

Identifying Significant Chart Formations

Before computers became commonplace, technical traders spent most of their time studying their charts, looking for consolidation and reversal patterns. Today, many traders have moved away from using classic chart patterns to methods based on quantifiable indicators. Here, the two disciplines are combined, using chart analysis and basic indicators to identify trading opportunities.



Despite the growth in mechanical systems trading over the past decade, classical chart pattern analysis continues to enjoy a wide following. For example,

Robert Edwards and John Magee's *Technical Analysis of Stock Trends*, considered to be the bible of classical charting, remains one of the all-time best-sellers in the field of technical analysis. Last year's Dow Jones Telerate seminar in New Orleans featured no less than six speakers on the topic of classical chart patterns, including two institutional traders who run proprietary currency trading desks. And in 1995, the New York Reserve Bank undertook an investigation of the predictive powers of the venerable head-and-shoulders chart pattern. Their research found that the head-and-shoulders pattern yielded significant excess profits in select currency markets. Among their explanations for this phenomenon was that a sufficient number of traders who recognize the pattern invariably trade it, thus driving prices in the expected

direction. And finally, over the past several years there has been a swell of interest and investigation into Wyckoff charting principles, as has been seen in *STOCKS & COMMODITIES* and various publications. Clearly, charting, the blue-collar approach to technical analysis, is alive and well.

However, there are legitimate criticisms of classical chart pattern analysis, the main criticism being that it is too subjective. One chartist's double bottom is another chartist's rising wedge (Figure 1).

Another problem that arises with chart patterns is that most traditional definitions implicitly contain a directional bias. Once a bullish triangle has been identified, the chartist is conditioned to anticipate higher prices and may subconsciously exclude any additional evidence to the contrary. Fortunately, these criticisms can be dealt with by establishing a set of procedures that will reduce the subjective nature of chart analysis, as well as enable a technical trader to identify chart formations with the most trading potential.

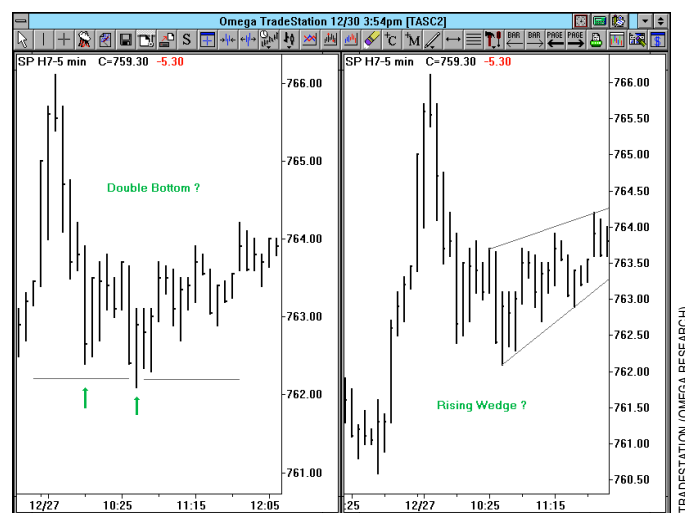


FIGURE 1: MARCH 1997 S&P FUTURES FIVE-MINUTE BARS. During the early morning, the market twice neared the 762.00 level and rallied. The two trendlines were forming a rising wedge. Should you be long because support held or short because a possible rising wedge is forming?

by Daniel L. Chesler



Through the use of two common indicators and basic techniques, here's how chartists can improve their ability to sort out significant chart formations from the myriad of potential patterns, and how this approach injects objectivity into the process of locating and identifying chart patterns.

BACKGROUND

My first foray into technical analysis was by way of John Murphy's *Technical Analysis of the Futures Markets*, which

emphasizes chart pattern analysis. As my grasp of other technical methods increased, I began using common indicators to supplement my core chart-reading skills. Ultimately, I found that using Wilder's average directional index (ADX), moving averages and basic cycle concepts often revealed valuable information about the state of a chart formation that otherwise went unnoticed.

Thus, my approach to chart pattern analysis evolved into two steps. Each chart is initially screened for a dominant price

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formation. I then utilize my indicators as surgical tools to identify trend-readiness and directional bias. The advantage to this approach, although still judgmental, is that the emphasis has shifted away from traditional pattern matching and toward the less subjective elements of chart structure and quantifiable conditions.

STRUCTURE FIRST

The common tenets of classical charting have us searching for all manner of shapes such as triangles, rectangles and megaphones. Indeed, substantial price moves do often occur out of formations that resemble these shapes, and this is why technicians and traders continue to hunt them.

However, the existence of a textbook chart pattern is, in the end, less important than the timely recognition of an actual trend reversal or continuation. Rather than dwell on the minutiae of specific pattern shapes, let us look for price formations that demonstrate well-defined structure. By *structure* I refer to price formations that exhibit, first of all, distinct cyclic periodicity, and second, incorporate *natural* trendlines, which I will define at a later time.

These are the two most common characteristics of significant chart formations that require the least amount of subjectivity to identify. This is not to imply that total objectivity or mechanization is possible when locating structure; locating structure, rather than specific pattern shapes, is simply an attempt to focus on the less-ambiguous components of what we commonly refer to as *classic* chart patterns.

THE CYCLIC COMPONENT

For those unfamiliar with cycle theory, *periodicity* describes the phenomenon by which price cycles have regular intervals, measured in time, between peaks and valleys. Conversely, amplitude is a measurement of cycle height, measured in units of price, from peak to trough. The most reliable chart formations tend to have at least two prominent and consecutive time cycles of similar length. This simply means that a series of consecutive cycle highs and/or cycle lows, depicted by obvious swing turning points, are separated by approximately, and often exactly, the same number of price bars. These time cycles should be fairly obvious.

In Figure 2, a weekly chart of December 1983 live cattle, arrows highlight important cycle lows, marking a series of at least two well-defined eight-week time cycles. This is an example of distinct periodicity. Conversely, the height between these cycle lows and the cycle highs denoted by letters A, B and C represents a measurement of cycle amplitude.

Traditionally, chartists have focused most of their attention on cycle amplitude, as the differences in amplitude between price cycles characterize the various chart patterns we have come to know: head and shoulders, triangles and so on. However, there is a rationale for focusing on periodicity rather than amplitude. Research demonstrates that while cycle amplitude is subject to wide distortion from trends and outside forces such as news reports and weather, these events interfere with the timing of cycles very little. Simply put, cycle periodicity is a

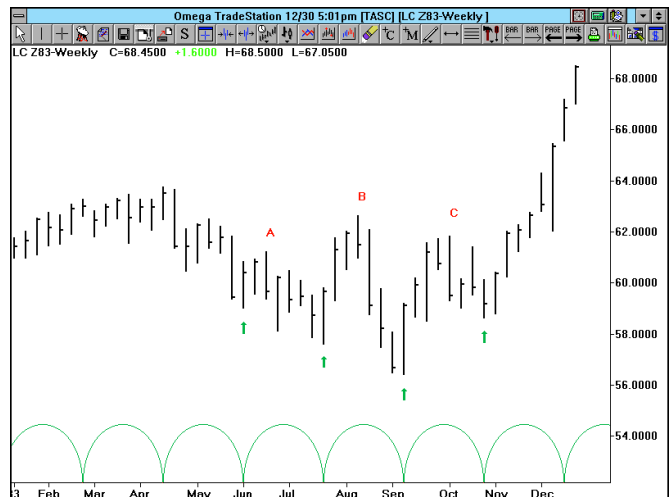


FIGURE 2: DECEMBER 1983 CATTLE FUTURES WEEKLY CHART. The arrows point to important cycle lows, marking a series of at least two well-defined eight-week time cycles. The distance between the cycle lows and cycle highs A, B and C represent the cycle amplitude.

more stable, consistent component than cycle amplitude. Focusing on periodicity thus fosters a more consistent approach to identifying tradable chart formations.

The cycle component of chart formations that display a horizontal orientation, such as trading ranges, head-and-shoulders patterns and symmetrical triangles, suffers the least distortion from trend. It is specifically these types of formations that demonstrate the clearest and best-defined periodicity. Richard D. Wyckoff, one of the most astute chartists and technicians in history, chose to focus almost exclusively on analyzing horizontal congestion formations. Other technicians, including chartist Peter Lewis Brandt, have noted the phenomenon by which chart formations with a horizontal orientation tend to have greater reliability than those with a diagonal orientation, such as sloping trendlines or wedges.

In most cases, visual inspection is all that is needed to uncover a series of two or more consecutive time cycles within a potential formation. Most charting software will contain a simple cycle tool that facilitates this task. (The examples shown here rely on visual inspection.) However, cycle data can also be extracted from prices through the mechanical process of *detrending*, which is a simple technique that involves the use of moving averages.



NATURAL TRENDLINES

Natural trendlines connect only the most prominent price highs and lows of the formation under study. Wyckoff called these points “reactions or rallies of similar importance.” Natural trendlines often correspond with and highlight the domi-

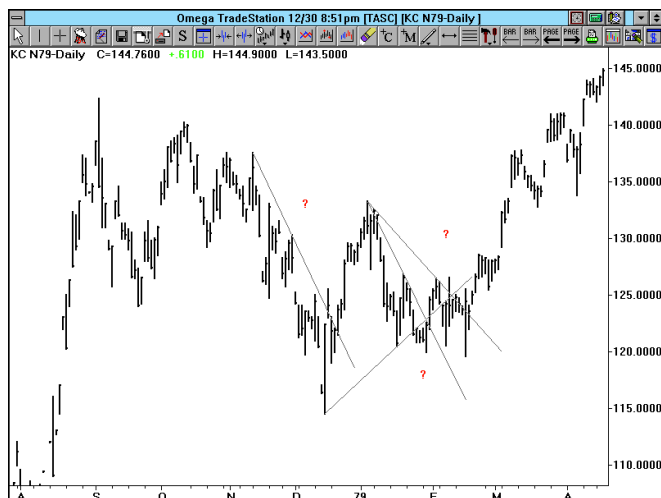


FIGURE 3: JULY 1979 COFFEE. Which of these trendlines should the trader use for initiating a trade?



FIGURE 4: JULY 1979 COFFEE. Here, the trendlines denote the major triangle formation. The trader now can trade the breakout.

nant periodicity of the potential chart formation. Above all, natural trendlines are not drawn to satisfy the biases of the chartist.

There are mechanical methods for drawing trendlines; Victor Sperandeo’s trendline rules and Thomas DeMark’s TD Lines are two examples. The resultant trendlines of these methods tend to serve as good examples of natural trendlines. Our main goal is to encapsulate a dominant price formation with as little subjectiveness as possible.

Natural trendlines are the residual product of this effort. Figure 3 shows a typical example of trendlines that have been fitted to various chart points versus trendlines (Figure 4), which indicate a dominant price formation.

CONFRONTING THE TREND

Once a price formation that demonstrates well-defined structure has been identified, the process of analyzing for a directional move begins. To this point we have avoided the use of traditional pattern names in identifying prospective formations. As a result, we are now in a position to apply our indicators objectively and with an open mind.

On daily charts, most formations of substance require at least one week to develop and often much longer. Thus, I find it more useful to determine when a formation is ready to generate a trending move rather than focus initially on the expected direction. Being aware of when a move is expected to begin greatly reduces the tension of anticipating a breakout. It also helps us avoid taking false signals, such as early trendline penetrations. Knowing when a breakout is likely to occur helps us devote our attention on the directional clues of chart patterns and other technical evidence only when they are most relevant.

VOLATILITY AS A SIGNAL

One phenomenon I observed was the tendency of significant chart formations (that is, formations that decisively reach their target objective) to exhibit a marked contraction in volatility

immediately prior to exiting their pattern boundaries. This confirms what traditional chartists have observed all along. Most literature on charting makes reference to diminishing volume prior to pattern breakouts.

Volume and volatility are close cousins and they are highly correlated. Generally, volume and volatility expand in a market that is moving. By definition, in a quiet market, volume and volatility generally contract. Further, we also know that as volume decreases, so does liquidity. Therefore, it is logical that markets are most quiet prior to a breakout or prior to a transition to a trending state.

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Numerous technicians have noted this contraction-expansion phenomenon of market behavior. Some of the earliest references to the quiet-market phenomenon can be found in Wyckoff’s tape-reading observations from the early part of this century. In the 1930s, technician H.M. Gartley’s research pointed out the distinct contraction in volume that precedes trending moves in bull and bear markets.

More recently, technicians have devised ways of isolating short-term contractions in volatility for specific trading strategies. Toby Crabel’s 1989 STOCKS & COMMODITIES article, “Opening range breakout,” quantified volatility in terms of the narrowest daily range of the past four days, which he referred to as *NR4*. And in 1995, authors Laurence Connors and Blake Hayward introduced their historical volatility system for similar purposes.

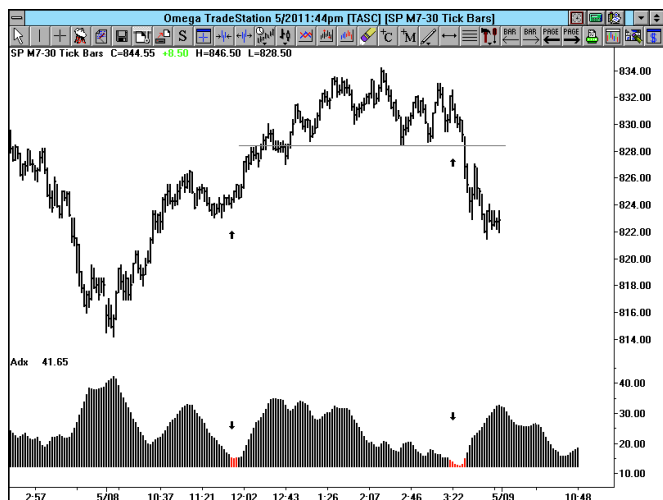


FIGURE 5: JUNE 1997 S&P 30-TICK BARS. Notice how the ADX indicator dropped below 15 prior to the market trending.



FIGURE 6: MAY 1996 SOYBEAN OIL. The market never traded above the negatively sloping 50-day simple moving average, indicating that the trend was still down. In addition, note that the ADX level was less than 15 at the time of the breakdown.

For analyzing macro chart formations as opposed to individual price bars, the best tool I have found for identifying contractions in volatility is an old one: J. Welles Wilder's ADX. The main function of this indicator is to measure trend strength. The standard lookback period used with ADX is 14 days.

Charles LeBeau and David Lucas, who wrote *Computer Analysis of the Futures Market*, have done considerable research on this indicator. They suggested as a rule of thumb that when the ADX is rising, any value above 15 indicates the presence of a trend. What I have found is that ADX levels below 15 are synonymous with an absence of trend and a conspicuous decrease in volatility. Thus, whenever a prospective chart formation coincides with an ADX reading below 15, this situation is alerting us to the market's readiness to begin trending.

This technique will work on any time frame, from dailies to

intraday charts. Note how, in Figure 5, the ADX moved to below 15 in the afternoon in the June 1997 Standard & Poor's 500 futures, signifying the start of a significant intraday trending move out of a horizontal topping formation.

DIRECTION AND TARGETS

At this stage, we have qualified a tradable chart formation. We have also identified an area of suspense, out of which a trending move from this formation is imminent. Now, we can begin anticipating direction. In most cases, the traditional approach of waiting for a closing trendline penetration is all that is necessary for the chart formation to tip its hand concerning direction. Natural trendlines that mark the formation usually serve as an appropriate entry trigger.

Another very basic but effective tool for analyzing directional bias is a 50-period simple moving average. Stock traders

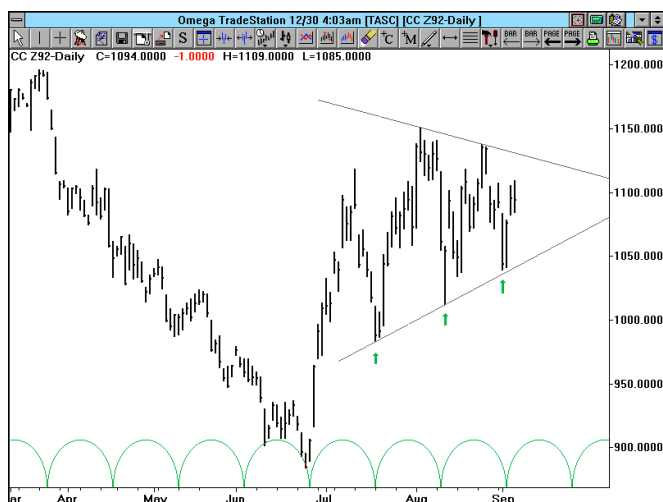


FIGURE 7: DECEMBER 1992 COCOA. The cocoa market was in a downtrend, and after a rally, a formation demonstrating clear structure was able to be established. The three arrows point to cycle lows of an 18-day duration.



FIGURE 8: DECEMBER 1992 COCOA. Note how just prior to the breakdown, the ADX dropped below 15. The close below the trendline was our trigger to go short.

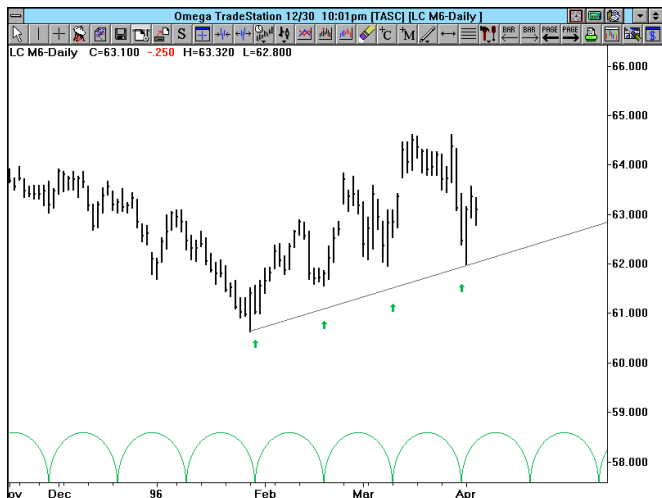


FIGURE 9: JUNE 96 LIVE CATTLE. The trading range between 61 and 64 reveals a distinct 15- to 16-day periodicity between February and April.



FIGURE 10: JUNE 96 LIVE CATTLE. By early April, we got our first reading of 15 or less in the ADX indicator. The close below the trendline was the signal to go short.

have been using this moving average as a reference tool for years, but it is not a panacea; it is best used as a reference to compare current prices against. If prices are below the moving average and the moving average is sloping down, we can assume the trend is down (Figure 6).

The converse is also true, and thus, anticipating a breakout in the direction of the trend is one way to apply this moving average. It can also be used much like a trendline. If prices suddenly cross from above to below the moving average in the context of a chart formation and a low volatility reading in the ADX, this often signals the beginning of a downtrend. The simplest tools are often still the best.

Finally, a word on targets. One of the most valuable features of classical chart pattern analysis is the target objective. The traditional method calculates the height of the formation,

measured in units of price, and projects this number from the breakout point as the potential objective. This approach has always proved to be quite reliable. I have not found any need to use specialized ratios or formulas for calculating the target objective, though these methods are quite probably valid. Once more, the traditional method is the simplest, and it has been used successfully by technicians for many years.

CASE EXAMPLES

Figures 7 through 12 highlight examples chosen from various markets that demonstrate the application of these techniques. In Figure 7, December 1992 cocoa, we see a market that has rallied and consolidated after a long, multimonth downtrend. Judging by the magnitude of the rally from late June, it could be argued that the market has finally broken its downtrend and

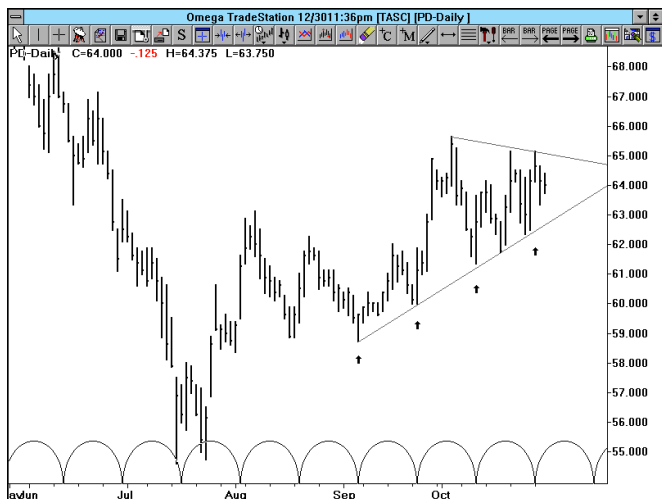


FIGURE 11: PHELPS DODGE. Climbing back from a mid-July selloff, PD developed a trading range between 61 and 65. The arrows point to three well-defined, consecutive, 12- to 13-day time cycles.



FIGURE 12: PHELPS DODGE. Prices initially closed beneath the lower trendline in early November; however, the ADX did not indicate the market was ready to begin trending. Prices were above the 50-period simple moving average, which was sloping upward at the time. In November, the ADX finally gave us the signal to begin anticipating a breakout. A close above the upper boundary put the market participant long.

is now preparing to go higher. Or is this just a pause before a retest of the June lows? Note the distinct periodicity of about 18 days in length. In Figure 8, note how for the first time in six months, the ADX dips below 15. According to what we have learned, the market is ready to trend. Our first close outside the trendline is our trigger to go short.

In Figure 9, June 1996 live cattle, the market has formed a broad trading range between 61 and 64 cents. A closer look reveals a distinct 15- to 16-day periodicity between February and April. By early April, we get our first reading of 15 or less in the ADX indicator (Figure 10). A close beneath our trendline, drawn under the most prominent cycle lows of the formation, puts us short.

And finally, a look at Phelps Dodge [PD], an NYSE stock. After climbing back from a mid-July selloff, PD developed a trading range between 61 and 65. Note three well-defined, consecutive, 12- to 13-day time cycles (Figure 11). We have the beginning of a potential chart formation. In Figure 12, note how prices initially closed beneath the lower trendline in early November. Should we have gone short? In this case, we had two pieces of evidence suggesting against a short position. First, our ADX did not tell us the market was ready to begin trending; this move was just a false whipsaw. Second, prices were above the 50-period simple moving average, which was sloping upward at the time. In November, the ADX reading of below 15 finally gives us the signal to begin anticipating a breakout. A close above the upper boundary puts us long.

CONCLUSION

My ideas here have been inspired by the work of other technicians. For example, J.M. Hurst and Stan Erlich have both presented work on the combination of cycles and chart patterns. Numerous technicians have also investigated volatility and volume over the years. My goal as a technician and trader is to extract only the most essential information from each chart I analyze and to maintain a consistent approach to my analysis. I have attempted to accomplish this by isolating chart structure and conditions that require the least amount of guesswork and traditional style pattern matching.

In all, rather than describe this process as charting per se, I prefer to view it as a combination of cycle and volatility concepts applied to charts.

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†See *Traders' Glossary* for definition

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