Volatility and Structure: Building Blocks of Classical Chart Pattern Analysis

5

Daniel L. Chesler, CTA, CMT

Introduction

Like many technicians, I began my study of technical analysis with classical bar chart patterns: trusty head-and-shoulders, triangles, wedges and so on. Though I still rely on chart patterns today, not all technicians share my respect for this form of analysis. Some technicians criticize classical chart patterns as being dependent on the imagination of the chartist rather than on objective rules. While perhaps "the essence of charting is subjective interpretation,"[1] what I find even more interesting is the widespread and unapologetic use of classical chart patterns among successful analysts and traders.[2] In fact, the question of whether chartists assume a reality that does not exist seems almost moot given classical charting's longevity over the past century.

Yet the question remains why classical charting, a technique that appears to involve more exceptions than rules, attracts such a loyal following among otherwise skeptical professionals. What do these analysts and traders actually see when they identify a "classical" chart pattern? The answer I believe does not lie hidden in the minutiae of traditional chart pattern definitions. More likely the answer is found in a set of general conditions that experienced chartists recognize intuitively.

Traditional chart pattern definitions stress the uniqueness of individual chart pattern shapes. For instance, think of the many variations on the "triangle" theme alone: symmetrical, ascending, descending, wedge type, inverted, inverted with rising or descending hypotenuse, continuation, reversal, top, bottom, et al., each with its own time, price, and volume subtleties. It is my belief that in ascribing this much significance to individual patterns, we also understate the common thread that binds all chart patterns.

In the following discussion I will try to describe that common thread by breaking chart patterns into generic components and examining each in turn before assembling them into a single model. My goal is to suggest a more compact and user-friendly approach to classical chart pattern analysis by focussing on the common elements that appear to characterize classical chart patterns in general.

Approach

First, I will review the history of price charts along with the background and basic tenets of classical chart pattern analysis. While these may be tired subjects for many readers, they are worth revisiting as they reflect the conventional views that we seek to expand. I will also discuss the role that classical chart patterns play within the broader scope of market analysis. Some of the practical strengths and weaknesses of classical charting will also be covered.

Next, a simple conceptual model will be presented, which attempts to depict classical chart patterns in terms of two basic components: the volatility component and the structure component. Individually these observations will not constitute new or unique theory on the subject of bar chart patterns or price behavior. Taken together, however, they should help reduce the degree of separation between what is typically perceived as a diverse range of classical chart pattern definitions. Using recent examples from the US stock market, I will show how the model can be used to simplify pattern recognition and enhance the timing of chart pattern-based trading decisions.

Again, my goal is not to advance a particular view of chart pattern analysis into the realm of verifiable science. Rather, I hope to add a measure of order to what some technicians view as the ambiguous process of finding and trading classical chart patterns.

Price Chart Primer

The earliest use of price charts has been traced back to 17th century Japan where it is believed price charts were first used to record and analyze the movements of the Japanese rice market.[3] The use of price charts in the United States, however, did not develop until the late 19th century. Prior to the widespread use of charts in the U.S., price and volume analysis was generally limited to what one could observe and memorize as live quotes ran across a mechanical ticker tape. This practice became known generally as "tape reading."

In the late 1800s, the number of active stocks was few. However, as this number increased, following the list of active stocks on the tape became more difficult. Summarization of the data into price charts was the inevitable result.

Thus, a price chart is merely a graphic record of price and volume activity over a length of time – a graphic ticker tape so to speak. In this context one can understand how price and volume relationships gleaned from the practice of tape reading ultimately shaped charting principles. As one technician aptly put it, "tape reading was just primordial technical analysis."[4]

The earliest charts used in Western technical analysis are believed to be point-and-figure charts and existed at least fifteen years before the advent of bar charts.[5] Point-and-figure charts differ substantially from bar charts in that they do not specifically record time and volume data. They are noted for their ability to highlight "consolidation" zones, which generally imply either accumulation or distribution activity. The subject of this paper, however, relates only to bar charts and bar chart patterns.

Bar charts, probably due to their ease of construction, have been the most popular form of price charts since their introduction in the late 1800s.[6] Each "bar" consists of a vertical line representing the range of prices traded over a defined period: an hour, a day, a week, a month, etc. Prices are plotted on the vertical axis and time on the horizontal. Bar charts often include a graph along the bottom of the chart depicting volume activity and in the futures markets the open interest. The vertical axis of a bar chart is generally plotted on either an arithmetic or logarithmic scale, with the arithmetic scale being the more popular form. A logarithmic scale shows equal percentage increments of price rather than equal absolute increments as with an arithmetic scale.

Classical Chart Pattern Evolution

The 1948 book *Technical Analysis of Stock Trends,* written by Robert D. Edwards and John Magee, is often referred to as "the bible of technical analysis." It is considered by many to be the definitive reference source for information on classical chart patterns. However, Edwards and Magee attributed the credit for their ideas to the original research and theories of both Charles Henry Dow and Richard W. Schabacker.

Dow was a co-founder of the Dow-Jones & Co. financial news service and the first editor of *The Wall Street Journal.* He created the original Dow Jones stock averages in the late 1800s and wrote a series of editorials in the *Journal* that analyzed the price movements of these averages. After his death in 1902, William Hamilton and Robert Rhea refined Dow's ideas into what became known as "Dow Theory."

Loosely defined Dow Theory is a method of analysis that utilizes specific price patterns to infer the direction of the market's primary trend. If prices are making a succession of new highs, interrupted by shorter-term reactions which terminate above previous reaction lows, the trend is considered to be up. Conversely, a succession of new lows in price accompanied by lower highs on intervening rallies indicates a downtrend. Dow recognized that on all levels, from major swings down to day-to-day fluctuations, prices do not move in a straight line along their trend but rather in a pattern of "zigzags" or "waves." This observation by Dow is significant to chart pattern analysis as it form the basis of all classical chart patterns; combinations of "zigzag" or "wave" patterns make up the core of all classical chart pattern definitions. Other Dow Theory principles also underlie classical chart pattern analysis. These include Dow Theory "lines" which appear as a narrow range of price fluctuations, and indicate a period of stagnation in price where buying and selling forces are roughly equal. As Edwards and Magee noted, a degree of coincidence appears to exist between Dow Theory lines and what might otherwise be viewed as classical chart formations.[7] Finally, the idea that volume tends to expand on price movements in the direction of the dominant trend is also a tenet of both Dow Theory and classical chart pattern analysis.

While Dow focused on the longer-term trends of business activity as reflected in the relationship between the closing prices of his averages, it was Schabacker who adapted these principles to bar charts of individual securities on a short to intermediate time frame. In 1930, while employed as the financial editor of *Forbes* magazine, Schabacker authored *Stock Market Theory and Practice*, a reference work on the subject of the stock market and trading. He also published a manual in 1932, *Technical Analysis and Stock Market Profits*, which expanded upon the principles introduced in his first book. It was primarily through these two texts that Schabacker pointed out the various bar chart patterns that were later discussed and popularized by Edwards and Magee. Thus Schabacker was the chief architect of the "classical" chart patterns we know today such as triangles, head-and-shoulders, et al. To reiterate, these patterns belong primarily to the area of technical theory related to the trading of individual securities.

There have been other significant contributors to the body of charting knowledge, notably Richard D. Wyckoff and Ralph Nelson Elliott. Though it would be inaccurate to label the work of either Wyckoff or Elliott as "classical charting" per se, some overlap does exist. For instance, like Charles Dow, both Wyckoff and Elliott sought to identify repeatable price patterns of a cyclical or rhythmic nature.[8] Wyckoff and Elliott also viewed the relationship between price and volume similarly to Dow.

More recently formal research has been made into the area of classical chart patterns. While no definite conclusions regarding the efficacy of classical chart patterns have been reached, there have been some encouraging results. For example, a 1995 study by the New York Reserve Bank found that the head-and-shoulders chart pattern yielded "significant excess profits" in select currency markets.[9] Research by Alex Saitta, a technician at Salomon, has shown profitable trading results using standardized classical chart patterns in the Treasury Bond market.[10]

Classical Chart Pattern Basics

Most charting methods, including classical charting, make use of implied psychological or behavioral motivations. For instance, "doubt" is the emotion usually associated with the early stages of a new trend. After a trend has matured, "greed" or "fear" are thought to be the forces that compel traders to "chase" prices up or down even farther, culminating in a frenzied "climax" of buying or selling activity. [11] Elliott wave structures are believed to directly reflect a rhythm in nature that manifests itself in "crowd behavior," and ultimately in the shape of market prices.[12] Classical chart patterns, such as head-and-shoulders, triangles and others, are thought to be indicative of "pool operators" or "inside interests" who intentionally manipulate the market in distinct phases referred to as accumulation, markup, distribution, and markdown.[13]

Regardless of the underlying causes attributed to their formation, classical chart patterns rely chiefly on the interpretation of trendlines, geometric formations and price and volume relationships. The primary chart patterns that Schabacker pointed out in his first book, *Stock Market Theory and Practice*, included patterns of accumulation or "bottoming," and patterns of distribution or "topping." Collectively these patterns are known as "reversal" patterns as they tend to coincide with a reversal of the prior established trend. Schabacker also identified a second group of patterns as "intermediate" or "continuation" patterns that are found "inserted in the progress of an already originated move."[14] As their name implies these patterns suggest only a pause in activity followed by a continuation of the preceeding trend.

The fact that a chart pattern appears as either a reversal or a continuation pattern does not rule out plentiful exceptions. For instance, an "orthodox" head-and-shoulders reversal pattern may develop into a continuation pattern, or vice versa. Most of the literature on classical chart patterns concedes this flaw. What can be said with moderate certainty however is that when prices have been in a trend and suddenly stop advancing or stop declining, they are now "doing something else."[15] That "something else" is almost always the start of a classical chart pattern of one form or another.

Over time and depending on which analyst or trader you consult, individual patterns within each category have gone through minor name changes and other slight revisions. For example, Schabacker originally identified "wedges" as a reversal pattern, while other technicians have accepted the wedge pattern as both a continuation and a reversal pattern. However the names and categories of the basic "area" patterns, which exclude all one and two-bar formations such as "island" and "gap" patterns, as well as "spike" or "V" reversals, can be broadly summarized as follows:

REVERSAL PATTERNS	CONTINUATION PATTERNS
Head-and-shoulders	Triangles (symmetrical, ascending, descending)
Rounding	Rectangles/Boxes
Triangle	Flags/Pennants
Broadening	Wedges (rising, falling, running)
Double, Triple, Complex	Diamonds

Patterns such as complex head-and-shoulders, irregular tops and bottoms, simple or "naked" trendlines, horizontal support and resistance lines, trend channels and others are also very much part of chart pattern vernacular. For sake of brevity, however, the patterns listed above safely represent the majority of all classical chart patterns.

In addition to identifying specific pattern "shapes," classical chart pattern analysis also incorporates an analysis of the relationship between price and volume. For example, a price "breakout" is believed to confirm a pattern's validity if it is accompanied by increasing volume. In the case of top reversal formations, this requirement is sometimes relaxed. However, in general, most chart patterns tend to follow a sequence of high and/or irregular volume in the early to middle stages, with markedly declining volume in the late stages, just prior to prices "breaking out" beyond the boundaries of the pattern. There is as Schabacker explained, "…the tendency for volume to decline during the period of formation of a technical area pattern. This shrinkage in activity is especially conspicuous as the formation nears completion, just before a breakout occurs."[16] Charts 1A-1C demonstrate actual examples of this behavior.

Another feature of classical chart patterns is the implied price target. Following the confirmation of a pattern, which is normally signified by a price "breakout," chartists believe that targets can be determined that indicate how far prices will either rise or decline. The standard procedure for determining a price target is to measure the width of the pattern, in points or dollars, and then add or subtract this value above or below the point at which prices decisively exit the pattern.

Role of Classical Chart Patterns

Between the generous ridicule hurled at charting by well known market commentators[17] and the often exaggerated claims made by overzealous chartists, it is probably safe to assume that classical chart patterns are a misunderstood subject. I have even known experienced technicians who mistakenly view classical chart patterns as a kind of esoteric knowledge for divining the future direction of stock prices. In the following section I will utilize quotes from various sources to help clarify the role of classical chart patterns.

It must be understood that chart patterns were conceived primarily as a "timing" or "trading" technique used for individual trade selection. Though Schabacker did find chart patterns useful as indicators of the general market, he did not view them as a long-term investment or market forecasting strategy; for this he considered fundamentals the more important of the two approaches:

> "Our study has been devoted chiefly to consideration of the technical factors affecting stock market fluctuations. We have previously seen that such factors work much more swiftly and profitably than do the fundamentals. The technical side of the market is of special importance for the short-swing stock market trader – he who tries to take his quick profit and run, and then renew his operation in some other issue where technical considerations suggest another

Chart 1A

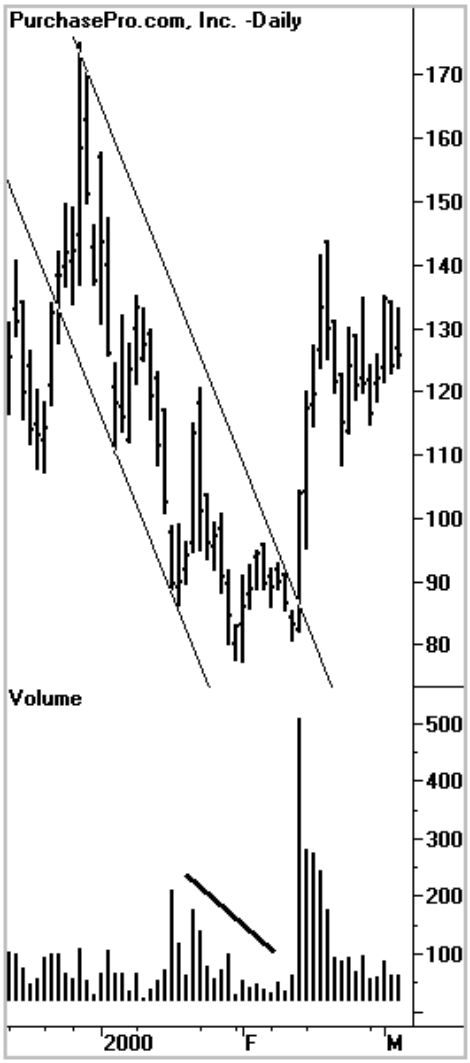


Chart 1B

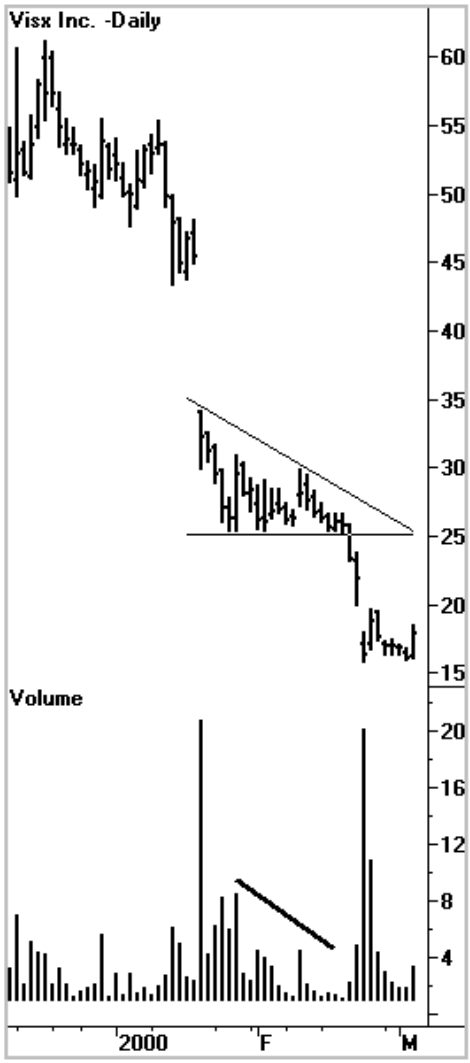
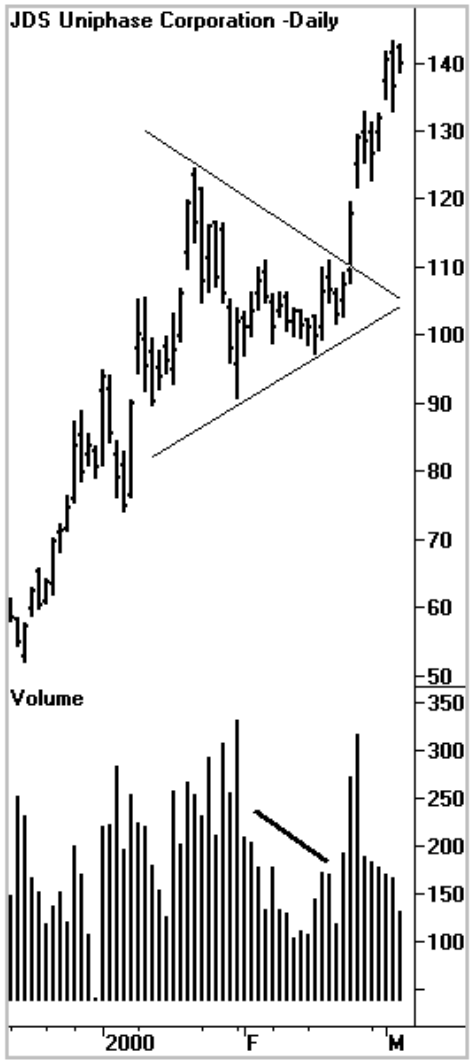


Chart 1C



movement is about to materialize."[18]

"The technical approach to the market…is based upon factors which relate chiefly, or at least more directly, to the market itself, to the price movement which results from the constant interplay between those who want to buy…and those who want to sell…"[19]

"In other words, the fundamental factors suggest what ought to happen in the market, while the technical factors suggest what is actually happening in the market. It is, therefore, the more important of the two angles for the trader…"[20]

Thus Schabacker emphasizes the point that "technical factors" are particularly well suited to serving the needs of traders, or those who operate on shorter time frames. For Schabacker this specifically meant the use of bar chart patterns as a means of highlighting accumulation and distribution activity in individual stocks for the purpose of providing buy and sell signals.

The notion of chart patterns as a tool of the "timer" is as accepted among knowledgeable observers today as it was by Schabacker seventy years ago. For example, Gerhard Aschinger, Professor of Economics at the University of Fribourg, Switzerland, makes an indirect but à propos reference to the nature of charting in a 1988 Swiss Bank Corporation article as follows:

" 'Speculators,' … are defined as basing their investment policy on the behavior of the market itself, using recent patterns to predict future trends. … In reality, many chartists would fall into this category. … The point is that 'fundamentalists' usually follow a longer-range investment strategy, whereas 'speculators' have a basically short-term orientation." [21]

Aschinger implies that speculators are more concerned with matters of timing than with long-range "strategy." He also links the use of "recent patterns" with the objectives of "speculators" as an accomplished fact. These views echo Schabacker's and support the idea that chart patterns represent a technique belonging chiefly to traders.

Peter Brandt, one of Commodity Corp.'s most successful traders for many years, and a speaker at the 14th Annual MTA Seminar in Naples, Florida, claims to rely almost entirely on classical chart patterns for making trading decisions. Brandt explains his views on classical charting in a 1990 book interview as follows:

"Classical charting is … useful only to highlight a certain defined trading opportunity. It is vital to keep in mind that over 50 percent of chart formations fail to deliver profitable trades. This may be an indictment of classical charting as a forecasting tool, but not as a trading tool. Classical

Chart 2A

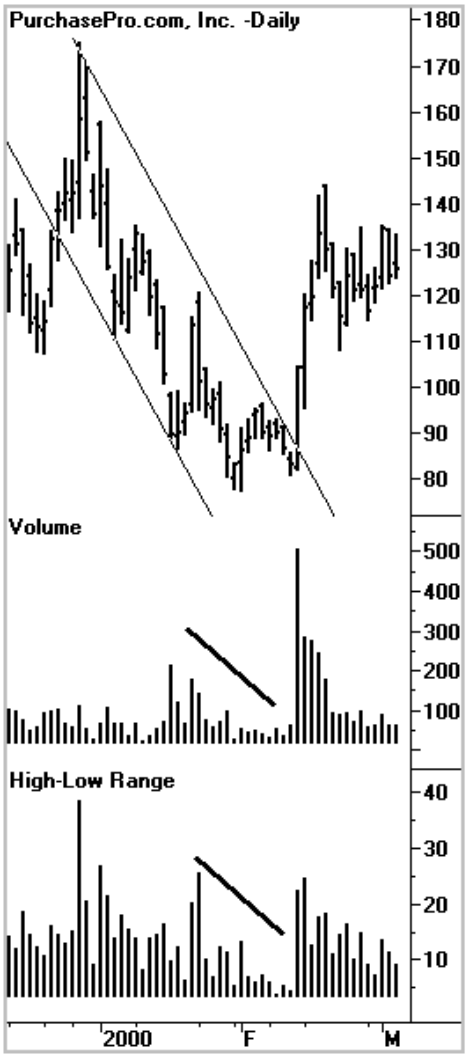


Chart 2B

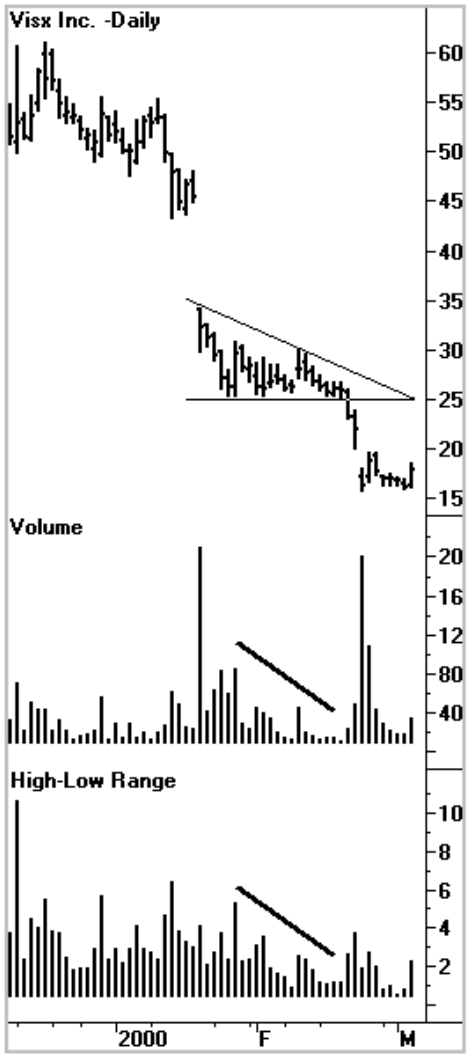
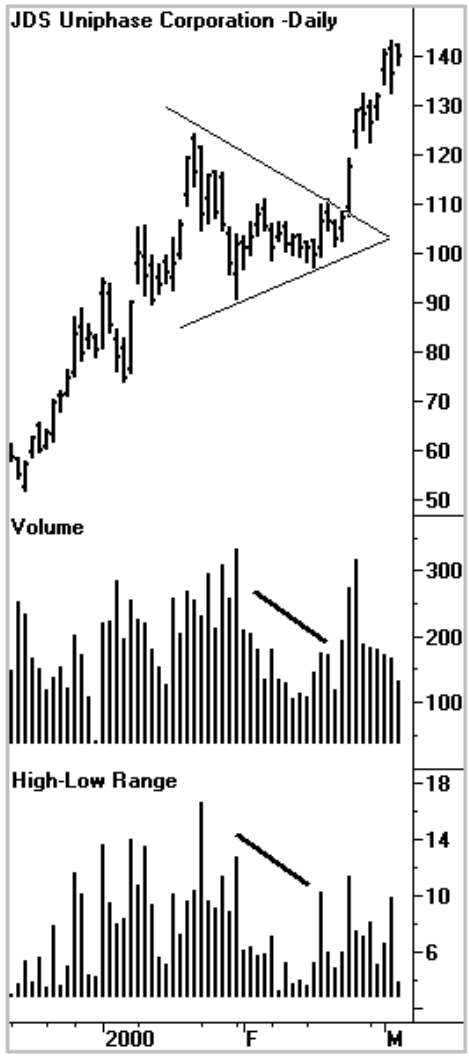


Chart 2C



charting principles do not explain all the markets all the time …. I am just looking for market situations that meet certain guidelines" [22]

Thus, Brandt discounts any directional inferences of classical chart patterns. He views classical chart patterns as useful for the purpose of identifying and organizing individual trading decisions rather than for the purpose of outright prediction. For Brandt, chart patterns serve as a sort of bookmark that enables trades to be made with reference to a particular set of price levels, risks and potential outcomes.

The notion that classical chart patterns do not serve as a means of prediction is not necessarily a new idea.[23] In the following quote attributed to legendary trader Jesse Livermore, Livermore appears to counsel that it is best not to place directional significance in chart patterns:

"In a narrow market, when prices are not getting anywhere to speak of but move within a narrow range, there is no sense in trying to anticipate what the next big movement is going to be—up or down. The thing to do is to watch the market, read the tape to determine the limits of the get-nowhere prices, and make up your mind that you will not take an interest until the price breaks through the limit in either direction." [24]

One can assume that the "limits of the get-nowhere prices" which Livermore speaks of correspond to the boundaries of a classical chart pattern of some type. More importantly, Livermore reserves judgement regarding the future direction of prices "until the price breaks through the limit." Thus, Livermore suggests that the forecasting value of chart patterns is subordinate to their main role of cordoning off the conditions that precede certain trends.

If we accept the idea that classical chart patterns are at best mediocre forecasting tools, then it follows that the successful use of chart patterns is dependant on the occurrence of a sufficient number of sustained trends to offset an even greater number of "false" signals. In this context, classical chart patterns are by necessity allied with the technical trend-following philosophy, which states that once a trend begins it is likely to continue.

In sum, two main points emerge regarding the role of chart patterns. The first point is that chart patterns are intended chiefly as an aid to trading and speculation of individual securities, although other uses such as general market analysis are also possible. The other is that chart patterns are not particularly useful as a means of predicting the future direction of prices; waiting for a decisive "breakout" in order to confirm the validity of a chart pattern would be unnecessary otherwise.

Strengths and Weaknesses of Chart Patterns

Perhaps the greatest strength of classical chart patterns is their ability to help us participate in price trends. As trader and analyst William Gann noted, "…the big profits are made in the runs between accumulation and distribution."[25] Classical chart patterns offer traders a viable means of capturing these "runs" by highlighting the behavior which normally precedes significant trends.

In addition to highlighting specific trading opportunities, chart patterns can also be used to control risk by forewarning us of trend reversals. It is believed among most technicians that price trends do not reverse immediately, but rather go through a period of gestation before reversing. These periods often coincide with the development of a classical chart pattern. Those who wish to control their open position risk may find chart patterns useful in these situations.

Another strength of classical chart patterns is that they delineate when and at what price to buy and sell through the use of trendlines and price target objectives. Once the boundaries of a potential formation have been decided upon and marked off, these boundaries correspond to specific price and time coordinates that can be used to form specific trading and risk control strategy.

On the weakness side of the balance sheet, chart patterns are notoriously subjective entities. Surpluses of chart pattern examples exist in books and manuals with no corresponding supply of fixed pattern definitions. Thus there exists no simple way of determining whether or not an actual classical chart pattern has been discovered.

Because all classical chart pattern definitions are essentially approximations, chart pattern analysis contains the potential for abuse by portraying the personal biases of the chartist rather than actual market indications. The implied directional significance attached to specific chart pattern names, such as "Bearish Wedge" or "Bullish Triangle," may also interfere with the chartist's objectivity. To the extent that certain chart pattern shapes are associated with specific directional outcomes, the risk of taking on a preconceived directional bias by the analyst or trader seems inevitable.

Correctly identifying classical chart patterns in time to act on the "breakout" is also problematic. To borrow from Dow Theory parlance, how can one tell in what section of the line they are in until it is all over, and thus perhaps too late to take a position? Conversely, if we act too soon and pre-empt a chart pattern breakout, the result may be a series of "false starts," also known as "whipsaws."

The Model

As mentioned earlier, the conceptual model separates chart pattern behavior into two components: the volatility component and the structure component. Both are equally significant and their order is presented arbitrarily. Below I have summarized the primary aims of the model:

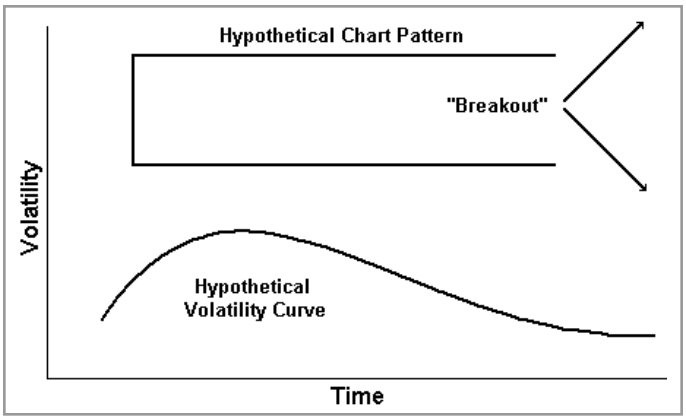
- To offset the lack of classical chart pattern specificity by providing a less subjective though still not entirely fixed criterion for identifying patterns.
- To serve as a notional benchmark for distinguishing valid chart pattern behavior from other types of market behavior.
- To minimize the risk of implied directional biases by excluding the use of traditional "bull", "bear" or pattern "shape" nomenclature.
- To enhance the timing of trading decisions by more narrowly defining the specific behavior that coincides with chart pattern breakouts.

The Volatility Component

In lay terms, volatility is a measurement that tells us to what extent prices are changing over time. A market moving up or down 15 or 20 points a day is more "volatile" than the same market moving up or down in 3 or 5 point increments. Volatility can also serve as a proxy of underlying market activity. Using the same three stock examples from earlier, Charts 2A-2C demonstrate how changes in volatility, as measured by the one period range (highest high minus lowest low over the course of one day), correspond positively with changes in volume over the same time period. This phenomenon is not unique to daily stock charts; it can be observed across virtually all markets and time frames.

While the relationship between changes in volatility and changes

Chart 3
The Volatility Component



in volume is by no means an absolute one, it is robust enough to help us understand the dynamics behind chart pattern development and the volatility component of the model. For example, if we assume that for every transaction there is both a buyer and a seller, volume can be viewed as a measure of the gross supply and demand at any point in time for a given market. In the case of our model, volatility has been substituted for volume as a means of gauging these changes in supply and demand.

We can thus begin to describe the development of a classical chart pattern in terms of volatility as follows: In the final stages of a price trend, and at the beginning of a so-called "classical" chart pattern, the market is characterized by relatively high volatility and wide price swings. Next, a gradual process of declining volatility begins, leading at last to an area of suspense that marks the "beginning of the end" of the chart pattern's development. This final stage immediately prior to a breakout is marked by a relative absence of price volatility versus the earlier stages of the chart pattern's development. The market has reached a relative standstill and is positioned at the "tripwire" of an imminent breakout. Chart 3 depicts a schematic of the idealized volatility component.

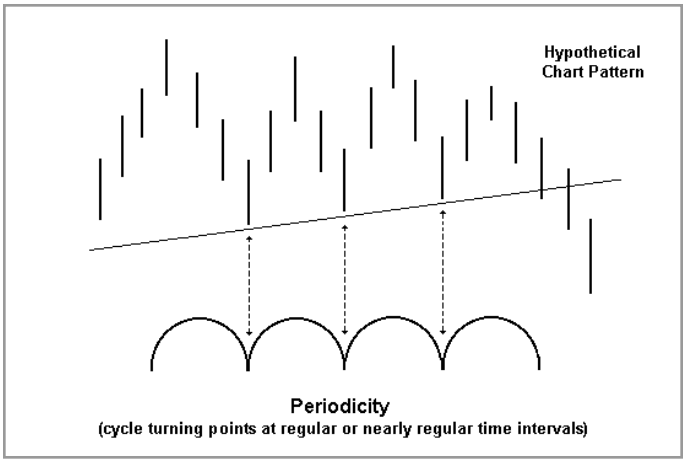
Various tools can be used to help us measure changes in volatility that might not otherwise be obvious through visual inspection of the chart pattern alone. The standard deviations of closing prices, or an average of daily high-low ranges are two approaches. However, I prefer to use Welles Wilder's Average Directional Index (ADX) which is based on an average of excesses between period-to-period ranges, and is smoother in comparison to raw measures of volatility such as standard deviation. Although ADX is normally thought of as a measure of trend strength, this does not preclude the use of ADX for our purposes. [26] Later I will show how to utilize the ADX indicator (14 period) to gauge the changes in relative volatility that occur during chart pattern development.

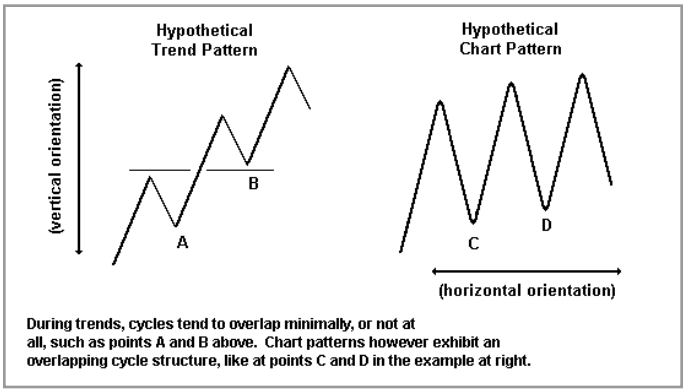
The Structure Component

The structure component of the model is not intended as a blueprint that tells us where we are within the structure and hence where we are likely to go next, such as with Elliott wave or seasonal trading patterns. Rather, the structure component represents an idealized form of cyclic behavior unique to classical chart patterns in general. It is an attempt at making that which is important about classical chart pattern "shapes" interesting – and not vice versa.

Specifically, the structure component emphasizes the tendency of chart patterns to exhibit a series of well-defined and periodic time cycles. This can be observed in most chart patterns as a series

Chart 4
The Structure Component





of distinct turning points marked by prominent highs or lows occurring at regular – or very nearly regular – time intervals. One possible rational for this phenomenon is that cycle periodicity is susceptible to greater distortion from the effects of trends. Hence, cycle periodicity is noticeably more discernible in non-trending environments as represented by so-called "classical" chart patterns.

In contrast, traditional chart pattern definitions focus primarily on the variation in cycle amplitude – or the "height" aspect of market time cycles as measured in dollars or points – as a means of classifying and distinguishing individual chart patterns. Traditional definitions rely on the repeatability of specific chart pattern "shapes" as formed by the combination of various cycle amplitudes. The model however is based on the assumption that generic conditions, such as declining volatility and distinct periodicity, underlie most chart patterns regardless of their shape or their individual "classical" definition.

The structure component also incorporates the tendency of classical chart patterns to exhibit noticeably overlapping cycles or "waves." Most chart patterns reveal this tendency by taking on a horizontal orientation along the length of the pattern. This aspect of structure highlights one of the most fundamental differences between price trends and chart patterns: During price trends cycles overlap minimally, and in the case of very strong trends cycles may not overlap at all. Chart 4 depicts the idealized structure component of the model.

Screening Examples

In this section I will present several examples of how the model components combine to facilitate chart pattern based trading decisions.

Chart 5A, a weekly chart of Adobe, shows that the stock rallied strongly from a low of about 15 dollars in mid 1998 to a high of about 75 dollars in late 1999. Note the characteristic cycle structure during this trending phase; there is almost no overlap between adjacent cycles except for a brief consolidation during the early part of 1999. However, starting in mid November 1999, Adobe begins to retrace some of its gains. Upon closer examination of the daily chart during this phase (Chart 5B) we see an overlapping cycle structure and a distinct 18-19 day cycle periodicity. Thus the action in Adobe satisfies the basic requirements of the structure component of the model. Rather than attempt to attribute various meanings to the "shape" of this pattern, we are simply looking for generic behavior that is consistent with the model. Yet we are not ready to trade this pattern until we can satisfy the requirement of the volatility component of the model. In Chart 5C, we can see

Chart 5A

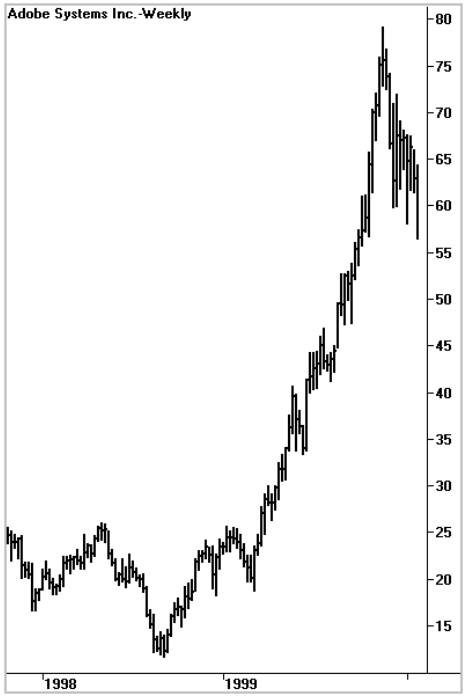


Chart 5B

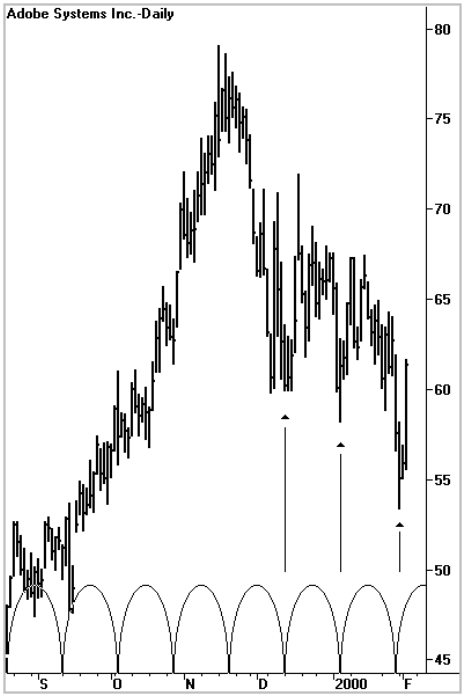


Chart 5C

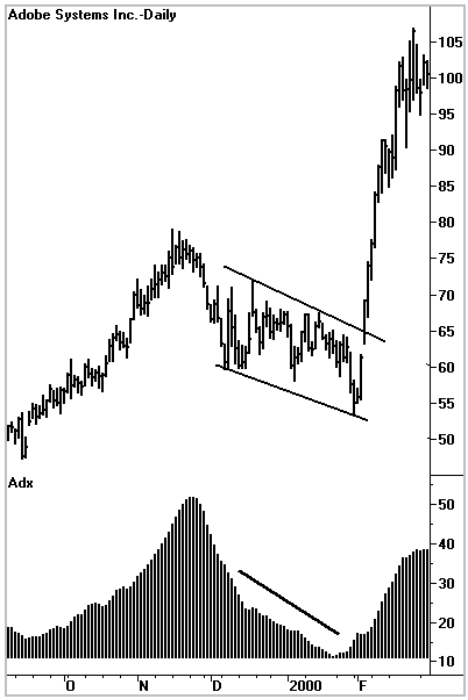


Chart 6A

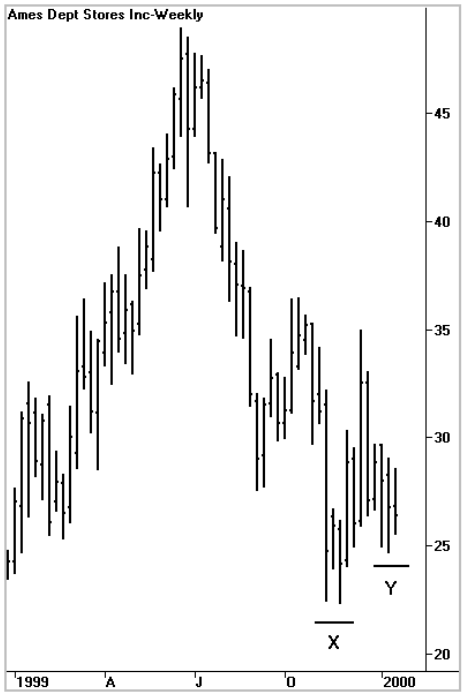


Chart 6B

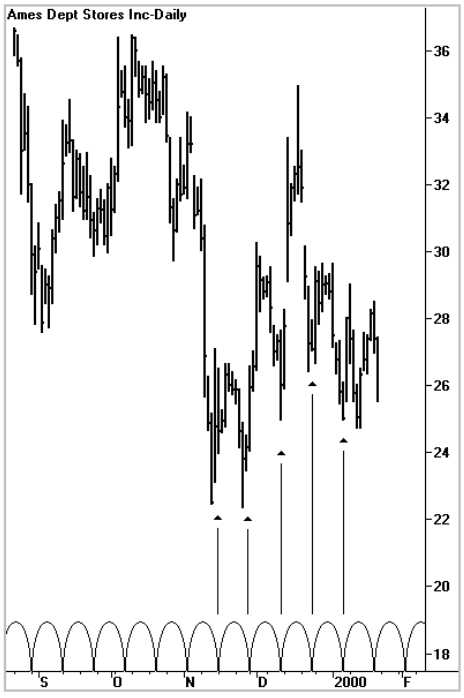


Chart 6C

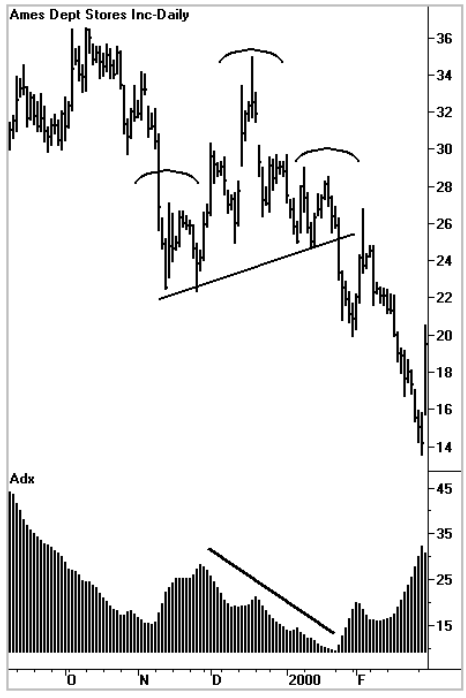


Chart 7A

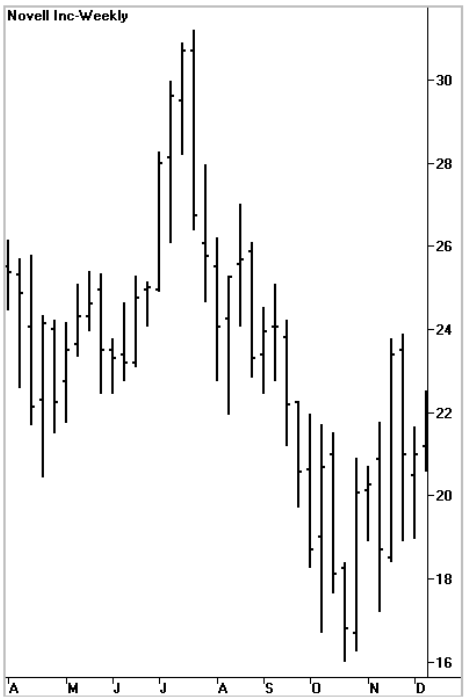


Chart 7B

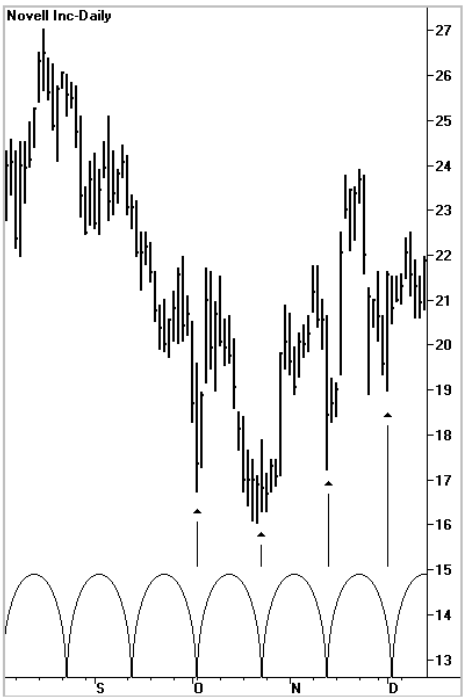
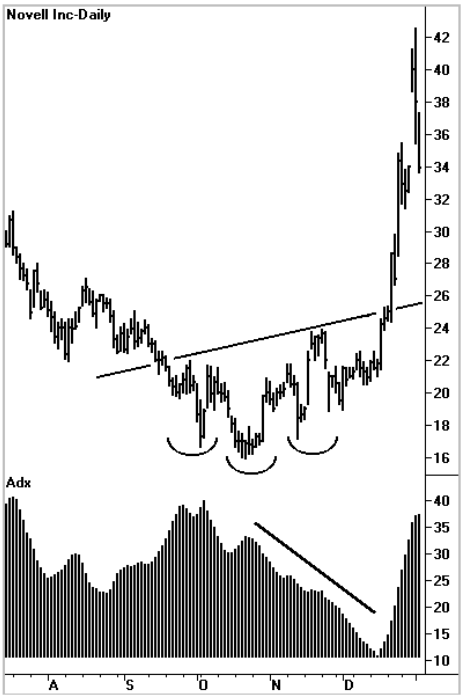


Chart 7C



how relatively higher volatility, as denoted by ADX levels between 30 and 50 during the final months of 1999, coincided with a] the ending stages of the prior up-trend and b] the beginning stages of the chart pattern's development. Note also how decreasing volatility, as depicted by gradually declining ADX levels, marked the late and final stages of chart pattern development. It is common to see ADX levels decline into the sub-20 level immediately prior to the completion of a chart pattern, just prior to a pattern "breakout," as Adobe demonstrates in January 2000. By waiting for the market to indicate through a measurable decrease in relative volatility its readiness to breakout, and by ignoring the directional implications of specific chart pattern "shapes," we do not find ourselves engaged in the tricky game of constantly anticipating the time of the breakout or its direction.

Chart 6A is a weekly chart of Ames Department Stores, showing prices in a steep downtrend from mid June through November 1999. During this time Ames lost about fifty-percent of its value. Note the rally attempt in November beginning from point X on the chart, and the slight pullback in December to point Y. At this stage, on the heels of a multi-month decline in prices, a chartist might normally be pondering whether this current pattern represents a "higher low" or some other popular formation indicative of the early stages of a reversal. However, since we are only concerned with whether and to what extent the pattern imitates the model, we do not refer to specific bull, bear or pattern "shapes." A closer look at the daily chart (Chart 6B) shows that Ames has established a distinct 10-11 day cycle periodicity with clearly overlapping waves. Finally, in January of 2000, the stock breaks down through support near 25 dollars (Chart 6C). Note how this pattern breakout follows a decrease in relative volatility, as denoted by the ADX indicator declining into the sub-20 level. Through an awareness of the conditions that precede pattern breakouts, we are less likely to enter a position based on a premature or "false" move outside of the pattern. We are waiting for the market to tell us when it is ready to move, rather than imputing our own biases to the pattern.

Lastly, Chart 7A shows a weekly chart of software maker Novell, with prices falling steadily from mid-July through October 1999. Not unlike in the previous example of Ames Department Stores, Novell loses roughly fifty-percent of its value over a multi-month period. Beginning in October, a period of consolidation occurs in which a distinct 14-15 day cycle emerges (Chart 7B). By mid-December, ADX has declined to sub-20 levels, a point at which we have normally come to expect a breakout (Chart 7C). Although I have highlighted the detail around this pattern to simulate a classically styled "complex" or "irregular" head-and-shoulders bottom reversal, this was done purely in hindsight. The point is that such interpretations are open to wide debate; no doubt many technicians could have found different "classical" patterns in the chart prior to the upside resolution of prices in Novell in December 1999.

Final Thoughts

Merely stating a technical observation does not elevate it to the status of eternal truth. Yet, distilling our observations into strict rules also has its drawbacks; fixed rules inevitably fail to address the exceptional cases. The conceptual model offers a possible middle ground. It attempts to remove some of the subjectivity involved in chart pattern analysis while still permitting flexibility. The model is useful, even if it is not always an absolute indicator, if it helps us to understand the nature of the relationship between trending and non-trending markets, and how changes in volatility reflect changes in overall supply and demand.

We have seen how higher volatility coincides with the early stages of chart pattern development and declining volatility with the later stages. This has a logical basis: A more active market attracts and supports more participants, and hence more gross supply and demand – or total investor interest – than does a less active market. Any sudden changes in supply or demand in a less active or "quiet" market can result in sharply higher or sharply lower quotes due to a sheer lack of available buyers or sellers, hence resulting in what we commonly refer to as a pattern "breakout." In the case of the

structure component, we have seen examples of how chart patterns, regardless of whether they be reversal or continuation patterns in "classical" terms, can be set apart from trends by their characteristic periodicity and wave structure.

If we accept the idea that classical chart patterns can be broadly characterized by general conditions, rather than by a variety of pattern "shapes," then perhaps classical chart patterns are truly not the products of wishful or delusional thinking as some critics allege. Unlike UFOs, we can point to evidence that supports chart pattern existence in the form of the volatility and structure components. In addition, we can utilize this "template" view of chart pattern construction to help us locate and trade patterns without debating over myriad chart pattern definitions and their directional significance.

Thanks

Don Dillistone responded to my request for background information on charting and pointed me towards specific resources in the MTA library; John McGinley also offered several suggestions. Bruce Kamich graciously provided copies of out of print material by D.G. Worden. Alan M. Newman provided copies of material by Gerhard Aschinger. Mike Moody offered help in verifying background information.

Footnotes

1. Fosback, Norman G. [1976]. *Stock Market Logic*, Dearborn Financial Publishing, Inc., pp. 213-214.
2. John Murphy, Louise Yamada, Alan Shaw, Justin Mamis, Ned Davis, Alex Saitta, Bruce Kamich, Ralph Bloch, William O'Neil, John Tirone, Peter Brandt – these names represent a sample of well known market analysts and traders who utilize classical chart patterns.
3. Shaw, Alan R. [1988]. *Technical Analysis – reprinted from Financial Analyst's Handbook*, Dow Jones-Irwin, Inc., pp. 313.
4. Dines, James [1972]. *How the Average Investor Can Use Technical Analysis for Stock Profits*, Dines Chart Corp., pp. 171. Dines was paraphrasing – Worden, D. G., [date unknown]. Article "Tape Reading in an Old and New Key" in the Encyclopedia of Stock Market Techniques, pp. 820.
5. Murphy, John J. [1986]. *Technical Analysis of the Futures Markets*, New York Inst. of Finance, pp. 322-323.
6. Murphy, John J. [1986]. *Technical Analysis of the Futures Markets, New York Inst. of Finance*, pp. 322-323.
7. Edwards, Robert D. and Magee, John [1992]. *Technical Analysis of Stock Trends*, John Magee Inc., pp.203.
8. Edwards, Franklin R. and Ma, Cindy W., [1992]. *Futures and Options*, McGraw-Hill, Inc., pp. 444.
9. Osler, C.L., and P.H. Kevin Chang [1995]. "Head-and-shoulders: Not just a flaky pattern," paper, Federal Reserve Bank of New York, August.
10. Saitta, Alex [1998]. "Reversal Formations: Predictive Power?," article, Technical Analysis of Stocks and Commodities, November.
11. Shaw, Alan R. [1988]. *Technical Analysis – reprinted from Financial Analyst's Handbook*, Dow Jones-Irwin, Inc., pp. 316-317.
12. Koy, Kevin [1986]. *The Big Hitters*, Intermarket Publishing Corp., Interview with Robert Prechter, pp.159.
13. Schabacker, Richard W. [1930]. *Stock Market Theory and Practice*, B. C. Forbes Publishing Co., pp. 601.
14. Schabacker, Richard W. [1930]. *Stock Market Theory and Practice*, B. C. Forbes Publishing Co., pp. 626.
15. Roth, Phil [1997]. *Technically Speaking*, interview, Traders Press, Inc., pp. 346.
16. Schabacker, Richard W. [1932]. *Technical Analysis and Stock Market Profits*, Pitman Publishing, pp. 296.
17. In just one example, the headline of Louis Rukeyser's March 1997 newsletter declares: "Leaving History to the Elves, This Market's Charting Its Own Course." Rukeyser goes on to say in big, bold print "The typical elf lives in the demonstrably vain hope that even-short term market action is scientifically predictable, if only one can tweak the chart one more time."
18. Schabacker, Richard W. [1930]. *Stock Market Theory and Practice*, B. C. Forbes Publishing Co., pp. 658.
19. Schabacker, Richard W. [1934]. *Stock Market Profits*, B. C. Forbes Publishing Co., pp. 101.
20. Schabacker, Richard W. [1934]. *Stock Market Profits*, B. C. Forbes Publishing Co., pp. 101.
21. Aschinger, Gerhard [1998]. "Reflections on the Crash," article in the Swiss Bank Corp. journal: Economic and Financial Prospects, August/September issue.
22. Brandt, Peter L. [1990]. *Trading Commodity Futures with Classical Chart Patterns*, Advanced Trading Seminars, pp.14-28.
23. In the literature of Schabacker, Wyckoff, Edwards and Magee, Jiller, Brandt et al., there is general consensus that bar chart patterns are at best fallible as forecasting tools. Schabacker connives to place above average confidence in the predictiveness of some chart patterns, but not without disclaimers such as: "…accurate analysis depends on constant study, long experience and knowledge of all the fine points…" (*Stock Market Profits*, pp. 35.)
24. Lefevre, Edwin [1923], *Reminiscences of a Stock Operator*, John Wiley & Sons, Inc., pp. 125.
25. Gann, William D. [1923]. *The Truth of The Stock Tape*, Financial Guardian Publishing Co., pp. 125.
26. In the book *Martin Pring on Momentum*, International Institute for Economic Research, [1993], pp. 200, Pring gives an explanation of how ADX can be used to indicate declining "directional movement" as a precursor to new market trends.

References

- Brandt, Peter L. [1990]. *Trading Commodity Futures with Classical Chart Patterns*, Advanced Trading Seminars
- Dewey, Edward R. and Dakin, Edwin F., [1947]. *Cycles -The Science of Prediction*, Henry Holt & Company, Inc.
- Dice, Charles A. and Eiteman, Wilford J. [1941]. *The Stock Market*, McGraw-Hill, Inc.
- Dines, James [1972]. *How the Average Investor Can Use Technical Analysis for Stock Profits*, Dines Chart Corp.
- Edwards, Franklin R. and Ma, Cindy W., [1992]. *Futures and Options*, McGraw-Hill, Inc.
- Edwards, Robert D. and Magee, John [1992]. *Technical Analysis of Stock Trends*, John Magee Inc.
- Forsyth, Randall W., [April 28, 1995]. *Fed Gets Technical*, Barron's, page MW10, Dow Jones & Co., Inc.
- Fosback, Norman G. [1976]. *Stock Market Logic*, Dearborn Financial Publishing, Inc.
- Foster, Orline D. [1935]. *The Art of Tape Reading*, Ticker Technique, Investor's Press, Inc. – 1965 ed.

- Frost, John and Prechter, Robert. [1978] *Elliott Wave Principle*, New Classics Library, Inc.
- Gann, William D. [1923]. *The Truth of The Stock Tape*, Financial Guardian Publishing Co.
- Hamilton, William P. [1922]. *The Stock Market Barometer*, Harper & Brothers Publishers.
- Hurst, J. M. [1970]. *The Profit Magic of Stock Transaction Timing*, Prentice-Hall, Inc.
- Jiller, William L. [1967]. *How Charts Can Help You in The Stock Market*, Trendline.
- Kaufman, Perry J. [1987]. *The New Commodity Trading Systems and Methods*, John Wiley & Sons, Inc.
- Koy, Kevin [1986]. *The Big Hitters*, Intermarket Publishing Corp.
- Lefévre, Edwin [1923]. *Reminiscences of a Stock Operator*, John Wiley & Sons, Inc.
- Murphy, John J. [1986]. *Technical Analysis of the Futures Markets*, New York Institute of Finance.
- Nixon, John Brooks, Jr. [1958]. *The Seven Fat Years: Chronicles of Wall Street*, Harper & Brothers Publishers.
- Plummer, Tony [1989]. *The Psychology of Technical Analysis*, Probus Publishing Company.
- Pring, Martin J. [1993]. *Martin Pring on Market Momentum*, Institute for Economic Research, Inc.
- Schabacker, Richard W. [1930]. *Stock Market Theory and Practice*, B. C. Forbes Publishing Company.
- Schabacker, Richard W. [1932]. *Technical Analysis and Stock Market Profits*, Pitman Publishing – 1997 ed.
- Schabacker, Richard W. [1934]. *Stock Market Profits*, B. C. Forbes Publishing Company.
- Schultz, Harry D. [1966]. *A Treasury of Wall Street Wisdom*, Investor's Press, Inc.
- Shaw, Alan R. [1988]. *Technical Analysis – reprinted from Financial Analyst's Handbook*, Dow Jones-Irwin, Inc.
- Sheimo, Michael – *"Michael Sheimo on Dow Theory"* – Technical Analysis of Stocks & Commodities, June 1998.
- Sklarew, Arthur [1980]. *Techniques of a Professional Commodity Chart Analyst*, Commodity Research Bureau.
- Sperandeo, Victor [1991]. *Trader Vic - Methods of a Wall Street Master*, John Wiley & Sons, Inc.
- Pistolese, Clifford [1994]. *Using Technical Analysis*, McGraw-Hill, Inc.
- Wilkinson, Chris [1997]. *Technically Speaking*, Traders Press, Inc.
- Wyckoff, Richard D. [1910]. *Studies in Tape Reading*, Fraser Publishing Company, Wyckoff/Stock Market Institute, *Course Units 1 and 2.* SMI, Phoenix, AZ tel: (609)-942-5165.

Biography

After graduation from Babson College in 1988, Dan Chesler began his career as a cash commodity trader, buying and selling in diverse markets ranging from industrial tomato paste to wheat and corn. Dan joined the Louis Dreyfus Group of companies in 1992 as a price-risk manager where he helped manage the world's largest citrus products hedging and arbitrage program. In 1996 he worked as an analyst and trading assistant for a medium sized, managed futures fund. Currently he is a partner in a Miami based proprietary trading firm. Dan lives near Palm Beach, Florida.