

2. Ongoing Effort: Formulate your own Market Analysis

Introduction

There are two basic approaches to market analysis. These are commonly referred to as fundamental analysis and technical analysis.

Fundamental analysis of expected cattle prices is a broad topic. Included in the subject matter are historical, existing or projected numbers of cattle in various weight and grade classes or anticipated supplies of beef, pork and poultry. Also included in fundamental analysis are factors influencing demand such as population, income and prices of substitution, on both the domestic and international markets.

Technical analysis is concerned with psychological factors influencing market prices as reflected in various types of charts and mathematical formulas, which are often in response to fundamental market data and indicators.

Traders react to government or private sector reports or world events in somewhat predictable ways causing market price changes. Thus, you should have some familiarity with both fundamental and technical analysis. This is especially important when buyers or sellers with whom you deal have such information available to them at the time prices of cattle are being negotiated.

Fundamental Price Analysis

The number of cattle available for slaughter or available for feedlot placement during identified time periods has direct impact on prices for finished or feeder cattle. The supply of these classes of cattle over time is dependent upon the number of breeding cows and heifers. As numbers are adjusted in response to favorable or unfavorable prices, cattle cycles occur. An understanding of the cycle and close attention to recent potential changes is critical to fundamental price analysis.

Other types of analysis valuable to producers and feedlot operators in projecting potential price movements are: seasonal price movements, price changes between key marketing months, price comparisons between calves and yearlings and between steers and heifers, marketing margins between live cattle and retail beef and factors influencing consumer demand. We're going to take a quick look at a couple of fundamental price analysis.

Cattle Price Cycles

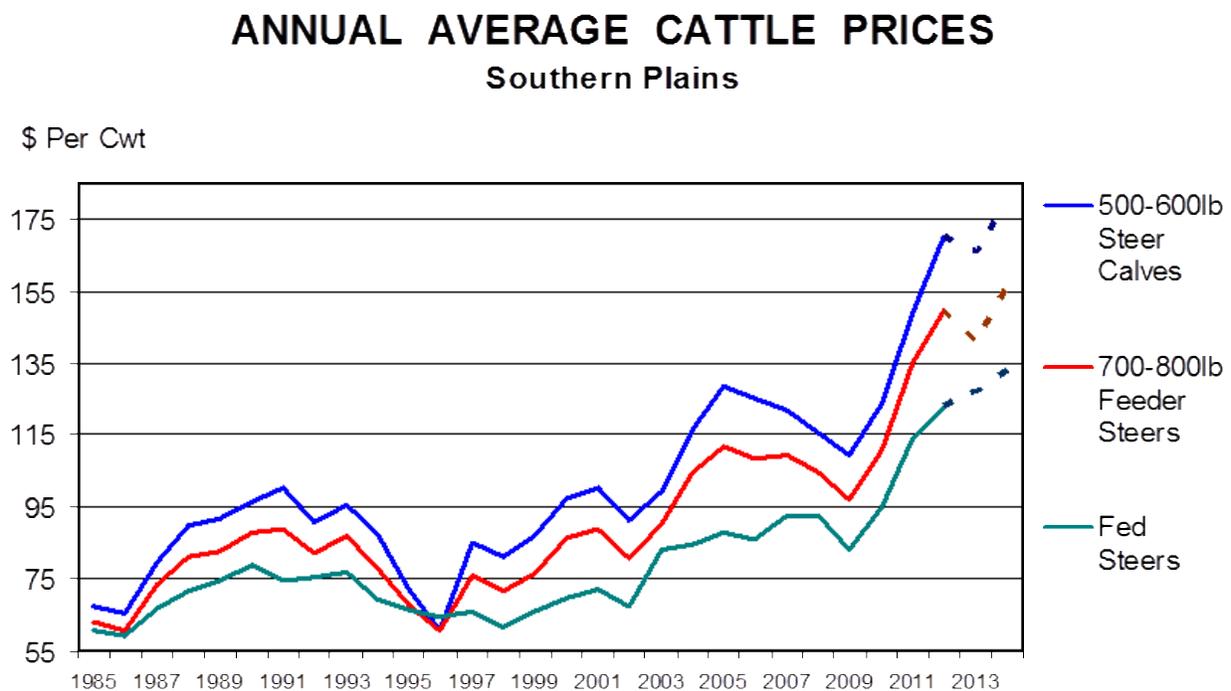
Cattle prices are unstable because of many factors such as prices of competing products, global markets and general economic conditions in the economy. However, one of the most important causes of longer run changes in prices levels is fluctuating cattle numbers.

Variations in cattle numbers are caused by the decisions of producers to build or liquidate their herds in response to returns generated. A cycle is a pattern that repeats itself more or less regularly with the passage of time. The length of a cattle cycle is measure between successive identical stages of the cycle, such as the highest or lowest points of the cattle numbers or their prices. The current US cattle cycle is in a "holding pattern" due to wide spread drought.

Historically, cattle cycles have averaged 12 to 14 years but in more recent periods the cycle seems to be shortening to as few as four to five years (Figure 1). The shortening of the cycle may be due to improvement in physical herd management, i.e., feeding, breeding, etc. However, it is more likely due to the greater attention to changing economic conditions, global demand, communication technology, and industry response to these changes to maximize profits or minimize losses.

Both feeder cattle producers and cattle feedlot operators can benefit from a close analysis of the cattle cycle in which they are presently operating. Even though there are seasonal price variations, marketing decisions can be improved if managers know that they are in the downward side of a cycle, upward trend in the cycle, or nearing the peak or through a cycle.

Figure 1: Annual Average Cattle Prices, Southern Plains



The profit maximizing management strategy during the cycle is one that is a counter-cyclical, expansion contraction strategy. Cow-Calf/Feeder cattle producers may consider four strategies.

1. Vary the proportion of cows and yearlings so that more stockers and few cows are wintered over in price break years. Losses will still occur in a price break year, but they may be less than those with a specialized cow-calf operation.
2. Liquidate or sharply reduce the cowherd in or just before the price break year to reduce further losses, especially when there are alternative uses for fixed resources.
3. Retain ownership through the feedlot to provide some opportunity to minimize cow-calf and stocker losses in the price break year and the years immediately following. Any offsetting gains in feeding will seldom cover all losses.

4. Hedge or forward price in years when prices are declining. If the price break year can be accurately anticipated, a hedge would be very helpful. However, an error made in hedging too soon (before the break) could be costly.

Seasonal Prices

Cow-calf producers and cattle feeders are faced with prices that fluctuate greatly from one time of year to another. This is due to bunchiness of marketing feeder cattle, finished cattle or competing meat products, and as we seen in recent years, drought induced marketing's. Prices also vary between consumer choice of products which varies during the year.

Analysis of monthly price movements over historical periods of time can provide some indication of the direction that prices will move within a future production or marketing period.

Converting monthly prices to price indices is an analytical tool that makes it easier to visualize seasonal price movements. This involves relating prices of each month to a base period. For example, the annual average price may be selected as the base.

The computation of the monthly seasonal price index numbers for 2011 prices of 400-500 pound and 500-600 pound feeder calves sold at Clovis Livestock Auction market would be carried out as follows:

Table 2 reports the monthly price per cwt from published reports is shown in the first two columns, next to the month. The next two columns is the monthly price index, computed by dividing each month by the annual average price. Note that prices in April were 12% higher for 4-5cwt and 8% higher for 5-6cwt compared to prices in October.

Table 2: Monthly Seasonal Index, 4-5cwt and 5-6cwt Steers, Clovis Livestock Auction

Month, 2011	Steers 400-500 (Average)	Steers 500-600 (Average)	Steers 400-500 Index	Steers 500-600 Index
Jan	\$125.50	\$122.50	0.848	0.883
Feb	\$142.50	\$135.00	0.962	0.973
Mar	\$150.50	\$142.00	1.016	1.024
Apr	\$165.00	\$151.00	1.114	1.089
May	\$149.50	\$137.00	1.010	0.988
Jun	\$127.00	\$124.50	0.858	0.898
July	\$155.00	\$146.50	1.047	1.056
Aug	\$155.50	\$140.50	1.050	1.013
Sep	\$159.00	\$148.00	1.074	1.067
Oct	\$135.75	\$125.50	0.917	0.905
Nov	\$145.50	\$139.75	0.983	1.008
Dec	\$166.00	\$152.25	1.121	1.098
Average	\$148.06	\$138.71		

This example identifies relative price movements throughout 2011, which we know was impacted by the drought of 2011. A summary of monthly price movements during the past several years would provide additional insight to how drought has impacted price seasonality.

Two methods used in long-term seasonal analysis are:

1. Compute monthly indices for each year being considered as was demonstrated above. This would provide the relative monthly price movements for each year. A computer is useful in assisting with this type of analysis.
2. Compute one seasonal index representing the average of 3, 5, 7 years, or more. The average price of 7 years, as the base year. The 7-year average price for each month is then divided by the annual average price for the 7-year period.

To visually compare indices, a graph of the seasonal index numbers can be compared to long-term price indices to show the closeness of the seasonal patterns.

In the past few years, there have been many changes in the beef industry from both consumer demand and production adjustments. Therefore, recent years may be more representative of seasonal pricing patterns than earlier periods. Using the summary of NM Combined Auction Data, monthly prices, Index numbers for the period 2000 through 2007 can be computed using the 200-2007 average prices as base. To test the performance of this seasonal index as an indicator of current pricing patterns, compute the 2011 seasonal index and graph the two series. Individuals should select relevant price series for his/her own market area or class of cattle and compute the seasonal indices for those data. Figure 2, 3, 4 and 5 reports seasonal price index several market classes of cattle.

Figure 2: Season Price Index, Fed Steers, Southern Plains, 2001-2011

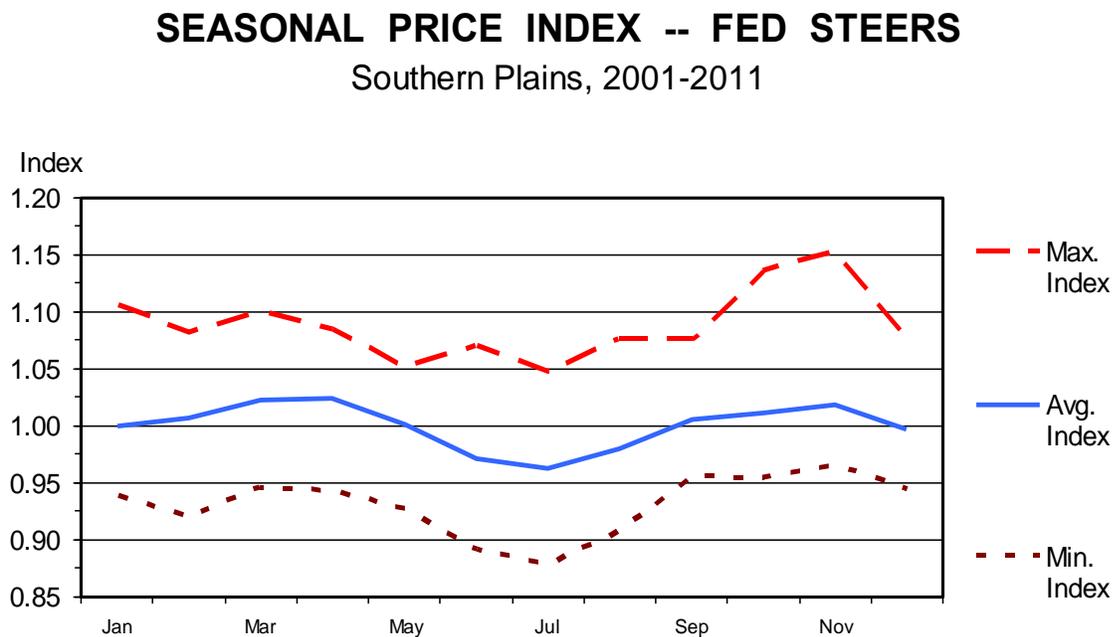


Figure 3: Seasonal Price Index—Feeder Steers, 700-880 Pounds, Southern Plains, 2001-2011

SEASONAL PRICE INDEX -- FEEDER STEERS

700-800 Pounds, Southern Plains, 2001-2011

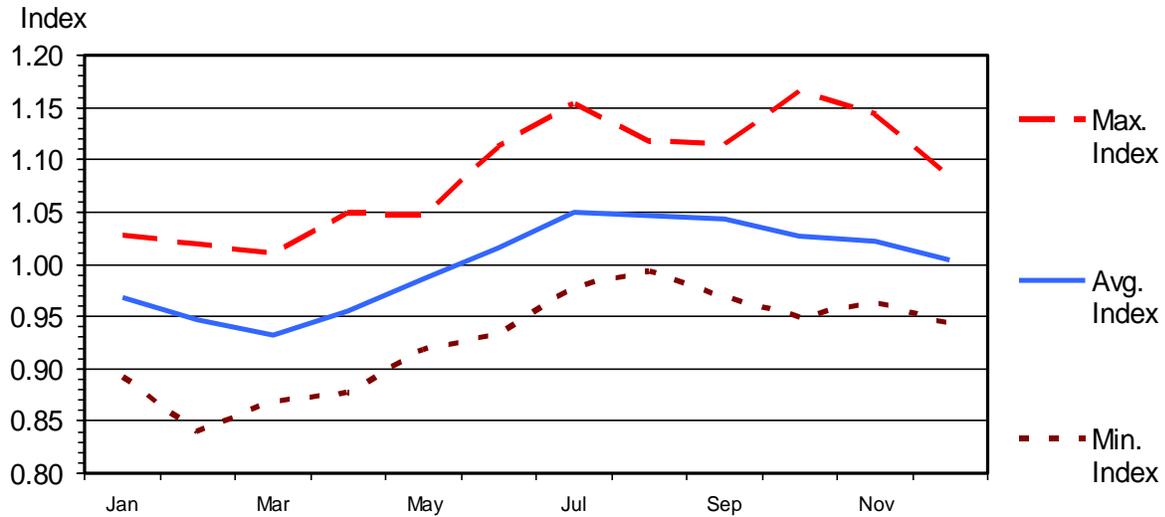


Figure 4: Seasonal Price Index-Steer Calves, 500-600 lbs, Southern Plains, 2001-2010

SEASONAL PRICE INDEX -- STEER CALVES

500-600 Pounds, Southern Plains, 2001-2011

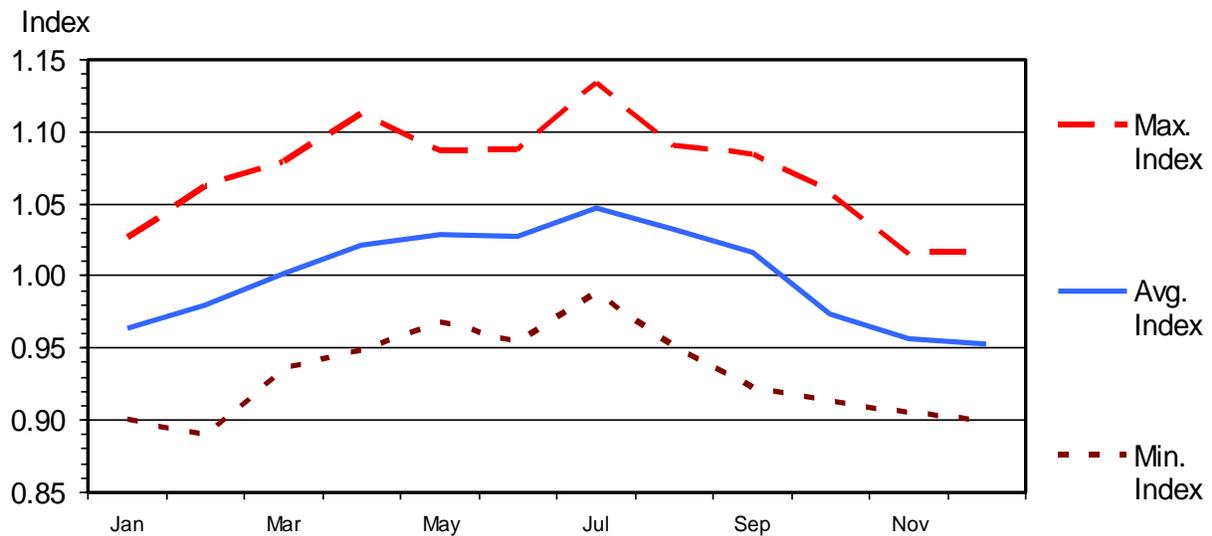
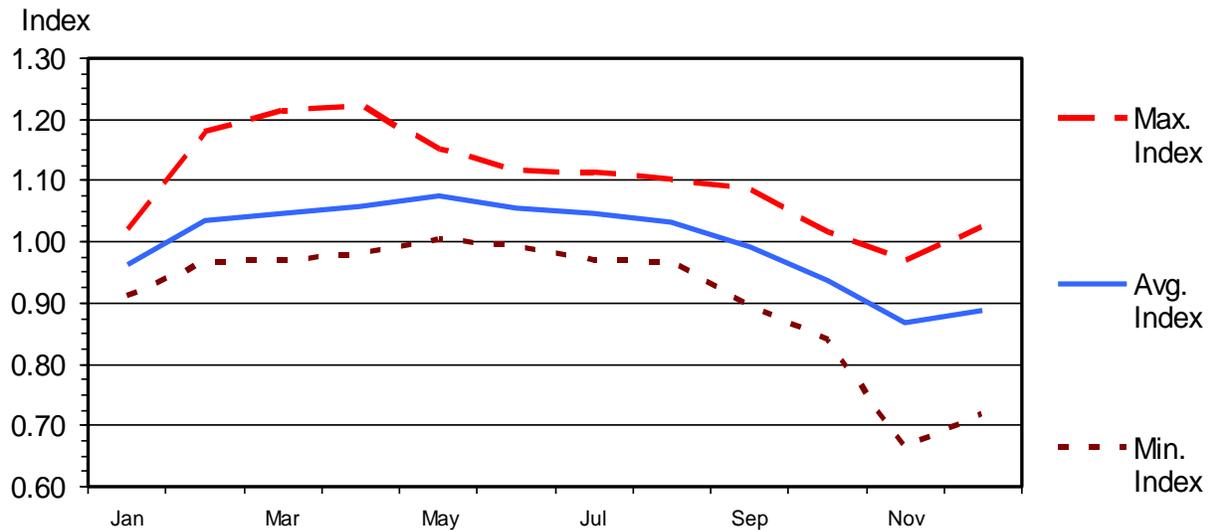


Figure 5: Seasonal Average Price Index for Utility Cows, 2001-2011

SEASONAL PRICE INDEX -- UTILITY COWS

Southern Plains, 2001-2011



Price Changes Between Marketing Months

Cow-calf producers and cattle feeders are often faced with the decision to market at a present time or to alter production practices and sell at some later date. A major factor influencing the decision is the expectation for future prices, both the direction and the magnitude of change between alternative months.

Historical monthly price data provides the basic information for detailed monthly comparisons. The objective for this analysis is to identify probabilities for price increases and decreases and computation of the average changes that have occurred over the past years.

The procedures to follow in this analysis are:

1. Select the market weight class of cattle that will be sold.
2. Identify the primary alternative months when this weight and grade of cattle can be marketed.
3. From a historical price series list the monthly prices for two selected months in two columns.
4. Calculate the price difference between the two months for each year of the price series and identify whether it was an increase or decrease in price.
5. Compute the percentage of times that prices increased and the percentage of times that prices decreased from the first month to the second month.

Technical Price Analysis

An Introduction to Basis

Commodity **basis** provides a significant amount of information to producers and agribusinesses for making production, forward pricing, hedging, and storage decisions. Many producers believe that understanding basis patterns is the most fundamental means of evaluating marketing decisions. That is, basis tends to follow historical seasonal patterns and by understanding these patterns a producer or agribusiness person can make better marketing management decisions and reduce risks involved in those decisions.

What is Commodity Basis?

Commodity basis is the difference between a local cash price and the relevant futures contract price for a specific time period. For a specific commodity basis is defined as:

$$\text{Basis} = \text{Cash Price} - \text{Futures Price},$$

Where *Cash Price* is the cash price for a specific commodity at a given location and *Futures Price* is the relevant futures price for that commodity. An example illustrates:

Assume High Desert Cattle raises feeder cattle in Tucumcari, New Mexico. On June 14, 2013 the local elevator is buying corn for \$7.29/bushel and the local livestock auction is selling 7-8 cwt. feeder cattle for \$136/cwt. On this same day, the closing price of the September corn futures price at the Chicago Board of Trade is \$5.74/bushel and the closing price of the August feeder cattle futures price at the Chicago Mercantile Exchange is \$143.75/cwt. Now, if Clover B. Cattle wants to know her basis, she would simply take the cash price and subtract the futures price for each commodity.

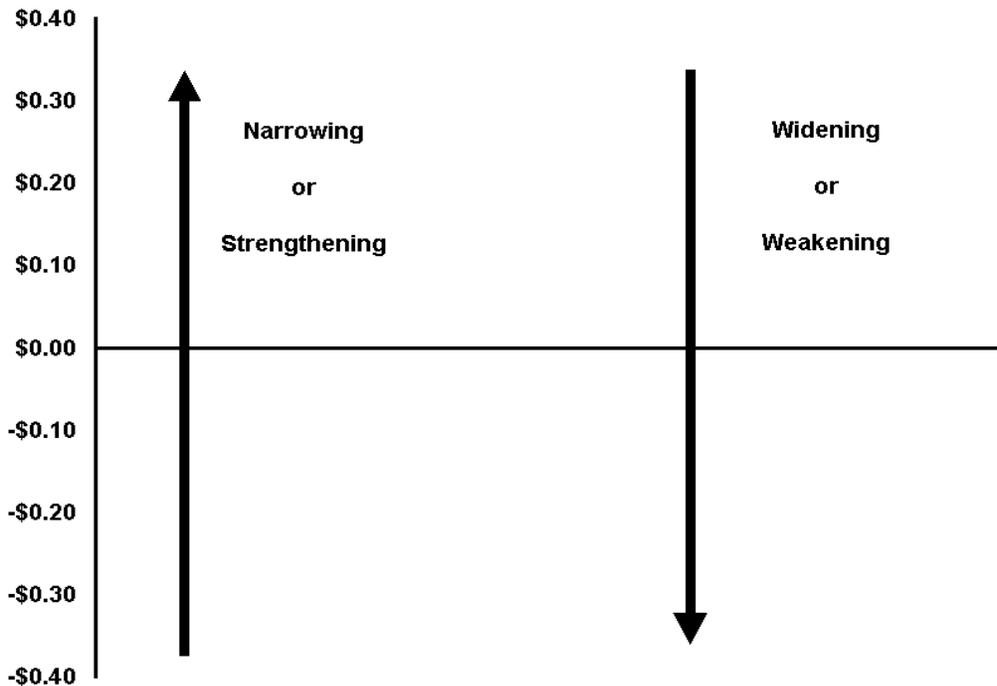
	Corn	Feeder Cattle
Local Cash Price (Clovis NM)	\$7.29	\$136.00
Less Futures Market Price	\$5.74	\$143.75
-----	-----	-----
= Basis	\$1.55	-\$7.75

A negative value represents a cash price "under" the futures price and a positive value represents a cash price "over" the futures price. Figure 6 is used to describe basis movements. A basis that becomes more positive or less negative over time is said to narrow or strengthen. A basis that become less positive or more negative over time is said to widen or weaken.

What does Basis tell me?

Basis describes two separate relationships for grain and livestock. Therefore, these enterprises are separated in the discussion below.

Figure 6. Basis Terminology and Movement



Grain

For grain, basis is typically used as an indication of current local demand. Weak basis indicates that the market doesn't want grain now, but the market may or may not want it later. Strong basis indicates the market wants the grain. Basis is best used in deciding how to sell. Table 3 shows what a grain producer should do given certain market situations. For instance, assume you are a corn producer who believes the corn price is high and basis is strong relative to historical patterns. What should you do? Sell in the cash market, as there is little opportunity to better the current market price through storage and/or taking a futures position.

Livestock

For livestock, basis refers to the difference between supply and demand in a local location and supply and demand for the aggregate market. Like grains, basis contracts can be formulated for livestock. Thus, understanding the basis can help ranchers and agribusiness personnel in evaluating forward contracting and hedging decisions. For example, Table 1 describes a gain or loss to either a short or long hedger when basis strengthens or weakens. For the long hedger, the hedger prefers for the basis to weaken. That is, the hedger pays less in the cash market relative to the futures market and may gain more from their position in the futures market.

For the short hedger, the hedger gains from a strengthening basis. That is, the hedger realizes a cash price increase relative to the futures price and may gain more from their position taken in

the futures market. We will explore hedging and forward contracts in greater detail a little later, but for now

Table 3. Direction and Impact of Basis Movement for Short and Long Hedger.

	Long Hedge	Short Hedge
If basis weakens (widening)	Basis gain	Basis loss
If basis strengthens (narrowing)	Basis loss	Basis gain

Using Futures/Basis as a Price Forecasting Tool

Commodity futures prices can serve as a mechanism for price discovery either for the present price or for determining expected future prices. A market is defined as an efficient market if the market accounts for all public and non-public information in determining an equilibrium price in the market. Commodity futures markets are often referred to as efficient in the price discovery process. That is, the price quoted for a commodity on the futures market is thought to be the best measure of the actual price, either current or in the future. Therefore, if you would like a good predictor of what prices will be four months from now, the closest deferred (four month out) futures price quote for that commodity may be the best and easiest aggregate price forecast.

Tables 4 and 5 provide closing future price quotes for corn and live cattle, respectively, for June 13, 2013. On June 13, 2013 these price quotes for corn and feeder cattle could be thought of as a forecasted price for the months listed on the left-hand side of the tables. For example, if you wanted a forecast of what corn price was going to be for the U.S. in December of 2013, you could use the December 2013 CBOT futures closing price of \$5.35/bushel as a forecasted price. Similarly, if you were interested in a forecast of feeder cattle prices for November 2013, you could use the November 2013 CME feeder cattle futures price quote of \$151.22/cwt.

Why does someone care about forecasting price? Knowing what the grain price will be in December 2012 is helpful in evaluating storage decisions. Knowing what the feeder cattle price will be in November of 2012 is helpful in making retained ownership decisions. Also, knowing expected prices can help in making forward pricing decisions. That is, if you could forward price you feeder cattle for November 2013 at \$155.0/cwt, you would know that this price is above the expected price (typically this will not be the case in forward pricing agreements because the entity offering the forward price contract requires a price discount to assume your price risk). This is an important point; cattle buyers offering a forward contract price will have considered the futures market price in their offer. Expected prices can help producers decide marketing alternative to pursue. Lastly, expected prices can be useful in planning annual cash flows and loan requests.

Table 4. Chicago Board of Trade Corn Futures Price Quotes (June 13, 2013)

Contract Month	Year	Closing Price (\$/bu)
July	2013	\$6.43
September	2013	\$5.70
December	2013	\$5.35
March	2014	\$5.46
May	2014	\$5.54
July	2014	\$5.60
September	2014	\$5.53
December	2014	\$5.49
September	2014	-

Table 5. CME Feeder Cattle Futures Price Quotes (June 13, 2013)

Contract Month	Year	Closing Price (\$/cwt)
August	2013	\$145.47
September	2013	\$147.75
October	2013	\$149.35
November	2013	\$151.22
January	2014	\$151.05
March	2014	\$151.75
April	2014	\$152.00
May	2014	\$153.25

Basis: A Necessity for Predicting a Local Cash Price

Commodity futures exchange markets provide a mechanism for price discovery on an aggregate level through arbitrage between multiple buyers and sellers. However, price discovery at a given location—your local market is not nearly as clearly defined because local supply and demand relationships are not as well known. However, historical basis provides a linkage between these two markets. Therefore, a simple, low cost, and relatively good predictor of the local cash price is the futures contract [month] price of interest adjusted for a multiple year average basis. Research at Kansas Stat University suggest a 3-year average is a good predictor of expected basis, $E[\text{Basis}]$. An expected price, where E denotes an expectation, can be found using:

$$E[\text{Cash Price}] = [\text{Futures Price}] + E[\text{Basis}] ,$$

For example, assume a cow-calf producer would like a forecast for November feeder cattle prices in his/her local market. The producer's best expectation of that cash price might be the

The above calculation is not a stretch when we consider our earlier discussion about commodity basis, where:

$$\text{Commodity Basis} = \text{Cash Price} - \text{Futures Price, therefore}$$

$$\text{Cash Price} = \text{Futures Price} + \text{Commodity Basis}$$

November cattle futures price adjusted for an expected basis (say 3-year average basis). Figure 7 provides a worksheet format for calculating a local cash price or a localized futures price estimate. The example illustrated in Figure 7 is for November feeders steers, 7-800 wt. Looking back at the historical basis between the local cash market, the combined NM Auctions average per month, compared to the average nearby futures price for the same month-November, we can compute a average basis between the local cash market and the futures market. The 3-year average basis reported in Figure 7 for this example is an negative -\$12.90 per cwt. Note that the basis in 2012 and 2013 is more negative than previous year, a direct result of the drought, reflecting local demand for 7-800 wt feeder cattle.

Figure 7: Localized Futures Price Worksheet			
Price Forecast for: November feeder strs, 7-800 wt			
13-Jun-13			
Year	Local Cash	Less Futures	Historical Basis
2010	105.53	113.85	-8.32
2011	127.44	143.73	-16.29
2012	131.25	145.33	-14.08
2013	0	0	0
Average Basis			-12.90
Today's Futures Price(\$/cwt)	151.22		
Basis Estimate((+/- \$/cwt)	-12.9		
Localized Futures Price: (today's futures +/- basis	\$ 138.32		

Ok, this is fine and good, but what if you are trying to predict a local price for 4-5 cwt. feeder calves, steers and or heifers--"What price can I expect?" No matter the time of year, this question always looms in producers or agribusinesses decision process. Cow-calf producer are often faced with the decision; should I forward contract my calves and for how much, should I retain ownership on all or a portion of my heard beyond weaning? Similarly, cattle buyers must determine price expectations to know what forward price to offer. Local cash price for lighter weight cattle/calves can be estimate using the average or expected basis between local cash and

futures, but you must keep in mind that the market uncertainty relative to weight, location and quality will play a even greater role in the cash futures price relationship for lighter cattle. Nonetheless, making a basis adjusted forecast for your feeder steers and heifers can be useful when combined with other technical and fundamental market information. Figure 8 presents an example for November 4-500 wt. steers, providing a localized futures price forecast.

Figure 8: Localized Futures Price Worksheet			
Price Forecast for: November feeder strs, 4-500 wt			
13-Jun-13			
Year	Local Cash	Less Futures	Historical Basis
2010	130.21	113.85	16.36
2011	150.55	143.73	6.82
2012	172.08	145.33	26.75
2013	0	0	0
Average Basis			16.64
Today's Futures Price(\$/cwt)	151.22		
Basis Estimate((+/-)/cwt)	16.6		
Localized Futures Price: (today's futures +/- basis estimate)	\$ 167.86		

What does Cash Basis not tell me?

Cattle production is a continuous, year-round process. By comparison, in grain markets the supply available for an entire market year is known once the harvest is complete. This production-utilization pattern affects the nature of the “cash basis,” or the price difference, between the cash and futures markets.

Basis that results from location and quality differences between the futures market and the cash market for particular lots of cattle is important. However, basis related to time period, which is especially important to grain markets, is not as relevant in livestock futures markets because:

1. There is no storage period and, therefore, no cost of storage that must be reflected in futures prices.
2. Cash and futures markets in cattle do not show a consistent relationship from one period of time to another except at the maturity of a contract. The two markets must be close at that time or substantial delivery of product will occur. At other times cash prices may be either above or below a particular futures contract, depending on current market conditions. Inverted markets in livestock futures are fairly common but not as common in stored commodities.

3. The prices of individual contracts may be fairly independent of each other because of the continuous nature of the production process. Supplies and utilization in one period do not necessarily affect the market in later periods.

Cash and Futures Positions: Futures markets for cattle differ from many grain futures markets in another way. The cash and futures position are not comparable until the livestock achieves the weight and quality characteristics specified in the futures contract.

Hedging provides a measure of price protection during a production process instead of for storage or merchandising operation. However, there is some uncertainty about how closely the final product will conform to contract specifications. This limits the precision with which a hedging position can be estimated.

Price-Quality Relationships: Prices in the cash markets for live cattle are typically within a fairly wide range for a particular weight and grade category. By contrast, the futures market is represented by a single price within this range.

Cattle feeders who hedge by selling live cattle or feeder cattle contracts do not know with certainty how their cattle will compare with the quality-weight combination represented by the futures price. Unless quality and price relationships can be accurately predicted, this condition can limit the price protection obtainable from hedging.

Price relationships between different weight-quality combinations within a live cattle grade are not constant over time. Thus, choice 1,050-pound steers may sell at the top of the price range at one time, but near the lower end of the range a few weeks later.