.975				
1.55	1.56	7,839	8,275	0.00	1.555	122		3.10	3.15	3,016	3,385	1.595	1.53				
1.18	1.20	6,065	6,519	0.00	1.185	123		3.70	3.75	1,034	2,076	2.545	1.18				
0.88	0.90	44,166	48,226	0.00	0.895	124		4.40	4.50	350	1,427	3.58	0.87				
0.65	0.67	46,757	102,147	0.00	0.665	125		5.15	5.25	856	12,266	4.575	0.625				

- = *In the Money*
- = *At the Money*
- = *Out of the Money*



Intrinsic versus Time Value

There are 2 components to an option's price – **Intrinsic value** and **Time value**

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Nov 20		Dec 18		Jan 15 2016		Feb 19		Apr 15		Jun 17		Jul 15		Jan 20 2017		Jan 19 2018	
Bid	Ask	Volume	Open Int	Intrinsic Value	Time Value	Strike		Bid	Ask	Volume	Open Int	Intrinsic Value	Time Value				
				CALLS				PUTS									
5.25	5.35	287	3,740	4.405	0.895	116		0.85	0.86	1,012	3,823	0.00	0.845				
4.50	4.55	585	6,518	3.465	1.085	117		1.07	1.08	1,993	4,625	0.00	1.065				
3.75	3.80	1,000	6,660	2.415	1.385	118		1.33	1.35	2,000	6,074	0.00	1.34				
3.10	3.15	876	5,275	1.415	1.71	119		1.67	1.68	3,415	3,595	0.00	1.67				
2.51	2.53	6,985	77,882	0.425	2.105	120		2.07	2.09	6,451	20,248	0.00	2.075				
2.00	2.01	6,381	11,801	0.00	2.005	121		2.54	2.56	3,738	3,330	0.575	1.975				
1.55	1.56	7,839	8,275	0.00	1.555	122		3.10	3.15	3,016	3,385	1.595	1.53				
1.18	1.20	6,065	6,519	0.00	1.185	123		3.70	3.75	1,034	2,076	2.545	1.18				
0.88	0.90	44,166	48,226	0.00	0.895	124		4.40	4.50	350	1,427	3.58	0.87				
0.65	0.67	46,757	102,147	0.00	0.665	125		5.15	5.25	856	12,266	4.575	0.625				

- **Intrinsic value** is the measure of the true value of the “right” the option represents – it is the difference between the stock price and the strike price
- **Time value** is a measure of “uncertainty” – the potential that the option could hold more intrinsic value in the future
 - All else equal, the time value erodes as expiration nears – the uncertainty about the stock's price movements between now and expiration gets lower and lower



Importance of Time Value

CALLS		PUTS	
Strike	Time Value	Strike	Time Value
184	0.625	184	0.565
183.5	0.785	183.5	0.815
183	0.975	183	1.015
182.5	1.19	182.5	1.21
182	1.42	182	1.48

Image above is from a customized Option Chain in Active Trader Pro

- The **Time Value** of the calls and puts at each strike price is nearly equivalent
- A covered call and a cash secured put of the same strike price have almost identical risk (max loss, breakeven) and reward (max gain) profiles
- The only difference to the trader is the probability that the trade will result in the acquisition or sale of the underlying security
- At the money contracts have the most time value, but is not always the best choice



What factors affect the premium?

1. Money-ness of the option being sold (Strike Selection)

- Out of the money options offer lower premiums
- At the money option contracts have the most time value
- In the money options offer higher premiums

2. Time to expiration (Expiration Selection)

- Nearer term expirations offer the potential for the highest annualized return but offer a lower up front premium
- Longer dated expirations decay at a slower rate, but offer the advantage of more upfront premium (income certainty)

3. Expected Movement from the Underlying (Implied Volatility)

- Higher implied volatility (expected price movement) results in higher premiums
- When selling options, if that expected volatility becomes realized volatility, it can result in substantial losses



Introduction to Options part 1

This concludes today's presentation.

Thank you for attending.

Please join us for our upcoming webinars:

- **December 17th, 12:00 pm EST Introduction to Options Part 2**
- **December 18th, 12:00 pm EST Introduction to Options Part 3**

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