

Risk Management

Knowing and Managing Grain Basis

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One factor contributing to the variation in grain prices in a given country and around the world is whether a specific production location has a surplus or a deficit.

In general, grain prices are lower in the inland regions where most grain is produced, and higher in densely populated and port regions where far less is produced. Distances between producing and consuming regions explain the price differential.

Transfer costs, which include loading or handling and transportation charges, are the most important variables in determining grain price differentials. Price differentials between regions cannot exceed transfer costs for very long. Whenever this situation occurs, buyers will purchase commodities from the low-priced market (raising prices there) and ship them to the higher priced market (lowering prices there).

The price producers receive for grains at the country elevator is derived from a central market price less transportation and handling costs. Country elevator managers watch the prices in several markets to determine where the demand is the greatest. They then deduct the transfer costs to the higher priced market to determine the bids they can offer local producers.

Basis

Basis is the difference between a cash price and the futures price of a particular commodity on a given futures exchange.

The futures price represents the price offered for a futures contract. A futures contract is a legal agreement that calls for delivery of a specified quantity and quality of grain at a specified place in a designated month in the future.

Futures contracts are offered for various months of the year. Each month relates to the seasonality of harvest, marketing or consumption patterns of grain through the year. A futures price is locked in when a contract is bought or sold; otherwise, futures prices fluctuate based on market supply and demand information. The cash price and the futures market price tend to converge as the contract delivery month approaches.

For example, a normal relationship between the cash price and the March Kansas City wheat futures price from June to February is illustrated in Figure 1 for the Texas panhandle over a 5-year period (2002 to 2007). In June, the difference between the cash and futures price is wide, as harvest is underway and supplies are plentiful. This difference narrows as the delivery date approaches, at which time the difference equals the cost of transportation. In March, at the time and place of delivery, the cash and futures prices are the same (except for transportation cost) because if the price were higher in one of the markets, traders would buy or take delivery in the low-priced market and sell or make delivery in the high-priced market, which would minimize any price difference.



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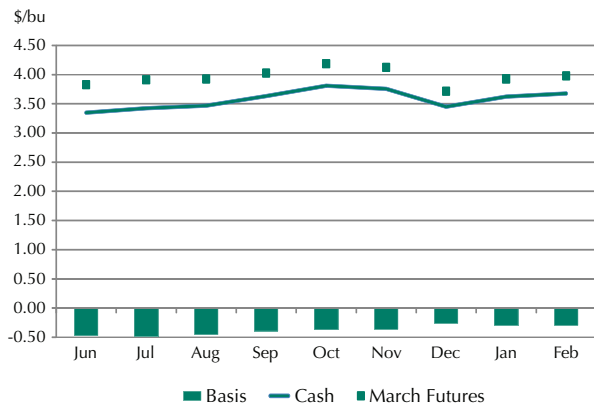


Figure 1. Texas panhandle cash wheat price and March Kansas City futures price as the delivery month approaches.

Basis Variability

The factors that affect basis include expected supply and demand for grains at the elevator, supply and demand for transportation services, variations in grade between what is grown and the terms of the futures contract, and the unavailability of substitutes at a particular location.

Knowledge of the historical basis for a certain area or local elevator is important in making basis contract decisions. For example, basis contract offers ranged from 10 cents under to 28 cents under the futures price in the Texas Panhandle for July delivery priced off the 1996 July Kansas City wheat contract. Were they good basis contract offers? In this case, the historical 5-year average was 31 cents under, with a range of 20 cents under to 50 cents under.

Therefore, Panhandle producers had opportunities to lock in basis significantly better than the 5-year average.

From 2002 to 2006, the average harvest basis for wheat in the Texas panhandle was $-\$0.23$ per bushel. From 2007 to 2009, the average has been $-\$0.63$. Basis patterns can change over time and producers must stay current to formulate realistic cash price expectations. Preparing a budget or marketing plan today using basis relationships from 5 years ago may significantly overestimate returns.

Differences in basis occur not only with time but also at different locations. On the same day in January in 1996, three elevators located within 15 miles of each other were offering basis contracts at 10, 18 and 23 under the July Kansas City wheat contract price for July delivery. The bids were directly related to differences in demand, storage availability and transportation costs.

Tracking Basis

To manage basis risk, it is important for a producer to track basis weekly at the local elevator or at spot markets such as nearby feedlots. Generally, area and/or regional estimates of basis are available from the Extension Service or private sources. Using information from a combination of sources is an excellent way to evaluate basis contract offers.

A grain producer should track two pieces of basis information weekly at all potential local outlets. First is the relationship of the cash offer to the nearby futures contract (Fig. 2). This provides estimates of ba-

Commodity _____

Nearby futures contract				
Date	Cash price	Futures contract month	Futures contract price	Basis

Location _____

Harvest delivery			
Forward cash contract offer	Harvest contract futures price	Implied basis	Basis contract offer

Figure 2. Basis tracking form.

sis for delivery of grain during any time of the year and can be used in evaluating storage decisions. (See E-520, "Post-Harvest Marketing Alternatives," for more details.) The second piece of information that needs to be tracked is forward cash contract offers (and basis contract offers, if available) for harvest time delivery of grain. These quotes with respect to basis are relatively stable; however, variations do occur. Temporary changes in the cost of transportation services and supply and demand conditions can cause basis variation in forward contract bids.

If basis contracts are available, it may not be necessary to track forward cash contract offers since futures price minus the expected basis should equal the forward cash contract offer. However, it may be beneficial to check both the forward cash contract and basis contract offers, occasionally, to ensure that the price relationships are close.

For example, an elevator operator may receive a discount for contracting a number of cars or a unit train for harvest delivery of grain. In turn, the operator may offer favorable forward cash contracts or basis contracts to producers to ensure a sufficient supply of grain is available to fill the shipment. Typically, as the uncertainty of meeting the shipment commitment disappears, so do the favorable basis offers.

Managing Basis Risk

Successful management of basis risk can add to a producer's bottom line. Both elevators and producers have avenues available for managing basis risk. The efficient use of unit trains, forward contracting of transportation services, and alternative markets are all ways an elevator operator can minimize basis risk.

Grain producers have three basic ways of managing basis risk: forward contracting, basis contracts, and synthetic basis contracts. There are a number of variations of these three methods, such as minimum price contracts. Forward contracting is the simplest method because both price and basis risk are eliminated at the same time.

Basis contracts are a way to eliminate basis risk without locking in a price. A basis contract holder is required to deliver a specified amount, generally in 5,000-bushel increments, during a given time frame.

In return, the holder is guaranteed that the price received will be a fixed amount either above or below the underlying futures contract.

In areas where basis contracts are not available, the formulation of a synthetic basis contract is an alternative. Creating a synthetic basis contract involves forward contracting the grain and taking a long position in the futures market at the same time. The forward contract locks in the price and basis while the futures contract allows the price to vary. Regardless of which way the price has moved by harvest, the basis will remain unchanged.

In general, any forward price offers will be comprised of a futures price and expected basis. Understanding this, the use of the basic forward pricing options (outlined above) can be represented by a box diagram, Figure 3.

		Basis	
		Acceptable	Unacceptable
Futures Price	Acceptable	Forward contract	Hedge
	Unacceptable	Basis contract	Do nothing

Figure 3. Diagram of basic forward pricing decisions.

The box is divided into four quadrants corresponding to the four possible combinations of acceptable price, unacceptable price, acceptable basis and unacceptable basis.

Of course, a producer's perception of what is an acceptable or unacceptable futures price is determined by many factors. Among these are production costs, market outlook (and whether he is a buyer or seller of grain), financial resources, and personal attitudes about risk. Comparing the basis offer to a historical 5-year average will help in determining

whether it is a “good” or “bad” basis offer. In addition to comparing basis offers to the 5-year average, a producer must consider the dynamics of the market. For example, a producer may decide that a slightly below normal basis offer is attractive because a potentially excellent crop suggests the basis will widen further as harvest arrives.

If price and basis are considered acceptable, forward contracting is attractive because it fixes both price and basis. If price is acceptable and basis is unacceptable, the best alternative is to hedge and hope the basis improves. If the price is unacceptable but the basis offer is acceptable, it may be advantageous to basis contract the grain and wait for a price rally. In the case of an unacceptable price and basis, the only alternative is to do nothing and hope the situation will improve over time.

Basis information and the marketing tools discussed also can be used to control the price of grain as an input into a different production system. For example, a producer who is planning to feed cattle may want to take advantage of an historically “weak” basis by entering into a basis contract with an elevator for the purchase of grain.

Summary

The differential between cash price and futures price (basis) is relatively predictable. Understanding trends and/or tendencies in basis movement can help a producer make good decisions for minimizing basis risk. For example, basis tends to have seasonal patterns. When supplies are ample, as at harvest, the basis tends to weaken. When supplies are limited, the basis tends to improve.

Basis fluctuations can have a dramatic effect on producer income. However, with the tools available, basis risk is manageable. Forward cash contracts, basis contracts, synthetic basis contracts, and other variations such as minimum price contracts are all ways producers can control basis. Whether selling or buying grain, it is important to realize that basis risk is just another part of the business and needs to be managed accordingly.

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