

Using Options

Definitions & Terms

- **Option:** right to buy/sell underlying asset → contracts between buyer & seller; right, not obligation, to buy or sell something at a specific predetermined price (strike price) at any time within a specified time period (commodities is right to buy/sell a futures contract)
- **Premium:** amount paid by buyer of the option to the seller at the time of purchase; also known as price of option, limited loss potential in price of premium and unlimited gain potential for buyer
- **Put option:** gives individual right, but not obligation to sell futures contract at specified price during a specific time period*
- **Call option:** gives individual right, but not obligation to buy futures contract at a specified price during specific time period*
- **Strike price:** price where futures market can be entered under an option
- **Delta:** Measure of a percentage how much an option premium changes with a unit change in the futures price
$$\frac{\text{Change of option premium}}{\text{Change in futures price}}$$
- **Describing Options:**
 - In-the-money (has intrinsic value) – call: futures > strike, put: futures < strike
 - At-the-money (no intrinsic value) – call & put: futures = strike
 - Out-of-the-money (no intrinsic value) – call: futures < strike, put: futures > strike
- **Intrinsic value:** instantaneous value of an option if it is in-the-money or at-the-money
- **Exercise:** action taken by a buyer of an option who wants to have a futures position

**Note: call and put options are not opposites and don't offset each other – buyer & seller for each a put & call option*

Why Use Options

Options can be bought or sold depending on the types of risk and return the person is considering. Selling options is where more risk is involved with limited return. The return is the premium associated with the option. Risk is from the possibility of the option being exercised. Buying options is the opposite; there is a limited risk with unlimited return. The futures price tells whether the option is in the money or out-of-the-money. If the cash price is under the floor or ceiling price then the option can be used to improve the buying or selling price.

Buying Options

Buying options are versatile protection. They can be used against declining or rising prices, to achieve short or long-term objectives, and in a conservative or aggressive manner. Those who want to use options can buy puts or calls. *Puts* address risk of falling prices for a seller of a commodity in the cash market (price floor). If there is a large price decrease, then a gain on options premium occurs. Price increases allow for infinite gain potential that is lower than the cash price by the premium amount. *Calls* address the risk of rising prices for a buyer of a commodity. A price increase allows for a gain on the options premium. In this case, more insurance occurs with a lower strike price and higher premium.

A person holding the option has three decisions that they can make regarding the option. This has to do with if the option is a put or call and if it is in-the-money, at-the-money, or out-of-the-money. The option can be offset by selling the option back at the current premium which is usually lower than the premium paid. A second option is to exercise the option by trading the underlying futures contract at the strike price for

	Call Option	Put Option
Buyer assumes	Long futures position	Short futures position
Seller assumes	Short futures position	Long futures position

Figure 1.

instantaneous value as shown in figure 1. Generally if an option is exercised then it is in-the-money or at-the-money. Lastly, If the option is out-of-the-money it can expire as the option has no worth. Most options are exited by offsetting the position especially if the option will not offset the risk.

Selling Options

People who sell options are called option writers and are looking to earn the cost of the premium. Their opportunity is that the option will expire worthless. If the option is exercised then the person who wrote the option now assumes a position in the futures market depending on if the option was a call or put. Call options turn into a *short futures* position while put options turn into a *long futures* position. Additionally, with writing options a person must have a margin account and is subject to margin calls. In general, selling options generally occurs in conjunction with buying options as a spread.

Examples

Puts

A farmer is planting soybeans in late spring and is looking for protection against falling prices when they are harvesting in the fall. The current November futures price is \$11.06. The premium for a put option to lock in a harvest time selling price of \$11.00 is 65 cents. This is the strike price for the option. The farmer could also buy a put for 53 cents at a strike price of \$10.80 which he decides to get. The floor price would be \$10.27.

In the fall when the farmer is harvesting, the price of soybeans has declined to a price of \$9.60. Since the \$10.80 put has a value of \$1.20 it can be used to create the minimum selling price higher than the current futures price. The floor is the strike price minus the cost of the premium and is the price that the soybeans will be sold at ($10.80 - .53 = \$10.27$). This means a gain of \$.67 occurred which is $10.27 - 9.60$. The option purchased increased in value due to the falling futures price.

If prices were to have risen to a price of 11.35, then the option would have been worthless. The farmer would be able to sell his inventory at the higher price minus the cost of the option premium for a net selling price of $11.35 - .53 = 10.82$.

Calls

The cattle operation is looking to purchase corn in the winter and wants to purchase a corn call option to protect against a possible price increase. The December futures price is currently \$4.41 and they want to buy a call with a strike price of \$4.50 and a premium of 35 cents. This means that they will be protected for any increase above the \$4.85 ceiling price (strike price + premium).

However, prices fell from the summer to December with the futures price at \$4.25. The cattle producer can let the option expire since it has no value (out-of-the-money). Therefore the final cost of the option is the \$.35 that was paid for the premium.

If prices had risen to \$4.90 then the call option would have been able to be used. At option expiration the option is in-the-money by \$.40. There would have been a \$.05 gain on the futures price which means that the corn was able to be purchased for five cents less than it would have been without the call option.

