**The Stock Options: Parameters and Trading**

**What Is a Stock Option?**

A stock option (also known as an [equity option](https://www.investopedia.com/terms/e/equity_derivative.asp)), gives an investor the right, but not the obligation, to buy or sell a stock at an agreed-upon price and date. There are two types of options: [puts](https://www.investopedia.com/terms/p/putoption.asp), which is a bet that a stock will fall, or [calls](https://www.investopedia.com/terms/c/calloption.asp), which is a bet that a stock will rise.

Because it has shares of stock (or a stock index) as its underlying asset, stock options are a form of [equity derivative](https://www.investopedia.com/terms/e/equity_derivative.asp) and may be called equity options.

[Employee stock options](https://www.investopedia.com/terms/e/eso.asp) (ESOs) are a type of equity compensation given by companies to some employees or executives that effectively amount to call options. These differ from listed equity options on stocks that trade in the market, as they are restricted to a particular corporation issuing them to their own employees.

KEY TAKEAWAYS

* Stock options give a trader the right, but not the obligation, to buy or sell shares of a certain stock at an agreed-upon price and date.
* Stock options are a common form of equity derivative.
* One equity options contract generally represents 100 shares of the underlying stock.
* There are two primary types of options contracts: calls and puts.
* Employee stock options (ESOs) are when a company effectively grants call options to certain employees as compensation.

**Understanding Stock Options**

Options are a type of [financial instrument](https://www.investopedia.com/terms/f/financialinstrument.asp) known as a [derivative](https://www.investopedia.com/terms/d/derivative.asp). This means their worth is based on, or derived from, the value of an [underlying security](https://www.investopedia.com/terms/u/underlying-security.asp)or asset. In the case of stock options, that asset is shares of a company's stock. The option is a contract that creates an agreement between two parties to have the option to sell or buy the stock at some point in the future at a specified price. The price is known as the [strike price](https://www.investopedia.com/terms/s/strikeprice.asp) or exercise price.

Stock options come in two basic forms:

* [Call options](https://www.investopedia.com/terms/c/calloption.asp) afford the holder the right, but not the obligation, to **buy** the asset at a stated price within a specific timeframe.
* [Put options](https://www.investopedia.com/terms/p/putoption.asp) afford the holder the right, but not the obligation, to **sell** the asset at a stated price within a specific timeframe.

**Therefore, if XYZ stock is trading at $100, a $120-strike call would become worthwhile to exercise (i.e., convert into shares at the strike price) only if the market price rises above $120. Or, an $80-strike put would be worthwhile if the shares drop below $80. At that point, both options would be said to be**[**in-the-money**](https://www.investopedia.com/terms/i/inthemoney.asp)**(ITM), meaning that they have some**[**intrinsic value**](https://www.investopedia.com/terms/i/intrinsicvalue.asp)**(namely, the difference between the strike price and the market price). Otherwise, the options are**[**out-of-the-money**](https://www.investopedia.com/terms/o/outofthemoney.asp)**(OTM), and consist of extrinsic value (also known as time value). OTM options still have value since the underlying asset has some probability of moving into the money on or before the option expires. This probability is reflected in the option's price.**

Equity options are derived from a single equity security. Investors and traders can use equity options to take a long or short position in a stock without actually buying or shorting the stock. This is advantageous because taking a position with options allows the investor/trader more leverage in that the amount of capital needed is much less than a similar outright long or short position on margin. Investors and traders can, therefore, profit more from a price movement in the underlying stock.

[*Exercising an option*](https://www.investopedia.com/terms/e/exercise.asp)*means using the option holder's right to convert the contract into shares at the strike price.*

**Stock Option Parameters**

American vs. European Styles

There are two different styles of options: [American](https://www.investopedia.com/terms/a/americanoption.asp) and [European](https://www.investopedia.com/terms/e/europeanoption.asp). American options can be exercised at any time between the purchase and expiration date. European options, which are less common, can only be exercised on the expiration date.

Expiration Date

Options contracts exist for only a certain period of time. This is known as the [expiration date](https://www.investopedia.com/terms/e/expiration-date.asp). Options listed with longer expiration dates will have more time value since there is a greater chance of an option becoming in-the-money the longer there is for the underlying stock to move around. Option expiration dates are set according to a fixed schedule (known as an [options cycle](https://www.investopedia.com/terms/o/optioncycle.asp)) and typically range from daily or weekly expirations to monthly and up to one year or more.

Strike Price

The strike price determines whether an option should be exercised. It is the price that a trader expects the stock to be above or below by the expiration date.

**As an example, if a trader is betting that International Business Machine Corp. (**[**IBM**](https://www.investopedia.com/markets/quote?tvwidgetsymbol=ibm)**) will rise in the future, they might buy a call for a specific month and a particular strike price. For example, a trader is betting that IBM's stock will rise above $150 by the middle of January. They may then buy a January $150 call.**

Contract Size

Contracts represent a specific number of underlying shares that a trader may be looking to buy. One contract is equal to 100 shares of the underlying stock.

Using the previous example, a trader decides to buy five call contracts. Now the trader would own five January $150 calls. If the stock rises above $150 by the expiration date, the trader would have the option to exercise or buy 500 shares of IBM’s stock at $150, regardless of the current stock price. If the stock is worth less than $150, the [options will expire worthless](https://www.investopedia.com/terms/m/maxpain.asp), and the trader will lose the entire amount spent to buy the options, also known as the premium.

Premium

The [premium](https://www.investopedia.com/terms/o/option-premium.asp) is the price paid for an option, It is determined by taking the price of the call and multiplying it by the number of contracts bought, then multiplying it by 100.

In our example, if a trader buys five January IBM $150 Calls for $1 per contract, the trader would spend $500. However, if a trader wanted to bet the stock would fall they would buy the puts.

The [volatility](https://www.investopedia.com/terms/v/volatility.asp) of the underlying security is a key concept in options pricing theory. In general, the greater the volatility, the higher the premium required for all options listed on that security.

**Trading Stock Options**

Stock options are listed for trading on several exchanges, including the Chicago Board Options Exchange ([CBOE](https://www.investopedia.com/terms/c/cboe.asp)), the Philadelphia Stock Exchange ([PHLX](https://www.investopedia.com/terms/p/phlx.asp)), and the International Securities Exchange ([ISE](https://www.investopedia.com/terms/i/internationalsecurityexchange.asp)), among several others.

Options can be bought or sold depending on the strategy a trader is using. Continuing with the example above, if a trader thinks IBM shares are poised to rise, they can buy the call, or they can also choose to sell or write the put. In this case, the seller of the put would not pay a premium but would receive the premium. A seller of five IBM January $150 puts would receive $500.

Should the stock trade above $150, the option would expire worthless allowing the seller of the put to keep all of the premium. However, should the stock close below the strike price, the seller would have to buy the underlying stock at the strike price of $150. If that happens, it would create a loss of the premium and additional capital, since the trader now owns the stock at $150 per share, despite it trading at lower levels.

Another popular equity options technique is trading [option spreads](https://www.investopedia.com/terms/s/spreadoption.asp). Traders take combinations of long and short option positions, with different strike prices and expiration dates, for the purpose of extracting profit from the option premiums with minimal risk.

**Example of Stock Options**

**In the example below, a trader believes Nvidia Corp’s (**[**NVDA**](https://www.investopedia.com/markets/quote?tvwidgetsymbol=nvda)**) stock is going to rise in the future to over $170. They decide to buy 10 January $170 calls which trade at a price of $16.10 per contract. It would result in the trader spending $16,100 to purchase the calls. However, for the trader to earn a profit, the stock would need to rise above the strike price and the cost of the calls, or $186.10. Should the stock not rise above $170, the options would expire worthless, and the trader would lose the entire premium.**

**Employee Stock Options**

Companies sometimes grant call options to certain employees as a form of equity compensation to incentivize good performance or reward seniority. Employee stock options (ESOs) effectively give an employee the right to buy the company’s stock at a specified price for a finite period of time. ESOs often have vesting schedules that limit the ability to exercise. If the stock's market price has risen once the vesting periods end, the employee can benefit greatly by exercising those options.

For example, if you begin to work at a startup, you might be given stock options for 12,000 shares of the startup's stock as part of your compensation. These options aren't given to you immediately; they [vest](https://www.investopedia.com/terms/f/fully-vested.asp) over a designated period of time. Vesting means it becomes available to use. So after one year, you might be able to exercise 3,000 shares, then another 3,000 each year after that. By the end of four years, all 12,000 shares will be vested.

Employee stock options usually come with a "[cliff](https://www.investopedia.com/ask/answers/09/what-is-cliff-vesting.asp)" as well. This is the amount of time you must work with the company to receive your shares. If you get a new job before you reach the cliff, you lose all your stock options. After that cliff, even if you leave the company, your options will continue to vest on schedule.

Options often come with an expiration date, which is the last point at which you can exercise your option. This could be a set number of years after the option is granted or a set number of days after you leave the company. The details of the expiration date should be in your contract.

Employee stock options are not publicly-traded: they are granted exclusively by corporations to their employees. Upon ESO exercise, the company must grant new shares to that employee, which has a dilutive effect as it increases the overall number of shares. Investors should pay attention to the number of employee options that have been granted to understand their fully-dilutive potential.

**How to Calculate the Value of Your Stock Options**

If the company you hold options for is publicly traded, the value of your stock options depends on the current value of the stock. Calculate how much it would be worth if you were buying or selling the number of shares you have an option for at the public price. Then, calculate how much it would be worth to buy or sell the same number of share at the price of your option. The difference between them is the value of your stock option.

If the company isn't publicly traded, it becomes a little trickier. If the business has received a valuation that determines how much each share in it is worth, then can give you a starting point to value your options. But that's still a speculative number.

The number of shares (or options) out there also affects the value of yours. The more shares there are (for example, if most employees have been given stock options they can exercise), then the lower the value of each individual share in the business.

The value of your options also depends on the value of the stock itself. If you have an employee stock option to buy 20,000 shares at $2 a share, but the stock is currently trading at $1 a share, then your option currently has no value. If the price of the share rises to $3, however, then your stock options have a value of $20,000.

**How to Exercise Your Stock Options**

When you exercise your stock options, that is when you actually buy or sell them. An employee with stock options, for example, can only exercise those options after they have vested.

If you are buying stock from an option, you buy it at the option price, regardless of what the current price of the stock is. So if you are an employee with an option to buy 12,000 shares of stock at $1 a share, you will need to pay $12,000. At that point, you would own the shares outright. You would be able to sell them (if you think the price is going to go down) or keep them (if you think the price is going to go up).

If you don't have the cash available, there are a few ways you can still exercise your stock options:

* **Exercise-and-sell**: Purchase your options through a brokerage and immediately sell them. The brokerage handling the sale will effectively let you use the money from the sale to cover the cost of buying the shares.
* **Exercise-and-sell-to-cover**: Purchase your shares through your brokerage, then sell just enough to cover the cost of the transaction. You keep the rest of the shares.

**Stock Options and Taxes**

If you exercise your stock options, you will need to pay taxes on any profit that you make. How your taxes are calculated depends on the type of option you have and how long you wait between exercising your option and selling your shares.

Taxes for Statutory Stock Options

Statutory stock options are granted through an employee stock purchase plan or an incentive stock option (ISO). For this type of option, you aren't taxed when you are granted the option. In most cases, you will be taxed when you exercise the option. If that happens, your employer will report the income on your annual W-2 form.

If you are taxed after your exercise your option, it will be on the bargain element, which is the difference between the market value and the price you paid. For example, if the public price was $2 per share, and you exercised an option to buy 10,000 shares at $1 a share, you would pay taxes on the $10,000 difference between the two prices.

You would also have to pay capital gains tax whenever you sell your shares. If you hold the shares for less than a year after you sell them, they count as a short-term capital gain (or loss) and are taxed at your ordinary income rate. If you hold them for more than a year, they are taxed at the long-term capital gains rate (0%, 15%, or 20% depending on your income and filing status).

Taxes for Nonstatutory Stock Options

Nonstatutory stock options aren't granted through either an employee stock purchase plan or an ISO plan. In this case, you may have taxable income when you receive the option itself. For nonstatutory stock options, the taxable income you are considered to have depends on how readily determined the fair market value of the option can be.

If the stock is publicly traded, the fair market value can be readily determined. In that case, the option is treated as taxable income at the time it is granted to you. The tax rate for that income will depend on your total income and tax bracket. When you later exercise the option, you do not have to pay tax on any amount of income from the option.

Most nonstatutory stock options, though, don't have a fair market value that can be readily determined. In that case, it is not treated as income until you exercise or transfer the option. Once you do that, you report the fair market value of the stock you receive (minus the amount you paid) as taxable income. This is usually taxed as a capital gain or loss.

**Types of Stock Option Plans**

There are different ways of structuring a stock option plan. These provide different levels of risk and incentive to both employers and employees.

|  | **Fixed Value Plan** | **Fixed Number Plan** | **Mega grant Plan** |
| --- | --- | --- | --- |
| Structure | Employees/executives receive options worth a fixed value every year | Employees/executives receive a fixed number of options every year | Employees/executives receive single, large grant of options |
| Benefits | Allow companies to keep compensation in line with competitors | Strongly links pay and performance | Strongly links pay and performance |
|  | Minimizes risk that employee will leave for better compensation elsewhere | Creates an incentive to grow the company and increase stock value | High compensation that attracts top employees |
| Drawbacks | Low link between pay and performance | Don't protect future pay from changes in stock value prices | Significant decrease in value can remove incentive to boost stock price or remain at the company |
|  | Minimal incentive to employees/executives | Lower pay during times of market turmoil | Risky for companies that are prone to market volatility |

Why Would You Buy an Option?

Essentially, a stock option allows an investor to bet on the rise or fall of a given stock by a specific date in the future. Often, large corporations will purchase stock options to hedge risk exposure to a given security. On the other hand, options also allow investors to speculate on the price of a stock, typically elevating their risk.

What Are the Two Main Types of Stock Options?

When investors trade stock options, they can choose between a call option or a put option. In a call option, the investor speculates that the underlying stock’s price will rise. A put option takes a bearish position, where the investor bets that the underlying stock’s price will decline. Options are purchased as contracts, which are equal to 100 shares of the underlying stock.

How Do Stock Options Work?

Consider an investor who speculates that the price of stock A will rise in three months. Currently, stock A is valued at $10. The investor then buys a call option with a $50 strike price, which is the price that the stock must exceed in order for the investor to make a profit. Fast-forward to the expiration date, where now, stock A has risen to $70. This call option would be worth $20 as stock A’s price is $20 higher than the strike price of $50. By contrast, an investor would profit from a put option if the underlying stock were to fall below his strike price by the expiration date.

What Is Exercising a Stock Option?

To exercise a stock option involves buying (in the case of a call) or selling (in the case of a put) the underlying at its strike price. This is most often done before expiration when an option is [deeply in the money](https://www.investopedia.com/ask/answers/042115/when-put-option-considered-be-money.asp) with a delta close to 100, or at expiration if it is in the money at any amount. When exercised, the option disappears and the underlying asset is delivered (long or short, respectively) at the strike price. The trader can then choose to close out the position in the underlying at prevailing market prices, at a profit.

**The Bottom Line**

Options contracts are derivatives that give the holder the right to buy (in the case of a call) or sell (in the case of a put) a quantity of the underlying security at a specified price (the strike price) before the contract expires. Options on stocks come in standard units of 100 shares per contract, and many are listed on exchanges where investors and traders can buy and sell them with relative ease. [Options pricing](https://www.investopedia.com/terms/o/optionpricingtheory.asp) is an important financial achievement, where volatility has been identified as a key component of options theory,

ESOs are a form of equity compensation granted by companies to their employees and executives. Like a regular call option, an ESO gives the holder the right to purchase the underlying asset—the company’s stock—at a specified price for a finite period of time. ESOs are not the only form of equity compensation, but they are among the most common.