Section II
Basic Pricing Tools

Chapter 12: Commodity buyers and long hedging (buying futures)

Learning objectives

- Buying futures contracts to hedge against rising prices

Key terms

Hedging: To buy or sell a futures contract on a commodity exchange as a temporary substitute for an intended later transaction in the cash market.

Long hedge: The purchase of futures contracts against cash market sales or to protect against higher input costs. The long hedge protects the hedger against rising prices.

Put on a hedge (aka place a hedge): Buying or selling futures contracts to establish a hedge position in the market. A cattle feeder concerned about higher feed costs might put on a hedge by buying March corn futures.

Offset a position: Buying or selling futures contracts to remove a position in the market. A producer who bought 10 July corn contracts to hedge feed costs would offset the hedge by selling 10 July corn contracts.

Unwind a hedge: Making a purchase or sale in the cash market and, at the same time, lift a corresponding hedge position in the market. A hedger who purchased March futures to protect against rising feed costs might unwind the hedge, i.e. buy corn in the local market and sell the open futures position.

Commodity Challenge puts you in the position of a grain producer. As such, the game emphasizes the seller's perspective in marketing. We spent two segments on short hedging, or the sale of futures against inventory and/or expected production. The short hedge protects the hedger against falling prices.

However, not every participant in the grain market is concerned with lower prices. Some participants worry about input costs and higher grain prices. This is the other side of risk management – players who

need a long hedge. A long hedge involves the purchase of futures contracts against cash market sales or to protect against rising input costs. The long hedge protects the hedger against rising prices.

Some common long hedgers include flour millers, grain exporters and food manufacturers. Flour millers often sell flour to bakeries for forward delivery and buy wheat futures contracts to protect against rising wheat prices. Nearly all grain export sales are made with forward cash contracts for delivery as far as a year ahead. A soybean exporter can commit to a selling price on soybeans that may not be shipped for months because they buy soybean futures contracts to protect against higher prices. Finally, food manufacturers use wheat, sugar, cocoa futures (etc.) to lock-in their input costs.

There is a simple formula to calculate the expected price paid for a commodity when using a long hedge with futures.

_____ + _____ + ___ = _____

futures price (when bought) + expected basis + fees = expected price

While this formula looks similar to the formula used to calculate the selling price from a short hedge, please note a subtle difference; in a long hedge, fees are added to the cost (with the short hedge, they subtract from the price received).

Another group of long hedgers includes livestock and dairy producers. Let's look at an example of a cattle feeder buying corn futures contracts to hedge against rising feed costs. Ignore brokerage fees.

Cattle feeder buying corn futures to hedge against rising feed costs

Date	Cash	Futures	Basis
March	No action taken at this time. Cattle feeder anticipates buying actual corn for feeding during the summer.	Concerned about the prospect of higher corn prices during the summer, a cattle feeder buys 8 contracts (40,000 bu.) of CBOT September corn futures. Futures price: $5.55	The cattle feeder expects a local buying basis of -$0.10, or 10 cents under the September contract. futures price + expected basis = expected price $5.55 + (-$0.10) = $5.45

This is a straightforward long hedge by a cattle feeder. Transactions of this sort occur every day. Let's jump ahead to summer and watch the cattle feeder complete the hedge by buying corn and selling futures contracts (again, ignore brokerage fees).

Date	Cash	Futures	Basis
March	*No action taken.*	*Cattle feeder buys 8 contracts of CBOT September corn futures at $5.55/bu.*	*The cattle feeder expects a local buying basis of 10 cents under the September contract.*
July	Buy 40,000 bushels of corn. Cash price: $5.81/bu.	Unwind the hedge by selling September corn futures. Futures price: $5.83	Actual basis is 2 cents under the September contract (-$0.02). This is 8 cents stronger than expected.
Results	Purchase corn for feeding for $5.81/bu.	+$0.28/bu., or 28 cents/bu. gain on the hedge	Final price paid is $5.53/bu. ($5.81 cash price - $0.28 futures gain)

In March, the cattle feeder expected to lock-in a price of $5.45/bu. for corn. In July, when corn was purchased and the futures position offset, the final price was $5.53/bu. Why was the final price 8 cents higher than the expected price?

The answer is found in the corn basis. The expected price of $5.45/bu. was based on an expected basis of 10 cents under the September contract. The actual basis turned out to be 2 cents under the September contract. The basis was 8 cents stronger than expected and that means the final price was also 8 cents more than expected, or $5.53/bu.

Basis is generally more predictable than prices. By purchasing futures contracts to hedge his feed costs, the cattle feeder was able to lock-in corn costs and limit risk to changes in basis.

Two additional points about the long hedge. First, the cattle feeder probably would not complete the hedge with one transaction, as shown in this example. Unwinding a hedge can be more of a process over time, involving smaller corn purchases with partial offsets of the futures position occurring. Second, while the long hedge protects against higher prices, it also takes away the opportunity to benefit from lower prices. In this example, had futures prices fallen below $5.55/bu., the lower cost of cash corn in July would have been partially offset by a loss in the futures market.

Further reading

Self-Study Guide to Hedging with Grain and Oilseed Futures and Options (handbook), CME Group, April 2012 http://www.cmegroup.com/trading/agricultural/self-study-guide-to-hedging-with-grain-and-oilseed-futures-and-options.html

Introduction to CME Agricultural Complex (online presentation - video tutorial on risk management and how hedging works using futures and options), CME Group, 2012 http://www.cmegroup.com/education/interactive/webinars-archived/introduction-to-cme-agricultural-complex.html

Exercise #12

You have a hog finishing operation. In November, you decide to buy 4 contracts of May corn futures to lock-in your input costs on 20,000 bushels of corn to be purchased in March, April and May.

I want you to complete the transaction, under three different scenarios; higher futures prices, lower futures prices and steady futures prices. Fill in the blanks in the T-diagram, showing the price you received in $/bushel or in gross sales revenues (price * quantity). Ignore brokerage costs.

Scenario #1: higher futures prices

Date	Cash	Futures	Basis
November	Corn harvest is over and you are concerned about the possibility of corn costs rising next spring.	Buy 4 contracts of May corn futures to lock in a purchase price on corn to be fed in March, April and May. Futures price: $5.26	Expected corn basis a local buying basis of -$0.30/bu., or 30 cents under the May contract. futures price + expected basis = expected price $5.26 + (-$0.30) = $4.96
March	Buy 20,000 bushels of corn from local sources for $6.03/bu.	Offset the hedge - sell May corn futures at $6.39/bu.	What is the corn basis in March? $/bu. _____
Results	What did you pay for corn in the cash market? $/bu. _____ $total _____	What was your gain or loss in the futures market? $/bu. _____ $total _____	What final price did you pay for corn? $/bu. _____ $total _____

Scenario #2: lower futures prices

Date	Cash	Futures	Basis
November	Corn harvest is over and you are concerned about the possibility of corn costs rising next spring.	Buy 4 contracts of May corn futures to lock in a purchase price. Futures price: $5.26	Expected corn basis a local buying basis of 30 cents under the May contract. expected price = $5.26 + (-$0.30) = $4.96
March	Buy 20,000 bushels of corn from local sources for $4.41/bu.	Offset the hedge - sell May corn futures at $4.65/bu.	What is the corn basis in March? $/bu. _____
Results	What did you pay for corn in the cash market? $/bu. _____ $total _____	What was your gain or loss in the futures market? $/bu. _____ $total _____	What final price did you pay for corn? $/bu. _____ $total _____

Scenario #3: steady futures prices

Date	Cash	Futures	Basis
November	Corn harvest is over and you are concerned about the possibility of corn costs rising next spring.	Buy 4 contracts of May corn futures to lock in a purchase price. Futures price: $5.26	Expected corn basis a local buying basis of 30 cents under the May contract. expected price = $5.26 + (-$0.30) = $4.96
March	Buy 20,000 bushels of corn from local sources for $4.99/bu.	Offset the hedge - sell May corn futures at $5.26/bu.	What is the corn basis in March? $/bu. _____
Results	What did you pay for corn in the cash market? $/bu. _____ $total _____	What was your gain or loss in the futures market? $/bu. _____ $total _____	What final price did you pay for corn? $/bu. _____ $total _____