

Martin Pring on Price Patterns

**The Definitive Guide to
Price Pattern Analysis
and Interpretation**

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McGraw-Hill
New York Chicago San Francisco
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Introduction

In 2002, McGraw-Hill published eight of my books and book/CD-ROM tutorial combinations. As an author, I can tell you that that was a lot of work, and one of my 2003 New Year's resolutions was that enough was enough and I would not write another book for many years. So much for resolutions, because 2003 has seen the birth of this book and the DVD presentation that is enclosed in the back, and 2004 will see their publication.

I first got the idea of writing this book after bumping into Rick Escher of Recognia. Recognia is an Ottawa-based software company that is dedicated to offering scanning techniques for investors and traders. Its principal vehicle for this was originally chart pattern recognition, although this has been and will be expanded to include other technical and possibly fundamental indicators. Accurate scanning software for chart pattern recognition has been one of the dreams of technicians for years, and the opportunity to work with Recognia on this project and the ability to offer it on our Web site at pring.com got me excited enough to come up with this book.

For those interested, the DVD enclosed at the back of the book offers a one-hour presentation taken from my *Live in London* video series. The contents have been selected to reinforce many of the topics covered in the book.

Several classic books on technical analysis have covered the subject of price patterns in depth. In the 1930s, R. W. Shabacker wrote several books on the stock market, of which *Technical Analysis and Stock Market Profits* is the most relevant. H. M. Gartley included a large section on this subject in *Profits and the Stock Market*. Perhaps the most notable has been Edwards and Magee, *Technical Analysis of Stock Trends*, originally published in 1951 and now, under the new editorship of Charles Basatti, expanded to include other technical and portfolio management subjects. There is therefore a raft of information available on this subject, so why offer more? The answer prob-

ably lies in the statement, "There is more than one way to skin a cat." In the old days, when charts were plotted by hand, time horizons were much longer. Today, with the advent of intraday trading, more emphasis is being placed on the short term. While a substantial number of the examples featured here rely on daily and weekly charts, quite a few intraday situations have also been included.

The more I study market action, the more I am impressed by the fact that prices are determined by the attitudes of market participants toward the emerging fundamentals. Consequently, I have tried to expand on the discussions in other books concerning the psychological rationale for many of the patterns. If it's possible to understand the logic behind these patterns, there is a greater probability that they will be more accurately—and, hopefully, more profitably—interpreted.

A whole section of the book has been devoted to what I call one- and two-bar price patterns. These formations typically indicate exhaustion and are often followed by sharp and timely reversals in trend. They are especially suited to the swing and day trader, who is forced by time constraints to act quickly. Earlier books covered some of these patterns, but one of the objectives of this book is to expand on this coverage with some ideas of my own.

In addition, I have tried to include a few patterns that are not described in the classic texts, along with a few personal variations. Also, there are some patterns that are described in other books, but that you will not find here. There are two reasons for this. First, it may be that they do not appear in the charts very often. If I have to hunt through hundreds of years of daily data and am hard-pressed to find an example of a specific pattern, that pattern is hardly of practical day-to-day use. Second, some patterns, such as orthodox broadening tops and bottoms, trigger signals so far away from the reversal point that much of the new trend's potential has already been achieved. Discussion of such formations has been kept to a minimum or eliminated altogether. So, too, have explanations of patterns where the demarcation boundaries cannot easily and conveniently be drawn. Diamonds and rounding formations come to mind.

No indicator used in technical analysis is perfect, including price patterns. In this respect, Chapter 18 summarizes some of the research that Pring Research and Recognia have undertaken through the identification of 5,000 patterns between 1982 and 2003. The results indicate that the two types of formation tested, head-and-shoulders and double tops and bottoms, generally work when the signals develop in the direction of the primary trend. This demonstrates that correct interpretation and application, when combined with other indicators, will put the odds in your favor. I say *odds* because technical analysis deals only in probabilities, never in certainties. Because of this, it is of paramount importance for all market participants

to first ask the question “What is my risk?” before asking the obvious “What is my reward?” This involves mentally rehearsing where the price would need to go in order to indicate that a pattern had failed. Any good driver looks through the rearview mirror prior to overtaking the car ahead. Traders and investors should do the same by identifying risk before assessing any potential reward

Acknowledgments

There are several people whom I would like to thank for their help and encouragement in writing this book. The idea originally came to me after I bumped into my new friends at Recognia, a Canadian software company devoted to pattern recognition software. In particular, I would like to thank the president of Recognia, Rick Escher, who has provided me with several ideas and has made possible the launching of a pattern recognition subscription service at our Web site, pring.com. My thanks go also to Bob Pelltier at csidata.com for kindly providing the historical data used for the research in Chapter 18.

The DVD at the back of the book was shot as part of a *Live in London* video series. Permission to include the excerpts featured in the DVD was generously given by my friend and the sponsor of the conference, Vince Stanzione, at www.commodities-trader.com. United Kingdom-based traders looking for some quality instruction may well want to look him up.

Finally, and as usual, exceptional thanks goes to my wife, Lisa, who steadfastly applied herself to re-creating all the illustrations featured in the book from my miserable original specimens despite a house move and personal sadness caused by a close family bereavement.

18

How Do Price Patterns Test?

This chapter sets out the results of computer-recognized price patterns in several U.S. industry groups. The research was based on criteria that I defined and was conducted by Rick Escher and his team at Recognia Inc. (<http://www.recognia.com>), to whom I owe a big debt of gratitude. Historical data used for the testing were kindly provided by Bob Peltier, president of Commodity Systems Inc. (<http://www.csidata.com>), the world's most comprehensive provider of commodity futures data. Recognia is an investment research company devoted to stock screening using sophisticated analytics, principally technical event analysis and chart pattern recognition. The technology was originally developed for British military use, and Recognia has enhanced it for the financial markets. Recognia's research and its online tools are available through several brokerage houses and through a special subscription service whose principal objective is price pattern screening at www.pring.com.

Basic Problems in Price Pattern Evaluation

At first glance, one might think that the recognition process is fairly simple. This is certainly true for evaluation of, say, moving-average crossovers or other statistically derived indications of trend changes. Evaluating price patterns, on the other hand, is not an easy process, because the interpretation of these patterns is a very subjective. Patterns first have to be recognized, and what is one man's head-and-shoulders top may not be another's. As an example, I defined a head-and-shoulders top earlier as a final rally

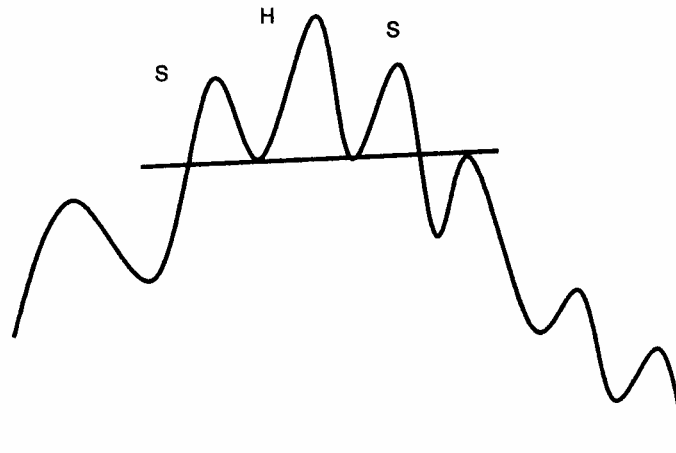


Figure 18-1a Symmetrical head and shoulders.

separated by two smaller rallies. Figure 18-1a offers a classic symmetrical example that virtually everyone could agree on. Figure 18-1b, on the other hand, meets the criteria of a final rally separated by two smaller ones, but it would be far more controversial because of the steepness of the neckline and the extremely small left shoulder. A judge in a vice case some years back said when defining pornography, “I know it when I see it.” The same is really true of most price patterns, since very few are formed with the classic appearance defined in the textbooks.

Designing software to interpret price patterns is therefore an extremely difficult and complex task. Recognia has a parameter that allows its patterns

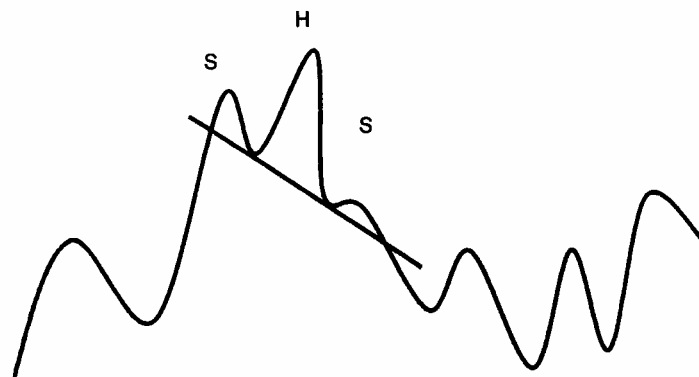


Figure 18-1b Downward-sloping head and shoulders.

to be classified according to a consensus rating—a fuzzy logic measure of a pattern’s closeness to the pattern ideal and of the strength of the prior trend (Recognia calls this the “inbound trend”). In our research, we originally ignored the consensus rating, which meant that all patterns, regardless of the prior trend and the pattern’s closeness to the ideal, were included. It is reasonable to ask the question, “Why not search for patterns with a consensus rating of 50 percent or 100 percent?” The answer is that this resulted in so few patterns that it rendered the research statistically invalid. In the end, we chose to use patterns that had a consensus rating of zero or higher. This meant that the prior trend was taken into consideration when selecting bottom and top patterns, but that all patterns meeting the recognition threshold were considered in the statistical analysis. From a practical point of view, though, the patterns returned by the Recognia search engine at pring.com have been filtered with a 50 percent consensus rating.

Once a pattern has been correctly identified, there is also the question of measuring whether the formation has been successful. If a bullish pattern immediately rallies to its price objective, there will be little dispute (Fig. 18-2*a*). On the other hand, if the price breaks up, declines well into the body of the pattern, and subsequently advances to the objective (Fig. 18-2*b*), is this a profitable situation? After all it is quite probable that in the interest of good risk management, any responsible trader would have liquidated the position during the postbreakout decline, when it appeared that the pattern might have failed.

Recognia devised a way to get around this problem by treating all patterns equally, basing the results on price as a percentage of the pattern’s confirmation price and projected time periods of pattern length. In this way, it was possible to statistically compare patterns of differing duration and price

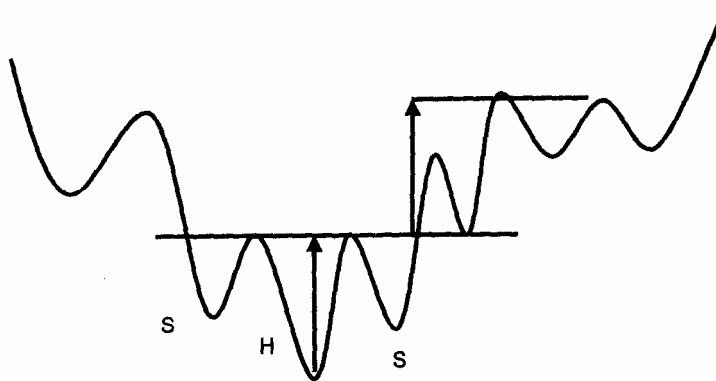


Figure 18-2a Head-and-shoulders bottom.

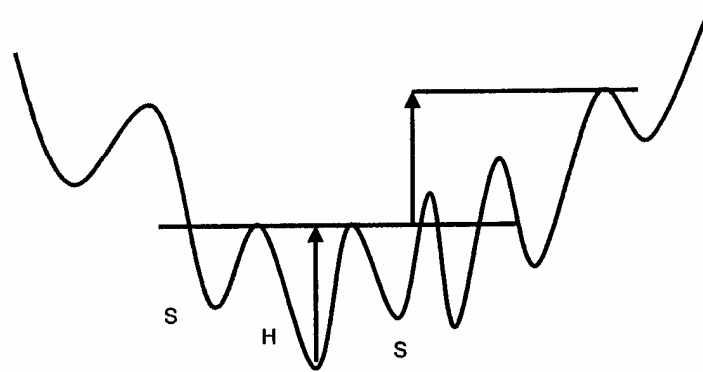


Figure 18-2b Head-and-shoulders bottom with hesitant breakout.

and to offer a statistical projection of reliability for all breakouts. Had we used some form of loss limitation, it is very probable that the results from these patterns would have been far better. I will explain the pattern length concept later.

What Was Tested?

For the purpose of this test, we decided to use two patterns, head-and-shoulders and double bottoms and tops. Recognizing the influence of industry trends on individual stocks and the importance of the direction of the primary trend, we chose four major sectors: financial, energy, transportation, and retail. With the benefit of hindsight, we were able to categorize primary-trend bull and bear markets for each sector during the 1982–2003 period. Stocks from individual sectors were identified from a database of close to 14,000 U.S. equities.

In order for a pattern to qualify as a legitimate reversal pattern, there had to be something to reverse. For purposes of identification, therefore, the Recognia consensus rating allows for the existence of what Recognia called an inbound trend.

In one way, the results are biased in that we already knew the direction of the primary trend, which is obviously not possible in real time. On the other hand, since the testing permitted a theoretically unlimited loss from short sales or a 100 percent loss from long positions, the research results are adversely affected, since they did not take into consideration the possibility of limiting the losses from failed patterns through prudent money management.

The Concept of L

The price behavior following a pattern's confirmation was evaluated in segments that reflected the time taken for the pattern to form. This permitted patterns of differing duration to be compared on an equal basis. For example, if it took 50 days to complete a formation, this time duration was defined as one L, or length. The period following the breakout was then measured in units of L, up to a maximum of 5 L. In the example of a 50-day pattern, 5 L would be 250 days. This approach made it possible to appraise performance over several time segments for individual patterns of varying length.

The price behavior following a pattern's breakout was evaluated in segments of time that represent 10 percent of the pattern's length (0.1 L). Thus, if a 52-day head-and-shoulders bottom pattern was identified, then its postbreakout prices were evaluated in segments of 5 days (52 divided by 10 rounded down to a whole number).

The closing prices for these 5 days were averaged, then the result was divided by the closing price on the day of pattern confirmation (breakout). Multiplying by 100 yielded the average price over the interval expressed as a percentage of the pattern's closing price on the day of confirmation (breakout). This process was continued for each 5-day interval through to 5 L, or 50 intervals (10 intervals per L times 5 Ls equals 50).

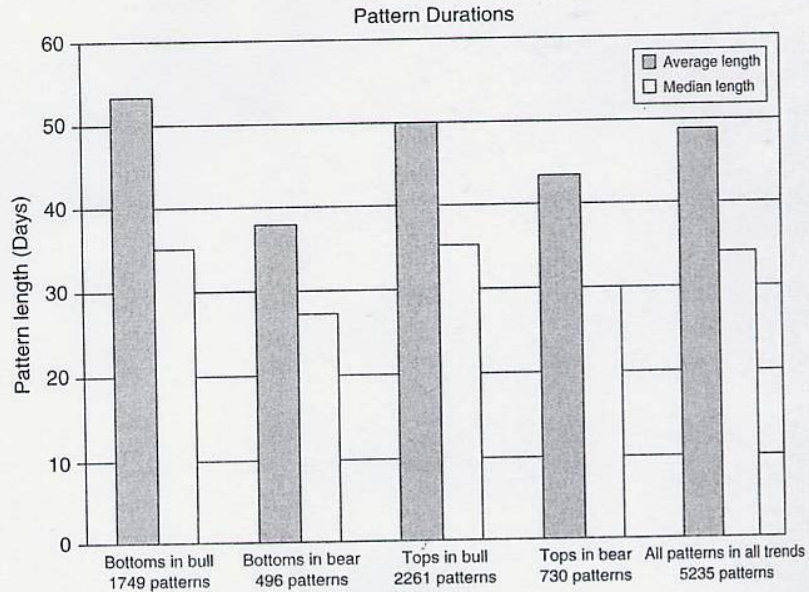
One factor that could potentially affect the analysis was when some part of the 5 L projection developed after a primary-trend reversal had taken place. Thus the results of, say, a bullish pattern could well be partially evaluated after a bear market was underway. This was addressed by terminating the analysis at the bull/bear boundary. This ensured that the post-turning point results were excluded from the calculation for subsequent periods of 0.1 L.

Aggregate Results

In total, 5,235 patterns were identified. Chart 18-1 shows the average and median length for tops and bottoms in both bull and bear primary-trend environments. The average length did not vary very much, though the time taken to form patterns was slightly less in primary bear markets than in primary uptrends. For all 5,000 formations, the average was around 49 trading days or 10 calendar weeks. This is interesting, since 10 weeks or 50 days is a moving average that is widely used by many technicians.

Since we were able to split the data into primary bull and bear markets, it was possible to categorize the results as pro- and contra-trend signals. Note that the standard of success in this research is based on the percentage of

Chart 18-1 Tested pattern durations in different environments.

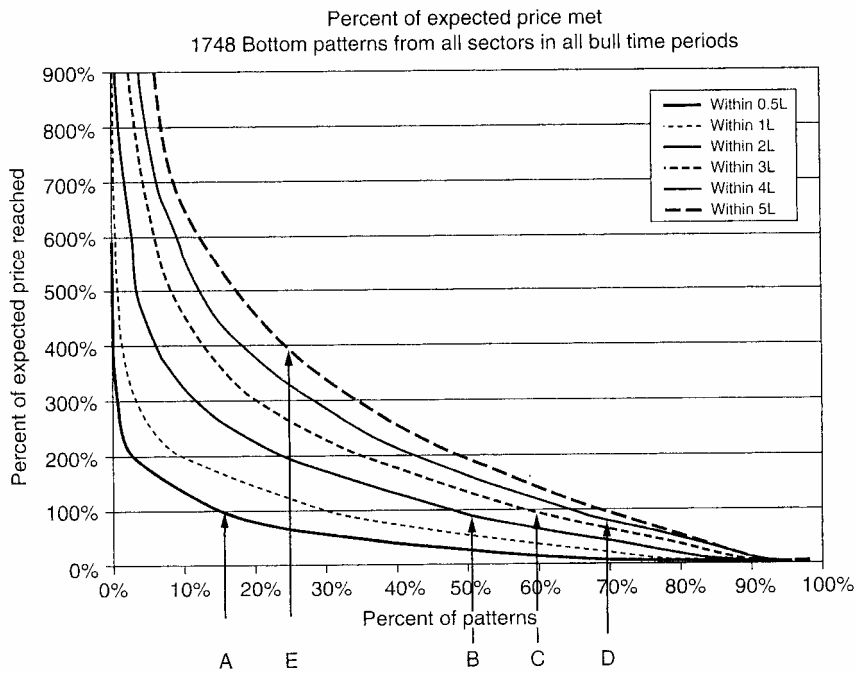


the objective being attained, not on profitability. This is a stricter assessment, since a profitable pattern could fall well short of the objective.

Pro-Trend Signals

Aggregate results for all four patterns (head-and-shoulders tops and bottoms and double tops and double bottoms) are shown in Charts 18-2 and 18-5 to 18-7. Chart 18-2 reflects the bottoming patterns during primary bull markets. The Y axis represents multiples of the price objective. Thus, the 100 percent line is the price objective, the 200 percent line is twice the objective, and so on. Objectives were calculated by projecting the point depth of the pattern upward from the point of breakout. The X axis shows the percentage of patterns reaching a particular level. Finally, the six curves represent the results for a specific multiple of the pattern length (L). Thus, at point A we can see that approximately 15 percent of all patterns had reached their price objective within half the time that the pattern itself took to form, i.e., 0.5 L. At point B, about half the sample (50 percent) had reached their objective within twice the time that it took for the pattern to

Chart 18-2 Bullish breakouts in bull markets.



develop (i.e., 2 L). By point C, for 3 L, approximately 60 percent of all patterns had achieved their objective. Finally, nearly 70 percent of all patterns in bull markets had achieved their objective by 5 L (point D).

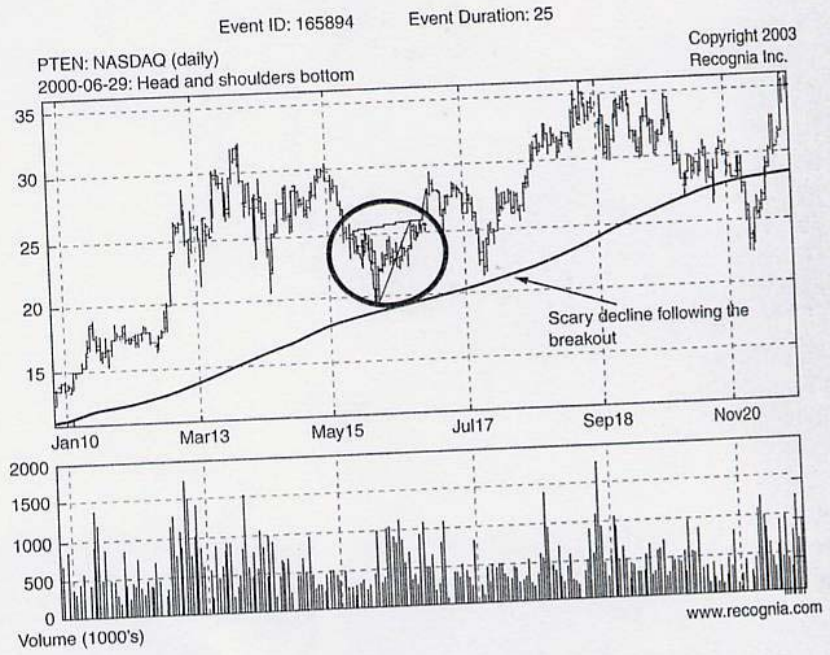
To put it another way, there was a 70 percent chance that the price objective would be achieved within five times the time needed to form the pattern. For example, if a pattern took 30 days to complete, there was a 70 percent chance that the objective would be achieved within 150 days. Some objectives would be achieved earlier, say in 30 days, but in this example, 70 percent of all patterns would have attained their objectives by day 150. Arguably more impressive is the fact that approximately 25 percent of all patterns (point E) achieved 400 percent of their objective (four times the objective) within five pattern lengths (5 L).

It's important to understand that from a practical point of view, some of these results are not as good as they look. This is because the path to the objective is rarely a straight line and can often be quite fickle. In other words, a pattern may reach its objective or a multiple thereof, but its volatility before it gets there could easily frustrate the trader, resulting in liquidation

Chart 18-3 Bullish breakout—good example.



Chart 18-4 Bullish breakout—bad example.

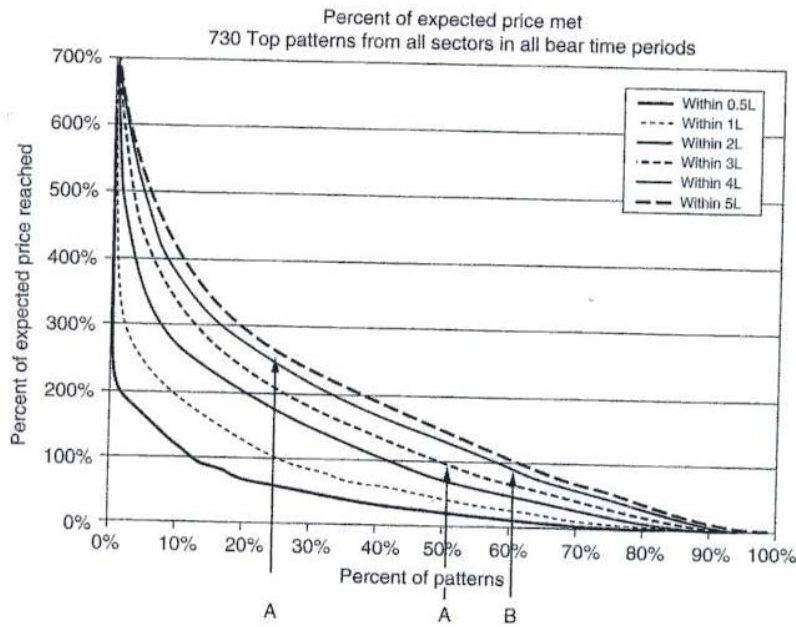


before the objective is reached. That is one reason why it does not make sense to trade on price patterns alone. It is important to also check that momentum is not *unduly* overextended at the time of the breakout and so forth. The word *unduly* has been emphasized because it is very likely that momentum will be partially overextended to some degree at the time of most breakouts. It is often a good idea to check the momentum calculated from a time frame higher than the one that is being traded. For example, anyone who is trading off the daily charts with a two- to three-week horizon should check momentum indicators based on intermediate time frames, and so on.

Charts 18-3 and 18-4 illustrate the point made earlier concerning volatility. Chart 18-3, for example, offers a classic result with a more or less immediate move toward a multiple of the objective. On the other hand, Chart 18-4 shows a far more difficult situation. The objective was easily obtained, but not before a nerve-shattering decline well into the body of the formation.

Chart 18-5 shows that the results from tops in primary bear markets were not as reliable as those from bottoms in bull markets, since it took 3 L before half the sample reached its objective. This compares to only 2 L for the bottoms in bull markets. By the same token, point B shows that it took 4 L

Chart 18-5 Bearish breakouts in bear markets.



before 60 percent of tops reached their target, whereas bottoms took only 3 L. Finally, 25 percent of all patterns reached approximately 270 percent of their objective by 5 L. This compared to a 400 percent achievement for 25 percent of bullish patterns in bull markets.

Contra-Trend Signals

Not surprisingly, contra-trend signals (e.g., bullish patterns in bear markets) did not perform as well as breakouts that developed in the direction of the primary trend. In Chart 18-6, we see that only about 55 percent of all bullish breakouts in bear markets achieved their objective by 5L (point A). This compares to 70 percent for positive breakouts in bull markets. Moreover, the magnitude of most breakouts was far less. In the case of the pro-trend moves, 25 percent of patterns achieved 400 percent of their target, but for positive breakouts in bear markets, the corresponding percentage sank to just over half that level (point B).

In Chart 18-7, only about 43 percent of tops in bull markets reached their objective within 5L, compared to around 62 percent in bear markets (point A).

Chart 18-6 Bullish breakouts in bear markets.

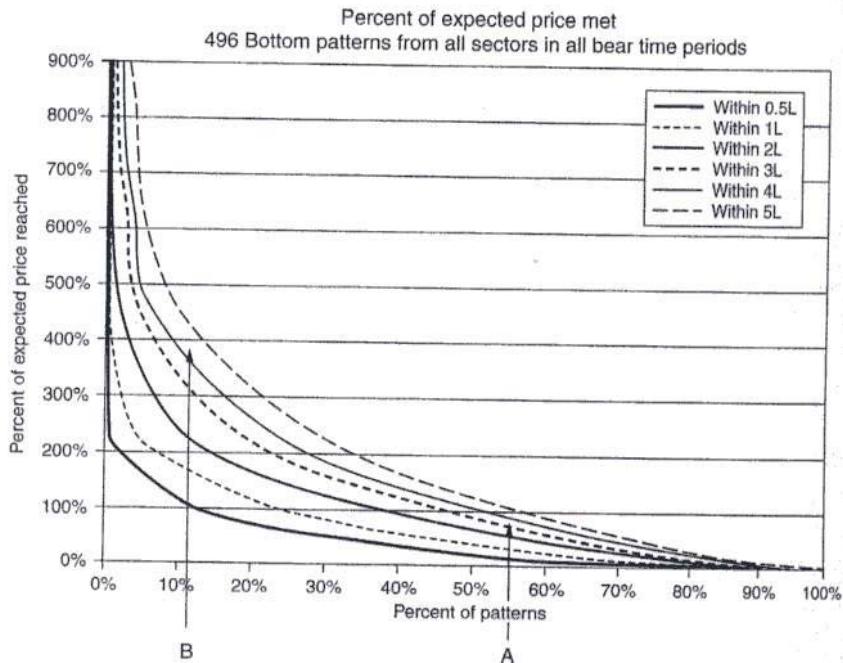
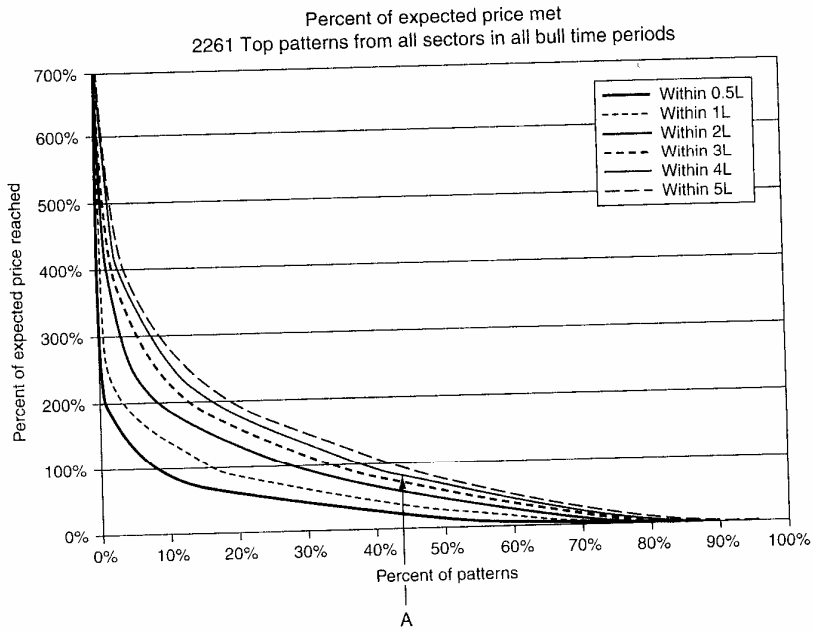


Chart 18-7 Bearish breakouts in bull markets.



While we obviously cannot say that all contra-trend breakouts will fail, the research definitely confirms that the odds of success are greatly increased with signals that develop in the direction of the prevailing primary trend.

Conclusion

This research strongly suggests that price patterns, at least the head-and-shoulders and double varieties, work. Pro-trend signals are much more likely to result in positive returns than contra-trend signals. Unfortunately, a tight publishing schedule did not permit a more thorough examination of the results or the possibilities of testing for other ideas—for instance, objectives based on percentage measurements as opposed to point or dollar moves, or the ability to limit losses once a price had seriously broken back into the body of the formation. It would also have been interesting to assess the results by limiting the identified patterns to slightly more stringent consensus ratings to see if the results would have changed any.