

# Risk Management & Hedging

## Terms to Know

- Hedge: purchase or sale of a future contract as a temporary substitution for cash market transaction to be made at a later date. Usually involves simultaneous, opposite positions in cash market and futures market
- Hedging: 1) taking position in futures market opposite to a position held in the cash market to minimize risk of financial loss from adverse price change 2) purchase or sale of future as temporary substitute for a cash transaction which will occur later (long vs. short hedge)
- Risk: 1) possibility of loss – due to adverse changes in basis
- Futures market: contract to take or deliver a specified quality and quantity of a commodity at a specific location and time
- Cash market: local price for a specific commodity
- Basis: the difference between the futures price and the cash price; strengthening basis means that futures price and cash price are closer together, and weaker basis a futures and cash price farther apart.

## How Hedging works as risk management

Hedging is a means of risk protection against changing cash market prices. It could be compared to having car insurance in that it is nice to have if you need it and costly if you don't. In the futures market hedging shifts price risk to a party that will accept it from a party who is looking to get rid of it. The people who accept the price risk are speculators who are looking to invest money in the futures market to make money. Therefore, the persons with the commodity are looking to lock in a buying/selling price ahead of actual delivery of the commodity in the cash market. This is because that the possibility of delivery causes cash and futures prices to converge as delivery approaches causing basis to go to zero. In hedging it is important to remember how basis is calculated as shown in the following equation:  $\text{Basis} = \text{Futures price} - \text{cash price}$ . An example of this would be if CBOT Corn futures are currently trading at \$3.75. If the local corn cash market is \$3.50. the basis would be \$.25 under the futures. Therefore hedging a position is always opposite the cash market. For people who are looking to sell a commodity they take a short position and those who are looking to buy a commodity are going to take a long position. Once the hedge is established the only risk/opportunity moving forward is by a change in basis.

While there are different ways to hedge risk by using options or futures, the examples that follow will be about futures hedging to understand the basics of why hedging can be beneficial. The goal of hedging is to counter losses in the cash market with gains in the

futures market. Losses may occur by hedging by comparing the price that would have been paid or received if no hedging had occurred due to changes as the market moves in a way that was not planned. Overall, hedging is a way to help manage the risk associated with changes in cash markets.

## Examples

### Short Hedge

A Corn producer is looking to sell some of his corn in December. Current December corn futures are trading at \$4.42/bu and the average historical basis for his location for the past 10 years has been \$.05 under December. How should the risk be hedged?

The producer could hedge in the futures market by selling December corn futures at the current futures price of \$4.42. The corn is sold in the cash market in November at \$4.00, December corn futures are bought back at the new trading price of \$4.55/bu. Basis followed historical patterns to be \$.05 under December and strengthened by \$.12.

By hedging in the futures market the producer has lost money on the futures market by \$.13, but has a \$.12 basis gain. This is shown in *figure 1* to again illustrate the changes and loss in the market and gain in basis. The basis gain comes from the strengthening of the basis allowing the farmer to manage his risk. His net selling price (\$4.37) is the cash price minus the futures loss, shown under "Results."

Cash	Futures	basis
July. 1	Sells Dec. corn futures contract \$4.42/bu	\$.17 under Dec.
Current corn cash \$4.25/bu		
Nov. 25	Buys Dec. corn futures contract \$4.55/bu	\$.05 under Dec.
Sells corn \$4.50/bu		
	\$.13/bu loss	\$.12 basis gain

*Figure 1.*

### Results

cash sale price      \$4.50/bu  
 minus futures loss   - \$.13  
 net sales price      \$4.37/bu

## Long Hedge

A hog producer in January projects a need of 100 tons of soybean meal in May. Meal is currently selling at \$140/ton. Currently May soybean futures are trading at \$142.50/ton and a current cash forward offer for May delivery is \$140/ton. What should the hog producer do if he can't buy meal today?

Cash	Futures	basis
Jan. 8 soybean meal at local cash market: \$140/ton	Buys 1 May soybean meal contract at \$142.50/ton	\$2.50 under May
April. 25 Buys soybean meal in cash market: \$136/ton	Sells 1 May soybean meal contract at \$140.50/ton	\$4.50 under May
	\$2.00/ton loss	\$2.00 basis gain

The hog producer could hedge by buying a May futures contract for \$142.50/ton. When he then buys soybean meal in April at \$136/ton in the cash market he should sell his 1 futures contract at the current trading price of \$140.50/ton. He could buy the cash forward contract at \$140 which would be similar to not hedging.

Overall, the producer saved money (\$2.00) when compared to not hedging and buying the forward contract at \$140/ton. This is because the loss in the futures price was less than the decrease in the cash price. The decrease in the cash price was

*Figure 2*

\$4.00 and the loss in the futures market was \$2.00. Therefore, the net buying price is less than the original cash price and cash forward price of \$140. This is shown under the "Results" section below. The graph (*figure 2*) shows how gains/losses occurred with the futures hedge.

### Results

cash purchase price    \$136/ton  
 Plus futures loss        + \$2/ton  
 net purchase price     \$138/ton

cash forward offer    \$140/ton  
 less basis gain        - \$2/ton  
 net purchase price    \$138/ton

