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Short Hedge Example with Futures

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This guide describes how to place an output (short) hedge in the futures market to reduce the price risk associated with selling an output used in your business. For example, assume that John, a cattle producer, knows he will be selling a pen of cattle two months from now. John knows that by selling live cattle for over $62/cwt, he can ensure a satisfactory profit. Currently, the local live cattle price is $64/cwt, but John believes that the price may drop during the next few months. By knowing the cost of production of these animals, John knows that $64/cwt will allow for a satisfactory profit. What can he do to reduce his risk from a potential drop in prices? John cannot sell the cattle now because the cattle are too light, but he could enter the futures market and offset any loss in value (decrease in price) with a gain in the futures market.

How do I place a hedge?

Placing a hedge can be a simple process. First, knowing your cost of production helps you know when to place a hedge. To place a hedge, you need to contact a broker with whom you place an order. Most large communities have a broker who will take your order for a set fee (as is common when placing any futures market order). The broker can be helpful in informing you on how to place and exit your hedging position. The broker has a stake — a commission — in making sure your experience with hedging using futures is a good one. After you have placed the order, the broker will contact a brokerage house at the commodity exchange and relay the order. On the trading floor of the trading commission, market supply and demand forces are matched so that if you want to place a short hedge, there will always be either someone wanting to place a long hedge or a speculator willing to offset your risk. This process is known as arbitrage and is discussed in more detail in an accompanying risk management guide in this series (MU publication G602, *Introduction to Hedging Agricultrual Commodities with Futures).*

What can happen?

Any of seven scenarios can arise between the cash and futures price. The only common scenario not discussed below is that of the cash and futures prices not changing while the hedge is placed. In this scenario, the producer sells the output for the same price as when the hedge was placed. The costs of hedging would then simply be commissions. The other scenarios are discussed below. Because the cash and futures markets typically trend in the same direction, the scenario of the two markets moving in opposite directions is not discussed.

Cash and futures prices both decrease

Cash price decreases faster than the futures price. In this scenario, basis is said to weaken. Using Table 1, suppose you could sell live cattle today for $64/cwt and the relevant futures contract is trading for $65/cwt (basis is $1.00 under). Knowing that you will sell cattle at a later date and you want to protect against a price decrease, you take a short position in the futures market at this time. Over the next few months the local cash price decreases to $60/cwt and the futures price decreases to $63/cwt. At this time you decide the cattle need to go to market. You sell cattle in the cash market for $60/cwt and buy back your futures position for $63/cwt. Therefore, the revenue from selling cattle is $60/cwt plus $2/cwt gain from the futures position less

Table 1. Short hedge with futures as cash price decreases.

Cash price decreases more than futures price		
Cash	**Futures**	**Basis**
Today: $64/cwt	Sell live cattle contract at $65/cwt	–$1.00/cwt (under)
Later: Sell cattle in local market at $60/cwt	Buy live cattle contract back at $63/cwt	–$3.00/cwt (under)
Results	Selling price $60.00/cwt Less commission $0.15/cwt Plus futures gain $2.00/cwt **Net selling price $61.85/cwt**	–$2.00 basis loss

any commission costs (a typical commission might be $30 for entry into the futures and $30 for exit, $60/round-turn or about $0.15/cwt). Instead of selling for $60/cwt, you sell for $61.85/cwt. The net price you receive is exactly equal to the original cash price plus the basis gain or loss, less commission.

Futures price decreases more than the cash price. In this scenario, basis is said to strengthen. Again, suppose you could sell live cattle today for $64/cwt and the relevant futures contract is trading for $65/cwt (basis is $1.00 under). Knowing that you will sell cattle at a later date and you want to protect against a price decrease, you take a short position in the futures market at this time. Over the next few months, the local cash price decreases to $60/cwt and the futures price decreases to $60/cwt (see Table 2). At this time you decide the cattle need to go to market. You sell cattle in the cash market for $60/cwt and buy back your futures position for $60/cwt. Therefore, the revenue from selling cattle is $60/cwt plus $5/cwt gain from the futures position less any commission costs. Instead of selling for $60/cwt, you sell for $64.85/cwt. The net price you receive is equal to the original cash price plus the basis gain or loss less commission.

Table 2. Short hedge with futures as cash price decreases.

Futures price decreases more than cash price		
Cash	**Futures**	**Basis**
Today: $64/cwt	Sell live cattle contract at $65/cwt	–$1.00/cwt (under)
Later: Sell cattle in local market at $60/cwt	Buy live cattle contract back at $60/cwt	–$0.00/cwt
Results	Selling price $60.00/cwt Less commission $0.15/cwt Plus futures gain $5.00/cwt **Net selling price $64.85/cwt**	$1.00 basis gain

Futures price decreases at the same rate as the cash price. In this scenario the price you receive equals the price you would have received earlier with the exception of commissions ($0.15/cwt). There is no basis change here and the net price is equal to the original cash price less commission.

Cash and futures prices both increase

Cash price increases more than the futures price. In this scenario, basis is said to strengthen. Assume the same conditions as in the previous examples except that here the local cash price increases to $67/cwt and the futures price increases to $66/cwt over the next few months (see Table 3). When you decide the cattle need to go to market, you sell in the cash market for $67/cwt and buy back your futures position for $66/cwt. Therefore, the revenue from selling cattle is $67/cwt less $1/cwt lost from the futures position less any commission. Instead of selling for $67/cwt, you sell for $65.85/cwt.

Table 3. Short hedge with futures as cash price increases.

Cash price increases more than futures price		
Cash	**Futures**	**Basis**
Today: $64/cwt	Sell live cattle contract at $65/cwt	–$1.00/cwt (under)
Later: Sell cattle in local market at $67/cwt	Buy live cattle contract back at $66/cwt	$1.00/cwt (over)
Results	Selling price $67.00/cwt Less commission $0.15/cwt Less futures gain $1.00/cwt **Net selling price $65.85/cwt**	$2.00 basis gain

Futures price increases more than the cash price. In this scenario, basis is said to weaken. Again assuming the same initial conditions as in the previous examples, suppose that the local cash price increases to $67/cwt and the futures price increases to $69/cwt over the next few months (see Table 4). The revenue from selling cattle is $67/cwt less $4/cwt lost from the futures position less any commission. Instead of selling for $67/cwt, you sell for $62.85/cwt.

Table 4. Short hedge with futures as cash price increases.

Futures price increases faster than cash price		
Cash	**Futures**	**Basis**
Today: $64/cwt	Sell live cattle contract at $65/cwt	–$1.00/cwt (under)
Later: Sell cattle in local market at $67/cwt	Buy live cattle contract back at $69/cwt	–$2.00/cwt (under)
Results	Selling price $67.00/cwt Less commission $0.15/cwt Less futures gain $4.00/cwt **Net selling price $62.85/cwt**	–$1.00 basis loss

Futures price increases at the same rate as the cash price. Under this scenario the price you receive equals the price you would have received earlier with the exception of commissions ($0.15/cwt). Again, there is no change in the basis in this example so the net price received is equal to the original price less commissions.

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