

Hedging Futures vs. Options – Livestock

Futures vs. Options

Futures:

- goal is to buy low and sell high
- Saying that price will move in a favorable direction
- Hedge opposite the cash market

Options:

- No position needed in the futures market
- creating a floor or ceiling in case of unfavorable price changes
- Added dimension to futures market: futures underlies options

Why to use Futures or Options

Hedging with futures is a basic protection against moving prices. It would be similar to having the most basic type of car insurance which would be liability insurance. With futures having this “liability” insurance protects against an unfavorable price change in the cash market by gaining in the futures market.

Hedging with options also allows for price protection. In this case it would be similar to adding more than just liability insurance to your car. The more additional insurance you add, the higher the premium on that insurance will be. With options, the higher protection against a price change opposite of what you would like requires a higher premium (cost of the option). The premium cost is the sum of the intrinsic and time values associated with the option. Intrinsic value is the measure of the worth of the option at the time of purchase. Time value of the option is the value of the option as the underlying futures contract and option moves to maturity. At the time of expiration, the time value is always zero meaning the only value at the time of expiration is intrinsic value.

Livestock producers can use futures and options to protect against rising prices for buying feed inputs or falling prices for selling animals. The difference between the two types of hedges is the way the risk is hedged by either offsetting the loss in one market with a gain in another or by protecting falling cash prices.

When to use Futures or Options

With futures a single selling price is created when the futures position is entered by selling a futures contract. Therefore, value of the futures hedge depends on how the market moves and how the basis changes. In turn the basis affects the cash price since the futures price plus/minus the basis equals the cash price. There is more value in the futures hedge with a stronger basis if selling livestock and more value to the hedge with a weaker basis when buying livestock. The changes in the net selling price will revolve around futures price changes and related basis changes.

With options, protection occurs against a dramatic decline in prices by creating a minimum price floor or maximum price ceiling. At the same time if prices rise then additional profits are realized. However, the cost of the premium will have to be subtracted from the profits found in the higher cash price. A change in basis affects the options hedge but less than the effect it has on the futures hedge. In options, the basis simply tells what the cash price is instead of helping to determine the net selling/buying price as with futures hedging.

	Price increase	Price decrease
Futures hedge (short)	Loss potential if futures hedge doesn't cover cash changes	Gain potential especially if basis strengthens
Options: put	Infinite gain minus the premium	Gain on futures in amount of floor price
Futures hedge (long)	Gain potential especially if basis weakens	Loss potential if futures hedge doesn't cover cash changes
Options: call	Gain on futures in amount of ceiling price	Infinite gain minus the premium

Generally speaking, the options hedge will be opposite the futures hedge in determining which movement of price will allow for gains. When the price increases, the futures hedge contributes to a loss whereas the options hedge will allow for a gain for a producer selling livestock. This is because with the futures hedge, a person would have been better off by not hedging at all. The net price with the options hedge would have been the cash price minus the premium.

When to Use Futures or Options

A Livestock Producer wants to hedge his risk for the feed he must buy in the winter against rising prices and against falling prices when he is trying to sell the cattle. The producer can hedge with futures or options for either scenario. Essentially, he must decide what kind of protection he is looking for which kind of hedging will allow him to have a best risk protection. For example if he expects feed prices to rise he can use a put to lock in lower buying price. He can also hedge the cattle in the futures market if he expects futures prices to have decreased when he wants to sell them from the current price.

An Example

Say a feedlot producer is looking to buy feeder cattle in order to eventually sell them to be harvested. Additionally, the producer wants to hedge his risk. The current October futures price was \$137.27 and a call option is \$5 at a strike price of \$140. He is wondering if he should hedge with futures or options. The following chart shows his option and the results of the hedges if the market falls, stays about the same, or rises.

	Futures Hedge	Call Option
If at Jun 15th	Buy Oct. futures \$137.27	Buy corn call at \$140 (ceiling is \$145)
In Oct. at futures are:		
\$125	\$12 loss	Option worthless, out the cost of the option
\$140	\$3 gain	Option worthless, out the cost of the option
\$155	\$18 gain	Option has \$10 of worth

If the market decreases: The futures hedge will cause a loss of \$12 as the buying price of \$137.27 is higher than the selling price of \$125. Since the option is now worthless the producer who is hedging would be out the cost of the option. Here the net buying price would be the cash price plus the cost of the option.

If the market stays relatively the same: A small gain occurs as there is a small increase in the selling price relative to the buying price. This value is \$3. This means that the net buying price would be the cash price minus the \$3 gain in the futures market. Additionally if the producer decided to hedge with options there would be not worth to the option meaning that the net buying price would be the cash price plus the cost of the option.

If the market increases: The futures hedge is the best hedge providing the most gains compared to an options hedge. An \$18 gain is realized between the lower buying price and higher selling price which is subtracted from the cash price. This is the net selling price. With an options hedge, there is a profit of \$10 as the ceiling price is at \$145 instead of \$155. Overall, this profit is less than the profit from the futures hedge.

If the same producer then wanted to sell the cattle he could either hedge with futures or with options. In this case a futures hedge is better than an options hedge if there is a large price decrease in the futures price. A small price decrease will allow the options hedge to be better than the futures hedge. For any price increase the futures option provides a loss and the options hedge will provide a small gain. This is because the cost of the premium is subtracted from the cash price to have the net selling price. Essentially, this is the opposite of what happens if the person is buying livestock or feed materials.

