



## TenStep Supplemental Paper

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### Options Basics

#### What are stock options?

A stock option is a contract that gives the right, but not the obligation, to buy or sell a stock at a pre-specified price (the exercise price) for a pre-specified amount of time - that is, until the option "expires." If the option gives the right to buy shares of a stock, it is a call option. Calls are very similar to having a long position on a stock. Buyers of calls hope that the stock will increase substantially before the option expires, so that they can then buy and quickly resell the amount of stock specified in the contract, or merely be paid the difference in the stock price, when they go to exercise the option.

If the option gives the right to sell shares of a stock, it is a put option. Puts are very similar to having a short position on a stock. Buyers of puts bet that the price of the stock will fall before the option expires, thus enabling them to sell it at a price higher than its current market value, reaping an instant profit. The exercise or strike price of the option is what the stock price must pass (for calls) or fall below (for puts) before it can be exercised for a profit. All of this must occur before the maturity date, also known as the expiration date.

It should be noted that an option gives the holder the right to do something. There is no obligation to exercise the right if the holder does not want to or if the terms are not favorable. Exactly how much should one pay for these contracts is determined using the Black-Scholes Formula.

Options are usually sold in sets of 100 (which would allow the purchaser to buy or sell 100 shares of the underlying stock at a certain price for the duration of the option).

There are mainly two kinds of stock options - American and European. American stock options allow the buying or selling of shares of the underlying stock at the exercise price ("exercise" the option) any time before the expiration of the option.

European stock options allow the option to be exercised only at its expiration date. One can buy and sell options like stocks; the options value is determined by its probability of being "exercised" for a payoff ("in the money"). The exact value of the call option can be determined using the Black-Scholes Formula.

Asian options are those whose payoff depends on the average price of the underlying asset over a certain period of time.

American options are by far the most popular and are highly recommended because of their flexibility to trade at anytime throughout the contract.

#### Advantages

- Options allow one to drastically increase the **leverage** (the use of various financial instruments or borrowed capital such as margin to increase the potential return of an investment).



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- If used in the right manner, options can provide a helpful hedge to protect the investor from corrections and pullbacks in a stock already owned, reducing the risk.

### Disadvantages

- Options are highly complex and highly leveraged. While using the options for speculation, they require a close watch and a high tolerance for risk.
- Options require more than just a basic knowledge of the stock market. There is a potential risk to lose a LOT of money if various positions are taken, such as "writing options."

### Working of options

Consider this example of how options work. Let's say the ABCD stock price is \$67.

One call option contract with two months until expiration and a strike price of \$70 will cost  $\$3.15 \times 100$  (for the underlying shares) = \$315 for 1 contract. This contract is the option to buy 100 shares, so the contract must be multiplied by 100 to get the total price. The strike price of \$70 means that the ABCD stock price must rise above \$70 before the option is worth anything. Furthermore, because the contract is \$3.15 per share, the break-even price would be \$73.15.

Three weeks later, the ABCD stock price is \$78. Your options contract has increased along with the stock price and is now worth  $\$8.25 \times 100 = \$825$  - the money has doubled in just three weeks. If you want, you can sell your options (called "closing your position") at this time and take your profits. That is, unless you think the stock price will continue to rise. Imagine that you decide to let it ride.

Two months after buying the option, the ABCD stock price has tanked and is now \$62. Because this is less than your \$70 strike price, the option contract is worthless. You are now down the original investment of \$315.

In a nutshell, here is what happened to your option investment:

Date	May 1st	May 21st	July 1st
Stock Price	\$67	\$78	\$62
Option Price	\$3.15	\$8.25	0
Paper Gain/Loss	-\$315	\$825	-\$315

The price swing for the length of this contract from high to low was \$1240, almost three times your original investment. This is why options are considered very risky.

On the other hand, options can be used to reduce risk. Say you have 100 shares of Microsoft and want to "lock-in" the price the stock is trading. You might want to lock-in to control your risk if you believe the markets might go down substantially in the near future. In this case, buying 1 put option would protect you. If the stock price does go down, you won't lose (much) money because the loss from owning the stock will be



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offset by the gains on your put option. Used in this way, options can be actually lower your risk and act as insurance, a practice known as hedging.