



Hedging with Agriculture Futures

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Commodity Marketing

Three Main Parts of Market Plan

- Cash
 - The cash market is crucial for the physical exchange of the good as well as payment.
- Futures
 - The futures market allows supply to be allotted across place and time. Allows the producer the ability to capture market fluctuations.
- Basis
 - Basis is crucial in determining market direction and when the best time is to buy/sell.

In order to have the ability to hedge a commodity, there must be a strong correlation between the cash and futures market. Due to the perishable quality of meats, hedging requires a different strategy than with storables such as grains. Futures are primarily used as a price risk management tool. They should *not* be used as a means of delivery or acceptance of delivery.

Basis = (Cash – Futures)

Basis plays an important role in any hedge.

- A short hedge benefits from a strengthening basis.
- A long hedge benefits from a weakening basis.
- Basis consideration when making marketing decisions:
 - For a short hedge when basis is expected to strengthen, consider hedging a comfortable portion of the crop/inventory. For a short hedge when basis is expected to weaken, consider selling the commodity now.
 - For a long hedge when basis is expected to strengthen, consider buying/pricing commodity now. For a long hedge when basis is expected to weaken, consider hedging a comfortable portion of the commodity purchase.

Basis risk is less than cash/futures risk. Basis tends to follow historical trends and can be easily followed.

Basis

Positive Basis

- Basis at delivery points
- Areas that are in deficit of the commodity
- Adds a premium to the cash price
- Corn Example:
 - Dec Futures = \$4.08
 - Basis = +5
 - Total Cash = \$4.13

Negative Basis

- Areas that are in surplus of the commodity
- Adds a discount to the cash price
- Discount can also be due to quality
- Corn Example:
 - Dec Futures = \$4.08
 - Basis = -5
 - Total Cash = \$4.03

Basis gives a good frame of reference for evaluating current prices. Basis tends to strengthen after harvest and during times of weather concern. Basis tends to weaken around harvest with influx of supply. Basis overall tends to be consistent even as prices fluctuate. Basis is influenced by transportation costs, local supply and demand, interest/storage costs, and handling costs (profit margin for elevators)

Hedging

What is the purpose?

- The reason for using hedging in commodity marketing is to reduce risk by reducing price uncertainty or profit margin uncertainty associated with an anticipated transaction
- Premise of hedging
 - Offsetting the change in value in a cash position with an **equal** and **opposite** futures position.
 - Ex.) A corn producer knows they will raise enough corn to sell 1 corn contract worth of bushels. Therefore the producer would sell 1 corn contract on the futures market to be bought back around harvest.
- Successful hedging requires strong co-movement between the futures price and the price of the cash item being hedged.

Hedging relies on cash and futures prices moving up and down together. The movement will not be perfect, basis will change, but the synchronization is close enough to reduce the risk of loss in the cash market by taking an opposite position in the futures market.

Types of Hedging

Direct Hedge: Hedger has or is in need of the commodity specified for delivery in the contract. Producer wishes to hedge field corn therefore sells corn futures contract. Cattle Rancher wishes to hedge cattle therefore sells live cattle contract.

Cross Hedge: Hedger has something other than what is deliverable on the contract. Producer wishes to hedge grain sorghum therefore sells corn futures contract. Producer wishes to hedge fuel needs for the year therefore buys heating oil futures.

Hedging relies on cash and futures prices moving up and down together. The movement will not be perfect, basis will change, but the synchronization is close enough to reduce the risk of loss in the cash market by taking an opposite position in the futures market.

Short Hedge

A short hedge involves taking a short futures position if you anticipate selling the commodity. Protects against a decline in price.

- Long Cash Position
 - Storables (Crops)
 - Selling Hedge (anticipate a future sale of a cash position)
 - Inventory Hedge (protect against decline in inventory value)

Long Hedge

A long hedge involves taking a long futures position if you anticipate buying the commodity. Protects against a rise in price.

- Short Cash Position
 - Buying Hedge (rancher needs to buy corn for their livestock)
 - Anticipatory Buy Hedge (crop producer expects fuel prices to rise in the upcoming months wants to buy now)

Short hedge – initial short futures position

Long hedge – initial long futures position

Short Hedge (Sell Hedge)

Equal and Opposite futures position
from cash position

1.) Identify the amount of your cash position and time
frame of selling your product

- On March 1st, a corn producer expects to produce 100,000 bushels for November delivery at a local elevator. The corn producer feels that at this time it is advantageous to price the cash corn position of 100,000 bushels rather than waiting until November when prices tend to be deflated due to supply influx.

2.) Determine the contract month which is best suited
for the cash position

- The corn is expected to be delivered in November. Corn futures contracts are available for March, May, July, September, and December

Short Hedge (Sell Hedge)

2.) Determine the contract month which is best suited for the cash position (cont.)

- September does not provide the corn producer coverage the entirety of the crop's duration therefore December futures is the best choice for protection.

3.) Determine the number of contracts needed to cover the position.

- The expected production is 100,000 bushels. Corn futures are traded in 5000 bushel contracts. To cover the position, the producer would need 20 contracts ($100,000 \text{ bushels} / 5000 \text{ bushels} = 20$)

4.) Determine a futures price suitable based upon market situation

- Knowing the cost of production for the bushels of corn is crucial for determining when placing a hedge is appropriate.

Short Hedge (Sell Hedge)

4.) Determine a futures price suitable based upon market situation (cont.)

- To better understand the current market situation, speak with a trusted market advisor or licensed broker.
- In this example, the corn producer believes the \$4.05/bu futures price available on March 1st to be an advantageous place to price his expected corn bushels.
- The producer would place an order with a broker to then sell 20 DEC corn futures contracts at \$4.05/bu. The order is filled and the producer must maintain margins and pay all transaction fees.

5.) Offset (lift) hedge when cash position's risk is diminished.

- The corn producer will offset the futures position by buying 20 December corn contracts in November near the time of delivering the cash commodity.

Short Hedge (When cash prices decline)

	Local Cash	Futures	Basis
1-Mar	\$4.10	\$4.05	5
1-Nov	\$3.35	\$3.50	-15

On March 1st, the producer sold 20 DEC corn contracts at \$4.05. To offset the position, the producer would buy 20 contracts when the corn is delivered on November 1st. The producer's corn was sold to the elevator at \$3.35/bu. Without a hedge, the producer would have to accept the \$3.35/bu and not have the opportunity to capture fluctuations in the market. In this case, the producer gained \$0.55/bu ($\$4.05 - \3.50) ** this does not include fees. The end price for the producer was \$3.90 with the hedge ($\$3.35 + \0.55).

Short Hedge (When cash prices rise)

	Local Cash	Futures	Basis
1-Mar	\$4.10	\$4.05	5
1-Nov	\$4.80	\$4.65	25

On March 1st, the producer sold 20 DEC corn contracts at \$4.05. To offset the position, the producer would buy 20 contracts when the corn is delivered on November 1st. The producer's corn was sold to the elevator at \$4.80/bu. An increase in cash prices is offset by the loss in the futures market. In this case, the producer lost \$0.60/bu (\$4.65 - \$4.05) ** this does not include fees. The end price for the producer was \$4.20 with the hedge (\$4.80 - \$0.60). Although the producer lost in the futures market, this loss was offset by the gain in the local cash market.

Long Hedge (Buy hedge)

Equal and Opposite futures position
from cash position

1.) Identify the amount of your cash position and time frame of buying your product (rancher needs corn for cattle, farmer needs fuel for operation)

- On March 1 a rancher knows of a need for corn to feed in the winter and will buy it in December. The rancher also is expecting a rise in corn prices due to an long lasting drought.

2.) Determine the contract month which is best suited for the cash position

- The corn is expected to be bought in December. Corn futures contracts are available for March, May, July, September, and December therefor December would be used.

Long Hedge (Buy Hedge)

3.) Determine the number of contracts needed to cover the position.

- The expected corn needed is 10,000 bushels. Corn futures are traded in 5000 bushel contracts. To cover the position, the producer would need 2 contracts ($10,000 \text{ bushels} / 5000 \text{ bushels} = 2$)

4.) Determine a futures price suitable based upon market situation

- Knowing the cost of raising the livestock is crucial for determining when placing a hedge is appropriate.
- To better understand the current market situation, speak with a trusted market advisor or licensed broker.
- In this example, the rancher believes the \$3.85/bu futures price available on March 1st to be an advantageous place to price their needed corn bushels.

Long Hedge (Buy Hedge)

4.) Determine a futures price suitable based upon market situation (cont.)

- The rancher would place an order with a broker to then buy 2 DEC corn futures contracts at \$3.85/bu. The order is filled and the producer must maintain margins and pay all transaction fees.

5.) Offset (lift) hedge when cash position's risk is diminished.

- The corn producer will offset the futures position by selling 2 December corn contracts in December before contract expiration near the time of buying the cash commodity.

Long Hedge (When cash prices rise)

	Local Cash	Futures	Basis
1-Mar	\$3.95	\$3.85	-10
1-Dec	\$6.05	\$6.25	-20

On March 1st, the rancher bought 2 DEC corn contracts at \$3.85. To offset the position, the rancher would sell 2 contracts when the corn is needed on December 1st. The rancher's corn was bought at the elevator for \$6.25/bu. Without a hedge, the rancher would have to accept the \$6.25/bu and not have the opportunity to capture fluctuations in the market. In this case, the producer gained \$2.40/bu ($\$6.25 - \3.85) ** this does not include fees. The end price for the producer was \$3.75 with the hedge ($\$6.05 - \2.40).

Long Hedge (When cash price decline)

	Local Cash	Futures	Basis
1-Mar	\$3.95	\$3.85	-10
1-Dec	\$3.05	\$3.00	5

On March 1st, the rancher bought 2 DEC corn contracts at \$3.85. To offset the position, the rancher would sell 2 contracts when the corn is needed on December 1st. The rancher's corn was bought at the elevator for \$3.05/bu. Without a hedge, the producer would have to accept whatever price was available at the time of purchase. In this case, the producer lost \$0.85/bu ($\$3.85 - \3.00) ** this does not include fees. The end price for the producer was \$3.80/bu with the hedge ($\$2.95 + \0.85).

** Need to change the Dec Cash price to \$2.95. and basis to -5

Although the hedge caused the rancher to lose money in the futures market, the rancher was able to capture the lower price in the cash market to offset the loss.

Risks of Hedging

- Changing Basis
- Failure to distinguish between hedging and speculating
 - Equal but opposite positions in two markets to counterbalance the effect of price change
- Hedging too early in rising markets or too late in declining markets
- Inadequate liquidity to finance margin calls
- Production shortfalls

Livestock Marketing

Livestock Hedging

Which futures do I use?

- Choosing futures is determined upon whether the hedger wishes to use a current or deferred basis.
- **Current Basis**
 - Use today's cash price minus the nearby futures price; nearby futures is the contract month closest to the current time period, but not before
 - Ex.) On March 1, use April Live Cattle futures
- **Deferred Basis**
 - Use a forward cash market quote minus the price of the futures contract month closest to but not before the time period when the hedger plans to buy/sell the physical product
 - Ex.) On March 1, producer will sell hogs Sept. 25 so use a quoted cash price for September 25 and October Lean Hog futures

Hedging perishables, such as cattle and hogs, creates a unique market due to the inability to store the product and wait for better prices.

The current basis is the more common of the two and can provide a history of what the basis is expected to be at any given time of the year in the local cash market.

Livestock Hedging

Physical Delivery

- Similar to grains, live cattle futures are backed by the physical commodity and delivery can be made/accepted.

Cash Settlement

- Future contracts that do not have the option for physical delivery of the commodity are cash settled. Feeder Cattle and Lean Hog futures are cash settled.
- Deferred Basis
 - Use a forward cash market quote minus the price of the futures contract month closest to but not before the time period when the hedger plans to buy/sell the physical product
 - Ex.) On March 1, producer will sell hogs Sept. 25 so use a quoted cash price for September 25 and October Lean Hog futures

The current basis is the more common of the two and can provide a history of what the basis is expected to be at any given time of the year in the local cash market.

Short Hedge

A short hedge involves taking a short futures position if you anticipate selling the commodity. Protects against a decline in price.

- Long Cash Position
 - Cattle Ranchers, Hog Producers, Feedlots, Exporters
 - Selling Hedge (anticipate a future sale of a cash position)
 - Inventory Hedge (protect against decline in inventory value)

Long Hedge

A long hedge involves taking a long futures position if you anticipate buying the commodity. Protects against a rise in price.

- Short Cash Position
 - Packers, Importers, Restaurants, Food Processors
 - Buying Hedge (rancher needs to buy corn for their livestock)
 - Anticipatory Buy Hedge (restaurant knows it will need to buy beef for inventory)

Feeder cattle are weaned calves and cows at a feedlot being finished out to weigh around 1000lbs. (Prior to slaughter ready)

Live cattle are cows that are at a feedlot ready to be sent to a meat packer for slaughter.

A cattle rancher with an expectancy of at least 100 new calves in the spring would hedge by selling 2 feeder cattle futures contracts.

In February a feedlot knows they will buy 500 calves in September; for their operation to hedge the operation would buy 10 October feeder cattle contracts.

A restaurant chain knows they will use 500,000 lbs of beef during the month of February; to hedge the restaurant chain would buy 10 March live cattle contracts.

Cattle Market Cycle 3 main parts

- Cattle Inventory Cycle – periods of increasing numbers called accumulation phases and periods of decreasing numbers called liquidation phases
- Beef Production Cycle – lag inventory cycles by about one year because to liquidate numbers, more cattle must be harvested. To accumulate numbers, fewer cattle are harvested
- Cattle Price Cycle – 6 to 8 year accumulation phase and 3 to 4 year liquidation phase. Typical cycle is 10 years long.

Severe drought and other perils in the past decade have caused the cattle cycle to become less predictable causing hardship for cattle ranchers planning for the future. Seasonal price patterns are important to note when developing a marketing plan. During the increasing phase of the cattle price cycle

Sources

CME Group



Questions?
Comments?

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