San Fernando Valley State College

AN ANALYSIS OF THE USE OF SELECTED TECHNICAL
INDICATORS AS THEY RELATE TO FUTURE
DIRECTION IN STOCK MARKET TRENDS

A thesis submitted in partial satisfaction of the
requirements for the degree of Master of Science in
Business Administration

by

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ABSTRACT

AN ANALYSIS OF THE USE OF SELECTED TECHNICAL INDICATORS AS THEY RELATE TO FUTURE DIRECTION IN STOCK MARKET TRENDS

by

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This study attempts to categorize and relate behavior patterns of selected technical indicators to the future direction in stock market trends. Six "character of the market" technical indicators are selected; namely, (1) Advance-Decline Line, (2) Dow-Jones Railroad Average, (3) Odd-Lot Index, (4) Monthly Short Interest Ratio, (5) New York Stock Exchange Volume, (6) Per Cent American Stock Exchange Volume to New York Stock Exchange Volume. It is hypothesized that patterns of behavior do persist in each indicator, as they relate to future stock market trends.

Special emphasis is directed in reference to behavior patterns in these indicators before fluctuations in the Dow-Jones Industrial Average of 5% or greater.

The writings of experts in the field of technical analysis
are examined to determine what to expect in the behavior patterns of these indicators and it is determined that many of their "rules of use" are insufficient when working on the shorter term basis.

This results in the establishment of five and eleven week trends in each indicator and these are examined before each 5% fluctuation in the Dow for the period, 1960-1967. The forecasting ability of the trend line of each indicator is noted by comparing their successes before these fluctuations in the Dow and they are ranked accordingly. This leads to the conclusion that certain indicators have more discernible behavior patterns than others, based on their forecasting success. The most successful of the indicators selected are the (1) Per Cent American Stock Exchange Volume to the New York Stock Exchange Volume and, (2) The Monthly Short Interest Ratio.
CHAPTER I

INTRODUCTION

This paper is concerned with the timing aspect of the investment problem, as it applies to stock market trends. Numerous techniques are used by practicing technicians to aid them in their timing problem; some more applicable than others depending on market conditions at any given point in time. This study attempts to categorize and depict characteristics of many of these techniques as they apply to stock market movements of an intermediate nature. The reason for this analysis is to allow readers to become more aware of techniques available for this purpose. Its intent, also, is to supply increased knowledge in this area from which better timing of stock market transactions will be the result.

As introductory material, background information is presented on the investment environment, the investment problem, and the technical analysis of stock market trends. Following this will be a statement of the problem, a statement of the hypothesis to be tested, and an explanation of the methods to be used to test this hypothesis along with the criteria by which to measure these tests.
Investments--An Overview

The investment climate is one which contains the sum total of all fears, hopes and greeds of people. It necessarily operates within the influence of politics and war, population growth and technologies, institutions and government, economies, money markets, capital markets and international developments.

Within this environment, individual and institutional investors are confronted with two basic investment problems; namely, selection and timing. These problems are not always solvable; however, awareness of techniques and approaches to their solution certainly will reduce some of the risks associated with any investment. A fully integrated approach would consider all events that have occurred in the past, are occurring now, and might occur in the future. From these considerations of both a fundamental and a technical nature, investment success would most probably be the result.

Technical Analysis of Stock Market Trends

It is neither feasible nor desirable to explore both general topics of fundamental analysis and technical analysis within this paper. Thus, since the area of fundamental analysis has been so thoroughly developed, the writer has chosen to write in the area of technical
analysis.\textsuperscript{1} In particular, this study will concentrate on technical approaches to revealing stock market trends.

**The Need for Indicators of Stock Market Trends**

Psychology does play a major role in the determination of stock prices, especially in the short run, thus, there is a need to try and determine the prevailing psychology in the market place. This is the purpose of technical analysis, and its primary concerns are:

"... measuring psychology, the character and quality of the buying and selling in the market, the demand for and supply of securities, the momentum and trend of price movements."\textsuperscript{2} It should be specifically noted, at this


point, that technical analysis can help predict the
direction of stock and market movements, but it cannot
tell in advance where a move will end or how long it
will last.

Another reason for a technical approach to market
trends is that, "A generally weak market will affect 9
out of 10 stocks."\(^3\) Since this is the case, it would
behoove individual and institutional investors to know
and be aware of general market conditions at all times.
In his book, The Battle for Investment Survival, Loeb
states:

> In my opinion, the primary factor in securing market
> profits lies in sensing the general trend ... I have
> known people to go to the expense of securing a
> thorough field report on a company, complete except
> for proper consideration of market factors, buying
> the stock because of the report and later losing a
> fortune in it at a time when a market study would
> have suggested that all equities should be avoided.
>
> The most important single factor in shaping security
> markets is public psychology. This is really another
> reason why I am not particularly impressed with
> academic calculations purporting to show what this
> or that stock should be worth unless due regard is
given to market factors.\(^4\)

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\(^3\)One of twenty, "General Rules to Follow in the
Market," as stated by Reynolds & Co., Members NYSE, 500
South Spring Street, Los Angeles, California. Rules were
received by the writer during the attendance of the firm's

\(^4\)Gerald M. Loeb, "Trends and Psychology," A
Treasury of Wall Street Wisdom, ed. by Harry D. Schultz
and Samson Coslow (Palisades Park, New Jersey: Investors'
Thus, it appears that the area of technical analysis is important and, "Both general and professional interest in technical analysis appears to be spreading rapidly." 5

Other reasons for technical analysis stem from the timing or "when to buy and sell" side of the investment problem. Good timing is required for income tax considerations, the possibility of risk reduction and the increase in the productivity of capital.

The grand design behind all technical work is to obtain as good timing as possible in making purchases or sales of securities. The punitive income tax laws are to a very large extent responsible for the rise in the need for correct timing. 6

Further, its usefulness becomes more evident as objectives decline from blue-chip investment considerations to speculation.

It is also important to note that an integrated approach, involving both fundamental and technical analysis, is better than either approach standing alone. "It is wise to remember that no one tool or even a combination

Wizard of Wall Street," gained fame with the book mentioned above and, as a partner in E. F. Hutton and Co., became a millionaire trading for his own and customer accounts.


6Ibid., p. 246.
thereof will insure market success 100% of the time."\(^7\)

Thus, it would behoove the investor to know, understand and use both approaches to maximize his investment success.

The need for technical analysis has been noted for timing purposes, with the conclusion that it has a definite place in any approach to investment success.

As a whole technical analysis has risen so far in importance as a significant and dependable tool in the hands of knowledgeable market analysts that the improved timing by these procedures has become an integral part of portfolio management. All investors should benefit from the study of technical analysis and by its employment as a permanent part of their analytical work leading to decisions to buy and sell in the stock market.\(^8\)

Thus, the groundwork has been laid for the value of technical analysis, and the concept itself will now be examined along with some of the more popular indicators and theories in use.

**Technical Analysis Defined**

As part of investment analysis, technical analysis specializes in the "when to buy and sell," or timing part of the investment problem. None of its proponents reject the idea that "intuition" plays a big role in timing


\(^8\)Mansfield, *op. cit.*, p. 254.
success. Block's words reveal this tone:

Before I go on to give my thoughts on the subject of Practical Technical Analysis, allow me to state, without reservation that there is not any "system" or magic password that will open the door to quick success and riches via the stock market. It boils down to the one real magic ingredient common to all fields of endeavor--hard work and the comprehension that eventually results.9

The statement is a basic truth, and in it is contained the implication that there is no formula for success other than an understanding of the concepts involved and their use in an effective manner. That is the intent of this work.

Technical analysis is an attempt to study, observe and record daily, weekly or monthly performance of individual securities and the stock market as a whole. Edwards and Magee say that:

It refers to the study of the action of the market itself as opposed to the study of the goods in which the market deals. Technical Analysis is the science of recording, usually in graphic form, the actual history of trading (price changes, volume of transactions, et cetera) in a certain stock or in "the averages" and then deducing from that pictured history the probable future trend. . . . It is futile to assign an intrinsic value to a stock certificate.10

Their reasoning is that since the market prices reflect differing value opinions of many fundamentalists, and

9 Block, op. cit., p. 1.
also all the hopes, fears, guesses, and moods (both rational and irrational) of hundreds of buyers and sellers along with their needs and resources, these are factors which defy analysis and for which no statistics are available. They further reason that when all of these factors are synthesized and a deal is made at one price, that this is all that counts. Needless to say this is a difficult statement to refute; however, from opinions expressed above, the integrated fundamental and technical analysis approach seems to yield better results. Nevertheless, these authors, with their supply-demand approach via price analysis, have firm convictions in their method.

To further evaluate this controversy and come closer to what technical analysis is, Block, in talking about technical and fundamental analysis, says:

Quite obviously, to limit your thinking completely to one school of thought is narrow minded and unreasonable. Both technical and fundamental analysis have been used for many years, with great success and failure accorded both schools at one time or another. I feel it is time to try and use the best of both to further the art of analyzing both individual securities and the market itself.11

This is quite in contrast to Edwards and Magee, who refer to technical analysis as a "science." It appears as though these authors are discussing probabilities in

11 Block, op. cit., p. 1.
their approach to technical analysis, i.e., the probability that a stock's price, after breaking through the neckline of a head and shoulders top formation on the downside, to continue to drop to at least the extent of the distance from the head to the neckline, is very high. This certainly does not make technical analysis a science, since intuition and feel are never completely eliminated.

What then is technical analysis? According to Mansfield, "... technical analysis, and its end result, good timing, constitutes an attempt to get at the attitude of investors toward market values as represented both by the general averages and by the individual components of the marketplace." Further, there seems to be three major areas of information derived from these transactions; i.e., (1) they are "bunched" to form averages, (2) individual stocks are plotted using various methods and, (3) many combinations are compiled to create an almost unlimited variety of analytical procedures.

To summarize, "Investing in the stock market is a two-step process: it involves an evaluation of general market risks on the one hand, and the selection of individual issues on the other." Thus, by its very nature

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12Mansfield, op. cit., p. 247.

in use, technical analysis contributes immensely to the "evaluation of general market risks" component of the investment problem.

The Problem And Its Analysis

Statement of the Problem

This paper is concerned with technical indicators as they relate to the change or continuation of stock market trends. As will be seen in Chapter II, opinions of the more popular indicators are varied, with some thought to be more valuable than others depending on stock market phases and users' analyses. Studies are presented; some of which offer valuable guides to the solution of this problem. However, none of them seems to provide a direct method for predicting either the continuance or change of stock market trends.

Through greater understanding of behavior patterns in various technical indicators, it is the hope of the writer that this paper will provide the means with which to better predict future stock market trends. Since an individual security's price is usually affected by the market climate and the trend of the market, it is essential that this trend may be predicted with reasonable accuracy in order for the investor to time his transactions properly and avoid excessive losses.
Importance of the Problem

Stock markets exist to provide a liquid market where securities may be readily converted into cash. "Security markets render specific services to both the investors on the one hand, and the issuers of securities on the other, in addition to their contribution to the economy as a whole." Since stock market trends affect security prices, this makes timing a very important part of the investment problem. Consequently, it is essential that investors become more knowledgeable with respect to this problem. Eventually, comprehension of this problem and its solution will lead to a greater probability of investment success, avoidance of excessive loss, and preservation of capital.

The importance of the problem, the possibility of a greater understanding of the tools available for its solution, and any resulting practical knowledge that will aid investor interests to use the stock markets more efficiently and effectively, warrant this study which

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15 "There are now 20,120,000 stockholders in the United States, according to a tabulation by the New York Stock Exchange made public in the summer of 1965." Edwin A. Roberts, Jr., The Stock Market (Silver Spring, Maryland: The National Observer, Dow Jones & Co., Inc., 1965), p. 27.
Contribution of this Paper

An attempt will be made to isolate behavior patterns or characteristics of various technical indicators as they relate to fluctuations in stock market trends. In essence, this paper will examine whether persistent behavior patterns exist in various nature of the market technical indicators before fluctuations in stock market trends (as measured by the Dow Jones Industrial Average). These characteristics could then be used as predictive tools to increase investors' probability of being right more often with respect to being in concurrence with future stock market trends.

Statement of the Hypothesis

That: Characteristics or patterns of behavior do persist in selected "character of the market" technical indicators, as they relate to future stock market trends.

Definitions of Terms

Terms used in the hypothesis:

Characteristics.--A distinguishing feature or quality that is helpful for identification purposes.

Patterns of behavior.--A direction or tendency to perform in a certain manner.

"Character of the market" technical indicators.--
Those indicators that try to anticipate the short, intermediate, and long term market trend by analyzing the nature and character of trading.

Stock market trends.--Five per cent fluctuations or greater, either up or down, in the Dow Jones Industrial Average.

Methodology

As stated, the hypothesis proposes that technical indicators do have persistent characteristics, which, if identified, will aid in revealing future stock market trends. These characteristics may change as does the market change from bull to bear and vice versa. Special emphasis will be directed in reference to behavior patterns in these indicators before fluctuations in the Dow Jones Industrial Average of 5% or greater. These patterns should then provide added insight into what to expect in the general market trend.

The indicators that will be investigated in this analysis are: (1) The Dow Jones Railroad Average, (2) The monthly short interest ratio, (3) The advance-decline line, (4) The odd lot index, (5) The ratio of the volume of shares traded on the American Stock Exchange to the New York Stock Exchange and, (6) The volume of shares traded on the New York Stock Exchange. Trends and movements in these indicators will be studied in
relation to fluctuations of 5% or greater in the Dow Jones Industrial Average and behavior patterns will be reported.

Authorities in this area will be examined and their opinions, along with the results of any studies performed, will be revealed. This will serve the purpose of providing a logical basis for the study of behavior patterns in technical indicators in relation to movements in the Dow.

In the analysis section of this paper, behavior patterns of each indicator will be examined in terms of what has occurred in their trends before any 5% fluctuation in the Dow Jones Industrial Average. Consideration will be given to their trends for (1) each five week period and (2) each eleven week period before each 5% fluctuation in the Dow. Given these situations, behavior patterns will be studied in the five and eleven week trend lines of the indicators and specifically noted will be:

1. The percentage of times each trend line of each indicator posted increases before a 5% or greater increase in the Dow.

2. The percentage of times each trend line of each indicator posted decreases before a 5% or greater decrease in the Dow.
3. Before fluctuations of both types in the Dow, the percentage of times each trend line of each indicator was correct.

Criteria

The hypothesis should meet the following tests with respect to information gathered from existing literature and the analysis of empirical data:

From the background discussion.—The writings of authorities should relate to the hypothesis and from opinions based on experience, and studies made, the indicators' behavior patterns will be reported.

From the analysis of empirical data.—Behavior patterns of the indicators will be observed and the results will be shown as stated above.

Data for the Study

Empirical data for the analysis portion of this paper consists of: (1) Weekly DJIA and DJR, (2) Weekly Advances and Declines, (3) Monthly Short Interest Ratio, (4) Weekly odd-lot sales and purchases in number of shares, (5) Weekly total sales volume; all of which relate to the New York Stock Exchange; and (6) Weekly total American Stock Exchange sales volume. This data may be found in the "Market Laboratory" section of Barron's, a weekly financial publication. The data covers a recent
eight year period from 1960 through 1967, whose general characteristics, as related to the Dow Theory, are:


Background information consists of references to writings of noted authorities, both past and present, primarily in the field of stock market trading or speculation.

Organization of the Paper

Chapter I has presented information on the investment problem, the reasons why technical indicators of stock market trends should be studied, and the hypothesis to be tested.

Chapter II describes, explains and analyzes the more popular technical indicators. A special attempt is made to report authorities' attitudes toward each and to illustrate their use as found in various published studies. This presentation leads to the conclusion that behavior patterns do exist in the various technical indicators, which, if reported, will have value in pointing to the probable future direction of stock market trends.
An analysis of the hypothesis is provided in Chapter III, with behavior patterns of the selected technical indicators reported.

Chapter IV summarizes the major efforts of this paper, presents final conclusions, and suggests approaches for further study in this and related areas.

Finally, a Bibliography section is presented which represents many of the major works in the area of technical analysis. This is followed by Appendices of accumulated data and related material.

Data Sources

Primary data was collected from the "Market Laboratory" section of Barron's which records data compiled from figures as reported by the New York Stock Exchange. Secondary data sources consisting of books and periodicals were searched in order to present the background and framework of discussion in Chapter II, and were also consulted to aid in the analysis to follow in Chapter III.
CHAPTER II

THE USE OF VARIOUS TECHNICAL INDICATORS
AS TOOLS FOR FORECASTING
STOCK MARKET TRENDS

This chapter will present the reasoning which underlies the hypothesis as stated above. Many of the more prominent technical indicators will be identified and explained, and an attempt will be made to categorize them. An examination of theorists and users in the field of technical indicators will be made, and their opinions reported. Finally, a summary will provide points of relevance to the problem, which will lay the foundation for the analysis in Chapter III.

The Nature of Technical Indicators

The Market Climate

As related in Chapter I, it is very important that investors attempt to determine the market climate of any particular period. Of importance is this general question: What is the main trend or direction of the market and what phase of this trend is currently prevalent? It may be spoken of in terms of "bull" or "bear" trends and phases of these trends might refer to
"primary legs" or "secondary reactions," as related below in the Dow Theory.

In an attempt to determine these trends and phases of trends and project these into future expectations, we are speaking of probability--"... the only logical basis for probability is the repetitive nature of past experiences and logical reasoning."¹ This is one of the many reasons for the development and use of technical indicators. If events tend to repeat themselves with relatively consistent patterns or trends, then the market climate may be evaluated, and in time, better decisions will be made.

Since there is no one exact formula that will insure market success, the technical analyst uses various indicators to determine the market climate. In many cases, he will enter the market only when the majority of indicators point in the same direction, thus, enhancing his probability of success. The tools employed by the technicians are many and varied, such as the Dow Theory, the odd-lot theory, the advance-decline line, short interest ratio, and bank interest rates, just to mention a few. These tools will now be examined.

Categories of Technical Indicators

Joseph Granville, uses fifty-five basic day-to-day indicators and many intermediate term indicators, as he calls them. The former includes such tools as (in his terms): (1) Plurality—the relationship between advances and declines and the Dow Jones Industrial Average (DJIA); (2) Genuineness—found by comparing the DJIA to changes in the Standard and Poor's 500 stock Index; (3) Volume and its relationship to market averages; (4) General Motors as it relates to leading the market; (5) And many others including news reflections, closing prices, odd-lots, highs and lows, et cetera.

His intermediate term indicators include such important tools as (1) Barron's Confidence Index, (2) The Advance-Decline Line, (3) The Index of Disparity, (4) The Short Interest Ratio, Low-priced share trend, New York Stock Exchange seat price trend, et cetera.

Ralph Block, in his article, "Practical Technical Analysis," discusses these technical indicators "... that provide the 'Technician' with a broader picture of overall market action;" (1) The Dow-Jones

\[\text{Categories of Technical Indicators}\]

\[\text{Joseph Granville, uses fifty-five basic day-to-day indicators and many intermediate term indicators, as he calls them.}\]
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\[\text{His intermediate term indicators include such important tools as (1) Barron's Confidence Index, (2) The Advance-Decline Line, (3) The Index of Disparity, (4) The Short Interest Ratio, Low-priced share trend, New York Stock Exchange seat price trend, et cetera.}\]
\[\text{Ralph Block, in his article, "Practical Technical Analysis," discusses these technical indicators "... that provide the 'Technician' with a broader picture of overall market action;" (1) The Dow-Jones}\]

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\[\text{3Block, op. cit., p. 2.}\]
Industrial and Railroad Averages, (2) The Standard and Poor's Industrial Average, (3) The Daily N.Y.S.E. Volume, (4) Daily Issues Traded Index, (5) Advance-Decline Index. Concerning these indicators Block says: "These are the primary technical tools I use on a daily basis and are generally the ones most practicing technicians on Wall St. refer to during their daily trading."  

Mansfield states:

Starting with the basic tools--data on the general market and on individual stocks--technical analysts have succeeded in creating from these statistics an amazing variety of analytical procedures; and more, undoubtedly, can be anticipated in the future. . . "  

He then goes on to enumerate broad categories, some of which are: (1) Volume analysis, (2) Odd-lot data, (3) Advances and declines, (4) General Motors in relation to the general market, (5) The Dow Theory and disparity between the Rails and the Industrials, (6) Barron's confidence index, (7) Quantity of new highs and lows, et cetera.

Dr. Leo Barnes, professor, analyst, editor, and author, divides technical approaches to what the market is doing, into these, which he terms, "logical" groups:

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4Ibid., p. 4.
5Mansfield, op. cit., p. 239.
(1) Those that follow the market trend--The Dow Theory;
(2) Those that try to anticipate the long-term market trend--"bellwether" techniques such as General Motors;
(3) Those that try to anticipate the short, intermediate, and long-term market trend by analyzing the nature and character of trading--volume analysis, advance-decline ratios, high-low ratios, confidence index, short-interest ratio, odd-lot index; (4) Those that try to anticipate longer term market trends by studying indicators of actual or potential investor buying power--customers' free credit and net debit balances; (5) And those that attempt to anticipate intermediate and long-term market trends by relying on some consensus of various indicators--as used by Granville above.

In light of the above discussion, it appears that to categorize technical indicators, the terms "trend," "anticipate," "nature," and "character," would especially apply. A trend relates to a general tendency in a specific direction. To anticipate the continuation or reversal of the trend, an appropriate analysis would certainly include characteristics or qualities of those components of the market climate in past trends, and relate them to the trend itself. In turn, these applicable qualities would be related to the current trend, in an attempt to anticipate a future trend. Thus, it appears
that any attempt to categorize technical indicators, would generally and logically fall into two simple categories: (1) Trend methods of analysis and, (2) Character of the market methods of analysis.

Specific Technical Indicators--Concepts and Uses

Trend Methods of Stock Market Analysis

The theories and ideas mentioned in this category all attempt to relate historical trends to current situations in anticipation of future trends. Although some of them will not explicitly relate to the future, the assumption seems to prevail that a trend is continuous in the same direction until reversal signals of various types change this continuity. This reversal then indicates that the trend will continue in the opposite direction, until such time that a reversal again occurs.

The Dow Theory

Charles H. Dow (1850-1902), founder of the Dow Jones News Service and founder and first editor of the Wall Street Journal, provided the foundations for the Dow Theory. Generally, when investors ask, "How is the market doing?", they are speaking of the Dow Jones Industrial Averages (DJIA). Since the Averages are important indicators of the market's general trend, it
behooves investors to understand the Dow Theory's basic concepts.

According to the Theory, the market is the composite resultant of three movements, the first of which is, (1) a major trend up or down, or the primary markets (bull and bear) which last from one to several years and in which movements are fundamental in nature and beyond the reach of manipulation. A bull market is indicated by a major movement in which each succeeding high of the averages is an advance over the preceding high and a bear market, one in which each low point is lower than its predecessor. (2) The secondary movements appear after a primary movement has gone on for some time and usually carry a bull market down or bear market up for a short period of time—from as little as a week to one year. When these movements are in the direction of the primary market, they are called primary swings or legs; when in the other direction (rallies in bear markets and declines in bull markets) they are called secondary reactions. "These Secondary Reactions are distinguished from minor changes by their magnitude (usually sufficient to retrace one-third to two-thirds of the preceding primary swing) and by their duration (three weeks to three months)."  

to day fluctuations in the market place are indicated by changes in the averages but these minor movements are not considered important in the Dow Theory since they cannot be predicted nor be used to predict anything fundamental in business.

To provide a more complete conceptual framework of the Dow Theory, these points should also be considered. In a bull market there are three phases, i.e., (1) the first phase is likely a restoration in public confidence and a correction in the undervaluation which existed during the last bear market, (2) the second phase represents a response to improvement in corporate earnings, (3) the third phase involves speculation and trading on hopes, sometimes with great fervor. Conversely, in a bear market, (1) the first phase corrects the speculative excesses in the third phase of the preceding bull market, (2) the second phase represents lower prices due to a decrease in corporate earnings, (3) and the third phase represents distress selling and a further lowering of prices.

The Dow Theory also contains the reasoning that trends may be determined by the action of secondary swings. Provided that the length and duration rules apply to these intermediate swings, a "breakthrough," in either direction, can establish the beginning of a
new primary trend. Finally, the two averages must confirm each other (DJIA and DJR), and volume tends to go along with the trend.

**Advantages of the Dow Theory.**—By way of primary and secondary movements in the DJIA and the DJR, along with the supplementary aids of confirmation, volume, penetration of both resistance and support levels, and lines; the Dow Theorist times his transactions in the market place, hopefully in tune with the general market trend. One advantage of the Theory is that it serves as a barometer of business activity.

In his book, *Dow's Theory Applied to Business and Banking*, Robert Rhea undertook to document the record for the 40 years for which the data were then (1938) available... It would serve no useful purpose now to review that 40-year record in detail here, except to say that by averaging the data for the 10 bull markets completed between 1896 and 1938..., Dow's Theory gave its bull confirmation when 80.6% of the advances in the Industrials were yet to occur; 72.2% for the Rails, and 74.3% for Business. The Theory similarly anticipated 69.7%, 65.9% and 79.9% of the respective declines of the Industrials, Rails and Business in bear periods.  

Another advantage of the Dow Theory is that, by understanding and applying it, the general trend of the

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8See Merrill, *op. cit.*; p. 14-3, for an illustration of this concept.

market may be determined. This is important to know since the majority of stocks' prices tend to follow this trend, and better investment timing decisions will naturally result.

Probably the most popular advantage is that the theory, even though the forecast is not always clear, can lead to profits over the years. One example of this is found in a study made for the 42 years, 1897-1939, in which the author compared transactions and the resulting rates of return based on: (1) the Dow Theory--rate of 11.7% per year, (2) the 5% penetration method (based on turning points of 5% or greater as indications of the trend)--rate of 7.9% per year, (3) buy and hold--rate of 3.5% per year.\(^{10}\)

**Limitations of the Dow Theory.**--Criticisms of the Dow Theory are many and vary according to the limitations of its user. However, some of the more predominate criticisms stand out in much of the literature; and because they have been repeatedly cited by knowledgeable users, will be noted here.

Probably the most frequently cited criticism involves representation. "The D-J reports the price

\(^{10}\text{Merrill, op. cit., p. 14-6. Short sales were included in both items (1) and (2) in the study, pp. 18-1 to 18-3.}\)
change of 30 stocks. Are they representative of the entire market?" A study made by Merrill demonstrates via a comparison between the movements in the DJIA and the movements in the Standard and Poor's 425 Industrials for the period 1954-1964 that the DJIA is representative of the market. The former average represents more than one-third the value of all stocks listed on the NYSE and the latter, 87.3% of the same, and "If the scales are adjusted it is found that both indexes move together in a remarkable fashion."  

Another of the most common criticisms is that the American Railroads constitute a decadent, or dying, industry and consequently can no longer be regarded as a suitable companion indicator for the Industrials. Greiner does not accept this and even though the railroads have suffered at the hands of other transportation media and government regulations, he shows where the DJR "... have provided greater profit opportunities on well-timed purchases and sales during the past 30 years than have the Industrials.  

Another common criticism, frequently raised by

13Greiner, op. cit., p. 137.  
14Ibid., p. 138.
statisticians, is that "... in the D-J, the weighting is the price."15 This criticism does have a certain amount of validity when the effect of a stock split is considered, since the price of the stock, which is the basis for the weighting, drops by a proportionate amount. This would have little or no effect on the true importance of the company, yet it lowers its "influence" in the averages. However, in the case of the stock split, it is, in fact, being considered in the averages so that:

... over the years, each new split within the average drops the divisor lower. When the Dow-Jones Industrial average is computed, the total 30 stock prices isn't divided by 30. By 1939 the divisor had already sunk to 15.1. By 1950 it was down to 8.92. Currently it is 2.245. ... Thus, Dow-Jones averages are not dollar averages of current market prices, but market movement indicators, kept essentially undistorted by stock splits for nearly three-quarters of a century.16

Another criticism of the Dow Theory is that it is too late. This, as a generality, may sometimes be true but as Edwards and Magee point out, $100 invested in 1897, would have become $11,236.65 in 1956

"... simply by buying the Industrial average stocks each time the Dow Theory announced a Bull market and holding them until the Dow Theory announced a Bear


market." This is quite an enviable record when one compares this against a buy of $100 at the all-time low in 1896, and holding until 1956, when this same $100 was worth $1,757.93 at an all-time DJIA high to that point. \(^1\)

Finally, there are many other criticisms of the Dow Theory such as: (1) The use of ATT in the DJIA gives the average doubtful stability and the average is composed of only "blue chip" stocks, (2) The Dow Theory is not infallible, (3) The Dow Theory does not help the intermediate term investor, (4) You cannot buy the averages, et cetera. There are elements of truth in many of these criticisms and specific examples can be found to bear them out. However, since it is most frequently mentioned and studied in market news letters and used by many investors, its popularity alone, gives it an advantage over other indicators.

*Fortune*, in an article entitled, "What Happened to the Dow," sums it up this way, in comparing the DJIA to the Standard & Poor's 425 stock industrial index and the NYSE industrials:

> . . . In the long run, it seems clear, the Dow is as good as the other indexes—indeed, anyone looking

\(^{17}\)Edwards and Magee, *op. cit.*, p. 44, as taken from the work: "What is the Dow Theory?" by Richard Durant, Durant & Co., Detroit.

\(^{18}\)Ibid.
at a chart of the three indexes over a decade or so will observe very little difference among them. But in the short run, it also seems clear, the Dow may move erratically just because of a few stocks.\textsuperscript{19}

The Moving Average of Stock Prices

There are other averages besides those used in the Dow Theory, namely, the New York Times Averages, the Moody Averages and Standard and Poor's 425 Industrials, et cetera. All of them are more or less helpful in determining the market trend as was seen in the Dow Theory section. Another method used by many brokers and analysts, in determining trends of the market and in individual securities, is the moving average trend line.\textsuperscript{20} The forerunner of this mathematical approach is Curtiss Dahl, and in 1951 his book, \textit{Consistent Profits in the Stock Market}, was published.

The moving average trend line is an aid to timing decisions since many fluctuations in recorded data are smoothed out or eliminated, thus, reflecting the true trend. This line is constructed from the moving average values, which are:

\textsuperscript{19}"What Happened to the Dow?", \textit{Fortune} (Chicago: Times, Inc., LXXV, No. 4, April, 1967), 228.

\textsuperscript{20}One service which makes extensive use of this approach is \textit{Trendline}, a subsidiary of Standard and Poor's Corp. It is a weekly service and the annual fee is $225.00.
obtained by adding together the price values over a definite period of time and dividing this sum by the number of price items in this same period of time. For example, to obtain a 10-day moving average of closing daily stock prices, we add the closing prices for 10 consecutive days and divide by 10. Advancing a day at a time, we obtain a moving value representing the average price for the past 10-day period.21

This approach allows the user to construct his moving average for any time period he desires, the most common being a 200 day line as used by Trendline.

In using these moving averages, the trend of the market is assumed to be down when the actual market average is under the moving average and the line is moving downward. Conversely, the trend of the market is assumed to be up when the market is above the moving average and the line is moving upward. Further, when stock prices and the moving averages are moving in a "line," a consolidation area is indicated and a breakthrough the moving average line in either direction will usually result in the continuation of the trend in the direction of the breakthrough.

Dahl's approach includes what he calls a "lead," which is useful in reducing the number of false buy and sell signals given. The explanation of this lead can be

perceived if one recognizes that in a normal plot of the moving average line, added values would correspond to the last day of the period utilized. However, with the lead concept, the moving average is plotted three days, one week, three weeks, et cetera, to the right of the end of each period chosen, with the length of the lead having some relation to the length of the period. "The effect of plotting the moving average with a lead is to move the curve to the right but keeping the same slope when the price is definitely rising or declining."\textsuperscript{22}

In essence, the moving average represents price trend lines, and the crossing of the price curve by the moving average signals buy and sell points. In general, the moving average line falls to the right of the advancing or declining price pattern.

Intermediate trend moving averages appear to be the area of real value in Dahl's theory.\textsuperscript{23} If the reader will recall the Dow Theory, intermediate moves were those sufficient enough to retrace 1/3 to 2/3 of the previous primary movement and usually lasted from three weeks to three months or longer. The investing

\textsuperscript{22}Ibid.., p. 43.

\textsuperscript{23}Dahl states, "because of transaction costs, the writer feels that minor trend trading based on a moving average, will not yield worthwhile profits, if any." \textit{Ibid.}, p. 28.
public is very interested in intermediate term trading. Since it is difficult, in the Dow Theory, to detect a secondary reaction until it has been moving in that direction for some time and in considerable length, the moving average line is a worthwhile supplement to the Dow Theory.

To obtain a picture of the price trend action of these over-all market indexes, moving average lines have considerable value in helping to direct a person's stock market activities of buying and selling.24

Limitations of the Dahl Moving Average Theory.——

Dahl relates:

In the writer's opinion, moving average price trend lines are efficient in giving buy or sell signals near the bottom or top of major price moves. Their weakness occurs in congested price patterns, where accumulation or distribution is taking place and thus a series of price rallies and declines can give false signals.25

This is true, and market averages and prices of individual stocks, while fluctuating on and around their moving average lines, are certainly subject to individual interpretation of some sort. At this point, supplementary devices such as the "lead," and the penetration of the line by 1/2 or 1 point or by a certain percentage such

24 Ibid., p. 37.
25 Ibid.
as 3% to 5%, or by at least two consecutive days, are of some value.

Finally, as with all technical indicators, some judgment is required on the part of the user. There are a host of complications and variations of the basic buy and sell rules in an attempt to keep as much of the subjective analysis out as possible, some of which have been mentioned such as the penetration tools. It might also be mentioned that another technique is to use two moving average lines, such as the 30 week plus the 10 week, and buy or sell only when both moving average lines are penetrated.

Conclusions.—It is generally accepted that moving average trendlines do have value in giving buy or sell signals near the top or bottom of major price moves.26

Also, if the length of time considered for the calculation of the moving average line is altered, many market moves of an intermediate nature may be caught (Dahl recommends 15, 20, 25, or 30 day periods with a 1 to 3 day lead). Finally, moving average lines, used with market averages, do show the overall market

26See Granville, op. cit., p. 237, for eight trading rules when using a 200-day moving average.
performance in relation to its most recent longer term trend.

The Point and Figure Technique

The basic premise of Point and Figure charting and trading is that the Law of Supply and Demand, and nothing else, governs the price of a stock. When Demand exceeds Supply, the price of a stock goes up; when Supply exceeds Demand the price of a stock goes down. When Supply and Demand are contesting for supremacy, the price of a stock moves sideways.27

Such is the basis for the point and figure technique (P & F), and by the use of Xs and Os, the chartist using this method, attempts to better his performance in the market place. Alan R. Shaw, a technical analyst for Harris, Upham & Co., says,

Point-and-figure charts are tools used to measure the upside or downside potential of the overall market, or individual stocks. The pattern tells you which way stocks are headed.28

In essence, the Xs and Os represent actions of buyers and sellers as reflected in price changes. It is the patterns of these Xs and Os with which P & F chartists are concerned in their attempt to spotlight significant reversals in stock prices and in future


stock price trends. By means of the required minimum price changes, only significant price changes, over a long period of time, are compressed into a small space and easily compared. Also, many of the minor price fluctuations are eliminated and support and resistance levels are readily visible, thus, the true trend is easily pictured.

It appears that P & F charting is very much used as a technical tool in determining not only individual securities' price trends, but the market averages' trends as well.29 An extensive analysis of this method was not made; however, the basics were introduced and certainly, the method warrants further consideration and analysis in other works. As an aid to the student seeking charts for analysis of this method, Chartcraft Service is a good choice.

Conclusions

In the above discussion, emphasis was placed on recognizing general market trends according to the Dow Theory and The Moving Average of Stock Prices. Also included was a general discussion of the Point and Figure

29Ibid. One user of this technique is Edmund W. Tabell, director of institutional research for Walston & Co., and "one of the deans of Wall Street chartists," as stated in this article.
Technique. Since most individual stock's prices tend to follow the general market averages, it behooves the investor to follow and "keep in tune" with what the market is doing.

But there is another side to the timing problem. "History reveals that the most important time to be right is during the reversal of major trends ..."\(^\text{30}\)

It is conceivable that stock market trends, whether bull or bear, legs or reactions, will be reversed at some point in time. From this, it appears that the investor cannot depend entirely upon trend analysis for answers to the timing problem. This is where the second category of technical indicators attempts to fill in the missing links. If an appropriate analysis of stock market trends is made along with an analysis of the "character" of the market, it is much more probable that these reversals may be detected before they occur, and action may be planned accordingly. This will be the next topic of discussion.

Character of the Market Methods of Analysis

The methods to be discussed in this second major category of technical indicators attempt to anticipate

significant turns in stock market trends. These methods are mainly concerned with seeking and finding clues as to changes in the public psychology in the market and in the quality and intensity of the buying and selling at any given time. These are the types of indicators that:

Try to anticipate the long-term market trend by watching the action of one stock or several stocks, or a stock group or a number of stock groups which are considered reliable leaders or "bellwethers" of the trend. . . . and also . . . those that try to anticipate the short, intermediate, and long-term market trend by analyzing the nature and character of trading—its cyclical position, volume, direction, breadth, quality, and its professional, insider, or amateur source. 31

As Block so aptly puts it,

It is the task of the technical analyst to interpret the action of the market itself and to translate his findings into practical results. 32

That is the essence of this work and this particular section deals with the conceptual framework of some of the technical tools the Wall Street technician follows in his attempt to interpret current market performance and relate it to probable future trends.

**Volume**

This method of analysis relates to the technical

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31 Barnes, op. cit., p. 178.

32 Block, op. cit., p. 11.
position of the stock market and is concerned with the quantity and quality of buying and selling, the response to good or bad news, and the extent of a move in one direction. To illustrate, after an extended rise in the market, technical deterioration is said to accompany sharply increased trading volume on temporary declines and vice versa. Also, if the market moves up or down on small or diminishing volume, the move is likely to be temporary because the majority of traders do not agree and are probably pessimistic. From this, the terms "technically strong" and "technically weak" have arisen.

In other words, volume tends to keep in step with the trend. If the trend is up, volume will rise on rallies; if the trend is down, it will rise on reactions . . . Shrinking volume almost always shows up before the top of a bull market and before the bottom of a bear market. Thus, the peak of stock prices in a long bull market has, since 1929, almost always come at least eight months after the peak monthly volume on the New York Stock Exchange.33

Volume is studied because it bears a relationship to price changes in the market as affected by supply and demand phenomena. Harold M. Gartley states,

As a primary principle of economics, it is assumed that if a large number of shares are offered, the price will be depressed; or conversely, if there is a substantial demand for shares, the price will

33Barnes, op. cit., p. 181. Significant exceptions to this are: 1946--volume high in January only four months before price top in May; 1966--peak volume and peak prices were reached simultaneously in February-March.
Volume data is typically shown, on the bottom of bar charts, as a straight vertical line to represent the number of shares traded. Refinements in the employment of volume data are found by constructing: a volume ratio (ratio of one stock's volume to the market's), price-volume charts, and the moving average of volume to depict the trend. It appears that some individuals have had success with these refinements; however, the study of volume, as it contributes to supply-demand analysis, is best undertaken as it relates to an increase or decrease in individual stock prices and the market averages. And to summarize, from this point of view, confidence is shown when prices and volume rise together or volume is less as stocks decline (people reluctant to sell); and a lack of confidence is shown when prices rise and volume falters or when prices decline and volume rises.

Advance-Decline Lines

The A-D Line is another of the more popular technical indicators and is usually considered, in

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conjunction with the Dow Theory, to add "breadth" to the technician's analysis of general market trends. Like volume, the number of issues traded is also an indication of investor interest. This method indicates a strong market when the number of issues traded are high (1100 or more traded on the NYSE) and there are many advances and few declines. The reverse is true for a weak market and when the A-D Line begins to falter, technical deterioration is likely to result since the market in general may not be acting as well as the averages and this general deterioration may not show up in the averages until later. "When the number of declines outnumbers advances together with a fall in the Dow-Jones Industrial averages, then the decline is likely to continue." 35

The construction of the Advance-Decline Index is relatively simple and involves: (1) Starting with an arbitrary number such as 5,000 or 10,000; (2) Either daily or weekly 36 figures are used, with the difference


36From Barnes, op. cit., p. 181: "Until 1965, advance-decline lines were usually calculated in terms of daily advances or declines. Now a weekly A-D line is increasingly favored by technicians as providing more 'dimension' and 'direction' since it smooths out minor daily advances or declines which--particularly if only 1/4 or 1/8 point--may not be especially significant."
between advances and declines being added or subtracted from the number selected in (1); and, (3) This gives the cumulative A-D line to be plotted accordingly.

Closely resembling the A-D Line in concept and purpose are High-Low indexes and ratios. They will not be dealt with in depth, since the A-D Line gives much more "coverage" of the stock market; however, a note should be made here that in general: a rising market is normally accompanied by an increasing number of stocks reaching new highs and a decreasing number of new lows; and vice versa for a declining market. Divergence is looked for, by comparing these indexes to general market averages, as it is with the A-D Line and the same conclusions may be made.

In summary then, the theory behind the A-D Line is when it moves up and down in unison with the Dow-Jones Averages, the trend will probably continue. However, when there is a divergence between the two lines, it normally means the trend of the market will change.

Finally:

If analysts were allowed only one set of statistics from which to draw their market judgments, it seems certain that most would select the Advance-Decline data. It is literally impossible for distribution

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37 See, "Reading the Future in the Past," Business Week, op. cit., p. 107, for a slightly different approach, which is referred to as the "Breadth Index."
and accumulation, signifying fundamental changes in investors sentiments, not to show up in the Advance-Decline indices—particularly in the Advance-Decline Line.38

Short Sales

The volume of short sales or short interest in the stock market is also an indication of technical strength and weakness. It is usually felt that a rise in short sales provides strength, since at some point in time, these short sales will have to be "covered" thus providing a price support in the market. This is certainly logical since a large short interest indicates that the market has absorbed the additional supply of stock and if the market should begin to decline, the short interest helps to support prices through stock purchases. Along with this, when a trend reversal to the upside is in the making, the shorts cover to limit their losses and in doing so, make the uptrend even stronger. Barnes relates that:

Stocks with very large short interests often show the biggest gains . . . a high and rising short position—especially when spread out among many active stocks—can paradoxically provide cumulative support to a market rally . . . Note, however,

38George K. Freeman, "Advance-Decline Line; It Provides a Clue to the Underlying Strength or Weakness of the Market," Barron's, XLIII, No. 3 (Chicopee Falls, Mass.: Dow Jones & Co., Inc., January 21, 1963), 16.
that—in the early and middle stages of a true long-term bear market—a big short interest is not a bullish sign... For most shorts are then long-term "fundamental" shorts, and are under no compulsion to buy back their short shares as long as the decline continues. This was the case in both 1962 and 1966.39

Wright, in his studies of cyclical stock market patterns and in speaking about the wide divergence of opinion among the experts reveals,

There are, however, two Indicators that have proved to be reliable and effective year after year: the widely-known N.Y.S.E. "Short Interest," which is a measure of the "technical" condition of the Stock Market; and the Yield Cycle (Stocks vs. Bonds), which measures the fundamental condition of the market.40

He refers to the N.Y.S.E. Short Interest as the "Delphic oracle of the Stock Market" and provides this summary as proof:

Since the Korean War, the N.Y.S.E. Short Interest has been an unfailing forecaster of both every Major Bull Market Advance and every Bear Market Decline.

Every Major Bull Market has begun when the N.Y.S.E. Short Interest was high and rising higher... (1) totaled at least .065% of All N.Y.S.E. Listed Shares... (2) 125% of Average Daily Market Volume since last report... and (3) had increased at least +6% above the previous month.

No Bull Market has ended while the Short Interest was High (at least .060% of all listed shares).

39 Barnes, op. cit., p. 182.

Every Major Bear Market has begun when the N.Y.S.E. Short Interest was low and declining lower . . .
(1) totaled less than .065% of Listed Shares,
(2) less than 125% of Average Daily Volume, and
(3) was at least - 8% below the previous month.

No Bear Market has ended until the Short Interest had a pronounced rise (to at least .065% of Listed Shares). 41

Before going on, derivation of the short-selling indicators should be explained. The two more common types are (1) the short interest total, as reported each month by the N.Y.S.E. and the A.S.E., from which relative analyses may be made, and (2) the short-interest ratio, which is the relationship between the monthly reported N.Y.S.E. short interest to average daily trading volume for the preceding month. The derivation of the latter will be discussed here.

The short-interest ratio relates the monthly short interest figures to average daily trading for the previous month because the potency of any short interest total depends on how it compares to the total volume of trading.

In order to use the short interest as an indicator of major market buy and sell spots, it must be related to the average daily volume of trading because an active market can support a large short position without technical strength being greatly enhanced while a moderate short position in a very dull market is often enough to provoke a sustained

41 Ibid., p. 310.
rally. . . . Whenever the ratio rises to above 1.5, bearish sentiment is being overdone and rising prices lie ahead. Whenever the ratio falls under 1 it indicates that the market technical position is weak and that a decline in prices lies ahead.42

This generally agrees with the Wright study previously mentioned and as a final comment, "No 'sustained' market rise has occurred since 1932 without the short interest ratio moving above 1.7."43

Barron's Confidence Index

This index is found by dividing the average yield of the Dow Jones 40 Bonds into the average yield of Barron's Ten High Grade Corporate Bonds. It typically varies from the middle 80's to the middle 90's and is an indicator of confidence in the market, since when investor's confidence is high, they will buy lower grade bonds and this in turn raises the demand (and prices) and lowers yields on low grade bonds, with the reverse being true on high grade bonds. With an increase in demand prompting lower yields on low grade bonds, the confidence index moves up and since the assumption is that the trend of "smart money" is usually revealed in the bond market before the stock market (as it leaves

42Granville, op. cit., pp. 141-142.

43Barnes, op. cit., p. 183.
prime bonds for secondary issues it also passes into stocks), when this occurs, the stock market is said to be technically strong. "As long as the confidence is above 88, there is unusual confidence in the market. If it falls or if it is around 70, this is a sign of depressed conditions and a severe lack of confidence in the market." 44 From this line of reasoning, it also follows that a fall in the index indicates a future fall in equity prices, since the shift from secondary to primary bonds indicates that "smart money" has begun (or will begin) selling stocks.

Opinions vary greatly with respect to the confidence index. Granville, Anreder, and Dell'Aria hold that it has significant value as a leading indicator. Harry J. Nelson, who writes the weekly column, "The Trader," in Barron's, stated in the April 15, 1963 issue:

... I have shown in my 1962 article that Barron's Confidence Index was a poor indicator of the future trend of stock prices. And since then, until July, 1965, the INDEX was as bad as it had been up to 1962. 45

44Amling, op. cit., p. 469.

Thus, it appears that with the divergence of opinion about the C.I., it is more difficult to use than most technical indicators. Its success in use seems to fall on the interpreter, and the meaning he may ascribe to indications of which he is aware.

Another indicator of confidence in the stock market is the ratio of the volume of shares traded on the American Stock Exchange to the volume on the New York Stock Exchange. This ratio attempts to reflect the emotional or psychological level in the markets and, with the ratio in use,

40% to 50% is normal, however, when it turns up and stays high, this indicates that the Dow will go down eventually and this ratio usually leads the Dow by three to nine months. 46

If the reader will recall the discussion on the Dow Theory mentioned previously, the basic premise of this ratio is based on the well known third phase of a bull market which many times runs rampant with speculation and trading.

Similar to this approach to measure "public confidence" in the stock market, is the ratio of Standard and Poor's index of 20 low-price stocks to either S & P's

index of 25 high-grade stocks or for even better representation, S & P's 500-stock index. This method would eliminate the criticism of the Barron's Confidence Index with its use of bond yields, and still attempt to perform the same function.47

Thus, the confidence indices, with all of their criticisms, attempt to measure "public confidence" in the market place. Some users say they "lead" the averages and others say they "follow" or "lag" market trends. However, any attempt to study stock market trends should include at least one, if not all of these methods in order to make relative comparisons to the market trends and other indicators.

Odd-Lot Indicators

It is believed that the odd-lot public (buying a number of shares less than 100 which is known as a round-lot) are generally wrong in their timing and are known as the "weak hands" in the market place. This is certainly a strong assertion and if it were true, many more wealthy investors would be the result. Actually, ". . . over the long term, the statistics indicate that round-lot investors have been right 'somewhat more' than

47See Barnes, op. cit., p. 182, for a description of the typical pattern of behavior found in this index.
There are many odd-lot indicators. Some are favored over others depending on the user.

Most important, however, is the fact that THE TREND OF SENTIMENT AS INDICATED BY THE ODD LOT BALANCE OF TRADING IS MORE IMPORTANT THAN THE SIDE ON WHICH THE BALANCE LIES. The key points are that (1) divergence of the odd-lot index from the market averages is significant, and (2) persistent odd-lot buying after a long market advance seems to indicate a reversal and vice versa.

The common approach to analysis here, is to express odd-lot sales as a percentage of odd-lot purchases and compare this trend against the trend of one of the market averages. Adding further sophistication to this technique would be to construct a moving average of this odd-lot index and compare this to a moving average of the market averages. When the two moving averages diverge, caution should be taken, for if it widens, significance is attributed to this occurrence and a reversal of trend is probably under way.

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48Ibid., p. 183.

49Garfield A. Drew, "The Odd Lotters," A Treasury of Wall Street Wisdom, op. cit., p. 354. From the words of Garfield A. Drew, known as the "Columbus of the Odd-Lot Theory." This idea is borne out by the Brookings Institution which found that on the more important trends the odd lot public invariably bought on declines. "Its action on advances was about equally divided between buying and selling." Ibid., p. 355.
Other common odd-lot indicators are the (1) odd-lot trading ratio or the ratio of total daily odd-lot volume to total daily round-lot volume, and (2) the odd-lot short sales ratio or the ratio of daily odd-lot short sales to daily odd-lot regular sales. About the former, "Near the bottom (declining market), the ratio of odd-lot to round-lot volume is 9% or less; around the top, it is 12% or more...";\(^{50}\) And speaking about the odd-lot short sales ratio,

... a high odd-lot short-sales ratio--typically, one of 2% or higher--is a strong bullish indication. A low ratio--typically, one between 0.5% and 0.9%--is often (but not always) bearish.\(^{51}\)

In evidence of the validity of the odd-lot short sales ratio, Wright concluded from this study of the period 1955-1965:

The judgment of the Small Trader who sells Short in Odd Lots is almost invariably wrong. When he is "bullish," his short selling declines ... and the Market usually proves him wrong by going down. When he is most "bearish," and his Short Sales are heaviest, the Market has usually completed most of a decline, and almost always rallies within a few weeks.\(^{52}\)

This study showed that in each case, when the odd-lot short sales ratio reached 0.5% or lower, a bear market resulted.

\(^{50}\)Barnes, \textit{op. cit.}, p. 183.
\(^{51}\)Ibid.
\(^{52}\)Wright, \textit{op. cit.}, p. 311.
In conclusion, although the public is never entirely wrong, it tends to buy proportionately less at market bottoms than it did when prices were higher, and vice versa for selling. Also, "A change of sentiment on the part of the public after any market trend has become well established is almost always just the opposite of what it should be." 53

**Seasonal Strength or Weakness**

This is one area of analysis where many studies have been made and concrete conclusions have been drawn. The idea here is that there are years, months, weeks, days, and hours during the day when the stock market traditionally advances or declines, thus, timing of transactions should be made accordingly. Of course, blind investing is not advised just because a traditionally bullish month is nearing but through proper analysis and selection of securities, timely purchases and sales in anticipation of the "expected" future are more likely to enhance profits.

There is no doubt that the fluctuating upward progress of the Stock Market since the Korean War has been marked by pronounced Seasonal Characteristics. A study of the 11 peacetime years following the

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Korean War shows that there are 5 well-defined Seasonal Periods in the annual progress of the Stock Market.\textsuperscript{54}

These were described as: (1) The January Forecast--For the 11 year period, January results have forecasted the general trend of the stock market for the entire year; (2) The Spring Rise--The time period involved is that it usually begins in March, reaches its peak by mid-May, then generally lower prices result through mid-June; (3) The Summer Rally--The stock market generally begins to advance at the end of June and an interim high is usually reached by the end of July; (4) The Autumn Sell-Off--This period usually starts around Labor Day and by mid-October bottoms are usually reached; and (5) The Year-End Advance, which "... has never failed in the 11 years ...."\textsuperscript{55}

Of interest are studies made by Merrill in this area. For example, he has found that for the sixty-seven years from 1896 through 1963, the DJIA notably showed increases in these months (in per cent of years studied): (1) December--75%,(2) August--70%, (3) July--68% and,  

\textsuperscript{54}Wright, \textit{op. cit.}, p. 305.  
\textsuperscript{55}\textit{Ibid.}, p. 308.
(4) January--63%. This reference also studied daily patterns within the month, daily patterns within the week, hourly patterns during the day, the stock market's behavior near income tax time and during Presidential election years, et cetera.

The evidence, as presented in these studies, can and should certainly be used to one's advantage. Certainly the recognition of the material presented will aid the timing problem and increase the likelihood of profits rather than losses. 57

**Bellwether Indicators**

The thinking, in this area, is that there is a stock or a group of stocks which tend to "lead" the stock market averages. There is a strong tendency to rely on General Motors for its "leading" capability. A study by Griffith reveals that General Motors would have called every major turning point from 1928 up to

56Merrill, *op. cit.*, p. 3-1. In a more recent study these figures were further substantiated: Anthony Gentle, "The Months When Bulls Rush In," *Los Angeles Herald Examiner*, August 27, 1967, p. F-5.

57Merrill Lynch, Pierce, Fenner & Smith found in a computer analysis of 25 industry groups that "... there are indeed seasonal patterns for stock prices and they are quite pronounced for some industries ..." (especially in Meatpacking). "How to Buy Stocks by the Calendar," *Fortune* (Chicago: Time, Inc., Vol. LXXI, No. 3, March, 1965), p. 62.
"For years General Motors has proven itself to have been the bellwether of stock market trends"; however, it was added:

Maybe one of the reasons for feeling that this apparently very reliable indicator of stock market trends should be considered as a good stock market tool, rather than as the only barometer to be read and to be considered, is the fact that since 1956 stock market cycles have become shorter and more speculative.

The basic assumption in the General Motors bellwether approach is that, as the world's leading industrial organization, the relative performance of GM's shares has great importance in determining the market trend, not only because of dollar magnitude but as a reflection of investor opinion. The theory is that if GM can move through a four month period without making a new low, then the market has seen its worst and is pointing upward. Conversely, if GM can make new highs during an advancing market, the outlook is favorable; however, its inability to hit a new high within four months would give cause for caution.

The evidence, as shown in the Griffith study, certainly is impressive; however, the theory is not

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59Ibid.
infallible. But as a tool available to the technician for use with other indicators, the GM barometer has proven itself in the past and, on that basis, should be recognized for its value.

Disparity Indicators

The most common indicator of this type is the confirmation employed in the Dow Theory between the DJIA and the DJR. Without one confirming the other, the primary trend is still as it was determined to be previously. Also, "When they diverge, then a change is indicated."60 Some technicians (Granville) believe that given the DJR moving either more negatively or more positively than the DJIA, this indicates a near-term move in the DJIA in the direction of the DJR.

More recently, technical analysts have studied the comparative behavior of the Standard & Poor's 500-stock index and the DJIA. The disparity in their actions is considered significant, especially in the intermediate and long terms.

Despite the usefulness of these varieties of disparity indicators, not much space will be devoted to the different types due to the detailed studies of the Dow Theory and the Advance-Decline line. Both of these

60Mansfield, op. cit., p. 243.
theories are considering disparity, the former via the use of the DJIA and DJR, and the latter via its divergence from the DJIA. By using the A-D line along with the Dow Theory, stock market trends and disparity, with wide market representation, are considered. Also, due to their popularity in use, these methods are considered to be adequate in both areas.

There are many more character of the market methods of stock market analysis along with many more trend theories and with users' personal "twists" being applied in many cases. Some of these are demand and supply pressure theories, Neill's theory of contrary opinion, weak and strong hands measures, the American Stock Exchange price level index, watching the trend of secondary offerings, New York Stock Exchange seat price trend, the trend of low priced shares, the relationship between stock-bond yields, et cetera. Some of these could be used in a fully mechanized system but due to their "special" character and also, due to the results they purport to measure being reflected in the other

methods discussed previously, they will not be dealt with in detail in this paper.

Summary

This chapter presented the framework of existing knowledge which leads many authorities to conclude that trend following is profitable and that by the use of "character" of the stock market indicators, changes or continuance in the overall market trend may be detected. This paper assumes that trend following is profitable (as the Merrill study, in the Dow Theory section, proved). This presents the problem of detecting behavior patterns in "character of the market" technical indicators so that the future trend in the stock market may be more accurately anticipated.

These points of relevance to the problem can be made:

1. Moving averages--the trend of the market is assumed to be down when the actual market average is under the moving average and the line is moving downward, and vice versa.

2. Volume--stays in step with the trend.

3. Advance-Decline Line--divergence with the general market averages indicates a change in trend.
4. Short Interest Ratio--1.5 and higher is bullish, 1.0 deserves caution, and 0.5 and lower is bearish.

5. Barron's Confidence Index--above 88 is bullish and below 70 is bearish.

6. Ratio of ASE to NYSE Volume--40% to 50% is normal, above is bearish and usually leads the Dow by three to nine months.

7. Odd-Lot Index--the divergence of this with the market averages indicates a reversal of trend.

8. Bellwether--a declining trend for GM merits caution as far as the general market's trend is concerned.

9. Stock-Bond Yields--a 3.5% to 3% yield on the DJIA puts equities in an area of overvaluation and a market reaction will likely result, et cetera.

Finally, from the authoritative opinions put forth, there is concurrence that no one indicator can possibly signal all minor, intermediate and major market trends. Accordingly, one logical way to improve the reliability of the techniques under discussion would be to use a consensus of indicators to accomplish this task.

In conclusion, behavior patterns are believed to
exist in "character of the market" indicators. As some of the studies showed, if these patterns are realized, they do have value in aiding investors to more accurately anticipate future stock market trends.

Before applying the relationships described, successful overall timing should once more be stressed.

It has been estimated by Arthur Wiesenberger & Co. that, had one been able to time precisely all the turns on the Dow-Jones industrial average since 1915, one could have parlayed an investment of $100 in the DJIA at the start of 1915 into over $849,000 by the end of 1965 (ignoring both dividends and commissions). That represents a compounded yearly return of 19.4%.62

One cannot hope to achieve this kind of performance; however, if significant reversals in market trends are anticipated, certainly better timing and greater profits will be the result. To obtain this, the behavior patterns reported here do not have to be 100% or 90% accurate; since,

Stock Market analysis and forecasting will be helpful if it only raises your investment batting average from 50% to 70%, or even from 40% to 60%. There is good reason to believe that this can be done.63

Thus, the next step is to apply the techniques of analysis to empirical data as a second test of the hypothesis.

62 Barnes, op. cit., p. 174.

63 Ibid.
CHAPTER III

AN EMPIRICAL STUDY OF CHARACTERISTICS OF SELECTED TECHNICAL INDICATORS

In this chapter, trends of selected technical indicators are studied before fluctuations of 5% or greater in the DJIA, and behavior patterns are reported. Also, users' rules for these indicators are evaluated, as are characteristics of the stock market in general. Finally, a summary is provided in which conclusions are drawn about the hypothesis.

Analysis of Trends and Values in Selected Technical Indicators

The indicators selected for this study are:
(1) Dow-Jones Railroad Average (DJR), (2) Odd-Lot Index, (3) Monthly Short Interest Ratio, (4) Advance-Decline Line, (5) Per Cent ASE Volume to NYSE Volume, and (6) NYSE Volume.

Performance of the Five and Eleven Week Trend Lines

As the reader will recall, the central theme of this work is to relate characteristics in selected
technical indicators to fluctuations of 5% or greater in the DJIA. Five and eleven week trends of the indicators were chosen for this task. The reason for this choice will be shown in the next section.

The analysis, in this section, is based on action points in the Dow. In other words, the action points were the originating points of moves of 5% or greater, in the Dow, in either direction, as measured from the conclusion of the last action point computed in the same manner. Once these points were established, the five and eleven week trend lines of each indicator were examined before them, to see if they properly forecasted the resulting move in the Dow.

A summary of the success of the indicators' trends, in forecasting moves of 5% or greater in the DJIA, is shown in Table 1. A more detailed picture is obtained by referring to Appendix B, where the trends were analyzed in relationship to their direction before these moves in the DJIA, and then their successes were recorded by relating this to the direction of the move in the DJIA. A discussion of the results of this analysis is provided next.

**DJR and the A-D Line**

These two indicators were the poorest performers overall. The reason for this is that they tend to move
in the same direction as the DJIA over a long period of
time, thus, as forecasters of 5% moves in the DJIA in
either direction, their reliability is questionable.
However, the eleven week trend line of the DJR does
show some promise when it comes to divergence from the
DJIA in forecasting decreases of 5% or greater in the
latter. In this category it ranked second among the
indicators chosen, as seen in Table 1.

From the performance of these two indicators,
it can be concluded that neither is very helpful in
forecasting short term market turns. Their value comes
in either agreeing or disagreeing with movements in the
DJIA by either confirming or diverging over long periods
of time. In other words, and on a long term basis, if
these two indicators agree with the DJIA, its trend, in
either direction, is likely to continue. On the other
hand, if these two indicators diverge from the movements
in the DJIA, the trend in the latter is likely to change
to the direction these indicators have taken, again, on
a long term basis.

Odd-Lot Index

The odd-lot index also performed poorly when it
came to forecasting these short term movements in the
DJIA. The best performance was in the eleven week trend
line before increases of 5% or greater in the DJIA and
### TABLE I*<sup>a</sup>

**Success of Trends in Technical Indicators Before Fluctuations of 5 Per Cent or Greater in the Dow-Jones Industrial Average (1960-1967)**

<table>
<thead>
<tr>
<th></th>
<th>Fifteen Increases</th>
<th>Fifteen Decreases</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 week trend</td>
<td>11 week trend</td>
<td>5 week trend</td>
</tr>
<tr>
<td></td>
<td>correct (%)</td>
<td>correct (%)</td>
<td>correct (%)</td>
</tr>
<tr>
<td>1. Dow Jones</td>
<td>13.3 (5) 13.3</td>
<td>26.7 (4) 46.7</td>
<td>20.0 (5) 30.0</td>
</tr>
<tr>
<td>Railroad Average</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Odd-Lot Index</td>
<td>33.3 (3) 46.7</td>
<td>33.3 (3) 26.7</td>
<td>33.3 (4) 36.7</td>
</tr>
<tr>
<td>3. Monthly Short</td>
<td>66.7 (1) 73.3</td>
<td>53.3 (2) 33.3</td>
<td>60.0 (2) 53.3</td>
</tr>
<tr>
<td>Interest Ratio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Advance-Decline</td>
<td>20.0 (4) 26.7</td>
<td>20.0 (5) 26.7</td>
<td>20.0 (5) 26.7</td>
</tr>
<tr>
<td>Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Per Cent ASE Vol.</td>
<td>60.0 (2) 60.0</td>
<td>73.3 (1) 53.3</td>
<td>66.7 (1) 56.7</td>
</tr>
<tr>
<td>to NYSE Vol.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. NYSE Vol.</td>
<td>60.0 (2) 53.3</td>
<td>20.0 (5) 40.0</td>
<td>40.0 (3) 46.7</td>
</tr>
</tbody>
</table>

*For supporting data, see Appendix B.*
even then, it ranked only fourth. As with the above two indicators, the implication is clear concerning the odd-lot index—its value arises mainly over the long term, especially in the cases where the odd-lotter begins buying after a long market climb and begins selling after a long market drop. In these two instances, the odd-lotters' sentiments are usually wrong and it is best to do the opposite.

**Monthly Short Interest Ratio**

This indicator gave a relatively "good" performance in forecasting swings in the DJIA of 5% or greater. Especially in the case before increases in the DJIA, the eleven week trend line performed well. In many cases, the "1.5 bullish rule" (discussed in Chapter II) did not apply, but the increase in short selling via this trend method of analysis, was, many times, enough to stimulate and add impetus to increases in the DJIA. Overall, this was the second best indicator of the lot, being particularly helpful in forecasting short term stock market increases.
Per Cent ASE Volume to NYSE Volume

In all moves of 5% or greater in the DJIA, this indicator ranked highest in its forecasting ability. It was discussed in Chapter II as a confidence index, i.e., 40% to 50% is normal, while above 50% is bearish and vice versa. As with the short interest ratio, this "absolute rule" did not hold in many of the 5% DJIA moves. However, the trend in the ratio was applied and, as a forecasting tool, the five week trend was relatively successful. Because of the "gap" between the success of the five week trend as opposed to the eleven week trend in the "Fifteen Decreases" category, it appears that the shorter the trend used, the better this ratio's ability to forecast down moves in the Dow. This is in direct comparison to the "Fifteen Increases" category, where the two trends had the same percentage of success.

From this analysis, confidence is shown when the speculative trend in the market is lowest and as a short term indicator, increasing speculation usually precedes market corrections. On a longer term basis, declining markets were generally preceded by pronounced speculation and at market bottoms, speculation was very dull. (See Table 3.)
**NYSE Volume**

This indicator was also discussed in Chapter II. As an indicator before the 5% fluctuations studied, it did rather poorly, except in the case of short term increases. In most cases volume tended to increase on rallies and decrease on declines, even in the 5% decrease situations in the DJIA. Thus, interpretation, on a short term basis, is extremely difficult.

It can be concluded that volume may "dry up" and the Dow may go down, or volume may increase as the Dow moves downward. The latter is the most ominous sign but the former should not be slighted. Further, it usually takes an increase in volume to raise prices. As a short term forecasting tool, the relationship between volume and market movements should certainly be watched, but in interpretation, volume "drying up" on declines cannot be construed as a bullish tendency. Finally, intuition plays a big role in working with this tool and if worked with long enough, the comprehension which should result will ultimately lead to greater success in its use.

The Comparison of General Rules of Use to the Indicators' Trends

As related in Chapter II, general rules of use were stated by authorities studied. Some of these were:

1. DJR, A-D Line, NYSE Volume--If confirming moves in the DJIA, this trend is likely to continue, and if
diverging from moves in the DJIA, the trend is likely to swing to the direction in which these three indicators are pointing; (2) The Odd-Lot Index—either buying on balance is bearish and selling on balance is bullish, or the prevailing trend in the odd-lotters’ actions is the key; (3) The Monthly Short Interest Ratio—1.5 and higher is bullish, 1.0 deserves caution, and 0.5 and lower is bearish; and (4) Per Cent ASE Volume to NYSE Volume—40% to 50% is normal, above 50% is bearish and below 40% is bullish. This discussion will attempt to relate these generalizations to the trend method of analysis used in the preceding section.

**DJR, A-D Line and NYSE Volume**

The general rules of use cited by authorities in Chapter II, are acceptable with one stipulation: that the time period involved is long range in nature. As was shown in the preceding analysis, these three indicators do not lend themselves to forecasting short term market swings of the type studied. Their value lies in giving the technician long range perspective and not in forecasting short term market fluctuations.

**Odd-Lot Index**

This indicator is shown in Table 2, along with two others. If, in an analysis of this indicator before
<table>
<thead>
<tr>
<th>Start Date</th>
<th>Nature of Move</th>
<th>Odd-Lot Index</th>
<th>Mo. S. I. Ratio</th>
<th>Per Cent Vol.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5 weeks</td>
<td>11 weeks</td>
<td>5 weeks</td>
</tr>
<tr>
<td>1-1-60</td>
<td>-</td>
<td>95</td>
<td>88</td>
<td>54</td>
</tr>
<tr>
<td>3-11-60</td>
<td>+</td>
<td>82</td>
<td>73</td>
<td>0.98</td>
</tr>
<tr>
<td>4-15-60</td>
<td>-</td>
<td>91</td>
<td>81</td>
<td>1.19</td>
</tr>
<tr>
<td>4-29-60</td>
<td>+</td>
<td>91</td>
<td>85</td>
<td>1.19</td>
</tr>
<tr>
<td>6-10-60</td>
<td>-</td>
<td>95</td>
<td>90</td>
<td>1.19</td>
</tr>
<tr>
<td>7-22-60</td>
<td>+</td>
<td>102</td>
<td>89</td>
<td>1.19</td>
</tr>
<tr>
<td>8-26-60</td>
<td>-</td>
<td>101</td>
<td>79</td>
<td>1.21</td>
</tr>
<tr>
<td>10-21-60</td>
<td>+</td>
<td>90</td>
<td>79</td>
<td>1.38</td>
</tr>
<tr>
<td>5-19-61</td>
<td>-</td>
<td>106</td>
<td>93</td>
<td>0.73</td>
</tr>
<tr>
<td>7-21-61</td>
<td>+</td>
<td>98</td>
<td>81</td>
<td>1.09</td>
</tr>
<tr>
<td>11-24-61</td>
<td>-</td>
<td>107</td>
<td>99</td>
<td>0.98</td>
</tr>
<tr>
<td>6-22-62</td>
<td>+</td>
<td>102</td>
<td>73</td>
<td>0.88</td>
</tr>
<tr>
<td>8-24-62</td>
<td>-</td>
<td>107</td>
<td>94</td>
<td>1.71</td>
</tr>
<tr>
<td>10-26-62</td>
<td>+</td>
<td>119</td>
<td>104</td>
<td>1.98</td>
</tr>
<tr>
<td>5-31-63</td>
<td>-</td>
<td>132</td>
<td>122</td>
<td>1.24</td>
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<tr>
<td>7-26-63</td>
<td>+</td>
<td>124</td>
<td>109</td>
<td>1.49</td>
</tr>
<tr>
<td>10-25-63</td>
<td>-</td>
<td>123</td>
<td>115</td>
<td>1.39</td>
</tr>
<tr>
<td>11-22-63</td>
<td>+</td>
<td>115</td>
<td>101</td>
<td>1.39</td>
</tr>
</tbody>
</table>
### TABLE 2—(Continued)

<table>
<thead>
<tr>
<th>5 Per Cent Fluctuations</th>
<th>Indicators</th>
<th>Per Cent Vol.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odd-Lot Index</td>
<td>Mo. S. I. Ratio</td>
</tr>
<tr>
<td></td>
<td>5 weeks</td>
<td>11 weeks</td>
</tr>
<tr>
<td></td>
<td>Hi</td>
<td>Lo</td>
</tr>
<tr>
<td>Start Date</td>
<td>Nature of Move</td>
<td></td>
</tr>
<tr>
<td>5-14-65</td>
<td>-</td>
<td>110 102 112 102</td>
</tr>
<tr>
<td>6-25-65</td>
<td>+</td>
<td>113 81 113 81</td>
</tr>
<tr>
<td>7-11-66</td>
<td>-</td>
<td>93 88 115 88</td>
</tr>
<tr>
<td>9-9-66</td>
<td>+</td>
<td>96 71 102 71</td>
</tr>
<tr>
<td>9-16-66</td>
<td>-</td>
<td>93 71 102 71</td>
</tr>
<tr>
<td>10-7-66</td>
<td>+</td>
<td>79 72 96 71</td>
</tr>
<tr>
<td>11-11-66</td>
<td>-</td>
<td>95 78 95 71</td>
</tr>
<tr>
<td>12-30-66</td>
<td>+</td>
<td>127 119 127 79</td>
</tr>
<tr>
<td>5-5-67</td>
<td>-</td>
<td>131 108 131 108</td>
</tr>
<tr>
<td>6-30-67</td>
<td>+</td>
<td>121 102 131 102</td>
</tr>
<tr>
<td>9-22-67</td>
<td>-</td>
<td>122 116 122 108</td>
</tr>
<tr>
<td>11-3-67</td>
<td>+</td>
<td>108 98 122 98</td>
</tr>
</tbody>
</table>
short term DJIA movements, a technician used the "buying on balance" or "selling on balance" rule, many of the short term moves would be missed (see first half of 1960 in which the odd-lotter is buying and in which the DJIA increased 5% or greater twice). Of course, the success of this indicator, as outlined in the preceding section, was poor anyway; however, it is important to note that the trend in the odd-lotters' sentiments is what counts and not the absolute value of this ratio at any particular point in time.

**Monthly Short Interest Ratio**

Since this was the second best indicator overall, it is important to know that the "1.5-0.5" rule, as stated above, is far less applicable to short term market moves than is the trend method used in the preceding section. A quick glance at Table 2 shows that the stock market went through twelve fluctuations of 5% or greater before either of these values was ever reached (the low value was never reached). Thus, the trend method of analysis is most definitely in order in looking for short term market swings, while the general rule (stated above) seems to apply only to market moves of a primary nature.

**Per Cent ASE Volume to NYSE Volume**

Finally, the absolute values of 40% and 50% in this indicator apply mainly to market movements of a
primary nature. As can be seen in Table 2, it stayed in neutral ground many times (between 40% and 50%) while the Dow was going through many 5% fluctuations (especially in the years 1960, 1962, 1965 and 1966). Meanwhile, the trend in this "most successful" indicator called many of the short term market swings before they happened, thus, this method, related to the short term, displays more versatility and a better performance record was the result.

The Indicators Before Major Market Turning Points

This section provides an analysis of the technical indicators before moves in the DJIA of a primary nature (as explained in Chapter II under the Dow Theory). Here also, market patterns in general, are analyzed for the period 1960 through 1967.

Characteristics of the Indicators Before Major Market Turns

As shown in Table 3, there were six major market turns in the period 1960-1967. It is interesting to note that one of the most successful indicators in the preceding section, i.e., the Monthly Short Interest Ratio, was actually declining during the primary turn from bear to bull in the first quarter of 1961. This is the only major market turn toward the bullish side, in this period, before which this indicator declined.
TABLE 3

Characteristics of Selected Technical Indicators Before Primary Turns in the Dow-Jones Industrial Average for the Period 1960-1967<sup>a</sup>

<table>
<thead>
<tr>
<th>Type Turn</th>
<th>Period&lt;sup&gt;b&lt;/sup&gt;</th>
<th>DJIA</th>
<th>DJR &amp; Mo. S.I. Line</th>
<th>Vol. NYSE&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Per Cent Vol. ASE:NYSE</th>
<th>Odd-Lot Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bear</td>
<td>1st Qtr. 1960</td>
<td>A&lt;sup&gt;c&lt;/sup&gt; Diverging on rallies A</td>
<td>A.32 to 0.89 A</td>
<td>A 32% to 54% A</td>
<td>Below</td>
<td>100%</td>
</tr>
<tr>
<td>Bear</td>
<td>1st. Qtr. 1961</td>
<td>Confirm- Declining from</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull</td>
<td>-1st. Qtr. 1962</td>
<td>B Confirmed</td>
<td>A 1.41 to 0.95 A</td>
<td>B Below 40% B</td>
<td>Incr. selling</td>
<td>to above 100%</td>
</tr>
<tr>
<td>Bear</td>
<td>2nd. Qtr. 1962</td>
<td>Consistently</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bull</td>
<td>4th Qtr. 1962</td>
<td>Diverging</td>
<td>Increasing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bear</td>
<td>4th Qtr. 1965</td>
<td>B on declines B</td>
<td>to 1.98 B</td>
<td>B Below 30% B</td>
<td>Incr. selling</td>
<td>to 120%</td>
</tr>
<tr>
<td>Bull</td>
<td>1st. Qtr. 1966</td>
<td>Confirm- Declining from</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bear</td>
<td>4th Qtr. 1966</td>
<td>A Confirmed</td>
<td>A 1.36 to 1.18 B</td>
<td>A 36% to 67% A</td>
<td>Incr. buying</td>
<td>to 80%</td>
</tr>
<tr>
<td>Bull</td>
<td>1st. Qtr. 1967</td>
<td>Diverging</td>
<td>Increasing</td>
<td>Between 20%</td>
<td>Incr. selling</td>
<td></td>
</tr>
<tr>
<td>Bull</td>
<td>4th Qtr. 1967</td>
<td>B on declines B</td>
<td>to 2.09 B</td>
<td>B and 25% B</td>
<td>Incr. selling</td>
<td>to 127%</td>
</tr>
<tr>
<td>Correct (Number):</td>
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<td>6</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Correct (Per Cent):</td>
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<td>100</td>
<td>83.3</td>
<td>50</td>
<td>83.3</td>
<td>100</td>
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<tr>
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<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(2)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Dow Theory signals indicating a change in the primary trend.

<sup>b</sup>Approximate turning points.

<sup>c</sup>A = bear; B = bull; N = neutral.

<sup>d</sup>1 = increasing on declines and decreasing on rallies; 2 = increasing on rallies and decreasing on declines.

<sup>e</sup>Except that the A-D Line was confirming the rallies.
Progress of the other indicators is noted in Table 3. Of particular interest are the periods in which the DJR and the A-D Line diverged away from the DJIA's trend, with the Dow finally following their moves. As is to be expected from the previous discussion, the action in the NYSE Volume was once again most difficult to interpret. Most of the time it was found increasing on rallies and decreasing on declines, even before primary turns to the bearish side.

Finally, the Odd-Lot Index was consistently helpful in this analysis, as it reflected the odd-lotter's changing sentiments at the wrong time; and the Per Cent ASE Volume to NYSE Volume indicator was almost as helpful except in early 1962, when it stayed on neutral ground during the market's bull to bear change. Refer to Table 3 for a summary of the indicators' actions before market turning points of a primary nature.

Stock Market Patterns in General (1960-1967)

In a further analysis, Table 4 summarizes the period studied in terms of the duration of each 5% fluctuation in the DJIA. To provide a greater understanding of stock market patterns in general, these points can be made. (1) + 5% fluctuations in the DJIA totaled 271 weeks and lasted an average of 18 weeks. They occurred 6 times in bear markets and 9 times in bull
TABLE 4
Stock Market Patterns in General for the Period 1960-1967

<table>
<thead>
<tr>
<th>Start Date</th>
<th>Nature of Move</th>
<th>Duration in Weeks</th>
<th>Primary Trend</th>
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</thead>
<tbody>
<tr>
<td>1-1-60</td>
<td>-</td>
<td>11</td>
<td>Bull x</td>
</tr>
<tr>
<td>3-11-60</td>
<td>+</td>
<td>5</td>
<td>Bear x</td>
</tr>
<tr>
<td>4-15-60</td>
<td>-</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4-29-60</td>
<td>+</td>
<td>6</td>
<td>Bear x</td>
</tr>
<tr>
<td>6-10-60</td>
<td>-</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7-22-60</td>
<td>+</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>8-26-60</td>
<td>-</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>10-21-60</td>
<td>+</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>5-19-61</td>
<td>-</td>
<td>9</td>
<td>Bear x</td>
</tr>
<tr>
<td>7-21-61</td>
<td>+</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>11-25-61</td>
<td>-</td>
<td>30</td>
<td>Bear x</td>
</tr>
<tr>
<td>6-22-62</td>
<td>+</td>
<td>9</td>
<td>Bear x</td>
</tr>
<tr>
<td>8-24-62</td>
<td>-</td>
<td>9</td>
<td></td>
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<tr>
<td>10-26-62</td>
<td>+</td>
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<td>5-31-63</td>
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<td>7-26-63</td>
<td>+</td>
<td>13</td>
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<td>10-25-63</td>
<td>-</td>
<td>4</td>
<td>Bear x</td>
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<td>11-22-63</td>
<td>+</td>
<td>77</td>
<td></td>
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<td>5-14-65</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td>6-25-65</td>
<td>+</td>
<td>33</td>
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<tr>
<td>2-11-66</td>
<td>-</td>
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<td>Bear x</td>
</tr>
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<tr>
<td>11-11-66</td>
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</table>
markets with averages of 5.2 weeks and 27.4 weeks, respectively. (2) - 5% fluctuations in the DJIA totaled 147 weeks and lasted an average of 9.8 weeks. They occurred 9 times in bear markets and 6 times in bull markets with average durations of 11.8 weeks in bear markets and 6.8 weeks in bull markets.

For the period under study, there were three bear markets. The total number of weeks involved in bull markets by far outpaced the total number of weeks involved in bear markets, as witnessed by the count of 281 to 137, respectively. Thus, for the eight year period, the averages were 35 bull weeks/year and 17 bear weeks/year.

Summary

This chapter presented an empirical study of trends and values in technical indicators before short term fluctuations in the DJIA. The trends in the technical indicators selected for the study were analyzed and their records of success were recorded before fluctuations of 5% or greater in the DJIA (Table 1). Some of the indicators were found to be more reliable forecasters of short term market fluctuations; namely, (1) the eleven week trend of the Monthly Short Interest Ratio before increases of 5% or greater in the DJIA, and (2) the five week trend of the Per Cent ASE Volume to NYSE Volume
before DJIA decreases of 5% or greater.

Next, the trend method of analysis was compared to knowledgeable users' rules for the same indicators and it was shown that in many cases before these short term market moves, the rules would not apply since they had not fallen within the "range of discussion" in Chapter II. It was then related that most of these rules were "geared" toward a longer term outlook.

The indicators were then examined before market turning points of a primary nature and in most of these cases, their rules for use were applicable. Problems were discussed in the interpretation of some of the indicators, especially concerning the NYSE Volume as it relates to movements in the DJIA. Also discussed were stock market patterns in general, in order to enlighten the reader in the area of what to "expect" as far as the number of short term market fluctuations and their duration, in bull and bear markets.

Finally, the question must be resolved in the hypothesis as to whether or not characteristics persist in these technical indicators as they relate to future stock market trends. Under the trend method of analysis used, the answer would have to be in the affirmative for certain indicators, i.e., (1) the Monthly Short Interest Ratio usually increases before increases of 5% in the DJIA, and (2) the Per Cent ASE Volume to NYSE Volume
usually increases before decreases of 5% in the DJIA. Concerning the other indicators studied, the answer would have to be negative. The reasons for this were discussed, with the two basic problems mentioned as (1) interpretation, and (2) they just do not lend themselves to a short term analysis of this type. In the negative response that these indicators gave in the study, it should be noted that many indicators take time to exert themselves and on a long term basis before primary market moves, many of these indicators forecasted the turns exceptionally well, i.e., the Odd-Lot Index for one (Table 3).

In closing, it should be noted that trend following is profitable (Chapter II). It should also be noted that investors' objectives play the biggest role in which trend will be followed, i.e., the short term or the long term trend. The indicators were discussed in relationship to both types; however, more effort was concentrated in the short term range, clearly the more difficult time span of the two. Finally, judgment based on experience always plays a big role on both sides of the investment problem.
CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

This study was concerned with the timing aspect of the investment problem. More specifically, the major efforts were: (1) An attempt to show the need for technical indicators, (2) To identify and categorize many of the more prominent technical indicators and theories as they relate to stock market trends, and finally, (3) After an empirical study of selected technical indicators, to rank them according to their short or intermediate term forecasting ability.

It was hypothesized that patterns of behavior do persist in technical indicators before changes in stock market trends. In particular, trends in selected technical indicators were studied, before movements of 5% or greater in the Dow-Jones Industrial Average. This trend method of analysis was used, since in many cases before these 5% moves, users' "rules for use" or guidelines, were not applicable.

A literature survey was first undertaken in order to show the reasoning as related to the hypothesis. Many behavior patterns were believed to exist and these were
reviewed. Reference to the writings of authorities in the field of technical analysis was used to substantiate this belief.

An empirical analysis was then made in an attempt to determine whether or not behavior patterns do exist in technical indicators. Six different indicators were tested before "action points," which consisted of starting points for fluctuations of 5% or greater in the DJIA. The results of each indicator's five and eleven week trend, in forecasting the Dow's moves, were shown.

General rules of use for the indicators were then examined relative to what was happening before these 5% moves in the Dow. Finally, the indicators were analyzed before major market turning points as explained in the Dow Theory, and for the period 1960 through 1967, stock market patterns in general were examined.

Conclusions

The major conclusions which can be reached as a result of this study are:

1. Volume--Confidence is shown when prices and volume rise together. In most cases, volume tends to increase on rallies and decrease on declines. This makes interpretation extremely difficult since a significant decrease in the Dow may be preceded by a decrease in volume,
generally construed to be a bullish tendency.

2. **Advance-Decline Line**--As a forecaster of 5% moves in the DJIA, this indicator performed poorly. It tends to move in the same direction as the DJIA and the great majority of its moves coincide with the Dow. Divergence from the Dow, generally means that the Dow will follow (especially the A-D Line's eleven week trend in forecasting decreases in the Dow).

3. **Monthly Short Interest Ratio**--This indicator is particularly helpful in forecasting increases in the market. As it increases, it provides potential demand for stocks. An increasing eleven week trend is very helpful in forecasting increases of 5% or greater in the DJIA.

4. **Odd-Lot Index**--In forecasting short or intermediate market moves, this indicator does not perform well. Its value stems from its ability to forecast market reversals after major advances or declines.

5. **Dow-Jones Railroad Average**--This indicator also had a relatively poor performance in its ability to forecast short and intermediate market moves. Its value comes from its use
in the Dow Theory, where divergence from the Industrials indicates a move in the direction of the Rails.

6. Per Cent ASE Volume to NYSE Volume--This indicator's ability to forecast 5% moves in the DJIA is the best overall. It was discussed as a confidence index and it appears that when speculation is on the increase, the market is in for a correction. The five week trend is particularly helpful in forecasting market decreases.

Even though the technical indicators studied do have discernible behavior patterns, it still remains, as stated in the hypothesis, that these must relate to future stock market trends. These relationships, to have value, should be able to predict, with a reasonable degree of success, either a change or continuance of the general market trend. Thus, the indicators really derive their meaning from their ability to facilitate successful buy and sell decisions in the market. From this point of view, these additional conclusions may be made:

1. The Monthly Short Interest Ratio and the Per Cent ASE to NYSE Volume do have considerable value due to their ability to forecast or anticipate general market increases in the case of the former, and general market
decreases in the case of the latter.

2. The other indicators performed poorly and as a result, their values, as predictive tools or as related to future stock market trends, are questionable.

Generally speaking, then, other than the specific indicators mentioned in the above paragraph, the behavior patterns of the technical indicators discussed are unable to forecast short term moves in the DJIA with any reasonable degree of success. It follows from this that, even though the indicators may have patterns, they are not necessarily meaningful when making buy or sell decisions on a short term basis. Finally, the translation of the theories discussed, into practical use, did not yield the expected results; thus, as predictive tools related to detecting short term market reversals before they occur, most of the indicators are unsuccessful.

There is no easy formula for correct timing in the short term. As this study showed, few technical indicators can really anticipate stock market trends with any significant degree of success. In the end analysis, it is study, practice, and judgment based on experience which lead the way to better timing decisions.
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Other Sources


APPENDICES
APPENDIX A

AN ILLUSTRATION OF THE DOW THEORY AND
ITS USE AS A BAROMETER OF BUSINESS

1As found in Greiner, op. cit., p. 136.
### 1959-1960 BEAR MARKET

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(-) Closing Prices
*1957 = 100

### 1960-1961 BULL MARKET

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<tr>
<td>1960 Bear Market Low</td>
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<tr>
<td>Bull Market Confirmed 10/10/61</td>
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<td>1961 Bull Market High</td>
<td>734.91</td>
<td>152.92</td>
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(-) Closing Prices
*1957 = 100

As shown above, the DJIA and DJR did move up and down well in advance of the time when the business index advanced or declined appreciably. As the evidence clearly shows, the Averages are capable of showing the probable direction of any impending change in business cycles; however, not necessarily the degree of the change to be witnessed.
APPENDIX B

SUMMARY OF THE INDICATORS' TRENDS BEFORE FLUCTUATIONS OF 5 PER CENT OR GREATER IN THE DJIA

(PERIOD: 1960-1967)
## Summary of the Indicators’ Trends Before Fluctuations of 5 Per Cent or Greater in the DJIA\(^a\)
(Period: 1960-1967)

<table>
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<td>5 week</td>
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<td>(3) Mo. S.I. ratio-</td>
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<td>-</td>
<td>+</td>
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</table>

\(^a\)+ denotes bullish trend, - denotes bearish trend. \(^b\)Relative to what actually happened in the DJIA.
Summary . . .-(Continued)

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<td>+</td>
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<td>+</td>
<td>3</td>
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</tbody>
</table>

Before Decreases

| (1) DJR- 5 week | + | + | - | - | - | - | - | + | + | 4 | 6 | |
| (2) Odd-Lot index- 5 week | - | - | + | + | + | - | + | - | + | 5 | 10 | |
| (3) Mo. S.I. ratio- 5 week | - | + | - | - | + | - | - | - | + | + | 8 | 18 | |
| (4) A-D Line- 5 week | - | + | + | + | + | - | + | + | + | 3 | 6 | |
| (5) Per cent Vol. (ASE:NYSE)- 5 week | - | - | - | - | - | - | - | + | - | 11 | 20 | |
| (6) NYSE Vol.- 5 week | + | + | + | + | + | - | + | + | + | 3 | 12 | |