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## Using Serial (Odd) Month Live Cattle Futures Contracts

Matthew Diersen

South Dakota State University, [Matthew.Diersen@SDSTATE.EDU](mailto:Matthew.Diersen@SDSTATE.EDU)

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# Extension Extra

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## Using Serial (Odd) Month Live Cattle Futures Contracts

*Matthew A. Diersen, Extension risk and business management specialist*

The Chicago Mercantile Exchange (CME) recently introduced serial futures contracts for live cattle. Essentially, this means contracts will be available for each month of the year.

An obvious benefit of the additional contracts is a potential reduction in basis risk. Basis risk results when the actual basis, the difference between the cash price received and the futures price, differs from the expected basis. During 2002 the basis during non-delivery months was relatively wide, resulting in reduced income for cattle feeders who tried to hedge price risk.

In this paper, serial contracts are examined to determine their usefulness to hedgers. Then, basis levels and risk are examined. Less basis risk would lead to improved profitability projections for cattle feeding. Should hedgers adopt the serial contracts, they will need updated basis information to properly forecast basis for any new contract months.

### **Serial Month Contracts**

The CME announced the addition and listing of serial contracts that began trading on March 10, 2003. "Serial" refers to odd-month contracts (January, March, May, July, September, and November). Traditional contracts are listed for even months of the year. For complete details on these and other contract specifications see <http://www.cme.com/>

Odd-month contracts will only be listed for about 120 days before expiration, compared to the traditional one-year listing of the even-month contracts. The odd-month contracts will be listed on the first business day of the month that is three months prior to the expiration month. This means that two odd-month contracts will be listed at any one time. The other specifications of odd-month contracts are the same as for the even-month contracts, including delivery procedures.

### **Historical Basis Levels and Risk**

By tracking historical basis, hedgers can develop an estimated basis to project the profitability of feeding and/or hedging.

Without odd-month contracts, a producer wanting to hedge cattle to be sold in the cash market during January would likely use the February contract. The expected basis would be the recent historic basis, the difference between the average January cash price received and the average of the February contract's closing prices during January. The hedger would sell February futures either when the cattle are placed on feed or selectively when the price becomes optimal. The hedge would then be lifted in January when the cattle are sold by buying back the futures contract.

To appreciate the usefulness of odd-month contracts, understanding the existing basis situation is necessary.

For nonstorable commodities, futures prices mainly indicate forward prices instead of driving any temporal allocation of stocks as seen in crops (Leuthold *et al.*). Thus, the futures price reflects the cash price at the end of the delivery month and it may be quite unrelated to an earlier cash price received. This also means that basis risk can be quite large.

A persistent, but variable seasonal pattern exists for cash slaughter cattle prices. While Sioux Falls is used here, a similar pattern exists for other cash prices from the Northern Plains. Monthly price data was collected from USDA-AMS for live cattle sold at Sioux Falls. The average from 1995-2002 for slaughter steers (Choice 2-4, 1100-1300#) reflects the seasonal tendency for a peak during March and a low during August (Fig 1). The seasonal basis pattern at Sioux Falls has changed slightly over time (Feuz).

The basis was computed by taking the difference between the cash price and the monthly average of the nearby futures closing price. If there were not a seasonal pattern in the cash price, the basis would likely reflect the transactions cost of delivering on the futures contract (mainly transportation cost to a delivery location).

The seasonal pattern is also reflected in the basis during the same time period. For example, the basis in May is actually positive, reflecting the seasonal tendency for cash cattle to trade at a premium to June futures.

“There exists no theoretical limit to the maximum or minimum size of the basis for nonstorable commodities” (Leuthold *et al.*). Conventional wisdom says that any such basis risk will even out over time. However, producers stress that repeated months of negative basis moves

are difficult to overcome without substantial capital. Likewise, producers that only feed cattle to finish during a single month of the year are more susceptible to basis risk.

To assess this risk, the standard deviation of the basis was computed by month for Sioux Falls (Fig 2). In four of the six pairings of odd to even months (e.g., January vs. February), the standard deviation was higher for the odd month. The three highest standard deviation observations are for odd months. Finally, the widest disparities are between odd and even months. Thus, the evidence suggests there is enough basis risk in odd months to concern hedgers.

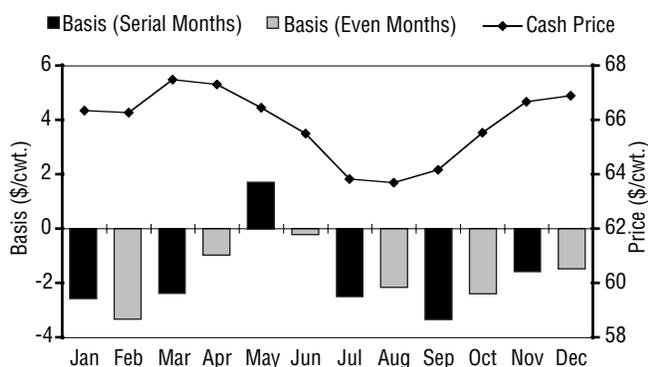
### Effects of Using Serial Contracts

While the implications of using serial contracts are not totally clear, we can make some general inferences as to the changes.

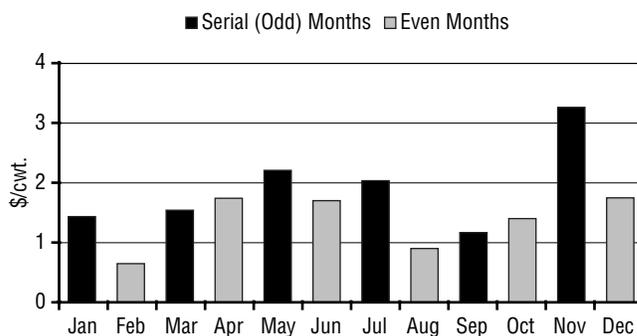
If the futures market is reasonably efficient, then basis risk should be reduced for odd months when using serial contracts. It seems reasonable to expect basis risk for odd months could be adjusted to the average of the surrounding months. Thus, the basis risk in November could be reduced to or bounded by that for October and December. A possible exception would exist if the greatest price uncertainty during the year occurs in an odd month. Looking just at the standard deviation of the even months, there appears to be a seasonal pattern to the basis risk.

Upon adoption of the serial contracts by hedgers, the expected basis will also change, as the magnitude of the seasonal effects is reduced. A first approximation for the new odd-month basis would again be an average of the surrounding even months. Of course, if hedgers avoid

**Figure 1. Average Price and Basis, Sioux Falls, 1995-2002**



**Figure 2. Standard Deviation of Basis, Sioux Falls, 1995-2002**



serial contracts because of liquidity concerns, the old basis pattern would continue to be relevant.

The CME has scheduled the serial contracts to be listed for only 120 days. While this matches with some feeding programs, it does have limitations.

If cattle are owned or fed longer than 120 days, then hedging effectiveness may be jeopardized. Nor are options available for longer time frames. Thus, hedgers may need to roll hedges or use synthetic strategies, which increase the transactions costs and may reduce the effectiveness compared to simpler hedging strategies.

The short listing time implies there would be limited price discovery or price transmission of the forward price for odd months until trading of the serial contract begins.

As with any new listing, liquidity is a concern. Will enough contracts trade that prices can be taken seriously and hedges lifted without concern? It is too early to tell.

Until sufficient volume is present, hedgers are advised to use price-limit orders instead of market orders. For comparison purposes, the May Lean Hogs contract is only in its second year of trading. Its open interest on March 10, 2003, was only 2,263 contracts compared to the surrounding contracts with 16,178 for April and 11,573 for June.

A final consideration is the effects serial contracts may have on forward contracting.

Since the introduction of national mandatory price reporting there has been a weekly packer owned direct

slaughter cattle report, LM\_CT153, which shows the volume and basis range for forward contracted cattle. On March 10, 2003, there were 541,881 head contracted through February of 2004. Assuming 33 head per futures contract, that equates to 16,420 contracts worth of forward contracted cattle. Open interest across all live cattle contracts on March 10, 2003 was 96,798 contracts.

Hedgers have suggested they use forward contracts in part to avoid basis risk. Thus, some forward contract volume could shift to odd-month futures contracts. In contrast, with the serial contracts facilitating price discovery and reducing basis risk, basis bids on forward contracts may improve, leading to more contracting.

### Conclusions

There is substantial basis risk when hedging odd-month cash cattle sales using even-month futures contracts. The introduction of serial (odd) month contracts should reduce basis risk and improve forecasting of cattle feeding profitability. Expected basis should be adjusted if the serial contracts are used. Finally, there may be a change in forward contracting activity with the introduction of the serial contracts.

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