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NEW FRONTIERS IN TECHNICAL ANALYSIS

Effective Tools and Strategies for Trading and Investing

Paul Ciana, CMT
This book is dedicated to my family,
in particular,
to the memory of my Grandmother, Charlotte Cianciulli,
and her 92 years of inspiring life, laughter, and love.
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Preface

In the struggle for survival, the fittest win out at the expense of their rivals because they succeed in adapting themselves best to their environment.

—Charles Darwin

This book has been assembled in response to the growing demand to diversify an investment strategy through the numerous styles of contemporary market analysis and the ongoing search for increasing alpha. Although the most frequently used style of analysis is fundamental, the adoption of technical analysis as an adjunct or preferred style of analysis is becoming increasingly sought after and accepted.

This evolution has become visible in many ways. One observation discussed in Chapter 1 is the tracking and measurement of the use and growth of charts and technical indicators in different regions of the world. Another observation is the growth rate of the number of market participants specializing in technical analysis. In 2010, the Market Technician's Association announced there were more than 1,000 active Chartered Market Technicians (CMTs) residing in 76 countries, representing a 100 percent increase in only four years. Yet another measure is the growing interest in and reliance on the development and implementation of innovative technical tools and strategies that capitalize on existing methods, such as those presented by the contributors to this book.

The bridge between fundamental and technical analysis continues to strengthen and the sophistication of each continues to develop. About a century ago, Charles Dow, who was a journalist, entrepreneur, and technician, created some of the world’s most popular equity indices, which are relied on today by all market participants. About 30 years ago, the fundamental term relative strength had only one meaning, until the publication of the Relative Strength Index by established market technician J. Welles Wilder. The
theories of fundamental analysis and technical analysis are evolving together and affecting each other at rates faster than ever before. Therefore, a goal of this book is to properly document and share the gains of this evolution.

This book comprises contributions from five individuals who have spent most of their careers, if not all, studying the financial markets through a “technical” lens with the goal of identifying, developing, and implementing effective trading and investment strategies. These strategies attempt to capitalize on the experiences in their careers and explain how existing market actions will impact the future. Their methods are based on the existing body of knowledge of Technical Analysis, and have evolved to support and appeal to technical, fundamental, and quantitative analysts alike.

I view the contributors as accomplished market participants who do everything they can to continually adapt to the modern-day securities exchange industry. They are constantly modifying and refining their methodic approaches to the markets in order to achieve success, and I feel privileged to be a part of the sharing of their strategies.

These five individuals bring with them a combined 150 years of market experience. Their methods, at some point in time, were likely somewhat simplistic, such as the application of moving averages, overbought and oversold momentum indicators, trending indicators, volume analysis, and so forth. We could ask them to recall how they would use these studies, as I’m certain they remember from their earlier days, but this has been done many times with experienced market professionals.

Rather, Chapter 1 begins with the release of previously undisclosed evidence about the most preferred chart types and technical studies. It continues into a lucid and simple summary of the essential elements of those chart types and indicators. The following chapters continue with in-depth explanations of the work of Julius de Kempenaer, Phil Erlanger, Cynthia Kase, Andrew Kezeli, and Rick Knox. All of the chapters can be considered work that has mostly never been seen before, and if seen, never in this much detail. Where some parts of their work is considered intellectual property and therefore proprietary, subjective discussions provide readers with challenging theories and ideologies for their own use. Other parts certainly are not, and hopefully some, if not all, of the work contained in this book will be published again and again, in the same way that Gerald Appel’s MACD indicator was 40 years ago.

Chapter 2 presents the work by Julius de Kempenaer on formalizing a sector rotation strategy for world markets by tracking relative performance, the momentum of, and implementing leading visualizations to hasten the process
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of this traditional strategy. Chapter 3 presents the quantitative work by Phil Erlanger on investing with seasonality and his four-step approach to trading using Bias, Setups, Triggers, and Monitoring. Chapter 4 is a quantitative and statistical approach by Cynthia Kase, who evolved from an engineer into a market technician. She explains her trading strategies using a multitude of tools that address challenging subjects such as appropriate stop levels, adjusting for volatility, and the confluence of multiple timeframes. Chapter 5 by Andrew Kezeli discusses how Trade Angle Securities has incorporated the advantages of the unorthodox yet extremely powerful Market Profile into a suite of technical indicators that are applied to the more traditional bar chart. Finally, Chapter 6 takes the work of Rick Knox, formerly a pit trader and chart software developer, and emphasizes the importance of improving the clarity of indicators through the use of color and a variety of types of technical tools such as Elliott Waves, cycles, velocity, and also the agreement of multiple timeframes. Additional information on the background of the contributors is provided at the back of the book.

Most of the book's contributing authors also maintain web sites, which are mentioned throughout the text. If you're interested in exploring these valuable resources, go to any of the following:

www.bloomberg.com/professional/charts_launchpad/
http://tamresearch.com/
www.erlanger.com/
www.kaseco.com/
www.atmstudies.com/
www.tradeangle.com

These and other useful resources are listed in the Recommended Reading section.

Whether you're a novice or a seasoned veteran in the subject of technical indicators, there is much to be gained by reading this book. An associate on a trading desk or a beginner in the subject of technical analysis has the opportunity to learn about the universally accepted studies, how to use them, and how the evolution of technical analysis has improved them. An analyst or portfolio manager has the opportunity to discover tools that can bolster his performance by studying the thought-provoking material on seasonality, sector rotation, and market distributions. Technical analysts/strategists will learn about groundbreaking tools and data visualizations to add to and possibly replace some of their preferred indicators. Creative minds will be challenged to
brainstorm on which calculations, visual cues, and risk/reward ratios will work the best for them when trading, investing, and creating their own indicators.

On behalf of all of those involved with the writing and editing of this book, thank you for considering this work. We feel confident you will not be disappointed and trust that this book will sharpen your investment strategies and enhance the way you view the market.
Acknowledgments

I would like to express my appreciation for all who were involved in the construction of this book and for their influence on my career.

This includes, but is not limited to, many of my colleagues at Bloomberg LP in the Application Specialist, Sales, Product, Analytics, R&D, News, and Markets groups. In addition, I thank the members and employees of the Market Technicians Association, those who encouraged and supported me in the quest to achieve the Chartered Market Technician (CMT) designation, many of the clients of Bloomberg LP, and, of course, each of the contributors to this book: Julius de Kempenaer, Phil Erlanger, Cynthia Kase, Andrew Kezeli, and Rick Knox.

More specifically, I would like to thank Eugene Sorenson, Karsten Gaebele, and David Keller. You have been great mentors, colleagues, and friends during this project and throughout my career. I look forward to our future endeavors.
CHAPTER 1

Evidence of the Most Popular Technical Indicators

Paul Ciana, CMT
Bloomberg LP

The application of various technical indicators is nothing new to the majority of financial market participants. The opportunity to trade a moving average cross or an overbought market is a frequent observation during normal market hours worldwide. The challenge that many ponder is which technical indicators to use. In an effort to resolve that challenge, market participants wonder what others are using. If this information can be identified and verified, market participants will likely monitor those indicators to understand what others are thinking and seeing. Therefore, it might be possible to develop a trading strategy based on the most popular technical indicators.

Although I cannot prove the latter as statistically true, this chapter reveals a hierarchy of the most popular technical indicators on the Bloomberg Professional Service. Then it presents the indicators’ commonly accepted signals. But first, it attempts to define what technical analysis represents; it would be ill advised to discuss only indicators when technical analysis is much more than that.
Defining Technical Analysis

Sometimes it seems that the majority of market participants may be misled about the broad scope of theories used in the application of technical analysis when trying to understand and forecast the financial markets. My gut feeling is that if we were to sample a random group of market participants to define technical analysis, they would present terms such as price, moving averages, charts, and oscillators. A simple Internet search confirmed my suspicions about what words we would hear. Some of the definitions that can be easily found do a good job of describing parts of the theory, while others should not be read by a technician who lacks a sense of humor.

Three of the better definitions are:

1. Analysis of past price changes in the hope of forecasting future price changes.
2. Analysis based on market action through chart study, moving averages, volume, open interest, formations, and other technical indicators.
3. An approach to forecasting commodity prices that examines the patterns of price change, rates of change, and changes in volume of trading and open interest, without regard to underlying fundamental market factors.*

Technical analysis offers much more than these definitions suggest. The first is so generic it could be used to describe many fields of analysis. It suggests market participants study prices and fails to elaborate on the variety of data types that can be analyzed. The second mentions market action, a common term used in describing technical analysis, but then repeats itself by listing the data sets that represent market action. It assumes that most of the methods of a technical analyst are focused on technical indicators and therefore it does not elaborate on the variety and depth of the theories in this field of study. The third suggests that technical analysis is used in the commodity markets, which is true, but the application of technical analysis is not restricted to only the commodity markets. Technical analysis can be applied to nearly all types of financial markets.

The methods of a technician span a wide array of theories and use countless different tools to strategize, quantify, and discuss the financial markets in ways that other types of analyses don’t or can’t. One of my goals in writing this

Evidence of the Most Popular Technical Indicators

chapter is to create a one-sentence definition that broadens the scope of the known definitions. It has proved to be very challenging to come up with one sentence that defines technical analysis in its entirety. I believe this is a debate for the entire industry to continuously weigh in on, especially as technical analysis evolves; furthermore, I do not mean to suggest that any one definition would ever be universally acceptable. At present, and with the input of a few friends, I lean toward the following definition:

Technical analysis is the extraction of information from market data into objective visualizations through the use of mathematics with an emphasis on investor behavior and supply and demand to explain the current and anticipate the future path of the financial markets.

This definition suggests that technical analysis comprises the following five attributes:

1. Market data: Represents a variety of data sets that includes the most frequently used ones such as price, volume, and open interest, but does not exclude data sets such as volatility, ticks, ratios, and dividend yields.
2. Objective visualizations: A preference for analyzing information in a chart, but visualizations could be more than a chart, such as a figure, table, scatter plot, or query of results.
3. Use of mathematics: The application of measurements and calculations to measure the market actions of an individual security or a group of securities.
4. Emphasis on investor behavior and supply and demand: We have a bias for identifying rational and irrational market actions and look for imbalances in the availability or desire for a security.
5. Explain the current and anticipate the future: We are attempting to understand what the market is telling us about itself to estimate where it may go in the future.

To further explain the definition, we will summarize the three premises of technical analysis (see Figure 1.1) and explain some of the most popular tools (certainly not all) used for this method of analyzing the financial markets.

The first principle states that market actions discount everything. This premise suggests that all publicly available information—such as company-specific news, political changes, weather, and so forth—is already priced into the current value of a security. Therefore we do not necessarily need to know why something is happening; we need only to understand the reaction of
What Is Technical Analysis? The Study of Market Actions

Three Premises

Market actions discount everything

History repeats itself

Prices move in trends

FIGURE 1.1 Defining Technical Analysis Principles

investors to what is happening. If the reaction is positive, market participants will push markets higher. If the reaction is negative, market participants will push markets lower. We then employ a host of tools to decipher the impact of that action on the existing trend.

The second principle states that prices move in trends. This relates to Isaac Newton’s first law of motion. It suggests that an object in motion remains in motion until acted upon by an equal or stronger force. This force, depending on its strength, can change the direction of motion from its prior path. In technical analysis, this can be thought of as an event or group of events being discounted into the price of a security, causing price to change direction.

The third principle is that history repeats itself—I can still hear my high school history teacher’s voice as he quoted, “Those who do not learn history are doomed to repeat it.” This principle suggests that as the dominant generation or the largest group of market participants transitions out of the financial markets, the incoming generation does not learn or receive enough of the previously accumulated information. Therefore we have an inherent bias to repeat many of the same investment and trading decisions, both correct and incorrect, as did previous generations. Some of this tendency to repeat history is represented by price patterns that form on the chart (i.e., a triangle or head and shoulders).

Now that we have a basis for what technical analysis is, we can discuss the tools that a technician uses. Figure 1.2 is a diagram presenting many of
Evidence of the Most Popular Technical Indicators

FIGURE 1.2 Methods/Theories Used in the Application of Technical Analysis

...the theories and tools that a technician explores to perform an analysis of the financial markets, but it is certainly not inclusive of all the topics. The goal of this figure is to showcase the broad scope of the theories that encompass technical analysis. There are many books that go into detail about these and other topics. Please see the Recommended Reading section at the back of this book for more information.

The remainder of this chapter will address what the most popular chart types and technical studies are on the Bloomberg Professional Service. We will start with a description of the popular chart types and then break down their popularity. Then we discuss the popularity of technical indicators and break down their applications to the financial markets.

Defining Chart Types

Rarely does any market participant make an investment decision without observing the current trend. By simply looking at a line chart, a market participant can see upward, downward, or sideways movements. The work of...
A technician starts with price, and to look at price we use many different types of charts, such as those listed in Figure 1.2. Although this list is plentiful, it is far from being all-inclusive. Throughout this book, we will familiarize ourselves with the line, bar, candle, log, and intraday charts and identify their ranks in popularity among market participants. Later, we will do the same for the most-preferred technical indicators.

A line chart is a very elegant and simple type of chart to look at. It provides convenience for faster analysis because it shows the overall direction of trend. It is typically used by an economist analyzing economic data sets, a fundamental analyst scanning a list of securities for performance changes and fundamental trends, and overall very long-term analysis. For example, it could be a historical look at an economic release like gross domestic product (GDP), the price/earnings (P/E) ratio of a stock, or the closing price of a security. Figure 1.3 displays these data sets with added line-chart features that help in differentiating data sets from one another. The middle panel has markers on GDP emphasizing where the closing value was and the bottom panel has shading below the line (P/E ratio) to emphasize the slope of the line.

A bar chart is slightly more complex than a line chart in that it offers three more data points per occurrence, when such data exists. It shows the open, high, and low price in addition to the last or closing price.

A candle chart is similar to a bar chart in that it displays the same data—the open, high, low and closing prices—but it does so in a more descriptive and artistic fashion to allow for a quicker analysis and a clearer understanding of price movement. Figure 1.4 displays all three chart types. The candle chart differs the most because of the “body,” or the rectangular shape in the middle, representing the opening and closing price for a period of time. Typically,
when this body is hollow, it represents an up period. When it is dark or filled in, it represents a down period.

Figure 1.5 is a historical representation comparing all three chart types and shows an example of how the clarity of a candle chart can offer an advantage in identifying more information faster than other chart types. Here we can quickly see that 13 of the 18 trading days in February were up-days (or hollow-bodied candles) and the other six were down-days (or dark-bodied candles).

A *logarithmic chart* is designed to represent the percent change between price increments on the $y$-axis. As the values on the $y$-axis get larger, the distance between them will shrink to a distance that is relative to the percentage change. For example, a security that goes from $10 to $20 has experienced a $10 change or an increase of 100 percent. A security that goes from $100 to $110 has also experienced a $10 change but only a 10 percent increase. Therefore the vertical distance on the $y$-axis should be greater for the 100 percent increase and smaller for the 10 percent increase. A good rule of thumb is to consider a log chart, in addition to an arithmetic chart, when the value has changed about 30 percent or more and always as an alternative for long-term analysis.

Figure 1.6 displays the price of the S&P 500 from the lows of March 2009 to March 2011, when price gained about 100 percent. The top panel
FIGURE 1.5 A Historical Comparison of a Line, Bar, and Candle Chart of the S&P 500 Index
FIGURE 1.6 Trend Line Analysis Showing Arithmetic versus Log Scale Charts
is an arithmetic chart, showing equal price increments on the $y$-axis, and the bottom panel is a log chart, which adjusts the distance between increments on the $y$-axis to correspond with percentage change. In the top chart, price is about 50 points above the upward-sloping trend line. In the bottom chart, price is already starting to trade below the upward-sloping trend line. This difference in the display of market actions highlights why it is important to consider both chart types.

The last chart type to introduce is the intraday chart. This chart is used primarily by traders who have a short investment horizon or holding period, in order to track the current day or past few days of price movement. It provides a quick glimpse into what is happening right now for the value of a security and is designed to update in real time. An example of a 10-minute bar chart for the past three days is displayed in Figure 1.7. Each bar displays the open, high, low, and close for that 10-minute period of market activity.

**Evidence of Chart Type Popularity**

Now that we are familiar with the line, bar, candle, log, and intraday charts, we can discuss the preference of these chart types by market participants who analyze the financial markets through interaction with the Bloomberg Professional Service.

The measurable sample size of these regions is approximately 44 percent in the Americas, 38 percent in Europe, 12 percent in Asia, and 2 percent in the Middle East and South Africa (MESA). In other words, of a hypothetical 100 market participants, 44 were in the Americas, 38 in Europe, 12 in Asia, and 2 in MESA.

Figure 1.8 displays the average chart-type preference of market participants from 2005 to 2010. This reveals, on average, that the line chart is preferred about half the time, the bar chart about one quarter of the time, the candle chart about one fifth of the time, and that the log chart is rarely preferred.

Figure 1.9 displays the average preference for historical charts and intraday charts by market participants from 2005 to 2010. This reveals, on average, that the historical chart is chosen more than twice as often as the intraday chart, or about 69 percent of the time, while the intraday chart is preferred about 31 percent of the time.

Table 1.1 reveals the average preference for each year of the statistics shown in Figure 1.8 and 1.9. This data suggests that the preference for line charts is slowly growing, the preference for bar charts is gradually declining,
FIGURE 1.8 Average Chart Type Preference from 2005 to 2010

![Pie chart showing chart type preferences: Line 49%, Bar 27%, Candle 22%, Log 3%]

FIGURE 1.9 Average Historical and Intraday Chart Type Preferences

![Pie chart showing historical vs. intraday preferences: Historical 69%, Intraday 31%]

TABLE 1.1 Yearly Averages of Chart Types and Chart Periods

<table>
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<tr>
<td>Line</td>
<td>46%</td>
<td>47%</td>
<td>49%</td>
<td>52%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Bar</td>
<td>29%</td>
<td>29%</td>
<td>27%</td>
<td>26%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Candle</td>
<td>22%</td>
<td>22%</td>
<td>21%</td>
<td>20%</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Log</td>
<td>2.9%</td>
<td>2.7%</td>
<td>2.5%</td>
<td>2.6%</td>
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</tr>
<tr>
<td>Historical</td>
<td>74%</td>
<td>74%</td>
<td>71%</td>
<td>67%</td>
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</tr>
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<td>26%</td>
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<td>33%</td>
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