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Fed Cattle Basis in South Dakota

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Producers, brokers, and buyers routinely assess the value of cattle by monitoring cash and futures prices. Basis is the difference between a cash price and a futures price. Basis generally reflects the difference in local supply and demand conditions and quality differences. For a location like Sioux Falls, South Dakota, which is neither a delivery location for live cattle futures contracts nor a slaughter location, basis also reflects transportation cost to a par delivery location. Basis expectations for future dates are usually formed from historic basis levels. Accordingly, actual basis may differ from expectations in a given month because of unexpected changes in any of those factors.

The purpose of this paper is to define and discuss fed cattle basis for South Dakota. Knowing recent basis levels gives insights into any shifts or breaks from trend levels. Expected basis levels are provided to use for planning purposes. Specifically, expected basis can be used to evaluate profitability by converting a futures price to a local cash price, to determine an expected hedge price, and to relate a forward price quote to a futures quote.

FUTURES

Fed cattle basis is usually computed against nearby futures prices. The Chicago Mercantile Exchange (CME) reports traded prices on its live cattle futures contracts. The CME's rulebook specifies that the live cattle contract reflects live steers with a quality grade of 55% Choice and 45% Select, a yield grade of 3, and individual animal weights of 1100 to 1425 pounds. The size of the contract is 40,000 pounds – the equivalent of 32 head weighing an average of 1250 pounds. The specifications imply that the futures price would reflect the value of such steers per cwt.

Futures contracts are listed for even months of the year (February, April, June, August, October, and December). Futures contracts expire on the last business day of the contract month. Options generally settle on the first Friday of the contract month. Live cattle are a deliverable, but non-storable, commodity. The delivery feature assures that prices at delivery locations converge at expiration. The futures price is an expectation of price at expiration – a specific point in time. As such, basis does not have to converge in a smooth and predictable pattern. Also, basis will reflect transactions costs only when close to or at expiration.

CASH

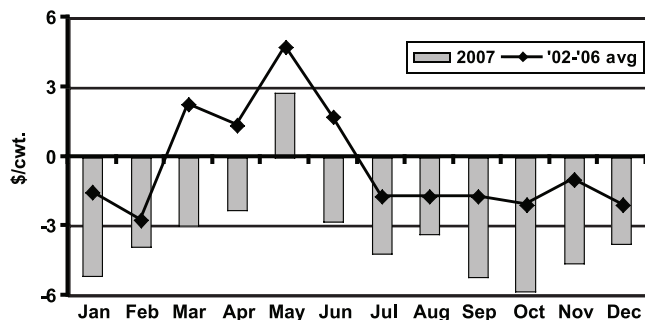
The Sioux Falls Stockyards has a consistent price series for fed cattle appropriate for determining the basis for South Dakota. The cash price chosen is for slaughter steers of quality grade Choice and yield grades 2 and 3 weighing 1300 to 1500 pounds. The quality and yield grades would reflect higher valued cattle at Sioux Falls compared to that specified in the futures contract. The weight category is also higher than typical for the futures contract, which may affect the basis level.

Sioux Falls cash prices will reflect a transportation cost discount relative to a par or delivery location. There are also different transactions costs at Sioux Falls as compared to direct markets. Commission charges are higher in Sioux Falls while search costs for multiple bidders are lower. Lot size is typically less than truckload levels, thus some assembly discounts or premiums may be present. Fed cattle prices in other locations in South Dakota will have a similar seasonal pattern as Sioux Falls, but transportation costs and quality may differ.

HISTORIC AND EXPECTED BASIS

The Sioux Falls basis in 2007 is compared to the previous 5-year average basis (2002-2006) to see if basis was unusual during the year. The basis in 2007 was below average for each month of the year. Relatively high transportation costs and a greater supply of cattle available elsewhere are possible reasons. A general, seasonal pattern in the underlying cash price also gives a pattern to the basis. The cash price is seasonally high between February and May,

Sioux Falls Live Cattle Basis



Sources: USDA-AMS, CME

with a seasonal low following between June and September. Prices are inversely related to slaughter volume, which has a distinct seasonal pattern. As a result, the basis is often high in May, as it reflects a strong cash price relative to a weak June futures price.

Despite continued high trucking costs, there are enough other underlying factors that have not changed to suggest relying on an average basis level for planning purposes. Only the transportation cost difference from normal should be added to the basis (making it smaller). Expected basis is thus the 5-year average from 2003 to 2007 (table 1). The “typical” basis during a contract month is best reflected in the narrow range observed in October, December, and February.

How can one apply the expected basis information? Consider a producer looking to hedge fed cattle to be sold at Sioux Falls in December. If the December futures price is \$105.00 per cwt, then the expected basis (from table 1) suggests an expected cash price of \$102.63 per cwt. Similarly, a forward contract offer of \$101.00 per cwt would not look attractive relative to hedging using futures.

Finally, note that basis during the odd months of the year tends to be relatively higher or lower than during contract months. The variability of basis is also much higher during odd months of the year. Other risk management tools such as options or Live-stock Risk Protection may have less basis risk compared to using futures because of different expiration dates.

Table 1. Sioux Falls basis against nearby live cattle futures – 2003 to 2007 average (\$/cwt)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
-1.58	-2.68	1.97	0.66	4.47	1.03	-1.23	-1.81	-1.65	-2.42	-0.74	-2.37



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