

GETTING TECHNICAL

AN INTRODUCTION TO TECHNICAL ANALYSIS

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Fundamental Vs. Technical Analysis

We begin our review of technical analysis by first acknowledging the distinct differences between fundamental and technical analysis. Fundamental analysis deals with factors that affect supply of or demand for a commodity. This approach is only concerned with the laws of supply and demand and the gathering of as much information as possible in a particular market to try and ascertain future price movement. Strict fundamentalists would be likely to dismiss the concept that you can predict future price movement from just looking at charts. And any success one might have using a charting approach is just a consequence of the laws of probability, since even a totally random trade selection process would yield of percentage of winners. It would be interesting to note, however, that charts can be a very useful tool to the fundamental analyst. Long-term price charts enable the fundamentalist to quickly isolate the periods of major price moves. By determining the fundamental conditions or events that were peculiar to those periods, the fundamentalist can identify the key price-influencing factors. This information can then be used to construct a price behavior mode.

Technical analysis, on the other hand, is concerned primarily with price action and trying to identify patterns that repeat themselves. Technicians accept that fundamental supply/demand considerations ultimately determine the value of a commodity, but they believe that price at any one point in time represents a consensus of value to all market participants, from large commercial interests to small speculators, or fundamental researchers to technical traders. The key premise of the technical trader is that past price behavior can be used to forecast future price behavior. The great increase in technically based commodity trading the past decade generally is credited to the computer, which can easily discern price tendencies or patterns that would have been difficult or impossible to identify by hand. Proponents cite several advantages of technical trading. For one, it eliminates the onerous task of trying to understand the various fundamentals of all the markets one might wish to trade. Technically based trading systems also can provide more objective buy/sell decisions, as long as the trader or researcher avoids interjecting his own subjective analysis into his computer output.

Regardless of your approach to the markets, it is of utmost importance to recognize why markets exist in the first place. The ultimate function of any market is to provide a mechanism for price discovery. In theory, a marketplace in an organized, formal setting should provide enough liquidity that every price level is traded. All participants would have equal access to all information and equal access to the price discovery process. Because prices are determined by the participants themselves, the market is merely a reflection of the human response to new information and to the ever present influence of the human characteristics of fear and greed.

The bottom line is that each trader must evaluate chart analysis independently and draw his own conclusions. However, many very successful traders consider charts to be an extremely valuable trading tool. The list below addresses some of the benefits of using charts, many of which are valid even if one totally rejects the possibility that charts can be used to forecast prices.

1. Charts provide a concise price history—an essential item of information for any trader.
2. Charts can provide the trader with a good sense of the market's volatility—an important consideration in assess risk.
3. Charts can be used as a timing tool, even by traders who formulate their trading decision on the basis of other information (e.g., fundamentals).
4. Charts can be used as a money management tool by helping to define meaningful and realistic stop points.
5. Charts reflect market behavior that is subject to certain repetitive patterns. Given sufficient experience, some traders will uncover an innate ability to use charts successfully as a method of anticipating price moves.
6. An understanding of chart concepts is probably an essential prerequisite for developing profitable technical trading systems.
7. Cynic take notice: under specific circumstances, a contrarian approach to classical chart signals can lead to very profitable trading opportunities.

In summary, charts have something to offer everyone, from cynics to believers. Many market participants use a combination of fundamental and technical analysis. I, myself, have been full circle in determining what works best for me. I started out as a strict fundamentalist, subscribing to the theory that all the ships at the bottom of the ocean had a chart. However, I quickly realized that this was ignoring a very large (and growing) segment of traders, all of whom had an impact on market movement. Then I shifted my focus to primarily a technical approach, which posed problems as a broker because it can be difficult communicating with customers who aren't familiar with the technical terminology. This approach eventually, too, became insufficient because all long-term market price direction is inevitably determined by supply/demand forces.

Finding the balance is the key for anyone, and I have become comfortable incorporating fundamental and technical analysis into a system that attempts to capture the best of both worlds. As a believer that economic forces ultimately control the direction of a market, my first step is to determine what those forces are and how they will affect the longer-term direction of the market. Thus, I use fundamental analysis to give me a long-term perspective on the market, and will focus the majority of my trade recommendations in that direction. I use technical analysis for timing of the trades for entry and exit, and how aggressive I want to be with that particular trade.

This booklet and presentation is designed to review and evaluate the key concepts of classical chart theory, as well as address the all-important question of how charts can be used as an effective trading tool. In other words, how can one make money using technical analysis.

Technical studies vary from the simple to the advanced, all with the goal of increasing the odds of trading success. Nonetheless, most analysts will agree the first place to start is with the most basic technical tools, many of which have been time tested to determine both their strengths and their weaknesses.

It All Begins With Charts

Price charts are the oldest form of technical analysis. A chart is simply a picture of price history. As market opinions are expressed in trading decisions and those decisions shift, prices shift. Chartists theorize that as more prices are plotted, recognizable patterns and formations evolve. The technician surmises how the current market may perform by how it performed under similar technical conditions in the past.

Bar charts are by far the most common type of price charts. In a bar chart, each time period is represented by a vertical line that ranges from the low to the high of that time period. The opening value is recorded as a small notch on the left and the closing value is a similar notch to the right of the vertical line. The daily bar chart is most useful for trading purposes, but bar charts for longer data periods provide extremely important perspectives. These longer-period bar charts (e.g., weekly, monthly) are entirely analogous to the daily bar chart, with each vertical line representing the price range along with the beginning and final price level for the period.

It is generally considered that the close is the most important trade of the time period. The last trade of the day is recorded on the daily bar chart, while the last trade of the week is recorded on the weekly bar chart and the last trade of the month is recorded on the monthly bar chart. Thus, the bar charts quickly show where the close is and how it relates to previous closes of the same time periods. The longer amount of time in each bar, the more significant the close. For instance, funds will certainly monitor daily close activity, but will place much more emphasis on the weekly close because it represents more time and gives more indication to the longer term trend.

Most traders will agree that while they use the daily charts to fine tune their analysis, it is imperative to know what the longer term charts are showing as well, which can look substantially different from the shorter term daily chart. Figures 1, 2 and 3 show how the current soybean market looks—from the short term perspective to the long term. Figure 1 is the daily March '00 Soybean chart, showing an impressive move up over the last couple of months. The weekly chart in Figure 2, shows the last few years and how the daily rally pales in comparison to historical levels. And in Figure 3, we can really put recent activity into perspective as compared to the last 25 years.

Figure 1. March '00 Soybean Daily chart

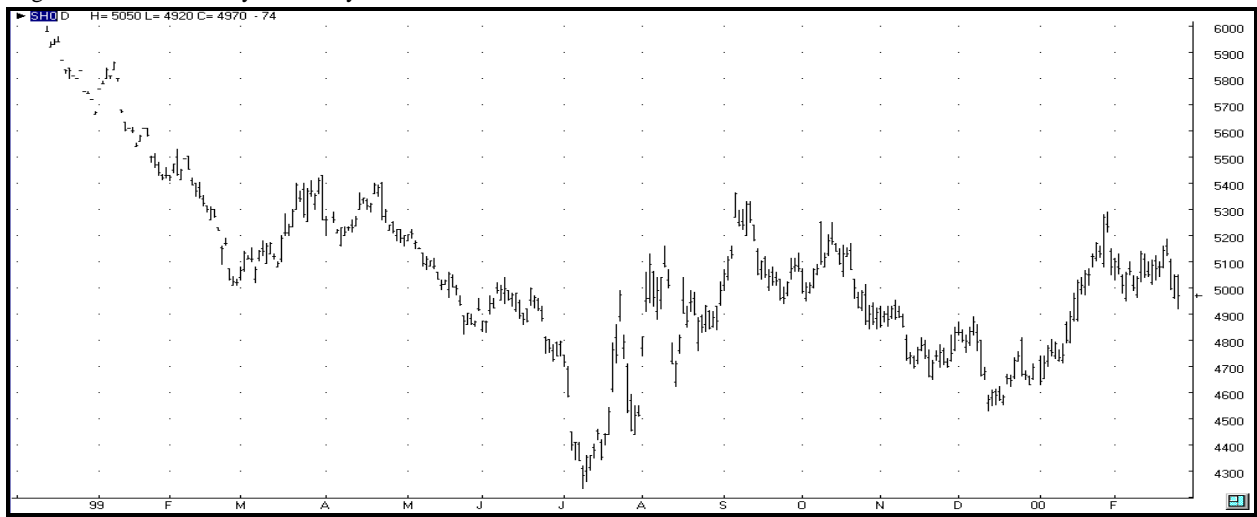
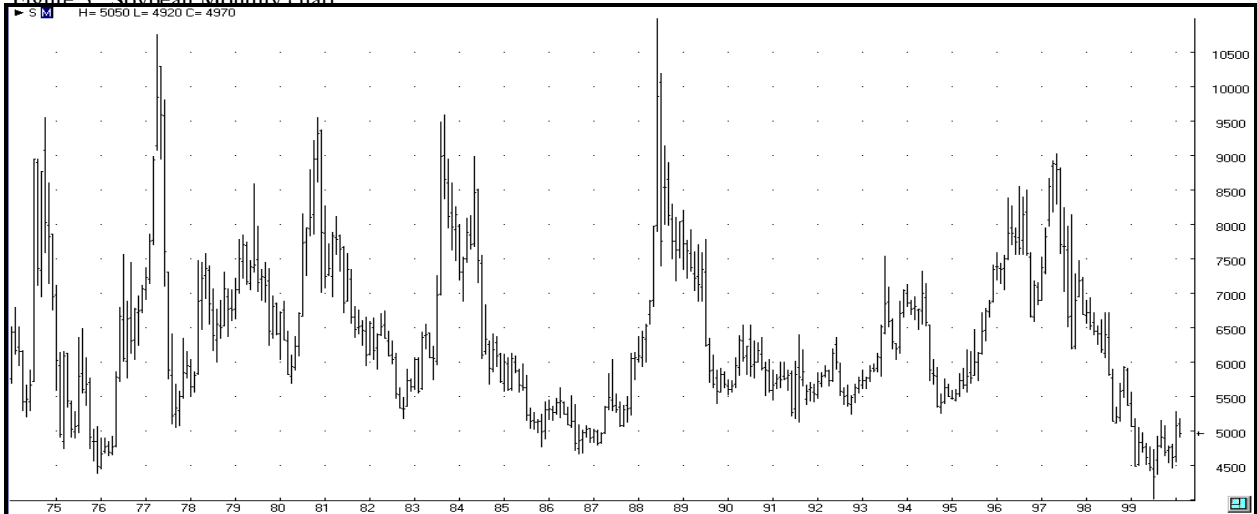


Figure 2. Soybean Weekly chart



Figure 3. Soybean Monthly chart



Trends - “the trend is your friend”

One standard definition of an uptrend is a succession of higher highs and higher lows. The trend can be considered intact until a previous reaction low point is broken. A violation of this condition serves as a warning signal that the trend may be over. It should be emphasized, however, that the disruption of the pattern of higher highs and higher lows (or lower highs and lower lows) should be viewed as a clue, not a conclusive indicator, of a possible long-term trend reversal. Uptrends and downtrends are often defined in terms of trend lines. An uptrend line is a line that connects a series of higher lows, while a downtrend line is a line that connects a series of lower highs.

It is not uncommon for reactions against a major trend to begin near a line parallel to the trend line. Sets of parallel lines that enclose a trend are called trend channels.

The following rules are usually applied to trend lines and channels:

1. Declines approaching an uptrend line and rallies approaching a downtrend line are often good opportunities to initiate positions in the direction of the major trend.
2. The penetration of an uptrend line (particularly on a closing basis) is a sell signal; the penetration of a downtrend line is a buy signal. Normally, a minimum percentage price move or a minimum number of closes beyond the trend line is required to confirm a penetration.
3. The lower end of a downtrend channel and the upper end of an uptrend channel represent potential profit-taking zones for short-term traders.

Trend lines and channels are useful, but their importance is often overstated. It is easy to overestimate the reliability of trend lines when they are drawn with the benefit of hindsight. A consideration that is frequently overlooked is that trend lines often need to be redrawn as a bull or bear market is extended. Thus, although the penetration of a trend line will sometimes offer an early warning signal of a trend reversal, it is also common that such a development will merely require a redrawing of the trend line.

The key to trading does not lie in following a specific line, but in recognizing that the trend represents the underlying momentum of the market, which is the direction your trades should take as well.

Figure 4 represents the March '00 Crude Oil chart, which shows the original trend line with its channel. It also shows how eventually a new trend line had to be drawn as the move took on more momentum. It also indicates that even though the later trend line was violated, the trend was not broken.

Figure 4. March '00 Crude Oil



Moving Averages

Moving averages (MA) provide a very simple means of smoothing a price series and making any trends more discernible. Typically, MA are calculated using the close of the time period. A simple MA is defined as the average close the past N time periods, ending with the current time period. For example, a 21-day MA would be equal to the average of the past 21 closes. The term, moving average, refers to the fact that the set of numbers being averaged is continuously moving through time. Figure 5 illustrates a 21-day MA superimposed on the March '00 Feeder Cattle chart. Note that the MA clearly reflects the trend and smoothes out the fluctuations in the data. In choppy markets, MA's will tend to oscillate in a general sideways pattern as you can see during the months of July '99 and Oct/Nov '99.

One very simple method of using MA's to define trends is based on the direction of change in a MA's value relative to the previous day. For example, a MA (and by implication the trend) would be considered to be rising if today's value was higher than yesterday's value and declining if today's value was lower. The smoothing properties of MA's are achieved at the expense of introducing lags in the data. By definition, since MA's are based on an average of past prices, turning points in MA's will always lag the corresponding transitions in the raw price series. In trending markets, MA's can provide a very simple and effective method of identifying trends and offer assistance in entering into trades.

One of the primary rules of trading is to trade with the trend, and MA's are a very effective tool in not only identifying the trend, but in also presenting entry points. Figure 5 shows that when the MA was in an uptrend, it provided buying opportunities when the market retraced to the MA. Figure 5 also illustrates the lag time when the market had a significant change in direction. The MA was slow to turn, but did provide a sell opportunity when the market rallied up to it.

Figure 5 March '00 Feeder Cattle



Obviously, determining which MA to use can be a time and money consuming process. I have found the 21-day MA to be a very effective tool in identifying entry signals once a trend has developed, and works particularly well in the meats and currencies markets. Funds typically will use an 18-day MA for short term trades, and a 40-day MA for longer term trades. They will generally get more aggressive when the two MA's cross and are moving in the same direction.

Trading Ranges

A trading range is a horizontal corridor that contains price fluctuations for an extended period. Generally speaking, markets tend to spend most of their time in trading ranges. Unfortunately, however, trading ranges are very difficult to trade profitably. In fact, most technical traders will probably find that the best strategy they can employ for trading ranges is to minimize their participation in such markets, which is easier said than done. While there are methodologies that can be profitable in trading ranges, the problem is that these same approaches won't work in trending markets. Also, while trading ranges are easily identifiable for the past, they are nearly impossible to predict. Also, trading ranges can often last for years.

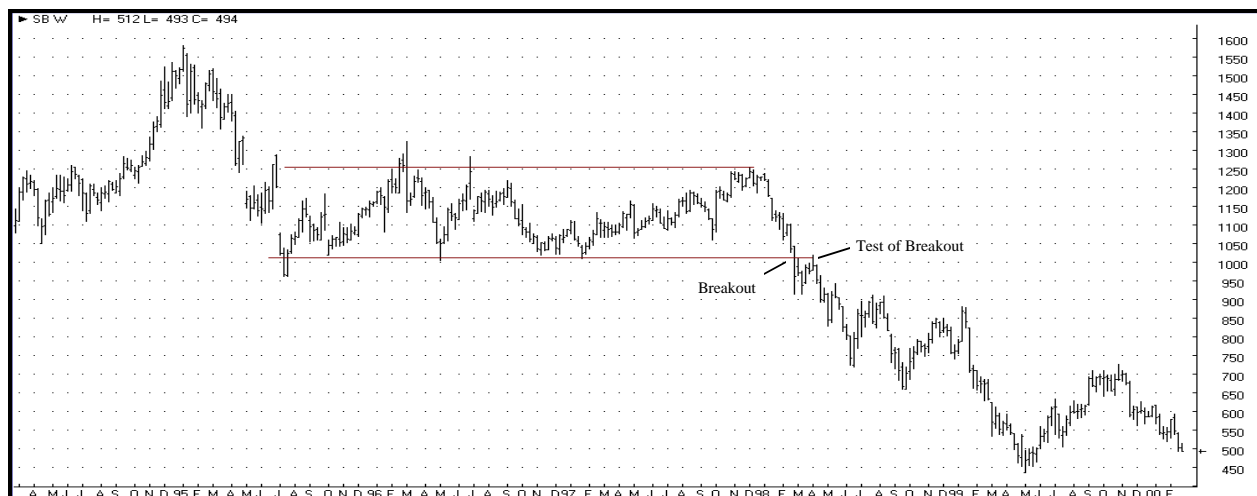
Once a trading range is established, the upper and lower boundaries tend to define support and resistance areas. Breakouts from trading ranges can provide important trading signals. A breakout from a trading range suggests an impending price move in the direction of the breakout. The significance and reliability of a breakout are often enhanced by the following factors.

1. Duration of the Trading Range. The longer the duration of a trading range, the more potentially significant the eventual breakout.
2. Narrowness of Range. Breakouts from narrow ranges tend to provide particularly reliable trade signals. Also, such trades can be especially attractive since the meaningful stop point implies a relatively low dollar risk.
3. Confirmation of Breakout. It is rather common for prices to break out from a trading range by only a small amount, or for only a few days, and then fall back into the range. One reason for this is that stop orders are frequently clustered in the region beyond a trading range. Consequently, a move slightly beyond the range can sometimes trigger a string of stops. Once this initial flurry of orders is filled, the breakout will fail unless there are solid fundamental reasons and underlying buying (or overhead selling in the case of a downside breakout) to sustain the trend.

The very nature of a market is to be in constant search of price equilibrium, and trading ranges signify that a market has, indeed, found an equilibrium between the two price levels. Thus, markets will tend to stay in that range until some outside force is strong enough to push it out. Since the function of the market is to always ensure that it is at an acceptable price level, if it gets pushed out of its comfort zone (the trading range), it will usually attempt to react back to its breakout point just to make sure that indeed it must now enter into a trending pattern. If the market comes back into the trading range for any significant length of time, it would indicate a false breakout.

Figure 6 below represents the weekly Sugar chart which held a trading range from mid 1995 through 1997. The initial breakout to the downside was quickly followed by a rally back up to test the bottom of the trading range before continuing on down in its new direction.

Figure 6 Weekly Sugar



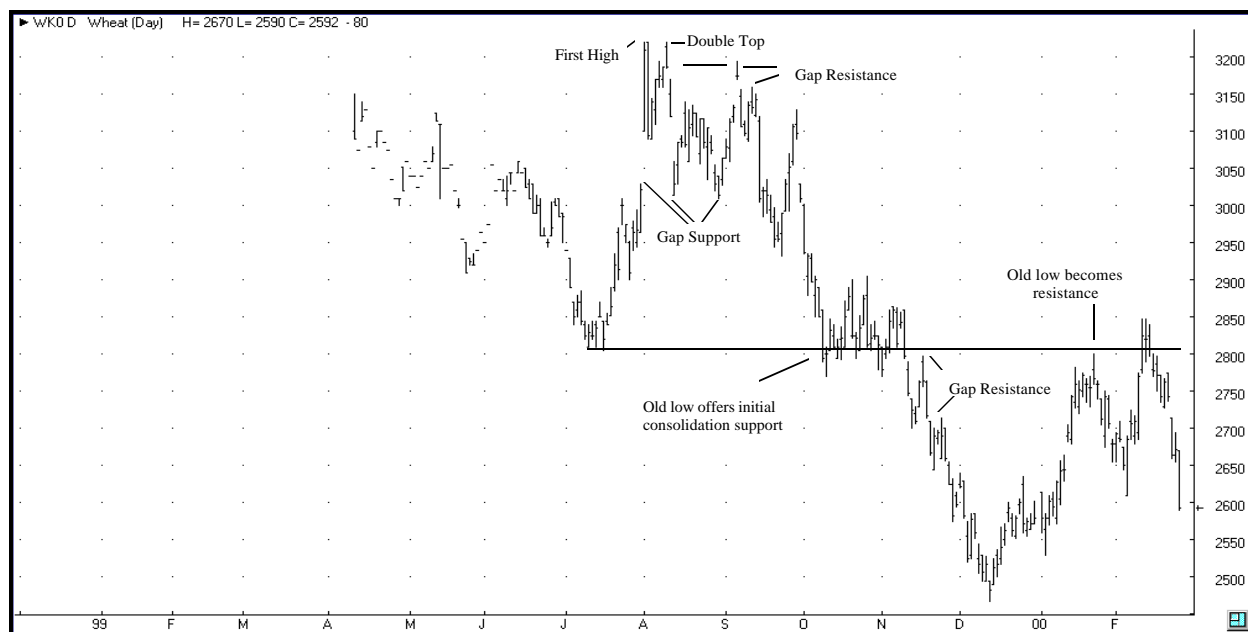
Support and Resistance

Support and resistance refers to price levels at which a market will have difficulty penetrating. A support area refers to a level at which the market finds plenty of buying interest and can't break to the downside. Conversely, a resistance point is where the market has trouble rallying past and selling interest keeps it in check. Once a market has found a level at which it cannot penetrate and turns away from it, it is difficult to come back and take out that level. If it does, it typically will have renewed energy in the new direction and will unlikely go back into its old formation.

As mentioned before, the function of a marketplace is to be always searching for an equilibrium price. When a high gets established in a market, it means that there simply was no more buying power to push it up one more tick. When a low is established, it means that all of the selling was done and the market found a value area at which buyers were willing to come in and take ownership. These highs and lows are the extremes that a market has found that has made it turn around. They can be the boundaries of short or long term trading ranges. They can be the ends of minor or major swing moves in a trending market, or gap areas, or any place where the market has reached a turning point. Identifying particular points of support and resistance quite often depends on the individual trader, but there are some chart formations that clearly establish these points.

Old highs are considered resistance until they are taken out, and old lows are considered support until they are taken out. This often creates the "double top" and "double bottom" formations. These levels offer good trade entry points because the stops would simply be above the original high or below the original low. When a high gets taken out, it becomes support. When a support gets taken out, it becomes resistance. This is referred to as "testing the breakout". It is very common for a market to come back to its breakout point as its way of ensuring that it is moving in the right direction. This often will be an excellent entry point to establish a trade in the direction of the new trend. In Figure 7, we see examples of old highs offering resistance (double top), or an old low (support) becoming resistance. This old low also tried to hold support during the month of October, but eventually gave out and thus became resistance on subsequent rallies.

Figure 7 May '00 Chicago Wheat



In the wheat example above, we also see where gaps in price action also could become support or resistance areas. Markets will usually try to come back to fill gaps, and failures to do so typically will enhance the original move.

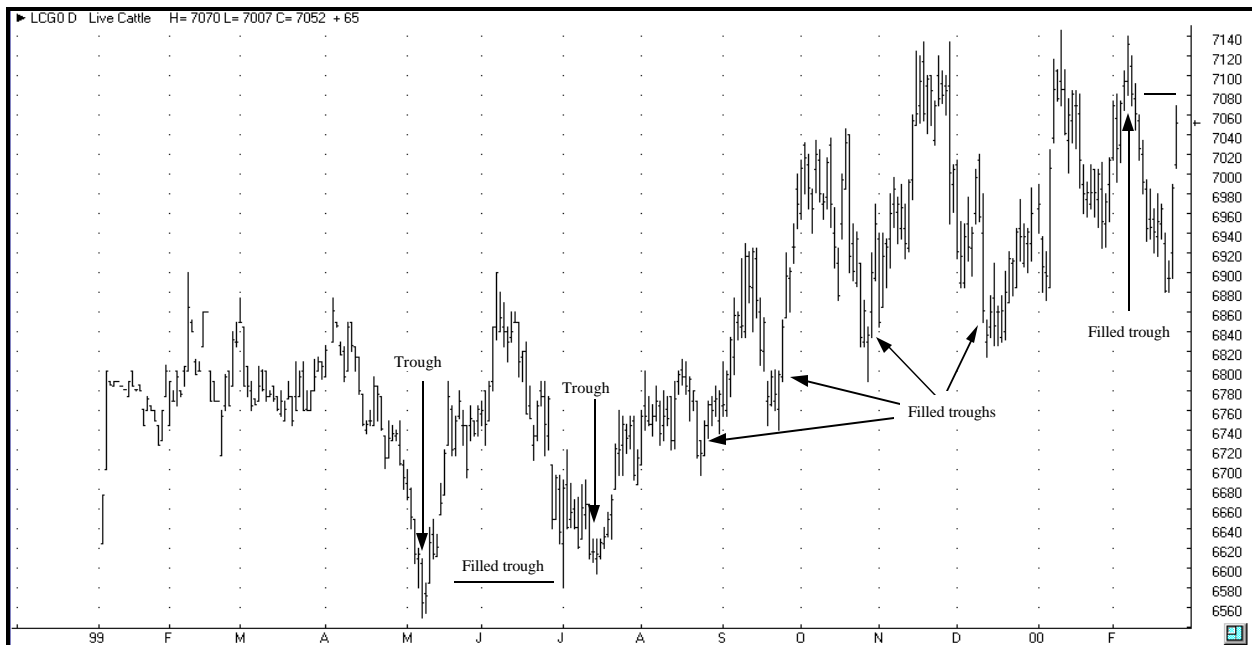
Support and resistance can also be found outside of previous price action. Many times a market will retrace a swing move by .318, .5, or .618. These are also known as Fibonacci numbers, which, according to mathematicians, conform to nature's law of physics. The theory behind using these number sequences is that everything conforms to the laws of nature and thus applying market behavior theory to this sequence will, over time, produce consistent results. The Fibonacci sequence is used in many other areas of technical analysis and will also be addressed when Elliott Wave is discussed.

I have found another type of chart formation to be of particular value when finding support and resistance levels. I refer to these levels as troughs. Again, the market should be a mechanism where, in theory, all price levels are traded and movement should be smooth and consistent. Obviously, this is rarely the case, which is how gaps get formed, how we have trading range breakouts, spike moves, and troughs, not to mention a host of other formations too numerous to mention.

Troughs are simply price extremes where the market doesn't trade as it's forming a bottom or a top. It is usually established by the high of the day's trading range when a significant low of a move is made, or the low of the day's trading range when a high of a move is made. These high or lows often are levels to where the market will trade (filling the trough) in a correction to the trend. In theory, filling the trough is just the market trying to come back and trade the prices it missed while experiencing a change in direction. It might be easier explained graphically.

Figure 8 represent February '00 Live Cattle. Many of the troughs that were formed eventually found the market coming back to them as corrections in the trend. Most of the time, troughs will offer excellent entry points with the stop being beyond the swing high or low that formed the trough.

Figure 8 February '00 Live Cattle



It is my experience that certain markets have a greater tendency than others to gravitate toward their troughs. Wheat very often will fill its troughs, along with Live Cattle, Feeders, Hogs, Currencies and Metals. Troughs also have a tendency to get filled on longer term charts, particularly weekly charts.

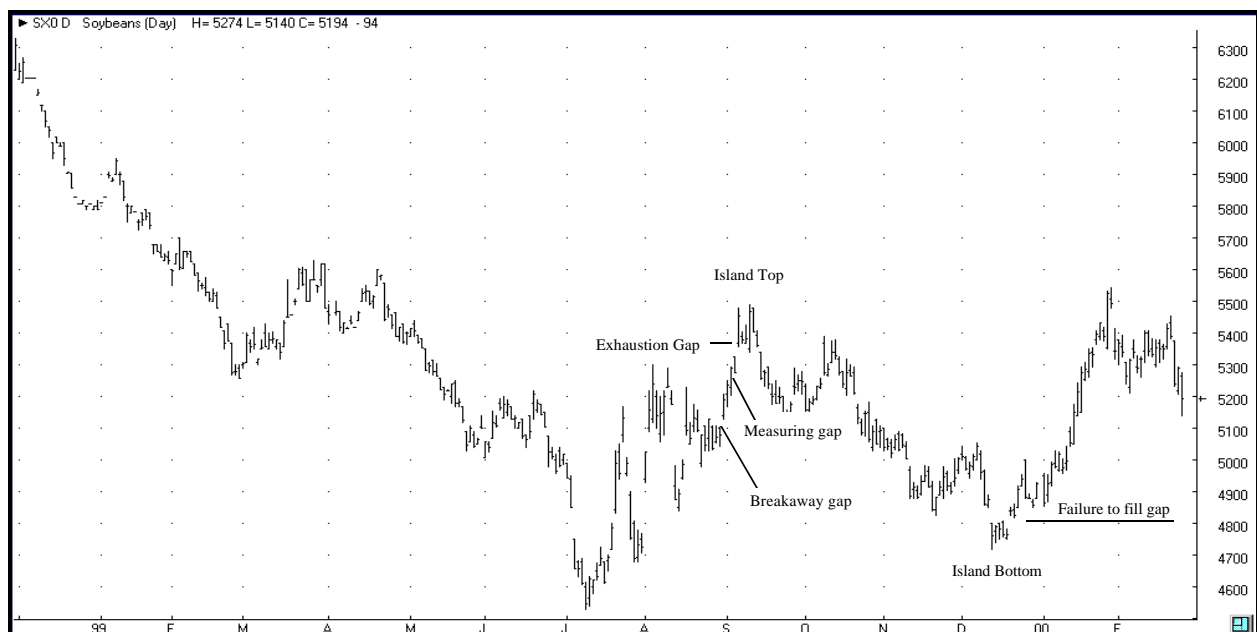
Chart Patterns

Gaps: A gap is created when the low price on one day is above the high price of the previous day, or when the high price of one day is below the low of the previous day. Usually the market will try to fill a gap within 2-3 days of its creation. If not, it generally means that the market will have more momentum in the direction of the gap. Note: It is assumed that the markets studied for technical analysis, and especially gaps, have enough volume to provide liquid markets. Often, thin markets will have many gaps simply because there isn't enough trading to provide thorough price discovery.

1. The common gap. The common gap is usually created by a surprise event or news not expected by the market. These are quite common and can occur at anytime.
2. The breakaway gap. This usually shows the beginning of a major move. Upward gaps usually have heavy volume, more so than downward gaps. Breakaway gaps usually develop from rumors or unexpected news. They can be sudden and catch traders by surprise, causing them to chase the market, which is usually why they are not filled.
3. Measuring gap. It signifies the rush of traders who have not yet gotten aboard the market because they were waiting for the original breakaway gap to be filled. Because the market continues to move away from them, a sort of panic sets in, and they become willing to pay almost anything to get in on what they think is a great opportunity. This in turn causes prices to move even faster which creates the runaway gap. It often happens about midway through the entire move, which is why it can be used for measuring a price projection. The rule of thumb is "the move before the gap equals the move after the gap".
4. The exhaustion gap. This gap represents a major reversal in the market. Since a market that sees this kind of gap is almost always oversold or overbought, a correction is usually forthcoming. These markets are typically very volatile and extremely difficult to trade, and logically should be avoided.

Figure 9 shows many examples of gap formations and the ensuing moves. Gaps are very important chart formations. If the primary function of a market is to provide an efficient means of price discovery, then in theory, every price level should be traded. Gaps are areas where prices have not traded, and therefore the market should come back to fill them. If the market makes an attempt to fill and can't, it usually signifies that the resulting move will have much more momentum behind it. This is very useful in establishing positions after gaps. One can look to

Figure 9 November '00 Soybeans

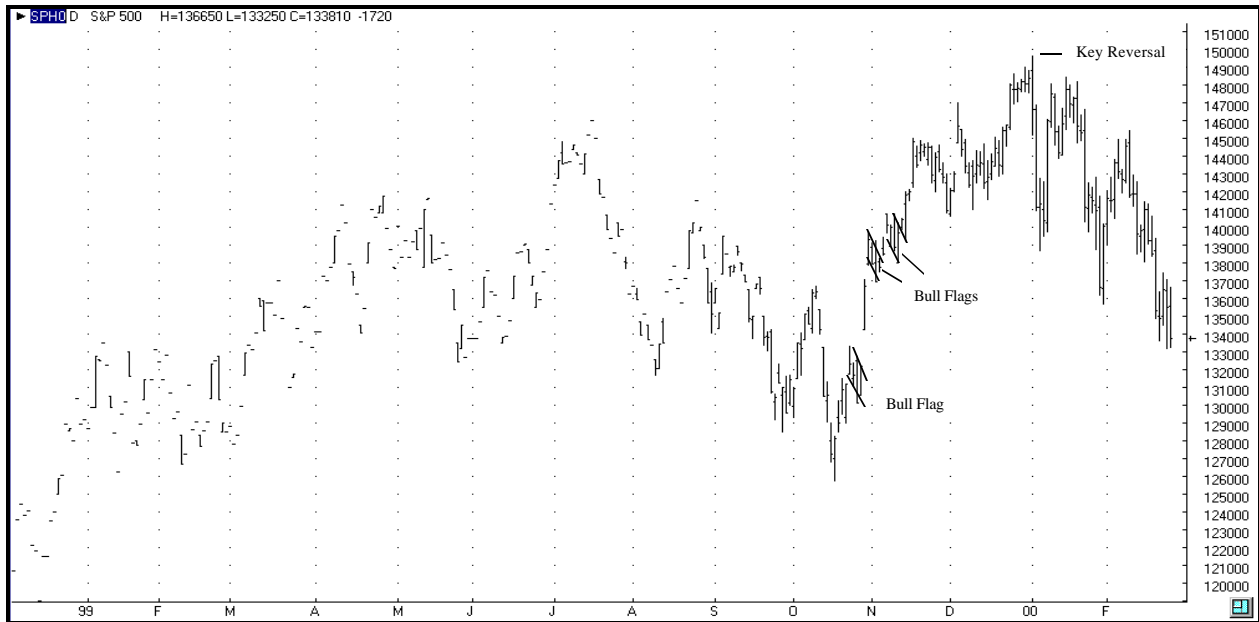


buy a market on a correction to the gap with a stop below the low that established the gap. Typically the trade is low risk (small stop) and one can get aggressive with the trade. This type of formation has shown itself quite often in weather markets. In Figure 9, we see the market gapped higher in December '99. It then spent several days trying to come back into the gap and fill it. This would have been a low risk trade as entry would be just above the gap area with a stop below the swing low.

This particular gap also has an added significance in that it is part of an island bottom. Islands can be just one day or several days, or even weeks. They are formed when the market has a gap both before and after a price range, and neither gap gets filled. Islands take on even more importance than just single gaps because they signify a market that typically is at the end of a move, and strong move is about to begin the other way. Figure 9 also illustrates two islands that led to significant moves in the opposite direction. Islands should be viewed as aggressive trading opportunities with stops past the swing high.

Key Reversal: This formation is well known but often incorrectly read. Key reversals are outside days either at contract highs or lows. A key reversal down occurs when a market makes a new contract high, then reverses down takes out the previous day's low, and closes lower than the previous day's close. A key reversal up occurs when a market makes a new contract low, then reverses up and takes out the previous day's high, and also closes above the previous day's close. Many traders feel that when a key reversal occurs, it signals the end of the move, and the beginning of a new one. They will use this signal in an attempt to top pick or bottom pick the market. They will enter the market and place stops above or below the key reversal, depending on if it is a key reversal down or up, respectively. Figure 10 shows a key reversal in the March '00 S & P 500. With a sweeping outside day lower after making contract highs, the market broke sharply, made an attempt to retrace into the trough and then continued lower.

Figure 10 March '00 S & P 500



Daily or Weekly Reversal. This refers to just a simple reversal, and may or may not be an outside day or week. A daily reversal up is when a new low has been made for the move and the market closes higher than the previous day's close. A daily reversal down is when a new high has been made for the move and the market closes lower than the previous day's close. A weekly reversal up occurs when a new low is made for the move on the weekly chart, and the Friday close is higher than the previous Friday's close. And a weekly reversal down occurs when a new high is made for the move on the weekly chart, and the Friday close is lower than the previous Friday's close. Traders will use simple reversals in an attempt to top pick or bottom pick a move in a market. They will enter the market and place stops above or below the reversal, depending on if the reversal is down or up, respectively.

Inside/Outside Day: This occurs when one day's high is less than the previous day's high, and that its low is higher than the previous day's low. This is usually taken as a sign of consolidation while the market waits for more signals for a direction. If it occurs after a market has had a big move, it is often taken as a signal that momentum is waning for that move. An outside occurs when one day's high is higher than the previous day's high, and its low is lower than the previous day's low. This is often taken as a signal that the market is about to make a move in the direction of the close.

Flags: Flags are consolidation areas after a market has made a move. They usually last 3 or 4 days and move generally against the move that the market has just made. Flags after a move up are called bear traps, because they give the impression that the move is over, and bears will enter the market only to be stopped out when the market resumes its trend. Flags after a move down are called bull traps, because they give the bull the impression that the move down is over, only to stop the bull out when the down move continues. Figure 10 also exhibits some examples of flags and their resulting moves.

Swing Measurement: A common formation used among technicians is the swing measurement. It is very simple to calculate and project on a chart. This formation is simply using the length of one move (usually the most recent one) to determine the length of the next move, after a correction has taken place. These are difficult to use with accuracy since it is rare that swings will be exactly the same length.

Triangles: Triangles are considered to be continuation patterns. In other words, they give prices a chance to consolidate and gather strength before continuing in their original direction. There are three types of triangles: symmetrical, ascending, and descending. The symmetrical triangle is shaped equally on all sides. As prices near the right apex of the triangle, volatility decreases substantially. It is then followed by a sharp breakout signifying the direction prices will take. Ascending and descending triangles portend price movements in the general direction that predominates within each triangle. If the lows are becoming progressively higher within the triangle, it is an ascending triangle and prices can be expected to break to the upside. Or, a succession of progressively lower highs would indicate a descending triangle, from which prices could be expected to break lower. The descending triangle formation is very useful when the market has had a good rally and prices appear overvalued. The ascending triangle formation, on the other hand, works well at low levels when prices are building a base from which they will rise. Figure 11 of March '00 Copper shows a converging triangle that finally broke out into a swift move up. The ensuing move is usually roughly equal to the base of the triangle.

Figure 11 March '00 Copper



Oscillators

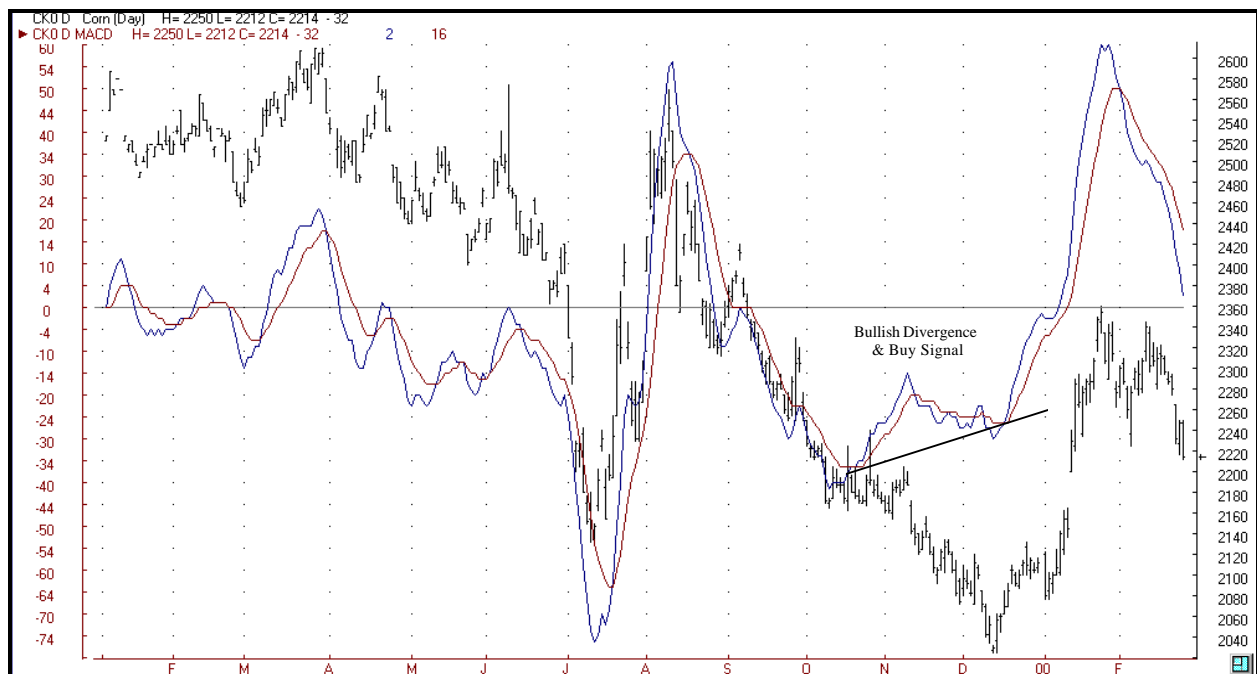
Oscillators are among the most valuable tools available to technical analysts, but they are also among the most misunderstood and misused. The trend of a market is the general direction of its price fluctuations—up, down, or sideways. A market’s momentum is its rate of acceleration or deceleration. An oscillator is a mathematically derived measure of a market’s momentum. As early as the 1920’s, technical analysts were creating oscillators to measure a market’s momentum rather than limiting their efforts to determining the market’s trend.

In any trend, prices are gaining, maintaining, or losing momentum a loss of momentum in an uptrend or a downtrend—prices rising or falling at a diminishing rate—is an early warning sign that the trend might change soon. Therefore, when an oscillator shows that an uptrend is losing momentum, it is a cautionary signal that the uptrend may stall with prices either trading sideways or reversing into a downtrend. Similarly, when an oscillator indicates a loss of momentum in a downtrend, it may foreshadow a potential end to the downtrend.

Moving Average Convergence-Divergence (MACD): MACD, which was developed by Gerald Appel, is one of the most interesting and dependable technical indicators. It integrated positive features of both oscillators and trend-following indicators the result is an indicator that can measure a market’s momentum without losing its capability to also follow a trend. In contrast to other well-known oscillators (such as RSI and stochastics), MACD is not limited to oscillating between fixed upper and lower extremes. It will continue to make new highs or new lows along with prices, as long as the trend is gaining momentum. In that respect, MACD also behaves as a trend following indicator., in the respect that it measure the rate of acceleration or deceleration between two moving averages to determine if a market is gaining or losing momentum, the MACD behaves as an oscillator.

The MACD consists of two lines that are derived from three exponential moving averages (EMA). The MACD line is the difference between a 12-period EMA and a 26-period EMA; the signal line is a 9-period EMA of the MACD line. The basic method for trading with MACD is to buy when the MACD line crosses above the signal line and to sell when the MACD line crosses below the signal line. However, entering and exiting trades based solely on MACD line-signal line crossovers results in frequent whipsaw losses. To make the best use of MACD, it is advisable to wait for crossovers that are preceded buy divergence and confirmed by the subsequent price action of the market. Figure 12 of May ‘00 Corn gives an illustration of MACD divergence that resulted in an excellent buy signal.

Figure 12 May ‘00 Com



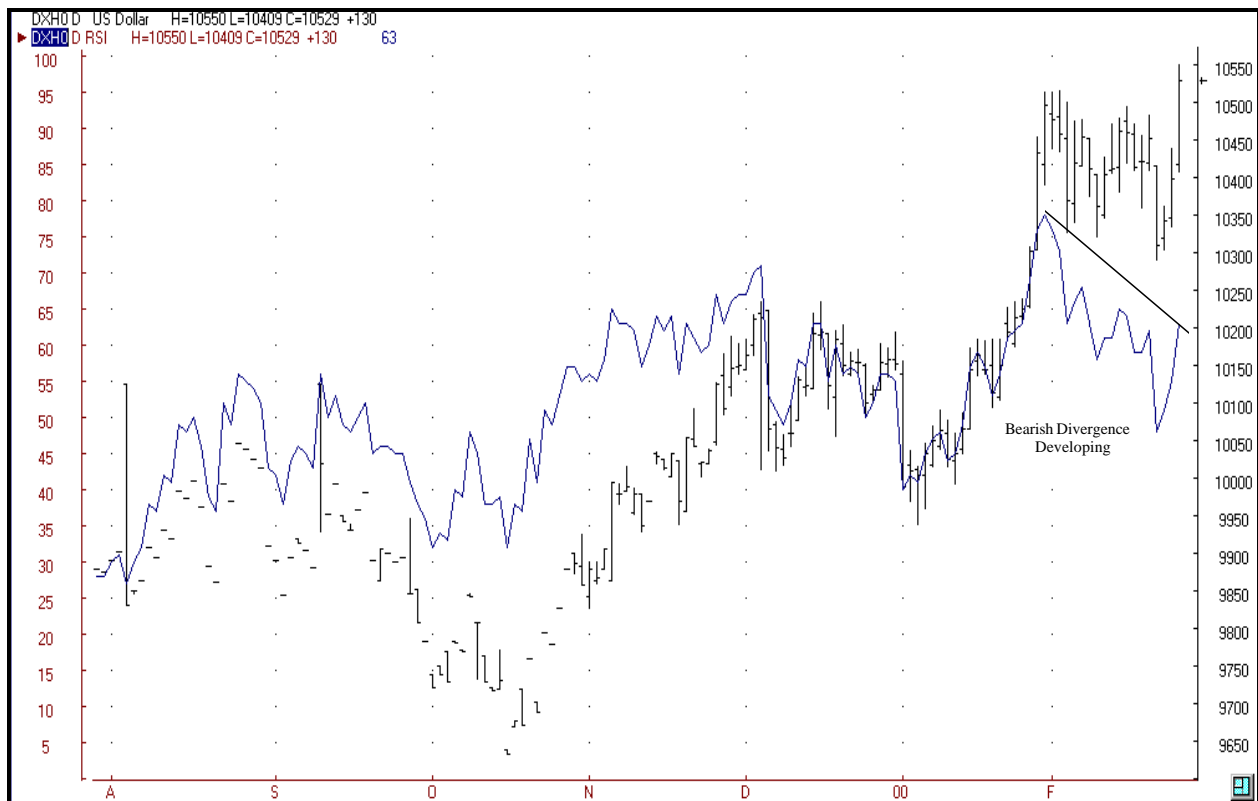
Relative Strength Index

The relative strength index (RSI) was introduced by J. Welles Wilder, Jr. of all the momentum oscillators currently in wide use, RSI responds the best to basic technical analysis methods such as trend lines, chart patterns, and support and resistance. Applying these methods to RSI in conjunction with overbought/oversold levels and divergences can provide very valuable insight into market behavior. RSI compares the relative strength of price gains on days that close above the previous day's close to price losses on days that close below the previous day's close.

The RSI can be constructed for any number of days that the technical analyst consider useful. Wilder's original suggestion was 14 days, but many analysts today will use a faster, more sensitive indicator, such as a 5, 7 or 9 day RSI. Overbought and oversold levels are usually drawn at 70 and 30 or at 80 and 20. The most reliable RSI buy and sell signals usually occur after RSI fails to confirm a new low or a new high in prices. Bullish divergence between a lower bottom in prices and a higher bottom in RSI sets up a potential buying opportunity, and bearish divergence between a higher top in prices and a lower top in RSI sets up a potential selling opportunity. When a trader identifies a bullish or bearish RSI divergence, he should then focus his attention on the price action of the market itself and wait for prices to confirm the RSI signal.

Figure 13 below of the March '00 US Dollar Index shows a 14 day RSI that is indicating extreme divergence on this latest move into new contract highs. A sell signal would be generated when the RSI turns down with a stop above the contract high.

Figure 13 March '00 US Dollar Index



Stochastic

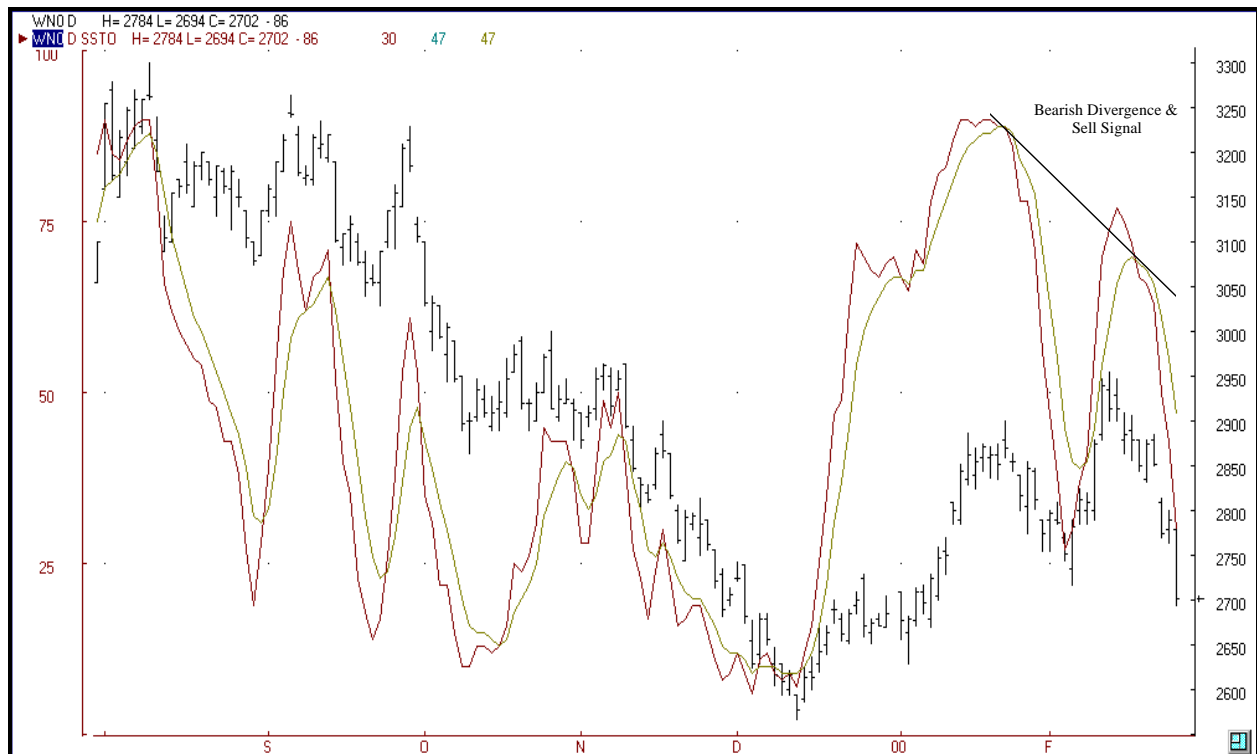
The stochastic oscillator was developed by George Lane in the late 1950's. Stochastic evaluates a market's momentum by determining the relative position of closing prices within the high-low range of a specified number of days. A 14-day stochastic, for example measures the location of closing prices within the total high-low range of the previous 14 days. Stochastic expresses the relationship between the close and the high-low range as a percentage between zero and 100. A stochastic value of 70 or higher indicates that the close is near the top of the range; a stochastic value of 30 or lower means that the close is near the bottom of the range.

In a robust uptrend, prices generally close near the top of the recent range; in a strong downtrend, prices usually close near the bottom of the range. When an uptrend is approaching a turning point, prices begin to close farther away from the high of the range, and when a downtrend is weakening, prices tend to close farther away from the low of the range. The purpose of the stochastic oscillator is to alert technicians to the failure of bulls to close prices near the highs of an uptrend or the inability of bears to close prices near the lows of a downtrend.

The stochastic is plotted as two lines: %K and %D. The %K and %D formulas produce the fast stochastic oscillator, which is generally considered too sensitive and erratic. Fast stochastic can be subjected to a further three-day smoothing, however, which results in the slow stochastic that most analysts prefer. In the smoothed version of stochastic, the fast %D becomes the slow %K, and a three-day moving average of the fast %D becomes the slow %D.

It is most common to monitor a 14-day slow stochastic, with overbought/oversold levels at 70 and 30, for divergences between prices and the %K or %D lines. When stochastic fails to confirm a market's new high, wait for %K to cross below %D and to drop below 70; when stochastic fails to make a new low along with prices, wait for %K to cross above %D and to climb above 30. After identifying a bullish or bearish stochastic divergence, watch the market's price action for a confirming buy or sell signal. Figure 14 below of July '00 wheat shows a recent divergence on the 14 day slow stochastic. This created a sell signal when the stochastic rolled over and crossed. Stops would have been above the swing high.

Figure 14 July '00 Chicago Wheat



Trading Systems

Elliott Wave Principle:

The Elliott Wave Principle is a concept developed by R. N. Elliott in the late 1930's. R. N. Elliott pointed out that a market tends to move in a basic pattern of five waves up (impulse waves) and three waves down (corrective waves) to form one complete cycle. This pattern will be repeated two more times to complete a larger five wave pattern. At this point, the whole pattern will be "corrected" by another three waves down sequence. The waves are counted as shown below, with 1, 3, and 5 being in the direction of the major trend, and 2 and 4 being the corrective waves of those impulse waves. The corrective waves of the major trend are labeled a, b and c, with a and c going in the direction of the correction trend, and b being a corrective wave of a and c. When an entire sequence is completed, it then becomes a wave of one degree larger than the waves of which it is composed. The a-b-c wave typically divides into a 5-3-5 pattern.

In summary, the basic tenets of wave formation are:

1. Action is followed by reaction.
2. Impulse waves (waves in the direction of the main trend) subdivide into five waves of lower degree and corrective waves (waves against the main trend) generally subdivide into three waves lower degree.
3. A complete cycle of impulse waves and corrective waves automatically becomes two subdivisions of the wave of next larger degree.
4. The time frame does not change the pattern, as the market still holds to its basic form. Waves may be stretched or compressed, but the underlying pattern is constant.

IMPULSE WAVES

Impulse waves are movements in the direction of the main trend. In the basic Elliott pattern, these would be waves 1, 3, and 5 within any degree of a wave structure. One of the tenets of the Wave Principle is that two of the impulse waves in a five-wave sequence will be approximately equal in time and magnitude. If one of the waves can be further subdivided into a five-wave count, then the other two waves will often be very close in price and time. Otherwise, a .618 multiple is the next likely relationship.

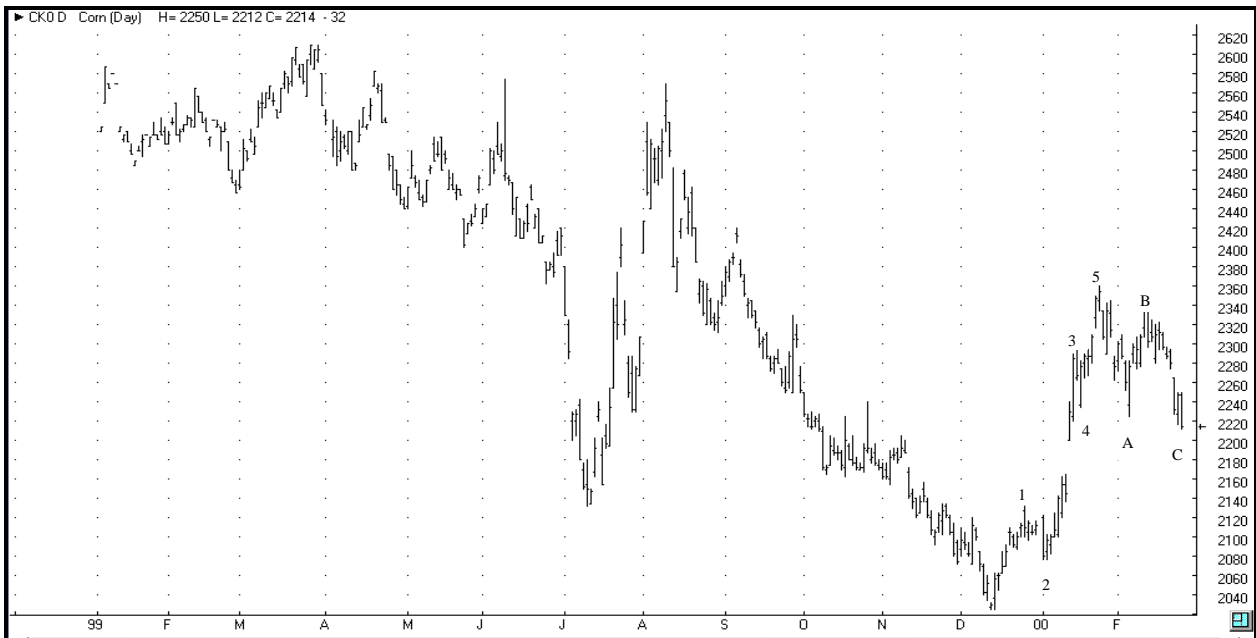
FIRST WAVES: About half of first waves are part of the "basing" process and thus tend to be heavily corrected by wave two. However, in contrast to the bear market rallies within the previous decline, this first wave rally is less emotional and technically more constructive. Plenty of selling, including short selling, is evident as the majority has finally become convinced that the overall trend is down. The other half of first waves rise from either extremely large bases formed by the previous correction, from downside failures, or from a compression formation, and are usually very dynamic.

THIRD WAVES: These waves typically are strong and broad, and the trend at this point is unmistakable. The market can experience large position shifts as traders exit old positions and enter new ones in the direction of the new trend. Third waves usually generate the greatest volume and price movement and are often extended waves (can be broken down into another five wave count). Thus, a third wave of a third wave will be the most volatile point of strength in any wave sequence. These waves will likely be the ones to have breakouts, runaway gaps, volume expansions, thrust, and large daily, weekly, and monthly moves in the market, depending on the degree of the wave. Of the three impulse waves, wave three can never be the shortest, and is usually the longest. The third wave characteristics are usually the most helpful in determining a correct count, or finding your place if the market becomes confusing. The length of the third wave is often a multiple of wave one, or a Fibonacci multiple (.618, 1.618, 2.618). Figure 14 of May '00 Corn shows a typical wave three in that it is very strong and dynamic. The trend change was confirmed when wave three gapped above the top of wave one in dramatic fashion, then continued higher.

FIFTH WAVES: These final waves are usually less dynamic and impressive than the third, unless it happens to be an extension (has another five-wave count within it). If volume on the fifth wave is equal to or greater than that of the third wave, an extension of the fifth is likely. During fifth waves, optimism runs very high and the small trader is usually the most aggressive buyer. They typically symbolize the general public finally getting on board

on what is already a well-established bull market. Sometimes, however, the fifth wave will be a “blowoff” formation, characterized by extremely heavy volume as the market breaks into new highs but open interest declining, marking the liquidation of longs or the stops of those shorts trying to top pick the market. Fifth wave failures fail to move above the top of the third wave. They will usually have the five subwaves, but do not have enough strength to carry into new highs, thus giving warning of underlying weakness in the market. Failures are not uncommon, especially in waves of small degree. Figure 14 gives us a well balanced 5 wave formation followed by a typical correction formation.

Figure 14 May '00 Corn



CORRECTIVE WAVES

Corrective waves are quite a bit more varied than impulse waves. Many times, as they unfold, their complexity changes and it appears that they may be waves of a different degree, much like an extension of an impulse wave. Corrective waves will be waves two and four in a five-wave sequence and they are also the A-B-C wave pattern that corrects the five-wave sequence. Their personalities are discussed below.

The most important rule to remember about corrective waves is that they can never be a five-count wave. Only impulse waves are fives. So, if you see an initial five-wave movement against the larger trend, it is not the end of the correction, but only the beginning of it. One other important rule to remember is known as the “rule of alternation”. This rule tells us to expect alternating patterns in virtually all wave movements. For example, if wave two is simple, then expect wave four to be complex. A simple wave refers to one that is basically straight up or down, whereas a complex wave refers to one that would have an A-B-C structure to it, or one that would have a zigzag, flat, triangle or double or triple three formation to it.

At times, it applies to slope, length, strength and depth of waves as well as to the clarity of wave movements. An irregular top, generated by a flat correction, is usually next followed by a regular top, and so forth. This rule’s greatest usefulness comes in guiding the analyst to not assume that because the last market cycle behaved in a certain manner, this one will likely be the same. As “market contrarians” are quick to point out, the day that the majority of investors “catch on” to a certain habit of the market is the day it will change to something completely new. The rule of alternation can be seen in Figure 14 where wave 2 has an A-B-C, but wave 4 is basically a straight down formation.

SECOND WAVES: Second waves often retrace so much of wave one that most of the profits gained up to that time are eroded away by the time it ends. The psychology here is that investors have finally gotten “one more rally to sell” and they take advantage of it. Second waves often produce downside non-confirmations and excellent buying opportunities when low volume and volatility indicate a drying-up of selling pressure. Wave two can not take out wave one, but often will be the leg that produces double bottoms.

FOURTH WAVES: Fourth waves are predictable to the extent that, by rule of alternation, they should differ in complexity from the previous second wave of the same degree. Most often they are the complex wave, building the base for the final fifth wave move. Wave four will very often retrace to the wave four of lesser degree, thus helping the analyst project a downside target range, and helping to confirm a wave count if confusion is present. The fourth waves shown follow the rule of alternation for both the five count up and the A-B-C correction down.

A WAVES: A waves are the first leg of a longer term correction of a 5 wave sequence. They often evolve into a 5 wave pattern themselves, followed by a complex wave B, and often a 5 wave sequence in wave C. During A waves of bear markets, the investment world is convinced that this reaction is just a minor pullback pursuant to the next leg of advance. The general public surges to the buy side, despite the first really technically damaging cracks in chart patterns. The A wave usually sets the tone for the B wave to follow. Often, flat A's precede upwardly zigzagging B's and zigzagging A's precede flat B's. Figure 14 shows a typical ABC correction of a 5 wave sequence.

B WAVES: Upward B's are phonies. They are sucker plays, bull traps, etc. They are often emotional, rarely technically strong, and virtually always doomed to complete retracement by wave C. If you can easily say to yourself “there is something wrong with this market”, odds are it is a wave B. If there is uncertainty as to if the current wave is a B wave or a resumption of the trend, there will be confirmation when the bottom of the swing is taken out (bottom of wave A) and you'll know that you are in a wave C, at which point a projection can be made.

C WAVES: Declining C waves can be devastating in their destruction. They are third waves, and have most of the properties of third waves. It is during this decline that there is virtually no place to hide. The illusions held throughout waves A and B tend to evaporate and fear takes over. They are persistent and broad. Advancing C waves within upward corrections in larger bear markets are just as dynamic and might often be mistaken for the start of a new upswing, especially since they often unfold in five waves. The C wave of the larger A-B-C has five waves to it, even though it is part of a downward correction. The length of wave C is often a Fibonacci ratio of wave A, usually 1.618.

These personality categories for the impulse waves and the corrective waves discussed above are suggestive, and are not meant to be interpreted as inevitable. There are always exceptions to the guidelines but without those, market analysis would be a science, not an art. With a thorough knowledge of wave characteristics, however, the analyst is much more confident of the wave count. In effect, he can use the market action to confirm the wave count as well as use the wave count to predict market action.

Corrective patterns usually fall into four main categories:

Zigzag (5-3-5). Includes the variation “double zigzag”.

Flat (3-3-5). Includes the variations of “irregular” and “running” correction.

Triangle (3-3-3-3-3). Four variations: ascending, descending, contracting, and expanding.

Double three and triple three (combined structures).

ZIGZAGS (5-3-5)

A zigzag in a bull market is a simple three-wave pattern, which subdivides into a 5-3-5 count with the top of wave B noticeably lower than the start of wave A. In a bear market, this pattern would obviously be in the opposite direction. The copper chart shows just such a pattern of what is unfolding to be a 5-3-5 in a bear market.

FLATS (3-3-5)

A flat type of correction differs from a zigzag in that the sub-wave sequence is a 3-3-5 count. Since the first decline, wave A, lacks sufficient downward force to unfold into a full five waves as it does in a zigzag, the B wave seems to inherit this lack of countertrend pressure and, not surprisingly, often terminates at or above the start

of wave A. In a bear market, the pattern is the same, but inverted, and thus the B wave will terminate at or below the start of wave A. Wave C in any flat generally terminates at or just below the end of wave A rather than significantly below as in zigzags. Thus flat corrections, in their entirety, do less damage to the broader trend. Furthermore, they indicate a strong underlying force in the larger trend and often precede or follow extensions. The longer the flat, the more dynamic is the next impulse wave.

One variation of the 3-3-5 pattern is the relatively rare “running correction”. A running correction in a bull trend is essentially an upwardly skewed A-B-C flat. Apparently the forces in the direction of the larger trend are so powerful that they cause the low of wave C to lie at or above the peak of the previous impulse wave. While running corrections in bull markets indicate great underlying strength, inverted running corrections (those in bear markets) indicate great weakness. It is important, when diagnosing a running correction, that the internal subdivisions within the A, B and C waves adhere to Elliott’s rules. If the supposed “B” wave, for instance, breaks down into five waves rather than three, it is more likely the first wave up of the impulse wave of next higher degree. The personality of the wave is important in recognizing running corrections, which tend to occur only in very strong and fast markets, where the market moves so quickly that the corrective patterns do not have time to form properly. At such times, the fundamental or emotional factors seem to be overriding the normal wave development.

TRIANGLES

Triangles as a general rule occur only in positions prior to the final movement in the direction of the larger trend. For the most part, they are protracted waves and reflect a balance of forces which creates a sideways movement, usually associated with lower volume and volatility. Triangles are five-wave patterns, which in turn subdivide 3-3-3-3-3.

After a triangle is complete, the final impulse wave is generally swift and travels about the distance of the widest part of the triangle. Generally, the trend-lines containing the triangle are quite accurate in that touch points rarely fall short of or exceed the boundaries of the lines. Only the fifth sub-wave can be expected to undershoot or overshoot the triangle boundaries and this happens more often than not, especially in contracting triangles and expanding triangles. It is not unusual that the time at which the boundary lines of a previously formed triangle converge at its apex coincides exactly with a turning point in the market.

DOUBLE THREES AND TRIPLE THREES

A single “three” is any zigzag or flat. A double three or triple three is a less common type of corrective pattern, which is essentially a combination of simpler types of corrections, including zigzags, flats, and triangles. In all of these cases the market is hesitating and acts as if one three weren’t enough, as if more time were needed to straighten out whatever “reasons” the market had for pausing in the first place. Sometimes prices seem to be waiting for economic fundamentals to begin to catch up with the market’s expectations. For the most part, double threes and triple threes are horizontal in character, although Elliott indicated that the entire formations could slant against the larger trend. These formations frequently give rise to strong subsequent action.

CONCLUSION

Elliott Wave analysis can be very difficult, as it may seem that no particular patterns are evident at times. However, when patterns are recognizable, it can be an extremely effective way to project price levels and the timing of price movement. It is for this reason that knowledge of Elliott can greatly enhance one’s trading performance, and makes the study of it worthwhile.

Trading Guidelines

If the amount of money you risk in futures trading represents a minuscule fraction of your net worth, and your major motivation for speculation is entertainment, the shoot-from-the-hip approach might be fine. However, if our major objective in futures trading is to make money, an organized trading plan is essential. Any successful (and many unsuccessful) futures speculators will tell you that they use a systematic, disciplined trading approach. The following are some suggestions to help you become a more successful futures trader.

1. Define a Trading Philosophy. How do you plan to make your trading decisions? A meaningful strategy would be based on either fundamental analysis, chart analysis, technical trading systems, or some combination of these approaches. The same method will not necessarily be used in all markets. The more specific the trading strategy, the better.

2. Choose Markets to be Traded. For most speculators, constraints related to time and available fund will significantly limit the number of markets that can be monitored and traded. Three factors might be considered in selecting markets.

1. Suitability to Trading Approach - based on past trading experience or historical testing of a specific trading strategy.
2. Diversification - this provides one of the most effective means of reducing risk, and is enhanced by choosing markets that are not closely related.
3. Volatility - a trader with limited funds should avoid extremely volatile markets, since the inclusion of such markets in his portfolio will severely limit the total number of markets that can be traded.

3. Specify Risk Control Plan. The rigid control of losses is perhaps the most critical prerequisite for successful trading a risk control plan should include the following elements.

1. Maximum risk per trade. The speculator can substantially increase the probability of long-term success by restricting the percentage of total funds allocated to any given trade. It is recommended that no one trade risk more than 10 % of total equity.
2. Stop-loss Strategy. Know where you're going to get out before you get in. the importance of this cannot be overemphasized. Without a predetermined exit point, the trader will find themselves vulnerable to procrastination in the liquidation of a losing position.
3. Diversification. Since different markets will witness adverse moves at different time, trading multiple markets will reduce risk.
4. Reduce leverage for correlated markets. Keep position size down when trading in markets that have relationships to each other.
5. Market Volatility Adjustments. Fewer contracts should be traded in more volatile markets. Even for a single market, the number of contracts should vary in conjunction with fluctuations in volatility.
6. Adjust Leverage to Equity Changes. Leverage should also be changed in accordance with major fluctuations in equity.

4. Establish a Planning Time Routine. It's important to set aside some time each day for reviewing markets and updating trading strategies. The primary tasks performed during this time would be:

1. Update Trading Systems and Charts.
2. Plan New Trades. Determine whether any new trades are indicated for the next day. If so, decide on a specific plan.
3. Update Exit Points for Existing Positions. The trader should review the stops and objectives on existing positions to see whether any revisions appear desirable in light of the current day's price action. In the case of stops, such changes should only be made to reduce trade risk.

5. Maintain a Trader's Notebook. The planning routine discussed earlier implies some systematic form of record keeping. Develop a spreadsheet or format for keeping track of all trades. The novice will usually benefit from a period of paper trading before actually trading. A notebook will be ideal for this purpose.

6. Maintain a Trader's Diary. The trader's diary should contain the following basic information for each trade.

1. Reasons for Trade. Over time, this information can help the speculator determine whether any of the trading strategies are particularly prone to success or failure.
2. How the Trade Turned Out. This basic background information is necessary for the evaluation of any trade.
3. Lessons. The speculator should itemize the mistakes or correct decisions made in the course of the trade. The mere act of keeping such a written record can greatly help a trader to avoid repeating past mistakes—particularly if repeated errors are indicated in capital letters and followed by several exclamation points. This diary should be reviewed periodically to help reinforce these observations. After a while, the lessons sink in.

7. Analyze Personal Trading. The speculator must not only analyze the markets, but also his own past trades in order to isolate the strengths and weaknesses of his approach. Besides the trader's diary, two useful tools in such an analysis are analysis of segmented trades and the equity chart.

1. Segmented Trades. The idea behind segmenting trades into different categories is to help identify any patterns of substantially above or below average performance. For instance, by breaking down trades into buys and sells, a trader might discover that he has a tendency toward the long side, but that his short trades have a higher average profit. Such an observation would suggest the desirability of correcting a bias toward the long side.
2. Equity Chart. This is a close-only type of chart in which the indicated value for each day represents the account equity (including the equity on open positions). The primary purpose of such a chart is to alert the trader when there is a precipitous deterioration of performance, and the trader would be well advised to lighten positions and take some time to reassess the situation.

Other Rules for Trading

1. **You must develop discipline**
2. **Know why you trade**
3. **Don't bet the farm**
4. **Be mentally independent**
5. **Walk before you run**
6. **Don't let emotions overrule your brain**
8. **Set your goal, then trade toward it**
8. **Don't change horses midstream**
9. **Don't trade too many markets**
10. **Do your homework**
11. **Don't follow the crowd**
12. **Never add to a losing position**
13. **Cut losses short**
14. **Let profits run until you have a reason to cash in**
15. **When in doubt, get out**
16. **Place stops when placing your entry order**
17. **Avoid trading in contract delivery months**
18. **Be patient**
19. **Never add more contracts to your position than you had in your base position**
20. **Trade divergences from the norm**
21. **Don't try to pick tops and bottoms**
22. **Shop the odds**
23. **Take an occasional break from the markets**

Sources of Information

Much of the information in this presentation was derived from Jack Schwager's "Technical Analysis", a superb book published by Wiley. Mr. Schwager has also published a number of other excellent and highly regarded books, including "Fundamental Analysis", "Market Wizards" and "The New Market Wizards".

Much of the Elliott Wave material was drawn from "The Elliott Wave Principle", by A. J. Frost and Robert Prechter, Jr.

Other recommended reading

Commodity Trading Manual - Chicago Board of Trade

Reminiscences of a Stock Operator - Edwin LeFevre

Street Smarts -- Linda Bradford Raschke and Laurence A. Connors

Tricks of the Floor Trader - Neal T. Weintraub

Technically Speaking - Chris Wilkinson

There are actually more books, videos and trading systems than I could ever mention here, but those mentioned above are some that I've used and all offer excellent insights into respective areas of technical analysis. I would suggest calling the Traders' Library and requesting their catalog which will have most of the futures trading materials in it. Their number is 1-800-272-2855, ext. C91. Or, go to their website at www.traderslibrary.com.