Ag Decision Maker

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Feeder Cattle Futures Forecast Errors, 1990-2008

The Feeder Cattle futures market is a single location where anyone with an opinion on what prices will be in the future can essentially vote their forecast. The resulting futures prices represent a "composite" forecast at a particular point in time. However, futures markets trade on information and react as new information becomes available. Research has repeatedly shown that the futures are as accurate, or better than other forecasting methods, but just how good of a predictor are futures?

This simple analysis compares Feeder Cattle futures prices to contract maturity prices to evaluate their accuracy. Five forecast periods were evaluated for each Feeder Cattle contract from January 1990 to May 2009. The forecasts were the average futures closing prices for the selected week (Monday-Friday) compared to the maturity price, which was the average price of the last five trading days of each contract.

The forecast error was defined as the maturity price minus the forecast price. A positive error means the forecast was too low. A negative number means the forecast was too high. In efficient markets, one would expect that the forecast error would average $0 and there would be no predictable pattern to the errors.

Results

The forecast error is measured as a percent of the futures price at maturity. Figure 1 shows the 24 week forecast error for all 156 contracts. It shows that the errors are distributed around 0% in a random pattern. The errors of three contracts (January-April 1990) were unavailable due to a lack of price information, 70 errors were negative and 83 of errors were positive. There is little evidence of serial correlation or a cyclical pattern. Approximately 30% of errors were within +/- 3.5% of 0 with 28% less than -3.5% and 42% greater than 3.5%.

Figure 2 reports the forecast error by contract and time to maturity. There is not a consistent pattern across the contracts. These results suggest that the contracts from January (with the exception of 40 weeks out), March, and April (with the exception of 8 weeks out) tend to overestimate futures prices at maturity. The contracts from May (with the exception of 32 weeks out), August, September, and October (with the exception of 8 weeks out) tended to underestimate the maturity price. The November contract varied widely. Overall, the contracts tended to underestimate on average. However, it is important to remember that there are only 19 numbers at most in each of these averages and a large error in any one year can change the average dramatically. Keep in mind that research such as this has consistently shown that markets are efficient and that highly predictable patterns in the data that could be used to generate a profit will be exploited until the profits are bid out of the system.

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Figure 1. Percent Error 24 Weeks Out for Contract Months January 1990 to May 2009.

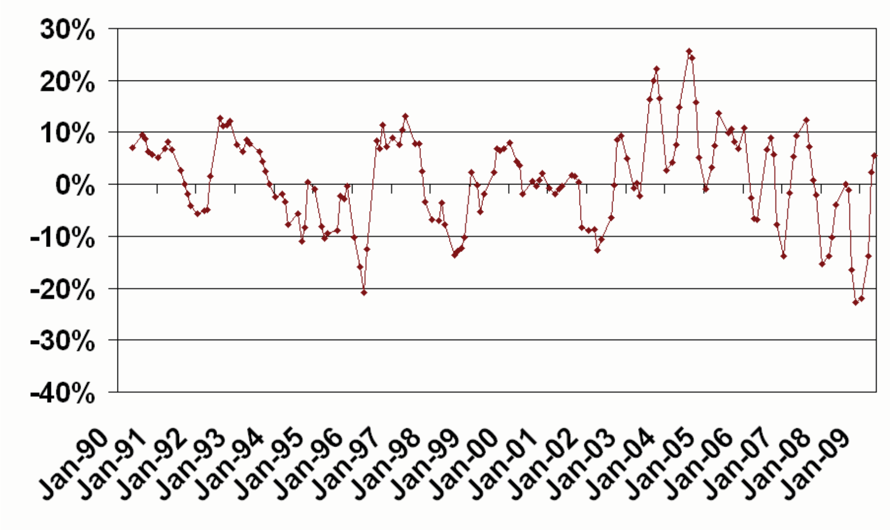
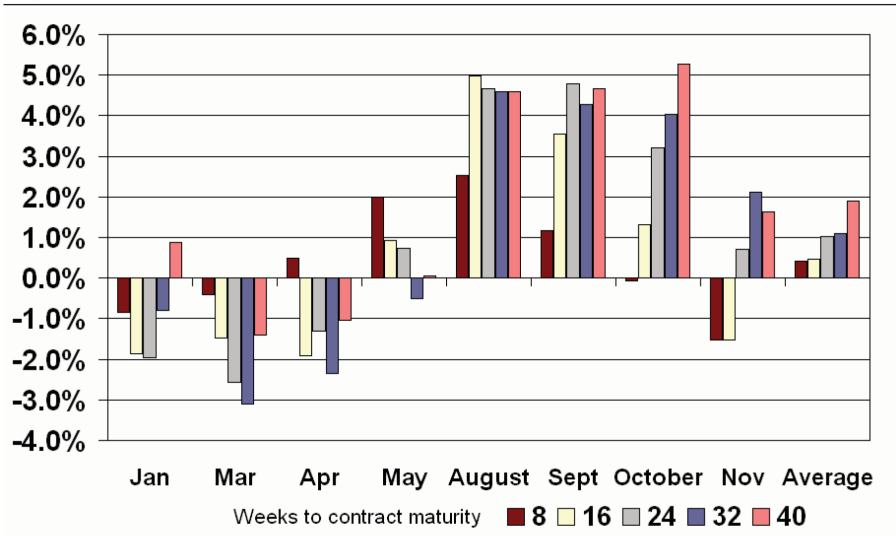


Figure 2. Futures Forecast Error by Contract and Weeks to Maturity.



It is important to know more than the average about the forecast errors. Table 1 reports the average and standard deviation for each contract month by time to maturity. Standard deviation is a measure of variability around the average, and under normal conditions the actual forecast is expected to be within plus or minus one standard deviation of the average approximately two-thirds of the time. A larger standard deviation indicates more variation in the error. The standard deviations for all contracts tended to increase with time to maturity.

Table 1. Average and Standard Deviation of Forecast Error by Contract and Time to Weeks to Maturity.

Weeks Out		Jan	Mar	Apr	May	Aug	Sept	Oct	Nov
8	Avg	-0.80%	-0.40%	0.50%	2.00%	2.50%	1.20%	-0.10%	-1.50%
	StDev	4.80%	5.10%	6.80%	5.80%	4.10%	4.30%	6.00%	5.20%
16	Avg	-1.90%	-1.50%	-1.90%	0.90%	5.00%	3.50%	1.30%	-1.50%
	StDev	7.10%	6.10%	9.40%	8.20%	8.00%	6.30%	7.70%	8.40%
24	Avg	-2.00%	-2.60%	-1.30%	0.70%	4.70%	4.80%	3.20%	0.70%
	StDev	9.10%	7.20%	8.50%	8.60%	9.40%	9.10%	9.30%	9.10%
32	Avg	-0.80%	-3.10%	-2.30%	-0.50%	4.60%	4.30%	4.00%	2.10%
	StDev	9.00%	9.40%	10.80%	9.70%	9.80%	10.40%	10.50%	9.70%
40	Avg	0.90%	-1.40%	-1.00%	0.10%	4.60%	4.70%	5.30%	1.60%
	StDev	9.90%	9.90%	11.50%	11.40%	10.60%	10.50%	10.60%	11.10%

Table 2 below provides the average and standard deviation of the forecast error by weeks to maturity across all contracts. The average forecast error increases with time to maturity and is very small at .98% (.98% of $90/cwt is $.88/cwt). Variation in all contracts, on average, decreases as maturity nears. This is expected because as more and more information becomes available as maturity approaches, people are better able to make pricing decisions.

Table 2. Summary of Cattle Price Forecasting Errors ($/cwt), 1990-2008.

Forecast	8 wks out	16 wks out	24 wks out	32 wks out	40 wks out	Overall
Average	0.41%	0.48%	1.03%	1.09%	1.89%	0.98%
Std. Dev	5.38%	7.94%	9.03%	10.12%	10.73%	8.64%

This analysis is intended to provide some insight into how accurately Feeder Cattle futures predict contract expiration prices. As shown by these errors and standard deviations, there is significant variability, and a contract may under or over predict prices, in any one year, but overall, futures contracts are very useful predictors of maturity prices.

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