Charting Commodity Futures

Channel Lines. Charts of futures price movements can guide agricultural producers in timing farm marketings and can be of some help in forecasting short-term price movements. Charting techniques often are viewed as a supplement to fundamental (supply-demand based) price forecasting and outlook analysis. While charting is not a fool-proof method of forecasting price movements that will occur in a period of a few days or a week or two, it does provide additional information on price objectives and market psychology that can be helpful to producers, and to speculative commodity traders. For commercial hedgers such as grain elevators who buy grain or other commodities in the cash market and immediately re-sell the product through hedges on the futures market, charting should be of little or no value.

Futures prices tend to follow accepted charting rules because those rules are understood and used by a large number of professional traders. Trading actions that are based on the rules cause those rules to work. The most common type of commodity price chart is the bar chart, where daily prices for a particular contract month are plotted as a vertical bar. The top of the bar (or line) represents the high price for the day. The bottom is the day’s low and a small horizontal tic on the right side is the closing price.

Over a period of several days or weeks the price trend can be identified by channel lines. If prices are trending up, the base of the channel is drawn as a straight line just touching the two lowest possible points on the price movement. The upper channel line is then drawn parallel to the base and just touching the one highest possible price in the series being charted. Figure 1 illustrates how channel lines are drawn.

If prices are trending downward, the first channel line should be drawn from the tops of the prices—with a straight line just touching the two highest possible prices in the series. The lower channel line is drawn parallel to the top line—and just touching the single lowest possible price of the series being charted. As long as prices are within the two channel lines, the price trend remains intact.

Buy and Sell Signals

Professional commodity traders watch the charts for signs of a change in the direction of price movements. Figure 2 shows a sell signal, with the futures price closing below the bottom of the channel line. A low for the day that is below the channel, with the close being above the bottom of the channel would not be a sell signal. One close below the channel is a signal that prices may work lower and is a sell signal for the professional speculator. Figure 3 shows a buy signal—two closes above the channel line. That’s a strong indication that prices are about to begin moving higher. Notice that the rules for a sell signal...
require only one close below the channel, while the buy signal requires two closes above the channel. This is an indication that prices require less affirmation to move into a downtrend than to move into an up-trend. These signals have a high degree of reliability in forecasting the short-term direction of price movements, but are of limited value in forecasting price movements a month or more in the future, when fundamental supply-demand forces will influence price direction.

**Key Reversal or Outside Day Key Reversal**

Figure 4 shows a bearish outside day key reversal. This information is a caution sign that prices may begin to work lower. A key reversal is identified by daily high and low prices that exceed the high and low prices for the previous two trading days. With a bearish key reversal, the close is below the closing prices of the previous two days. A key reversal would be bullish (indicating higher prices) if the close exceeded closing prices for the previous two trading days. Key reversals often appear near the top or bottom of an extended price move. Some chartists consider key reversals to occur when the price range exceeds only the previous day’s price range, rather than the previous two days’ range, although that is a weaker indicator than a reversal based on a two-day price movement. Key reversals can be thought of as a yellow light in the commodity markets, signaling that price movements are about to change direction. Analysis some years ago at ISU in agricultural markets showed about a 70 to 80 percent probability that short-term price trends would follow the direction indicated by key reversals. Since then, we would expect the advent of computerized speculative and commodity fund trading would have strengthened the reliability of this market signal, although such reversals are not 100 percent reliable.
Gaps
A gap occurs when futures prices suddenly drop lower, with the high price for the day being below the previous day’s low or with prices moving abruptly higher with the day’s low exceeding the previous day’s high. Examples of gaps are shown in Figure 5. Trading rules and trading history indicate there’s a high probability that gaps will eventually be filled. A gap is filled if prices later trade in the range at which the gap occurred. Since gaps are usually (but not always) filled, they become price objectives for the chartist. Gaps typically occur when major new market information becomes available, such as a change in medium-range weather forecasts, a major government report relating to prospective supply-demand conditions, or a U.S. or foreign policy change that affects the market.

There are several important kinds of gaps. Breakaway gaps (see Figure 5) occur at the start of a major new price move, and are a strong confirmation of that move if they are not filled within the next few days after they occur. Measuring gaps (see Figure 5) identify the half-way point in a price move, but are much easier to identify from hindsight than from foresight. Exhaustion gaps represent the final phase of a lengthy price move and may indicate the market is about to peak out. If you see what could be an exhaustion gap after a long upward trend in prices, watch carefully for a sign that the market is topping out, such as a bearish key reversal.

Double Tops and Double Bottoms
Figure 6 shows a typical double top formation, indicating prices have reached their peak and are about to decline. Double tops are identified by two daily price highs reaching the same level. The days can be back to back, or several days apart. They identify an area of major technical resistance, which the market is unable to move above. Double bottoms are the inverse of double tops, and indicate prices may be ready to change from a down-trend to an up-trend. Triple tops or bottoms are even stronger indications of a potential change in price trends.

Head and Shoulders Formation
A typical head and shoulders formation is shown in Figure 7. This formation is difficult to spot until it is about two-thirds completed. Once the head has been formed, the professional chartist anticipates prices will retreat to the neckline, then rise to form the right shoulder, then retreat to the original break-out level where the left shoulder began. If one turns Figure 7 upside down, it would illustrate an inverse head and shoulders formation. An inverse head and shoulders formation would signal that a bottom of a long bear market may be approaching. Price objectives are derived from an inverse head and shoulders formation in much the same way as for a head and shoulders formation.
Uses and Limitations of Charting

Charting can aid farmers in deciding whether to sell now or wait a bit longer. Gaps on the charts can also aid producers in establishing price goals. However, charts are not the full answer to farmer marketing needs. Effective crop and livestock marketing also requires information about U.S. and world supply-demand conditions in order to accurately evaluate price prospects several months into the future.

Sources of Commodity Price Charts

Many market advisory services have charting information available in materials they make available to farm customers. This information also can be obtained from commodity brokerage firms. Another alternative is to chart major futures prices that are important to your business, making it a habit to update the charts after each day’s market close. Spread-sheet software generally has charting features that will allow you to chart market high, low, and closing prices. The following Web site is one of several that provide no-charge price charts: http://www.tfc-charts.w2d.com/ This site has price charts for almost all U.S.-Canadian agricultural commodity futures markets, as well as major financial futures, industrial commodities, energy, lumber, and tropical agricultural products. It is up-dated daily, and the previous day’s up-date is available in the morning before the markets open. It does not provide a way of drawing in channel lines, but if you have a printer, you can print the charts and draw the lines manually. Or if you prefer, charting can be done by hand on commercial graph paper. For best results in charting grain and soybean futures prices, use graph paper that is graduated in 1/8 units rather than the more typical 1/10 units, since grain prices are recorded in 1/8 cent price changes. Office supply stores should have or be able to get this type of graph paper for you, and most college and university book stores should be able to order it.

Bar Charts are Only One of Several Elements Needed for Effective Marketing

Bar charts are oriented toward short-term price movements because they were developed by professional speculators who trade in and out of the market for short-term gains. Charting is an art rather than a science. Not all chart analysts will come up with exactly identical charts, with differences depending in part on the length of time that is charted. Some chartists prefer to work mainly with daily prices, while others also include weekly price charts. Daily continuous futures price charts use the current near-by futures contract price, shifting to the next distant delivery month when the current contract enters its month of expiration. Weekly charts are created by using the week’s high, low, and end-of-week closing prices. Still others also use monthly charts, plotting the high, low, and closing prices for the month. Some analysts prefer to chart the price of a given futures contract month through the entire life of the contract, rather than focusing continuously on the near-by month. For producers who will be selling cash grain at a specific time in the future, such as at harvest, this approach to charting may be more useful than charting only the near-by contract prices.

To market their products profitably, farmers also need accurate records showing their costs of production and storage, a careful assessment of financial risk-bearing ability, and an evaluation of pricing alternatives and income available through hedging, using the options markets to establish a price floor, through storage hedges, and through
various types of revenue insurance. This, in turn, requires a working knowledge of these available pricing and risk-management tools, including forward contracts, delayed price contracts, minimum-price contracts, basis contracts, Crop Revenue Coverage and Revenue Assurance revenue insurance’s, and direct hedging in the futures market.

Moving Average Charts
Another commonly used type of commodity charting is moving average price charts. These are constructed by plotting moving average prices over time, using three different lengths of time for calculating the moving averages. For example, moving averages of four, nine, eighteen, and forty-five days often are used. With microcomputers and spreadsheet software, it is easy to set up your own program to calculate moving averages, and to let the computer calculate and chart the resulting prices for you. To do this for the three day moving average, simply sum the prices for the most recent three days and divide by three. To update the chart a day later, drop the earliest day from the average and add the most recent day. Moving average charts usually are based only on the days’ closing prices, and ignore the high and low for the day.

Moving average charts delete some of the very short-term fluctuations that are picked up in bar charts. They tend to miss minor price directional changes, but concentrate on major changes. A sell signal occurs with moving average charts when the shorter moving average drops below the longer moving average(s). Conversely, a buy signal occurs when the shorter-term moving average has been below the longer-term moving average(s), but moves above them. Moving average charts are straightforward and easy to read. Like bar charts, they can sometimes give false signals, and therefore should be used in conjunction with fundamental supply-demand information. Chartists may use moving averages of individual futures delivery months, a continuous nearby futures price, weekly, or monthly average prices.

Relative Strength Index
Another technical (chart-related) price indicator is the Relative Strength Index, or RSI. The RSI is used to detect whether markets are over-sold or over-bought. It is a measure of how fast and for how long prices have been in their present trend. The logic behind this indicator is that, for example, if prices have been in a steep down-trend for a long period of time, they are over-due for at least a temporary recovery. Conversely, if the market has been in a steep up-trend for an extended period of time, the logic behind the RSI analysis is that prices may be over-do for a decline. The maximum relative strength index is 100 percent. As a rule of thumb, if the 9-day relative strength index exceeds 80, the market is over-do for a decline. And if it is less than 20, the market is over-do for a rally. The relative strength index is readily available from electronic farm news services and brokerage services, as well as farmer marketing advisory services. Many analysts follow not just one, but three RSI’s: the 9, 14, and 30-day RSIs. Some analysts chart moving averages of the RSI’s, using them in much the same way for buy and sell signals as would be used with moving average price charts. Plotting moving averages of RSIs tends to reduce the number of false sell signals, with the user seeking to price grain in those times when the short-term RSI has either exceeded or fallen below the longer-term RSIs.

Concluding Comments
The charts described here are the most commonly used ones, and are relatively easily developed by farmers. For others who have more time available and interest in charting, other more complex types of charting analysis also can be used, including Gann Analysis, cycle analysis, and Elliott Wave analysis. The logic behind some of these types of charting is not always easy to understand, although they, in part, are a way of graphically visualizing the ebb and flow of market psychology.

If the moving average charts, the RSI, and the bar simultaneously flash bearish price signals, it is time to carefully evaluate your risk-bearing ability and marketing alternatives for farm commodities that have not yet been prices. Simultaneous bullish signals by these charting techniques would suggest delaying sales for a limited time, if that is feasible.