

Long Hedge Example With Futures

This guide describes how to place an input (long) hedge in the futures market to reduce the price risk associated with buying an input. For example, assume that Heidi, a swine producer, knows she will be buying a pen of feeder pigs two months from now. To feed the pigs, Heidi will need 5,000 bushels of corn (one full contract at the Chicago Board of Trade) during the next four months to use in the production of feed. Corn is an input into the production of swine. Currently, the local cash corn price is \$3.85 per bushel, and Heidi believes that the price may rise during the next few months. She calculates her cost of production and knows that \$3.85 per bushel will allow for profit potential. What can Heidi do to protect against higher prices for the corn she needs? She could purchase the grain now but would have to pay for storage during the next few months, increasing the cost above \$4.00 per bushel. Alternatively, Heidi could wait to buy in the cash market while entering the futures market now to offset any potential cost increase (increase in price) with a gain in the futures market.

How to 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. Most large communities have brokers who will take your order for a set fee (common when placing any order in the futures/options market). A broker can help understand how to place and exit your hedging position. The broker has a stake — a commission — in making sure you have a positive experience with hedging.

After you have placed the order, the broker will contact a brokerage house at the commodity exchange and relay the order to the futures exchange where market supply and demand forces are matched. If you place a long hedge, there will be someone to take the opposite position — a short hedge or a speculator willing to offset your risk. This process is known as arbitrage and is discussed in more detail in MU Extension publication G602, *Introduction to Hedging Agricultural Commodities With Futures*.

Possible outcomes

Any of seven scenarios can arise between the cash and futures price. One common scenario is that of the cash and futures prices not changing while the hedge is placed. In this scenario, the producer purchases the input for the same price as when the hedge was placed, and therefore the only costs of hedging are the commissions. Note that even though a loss may be shown from taking a futures position, the final price must be compared with purchasing the good in advance and paying storage costs or waiting and buying in the cash market unprotected.

The other six common 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 increase

Cash price increases more than futures price

In this scenario, basis is said to strengthen. Using Table 1, suppose you could purchase corn today for \$3.85 per bushel and the relevant futures contract is trading for \$4.00 per bushel (basis is \$0.15 under). Knowing that you will need the corn at a later date and wanting to protect against a price increase, you take a long position in the futures market. Over the next few months the local cash price increases to \$4.10 per bushel and the futures price increases to \$4.15 per bushel. At this time you decide you need to purchase corn for feed. You purchase the corn in the cash market for \$4.10 per bushel and sell back your futures position for \$4.15 per bushel. Therefore, the cost of the grain to you is \$4.10 per bushel less \$0.15 per bushel gained from the futures position plus any commission costs (a typical commission might be \$25 for entry into the futures and \$25 for exit, \$50 per round-turn or about \$0.01 per bushel). Instead of paying \$4.10 per bushel, you pay \$3.96 per bushel. The net price you receive is the original cash price plus the basis gain or loss plus commission.

Table 1. Long hedge with futures as cash price increases more than futures price.

Cash	Futures	Basis
Today: \$3.85/bushel	Buy corn contract at \$4.00/bushel	-\$0.15/bushel (under)
Later: Buy corn in the local market at \$4.10/bushel	Sell corn contract back at \$4.15/bushel	-\$0.05/bushel (under)
Results	Cash price paid \$4.10/bushel	\$0.10 basis loss
	Plus commission \$0.01/bushel	
	Less futures gain \$0.15/bushel	
	Net buying price \$3.96/bushel	

Futures price increases more than cash price

In this scenario, basis is said to weaken. Again, suppose you could purchase corn for \$3.85 per bushel and the relevant futures contract is trading for \$4.00 per bushel (basis is \$0.15 under). Knowing that you will need the corn at a later date and wanting to protect against a price increase, you take a long position in the futures market. Over the next few months the local cash price increases to \$3.95 per bushel and the futures contract price increases to \$4.15 per bushel (Table 2). At this time you decide you need to purchase corn for feed. You purchase the corn in the cash market for \$3.95 per bushel and sell back your futures position for \$4.15 per bushel. Therefore, the cost of the grain to you is \$3.95 per bushel less \$0.15 per bushel gained from the futures position plus commission. Instead of paying \$3.95 per bushel, you pay \$3.81 per bushel. Again, the net price you receive is equal to the original cash price plus the basis gain or loss plus commissions.

Table 2. Long hedge with futures as futures price increases more than cash price.

Cash	Futures	Basis
Today: \$3.85/bushel	Buy corn contract at \$4.00/bushel	-\$0.15/bushel (under)
Later: Buy corn in the local market at \$3.95/bushel	Sell corn contract back at \$4.15/bushel	-\$0.20/bushel (under)
Results	Cash price paid \$3.95/bushel	-\$0.05 basis gain
	Plus commission \$0.01/bushel	
	Less futures gain \$0.15/bushel	
	Net buying price \$3.81/bushel	

Futures price increases at the same rate as cash price (no change in basis)

In this scenario, the price you pay equals the price you would have paid earlier, with the exception of commissions (\$0.01 per bushel). Basis does not change in this example, so the net price is equal to the original cash price plus commissions.

Cash and futures prices both decrease

Cash price decreases more than futures price

In this scenario, basis is said to weaken. Assume the same initial conditions as in the previous examples except that the local cash price decreases to \$3.70 per bushel at a later date and the futures contract price decreases to \$3.90 per bushel (Table 3). Therefore, the cost to you is \$3.70 per bushel plus \$0.10 per bushel lost from the futures position plus commission costs (\$0.01 per bushel). Instead of paying \$3.70 per bushel, you pay \$3.81 per bushel.

Table 3. Long hedge with futures as cash price decreases more than futures price.

Cash	Futures	Basis
Today: \$3.85/bushel	Buy corn contract at \$4.00/bushel	-\$0.15/bushel (under)
Later: Buy corn in the local market at \$3.70/bushel	Sell corn contract back at \$3.90/bushel	-\$0.20/bushel (under)
Results	Cash price paid \$3.70/bushel	-\$0.05 basis gain
	Plus commission \$0.01/bushel	
	Less futures gain \$0.10/bushel	
	Net buying price \$3.81/bushel	

Futures price decreases more than cash price

In this scenario, basis is said to strengthen. Assuming the same initial conditions as in the previous examples, suppose that the local cash price decreases to \$3.70 per bushel and the futures contract price decreases to \$3.75 per bushel at a later date (Table 4). Therefore, the cost to you is \$3.70 per bushel plus \$0.25 per bushel lost from the futures position plus any commission costs. Instead of paying \$3.70 per bushel, you pay \$3.96 per bushel because basis also strengthened.

Table 4. Long hedge with futures as futures price decreases more than cash price.

Cash	Futures	Basis
Today: \$3.85/bushel	Buy corn contract at \$4.00/bushel	-\$0.15/bushel (under)
Later: Buy corn in the local market at \$3.70/bushel	Sell corn contract back at \$3.75/bushel	-\$0.05/bushel (under)
Results	Cash price paid \$3.70/bushel	\$0.10 basis loss
	Plus commission \$0.01/bushel	
	Less futures gain \$0.25/bushel	
	Net buying price \$3.96/bushel	

Futures price decreases at the same rate as cash price

In this scenario, the price you pay equals the price you would have paid earlier, with the exception of commissions (\$0.01 per bushel). Basis did not change, so the net price you receive is equal to the original cash price plus the commission.

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