

# Option Basics

## INTRODUCTION

An option is a contract between two parties that determines the time and price at which a stock may be bought or sold. The two parties to the contract are the buyer and the seller. The buyer of the option pays money, known as the option's premium, to the seller. For this premium, the buyer obtains a right to buy or sell the stock depending on what type of option is involved in the transaction. The seller, because they received the premium from the buyer, now has an obligation to perform under that contract. Depending on the option involved, the seller may have an obligation to buy or sell the stock.

## OPTION CLASSIFICATION

Options are classified as to their type, class, and series. There are two types of options:

- Calls
- Puts

## CALL OPTIONS

A call option gives the buyer the right to buy or to "call" the stock from the option seller at a specific price for a certain period of time. The sale of a call

option obligates the seller to deliver or sell that stock to the buyer at that specific price for a certain period of time.

### PUT OPTIONS

A put option gives the buyer the right to sell or to “put” the stock to the seller at a specific price for a certain period of time. The sale of a put option obligates the seller to buy the stock from the buyer at that specific price for a certain period of time.

## OPTION CLASSES

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An option class consists of all options of the same type for the same underlying stock.

For example, all XYZ calls would be one class of options and all XYZ puts would be another class of option.

Class 1	Class 2
XYZ June 50 calls	XYZ June 50 puts
XYZ June 55 calls	XYZ June 55 puts
XYZ July 50 calls	XYZ July 50 puts
XYZ July 55 calls	XYZ July 55 puts
XYZ August 50 calls	XYZ August 50 puts

## OPTION SERIES

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An option series is the most specific classification of options and consists of only options of the same class with the same exercise price and expiration month. For example, all XYZ June 50 calls would be one series of options and all XYZ June 55 calls would be another series of options.

## BULLISH VS. BEARISH

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### BULLISH

Investors who believe that a stock price will increase over time are said to be bullish. Investors who buy calls are bullish on the underlying stock. That is, they believe that the stock price will rise and have paid for the right to

purchase the stock at a specific price known as the exercise price or strike price. An investor who has sold puts is also considered to be bullish on the stock. The seller of a put has an obligation to buy the stock and, therefore, believes that the stock price will rise.

## BEARISH

Investors who believe that a stock price will decline are said to be bearish. The seller of a call has an obligation to sell the stock to the purchaser at a specified price and believes that the stock price will fall and is therefore bearish. The buyer of a put wants the price to drop so that they may sell the stock at a higher price to the seller of the put contract. They are also considered to be bearish on the stock.

	Calls	Puts
<b>Buyers</b>	Bullish Have right to buy stock, want stock price to rise	Bearish Have right to sell stock, want stock price to fall
<b>Sellers</b>	Bearish Have obligation to sell stock, want stock price to fall	Bullish Have obligation to buy stock, want stock price to rise

## Buyer vs. Seller

Buyer		Seller
Owner	<b>Known as</b>	Writer
Long	<b>Known as</b>	Short
Rights	<b>Has</b>	Obligations
Maximum speculative profit	<b>Objective</b>	Premium income
With an opening purchase	<b>Enters the contract</b>	With an opening sale
Exercise	<b>Wants the option to</b>	Expire

## POSSIBLE OUTCOMES FOR AN OPTION

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### EXERCISED

If the option is exercised, the buyer has elected to exercise their rights to buy or sell the stock depending on the type of option involved. Exercising an option obligates the seller to perform under the contract.

**SOLD**

Most individual investors will elect to sell their rights to another investor rather than exercise their rights. The investor who buys the option from them will acquire all the rights of the original purchaser.

**EXPIRE**

If the option expires, the buyer has elected not to exercise their right and the seller of the option is relieved of their obligation to perform.

**EXERCISE PRICE**

The exercise price is the price at which an option buyer may buy or sell the underlying stock depending on the type of option involved in the transaction. The exercise price is also known as the strike price.

**CHARACTERISTICS OF ALL OPTIONS**

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All standardized option contracts are issued and their performance is guaranteed by the Options Clearing Corporation (The OCC). Standardized options trade on the exchanges such as the Chicago Board Options Exchange (CBOE), NYSE ARCA, NYSE AMEX, and the Nasdaq OMX/PHLX.

All option contracts are for one round lot of the underlying stock or 100 shares. To determine the amount that an investor either paid or received for the contract, take the premium and multiply it by 100. If an investor paid \$4 for 1 KLM August 70 call, they paid \$400 for the right to buy 100 shares of KLM at \$70 per share until August. If another investor paid \$2 for 1 JTJ May 50 put, they paid \$200 for the right to sell 100 shares of JTJ at \$50 until May.

**MANAGING AN OPTION POSITION**

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Both the buyer and seller, in an option trade, establish the position with an opening transaction. The buyer has an opening purchase and the seller has an opening sale. To exit the option position, an investor must close out the position. The buyer of the option may exit their position through the following:

- A closing sale
- Exercising the option
- Allowing the option to expire

The seller of an option may exit or close out their position through the following:

- A closing purchase
- Having the option exercised or assigned to them
- Allowing the option to expire

Most individual investors do not exercise their options and will simply buy and sell options in much the same way as they would buy or sell other securities.

## BUYING CALLS

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An investor who purchases a call believes that the underlying stock price will rise and that they will be able to profit from the price appreciation by purchasing calls. An investor who purchases a call can control the underlying stock and profit from its appreciation while limiting their loss to the amount of the premium paid for the calls. Buying calls allows the investor to maximize their leverage and they may realize a more significant percentage return based on their investment. An investor also may elect to purchase a call to lock in a purchase price for a security if the investor currently lacks the funds required to purchase the security but will have the funds available in the near future. When looking to establish a position, the buyer must determine their:

- Maximum gain
- Maximum loss
- Breakeven

### MAXIMUM GAIN LONG CALLS

When an investor has a long call position, their maximum gain is always unlimited. They profit from a rise in the stock price. Since there is no limit to how high a stock price may rise, their maximum gain is unlimited just as if they had purchased the stock.

### MAXIMUM LOSS LONG CALLS

Whenever an investor is long or owns a stock, their maximum loss is always limited to the amount they invested. When an investor purchases a call option, the amount they pay for the option or their premium is always going to be their maximum loss.

## DETERMINING THE BREAKEVEN FOR LONG CALLS

An investor who has purchased calls must determine where the stock price must be at expiration in order for the investor to break even on the transaction. An investor who has purchased calls has paid the premium to the seller in the hopes that the stock price will rise. The stock must appreciate by enough to cover the cost of the investor's option premium in order for them to break even at expiration. To determine an investor's break-even point on a long call, use the following formula:

$$\text{Breakeven} = \text{Strike price} + \text{premium}$$

### EXAMPLE

An investor has established the following option position:

**Long 1 XYZ May 30 call at 3**

The investor's maximum gain, maximum loss, and breakeven will be:

Maximum gain: Unlimited

Maximum loss \$300 (The amount of the premium paid)

Breakeven:  $\$33 = 30 + 3$  (Strike price + premium)

If at expiration XYZ is at exactly \$33 per share and the investor sells or exercises their option, they will break even excluding transactions costs.

## SELLING CALLS

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An investor who sells a call believes that the underlying stock price will fall and that they will be able to profit from a decline in the stock price by selling calls. An investor who sells a call is obligated to deliver the underlying stock if the buyer decides to exercise the option. When looking to establish a position, the seller must determine their:

- Maximum gain
- Maximum loss
- Breakeven

### MAXIMUM GAIN SHORT CALLS

For an investor who has sold uncovered or naked calls, maximum gain is always limited to the amount of the premium they received when they sold the calls.

### MAXIMUM LOSS SHORT CALLS

An investor who has sold uncovered or naked calls does not own the underlying stock and, as a result, has unlimited risk and the potential for an unlimited loss. The seller of the calls is subject to a loss if the stock price increases. Since there is no limit to how high a stock price may rise, there is no limit to the amount of their loss.

### DETERMINING THE BREAKEVEN FOR SHORT CALLS

An investor who has sold calls must determine where the stock price must be at expiration in order for the investor to break even on the transaction. An investor who has sold calls has received the premium from the buyer in the hopes that the stock price will fall. If the stock appreciates, the investor may begin to lose money. The stock price may appreciate by the amount of the option premium received and the investor still will break even at expiration. To determine an investor's break-even point on a short call, use the following formula:

**EXAMPLE****Breakeven = Strike price + premium**

An investor has established the following option position: Short 1 XYZ May 30 call at 3

The investor's maximum gain, maximum loss, and breakeven will be:

Maximum gain: \$300 (The amount of the premium received)

Maximum loss: Unlimited

Breakeven:  $\$33 = 30 + 3$  (Strike price + premium)

If at expiration XYZ is at exactly \$33 per share and the investor closes out the transaction with a closing purchase or has the option exercised against them, they will break even excluding transactions costs.

Notice the relationship between the buyer and the seller:

	Call Buyer	Call Seller
Maximum Gain	Unlimited	Premium received
Maximum Loss	Premium paid	Unlimited
Breakeven	Strike price + premium	Strike price + premium
Wants Option to	Exercise	Expire

Because an option is a two-party contract, the buyer's maximum gain is the seller's maximum loss and the buyer's maximum loss is the seller's maximum gain. Both the buyer and the seller will break even at the same point.

## BUYING PUTS

An investor who purchases a put believes that the underlying stock price will fall and that they will be able to profit from a decline in the stock price by purchasing puts. An investor who purchases a put can control the underlying stock and profit from its price decline while limiting their loss to the amount of the premium paid for the puts. Buying puts allows the investor to maximize their leverage while limiting their losses and may realize a more significant percentage return based on their investment when compared to the return that could be realized from shorting stock. When looking to establish a position, the buyer must determine their:

- Maximum gain
- Maximum loss
- Breakeven

### MAXIMUM GAIN LONG PUTS

An investor who has purchased a put believes that the stock price will fall. There is, however, a limit to how far a stock price may decline. A stock price may never fall below zero. As a result, the investor who believes that the stock price will fall has a limited maximum gain. To determine the maximum gain for the buyer of a put, use the following formula:

$$\text{Maximum gain} = \text{Strike price} - \text{premium}$$



## MAXIMUM LOSS LONG PUTS

Whenever an investor is long or owns a stock, their maximum loss is always limited to the amount they invested. When an investor purchases a put option, the amount they pay for the option or their premium is always going to be their maximum loss.

## DETERMINING THE BREAKEVEN FOR LONG PUTS

Whenever an investor has purchased a put, they believe that the stock price will decline. In order for the investor to break even on the transaction, the stock price must fall by enough to offset the amount of the premium paid for the option. At expiration, the investor will break even at the following point:

$$\text{Breakeven} = \text{Strike price} - \text{premium}$$

### EXAMPLE

An investor has established the following option position:

#### Long 1 XYZ May 30 put at 4

The investor's maximum gain, maximum loss, and breakeven will be:

Maximum gain: \$26 or \$2,600 for the whole position  
(Strike price – premium)

Maximum loss \$400 (The amount of the premium paid)

Breakeven = \$26 = 30 – 4 (Strike price – premium)

If at expiration XYZ is at exactly \$26 per share and the investor sells or exercises their option, they will break even excluding transactions costs.

## SELLING PUTS

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An investor who sells a put believes that the underlying stock price will rise and that they will be able to profit from a rise in the stock price by selling puts. An investor who sells a put is obligated to purchase the underlying stock if the buyer decides to exercise the option. An investor who sells a put also may be selling the put as a way to acquire the underlying security at a cheaper price. If the stock is put to the investor, the investor's purchase price is reduced by

the amount of the premium received. When looking to establish a position the seller must determine their:

- Maximum gain
- Maximum loss
- Breakeven

### **MAXIMUM GAIN SHORT PUTS**

For an investor who has sold uncovered or naked puts, maximum gain is always limited to the amount of the premium they received when they sold the puts.

### **MAXIMUM LOSS SHORT PUTS**

An investor who has sold a put believes that the stock price will rise. There is, however, a limit to how far a stock price may decline. A stock price may never fall below zero. As a result, the investor who believes that the stock price will rise has a limited maximum loss. The worst thing that can happen for an investor who is short a put is that the stock goes to zero and they are forced to purchase it at the strike price from the owner of the put. To determine the maximum loss for the seller of a put, use the following formula:

$$\text{Maximum loss} = \text{Strike price} - \text{premium}$$

### **DETERMINING THE BREAKEVEN FOR SHORT PUTS**

Whenever an investor has sold a put, they believe that the stock price will rise. If the stock price begins to fall, the investor becomes subject to loss. In order for the investor to break even on the transaction, the stock price may fall by the amount of the premium they received for the option. At expiration the investor will break even at the following point:

$$\text{Breakeven} = \text{Strike price} - \text{premium}$$

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**EXAMPLE**

An investor has established the following option position:

**Short 1 XYZ May 30 put at 4**

The investor's maximum gain, maximum loss, and breakeven will be:

Maximum gain: \$400 (The amount of the premium received)

Maximum loss \$26 or \$2,600 for the whole position

(Strike price – premium)

Breakeven = \$26 = 30 – 4 (Strike price – premium)

If at expiration XYZ is at exactly \$26 per share and the investor closes out the position with a closing purchase or has the option exercised against them, they will break even, excluding transactions costs.

Notice the relationship between the buyer and the seller:

	Put Buyer	Put Seller
Maximum Gain	Strike price – premium	Premium received
Maximum Loss	Premium paid	Strike price – premium
Breakeven	Strike price – premium	Strike price – premium
Wants Option to	Exercise	Expire

Because an option is a two-party contract, the buyer's maximum gain is the seller's maximum loss and the buyer's maximum loss is the seller's maximum gain. Both the buyer and the seller will break even at the same point.

## OPTION PREMIUMS

The price of an option is known as its premium. Factors that determine the value of an option and, as a result, its premium, are:

- The relationship of the underlying stock price to the option's strike price
- The amount of time to expiration
- The volatility of the underlying stock
- Supply and demand
- Interest rates

An option can be:

- In the money
- At the money
- Out of the money

These terms describe the relationship of the underlying stock to the option's strike price. These terms do not describe how profitable the position is.

### IN THE MONEY OPTIONS

A call is in the money when the underlying stock price is greater than the call's strike price.

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**EXAMPLE** An XYZ June 40 Call is \$2 in the money when XYZ is at \$42 per share.

A put is in the money when the underlying stock price is lower than the put's strike price.

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**EXAMPLE** An ABC October 70 Put is \$4 in the money when ABC is at \$66 per share.

It would only make sense to exercise an option if it was in the money.

### AT THE MONEY OPTIONS

Both puts and calls are at the money when the underlying stock price equals the options exercise price.

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**EXAMPLE** If FDR is trading at \$60 per share, all of the FDR 60 calls and all of the FDR 60 puts will be at the money.

### OUT OF THE MONEY OPTIONS

A call is out of the money when the underlying stock price is lower than the option's strike price.

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**EXAMPLE** An ABC November 25 call is out of the money when ABC is trading at \$22 per share.

A put option is out of the money when the underlying stock price is above the option's strike price.

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**EXAMPLE** A KDC December 50 put is out of the money when KDC is trading at \$54 per share.

It would not make sense to exercise an out-of-the-money option.

	Calls	Puts
In the Money	Stock price > Strike price	Stock price < Strike price
At the Money	Stock price = Strike price	Stock price = Strike price
Out of the Money	Stock price < Strike price	Stock price > Strike price

## INTRINSIC VALUE AND TIME VALUE

An option's total premium is comprised of intrinsic value and time value. An option's intrinsic value is equal to the amount the option is in the money. Time value is the amount by which an option's premium exceeds its intrinsic value. In effect, the time value is the price an investor pays for the opportunity to exercise the option. An option that is out of the money has no intrinsic value; therefore, the entire premium consists of time value.

### EXAMPLE

An XYZ June 40 call is trading at \$2 when XYZ is trading at \$37 per share. The June 40 call is out of the money and has no intrinsic value; therefore, the entire \$2 premium consists of time value. If an XYZ June 40 put is trading at \$3 when XYZ is at \$44 dollars per share, the entire \$3 is time value.

If, in this example, the options were in the money and the premium exceeded the intrinsic value of the option, the remaining premium would be time value.

### EXAMPLE

An XYZ June 40 call is trading at \$5 when XYZ is trading at \$42 per share. The June 40 call is in the money and has \$2 in intrinsic value; therefore, the rest of the premium consists of the time value of \$3. If an XYZ June 40 put is trading at \$4 when XYZ is at \$39, the put is in the money by \$1 and the rest of the premium or \$3 is time value.



## Pretest

### OPTION BASICS

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1. You sold 10 IBM May 95 puts at 5.70. Your maximum gain is:
  - a. \$570
  - b. \$5,700
  - c. unlimited
  - d. \$95,000
  
2. An investor sells 2 ZAQ Nov 60 puts at 3.5 when ZAQ is at 62.70. ZAQ falls to 56.05 at expiration and the investor closes the position at its intrinsic value. What is their gain or loss?
  - a. \$90 profit
  - b. \$90 loss
  - c. \$45 loss
  - d. \$45 profit

3. Which of the following are true about an option?
- I. It is a contract between two parties that determines the time and place at which a security may be bought or sold.
  - II. The two parties are known as the buyer and the seller. The money paid by the buyer of the option is known as the option's premium.
  - III. The buyer has bought the right to buy or sell the security, depending on the type of option.
  - IV. The seller has an obligation to perform under the contract, possibly to buy or sell the stock, depending on the option involved.
- a. I, III, and IV
  - b. I, II, III, and IV
  - c. I, II, and III
  - d. II, III, and IV
4. Which of the following are bearish?
- I. Call seller
  - II. Put seller
  - III. Call buyer
  - IV. Put buyer
- a. II and III
  - b. II and IV
  - c. I and IV
  - d. I and II
5. Which of the following issues standardized options?
- a. The Exchanges
  - b. The OCC
  - c. The Company
  - d. Nasdaq



6. An investor buys 10 XYZ May 70 calls at 3.10 when XYZ is at 68. At expiration, the stock is at 77 and the investor closes out the position at its intrinsic value. What is the profit or loss?
- \$7,000 profit
  - \$7,000 loss
  - \$3,100 loss
  - \$3,900 profit
7. A MSFT Jun 65 put trading at 3 has how much intrinsic value with MSFT at 65?
- \$0
  - \$3
  - \$65
  - \$2
8. With XYZ trading at 52.50, none of the following options are in the money except:
- XYZ Mar 55 call
  - XYZ Mar 55 put
  - XYZ Mar 50 put
  - XYZ Mar 60 call
9. An XYZ May 50 call is quoted at 4.35 when XYZ is at 51.10. Which of the following are true?
- The time value is 1.10.
  - The option is in the money.
  - The time value is 3.25.
  - The intrinsic value is more than the time value.
- II and III
  - I and IV
  - II and IV
  - I and III

10. An investor sells 10 CSC Oct 75 puts at 5.30 to open. CSC trades down to 71 at expiration and the investor closes out the position at intrinsic value with a closing purchase. What is the investor's gain or loss?
- a. \$1,300 loss
  - b. \$1,300 gain
  - c. \$300 loss
  - d. \$300 gain