Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 408

2000

Alternatives to cash prices in fed-cattle price discovery

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Abstract

Price discovery in fed cattle markets is a significant concern as cash market volume declines and trade becomes more sporadic. Producers need to consider other sources of pricing information when negotiating cash trade and long-term marketing agreements. This study evaluated several alternative price sources for producers to consider. Live cattle futures and wholesale boxed-beef prices offer the most promise; however, both also have limitations associated with their use.

Keywords

Cattlemen's Day, 2000; Kansas Agricultural Experiment Station contribution; no. 00-287-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 850; Beef; Cattle price discovery; Futures markets; Wholesale beef prices

ALTERNATIVES TO CASH PRICES IN FED-CATTLE PRICE DISCOVERY

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Summary

Price discovery in fed cattle markets is a significant concern as cash market volume declines and trade becomes more sporadic. Producers need to consider other sources of pricing information when negotiating cash trade and long-term marketing agreements. This study evaluated several alternative price sources for producers to consider. Live cattle futures and wholesale boxed-beef prices offer the most promise; however, both also have limitations associated with their use.

(Key Words: Cattle Price Discovery, Futures Markets, Wholesale Beef Prices.)

Introduction

What were once liquid, local, cash markets for fed cattle are being replaced with non-cash mechanisms including contracts, marketing agreements, alliances, and formula-pricing arrangements. As cash market volume declines, cash price data become less readily available, and the likelihood increases that publicly reported cash prices are not representative. If recent trends continue, USDA quotes of cash market prices for fed cattle could soon be of limited value. Consequently, producers need to consider other sources of market price information to use for price discovery and for base prices in marketing agreements and pricing formulas. This study reviewed and evaluated alternative market prices as sources of price discovery information.

Experimental Procedures

Kansas weekly prices for direct-trade fed cattle from January 1991 to July 1999 were compared with live cattle futures and wholesale boxed-beef prices. Relationships among these various markets were examined, and implications of using these alternative markets as price information sources are discussed.

Results and Discussion

Fed cattle pricing methods have changed considerably over the past decade, largely via formula prices. These formulas rely on some external reference price (such as USDA's Western KS direct cash price) as an adjustment mechanism when the market price fluctuates. However, as cash market volume declines, some market participants are considering new external reference prices, such as 1) average dressed or live prices from beef processing plants, 2) retail beef prices, 3) live-cattle futures prices, and 4) prices of wholesale boxed beef and by-products.

Average dressed or live prices from processing plants and retail beef prices are poor candidates for use as external reference prices, because they reflect varying quality levels over time, which can lead to perverse pricing results. Retail beef prices also are of limited value, because the relationship between retail and farm-level prices changes as processors and retailers add additional processing (e.g., trimming, cooking). Thus, formulas that rely on a retail-based, external,

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reference price may result in a farm-level price that does not represent actual farm value.

Live-cattle futures prices are appealing as an external reference. They typically have large volumes, reflect new information rapidly, and provide a viable source of price expectations. Future quotes are readily available, and futures are monitored closely to avoid manipulation. In addition, futures price-based formulas fix the basis level, which greatly reduces the risk of hedging.

Even with these advantages, concerns still exist regarding the use of a futures price as an external reference. First, futures prices have a 'time matching' problem. They represent specific delivery or expiration dates that do not necessarily match the cash market transaction date. Second, historical variability in basis (cash price minus futures price) needs to be accounted for. Finally, if a viable cash market for the underlying commodity does not exist, the viability of that futures contract itself may come into question.

The difference between the weekly Western Kansas fed-steer price and the nearby live-cattle futures price (nearby basis) is shown in Figure 1. The basis was quite variable, but had a statistically significant downward trend. The average Western Kansas fed-steer basis was \$0.26/cwt during 1991 and 1995, but averaged \$0.97/cwt below the nearby futures price from 1996 through mid-1999.

Exactly why Kansas fed-steer prices have declined relative to live cattle futures is not clear. One possibility is a change in the relative quality of cattle traded in the cash market. If higher quality cattle have moved away from the cash market trade toward marketing agreements and grade and yield pricing arrangements, then the relative decline in the cash market price may simply reflect a quality change.

The short-run implication for use of futures prices as external reference prices is clear. Formulas based on live-cattle basis levels from early in the decade would yield higher prices than formulas based on more recent basis levels. Thus, if live-cattle futures prices are to be used as an external reference, the formula needs to be adjusted periodically to account for changing basis.

Another possible external reference price is the value of wholesale boxed-beef cutout plus hide and offal. Wholesale prices are appealing because, conceptually, they represent the market supply and demand for all meat products whether they are going to retail, food service, or export markets, and as such, reflect the prices that meat processors are receiving for beef products.

Two factors make long-term use of wholesale prices as an external source of reference prices problematic. First, as in the fed cattle market, non-cash trade in the wholesale beef market is becoming commonplace. Consequently, USDA wholesale beef prices are based on a small percentage of all beef traded and may not represent the animal's true wholesale value. Second, as slaughter and processing costs change, the relationship between wholesale- and farm-level prices also changes.

During the period studied, values of boxed beef plus hide and offal ranged from less than \$50 to more than \$160 per head above live animal value. This variability in farm to wholesale beef prices is not necessarily a deterrent to using wholesale-based farm-level pricing when producers market cattle regularly; weekly "peaks" in the spread are offset by "troughs". However, it is more troublesome for producers marketing cattle infrequently.

More important than the week-to-week variability in the relationship between wholesale and live cattle values is the trend in this relationship. Figure 2 shows the ratio of the weekly values for Choice Western Kansas fed steers (1,000 lb. steer) versus the values for Choice boxed-beef cutout plus the hide and offal from January 1991 through July 1999. During the early 1990s, the fed steer value typically averaged 90 to 95% of the wholesale value. However, this ratio has trended downward and increased in variability over time to the point where, during the 1996 1999 period, the live animal value generally ranged from 80 to 90% of the wholesale value.

The reason for this decline is not clear. It does not necessarily indicate that packer margins are increasing. Rather, as noted earlier, the cash fed-cattle market could be representing progressively lower quality cattle, as higher quality cattle get marketed using grids and marketing agreements. The key point is that using wholesale beef prices as external reference prices will result in lower fed-cattle prices today than would a similar formula just a few years ago. Additional research is needed to better explain this relationship.

Small- to medium-sized cattle producers may struggle in the current environment of price discovery. The daily fed-cattle market is characterized by spotty price quotes, small trade volume, few buyers and sellers, and concerns over the representativeness of publicly reported cash market prices. Thus producers may have difficulty negotiating prices that are reflective of market conditions. Producers in this predicament may want to consider developing formula pricing relationships with a processor. Negotiation of the formula, however, should not be taken lightly. In particular, settling for a formula based on plant averages is not recommended. In the long run, formulas using wholesale and (or) live-cattle futures prices as external reference prices appear to have promise.

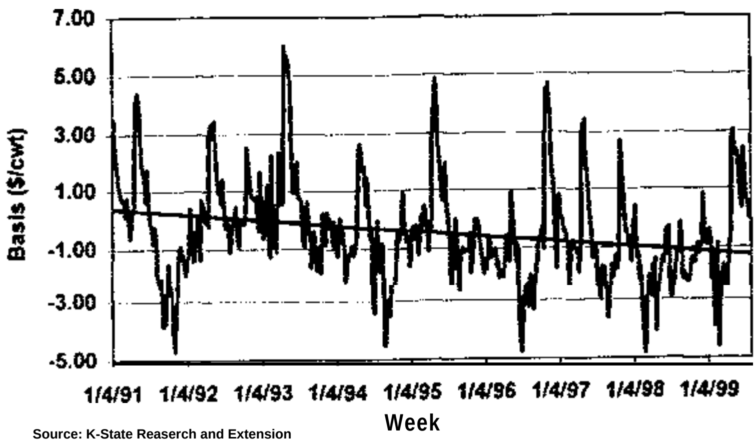

Figure 1. Weekly Choice Western Kansas Fed-Steer Basis (cash price minus nearby live cattle futures), 1991 through July 1999.

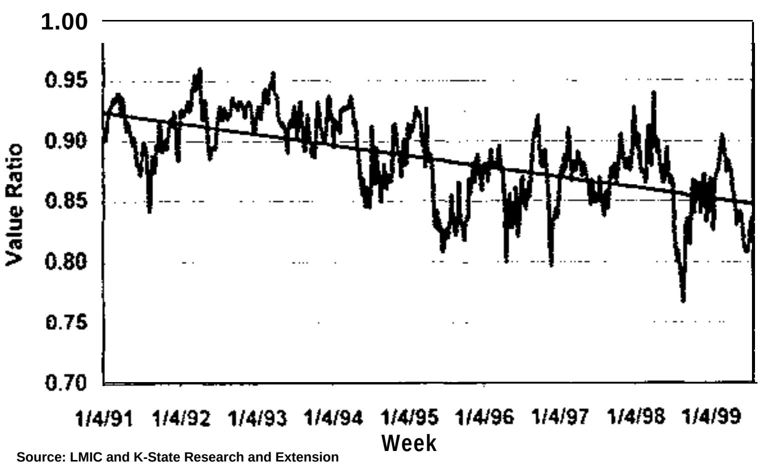

Figure 2. Ratio of Weekly Values for Western Kansas Fed Steers versus Boxed-Beef Cutout plus Hide and Offal per Head, 1991 through July 1999.