

Chapter 18: Technical Analysis

CHAPTER OVERVIEW

Chapter 18 is a straightforward discussion of technical analysis without going too far in trying to explain the myriad details involved in doing technical analysis. As such, it is a good balance between the tools and techniques typically discussed and used in sources that investors might see and the exact steps involved in implementing them. The focus is on a basic description of the techniques and a look behind the concepts involved.

The what and why of technical analysis is developed at the beginning of the chapter, including an overall framework for technical analysis. This discussion provides a foundation for an overall understanding of the subject.

The chapter is organized along two major themes. The first involves stock price and volume techniques. We start with the Dow Theory and then consider charts of price patterns. Again, only the highlights are included because of the voluminous nature of this material and the difficulty in knowing what is the correct interpretation to present. Included here are the best known patterns of stock prices as presented by an article in the popular press. Moving averages are covered here, as is relative strength.

The second organizational theme is technical indicators, such as the advance-decline line, new highs and lows, volume, sentiment indicators as illustrated by the short-interest ratio, the opinions of investment advisory services, mutual fund liquidity, and the CBOE put/call ratio. Each of these indicators is explained in enough detail to make them understandable without getting bogged down in too many how-to details.

An important part of this chapter involves the testing of technical analysis strategies. It is very important to understand how to construct proper tests of various techniques advocated in investments literature. Finally, some conclusions about technical analysis are presented in detail in order to get students thinking about the issues and the logic of technical analysis.

Chapter 18 seeks a balance between the conceptual and the descriptive. It attempts to make a fair presentation of the case for technical analysis, but makes it clear that skepticism is warranted although the techniques have not been completely

refuted. Ideally, students will come away with an understanding of what must occur for technical analysis to work, and the likelihood of that occurring. Hopefully, they will think logically about what is involved here, and how likely it is to really work--particularly in the case of charts of stock prices.

Clearly, this chapter can be related back to Chapter 10 concerning market efficiency.

CHAPTER OBJECTIVES

1. To present the basics of technical analysis so students will know what it is all about.
2. To outline the major techniques and tools of technical analysis so that students can properly classify them.
3. To present the conceptual issues involved in technical analysis so that students will think about what is being done, and the likelihood of success.

MAJOR CHAPTER HEADINGS [Contents]

What is Technical Analysis?

[the use of market data: price and volume information; what technicians believe; a summary of key points about technical analysis]

! A Framework for Technical Analysis

[diagram outlining the framework; market vs. individual stocks; techniques vs. charting]

Stock Price And Volume Techniques

! The Dow Theory

[bull and bear market; primary and secondary movements; discussion of how the theory is typically interpreted; criticisms of the theory]

! Charts of Price Patterns

[support and resistance levels; bar and point-and-figure charts; some evidence on price charts by Levy]

! Moving Averages

[50-day and 200-day moving averages; *signals*]

! Relative Strength

[strength of a stock relative to an index; how relative strength is often used; chart depicting relative strength]

! Obtaining Charts to Use in Technical Analysis

[sources of charts, widespread availability]

Technical Indicators

! Breadth Indicators

[Advance-Decline line is compared to a market average; new highs and lows--how these are used as signals; volume--high trading volume is generally a bullish sign]

! Sentiment Indicators

[short-interest ratio; the opinion of investment advisory services; mutual fund liquidity; CBOE put/call ratio]

Testing Technical Analysis Strategies

[adjustments necessary to conduct a fair test of a trading rule; discussion of filter rules]

Some Conclusions About Technical Analysis

[logical reasons why it probably does not work]

POINTS TO NOTE ABOUT CHAPTER 18

Tables and Figures

There are no tables in Chapter 18.

Figure 18-1 is designed to organize the chapter, outlining the technical analysis approach to common stock selection.

Figure 18-2 illustrates the Dow Theory and can be omitted from discussion if desired.

Figure 18-3 illustrates bar charting. Individual instructors will have to decide how much emphasize to give this material. This figure is designed to show students the basics of a chart of stock prices.

Figure 18-4, from a popular press article, illustrates the important price patterns for investors when using charts. This figure will give students a good feel for what many technicians are typically searching for when they study charts of stock prices.

Figure 18-5 illustrates a point-and-figure chart. The same discussion presented above for Figure 18-3 applies here. This type of chart is much less important than the bar chart to most technicians, and can be commented on very quickly, if at all.

Figure 18-6 shows a bar chart for Coca Cola and illustrates moving averages as they are often shown in technical analysis. In this case both a 50-day and a 200-day moving average are shown.

Figure 18-7 illustrates the relative strength technique. This technique is widely seen (for example, in the chart of each company covered by Value Line).

Box Inserts

Box 18-1 is a brief excerpt on the Dow Theory from *The Wall Street Journal*. It covers both the technique itself and the continuing debate on its usefulness. It is a good, succinct discussion of the Dow Theory.

ANSWERS TO END-OF-CHAPTER QUESTIONS

- 18-1. The *rationale of technical analysis* can be summarized as:
- (a) Prices are determined by the forces of demand and supply.
 - (b) Many factors affect demand and supply, including fundamental factors as well as market psychology factors.
 - (c) Stock prices tend to move in trends as they adjust to a new equilibrium level.
 - (d) Trends can be analyzed, and changes in trends detected, by studying the action of price movements and trading volume over time.
- 18-2. **Fundamental analysis** uses a present value model (or, alternatively, a P/E model) to produce an estimate of a stock's intrinsic value, which is then compared to the market price. It is based on fundamental economic variables such as earnings and dividends.
- Technical analysis** involves the use of published market data (price and volume information) to predict short-term price movements in either individual stocks or the market. Technicians attempt to forecast trends in price changes.
- 18-3. Technicians assume that there is a gradual adjustment of stock prices from one equilibrium to another. As this adjustment occurs, prices tend to move in trends.
- 18-4. Price and volume are the primary tools of the technical analyst. Volume data are used to gauge the general condition in the market and to help assess its trends. Thus, volume information is used in conjunction with price information to help confirm rising or falling trends.
- 18-5. The **Dow Theory** is used to predict movements in the stock market. Specifically, it is designed to detect the start of a primary movement (a broad market movement that lasts years).

The confirmation signal is important in interpreting the Dow Theory. A movement is not validated until the Transportation Average confirms the primary movement in the Industrials. The trend will continue as long as the averages confirm each other. (The determination of

confirmation, however, is up to each user.)

- 18-6. The Dow Theory does not forecast how long the primary movement will last.
- 18-7. With a **moving average**, a general sell signal occurs when actual prices decline through the moving average on high volume.
- 18-8. The advance-decline line measures (on a cumulative basis) the net difference in the number of stocks advancing in price and the number of stocks declining in price. The net advance (or decline), therefore, reflects the breadth of the market, or whether the majority of issues are rising or declining in price.
- 18-10. The rationale for the traditional theory of contrary opinion is that some investors almost always lose. These investors include the small investor, supposedly unsophisticated and usually wrong in his or her actions. The idea is to trade opposite (contrary) these investors.

A newer theory (e.g., Dreman's) of contrary opinion is that most investors, including institutional investors, are often wrong and that it pays to do the opposite of what they are doing. One way to do this is to buy low P/E stocks, which are not popular at the time.

- 18-11. The odd-lot index is calculated as:

$$\text{odd-lot index} = \frac{\text{odd-lot sales}}{\text{odd-lot purchases}}$$

A decline in this index indicates more purchases (relative to sales) by small investors. Therefore, according to contrary opinion, it is time to sell and go against this group.

- 18-12. A rising short interest ratio is considered to be a bullish indicator because a high short interest represents a large number of shares that must be repurchased in order to close out the short sale. The larger the short sale ratio, the larger the potential demand that is indicated.
- 18-13. A bar chart is the simplest chart in technical analysis. Price is on the vertical axis and time on the horizontal axis. Each day's price movement is represented by a vertical bar whose top (bottom) shows the high (low) price

for the day. The bottom of a bar chart usually shows the trading volume for each day. Time intervals can be days, weeks, months, or anything else.

A point-and-figure chart shows only significant price changes, with volume omitted completely. Although the horizontal axis is time, specific calendar time is unimportant. X's are typically used to show upward movements, and O's to show downward movements. The X or O is recorded only when the price moves by a specified amount.

- 18-14. Relative strength is generally used to forecast individual stocks or industries. It is calculated as the ratio of a stock's price to a market index, an industry index, or the average price of the stock itself over some previous period. These ratios are plotted to form a graph of relative price across time. A rising ratio indicates relative strength, and it is often assumed that the trend will continue.
- 18-15. Assume a chart pattern is predictive in the sense that each time it gives a signal it correctly predicts movements in price. More and more investors will start to use it as they observe what is happening. This is a destructive process because price will reach its equilibrium value quickly, taking away profit opportunities from all but those acting the fastest. Also, some participants will try to anticipate the pattern or signal, driving price to an equilibrium even more quickly. Eventually, the value of this predictor will be negated.
- 18-16. No! It is not possible to test all the techniques of technical analysis and their variations and interpretations because they are too numerous! Therefore, absolutely definitive statements cannot be made.
- 18-17. In order to scientifically test a claim of success using technical analysis, an alternative needs to be constructed. For example, can this technician outperform a buy-and-hold strategy consisting of stocks from the same population used by the technician, on a risk-adjusted basis, over some period of time (preferably years) after all relevant costs are accounted for?
- 18-18. The traditional contrarians focused on the small investors such as the old-lotters. The new contrarians tend to go

against the "crowds" in general, including "sophisticated" investors such as institutional investors.

- 18-19. No inherent reason exists for stock price movements to repeat themselves. However, by sheer chance alone, some probability exists of a pattern repeating itself.
- 18-20. It does present enough data to show some secondary reactions, and a penetration of a previous high or low. However, it would be highly desirable to use more data.
- 18-21. This chart contains both the industrial and transportation averages (as well as the utilities average and volume figures). The latter is needed to confirm any signal given by the industrial average.
- 18-22. Increased trading in stock options and financial futures has caused the short interest ratio to be less reliable. These instruments provide investors with new ways to hedge and speculate, and they have helped to distort the historical boundaries for the short interest ratio.
- 18-23. A buy (bullish) signal is generated when actual prices rise through the moving average on high volume. A sell (bearish) signal is generated when actual prices decline through the moving average on high volume.

A rising advance-decline line, in conjunction with a decline in a market average, suggests that the decline in the latter should reverse itself. If the market average rises while the advance-decline line weakens or declines, a fall in the market is expected.

- 18-24. This figure was produced using a random number generator; therefore, in answering (a) and (b), any patterns are purely coincidental. As for (c), any guess is as good as another. Finally, in (d), the answer is obviously yes since this chart was produced by such a process.