

**REQUIRED READING FOR CERTIFICATION IN THE  
CHARTERED MARKET TECHNICIAN (CMT) PROGRAM**



# **TECHNICAL ANALYSIS**

**FOR THE**

## **TRADING PROFESSIONAL**

Strategies and Techniques for Today's  
Turbulent Global Financial Markets

**SECOND EDITION**

**CONSTANCE M. BROWN, CMT**



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Turbulent Global Financial Markets

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CONSTANCE M. BROWN, CMT



New York Chicago San Francisco Lisbon London Madrid Mexico City  
Milan New Delhi San Juan Seoul Singapore Sydney Toronto

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# CONTENTS

[Foreword](#)

[Acknowledgments](#)

[Disclaimer](#)

## [\*\*Part | 1 DISPELLING SOME COMMON BELIEFS ABOUT INDICATORS\*\*](#)

### [Chapter | 1 Oscillators Do Not Travel between 0 and 100](#)

*Oscillators, contrary to popular belief, can be used to define market trend. A discussion focusing on RSI and Stochastics reveals how specific indicator ranges can confirm larger trends and identify an upcoming trend reversal.*

### [Chapter | 2 Dominant Trading Cycles Are Not Time Symmetrical](#)

*Rhythmical fluctuations can be more than just a fixed interval. Explore how three great North American analysts, Benner (1875), Dewey (1930s), and Gann used cycle analysis to examine the trends and risks in their time and ours presently.*

### [Chapter | 3 Choosing and Adjusting Period Setup for Oscillators](#)

*The correct method for determining the time period for an oscillator is discussed. Recommendations are given as to when to change initial oscillator setups and the methods for making these adjustments. This chapter also reveals how institutional traders can benefit from inexperienced technical traders.*

### [Chapter | 4 Dominant Trend Lines Are Not Always from Extreme Price Highs or Lows](#)

*Trend lines of greatest significance may not originate from major price highs and lows. Visual exercises help demonstrate geometric proportions that extend beyond traditional charting*

*techniques. Learn how gaps and strong bars define the angles to create channel lines. The market timing of high-risk trend changes can also be identified by projecting trend lines forward from specific chart signals.*

#### [Chapter | 5 Signals from Moving Averages Are Frequently Absent in Real-Time Charts](#)

*Time-sequenced charts show that trading signals from moving averages and indicators that incorporate averages may not be present in real-time market analysis. Knowing how these indicators change their screen positions when the current bar is displaced with new data will allow traders to adjust to real-time conditions and miss fewer signals.*

### [Part | 2 CALCULATING MARKET PRICE OBJECTIVES](#)

#### [Chapter | 6 Adjusting Traditional Fibonacci Projections for Higher Probability Targets](#)

*Weaknesses exist in the industry's standard use of Fibonacci relationships. The industry in general determines 0.382, 0.500, and 0.618 retracement levels from distinct price highs and lows and also projects 618, equality, and 1.618 market swings from the same pivot levels. This chapter reveals methods for more accurate price projection to accommodate the normal expansion and contraction cycles present in all markets. In addition, it demonstrates why price spikes or key reversals should not be used to determine Fibonacci retracement targets.*

#### [Chapter | 7 Price Projections by Reverse-Engineering Indicators](#)

*The concept of reverse-engineering an indicator to forecast price objectives is discussed using Microsoft's Excel software. This chapter includes a detailed, step-by-step picture illustration of how to export data from Omega Research's TradeStation to Microsoft's Excel software for advanced custom analysis.*

## Chapter | 8 Price Objectives Derived from Positive and Negative Reversals in the RSI

*RSI can be used to calculate price objectives from specific indicator patterns called Positive and Negative Reversals. Signal probability and price objectives can be dramatically improved by measuring the amplitude of the oscillator. The price projection method and filtering technique are fully explained and illustrated.*

## Chapter | 9 Gann Analysis: Calculating Price and Time Objectives

*A detailed introduction to W.D. Gann's use of price, time, and diagonal analysis to determine market movement. You will be introduced to the laws of vibration and natural laws, and harmonic ratios. Examine a 700-year history of the Wheat market. Explore the use of a Gann Wheel, and the critical geometric relationships between a Gann square, Gann Fan, and Square of Nine Gann price projection. Included are the formulas to create your own Gann Wheel.*

## Chapter | 10 Using Oscillators with the Elliott Wave Principle

*A market move that requires several days to develop is used to walk readers through a real-time, step-by-step progression to show how to apply the Elliott Wave Principle. As the market unfolds through a time-sequenced event, all the rules, guidelines, and patterns are discussed to show how they are used to predict future market action.*

*The prior chapters are also applied to clarify how the different techniques are combined. Wave counts in hindsight versus developing wave scenarios unfolding in real-time to predict future market movement require different skills. The differences are discussed, and common misunderstandings in the industry are identified.*

*The chapter concludes with an in-depth look at an analytic method used to develop long-horizon wave interpretations for the S&P 500.*

## **Part | 3 NEW METHODS FOR IMPROVING INDICATOR TIMING AND FILTERING PREMATURE SIGNALS**

### **Chapter | 11 Volatility Bands on Oscillators**

*A volatility band formula is discussed that has a different character from Bollinger Bands. The chapter also discusses the importance of establishing independent variables for upper and lower bands because markets do not decline in the same manner as they advance.*

### **Chapter | 12 The Composite Index**

*The Composite Index is fully disclosed and discussed in numerous global charts such as China's Shanghai Composite, American Corporate Debt BBB Bond Funds, and the USDCHF Forex market. The oscillator was developed to warn traders when RSI is failing to detect trend reversals.*

### **Chapter | 13 The Principles of Depth Perspective Applied to Two-Dimensional Charting**

*This chapter discusses the strengths and weaknesses of common indicators in order to isolate desired characteristics for developing a custom formula. Personal biases contribute to the effectiveness of an indicator's signal. Depth perception is discussed to clarify how we evaluate charts graphically in a two-dimensional environment. Depth perception needs to be understood as it will affect our judgment of chart signals and will dictate how indicators should be plotted to accommodate personal strengths and weaknesses.*

**Credits**

**Appendix A**

**Appendix B**

**Appendix C**

**Index**

## FOREWORD

Written by a brilliant trader for only those seasoned traders who are willing to work at their analysis of the markets in a disciplined way, this book contains the most advanced methodology I've ever seen!

Connie Brown's credentials come in the form of nine years on the front line as a research analyst and fund trader. She is herself a disciplined professional, who has grown to the point where she is a force to reckon with in the financial markets. At the same time, she publishes a daily bulletin on the Dow, the S&P, and Bonds. This is faxed to some of the world's most sophisticated, large traders. Her predictions as to price objectives and trend of the market are unequaled anywhere in the industry.

There are 14 separate chapters in this book, each a separate subject. Six of these subjects have been written on before, and these chapters serve as improvements on old indicators. There are, also, 15 major breakthroughs in technical analysis! Seven of these breakthroughs are new—never-before-revealed material! Eight more dissect, change, and improve old concepts.

In her discussion of Stochastics and of RSI as oscillators, she introduces the concept that oscillators do not necessarily fluctuate between 0 and 100 and that all signals do not fall within the traditional default overbought and oversold bands. The oscillator may actually travel within a larger or a narrower range that can be pinpointed with precision. To correct what the writer perceives as a flaw in commercial software packages, she suggests the use of an upper resistance band and a lower support band within this range to help identify signals that might otherwise have been missed. She also introduces the concept that this effective signaling band may travel up and down within the range, and that it may expand or contract. She suggests that the trader should adjust this effective signaling range to compensate for the idiosyncrasies of strongly trending bull and bear markets, and even suggests some better parameters! This alone would change the way we look at oscillators—and, consequently, our entry timing.

But this inventive young trader does not stop there. She goes on to discuss the application of moving averages over oscillators, third-

generation indicators created by applying oscillators on oscillators, and filtering indicators with variants of different lengths. She introduces the Composite Index she created to accompany RSI.

In a theme she returns to frequently, she kids the “Stochastics Default Club”—both the uneducated public that accepts the default values in software and tries to use them to trade without a clue as to why, and the educated but lazy trader who knows better but does it anyway. She remedies this deficit by giving a great deal of attention to procedures for determining and inputting the proper data to construct responsive, customized indicators. She makes a passionate case for keeping a flexible state of mind.

To the subject of cycles, Connie introduces the concept of “growth and decay,” which leads to asymmetrical cycles, and the application of a weighted factor to them, versus Fibonacci cycles. She explains the use of charts with differing time cycles to perfect cycle timing.

Approaching the subject of market price objectives, this writer naturally turns to the Elliott wave, her starting point in the industry. For some, the Elliott wave is frustrating in the extreme because the wave count appears to change when a larger cycle begins. Understanding their frustration, Connie agrees that some people are “wave-deaf”; just as a tone-deaf person cannot hear the music, they cannot perceive the beauty of the composition because they are caught up in counting the beats and analyzing the notations. She stresses that it is necessary to understand the structure, but more important to keep a sense of proportionality to the analysis.

Then she teaches the three simple rules that form the basis of Elliott wave analysis, takes the reader through an “easy to take” explanation of flats and zigzags, and analyzes a number of charts real-time “to the T,” showing as she goes how she integrates oscillators, Fibonacci ratios, and Gann into her analysis. She is a proponent of a hypothesis I’ve long espoused: Stochastics can prove Elliott wave—and help clarify an indistinct wave count!

Connie also discusses Fibonacci methodology in depth. The chapter on Fibonacci measurement truly upgrades this old friend. She rightly points out that markets may gap past a price objective and that the trader has to remove the differential of the gap in order to properly calculate the correct price objective of the affected retracement. In her discussion of the use of multiple Fibonacci swing objectives, Connie’s projections are plotted from



numerous pivot levels. She has found that these levels tend to cluster into tight support and resistance levels, which are useful in and of themselves.

I was particularly impressed with the discussion and the upgrades. This chapter has been badly needed. The discussion on spikes and internal Fibonacci guidance is to be especially appreciated by the reader. The explanation of the Fibonacci price projection method—and specifically the use of multiple Fibonacci swing projections—is worth the price of the whole book!

Before tackling the subject of trend lines as price predictors, the writer challenges us to solve a puzzle, the Nine Squares. The task is to connect the squares with four lines, without removing the pencil from the page. To come up with the correct answer, the reader is required to work outside the mindset established by the puzzle. So, too, the writer asks us to suspend our preconceptions that trend lines must be established from absolute highs and lows. Because she believes spikes at tops and bottoms are caused by aberrations in the market, she prefers less conventional approaches, such as ignoring spikes or using intermediate highs or lows. She discusses the intersection of trend lines as a timing tool—a subject that has needed clarification for years! Then, she demonstrates a very unconventional use of trend lines to “reverse-engineer” a triangle that can be bisected into two right triangles by a line extended into the future that will point to a final bottom. She goes on to introduce an entirely new approach to trend lines—the intersection of trend lines from divergent highs on an oscillator with the long-term trend line. The results are astounding! This is “eyeball training” from which a good chartist can profit!

The Nine Squares connected by four unconventional trend lines in the formation of a pyramid is an excellent lead-in to the subject of Gann. Because his methods seemed enigmatic, it has been suggested that Gann used astrology to arrive at his predictions, and his work has been obscured by the veil of occultism. Connie has correctly perceived that this is not the case and has done an exceptional job of returning his use of an astronomical clock, the third oldest calculator known to humankind, from the occult to the realm of science and simple mathematics!

In doing this, she correctly arrives at the conclusion that Fibonacci and Gann took two routes to arrive at much the same place. This has led her to another valuable concept: that, just as areas of confluence in time or price within different charts with the same indicator should be respected,

confluence in areas of time or price between the different methods she uses should be treated with even greater respect.

However, while she explains how Gann's time and price wheels can be used to locate dates of changes in trend and price objectives, she is holding back on some of the specific information needed for a non-Mensa trader such as myself to actually use Gann to make money in the markets. Connie, I challenge you to prove to us it can be done—in the next book, of course!

—George C. Lane

## ACKNOWLEDGMENTS

I would like to thank Morgan Ertel of McGraw-Hill who initiated this project to revise *Technical Analysis for the Trading Professional*. There has been so much personal growth since this book was first written it was a wonderful opportunity for me to pass this new information on to you. Books need a very skilled team to take the raw words from someone who is not a wordsmith and mold them into text that flows easily to read. The layout and clarity of graphics is a critical step as well. Most people do not realize the design and work involved in producing a book takes as long as it does to write it.

A special mention must be given to Stephen Isaacs who first made this book possible in 1998. As his career moved him to different publishing firms, I would stay loyal to him. It is the only reason I have eight books from various publishers. He remains my primary advisor and expert contact in the book publishing world. He has a list of major contributing authors who feel similarly. We all wish him continued success.

I would like to take a moment to encourage the readers preparing for the final exam of the Market Technician's Association CMT (Chartered Market Technician) designation. The experience of grading these exams shows a few common misunderstandings I have addressed in this second edition. Young analysts tend to be historians when the focus needs to be on searching for evidence that will build an opinion on the future move of a market. A divergence signal that developed between two peaks of eight years apart is problematic.

Learn to use every method as a weighting factor. This method versus another will either compliment, contradict, or add confusion. All are valid as the latter means stay out of a market when all the evidence is unclear. That is a valid opinion as well. But we have to use multiple time horizons and global markets to develop our market opinions now. The times of looking at one market in isolation are outdated.

Readers need skills in all the financial markets. Some believe stock traders need only study stocks. But when two Gold stocks diverge will you understand the reason is because one is based in South African Rand and

the other in U.S. Dollars? Today everyone needs skills to read charts from all financial and agricultural markets. But the key thing for all of us students of markets to keep in mind as the goal is not the mastery of our tools, but to use our methods to resolve the cash flow puzzles that lie in our path. Our goal is to stay ahead of the ebbing tide of market changes in order to find the opportunities and risks. Always recognize when you become aware of a question that the opportunity has just politely presented itself to you. Take it. Run with it. Answer it. Assume nothing. By doing well today we earn the right to participate tomorrow. I guess that explains why few in our industry ever retire. The world changes are endlessly challenging and keep us on the edge of our chairs.

There are several market software vendors and chart services who made the illustrations in this book possible. Please refer to the Credits at the back of this book for a detailed list and ways to contact them.

## **DISCLAIMER**

It should not be assumed that the methods, techniques, or indicators presented in this book will be profitable or that they will not result in losses. Past results are not necessarily indicative of future results. Examples in this book are for educational purposes only. This is not a solicitation of any order to buy or sell.

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“Hypothetical or simulated performance results have certain inherent limitations. Unlike an actual performance record, simulated results do not represent actual trading. Also, since the trades have not actually been executed, the results may have under- or overcompensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown.”

**PART | 1**  
**DISPELLING SOME COMMON BELIEFS**  
**ABOUT INDICATORS**

## **Chapter | 1**

### **OSCILLATORS DO NOT TRAVEL BETWEEN 0 AND 100**

“Why does it appear that conventional technical indicators are failing us as we approach the twenty-first century? What has changed?” Thirteen years ago this was an opening which did not know the volatility changes that would be ahead. However, this method of describing oscillator movement to determine trend and entry/exits in volatile conditions has stood up to the test of time. I believe strongly that a method you favor should be able to handle market changes; therefore, the original text requires no revision. The only suggestion I would offer is to stop reading occasionally and study how a 14-period Relative Strength Index (RSI) has moved in your own charts. Take any time horizon or market. Study global indexes, Gold, Oil, Bonds, and Forex trend or trendless markets, as the method described here will stand up to the challenge. The ranges defined in this chapter remain valid and of value. However, the astute analyst and trader will know there are times when the RSI will fail to give any divergence warning of a coming major trend reversal. For this there is a solution: this time the chapter on the Composite Index will be fully disclosed and both the Composite Index and RSI will be displayed in more current charts. Therefore, this chapter will accurately describe the methodology for you and [Chapter 12](#) will continue the discussion in a more current market environment.

I am asked these two questions by professional traders before a lecture or seminar far more frequently than any others. The implications are that the technical studies that brought a trader prior success have changed. Traders employed by major institutions throughout Europe, Asia, and the United States seem puzzled by this same phenomenon. The traders affected utilize both eastern and western technical analysis; the problem is clearly widespread and indiscriminating. Have the indicators failed, or have the markets changed, making older methods obsolete? Neither suggestion is true. Technical analysis has proved that it will hold up to whatever the world puts in front of us. But technology makes everything more tightly connected. We are waking up to the new awareness that for my country to do well, so must you. No one should look at markets in isolation.



How did this group become so tightly linked together when they were working independently with their own technical tools? All quote vendors use the same default variables within their analysis software; professional systems and retail software products alike still use the exact same defaults. Think about that statement for a moment. Every quote system shipped to a new location anywhere in the world with charting capabilities starts off with the exact same setup periods and formulas. Less experienced traders rarely change these default variables as they are overwhelmed with the long list of indicators available to them by the click of a mouse button. It is all too easy to set up a chart and then read a quick description in a manual that proclaims, "Sell your Stochastics when it rolls over and crosses the 80 line with divergence, and buy when you roll back up through the 20 line." In mass, the orders from the same signal pour in with instantaneous execution.

I do not fear what the professional trader might do. Nor do I have strong views about market realities such as S&P programs that are triggered when the spread between the S&P Cash and Futures market becomes out of line. Now programs are triggered because the German Dax and Dow Jones Industrial Averages are out of line. The problem is not with the professional but with the growing mass of novice technical traders who operate as one large institutional wildcard. The professional trader who fails to move forward beyond this group is unknowingly operating within this new technically armed and dangerous mass. The impact of this new breed of mass psychology is indicator failure and capital erosion. *This group cannot only be avoided but also used to the professional's advantage.* The time has come to change conventional thinking about technical indicators. However, the professional faces a new risk. The buzzword is "alpha." With the collapse in the financial banking sector around the world, institutions are farming out their research to third parties. Alpha is the new model and this model is of little value if the majority rely on the defaults that failed them in the past.

The 1990s brought dramatic changes to the way technicians and traders apply their tools. At the same time the need for technical analysis grew because it became increasingly difficult to manage the global volume of fundamental factors and cross-market ramifications. More people continue to discover the value of charting techniques. However, to evolve beyond

the foundations of technical analysis, we must change the way we utilize technical studies.

Traders still working under the premise that there are two groups of technical indicators—indicators for trending markets like moving averages and then indicators for nontrending markets such as the oscillators MACD, RSI, and Stochastics—are now very outdated. The books that segregated indicators into two primary groups are not wrong. Do not lose sight of the fact that the original works provided us with the foundation on which our industry is growing today. The important distinction is that early books on technical analysis will eventually be viewed as classics, but traders who fail to evolve beyond these original concepts face a far less pleasant fate: extinction.

A good place to begin to dispel some of the common beliefs about our technical indicators is with oscillators. The mainstream believe that oscillators generally travel between a scale of zero and 100. Generally 20 and below is viewed as oversold, and 80 or above is an overbought market. This is incorrect.

In [Figure 1.1](#) the standard default period of 14 is used for the RSI with a daily bar chart of Yen futures. The Yen is falling in a bear market within this time horizon. The graph showing the RSI indicator has an upper black band marking a range of resistance from 60 to 65. A lower band marks 23 to 28 to highlight a support zone for the indicator. Study the indicator tops closely. At no time is the Yen strong enough to push the RSI oscillator successfully through the 65 level. (Spot traders need to keep in mind that this is a Futures chart, which will be inverted from the spot market.) Each time the indicator tests the range from 55 to 65, the Yen renews its former downtrend and establishes new lows against the dollar. The oscillator then declines to a support zone within a range of 20 to 30. There will be many more examples to reinforce this concept. The general rule to follow for a bear market is that RSI will oscillate within a range of 20 to 30 at the low end of the scale up to an upper resistance zone of 55 to 65. This is true regardless of market or time horizon.

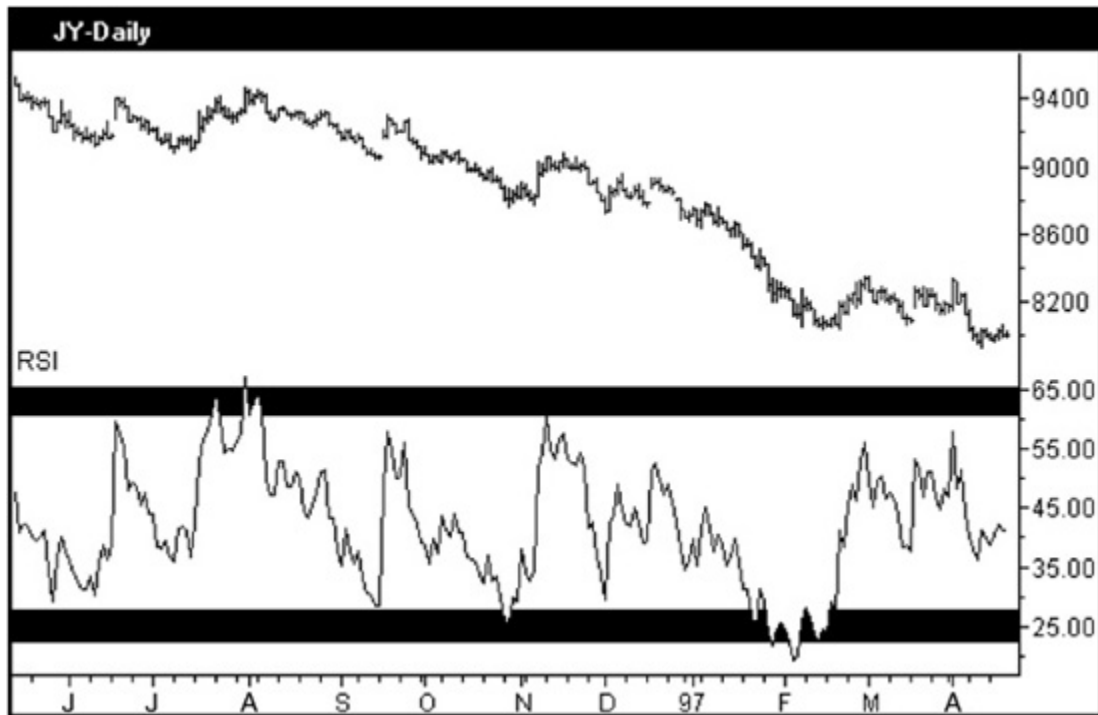


Figure 1.1 Aerodynamic Investments Inc., © 1996–2011,  
[www.aeroinvest.com](http://www.aeroinvest.com)

In a bull market the RSI will shift and begin to oscillate within a range marked by a support zone of 40 to 50 toward an upper resistance zone of 80 to 90. [Figure 1.2](#) shows the same Yen futures market but over a weekly time horizon when the Yen is in a bull market or the dollar is weak. Each time the Yen declines, the oscillator falls to a support zone near 40 to 50. The 40 level is never broken. The strong Yen rallies push the oscillator into the 80s. Even minor advances that lead to more complex consolidations allow the RSI to decline only as far back as the 40 to 50 zone.

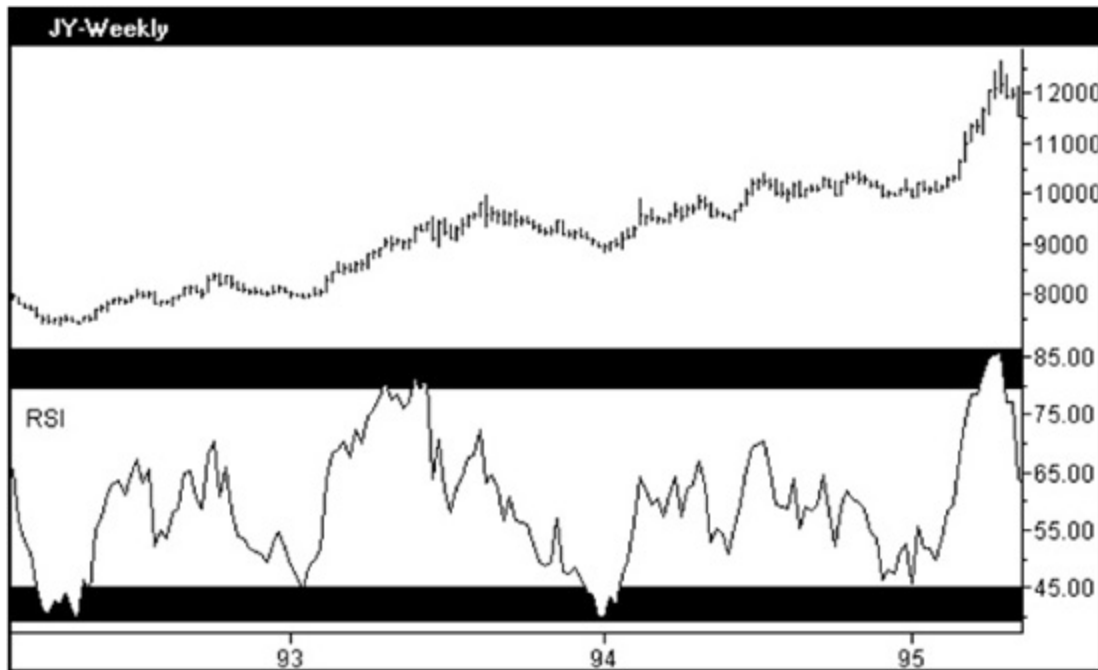


Figure 1.2 Aerodynamic Investments Inc., © 1996–2011,  
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Do these RSI ranges defining bull and bear markets apply to other oscillators? Yes, when the period used for the indicator has been correctly defined. We will cover how to find the correct period in the next chapter, and we will readdress the issue of buy and sell ranges as other oscillators are discussed. As an example, in Chapter 14 a price projection method is described for the Stochastic Oscillator which gives the trader permission to buy a market when the Stochastics indicator falls from an extreme high down toward the 75 area. Yes, buy, as the signal will warn the trader that the market could target an additional move *equal* to the rally that preceded the minor pullback which allowed the indicator to decline from its extreme high over 80. This is only one example of instances when it would be incorrect to sell just because the Stochastics indicator has crossed the 80 range. Conversely a trader would have permission from Stochastics to sell the market when the oscillator moves back up to the 25 zone as the market would then target a new price low *equal* to the decline that preceded the minor rebound from the oversold condition. Examples for this price projection method from Stochastics will be offered in their correct context in Chapter 14, but the point to make at this time is that oscillators can be used to forecast market trends, which is contrary to popular belief today.

Let's build on the introduction of the range rules for RSI by moving on to [Figure 1.3](#) showing a weekly Dow Jones Industrial Average chart. The chart shows clearly that the market corrections in 1996 and 1997 all pressed the RSI down to the lower support zone defined for a trending bull market. The indicator holds the 40 to 50 support zone and signals correctly that the market will rally toward new highs. The oscillator moves to the upper range for a bull market in each follow-up advance and then finds resistance at the 75 level or higher. Asian, European, and North American equity indexes will all display this characteristic of predetermined range rules that help to define a market's trend. A dramatic example can be seen in [Figure 1.4](#), which charts Hong Kong's Hang Seng Equity Index in both a daily and monthly time horizon. This market entered a sharp decline in 1997 when the Asian currencies had to contend with a weakening Yen. The Hong Kong dollar peg and concerns about the strength of the fixed Chinese renminbi triggered a chain reaction which was ultimately felt throughout the Asian stock markets. The Asian woes contributed to the global equity correction that unfolded in late October 1997 in Europe and North America. The daily chart in [Figure 1.4](#) shows the decline in the Hang Seng Index from March to June of 1998. The range rules warn that the decline is incomplete as of June 3, 1998, when this chart was captured for this book. The RSI oscillator fails to exceed the 55 to 65 resistance level throughout the advance in February and March. A market that can press the RSI only to the 55 to 65 zone is indicating a topping formation within a bear market.

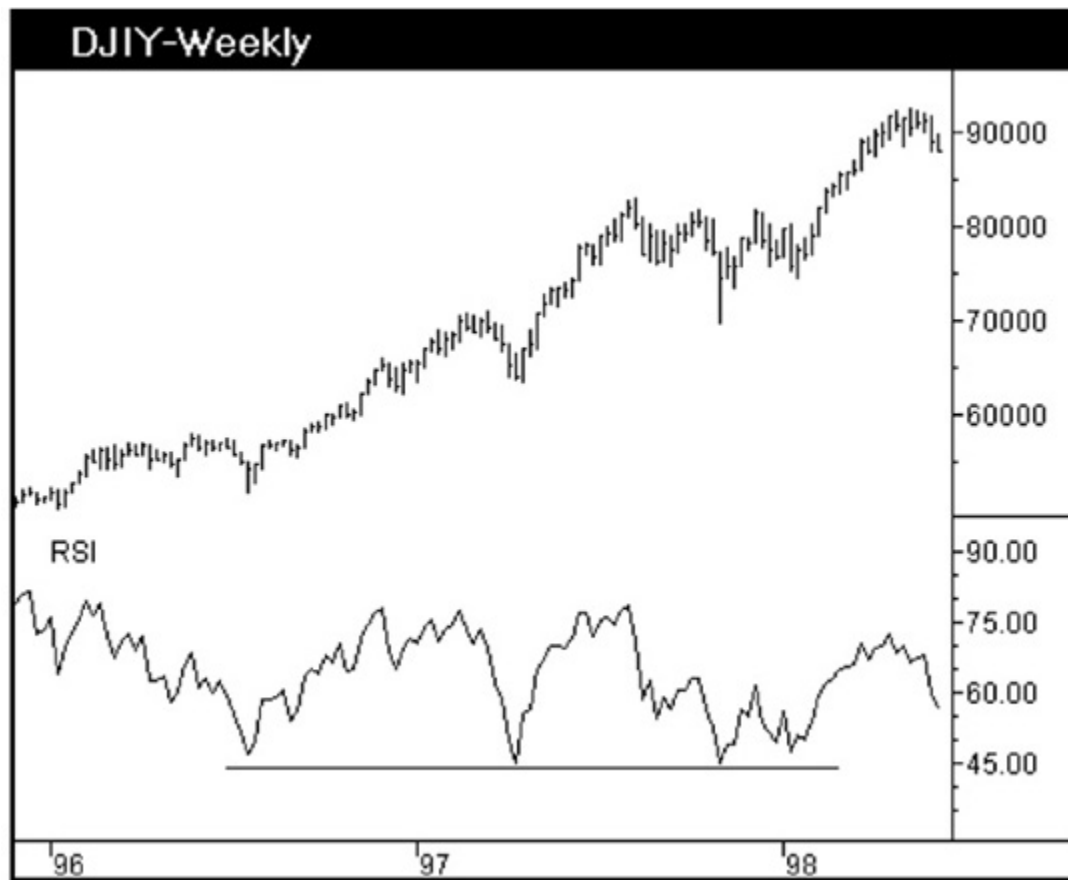


Figure 1.3 Aerodynamic Investments Inc., © 1996–2011,  
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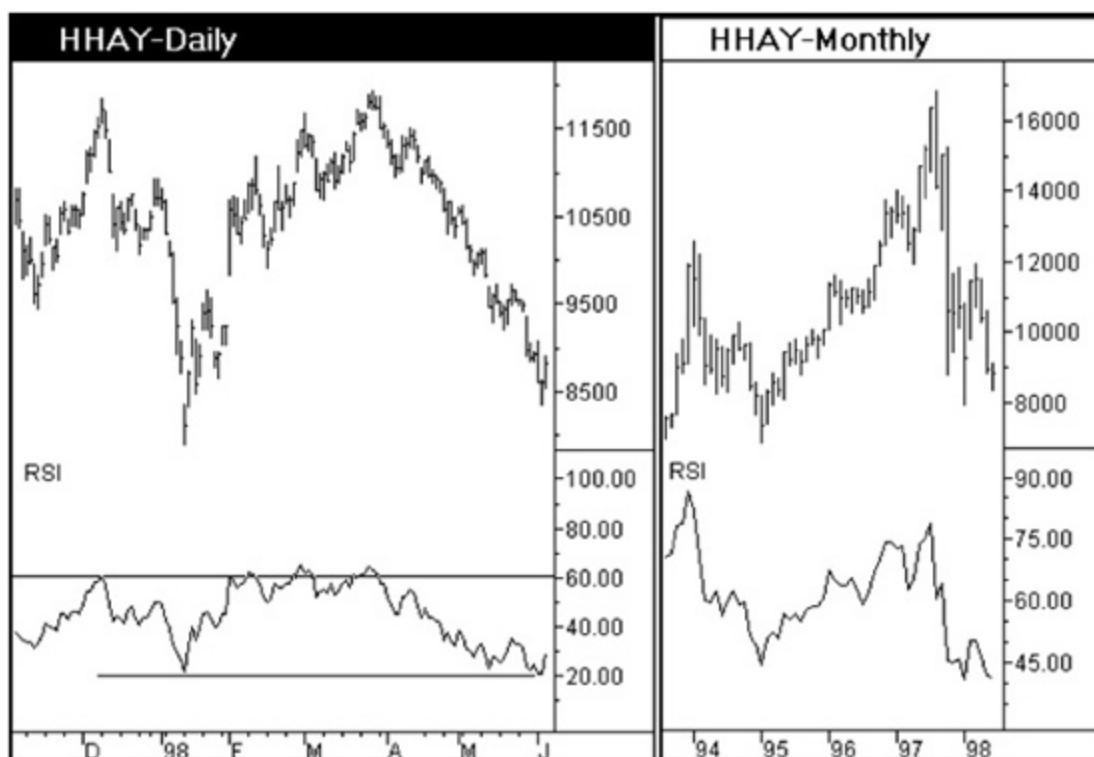


Figure 1.4

The monthly chart shows a brighter picture as the severe decline is within the context of a larger bull market. The RSI in the monthly chart has fallen only to the 40 to 50 support zone. It can be said about the Hang Seng that the daily chart in [Figure 1.4](#) warns that a price bottom is not in place as of June 3, 1998, and a sharp freefall in the daily time horizon could occur, but in the context of the monthly chart such a capitulation spike down could then form a key bottom as the 45 zone is being tested a second time now and a third test seems required.

How can you tell when the trend is about to change? The bear market illustrated in the daily Hang Seng chart allows the RSI oscillator to travel between 20 and 65, consistent with the range rules for a bear market. When the market's trend is about to reverse, so too will the oscillator ranges. In the case of the Hang Seng daily chart, the oscillator will develop the following RSI pattern when it is ready to trigger a transition from a bear market to a bull market (not presently shown in the current chart data offered in [Figure 1.4](#)). After an RSI failure at the upper boundary for a bear market, 55 to 65, the market will then decline. The first indication of a trend reversal will come when the market moves the RSI only to the lower support zone reserved for a bull market between 40 to 50. That is why this



market does not have a bottom in place within this chart. When a bottom is forming, the RSI will not break 40. True, sharp secondary declines that fail to make a new price low can produce a similar indicator formation. Elliott wave traders would call such a decline a “deep second wave down” or a “fifth wave failure,” depending on the internal structure of the decline, but in both the market would fail to establish a new price low.

Regardless of a new price low or only a double bottom, the market decline will move the RSI to the support zone near 40 only if it is ready to reverse its former trend. An actual price projection method will be discussed in [Chapter 10](#), so let’s not stray from this discussion about trend reversals at this time. An RSI indicator that declines to 39 or 38 will still fit this transition phase, so use some common sense. Use the market’s past history to define more accurately the range that will be tested in the transition. If the support range for this market was 37 to 45 in prior bull market trends, use that as your guide. The market that is making a transition will clearly find support for the first time at this prior zone. The rally that follows will likely be insufficient to press the RSI through the upper resistance range defined for a bear market. The failed attempt to exceed 65 will be met with another price decline that moves the RSI oscillator back to support within the 40 to 50 range once again. Should the market produce an RSI oscillator decline that successfully holds the 40 to 50 support zone a second time, it should be interpreted as a clear warning to a sleeping bear-biased trader that conditions are changing. The market is attempting to reverse and will eventually produce a price rally from this oscillator position that is strong enough to press the RSI into the upper resistance range reserved for a bull market—75 to 85 and higher. It is not necessary for a market to test the new lower boundary more than once before successfully breaking out into the higher range, but it is a common occurrence to see double bottoms develop, especially in longer horizon charts such as weekly, monthly, and quarterly time intervals. The reverse would be true for a market preparing a transition from a trending bull market to a bear market. It is so important to know how to interpret an approaching trend reversal that we will go through this transition step by step with the next chart.

Our discussion about trend reversals using the RSI indicator will now focus on one of the largest markets in the world: Deutsche Marks per U.S. Dollar (DMK/\$). The weekly DMK/\$ chart in [Figure 1.5](#) covers a five-year

time interval which includes a trend reversal from a bear market for the dollar prior to April 1995 to the bull market that follows into 1998. The levels at 40 and 80 are marked with a double line that denotes the approximate range the RSI will travel within a trending bull market. The 30 and 65 levels have solid single lines that mark where the RSI will travel within a bear market. The discussion that follows addresses each of the oscillator pivot levels that are numbered on the RSI in [Figure 1.5](#):



Figure 1.5 Aerodynamic Investments Inc., © 1996–2011,  
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**Point 1.** The RSI pivot at point 1 has occurred near the upper resistance zone reserved for a trending bear market. The dollar declines and moves the oscillator down to point 2.

**Point 2.** The market finds support, allowing the RSI to form a double bottom near the 40 level. The ability of the RSI to stay above 40 should warn us that the dollar has sufficient strength to attempt a new high and that the prior trend remains in force. At this point we would not know that a trend reversal was developing unless the support zone at point 2 was broken. The dollar proceeds to rally and makes a marginal new high relative to the high that occurred when the RSI topped at point 1.

**Point 3.** As the dollar squeaks past the prior high, the RSI forms a bearish divergence pattern. Point 3 in the oscillator is lower than point 1 though the dollar closes at higher levels. While the less experienced technical trader will likely catch the divergence between price and the oscillator suggesting that another minor correction could develop in the dollar, the trader with more experienced judgment should see that point 3 is an oscillator peak that occurs within the 55 to 65 resistance zone denoting a bear market. This is of far greater value and significance. The dollar then begins to weaken, or it might be more favorably stated that the Deutsche Mark becomes stronger, as the RSI oscillator declines to the 40 level. The RSI tests the 40 level three times before it is finally broken and declines to the 30 level, which is normal support for this indicator in a bear market.

**Point 4.** The dollar attempts a rebound from point 4 in [Figure 1.5](#), and the oscillator becomes trapped between the 30 and 40 levels as a market consolidation occurs. The market actually forms a bearish contracting triangle over this same period of time, and the fact that the RSI was unable to break above the lower boundary used for a bull market is extremely bearish. A downward resolution could have been favored, and the chart shows that the dollar makes a new low as the RSI forms a second test of the 30 level just beyond the pivot low that was labeled point 4. If you do not see the small contracting triangle in the price data, do not worry at this time, as we will be introducing other tools and indicators that will be far more obvious. Just focus on the oscillator ranges.

**Point 5.** The dollar then rebounds, allowing the RSI to form an M pattern well below the upper resistance zone defining a bear market. This particular indicator pivot at point 5 is occurring at an extremely interesting level. Some readers will see it with just the naked eye. Measure the distance between the two single black lines that denote a bear market oscillator range. The pivot high in the RSI at point 5 is a 0.618 Fibonacci retracement of the zone. Do not measure the oscillator high at point 3 and then take the oscillator low at point 4 to determine the Fibonacci

relationship as we would with price data; instead, use the range itself. The oscillator is also forming a very bearish M pattern at the peak that is forming at a precise Fibonacci retracement level within the bear market range. The chart is signaling to traders to sell dollars for Deutsche Marks immediately.

What do traders use to easily calculate the Fibonacci ratios on a paper chart? Call an engineering or drafting supply store, and ask to purchase a tool called a *proportional divider*. These tools are constructed from one of two materials, stainless steel or aluminum. Do not buy the stainless steel variety as they are excessively heavy. You will also want to buy a divider that is at least eight inches in length. There are several financial firms selling a 7½-inch divider that is too small for use with most computer screens or for charts printed on a full page. Most art supply stores will be clueless if you ask to buy a proportional divider, as this is an engineering tool. One brand that is particularly easy to handle is made by a German company called Alvin (at least “Alvin” is the name stamped on the instrument being distributed in the United States). Mine shows its age as it is stamped “Alvin—West Germany.” The exact same tool is also called a *precision ratio compass* (PRC) by many in the financial industry. But many traders who try to purchase a PRC from their local engineering or drafting supply store will find that the store does not know what they are talking about. Just call it a proportional divider to avoid the headache.

This is how to use it in a very fast summary: Set the grid line on the moveable prongs to 10 on the scale called *circles*. Tighten the screw, which also serves to keep the two prongs of the tool together. Some models will have a grid line labeled “GS” which stands for “Golden Section,” which is the same ratio as a divider with a “10” grid line. Both the 10 and GS line will be just off-center relative to the length of the tool. To use it, measure the distance by opening the two sharp points on the ends of the long side. Then flip the divider over without changing the measured ratio. The points on the opposite side will mark an exact 0.618 ratio of the original measurement within 0.1 mm. To use the tool for calculating other Fibonacci relationships, please refer to one of the many books already published on the subject. Just one last note about a divider: *don't drop it—very painful*.

**Point 6.** Back to the DMK/\$ chart and the oscillator low at point 6 in [Figure 1.5](#). There is nothing very notable at point 6 except that it is an extreme low that occurs below the bear market support zone. The market will allow the support level at 30 to be tested after a minor rebound whenever the market has fallen through this zone and become extremely oversold. The tight back-and-fill chop that forms in the market after this oscillator squeezes the RSI back over the 30 level and subtly tests the 30 zone before the dollar begins to rebound. Focus on the oscillator movement exactly half way between points 6 and 7. The dollar has a small rally and immediately pulls back. The RSI tries to hold support on the lower range defining a bull market at the 40 level.

**Point 7.** Point 7 is an oscillator high under the resistance zone for a bear market. The M pattern in the indicator is also significant. The dollar fails and moves the RSI down to point 8.

**Point 8.** The oscillator is clearly at the support zone reserved for a bull market. This is actually the second time the market has tried to develop support at this zone, but the first attempt was subtle as it developed between points 6 and 7. If you miss this transitional signal that the dollar is developing a major trend reversal, move along the chart to point 9.

**Point 9.** The dollar rallies and the RSI breaks above the bear market resistance line. The breakout is only briefly maintained, and a decline unfolds in the dollar from point 9.

**Point 10.** Now the bull trend is in force with confirmation. Point 10 shows the RSI once again holding the support zone for a market correction within a trending bull market. The dollar remains in an uptrend, and the RSI travels between the 40 and 90 levels.

There is one subtlety that can be pointed out now without risk of breaking the discussion about the trend transition that develops from points 8 to 10. Between points 8 and 9 there is an oscillator peak in the middle of these points that develops exactly at the 60 level. Follow the oscillator down from this pivot high marked with an arrow. The oscillator low that follows the peak at the 60 level occurs exactly at a 0.382 retracement of the

bear market range. Use your proportional divider to see that the distance from the RSI pivot low relative to the support zone for a bear market is an exact 0.618 measurement. Because we know that the space under the RSI pivot to the support zone is exactly 0.618, we know without further measurement that the oscillator has found support at the 0.382 retracement level from the 60 level. Lost on this point? It will be discussed again later in greater detail. The important points to grasp from [Figure 1.5](#) are the trend reversal signals. As the chapters build concepts, you will begin to focus on different levels of detail within the same indicator. We have only begun to discuss technical indicators, and I suspect many might already be surprised at the depth of information available to us. Let's keep digging deeper.

About now the stock trader may be feeling somewhat left out of the examples discussed so far. All that has been defined up to this point will apply to individual stock charts. [Figure 1.6](#) shows the weekly chart for Caterpillar. The stock is clearly in a bull market, and the oscillator lows show that each correction in this stock was within the context of a trending bull market. The RSI is traveling between 40 and 70+, denoting a bull market. The oscillator highs directly below line 2 are developing under the 60 level. This could be a warning that would have to be watched closely for a transition into a bear market if a pullback breaks below the 40 level from this danger zone. Individual stocks will abide by the range guidelines described at length in the prior figures. However, it should be asked if synthetic indices can be expected to follow these same ranges when they themselves are never actually traded?

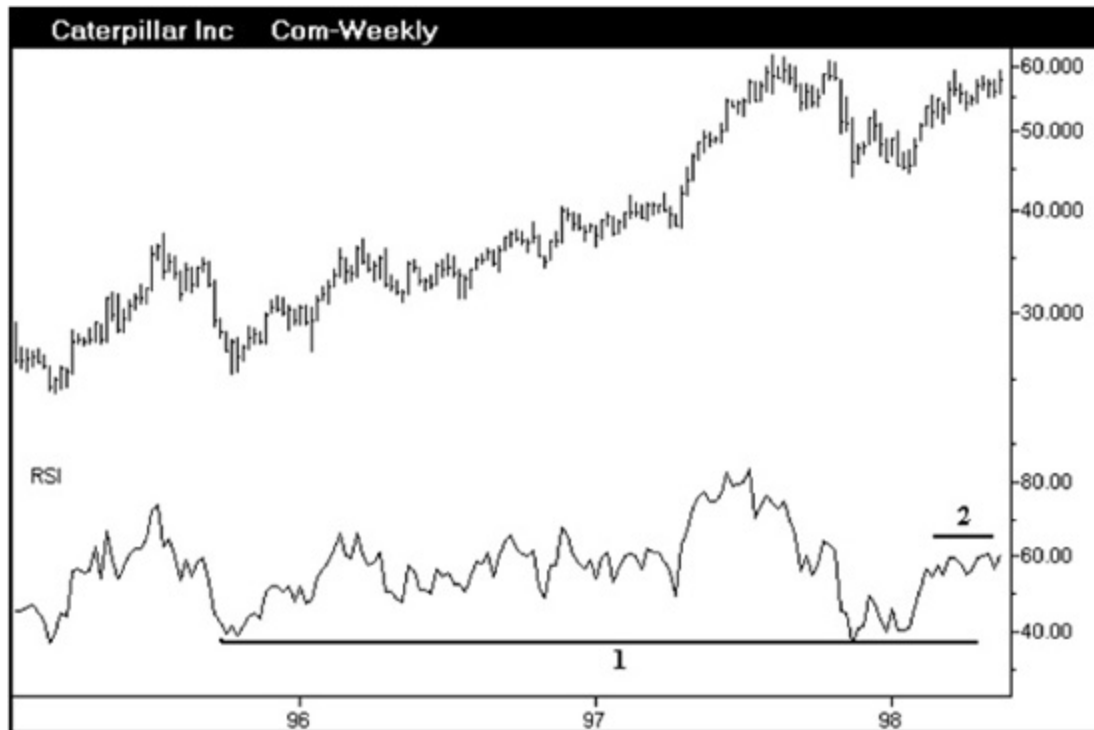


Figure 1.6 Aerodynamic Investments Inc., © 1996–2011,  
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[Figure 1.7](#) shows a monthly chart for the S&P sector Beverages (Soft Drinks). Regardless of the sector evaluated, the range rules will apply. The sector consolidates in 1988 and 1994, but the RSI declines only to the support zone within the 40 to 50 range. There is ample warning in 1988 that a major rally will follow. You might be thinking that this particular sector is itself more like a stock as it is heavily weighted toward Coca-Cola stock. Regardless of the S&P sector's compositional weighting of stocks, these trend ranges will still occur.



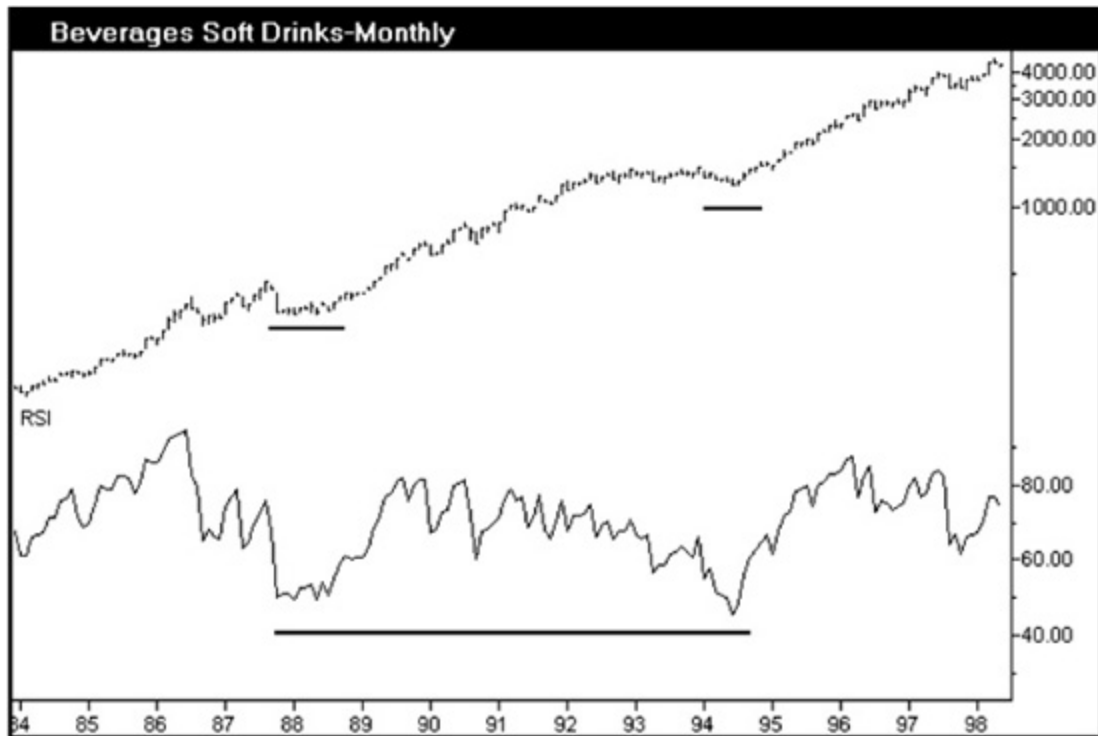


Figure 1.7

So let's test this premise in a tougher market environment. We will create a synthetic market by developing a bar chart of relative performance between two markets. In [Figure 1.8](#) we have a monthly bar chart created by dividing the S&P sector for Electric Companies by the Cash S&P Index. The data are in a downtrend, which is interpreted as a severe underperformance for this sector relative to the S&P 500 Index. Had the data shown an uptrend, the chart would have implied that the sector was outperforming the S&P 500 Index. The RSI at points 2, 3, and 4 show characteristic pivots for a trending bear market. The critical support zone at 45 to 55 is continually broken as the sector underperforms the Cash S&P 500 and displays all the characteristics discussed previously for a bear market.

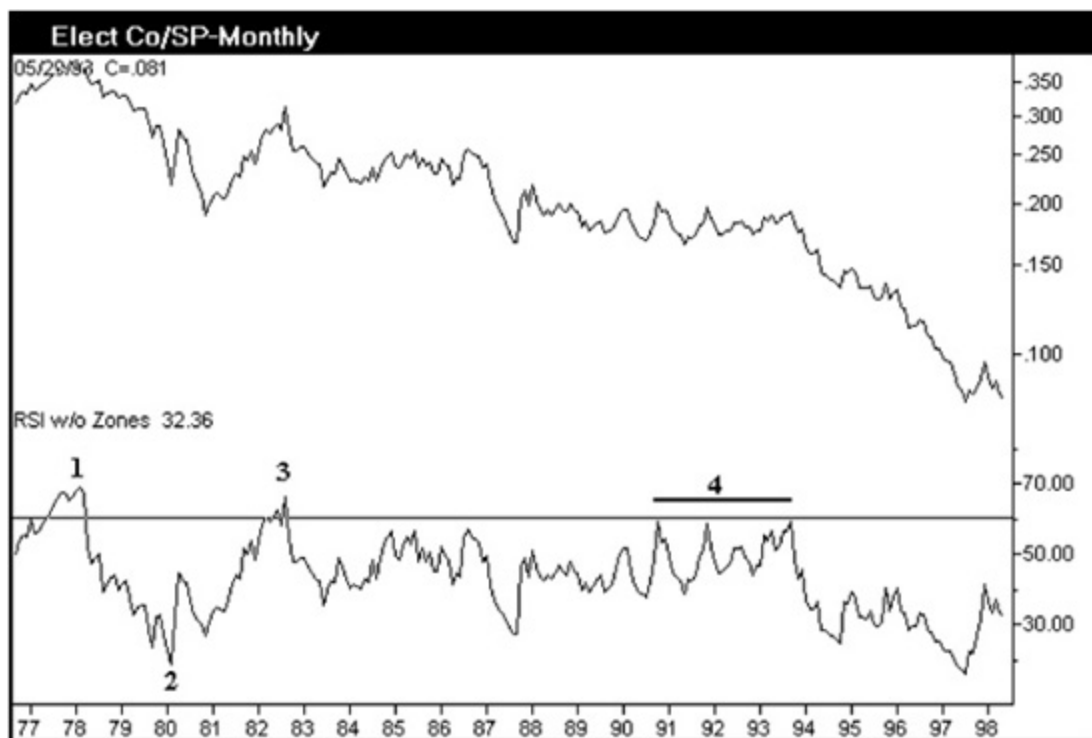


Figure 1.8 Aerodynamic Investments Inc., © 1996–2011,  
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About now you might see that the range rules clearly apply to various financial markets, but you can rightfully ask now if similar formations will occur within various time horizons. [Figure 1.9a](#) is the weekly chart for the stock Novell. For comparison, [Figure 1.9b](#) offers the daily chart for the U.S. Treasury 30-Year Yields. U.S. rates have been falling in a market action that is similar in appearance to Novell. Clearly there is no relationship between these two charts, and none is implied except that both markets are presently in bear markets. While the markets are different and the time horizons displayed vary, the ranges that the RSI oscillator is traveling is the same for both markets. While the boundaries may be very slightly different as bond rates use 25 to 35 as their RSI support zone, when the stock establishes 30 to 35 as the support zone, the guidelines first introduced at the start of this chapter remain in effect. The resistance zone at 55 to 65 marks trouble for both markets.

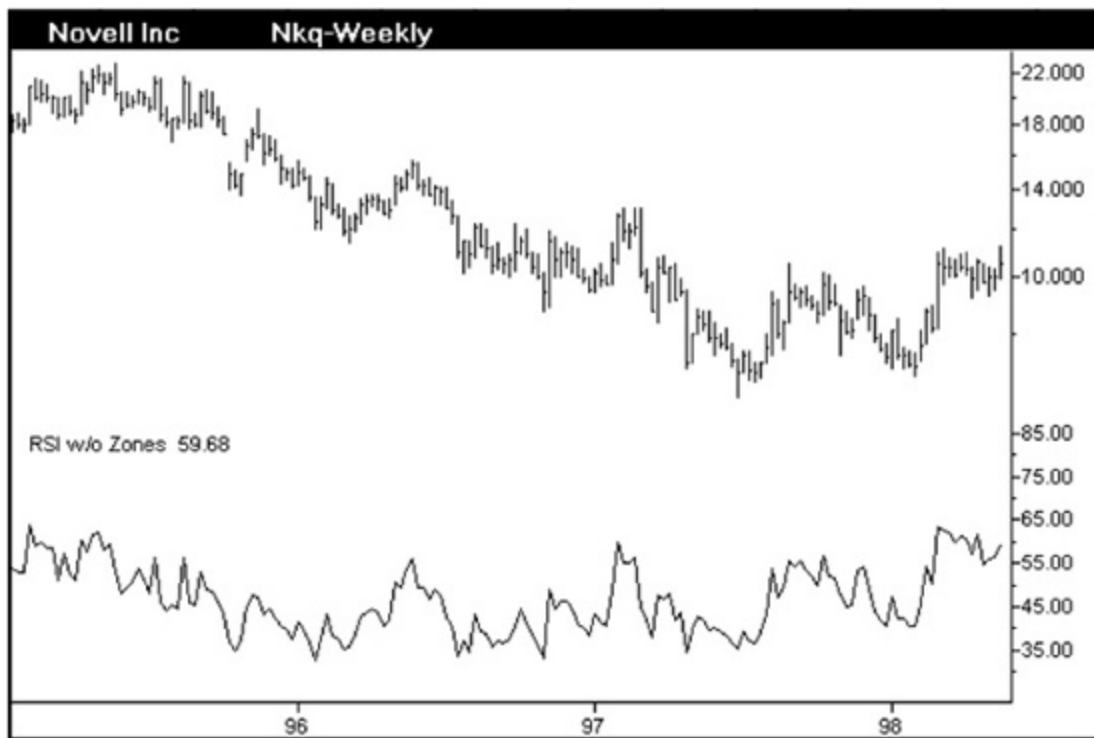


Figure 1.9a

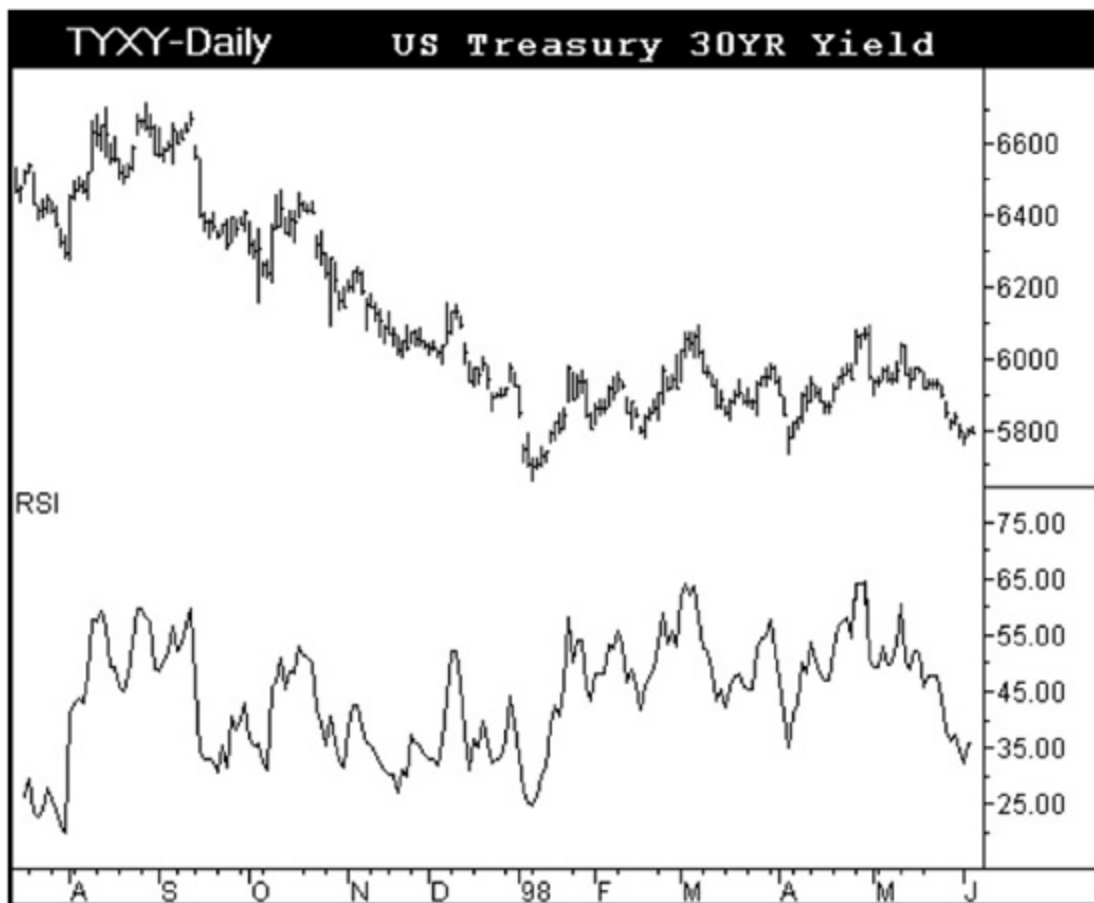


Figure 1.9b

The market action we have not discussed up to this point is a sideways or range-bound consolidation. The monthly chart for Bethlehem Steel covers a period of 15 years in [Figure 1.10](#). Over this period of time Bethlehem Steel has been range bound in a listless drift. It has been tradable, however. The oscillator peaks are all at the 55 to 65 resistance zone, and the key oscillator lows display the characteristic support zone for a bear market. The transition from this extremely long consolidation will be no different from what was discussed in detail for DMK/\$.

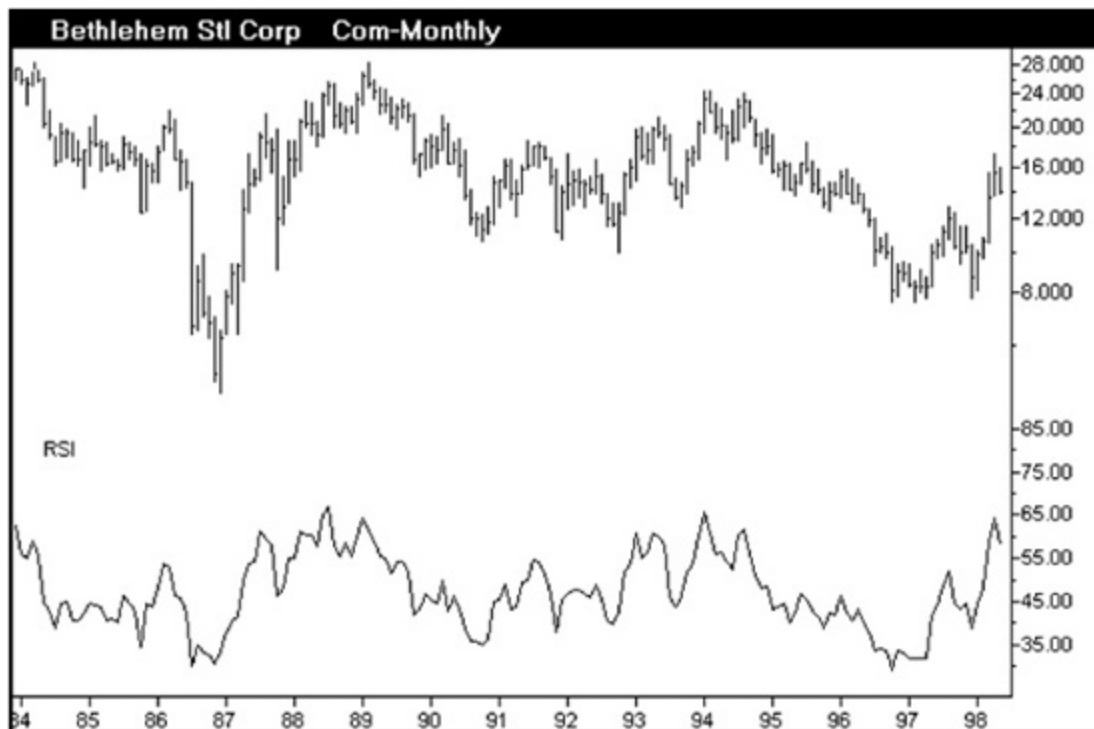


Figure 1.10

Has there been a nagging question in your mind as the series of charts for various markets and time horizons has been discussed? “What period is being used for RSI in all these charts? Are we seeing different time periods in order to fit the oscillator to the example to create an ideal range?” No. Every chart regardless of market or time horizon has displayed an RSI with a 14-period interval. Every single one of them. Now let me ask you, “What would be wrong with using these range rules to establish the correct time period?” Nothing, except you will later discover that the RSI has a specific

price projection capability that is best applied to a 14-period RSI. For this reason all of these charts use the same interval within the RSI formula.

We can conclude this chapter on an upbeat note with [Figure 1.11](#). The weekly Du Pont stock is the image to keep in mind for an ideal bull market. The 75 to 85 range has marked the tops while the 40 to 50 support zone has marked all the pullbacks within the developing bull market. The chart also shows an immediate buy signal at the time of this screen capture. A new price high is indicated as long as the 55 to 65 level is exceeded and the 40 level is not broken. However, a rally will then lead to a pattern of great risk as we will see when we discuss wave interpretations much later in this book. Indicators require us to develop a choreographed balance of different methods. We still have much to explore together.

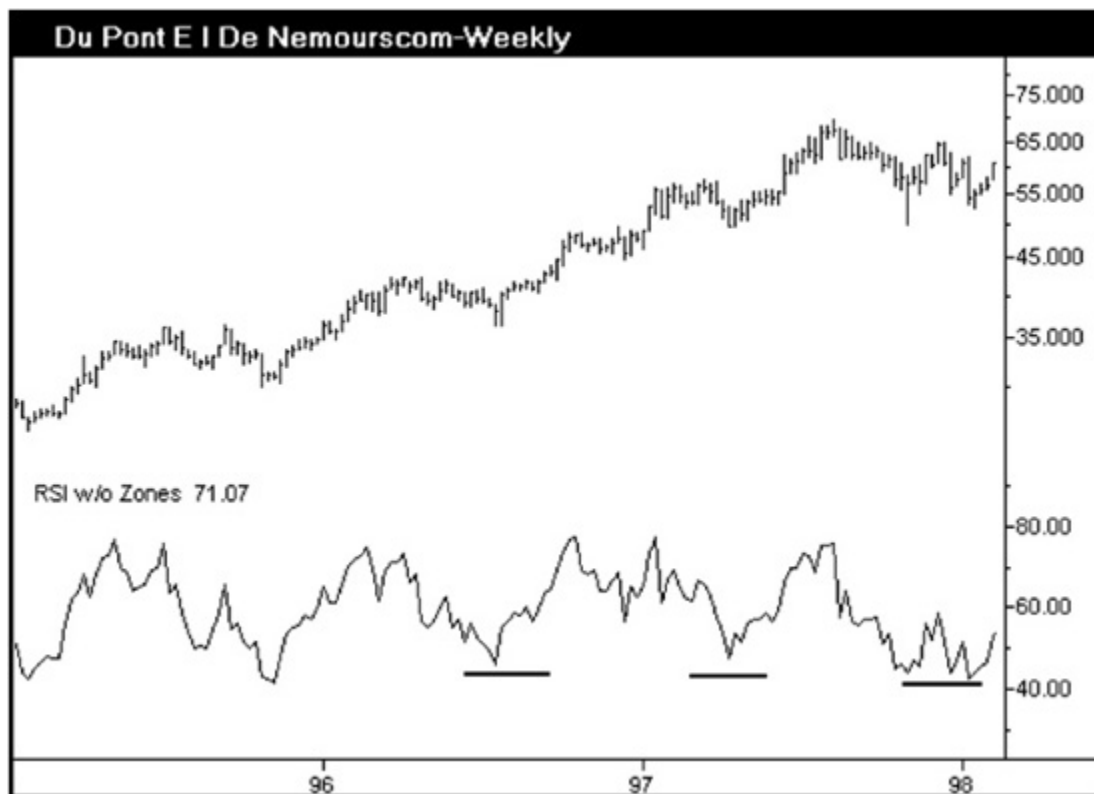


Figure 1.11 Aerodynamic Investments Inc., © 1996–2011,  
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As a final revised note Du Pont has not returned to the price highs of 1998 as of 2011. RSI established a resistance level near 66 for ten years in a monthly chart. For the first time RSI has moved above this horizontal line of resistance, but its sector sees the move as a lone wolf. We can read

probability in a global environment; the key is to always bundle and measure cash flows internally and externally that influence a single market. This will be discussed in [Chapter 12](#) to add to this original discussion about RSI range movement. The method does not change, but we have become more sophisticated in how we do what we do successfully.

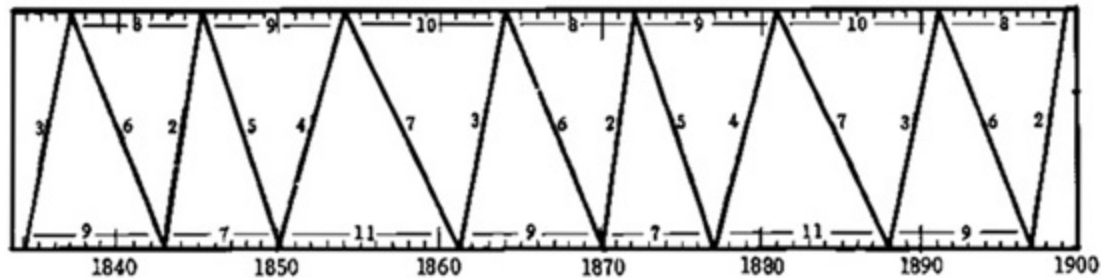
## Chapter | 2

# DOMINANT TRADING CYCLES ARE NOT TIME SYMMETRICAL

The first edition described for the reader the standard conventions of using fixed period cycles. I was unaware at the time that I was beginning a personal journey to examine cycle methods in great depth. My first attempt to write about cycles looks so antiquated to me now. The chapter included the use of expanding Fibonacci ratios to forecast the timing of possible market price pivots. The charts demonstrated how poorly these conventional methods worked in a trading environment. The methods described were not comprehensive and the discussion itself had insufficient depth. Some methods of cycle analysis may be appropriate for strategy analysis and other applications are more suited to trading signals. Market analysts and traders have very different needs and a trader must be consciously aware when the use of one method may be more appropriate than another. The differences arise out of people's sensitivity to risk and their need for timing precision.

What do we even mean by a cycle? The Foundation for the Study of Cycles ([foundationforthestudyofcycles.org](http://foundationforthestudyofcycles.org)) does not reference fixed periods in any definition describing a cycle. We obtain these assumptions from the programmers who code our market software. Cycle tools with fixed periods are easier to code and often the only tool offered in most analysis programs. Therefore most of us begin with these rudimentary tools in our hands. But at the same time the software vendor often limits our window of view to only ten years of historical data. We easily miss the fact that *a cycle is a rhythmic fluctuation that repeats over time with reasonable regularity*. It is not until the rhythm persists over a long span of time that we recognize this regularity cannot be the result of chance. No credible source will say cycles are impeccably precise, but some still believe the perfect fixed interval can be found. Assuredly, as soon as the "perfect" rhythmic period is identified, it will change its timing and even invert to become the market price high. We use cycles incorrectly. Rhythmic fluctuations can be more than just a fixed interval. The number series implying a spread progression of 8, 9, and 10 that repeats at 8 once again is

also a cycle that has a repeatable rhythmic fluctuation. This is a cycle discovered by Samuel Benner which he published in 1876. [Figure 2.0](#) is Benner's Nine-Year Cycle in Pig-Iron Prices from 1834 to 1900. More follows about Benner shortly, but this particular cycle had a 44:1 win-to-loss ratio.



**Figure 2.0 Benner 9Yr Cycle in Pig-Iron Prices 1834–1900**

*Source:* Benner's Prophecies, 1875

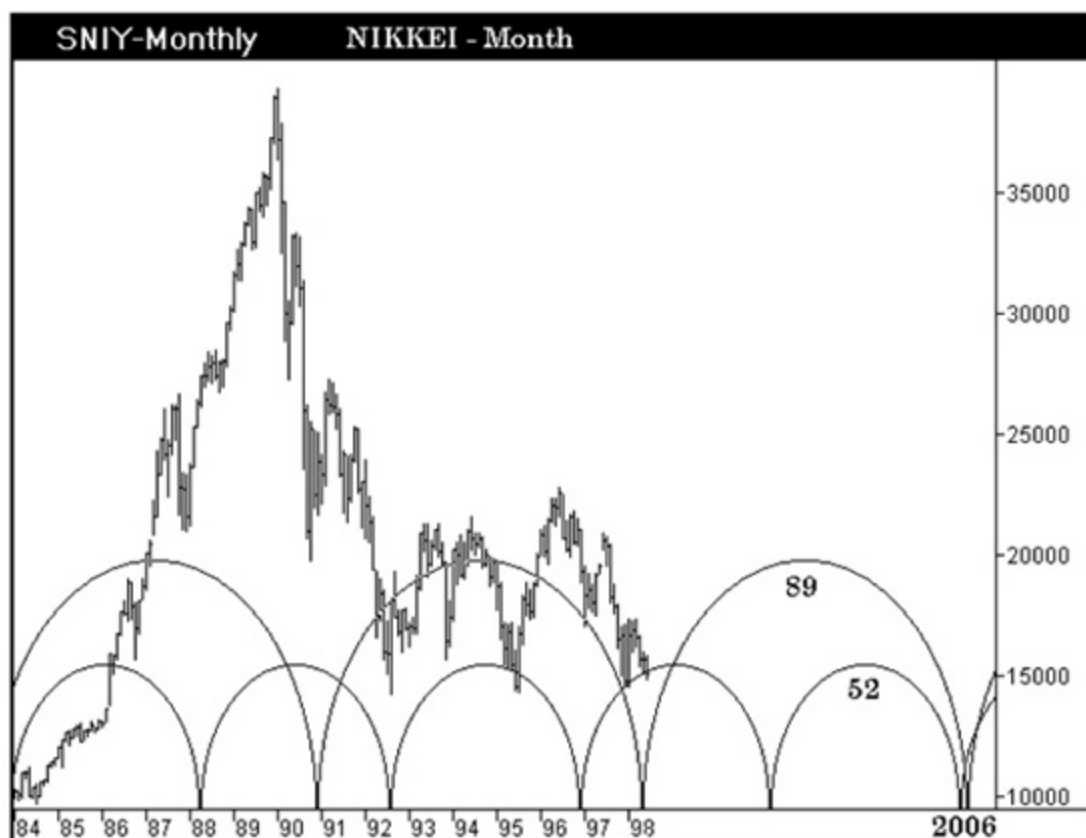
Consider the following example where the number of sunspots, along with other signs of solar magnetic activity, waxes and wanes on an 11-year cycle. We measure this cycle in glacial ice cores containing nitrate-rich layers that reconstruct a history of past events. These events, as measured by proton radiation, have a correlation to the number of sunspots and solar flares from the sun. Why do we care? The relentless churning of solar gases and the resulting solar storms make a difference to the earth's magnetic field which scientists believe changes the yields of our agricultural produce. If we trade agricultural grains or financial markets, we should recognize the connection of food shortages leading to political instability and global trade disruptions.

Fixed period cycles fail to adjust to natural rhythms of expansion and contraction characteristics within markets. A growth-decay cycle means expansion and contraction attributes and those are easier to see in nature than in market swings. Just leave an orange out in the sun for a month and it is clear that contraction changes accompany decay. But many do not realize this occurs as well in markets on both the price axis, y axis, and x axis that defines time. The greater span of time one is studying, the harder it is to see the expansion and contraction aspects of the cycle. A 400-year chart of Gold may appear to display a fixed period cycle. But when a quarterly chart (three months within one bar) is expanded to detail the data in a daily presentation, the cycle timing that fits major price lows in the long horizon could be off significantly. Cycles offer us a tool to sharpen



our awareness of the rhythmic undulations in a bigger picture and thereby help us to interpret the signals within our other technical methods. When this book was first written in 1997/1998 the illustrations and dialogue describing the charts of the Nikkei showed the conventional use of cycles. Read this section without changes so it can be used as a comparison of cycle convention versus the changes that followed after a decade of further trading experience and research.

[Figure 2.1](#) is one of the most cyclically symmetrical markets in the world today: the monthly chart of the Japanese Nikkei Index. A 52- and 89-period cycle on the chart argues the case well that cycles are measurable, predictable, and for some markets exceptionally accurate. These two independent cycles also project extreme problems again for the Japanese market around the end of 2005 and the first quarter of 2006 when these two cycles bottom in a close juxtaposition. We know that cycles have a cumulative effect and multiple cycle lows that bottom in a close proximity of time will exacerbate the market decline into those projected market lows.



## Figure 2.1 **Nikkei 225 Index**

*Source:* TradeStation. © TradeStation Technologies

While the monthly Nikkei Index displays the same 52-period cycle in [Figures 2.1](#) and [2.2](#), the 89-period cycle has been replaced by an 85-period cycle in [Figure 2.2](#). Both the 89- and 85-period cycles are anchored from lows just out of view to the left of the chart, which makes more recent market lows the third cycle bottoms for these cycle periods. The 85-period cycle accurately warned that a decline would unfold into January 1998. The 89-period cycle accurately warns of the decline unfolding now in June 1998. Traders who used the 85-period cycle were not wrong but would likely be confounded by this June decline if they thought that the Nikkei had established a bottom six months earlier. The 89-period cycle in conjunction with the 52-period warns that early 2006 will be a major problem for this market. By shifting the preference from the 89-period to that of an 85-period cycle, the forecast shifts back to 2005, and the character of the decline itself could be very different as the cycle lows are not as close together. An interpretation could be made that an orderly decline in 2005 would unfold in comparison to the sharp spike bottom implied by the 2006 cycles that bottom together in [Figure 2.1](#). What is the correct period to use if both the nearby market interpretation and extended views can be changed so easily by just a minor period adjustment of 85 to 89 in these cycles? In reality, one period is not more correct than the other; we can see from these charts both had predictive value in 1998. However, both periods will be wrong if new price data are ignored and the periods defined today are not later adjusted for the markets' natural growth and decay attributes that will develop between now and 2005.

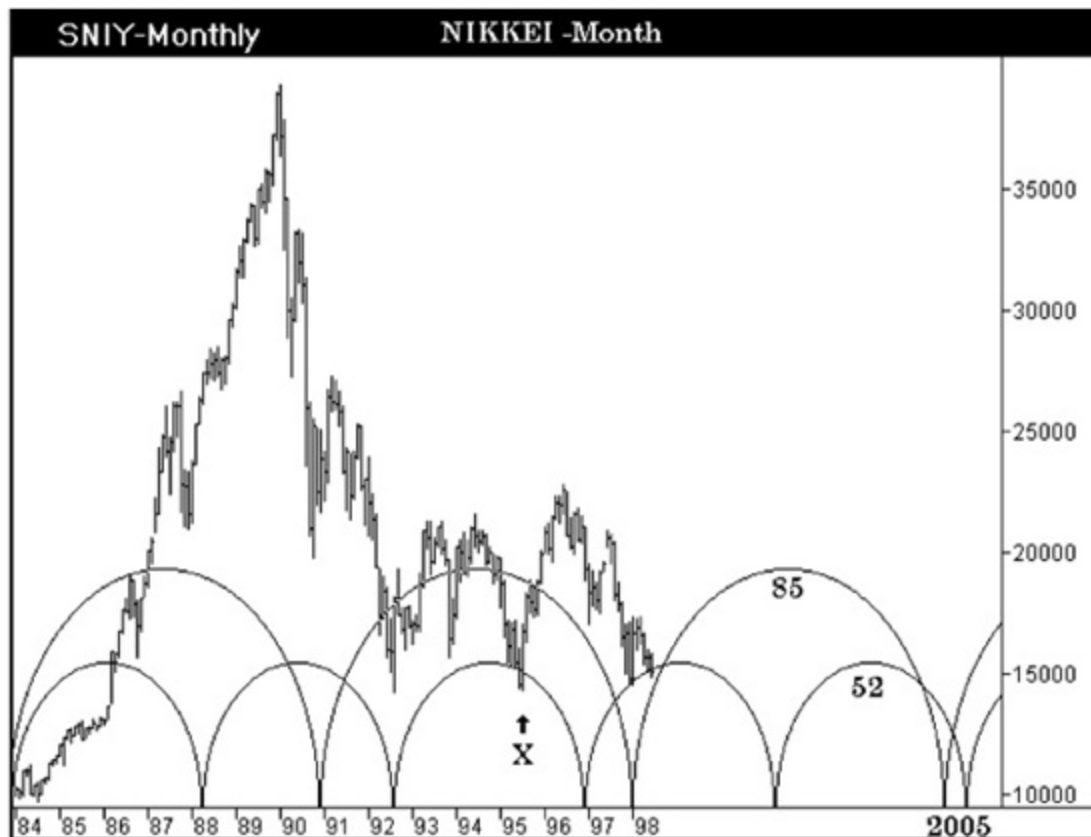


Figure 2.2 **Nikkei 225 Index**

Source: TradeStation. © TradeStation Technologies, Inc.

In [Figure 2.2](#) the major low that developed in July 1995 was missed altogether by the cycles using periods of 52, 85, and 89. We will address this particular low shortly, but let's stick with growth-decay attributes within the markets for a moment. As soon as the phrase *growth and decay* is used, most traders will assume we are heading into a discussion about Fibonacci ratios. Let me offer the bottom line for this methodology up front: Fibonacci cycle projections will not provide us with the definitive answer when we ask, "What is the most important cycle within the market I trade now?" It is not good enough to tell a trader that both the 85- and 89-period cycles on a monthly chart are correct. We need something that will give us a higher probability than a six-month window of time from which to determine a major market bottom. While Fibonacci ratios alone will not provide us with the definitive answer, this mathematical series of numbers does offer an essential component in our quest to recognize what has immediate significance. The number series is certainly of value, but conceptually the Fibonacci sequence may have an even greater impact.

As a professional trader and student of the markets, one cannot escape an encounter with the remarkable Italian mathematician, Leonard of Pisa, better known as Leonardo Fibonacci. But did you know Fibonacci was not his name? That was a nickname, an abbreviation of “filius Bonacci.” If you are new to Fibonacci but can accept the bottom line of his theorem without the background discussion for proof, know that your financial livelihood will be very much tied to the ratios 0.146, 0.236, 0.382, 0.500, 0.618, 1.00, 1.618, and 2.618 and that they will directly impact your profit and loss.

Why? These ratios have been around for a very long time. Leonardo Fibonacci wrote about them in his book, *Liber Abaci*, in 1202, but the number sequence from which these ratios are derived was in use around 4700 BC when the Egyptians built the Great Pyramid of Gizeh. The slant edge of the Great Pyramid is almost exactly 0.618. To create the number series, add the first number to the second, the second to the third, and you develop the sequence: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, and so forth. These specific numbers will be of value to you as periods for moving averages and within indicators. The ratios themselves come from the fact that any given number over three in the series is approximately 0.618, or 61.8 percent, of the number that follows it. Any adjacent number in the sequence over five is approximately 1.618 times the number preceding it. Between alternate numbers, the higher will be approximately 2.618 times the first, and the lower number between alternates will be approximately 0.382.

The really interesting aspect about these ratios is that they are found in anything that has a growth and decay developmental cycle. Plants, animals, vegetables, minerals, and—you’ve guessed it—markets. As all living entities do exhibit these exact same expansion and contraction ratios, Leonardo’s mathematical theorem is viewed as a law of nature. It should not be surprising that these ratios are frequently respected within the markets. Markets expand and contract and so abide by the same law. If you want to know more, head to the Internet and start surfing. You will undoubtedly discover the original question concerning rabbit population growth and see that Leonardo Fibonacci and Darth Vader shared the same style of dress. But let’s move on to see how the Fibonacci number sequence applies to cycles in the markets.

In [Figure 2.3](#) we are still viewing the Japanese Nikkei Index, but we have dropped down to a weekly chart. A symmetrical fixed-period cycle is

charted that displays corresponding cycle bottoms at market lows near the end of 1993 and the start of 1997. The same chart also shows vertical broken lines that are numbered one through seven. The 1995 low marks the starting anchor for the vertical series of lines. Each vertical timeline plotted is derived from a Fibonacci ratio. These lines are called *Fibonacci time cycles*. At points 1 and 3 the line bisects a market low. Points 2, 4, 5, 6, and 7 all mark pivot points preceding a market pullback. That is the thing about Fibonacci time cycles that will be troubling for traders—not knowing if they are approaching a market high or low. True, a pivot implies a market trend reversal so assume a reversal from the present trend. But take a closer look at point 6. That is a significant Fibonacci cycle projection that denotes a market high. The Fibonacci cycle at point 6 immediately precedes a cycle low in the symmetrical cycle that accompanies the price bottom in early 1997. That just adds a lot of conflict. Which cycle method will be proved right? In hindsight the symmetrical cycle bottom was stronger, but the Fibonacci time cycle was also correct—it just did not amount to much of a trend reversal at point 6. The question of knowing what the magnitude or strength of a signal will be is the heart of the issue for a trader.

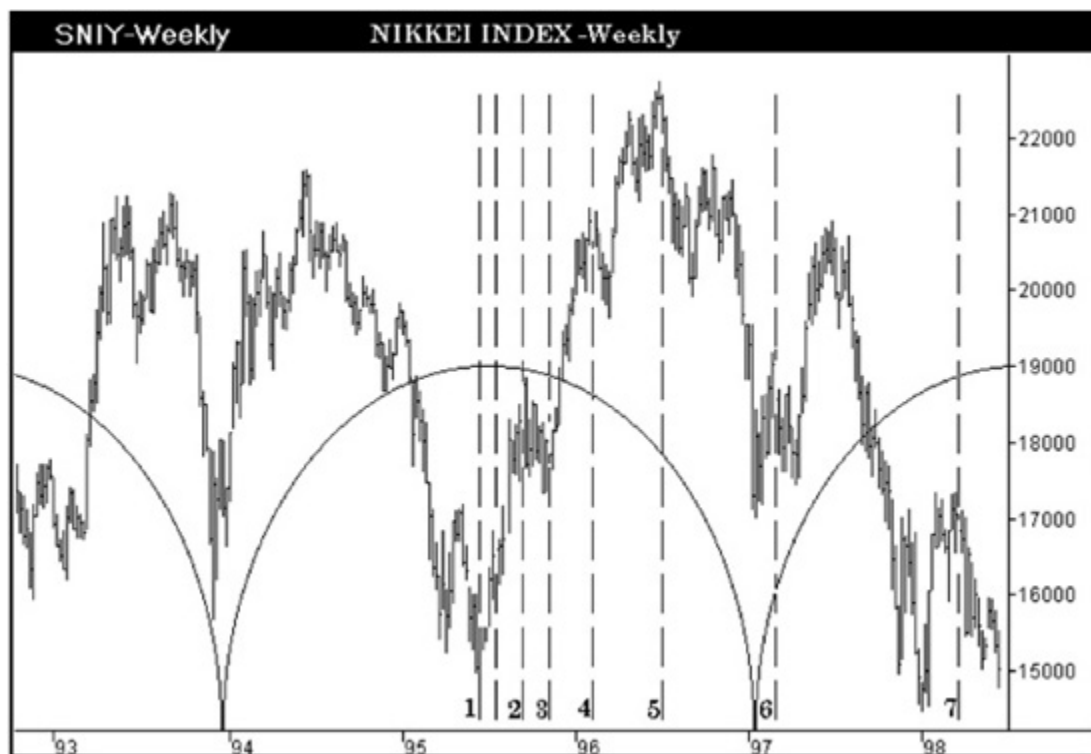


Figure 2.3 **Nikkei 225 Index**

Source: TradeStation. © TradeStation Technologies, Inc.

If we plot a second Fibonacci time cycle with the starting point at the market bottom near the close of 1993 (not on the chart), a Fibonacci time cycle from that low would not coincide with any other cycle marked in [Figure 2.3](#). The additional information just becomes noise. Many of us have witnessed an in-depth Fibonacci time cycle analysis that failed. The work was not flawed—it was just that the firecracker, after having been ignited, did not produce any consequential reaction. All the right ingredients seemed to be present, but then nothing happened—a dud, or worse a reaction opposite to our expectations. Multiple Fibonacci cycles projected from numerous market lows reveal confluence points where different ratios overlap one another or form very tight cluster groups. The cumulative effect when cycles of varying periods or Fibonacci frequencies overlap to form a clustered group should mean a high-probability pivot and trend reversal for the market. While this is true for Fibonacci retracements derived from price, it is far less accurate for Fibonacci time projections.

The inaccuracies and weaknesses we all experience as traders with both symmetrical and Fibonacci cycle analysis may be caused by an oversight. This oversight is ignoring the basic premise that nothing is static; therefore, rescaling for cycles forming within multiple time horizons cannot be defined from linear or symmetrical periods. [Figure 2.4](#) returns to the monthly bar chart for the Nikkei Index. The same two cycles displayed in [Figure 2.2](#) are repeated in this chart showing 52 and 89 periods. In [Figure 2.4](#), a 44-period cycle has now been added, and the heavier line helps locate the new period in this chart that captures the market low that was missed in January 1998. The 44-period cycle was selected as it also captures the price low that coincides at the cycle bottom marked at point 1. At point 2 both the 44- and 89-period cycles have a close proximity and contribute to the meltdown drop into the 1990 low. The cycle bottom at point 3 is late for the price low, but the same cycle period is also slightly early for the January 1998 bottom where three cycles are beginning to form a cluster now near point 4. We do not know which cycle period is most important, but clearly the market lows that coincide with the cycle bottoms clustering at point 4 are all significant. We still have the price low at point X that remains unidentified by any of the cycle periods selected up to this point. We will need to add one more cycle to capture this low.

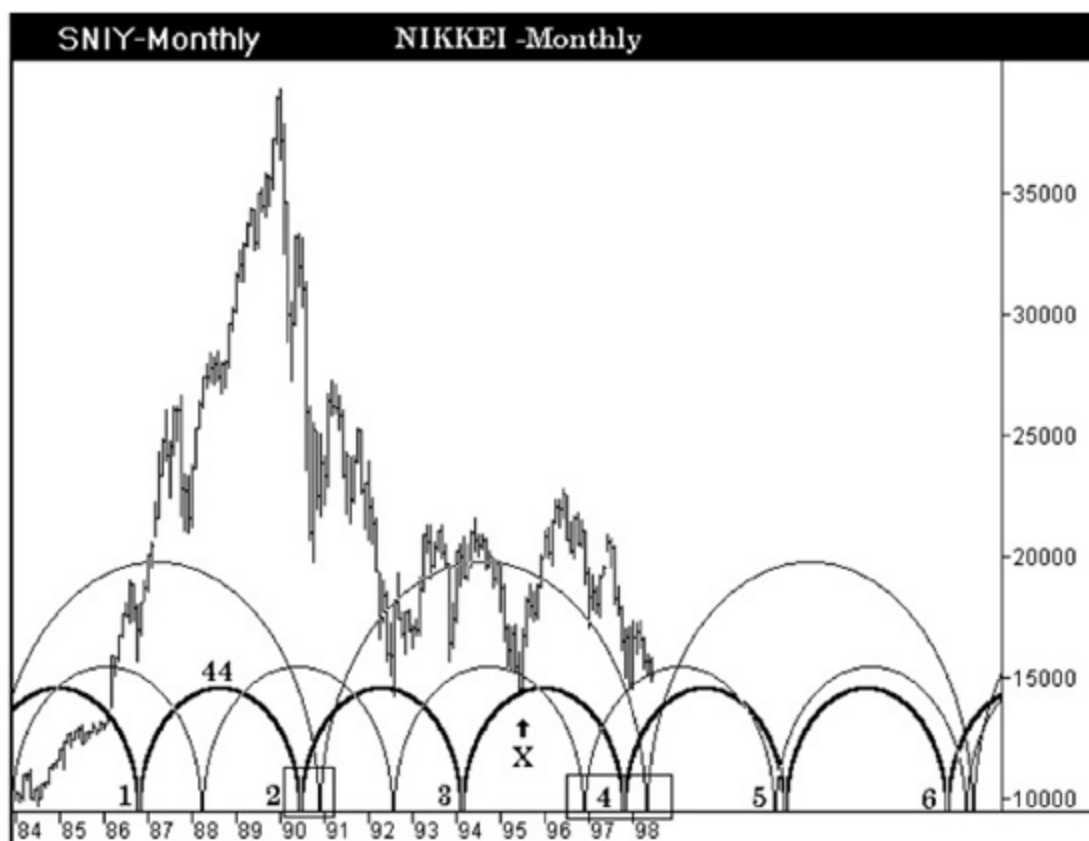


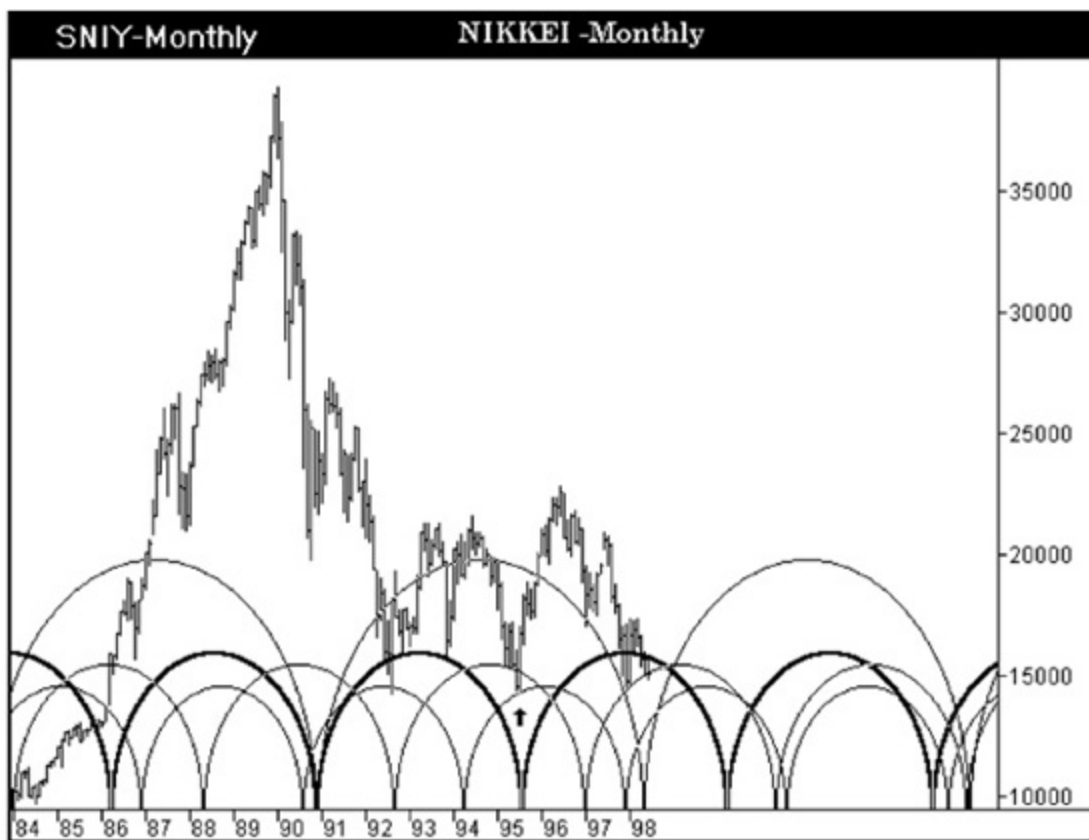
Figure 2.4 **Nikkei 225 Index**

Source: TradeStation. © TradeStation Technologies, Inc.

The cycle that is now highlighted by a heavier line in [Figure 2.5](#) is a 56-period cycle. It marks the important low that occurred in 1995. We now have a chart with lots of cycles up to 1998 and nothing to suggest a low for another two years. In addition, the cycle with 56 periods on the heavier line marks the start of a rally in 1986. Will the future cycles be lows or mark continuations within established trends? That is an important observation many overlook as we condition ourselves to look for patterns that fit our assumptions and we then ignore information that may not fit our definitions. [Figure 2.6](#) has all the cycles we have been building on in the prior charts. But now look at what happens when you use the Fibonacci cycle in a different way. Anchor the tight starting cluster of Fibonacci ratios between the two cycle bottoms plotted in 1986. Then let the Fibonacci series extend forward in time from this anchor point. You are not using a price low, but the symmetrical cycle bottoms clustered at the start of the chart, to project the Fibonacci cycles. Not only do the resulting Fibonacci cycles fall entirely on market lows but they are also lows of tremendous



significance. Point 1 shows you the anchor point to start this projection. (A note added in 2011: Market prices at price swing extremes end the prior trend, but do not start the new trend. The new trend often begins with the first retracement that becomes a failure to resume the prior trend. Many technical tools give better accuracy when projected from the first retracement. There is more on this in the revised [Chapter 4](#).) Point 2 is two periods late, but it is much earlier than the symmetrical cycle that is closest to it. Point 4 defines a major price low that is not even portrayed within our cycles plotted in this chart. Point 5 marks what promises to become the most significant of all the cycles preceding this cluster of numerous symmetrical cycle bottoms. As for point 6, it is the end of the tight cluster of cycles that will mark a capitulation bottom.



**Figure 2.5 Nikkei 225 Index**

*Source:* TradeStation. © TradeStation Technologies, Inc.



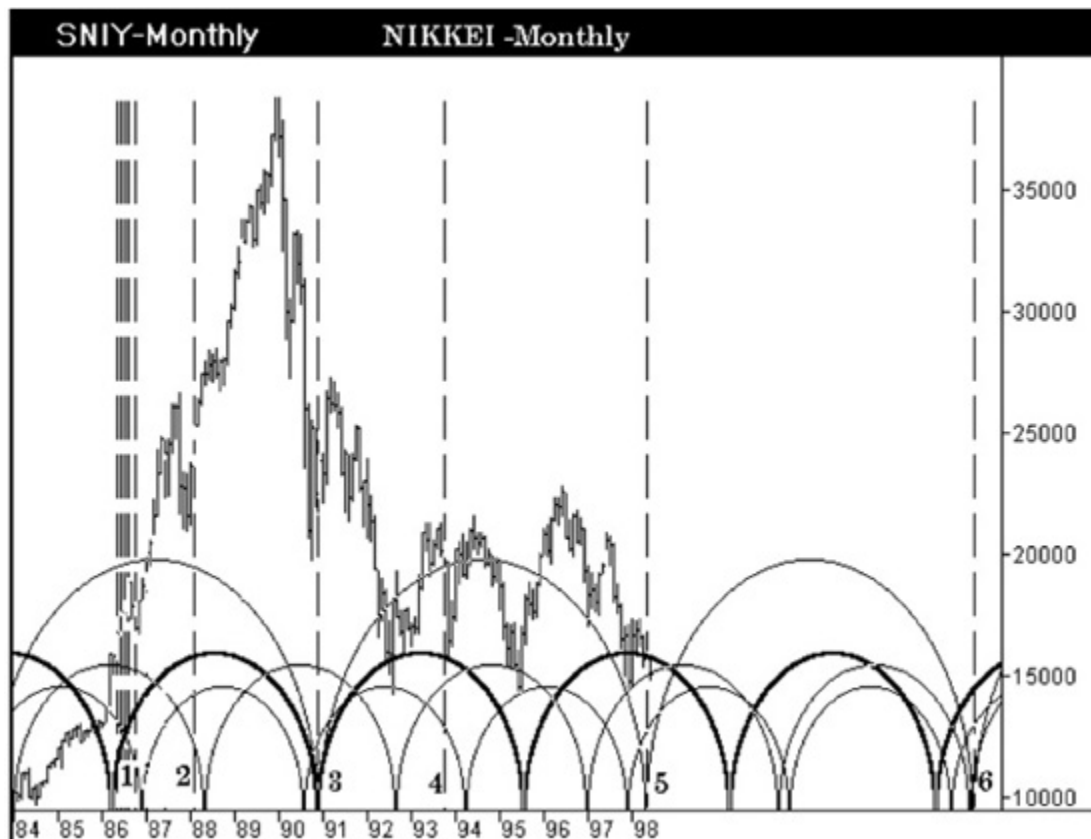


Figure 2.6 **Nikkei 225 Index**

*Source:* TradeStation. © TradeStation Technologies, Inc.

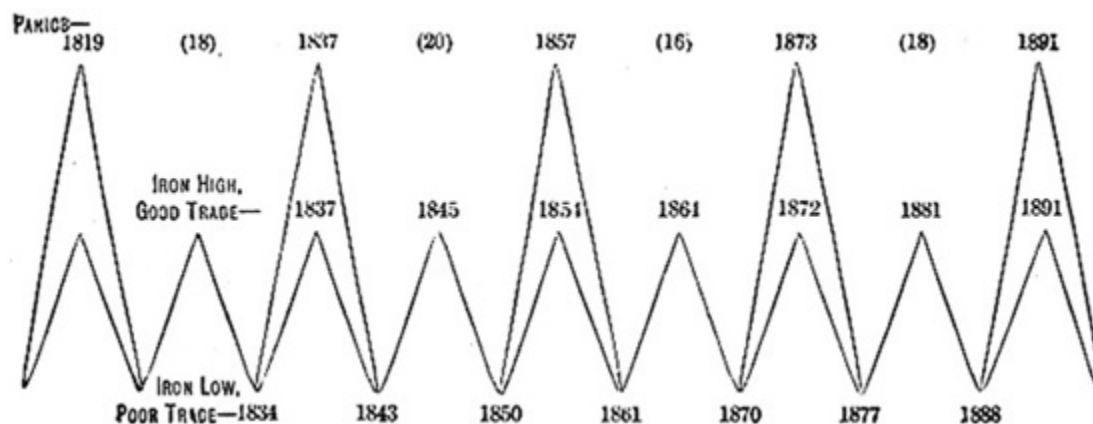
What have I learned since 1998? Was the next major cycle in [Figure 2.6](#) a major bottom? No. The market had bottomed and basically frothed back and forth and the cycle marked the start of a strong rally. This is extremely important as markets can wait until a cycle has completed, but prices will be well off a price high or low. A cycle can mark where market acceleration will begin.

Two kinds of cycles were demonstrated: symmetrical and Fibonacci rhythms within the Nikkei Index. What I did not know then was that the method demonstrated was incorrect for the desired information sought.

Cycles have taught me that within the historical body of fixed cycle work there is brilliance and creativity that we have abandoned to our own detriment. Our thinking becomes very shallow when we hyperfocus on just the hunt for a trading signal. We forget that mastery of technical analysis is not the end goal, but only a collection of well-researched tools that we accumulate in an intellectual think box ready to be called upon to solve a

problem. As experience matures it gets easier to recognize the tools needed for any given market puzzle developing.

There were three great cycle analyst masters who resided within the United States. They all used technical analysis to think about where we have been and used this information to see where their future could be heading. The first was Samuel Benner who wrote *Benner's Prophecies* in 1875. This book was the first study with an extended forecast on market booms and panics in North America. [Figure 2.8](#) is a chart from Benner's book. His charts contained Fibonacci relationships that had never been documented before in his work.



**Figure 2.8 Pig-Iron Market Panics 1800–1991**

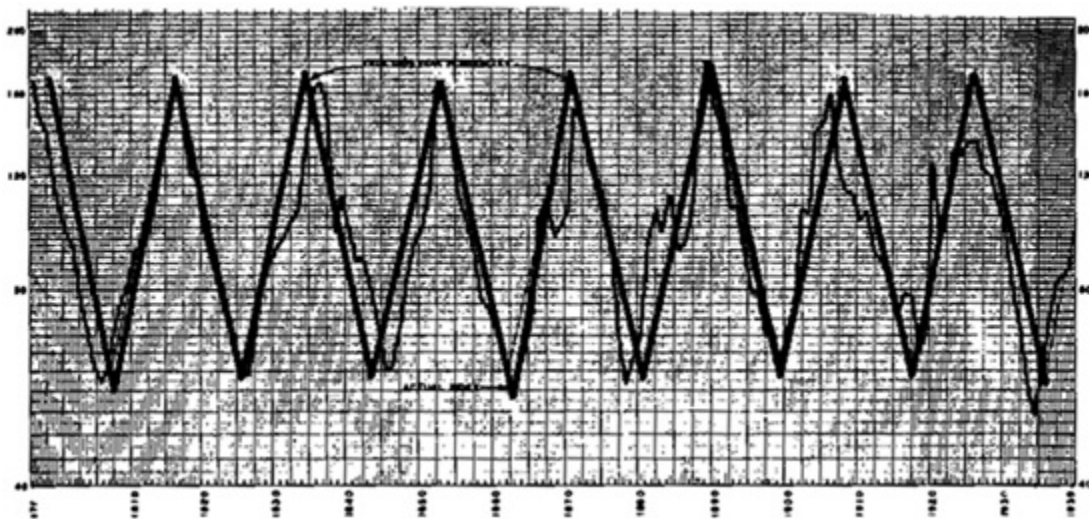
*Source:* Benner Prophecies, 1875

The second master was brilliant in his study of fixed cycles: Edward R. Dewey, the founder and president of the Foundation for the Study of Cycles. This lifetime body of work is now in the safe keeping of the Market Technicians Association in New York ([www.mta.org](http://www.mta.org)). Mr. Dewey's brilliance was not just in the body of cyclical chart work that he developed, but in the diverse subjects he examined that we fail to consider today in our modern global markets. While his cycle work is important, it is his thought process that is even more valuable.

The third great master was William Delbert Gann. His lifetime work was the study of cycles on the horizontal, diagonal, and vertical axes of a market chart. His brilliance was in the utilization of geometry, harmonics, and astronomical time cycles. Simply put, Gann knew how to utilize geometric space in time. There are strong views for and against his work because most people writing books apply John Gann's methods—the

methods of the son not the father. W.D. Gann was a brilliant analyst because he could use his work to surmise social changes, outcomes of wars, and market movement. I will shortly show you a demonstration of this.

Consider some of the fixed period cycle work of Edward Dewey. [Figure 2.7](#) is Mr. Dewey's study of major real estate activity in the United States from 1795 to 1939. The description under the chart states, "Figure 8. Major Real Estate Activity. An index of real estate activity in the United States, 1795–1939, after adjustment for trend, compiled by Mr. Roy Wenzlick. An  $18\frac{1}{2}$  year periodicity has been added by the author." I then exaggerated Mr. Dewey's cycle by making the line wider so it would reproduce more easily. This is an old hand-drawn chart, so please excuse the quality of the reproduction.



**Figure 2.7 Major Real Estate Activity (U.S.A. 1795–1939)**

*Source:* Cycles Classic Library Collection, Foundation for the Study of Cycles, 1987, Edward R. Dewey

When Mr. Dewey wrote “after adjustment for trend” he was telling us the data was detrended. A simple method of detrending is to create a one-period moving average and  $x$ -period average with a longer period. Subtract the value of the shorter period average from the longer and plot the result as a line. It becomes an oscillator as each time the one-period crosses the longer period it is a value of zero. When the shorter value is above the longer it will be a positive value and the value is negative when it is less than the longer period average. A real-time application will be found in

[Chapter 8](#) where a comparison is made between the RSI and this simple oscillator when it becomes more useful in strong trends.

Three great masters of cycle analysis have been named. How would these cycle gurus have fared in today's markets?

To extend the Dewey real estate chart in [Figure 2.7](#) to current times we need to find a common denominator. The interval of  $18\frac{1}{3}$  years is 55 thirds ( $18 * 3 = 54$  and add 1). Using 1938 from near the last cycle low ( $1938 * 3 = 5,814$ , add 110 (two cycles), then divide by 3 =  $1974\frac{2}{3}$ ). This marks an interesting start of a tremendous DJIA bull market. If we add four cycles (220 thirds) to the year 1938, the cycle falls in the year  $2011\frac{1}{3}$ . But you may think that “the real estate crash came in 2008”. Good point, but that was the start of the crash, we are still in it, and we don't have a bottom as this is written in March of 2011. You need to combine this cycle of Mr. Dewey's with the Gann cycle discussed shortly. Mr. Dewey's cycle work began with data from 1795 and remains valuable today to show where the inflection points are within the American business cycle.

Most of our vendors cut off our window of view after 10 years. It is difficult and expensive to purchase the historical data and then it often takes custom software to even see the data files in our procession. It is little wonder so few of us make the effort to connect the cycle work of our predecessors to current market data. The only way this will ever change is for you to communicate your needs to your vendor.

A soft real estate market means an economic downturn. Knowing this rhythm in real estate sharpens our awareness of the market risks. We knew a housing bubble was blooming with an eminent collapse as its resolution as that is historically how *all* bubbles burst. But we did not know as traders when the collapse would happen—or did we? As traders we do not establish a position based on this data, but we know and immediately recognize the significance of a trigger as it happens and can use our better trading tools with the early recognition that a major new trend is in force. Such analysis prepares us to act decisively when others around us are confused and emotional. We can act because we are prepared with a predetermined game plan in place.

Mr. Benner's work came well before Mr. Dewey's. Yet Benner also referenced real estate prices and commercial booms and panics in his Fibonacci cycle work of 1875. His book, *Benner's Prophecies of Future Ups and Downs in Prices* is so rare and extremely expensive that I will

reprint a portion of it before we continue our discussion. Please take special notice of the statements Benner wrote that I have highlighted in bold text.

*Commercial Revulsions* in this country, which are attended with financial panics, can be predicted with much certainty; and the prediction in this book, of a commercial revolution and financial crisis in 1891 is based upon the inevitable cycle which is ever true to the laws of trade, as affected and ruled by the operations of the laws of natural causes.

The panic of 1873 was a commercial revolution; our paper money was not based upon specie (specie refers to Gold and Silver), and banks only suspended currency payments for a time in this crisis.

In the Report of Finances for 1854 and 1855, it is stated that the adoption of the Federal Constitution in 1787 to the year 1798, no people enjoyed more happiness or prosperity than the people of the United States, nor did any country ever flourish more within that space of time. During all this time, and up to the year 1800, coin constituted the bulk of the circulation; after this year the banks came, and all things became changed, like the Upas tree, they have withered and impaired the healthful condition of the country, destroyed the credit and confidence which men had in one another.

The bank-note circulation began to exceed the total specie in the country in the years 1815, '16, and '17, and in the year 1818, the bank mania had reached its height; more than two hundred new banks were projected in various parts of the Union. The united issues of the United States Bank, and of the local banks, drove specie from the country in large quantities, and in the year 1819, when the culmination in general business had been reached, and contraction of the currency began to be felt, multitudes of banks and individuals were broken. The panic producing a disastrous revulsion in trade, **caused the failure of nine-tenths of all the merchants in this country** and others engaged in business, and spread ruin far and wide over the land.

**Two-thirds of the real estate passed from the hands of the owners to their creditors.**

A banker, in a letter to the Secretary of State, in 1830, describes the times as follows;

“The disasters of 1819 which seriously affected the circumstances, property, and industry of every district of the United States will be long recollected.

**A sudden and pressing scarcity of money prevailed in the spring of 1822;** numerous and very extensive failures took place in 1825; there was great revulsion among the banks and other monied institutions in 1826. The scarcity of money among the trades in 1827 was disastrous and alarming; 1828 was characterized by failures among the manufactures and trades in all branches of business.”

After the year 1828 business continued to be depressed, vibrating according to circumstances until 1834, a year of extreme dullness in all branches of trade; after which our stock of precious metals increased very fast, business revived, and in the year 1835 and '36, the imports of gold and silver increased to an enormous extent; as the banks increased their reserves of species (gold and silver), they also correspondingly issued bank notes—each increased issue of paper money led to the establishment of new banks.

The State banks that had numbered in 1830 only three hundred and twenty-nine, with a capital of one hundred and ten millions, increased, according to the treasury report, by the first of January, 1837, to six hundred and twenty-four, or, including branches, to seven hundred and eighty-eight, with a capital paid in of two hundred and ninety millions.

Mark the result and culmination; a panic! In the month of May, 1837, a suspension of specie payments by *all the banks*, and a general commercial revulsion throughout the country, involving the fortunes of merchants, manufacturers, and all classes engaged in trade, in consequence of a ruinous fall in prices. This year of reaction makes the second year in our panic cycles, and is eighteen years from 1819.



History repeats itself with marvelous accuracy in detail from one panic year to another. The general direction of business after the panic of 1857 was on the same downward grade that had characterized the times after the panic of 1819 and 1837, until all business had culminated in depression in the year 1861, after which trade again improved, and was very active during the war of the rebellion and up to the year 1865, when a temporary reaction set in. Reader let me observe here, that if then had been the time for a commercial revulsion and panic in money, the catastrophe would have been the most deplorable national calamity upon record. However, the cycle was not then complete. And the commerce and trade of the country continued to be semi-prosperous until 1870, after which year commercial activity was the order of the day, all branches of business and manufacture flourished and was prosperous; our railroad building was astonishing in the world in the years 1871, '72; but the end must come, and in September 1873, we had the culmination—a crashing panic, and reaction in all trades, manufactures, railroads, and industries, which is still going on, and we have not reached hard pan.

The panics of 1819, '37, '57, and '73, during this period of years, stand out upon the pages of history of this country in their magnitude compared with other panics. Commencing with the commercial revulsion of 1819, we find it was eighteen years to the crisis of 1837, twenty years to the crisis of 1857; and sixteen years to the crisis of 1873—making the order of cycles sixteen, eighteen, and twenty years and repeat. The cycle of twenty years was completed in 1857, and the cycle of sixteen years ending in 1873, was the commencement of the repetition of the same order. **It takes panics fifty-four years in their order to make a revolution, or to return in the same order; the present cycle consisting of eighteen years will end in 1891, when the next panic will burst upon us with all its train of woes.**

So how did Benner do with his forecast for 1891? Allowing Benner plus or minus a year he did very well and hit the cycle low and high correctly in his book. That is why his book survived and entered numerous reprints.

[Figure 2.9](#) is the cycle he used to make his forecast. His book was the first of its kind.

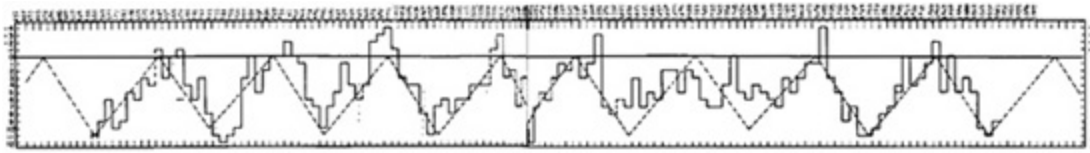


Figure 2.9 **Index of International Battles from 550–1957**

*Source:* Cycles Classic Library Collection, Foundation for the Study of Cycles, 1987, Edward R. Dewey

In 1837, 1857, 1873, and 1893 a New York residential boom ended in a panic bust where housing prices collapsed. New York's housing busts were caused by recessions (or "panics") in the national economy recorded in the years of 1837, 1857, 1873, and 1892 to 1893. One of the ways we can research economic housing cycles is through newspaper advertising. Is having our current history recorded entirely by electronic means really the smartest thing for us to do? The *New York Times* has papers on file that were used to supplement historical data for these studies. In 1826 land that sold for \$100 to \$150 rose to \$2,000, according to ex-New York Mayor Philip Hone. When banks failed and the economy fell into a depression, lots in the West 100s which cost \$480 a piece in September 1836 were selling for \$50 in April 1837.

The Great American Depression that followed the NYSE crash of 1929 to 1930 was not the worst depression in American history. Although we are taught as students that this was the worst period in American business history, Benner described the year 1819 as a period when nine-tenths of all businesses failed.

It is interesting that Benner stated that it takes 54 years from panic to panic, as Dewey also identified a 55-period quarterly cycle, or  $18\frac{1}{3}$  years, that is, one-third of Benner's cycle. If we take Benner's forecast of 1891 as the start of a panic contraction period and add 54 years up to current times, the cycle falls on 1999. In hindsight we know a panic developed, but not a real estate panic one might try to associate with this cycle. The cycle mapping human sentiment was spot on and the 1999 to early 2000 top led to a panic that pushed the early Internet companies out of grace. Many fell from dot-coms to "dot gones."



What we are learning in this example is how to use cycle analysis to give us a sense of where we stand today within an historical cycle of significance. That is far more valuable than the hunt for a single isolated entry point to establish a new trade. Do you want a fish, or do you want to know where the entire school of fish is hiding? That is why my first discussion of cycles missed the mark in 1996. Knowing where we are now in the context of a much bigger picture is invaluable. From these cycles we can ask important questions, such as, how did these events build into a major economic panic? Notice how Benner takes notice of the decline in reserves of gold and silver and the changes in public confidence concerning the valuation of paper currencies. Was this an ingredient that always contributed to the cycle panics of the past? I'll leave you to answer that one as it is important to do the research. One easy way is to scan the papers from a year before a market bust sets in. The ads, the real estate listings and job offerings, the editorials, the news itself all paint a sentiment pattern that will show you there are similarities in human patterns that can be predictable.

I have a school in North Carolina that is dedicated to teaching advanced traders. One of the most important things I demonstrate is showing how a question or irregularity can become an opportunity to learn. Don't run away from the unknown. Whatever the trader brings to the school, regardless of culture or technique, I will turn their technique into a puzzle they had never considered before so they have to think in ways that will increase their probability of being right. Most people shrug their shoulders and state that they don't know the answer. The best traders recognize the opportunity and want to run into the unknown to better their understanding. Their worst response is to take someone else's answer and assume that it is correct when they don't really get it themselves.

The concerns for a diminishing confidence in our currency form a cycle of consumer sentiment that Dewey and Benner both warned us about. Their chart work should make us think about the risk blooming in current times. We also need to ask, "what contributed to the recovery after a major business cycle contraction?" Both state and show that manufacturing was the key. It remains so today. That means education is key in America as we have to make products no one else can make. The race is on. But the manufacturing industry for any country is tied to the ability to sell its goods elsewhere and that means you need an opinion on currencies. Too many

stock traders believe they need not spend time on analyzing currencies. But if you analyze the gold stocks GFI and NEM and find they have a slight out-of-step correlation, you better realize that GFI is based on a revenue stream in South African Rand currency. *You are a currency trader whether you want to be or not.* This is not about an analyst becoming a fundamentalist. It is only showing you that we must think about what we are seeing in our charts, indicators, cycle work, and intermarket relationships in order to do exceptionally well in this global environment.

Should we not be asking ourselves, “how often has the world seen a war break out after a financial collapse?” Is there a relationship in timing between the collapse and political instability? Was it a loss of confidence in currency that triggered the wars, a drastic change in the cost and availability of food that led to political instability, or debt that could not be sustained due to more benefactors than worker bees paying into the social programs? Whatever the ultimate triggers, asking ourselves questions helps us to focus on a broader range of markets that provide us with balance that will increase the probability of our work. Looking how cycles fall within the Nikkei price data is superficial if the discussion goes no deeper.

Consider further the work of Dewey. [Figure 2.9](#) shows Dewey’s study of an Index of International Battles from 550 through 1957. The cycle interval is 10.8 years. We know the half cycle for sunspot and solar storm activity is 11 years. Agricultural yields are also tied to an 11-year cycle. Is one of the factors influencing weather patterns the changes in the earth’s magnetic field which has a similar cycle? Finding if one set of data influences another set of data requires a statistical study. But first you need to have the data and lots of it.

[Figure 2.10](#) is Dewey’s long-term chart for European Wheat prices from 1500 to 1869. This data was collected by Lord Beveridge who discovered there was a 54-year cycle in Wheat prices. It is interesting how this cycle period keeps reappearing in this discussion.

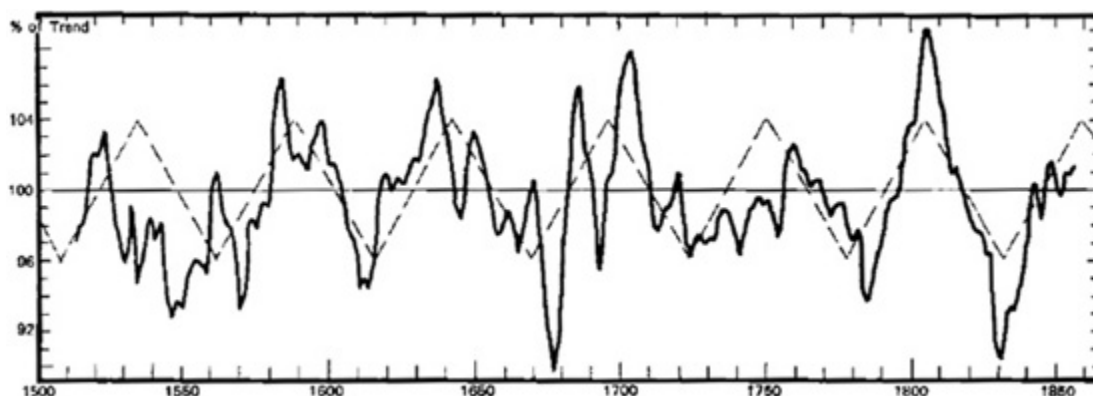
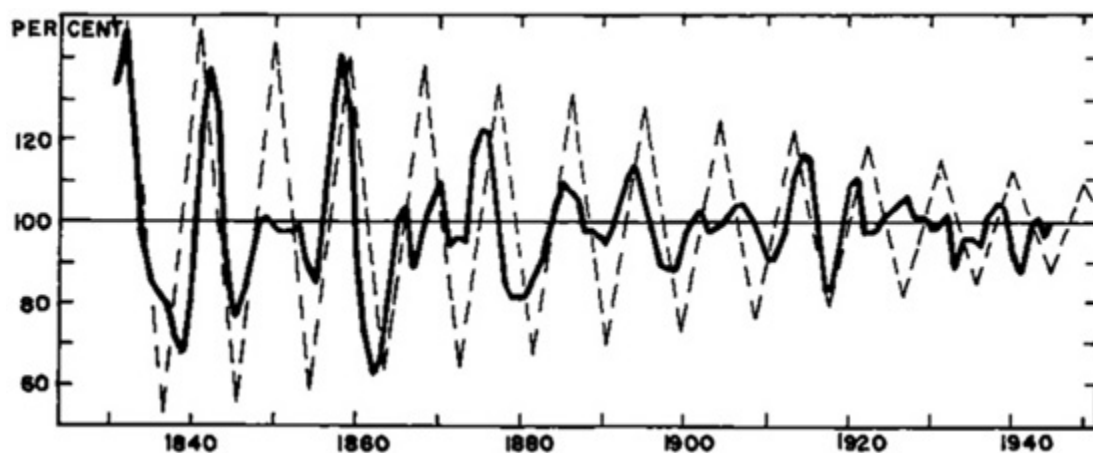


Figure 2.10 **European Wheat Prices 1500–1869**

*Source:* Cycles Classic Library Collection, Foundation for the Study of Cycles, 1987, Edward R. Dewey

Dewey studied cycles that mapped human sentiment and activity in ingenious ways. He thought outside the box of convention. This is part of the brilliance of his work and what we can easily miss in our own work today if we only focus on a trading signal within a single market. If we stop thinking about why we are studying a cycle, we easily forget that the real purpose is to increase our probability within a complex multitiered global environment. Trade signals do not occur in isolation any more.

In [Figure 2.11](#) we see Dewey's 9-year cycle in new Presbyterian church members in the United States from 1826 through 1948. Was Dewey studying the growth of the Presbyterian church? No. In economic times of hardship church membership increases; in easier times membership declines. Dewey was not the only one to study economic cycles through various habits and trends within the general public.



## Figure 2.11 **Growth of the Presbyterian Church in America (1826–1948)**

*Source:* Cycles Classic Library Collection, Foundation for the Study of Cycles, 1987, Edward R. Dewey

The third cycle analyst from the United States is perhaps the least understood. Few students of Gann's work realize that the first edition of his book, *How to Make Profits Trading in Commodities* (W.D. Gann & Son, Inc., 1941), describes different charts from those in his revised 1951 edition (Lambert-Gann Publishing Company, Inc.) in distribution today. There are so few copies of the 1941 edition that they are hand corrected. In addition, the 1941 release was a more open and unveiled dialogue that I suspect was due to concerns about the growing war in Europe.

Gann wrote a segment on [page 310](#) titled "Why Hitler Will Lose the War". Keep in mind that this student of markets was making a forecast *before the Japanese attack on Pearl Harbor caused the United States to enter World War II*. His views on why wars are fought remain true today. While Gann was a technician of markets, he used this knowledge to develop a theory of the bigger picture in which he must trade and live. Gann wrote:

Before going into the details of why Hitler will lose the war, it is important to analyze for what the war is being fought. We read much about the fight against Nazism, Communism and Socialism, and that the war is being fought to preserve democracy and the freedom of the seas. This is not a true picture or a true fact of what the war is being waged over, but when the war is over and the smoke clears away, the world and the public will know for what the war was fought.

This war is no different than any other war. It is being fought for commercial supremacy to determine WHO is to dominate the commerce of the world in the future. Germany wants to dictate prices and dominate the commerce of the world, and England wishes to do the same. Russia would like also to do the same thing.

It now appears that the New Dealers in the United States would like to dictate everything to the world. England has always fought to maintain freedom of the seas and control the

commerce of the world, and England knows that it is a part of wisdom to work with the United States, and with Russia to determine the trade relations after the war is over. Germany will lose the War because they do not have control of the sea. As long as the United States and England dominate the seas they will rule the trade of the world.

Comparing TIME PERIODS of the past, Hitler's campaign into Russia has not made the progress that Napoleon made in the same number of days. Hitler has every improved machine for waging war and moving rapidly. Yet the big Blitzkreig has failed to keep up with the pace of Napoleon with his horses and mules. Something is wrong! It is this writer's opinion that Hitler's "Waterloo" was written the day he made the advance into Russia. No chain is stronger than its weakest link. No man has ever been so smart that there isn't another smarter. The other nations fighting against Hitler will find the weak point, and that weak point will be the undoing of Hitler, and Germany will lose the war.

Gann's 1941 release of *How to Make Profits in Commodities* occurred before any of these statements about the war, which showed the strength of his research techniques, had been proven true. In his 1952 edition, in circulation today, Gann removed not only the commentary with his opinion on the war, but he changed some of the chart references. Why? Gann wanted us to see he could prove the exact same cycles applied a decade later when he revised the first edition.

The more I study cycles of fixed periods the clearer it becomes to me that they are of greatest value in the longer term. Human events are difficult to recognize in shorter cycles. Longer cycles make traders or analysts far more aware and knowledgeable about the trading environment in which they are operating.

Did I find a solution to the problems inherent to all fixed period cycles demonstrated in my first edition? Is there a better approach to timing market entry, exits, and can we be warned when a market will form a pattern of distribution and go nowhere? Yes, there are better tools for trading and we can be warned when to stay away from a market. This alone is invaluable for risk assessment.

In my opinion the work of W.D. Gann has provided a better solution to the problem of timing trades, but his work is of particular value in the longer term as well. Both Benner and Dewey called some of our current market strife, but how would Gann have fared with calling today's market turmoil?

Gann devoted a tremendous amount of time to what he described as the 56-year cycle, or the "Great Cycle," because it is based on 144. Gann describes the importance of the Square of Twelve (144) in Gann's writings, *Mathematical Formula for Market Predictions: The Master Mathematical Price, Time, and Trend Calculator*. The Great Cycle will be discussed further in [Chapter 9](#) when we have had a chance to look at Gann's Wheel to extract price and time targets. But first you will want a credible example of his analysis techniques applied in recent markets.

Gann's approach to market timing can be found in the book edited by David Keller, *Breakthroughs in Technical Analysis: New Thinking from the World's Top Minds* (Bloomberg Press). I was asked to write [Chapter 5](#). It was written in 2006 and the book was released in early 2007. On [page 104](#) you will find the following, "Gann's methods warn that the years 2008 to 2012 will be difficult ones." I tried to warn readers in this book, as this was a horrific cycle approaching on the horizon. So far Gann's cycle has performed in current markets very well. This particular cycle of Gann's was correlated to times of great turmoil with wars, business and bank failures, political unrest, and food panics stretching across 100 years of history. As a trader it does not bother me that I don't know *why* something will happen. Just give me the *when* and suddenly all the other technical methods I use seem to become far more effective and easier to interpret.

But if 2008 to 2012 were foretold to be rough years and we are still living through them now, can Gann analysis warn us when the next bear market will unravel global markets again? Yes. The same cycle and confluence of supporting cycles point to 2019 to 2021.

However, knowing a target date doesn't end the research. To begin with, one must accept from Gann's cycle warning of 2008 to 2012 that this bear market is not over. Therefore, we need to think whether the two dates are connected. Is one market leading all the others? If there is a market leader do we focus on the timing of that market, such as China, or do we focus on our own markets?

Gann's time analysis utilizes cycles borrowed from natural law and the laws of vibration. There is a pile of hoopla out there on this subject that is not worthy of print. What people fail to recognize is that books written in the late 1800s and early 1900s used the term natural law to describe the movement of planets. It was the study of natural law or, in today's language, the study of astronomy. If you are a beginner, focus on astronomy (the science), and stay away from astrology. Eventually you will start to make connections that will lead you to study mundane astrology. But even this is *mathematically* different from what is used to prepare a newspaper column with daily horoscopes or write an emotionally charged newsletter that the sky is falling; sell all. What you are likely thinking about is natal astrology when you read the phrase 'natural law' and I haven't any interest in natal astrology either. The data from the NASA website can be examined by chi-square tests and more. I want mathematical proof before risking my own bank account and likely you do too.

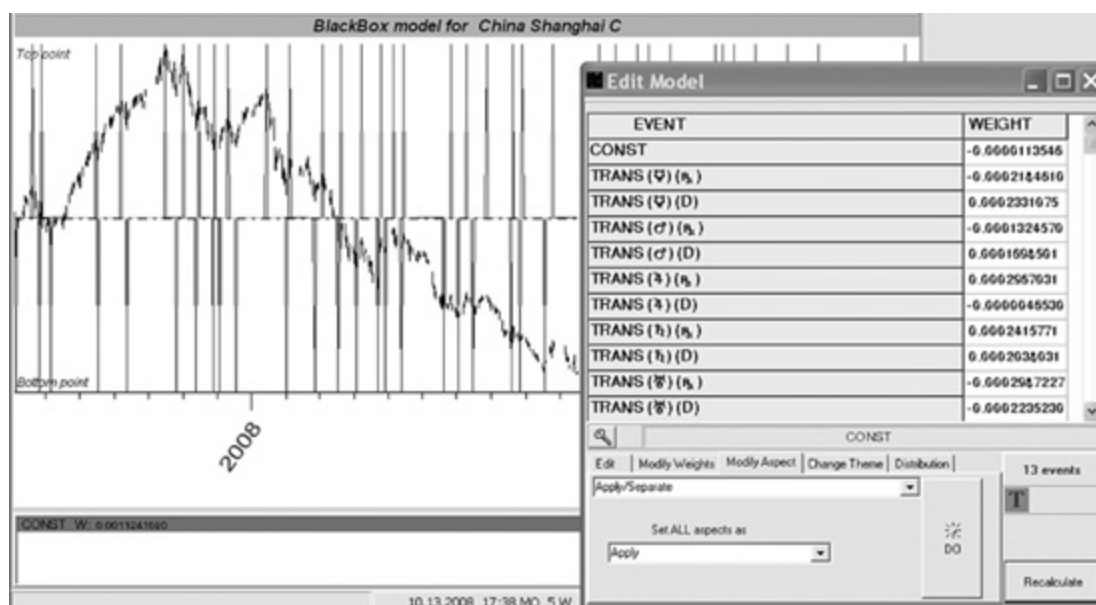
The truth is, even the 54-year cycle can disappear as it did in 1960. Fixed cycle enthusiasts will describe the beat of a cycle as the cumulative sum of numerous cycles all working to enhance or diminish the strength of a cycle beat. But when a strong cycle reappears, this description does not answer why the period begins with an offset interval from when it was last seen. The answer is that nature does not depend on fixed cycles.

Gann was a master of finding confluence targets on all three axes. He worked to identify objectives on the horizontal (price), diagonal (geometry), and vertical (time) axes. If you understand the concept of a confluence target zone on the horizontal price axis, it is easier to grasp the concept of confluence time targets along the vertical axis.

The concept of confluence price target zones will be discussed in [Chapter 6](#) and is the focus of my book, *Fibonacci Analysis* (Bloomberg Press). Confluence price targets are narrow price ranges where different Fibonacci ratios cluster tightly together. They must be different Fibonacci ratios derived from several different price ranges. These target zones do not form a grid on the horizontal axis with a fixed interval between each target zone. The separation or spread between targets is irregular because markets expand and contract. The truth is that this is also found along the time axis as well and the changing intervals between cycle beats can be explained by natural law sciences.



[Figure 2.12](#) shows the China Shanghai Composite with preliminary testing to develop cycles for time analysis. Gann states the following in one of his early works, *Truth of the Stock Tape* (1923, p. 116): “The most important thing of all is the Time factor, which I use in making up my annual forecasts.” In Gann’s book, *Tunnel Through the Air*, he states through his fictitious character Robert, “I have determined the major and minor time factors which repeat in the history of nations, men and markets” (p. 70).



**Figure 2.12 China Shanghai Composite with Time Analysis Study, Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)**

*Source:* Market Trader Gold, Alpee Lavoie and Sergey Tarasov

The specific event being tested in [Figure 2.12](#) is called a retrograde cycle. We will take an introductory look at a few of Gann’s methods in [Chapter 9](#).

While Benner, Dewey, and Gann all had different ways of charting cycles and focused on some that at first appear similar, they had in common something even more valuable; they were thinkers. These men used their cycle work to forecast and time the sentiment changes that impact on their business environment based on the rhythmic patterns of the past.

## Endnotes



Dewy, E.R., with Mandino, O., *Foundation of the Study of Cycles*,  
New York: Hawthorn Books, Inc., 1971.

## Chapter | 3

# CHOOSING AND ADJUSTING PERIOD SETUP FOR OSCILLATORS

As the Stochastics indicator is one of the more widely used studies in the industry, it is a good place to begin a discussion about how to set up initial periods. As mentioned in the first chapter, quote vendors use the same default periods for their studies. Stochastics is generally one of the first studies that novice technical traders will add to their market data, allowing professional traders to use this knowledge to their advantage for short-horizon market moves.

The S&P 500 futures market can be graphed in three-minute time intervals. But clearly this would be ridiculous when the market is moving 20 S&P points in a minute. Markets sometimes adopt entirely different personalities and knowing the technical tool to use for a given environment is essential. In flash crash environments I personally do not use normalized oscillators at all that track between 0 and 100. A simple detrended oscillator from two simple moving averages will keep the trade on and take it off with the best timing. Take a look at the spread between two simple averages of periods 1 and 9 as an example. But the need for and application of normalized oscillators does not change.

[Figure 3.1](#) is a two-minute chart of the September S&P on June 12, 1998. The data are so well defined that I could remove the labels on the time and price axis and lead you to believe that the chart was a 60-minute or daily bar chart. Don't drop down to these extremely short time intervals if the price swings are not as clearly defined. Bond markets I rarely drop below 20-minutes. Also, please keep in mind that the two-minute chart is used in emergency situations like fast waterfall declines. Go down in time rather than longer. It applies only after extensive analysis of longer time horizons from monthly charts on down to the shorter time intervals. I strongly recommend that you do not use tick charts as you will be forcing a fixed number of trades into a single bar as opposed to plotting the trades that occur over a fixed unit of time. If you apply the Elliott Wave Principle, as an analysis method, your wave structure will be distorted in a tick data format. If you need to look at your data in a different format, use

candlesticks or consider Point-and-Figure charts. Intervals to consider using in the S&P are 100 by 3 and 50 by 3. Why those particular periods? These setup periods for point and figure charts are popular with the floor traders in the S&P pit. Even though volume has now switched to electronic trading, old habits still have an influence. Which leads us right back to [Figure 3.1](#) because, if our market can be influenced by a known entity that could shift the timing for our own position entry or exit, we should monitor that element if at all possible. If there is a favored analytic method used by a large group of traders like a specific period for point and figure charts, candlestick charts, or simply a common error used by inexperienced traders in mass, that knowledge can be used to your advantage.

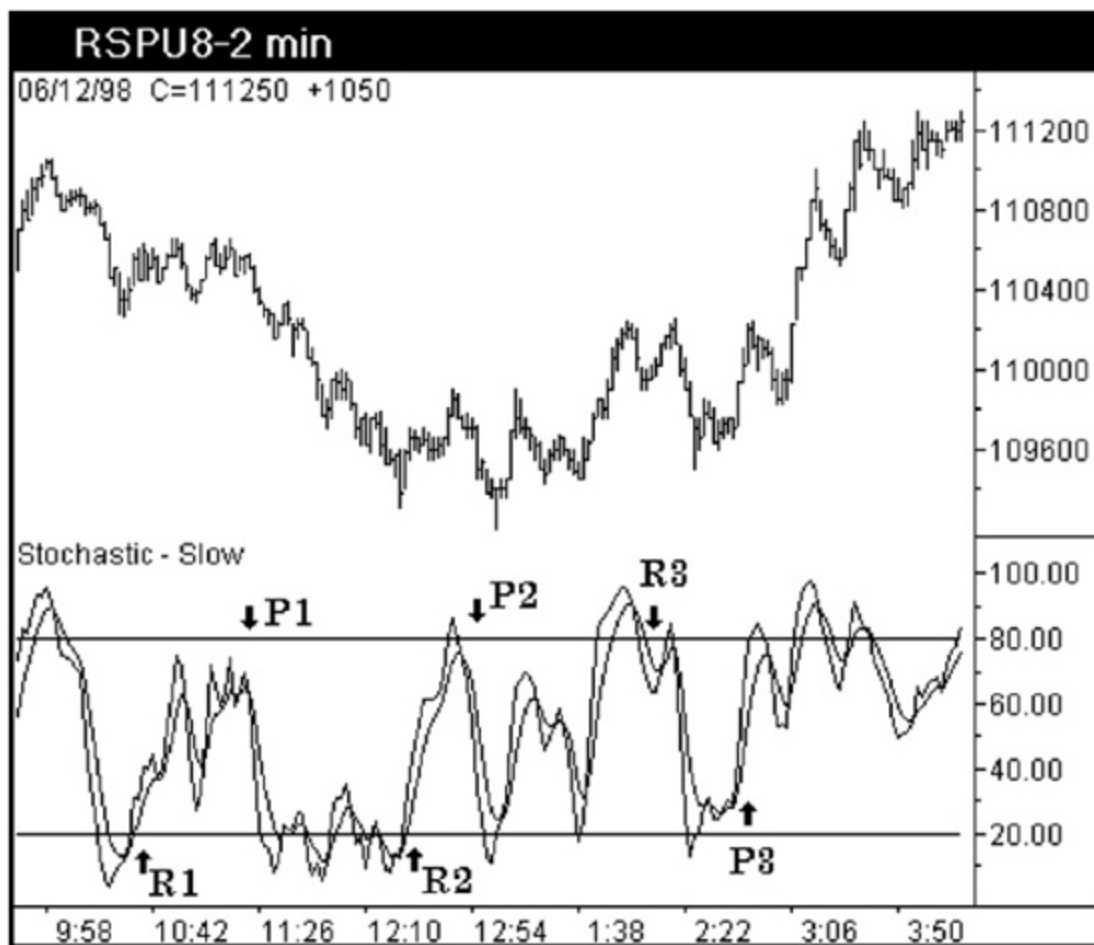


Figure 3.1 Aerodynamic Investments Inc., © 1996–2011,  
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Source: TradeStation. © TradeStation Technologies

The two-minute S&P chart in [Figure 3.1](#) was deliberately set up with the vendor's default periods so that the retail traders could be monitored. The "Stochastics Default Club" remains because countries with less experienced professional traders are part of the instantaneous global village. Our ability to trade any market is becoming easier as exchanges blend together in an effort to survive. What is fascinating is that the mass psychology remains the same. I might see a reason in a very thin market to delay my order if the timing is moments away from the Stochastics Default Club. There clearly have to be other concerns present first, such as an Elliott wave pattern and momentum indicator combination in my own charts to suggest that something could be out of sync. But then looking at a Stochastics study that is deliberately set up incorrectly can be of interest. In [Figure 3.1](#), a few signals are marked to show an R for the retail sector most likely entering the market. The P in the same chart denotes where professionals are using the retail trader's volume to establish more favorable entries for themselves. The Stochastics Default Club will enter on cue as the indicator crosses up through the 20 line and will sell as the indicator crosses below the 80 level. They are doing just what their user's manual told them to do and what they often see demonstrated on the Internet. If Stochastics gives the novice trading group three signals in a row and offers divergence or a W bottom in the indicator like the chart displays at R2, they will generally come out in larger numbers and squeeze out some of the weaker market positions with size (large position size), producing a three-wave corrective move. The experienced traders generally will not let the Stochastics Default Club off the hook graciously because their orders will likely be entered before the Default Club charts have had an opportunity to trigger a reverse signal. That is because we are making our trading decisions from different periods and from different time horizons. Add the range rules for oscillators, and we would be entering orders from entirely different zones from the same chart. Coining the phrase "Stochastics Default Club" is not meant to be disrespectful, as I was once a member myself when I first started. Maybe it is just a rite of passage. There is no experience quite like the emotional swings of being trapped on the wrong side of a runaway fast market shortly after your indicators gave you permission to boldly step in front of an oncoming freight train. Splat. It isn't too long before basic survival instincts motivate us to find a better way. Sadly George Lane has passed and he used to make

me laugh when he referenced my definition for the trader that never learned how to setup Stochastics. He made me promise I would not stop abusing the Default Club in seminars so people would push themselves to do better. It is a promise kept, but we miss you, George.

How do we go about finding the right period to use? And what will happen when everyone uses the same method to define the right period? Won't we be establishing a "Modified Stochastics Club"? Well, forming a new club will be harder to do as dominant cycles are not symmetrical, and it will be harder to identify the correct cycle to use than one might suspect. However, Stochastics is very forgiving if the period used is just slightly off the mark.

Stochastics is based on the observation that, as price decreases, the daily closes tend to accumulate ever closer to their extreme lows of the daily range. Conversely, as price increases, the daily closes tend to accumulate ever closer to the extreme highs of the daily ranges. This concept holds true whether we are trading from a two-minute bar chart or a monthly time period. George Lane used this observation to develop his overbought-oversold oscillator, which shows this relationship. Stochastics is a two-line oscillator that uses %D as the primary and %K in a shorter interval to offer a leading indicator to %D. George Lane used a three-line oscillator by plotting %K, %D, along with %D-Slow as a confirming indicator. The Slow Stochastics gave a smoother sine wave than the Fast Stochastics. By varying the period used for the primary oscillator %D, different results will occur.

In [Figure 3.2](#) the weekly DMK/\$ chart is offered. The method for defining the correct periodicity for %D is to study the time horizon in the chart from which you are making trading decisions and determine the best cycle for that chart. The data in this chart have been compressed so that as much data as possible can be seen on the screen for this weekly time horizon. We need to see only price lows so the temporary distortion of the data is inconsequential. In this chart a cycle of 118 is identified. This cycle is close, but it does not fit the price lows exactly, for reasons discussed in the preceding chapter. Therefore, bias your cycle placement so that the cycle bottoms align most accurately with the price lows in the most recent data, and let the price lows furthest to the left of the chart fall slightly out of phase. Most will establish cycles from left to right and let the price lows

closest to the current bar fall out of sync. That just doesn't make much sense.

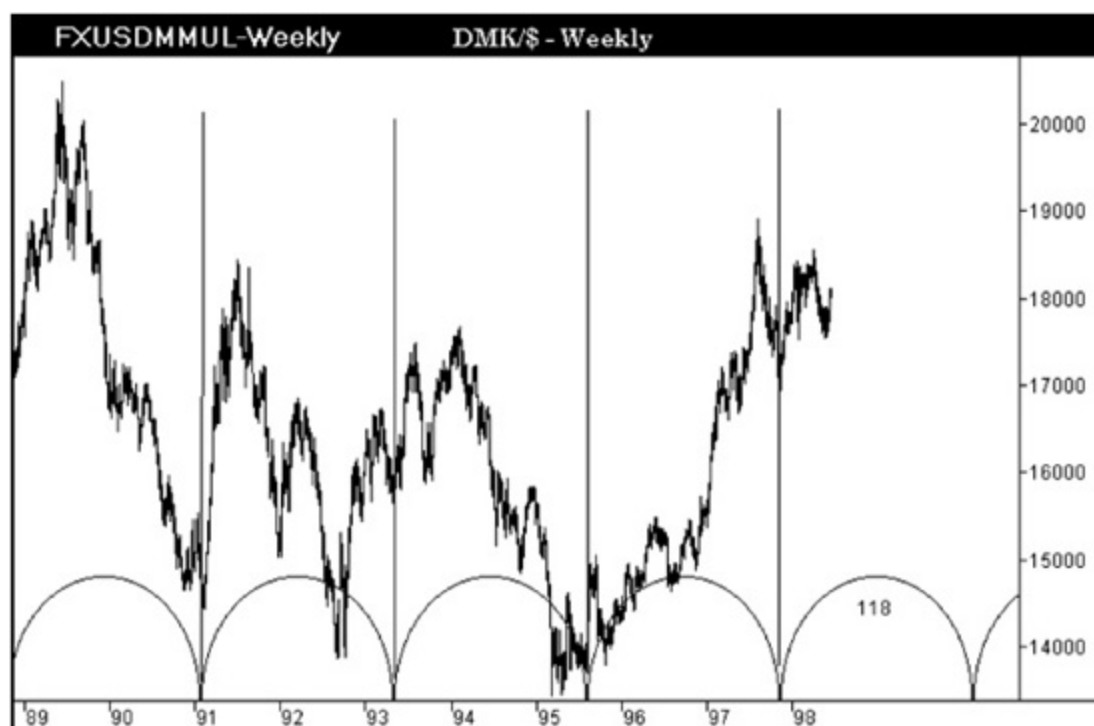


Figure 3.2

Use the periodicity that is half of the cycle length you identified. As a 118-period cycle is acknowledged in the weekly chart, a 59-period would be used for %D. But how do we know that the 118-period cycle is the correct one to use? In [Chapter 2](#) we developed a chart that needed four cycles just to mark some of the more significant market lows. As we are never going to stumble on the ideal cycle to use in most cases, here is a useful way to evaluate the period you selected.

The compressed  $x$  axis can now be expanded so that the data appears normal on the screen. Then add the Stochastics study to the chart using a 59-period interval. While the results in [Figure 3.3](#) are correct, I do not like the results from this period because there is insufficient movement in the indicator between zero and one hundred, and the oscillator does not display the range rules discussed in [Chapter 1](#). So the first efforts have established a period that is too long. If I repeat the process of arbitrarily plotting a bestfit cycle and taking a look at the period results in the Stochastics formula, it could take several hours to find something I really liked. So let's

use the computer's smarts to see what it can come up with as the period to use.

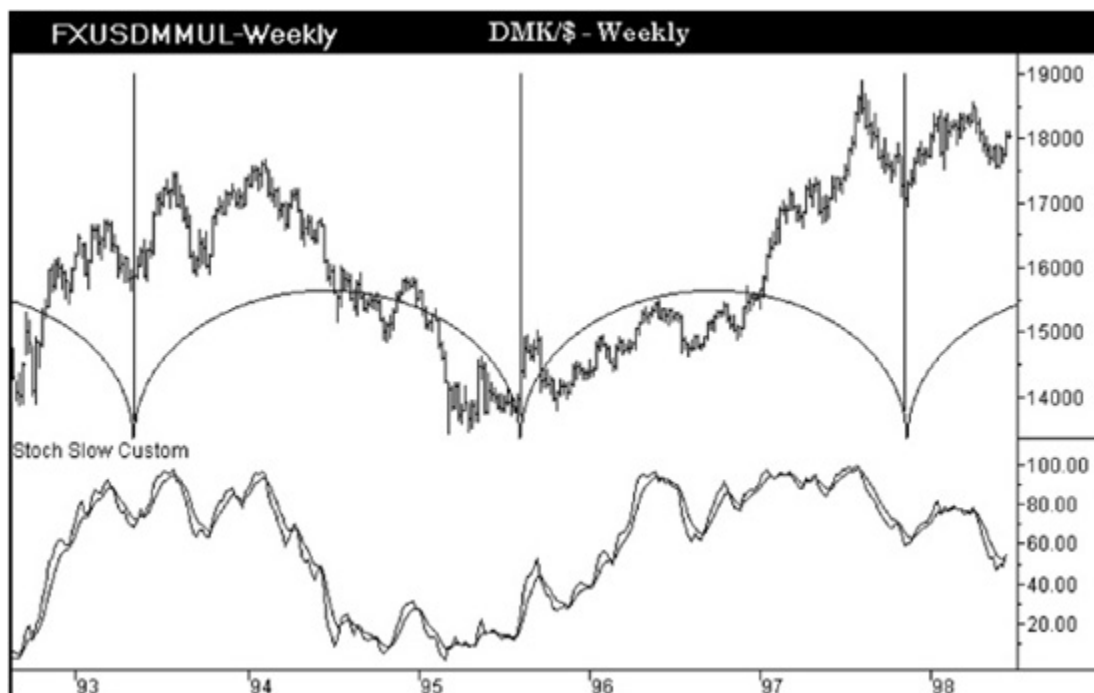


Figure 3.3

Professional charting products all have an optimization feature. In [Figure 3.4](#) the Omega TradeStation software has the ability to optimize a period when you want to edit the default value. Omega TradeStation uses a default value of 10 in their Stochastics Crossover System, but their default value is different when you select Stochastics as an indicator to be plotted in a chart. Regardless, we know that the 59-period is too long and the default of 10 will be too short. Instead, let the computer run through an optimization range of 10 to 50 in increments of one unit to identify a better period. Curve-fitting technical indicators that are used in unconventional or specialized interpretative ways are not recommended. But in this situation we are consciously trying to curve fit the historical data into a single period to use as a guide or starting point.



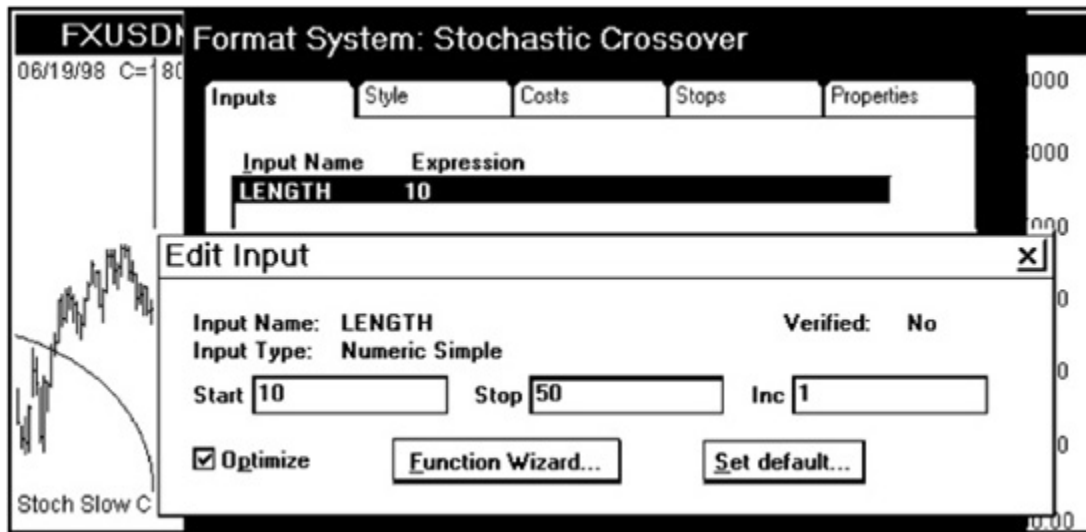


Figure 3.4

The optimization feature for the Omega TradeStation Stochastics system will use the buy-sell signals generated when the Stochastics oscillators cross through the 80 and 20 levels. As we do not want to use Stochastics in such a manner, the profitability test results as part of the optimization process will still be of value to us.

The computer optimization suggests a period of 36 is the best value to use for %D. Working backward, we know that the cycle will be double the Stochastics period. The computer is indicating that a 72-period cycle will be dominant in this weekly DMK/\$ chart. After setting a 72-period cycle, comparable price lows can be identified. The computer may have found a better cycle, and this is tested when the data are compressed to show the full historical range in the database. Having passed the first test, we can go ahead and add a Stochastics study using a 36 period for %D. The results in [Figure 3.5](#) should immediately offer confirmation that the right period has been identified. How? The range rules discussed in [Chapter 1](#) are now present. The four boundary lines discussed in [Chapter 1](#) to mark the upper and lower levels for a trending bull and bear market have been reduced in this chart to show only two: the lower range for a bull market and the upper resistance zone for a bear market.



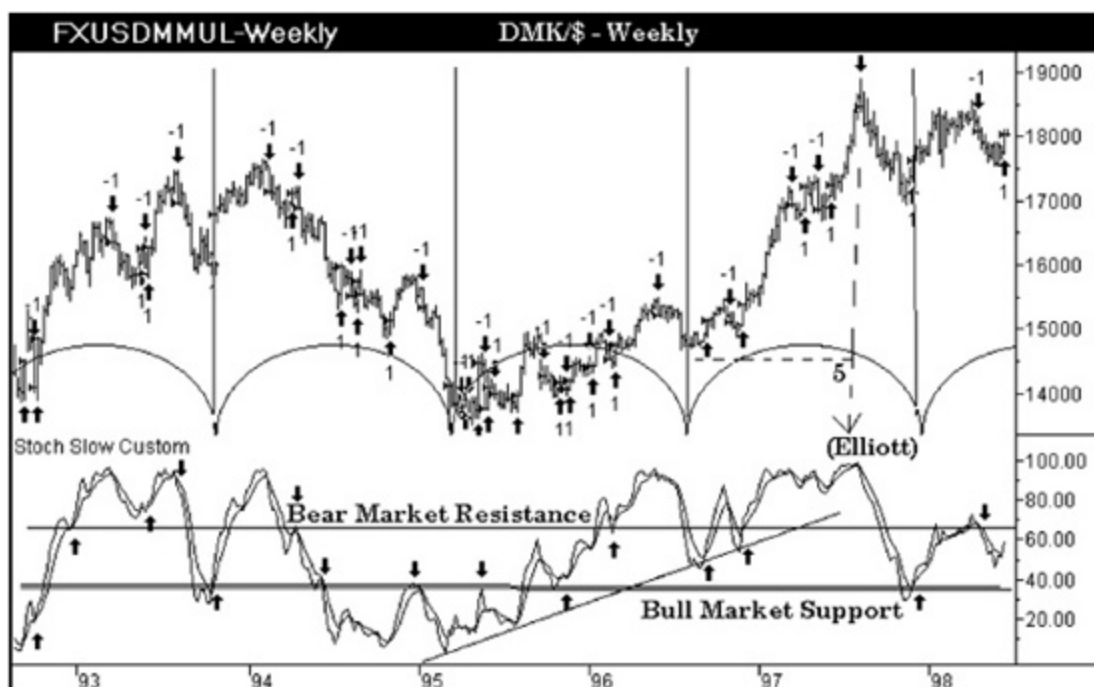
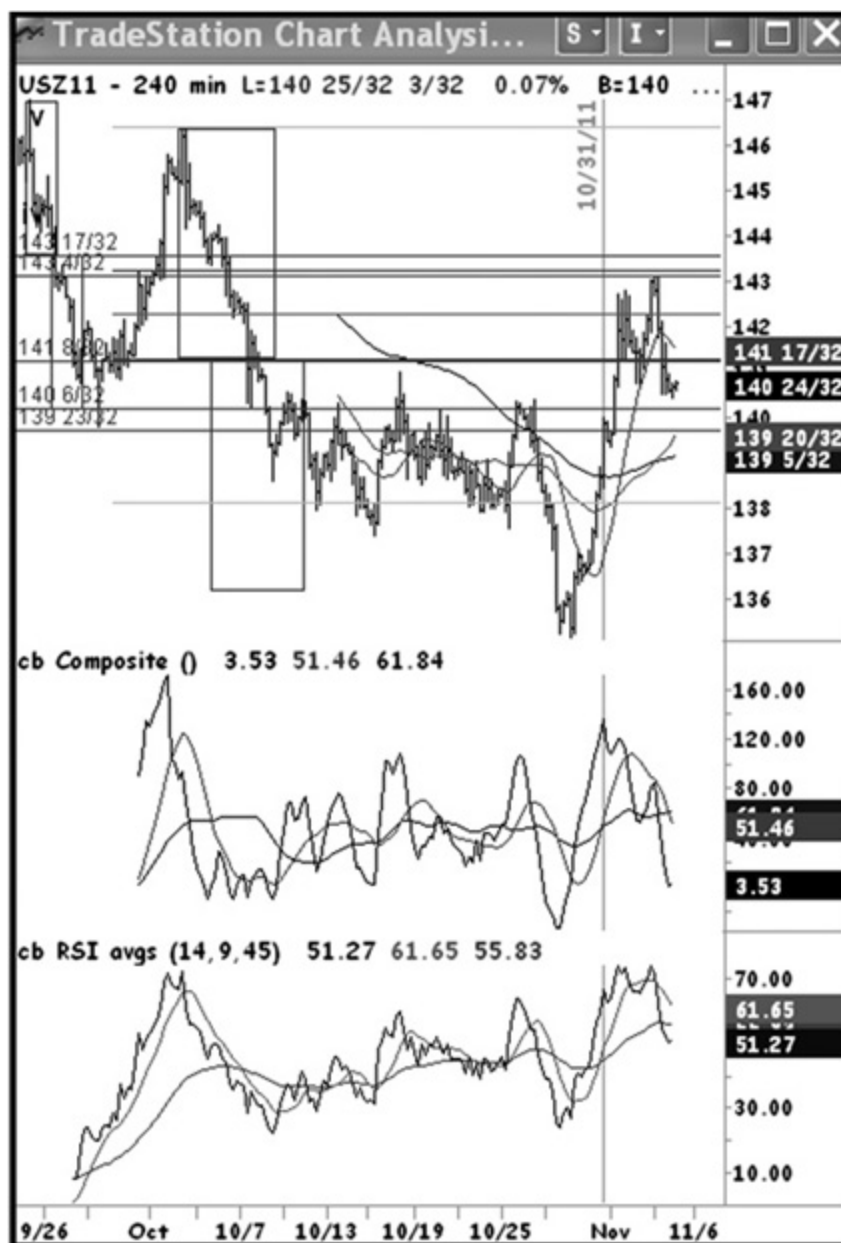


Figure 3.5

The price data show that the computer gave us buy-sell signals when the indicator crossed through the 20 and 80 levels. This is not how George Lane advises us to use his indicator, and we can see that these signals offer poor results. He advises trading only with the trend when using this indicator—that is, to buy or sell when permission is obtained from divergence analysis and when the “permission” signal is accompanied on lower volume. However, when the correct period is identified for the Stochastics Oscillator, it will contain trend information by traveling within the ranges that were detailed in the [Chapter 1](#). While the oscillator character between RSI and Stochastics will be different, the signals to buy or sell will abide by the same range rules. The Stochastics indicator in [Figure 3.5](#) has been marked to show the buy-sell signals generated when you apply range rules. The signals are occurring in the direction of the market’s trend. Every point marked with a buy or sell signal was discussed in the first chapter with the exception of three. There are two buy signals along a trend line drawn on the oscillator that occurred in 1996. The addition of trend lines and moving averages is of great value and will be discussed in greater detail separately. The other signal is the Stochastics peak that has the word “Elliott” above it. Permission to sell is not given by Stochastics just because it is at an extreme high. However, the rally that

unfolds from the low identified with a dotted line to the high is a distinct five-wave advance that someone using the Elliott Wave Principle along with Stochastics would have known to act upon, or to at least unwind, or scale back a portion of a long dollar position. [Figure 3.6](#) shows the December 2011 T-Bond futures. A vertical line on October 31 shows a momentum high in the Composite Index. Like the previous example, the momentum high is not the time to sell. It rarely is as this indicator will first top at the top of wave iii of 3 implying more to follow. Patience is needed to learn the characteristic swing action of any oscillator you favor to use.



**Figure 3.6 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)**

*Source:* TradeStation. © TradeStation Technologies

After discussing how to identify the correct %D periodicity for Stochastics, you might ask, “When should the period be changed?” It is generally recognized that a shorter period can be used to anticipate a signal. It will also give you false signals in the form of noise. The best way to handle volatile markets is to use two windows with the data displayed in a ratio of 4:1. For example, a 240-minute chart next to a 60-minute chart will help you filter noise from your indicators and improve the timing. I personally do not use Stochastics as I favor the ranges in RSI that develop and the Composite index to increase probability. But I am aware of what the Stochastics trader is likely thinking.

Early in this discussion the question was asked, “Will we not be creating a new Modified Stochastics Club if everyone uses the same procedure of using half the cycle length?” First, people will find different cycles, but second, you will want to make one last “tweak.” What you will want to change is the time period for creating the bar chart. I have not encountered others that do this. You will find it is not only an effective way to make an adjustment but it is also the easiest way to catch that an adjustment is required.

[Figure 3.7](#) is a comparison between an 88-minute and 60-minute September S&P 500 bar chart. (I should mention here that I displayed 88-minute and 60-minute; when you become one of the old dogs with nothing to prove, one becomes more humble. Use the ratio 4:1. Therefore 88- to 22-minutes would be the better pairing.) In both charts two oscillators are plotted. The bottom oscillator is a 14-period RSI, and the middle oscillator is a custom formula I developed called the Composite index as it is a formula that is a composite of two studies. Both oscillators have two moving averages plotted with them, and two averages are plotted with the price data. The only difference between these two windows is the time interval used to create the bar charts. In the 60-minute bar chart, the moving averages appear to be incorrectly defined, as the price highs near points 1, 2, and 3 are all exceeding the nearby averages. However, in the 88-minute chart the same data points are directly below the moving average at points 1, 2, and 3. Now take a look at what also occurs in the

oscillators: the oscillator pivot points marked at X, Y, and Z in the 60-minute chart are not very helpful. However, the exact same indicators in the 88-minute bar chart trigger signals that are easy to interpret and are right on their mark when the market is at a very difficult decision point for a trader.

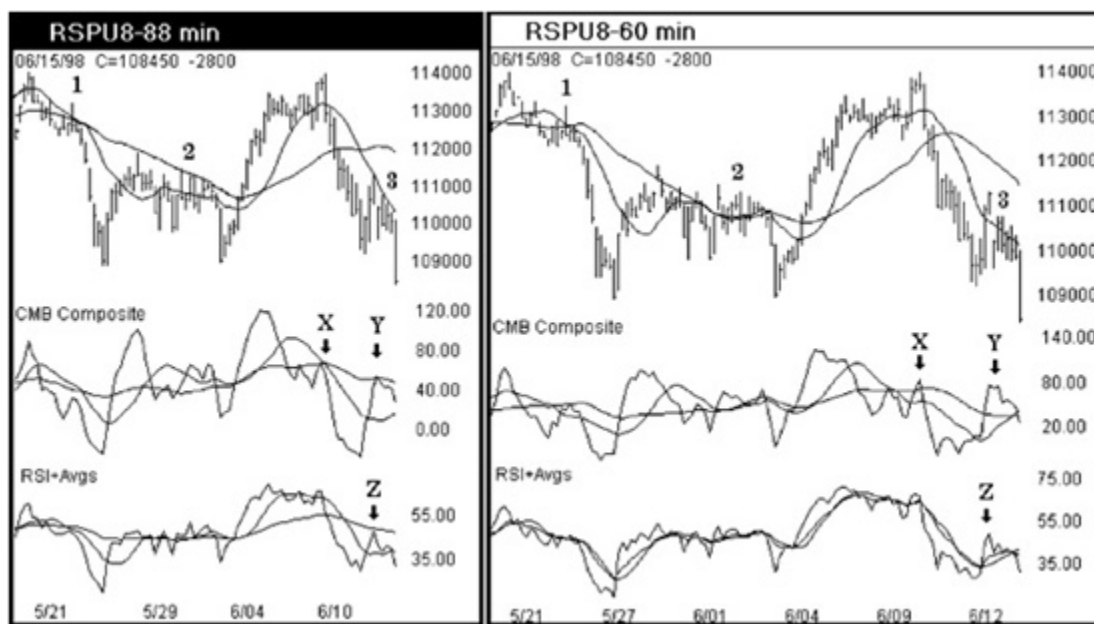


Figure 3.7 **Aerodynamic Investments Inc.**, © 1996–2011,  
[www.aeroinvest.com](http://www.aeroinvest.com)

*Source:* TradeStation. © TradeStation Technologies

How did I know 88 minutes would work at point 3? When I sit down in front of a chart, the first thing I check is the relationship of my fixed-interval averages on prices in the oldest data on the left of the screen. In this case, the 88-minute period of time was set up several weeks ago, and the key pivots were still working on the left-hand side of the screen. Therefore, I would not make a change. As the current data coming into the chart is the most critical, the assumption is made that if the signals are true on the left, then I should be able to see accurate signals form in the real-time data entering the screen on the right. In a two-minute chart, the far left or oldest data is clearly missing its mark. Change the time period of the bar chart. I look at the old points to see if a three-minute chart is a better fit ... maybe a one-minute bar chart. What surprises me most is that I nearly always land right on or within a minute of a Fibonacci number. Keep an eye on the old data as it relates to its moving averages. This is really

important: consider only the price data and moving averages; never try to adjust the indicators plotted below the data. Let the indicators fall wherever they will. When you encounter bar charts in this book created with unconventional time periods, this is the method by which they were derived. It is very rare that I change the favored periods for specific markets. Clearly, I can use this adjustment only within intraday periods, and I rarely exceed 240 minutes.

We need to cover times when you will want to change the periodicity of an oscillator. In the following example, a shorter period is deliberately used to move an oscillator freely between 0 and 100. In the first chapter a strong case was made that oscillators do not travel between 0 and 100. In this case we will set up a condition so as to look for a specific oscillator formation and ignore all other squiggles the indicator may produce. [Figure 3.8](#) is an 11-period RSI calculated from the September S&P 500 futures market and charted in 88- and 13-minute intervals. When you look for a market top, use this chart combination to find just one pattern for confirmation between the two time intervals. In this example the 88-minute chart is forming a second peak with divergence near the 80 level. The same price high in the 13-minute chart forces the RSI to be pressed into the same 80 level boundary. That's all there is to this signal if you need only the last trigger after everything else you monitor is in place. This method will help the timing of entering a position. It is not used to exit a position as I don't hesitate when a target is realized for any reason. Ignore the fact that the oscillators roll to the bottom of the screen; in fact, don't even look at this screen combination until you are interested in using it to buy the market. The RSI is not interpreted in any other way except to find the extremes to sell or buy into within a specific time period. Ensure that you enter stops the same time the order is entered. This concept works well with longer time horizons such as monthly-weekly chart pairings. Some markets such as currencies require longer trading pairings more suitable for that market. [Figure 3.9](#) shows the Yen/\$ applying a 360-minute and an 89-minute chart that completes a full sell-buy signal for this time horizon.

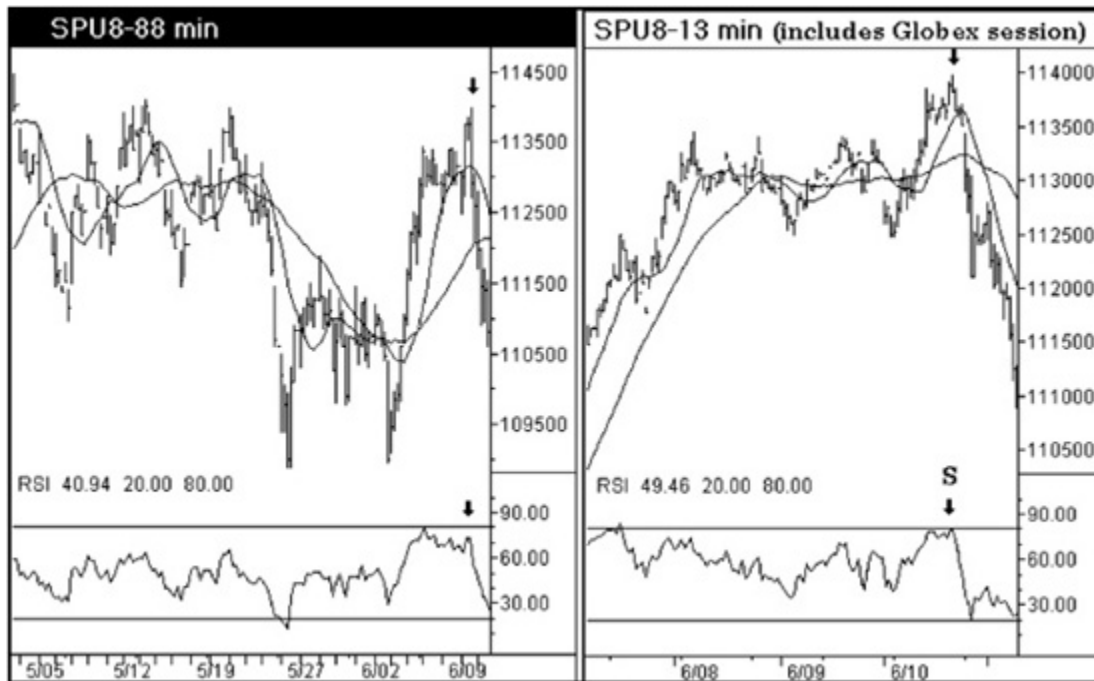


Figure 3.8 Aerodynamic Investments Inc., © 1996–2011,  
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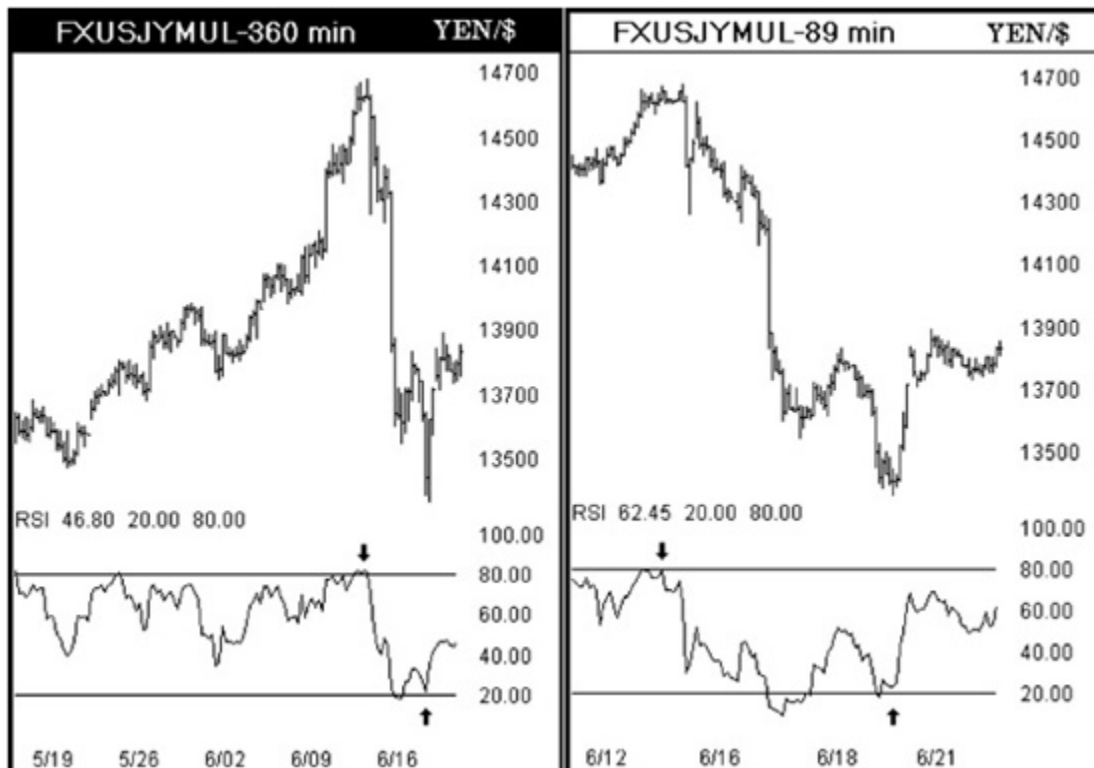




Figure 3.9 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Many of the short-horizon chart examples throughout this book were actual real-time trading screens that I took a quick snapshot view of in order to capture the analytics and prices moments after a position was established or closed. (I still do this today.) In this case I was selling into the 1,104 level based on the charts in [Figure 3.10](#). The advance from the bottom was thought to be an Elliott wave pattern that we will look at much later called an *expanded flat*. It would mean that the market would rally sharply and reverse just as quickly. By just the press of the print key on my computer, the entire screen is recorded without interfering with the collection of real-time data. Various utility software packages function differently, but they all allow a later evaluation of the exact screen that was used to enter the trade. We will discuss some surprising observations derived from this method when we address indicators on indicators and moving averages. Ever wondered how you could have missed such an obvious market signal when you looked back? It is very possible that it was not there in real time.

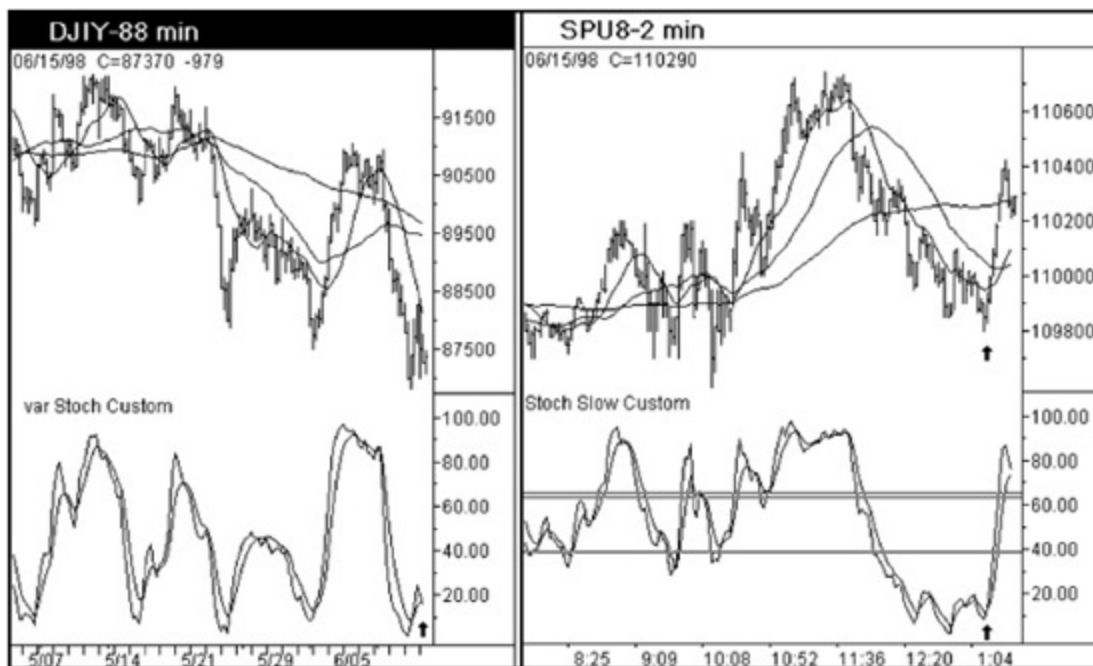


Figure 3.10

How do you set the periodicity for other indicators? The RSI will be set at 14 periods because it has a specific price projection capability that we will discuss separately.

MACD is favored by position traders as the indicator's travel is very smooth. Smoothed indicators, however, have a severe lag that needs to be addressed by plotting two separate studies. MACD is simply two moving averages, one slow, one fast, plotted in a separate window below the price data. The spread of the two averages can be plotted as a histogram that will detrend the differential movement of the two averages. The histogram will cross the zero line as the faster moving average crosses through the slower average, making it easier for a trader to see a precise crossover point.

The MACD requires three periods that serve to smooth the oscillators' travel. *A single MACD study should never be used alone.* As a minimum, you will need two MACD studies as illustrated in [Figure 3.11](#). If a single study is used, the MACD in a downtrend, for instance, will generally develop late buy signals and premature sell signals, so two studies are needed. The default periods of 12-26-9 are offered as a starting guideline by the originator of the study, Gerald Appel. A short moving average pairing might be near 6-19-9, and the longer study may use periods closer to the default like 13-26-9. As markets tend to correct faster than they advance, you may need four MACD studies: two MACD studies using a faster moving average pairing for declining markets and two MACD studies using slower moving average pairings in rising markets. So the bear market studies may need two studies with periods near 6-19-9 and 13-26-9, while the bull market may need two studies that use 5-24-8 for one, and 5-34-5 or 19-39-9 for the other. You will have to do your own testing to find the pairing combinations that will serve you best. It becomes critical to know what trend is present so that the correct study combination is applied. To determine trend, Gerald Appel tends to favor a 50-day moving average on prices. As you can see from this discussion, the smoothed oscillator requires some specialized handling, as do all oscillators. The objective of this discussion is simply to caution you not to use a single study for MACD and then to do your homework to find the best moving average pairings for your particular market and time horizon.



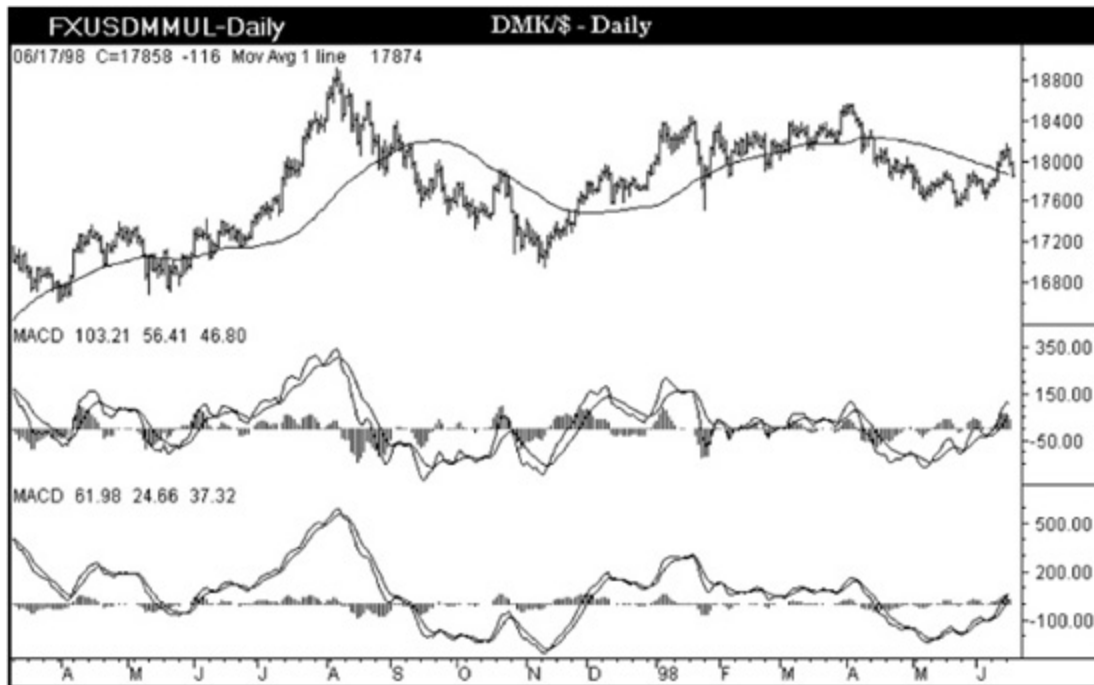


Figure 3.11

I learned about the need for two MACD studies while attending a lecture given by Gerald Appel at one of the Telerate Technical Analysis Seminars offered each year in the 1980s and early 1990s. In my own work I need methods that ultimately offer noncorrelated signals from varying techniques; I do not use the MACD because my Composite oscillator added to the RSI are better indicators for my needs. This doesn't mean that I view the MACD unfavorably. Rather, the specialized applications I favor in other oscillators are not greatly enhanced if the efforts are duplicated by adding the MACD. But the point here is that considerable time was spent in evaluating the merits of a different formula; then a conscious decision was made. Although the MACD study does not suit my purposes, the underlying premise behind the construction of the MACD indicator and its use for multiple studies will be advantageous to many readers. So don't skip over a technical method just because you may not have an immediate application for it.

As the lecture about the MACD progressed, discussing the use of multiple studies and periods, it led to an idea that produced an experimental chart formation. In [Figure 3.12](#) an RSI is plotted with multiple periods. Because it looks like a wave, the study variation is named the "RSI wave." However, I found that adding two simple moving averages on top of RSI or

Stochastics to be far more valuable than this experimental oscillator display.

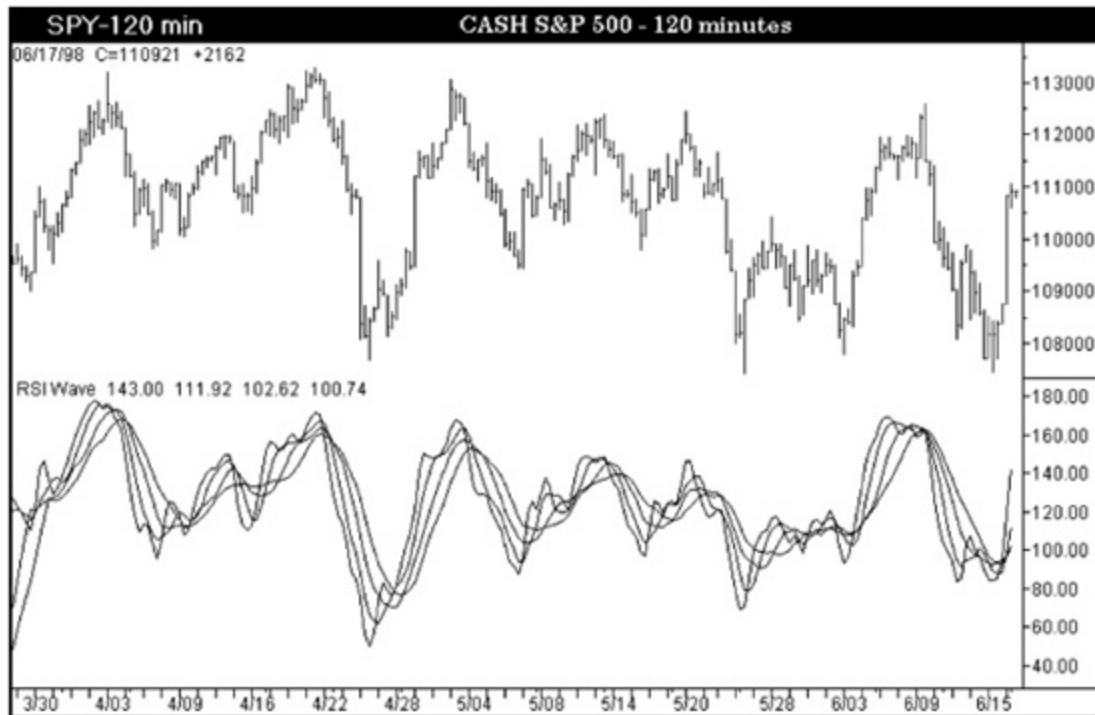


Figure 3.12 Aerodynamic Investments Inc., © 1996–2011,  
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## Chapter | 4

# DOMINANT TREND LINES ARE NOT ALWAYS FROM EXTREME PRICE HIGHS OR LOWS

We all have preexisting mental patterns that will dictate just how constrained our capacity is to learn new ideas or expand our visual perception beyond the conventional. Our ability to see the critical trend lines in prices or within our indicators will be affected by how strongly we hold onto our preconditioning. This chapter requires active participation from you in order to gain the most from it. Please grab a pencil and a straightedge before we move on, and resist the temptation to turn the page to see the solutions for the different problems. By not looking at the solution, you will consciously learn how you work within boundaries. How you attempt to find a solution is as important as the solution itself.

Let's begin with a visual puzzle that you may have seen previously. Even if you have seen this puzzle before, do try to draw an answer as it will be the visual solution to a chart problem that follows. The first puzzle is in [Figure 4.1](#), and it displays nine squares. Read the instructions carefully. Here is your task: You must connect all nine squares by drawing four straight CONTINUOUS lines *without lifting your pencil* or RETRACING a line. You may cross over one of the four lines that you draw, but you may not retrace its path.

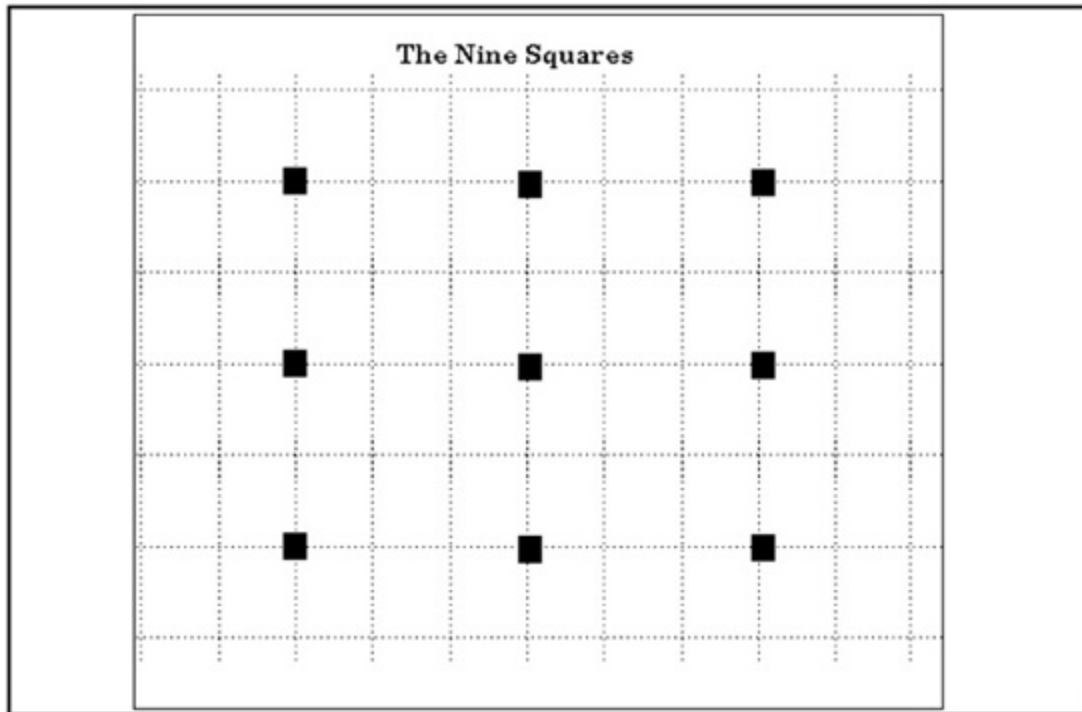


Figure 4.1

Turn the page and complete the puzzle before reading further.

The addition of grid lines in the background of the nine squares is intentional, and it was also deliberate to frame the grid lines within a box that is again surrounded by an outer perimeter border. Not only does it make the puzzle harder, but it also more closely approximates what we are all actually staring at for hours on end. The puzzle is displayed on paper in the same dimensions as a computer screen. The chart's border and the frame of the computer screen all serve to precondition us. Whether you view charts with grid lines or not will make little difference. The impact in our minds of this configuration of nine squares is that we immediately try to create a square and attempt to circumscribe it with four lines, leaving the center square untouched. The key to solving the puzzle requires that we get out of the boxes that we create for ourselves and that others have designed for us. The solution is in [Figure 4.2](#). You may feel this is an unfair quiz because the solution requires a line to be drawn beyond the left boundary, beyond the grid pattern. Read the directions closely a second time. At no time did the instructions state that you had to stay within the area marked with grid lines or stay within *any* boundary. Within the "rules" of trading markets, it at no time states that we may not scroll our data screen to the

left to see if older data just out of view might contain the price pivot that is the solution to the market's current movement. Ready for another one? Good.

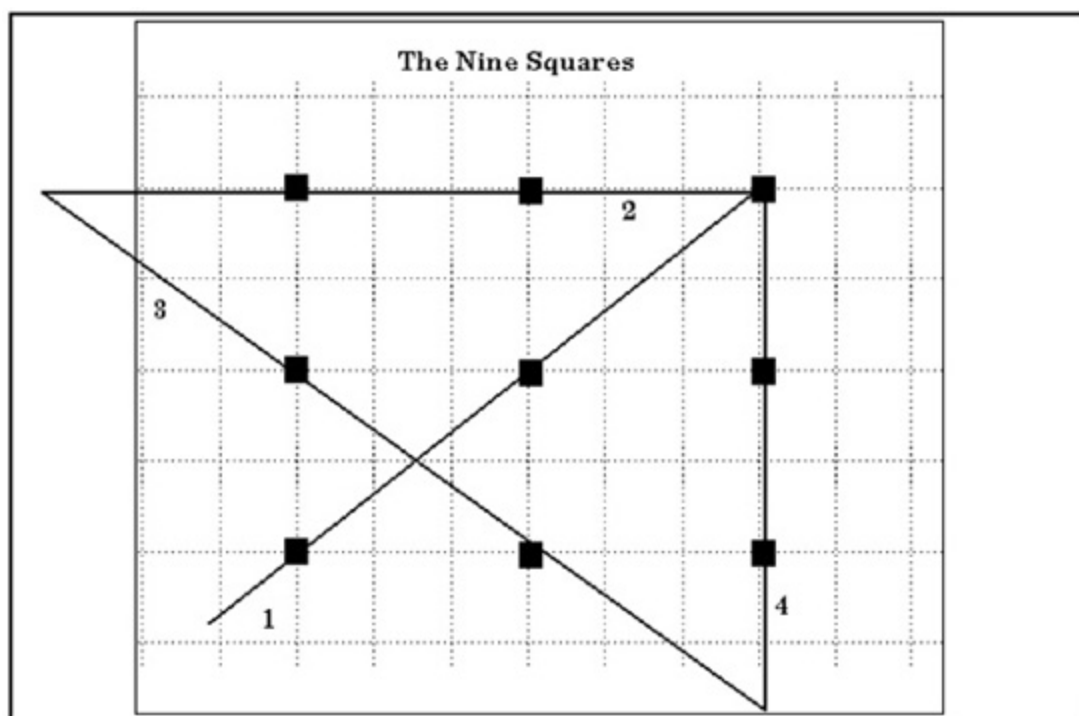


Figure 4.2

In [Figure 4.3](#) we have a 120-minute chart of the Dow Jones Industrial Average. Just like the puzzle to connect the nine squares, now you will be asked to connect the nine dots. The dots are labeled 1 to 9, and the dots, of course, are the extreme price highs or lows that have been numbered in the chart. Here is your task: Connect all nine dots using only FOUR trend lines. You will not need any data out of view to draw the four lines this time. Do not turn the page to see [Figure 4.4](#) until you have attempted to find a solution. If you get frustrated, look at the solution for the nine squares on the opposite page. The four trend lines that will connect all nine points in the DJIA chart will be very similar to the pattern that was drawn for the nine squares. Now try to connect the dots.

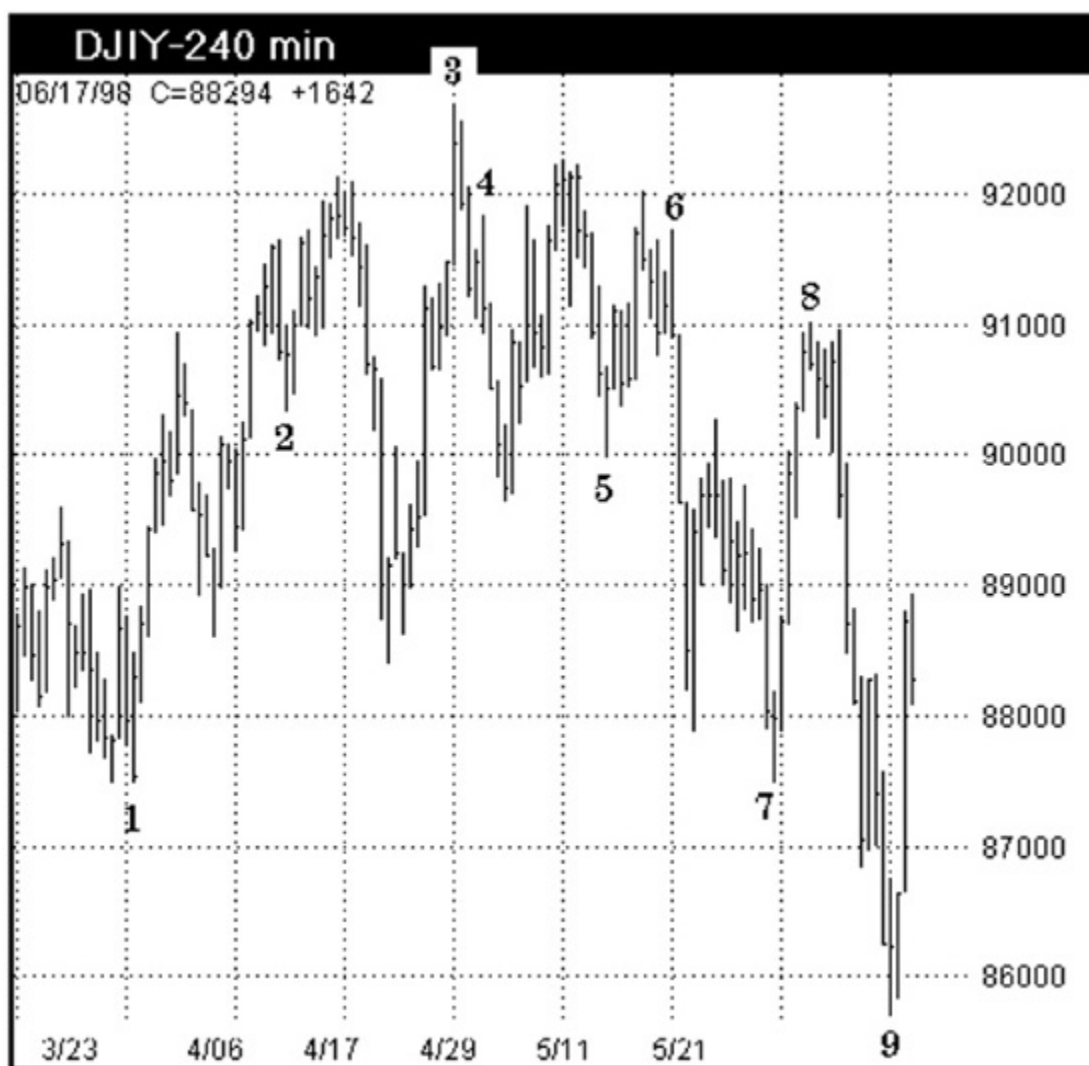


Figure 4.3

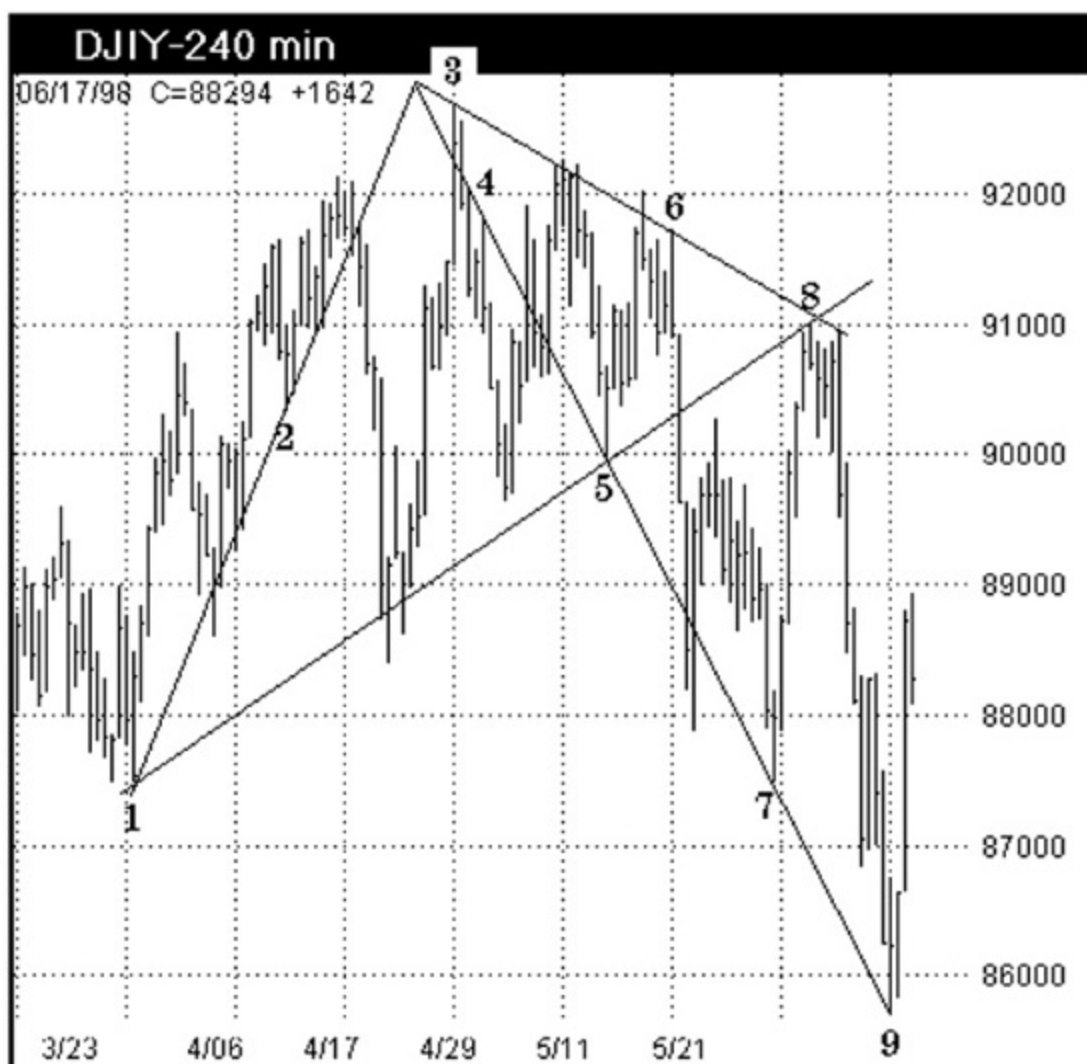


Figure 4.4

You probably had a tough time if you tried to draw trend lines that always started or ended at the price high in this chart. The solution for connecting all nine price lows and highs requires seeing that two major trend lines bisect one another just left of the price high and that the critical trend that connects points 4, 5, 7, and 9 originates from the intersection of the trend lines and not the price high. We have been told that a trend line is created by drawing a line that connects two price highs or lows, and that when the market tests the trend line a third time, it is considered a confirmed trend. Hogwash! Erase that programming because it is misleading. It is not wrong, but markets do not operate entirely within the limitations of elementary geometry. Preconditioning can lead us down the wrong path and guide us in the wrong direction.

There isn't a trader among us who doesn't enjoy a good story. So let me digress a moment and share with you a funny story that was first told in my book *Aerodynamic Trading*.<sup>1</sup> This is a story that illustrates just how preconditioning will influence our ability to make decisions.

The story begins on a hot summer's day as I was driving along a narrow country road through the mountains of northern Georgia. The Centennial Olympic Games were approaching, and I had recently relocated from New York. There is quite a culture difference between New York and Georgia, but Georgia is beautiful, especially in the north where the Appalachian foothills lead to the mountains. Driving along, I approached a narrow bridge on the winding road. Near the last bend in the road before the bridge, another car was coming toward me, around that turn. As we passed, the driver made gestures with his arm out the window and yelled, "HOG!" He quickly drove by, and I became very upset that he seemed so angry with my driving. I was clearly on my side of the road, and I had not taken, or hogged, more than my fair share. Was it my New York plates that prompted him to use the familiar gestures of a Manhattan taxicab driver? With no more time to think, I made the last sharp turn toward the bridge. I narrowly missed hitting the largest hog I had ever seen in my life! The immense porker was standing right in the middle of a single-lane bridge. That driver's one single-word warning had produced a string of emotions, artificial images, and false assumptions. The reality? There was a pig in the road—a "Hog"!

We need to use the guidelines we have been given concerning trend lines as a starting point only. Training and experience condition us to connect extreme highs and lows easily to form trend lines, but this preconditioning may prevent us from seeing more meaningful information that will allow us to act sooner from more subtle chart symmetries and formations. Let's take a closer look at some of the critical points in this same DJIA chart now marked with new labels in [Figure 4.5](#).



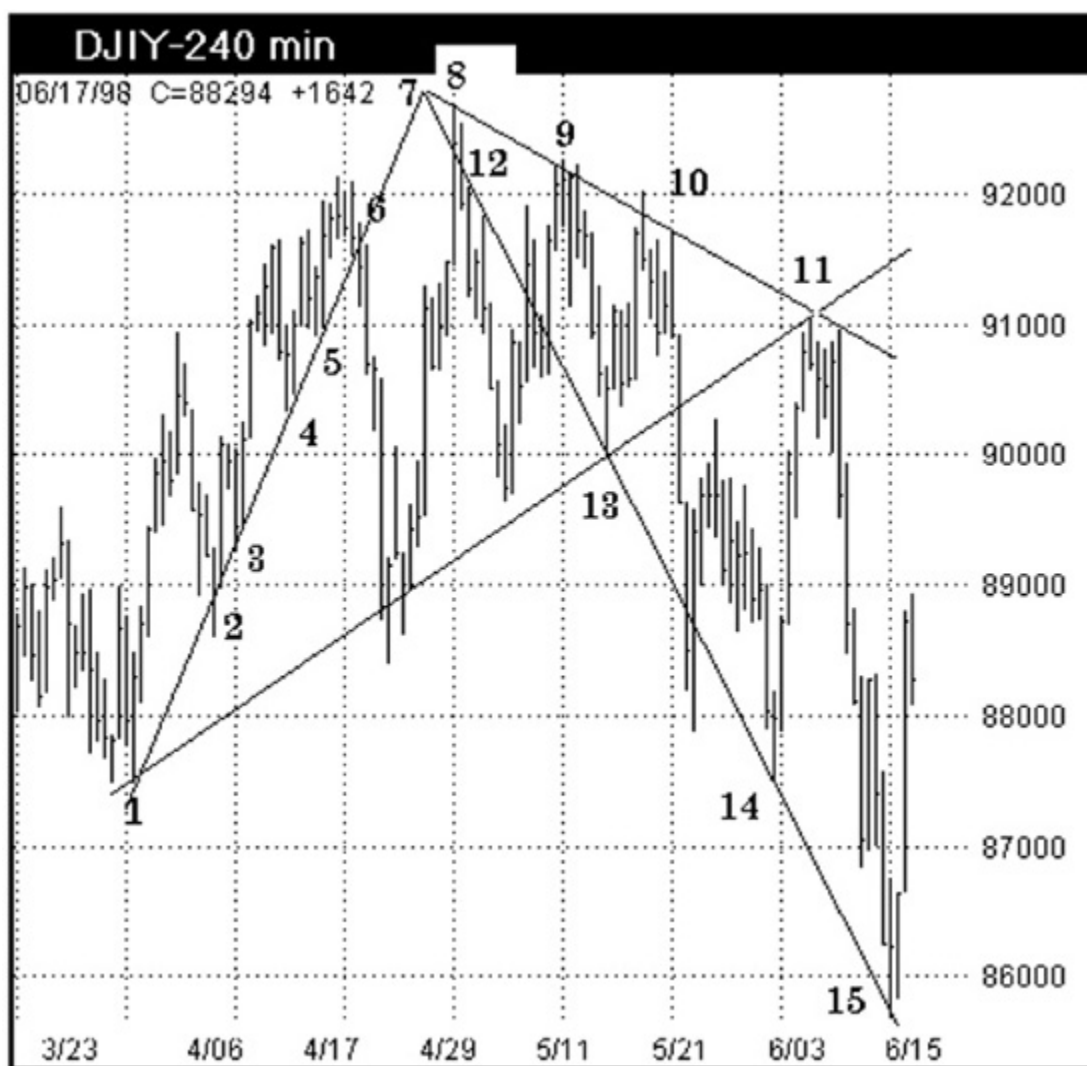


Figure 4.5

From point 1, draw a support trend line to connect points 3, 4, and 5, and then mark a resistance level at point 6 prior to a decline. The important aspect of this trend line is knowing how to work with the spike or key reversal at point 2. More often than not, in my experience, the spikes are better left ignored in favor of connecting the high or low that immediately follows the spike. At point 2 the spike drops through the trend line, but the market low that follows in the next bar is on the trend line that defines support for points 3, 4, and 5. Point 7 becomes the key to this puzzle as the descending trend line of greatest importance originates from the apex just left of the price high. The apex was formed by connecting points 1 to 5 and then 8 to 11, then extending the trend lines as far as possible in both

directions. Always extend trend lines as the point where trend lines bisect may mark the timing of a market turn.

I will repeat myself to emphasize this point. Not only do you want to extend trend lines forward to find a price level for future market support or resistance, but also to find the location where trend lines bisect because that point will frequently project the *timing* of a market turn before it has occurred. In [Figure 4.6](#) a daily chart of the S&P 500 futures market shows trend lines that have been extended forward as far right as possible. Each trend line is numbered at its point of origin. All the trend lines in this chart, with the exception of trend line 4, illustrate the prior discussion in that it can be seen that trend lines should start from the price extreme that is *behind* the key reversal or spike rather than from the actual price low or high. Study the origins of these trend lines carefully. On your own, you should evaluate how the market reacts to touching the trend lines because the information is very straightforward to interpret.



Figure 4.6

Source: TradeStation. © TradeStation Technologies, Inc.

Frequently traders overlook what happens in the market when two trend lines cross over one another.

In [Figure 4.6](#) there are seven trend lines that cross over at 10 different points within the chart. Let's start by looking at point *a* where trend lines 1 and 2 cross. A trend line must be tested by the market a third time in order to use an intersection point as a warning that a market turn may develop. Trend lines 1 and 2 have both been tested three times so the crossover at point *a* was a valid alarm to watch for a possible trend change. When trend lines 1 and 4 cross at point *b*, the market is testing trend line 4 the third time, and the crossover can also be used as a possible timing signal for a reversal. Trend lines 1 and 3 cross at point *c* and would have been useful in alerting a trader to watch for a trend change near this time period. The operative word here is *near* this point, as our other tools must provide us with the actual signal to buy or sell.

The intersection of two trend lines is a wake-up call that we need to examine our other indicators very closely. Just past intersection *c*, trend lines 3 and 4 cross. The crossover is not labeled, and someone will wonder why it has been omitted. Trend line 3 has been deliberately drawn incorrectly to illustrate where the higher probability point is located from which to draw a trend line. So please skip past this intersection and move to point *d*. At point *d* trend lines 2 and 3 intersect. The intersection is marked with an *X*. Move your eye upward to the price high in December 1997 marked *X*. The intersection at point *d* is very premature. Either this intersection has been incorrectly drawn or it is one that did not work very well. While the intersection is close to a pivot in the market as a price high does follow shortly, there is a problem with trend line 3 that we will look at separately in a moment. At intersection *e* trend lines 4 and 6 cross. Trend line 6 is being tested for the third time by the market and can be used as a timing signal now as well as a support level. Moving along to intersection *f* where trend lines 5 and 6 cross will emphasize that the crossover is a timing signal for a market pivot and not just a support or resistance price objective. The market has a minor setback that corresponds to point *f* and is of value only as a timing signal as the market does not use these trend lines as a support level. Point *g* is not a timing signal as the price levels near *g* have been used to establish trend line 7. However, point *i* where trend line 7 crosses 6 is an extremely important time projection for a possible trend reversal. The final point on this chart *h* is where trend lines 4 and 5 cross. This point illustrates why the intersection point is suggested to be a time estimate for a possible market turn, not a precise forecast. Use other

indicators and methods in conjunction with this method. I should add that I use this method only in longer horizon charts, such as daily, weekly, and monthly bar charts. It is this tool that helps me keep my perspective when I view shorter time horizon charts. It is the two-by-four across the head that I need sometimes to warn me to back up and take a closer look at the longer horizon charts when I become too fixated on the shorter horizon view.

Let's go back to trend line 3 which produced the only questionable timing signal in this daily chart. In [Figure 4.6](#) the origin of trend line 3 is at the price high just one bar behind the actual market high. However, earlier it was stated that in my experience key reversals and spikes should be ignored when you start to draw a trend line. Look what happens in [Figure 4.7](#) when the price high *behind* the key reversal is used to start the trend line. The key reversal itself is a market failure above the trend line. That is exactly what a key reversal is: a market failure. The angle for trend line 2 has not been touched in [Figure 4.7](#) from where it was placed in [Figure 4.8](#). However, changing the origin of trend line 3 alters the timing when trend lines 2 and 3 cross. The new intersection becomes a very significant change. Now the crossover of trend lines 2 and 3 marks one of the more important market turns as it was the start of the rally in 1998. Draw trend lines so that key reversals and spike pivots are consistent for what we already know them to be: market failure patterns that denote a possible trend change.



Figure 4.7

Source: TradeStation. © TradeStation Technologies

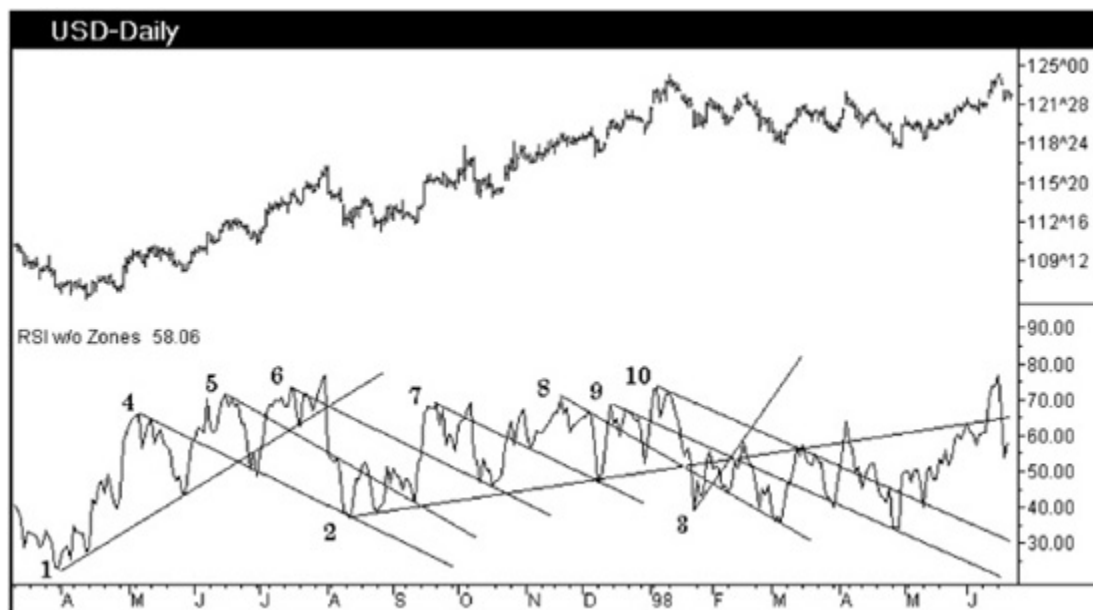


Figure 4.8

At the end of this chapter there will be a few more chart quizzes for you to try. Trend lines that you see drawn in a finished chart will rob you of the opportunity to evaluate where the lines might have been drawn using your

own mind's eye, so know that a few more quizzes will be offered. But first we need to discuss trend lines on indicators so that they can be included.

Oscillators, like price data, can have extreme highs connected to define areas of resistance or oscillator lows connected to define areas of support. However, as with trend lines on price data, there is another way that will produce targets of greater significance for oscillators. The end result will show that the oscillator will respect these trend lines more often than just a conventional line that connects extremes. Here is the difference: Draw trend lines only from oscillator peaks or troughs that mean something to us. Therefore, draw trend lines from oscillator peaks or troughs that form bullish or bearish divergence with price. As recommended for trend lines on prices, we will extend the trend lines as far forward as possible on oscillators.

[Figure 4.8](#) shows a daily chart for U.S. Bond futures. All the trend lines are drawn by using two oscillator lows or highs that formed divergences with the closing-price bars. Trend lines 1, 2, and 3 are bullish divergences with price. The oscillator makes a higher low when the corresponding closing price makes a lower low. Trend lines 4 through 10 are all associated with bullish divergences. The first and second oscillator peaks form lower highs, but corresponding closing prices are higher. While [Figure 4.8](#) uses this method of drawing trend lines on the RSI, the method can be applied to any oscillator.

Before we move away from [Figure 4.8](#), it should be noted that the scale used to plot RSI or any oscillator is important. The range RSI plotted in [Figure 4.8](#) is altered from the standard default of 0 to 100. If the normal range for an oscillator is 0 to 100, vendors will always plot the indicator using this maximum scale. You want to see the indicator as large as possible. So if the range is within a bull market, you might change the default to a range of 25 to 90. In a bear market the scale might be 15 to 70. You never want to limit the details available for interpretation by compressing the scale of your indicator. In addition, the computer system you use should allow for an oscillator to be viewed in at least 50 percent of the computer screen's height. Otherwise, you are likely to be working from a tickertape-size indicator that fits in a small narrow band at the bottom of the screen. On such a scale, it would be difficult to differentiate an electroencephalogram versus the RSI. The most one can hope to interpret from either chart displayed in this manner would be that neither had

become a flat line! The same can be said for published chart books that add for our convenience a squashed indicator at the bottom of the page. These charts are for people who want to know only when an indicator is at an extreme. There is limited value in viewing indicators in this manner.

Let's move forward and discuss using horizontal trend lines on oscillators. There are two kinds of oscillator: those that have been normalized and will confine the travel of the indicator to stay within a range such as 0 to 100, and those whose formulas allow movement to any extreme. There is great value in using one of each type of oscillator to compensate for a rather serious problem inherent with normalized oscillators such as the RSI and Stochastics.

The following question illustrates the problem with normalized oscillators: "An atom always moves one-half the distance from its current location toward a fixed object. How many times will it have to move from a distance of 1 mile presently to reach the fixed object?" As the atom moves only one-half the distance, it will not reach the fixed object until the diameter of its own size represents more than one-half of the remaining distance. The rate of travel toward the fixed object will become extremely slow the closer the atom gets as the distance covered is smaller and smaller. This is how normalized indicators function, and it is why a normalized oscillator at an extreme oversold or overbought position can appear locked while a market produces a meltdown or ballistic rally against what would seem impossible to the oscillator.

In [Figure 4.9](#) an 80-minute bar chart of the Japanese Yen per U.S. Dollars is displayed. Below the price data is the Composite Index. The Composite Index is a custom formula that will be discussed separately, but for now it is important to know that it is a formula that has not been normalized. This oscillator is capable of traveling below zero or above 100. Plotted below the Composite Index is the RSI using a 14-period interval. There are several key oscillator lows that have been labeled with the letters *a* through *k*. In the Composite Index a horizontal trend line has been drawn to connect the oscillator lows at points *a*, *b*, and *c*. A similar horizontal trend line is drawn on the RSI using points *f* and *h*. Why was the line drawn at points *f* and *h* and not from the low at point *g* for the RSI? If you look to the far left, the RSI tested the same level as *f* and *h* once before. In addition, we are using this horizontal trend line in a different way. The horizontal line needs to be drawn at the level that shows the greatest



number of oscillator lows. The line is then viewed as the normal range for the oscillator within present market conditions. At point g the RSI makes a minor violation of this trend line. A trend line that the market used as its major support level will nearly always be tested.

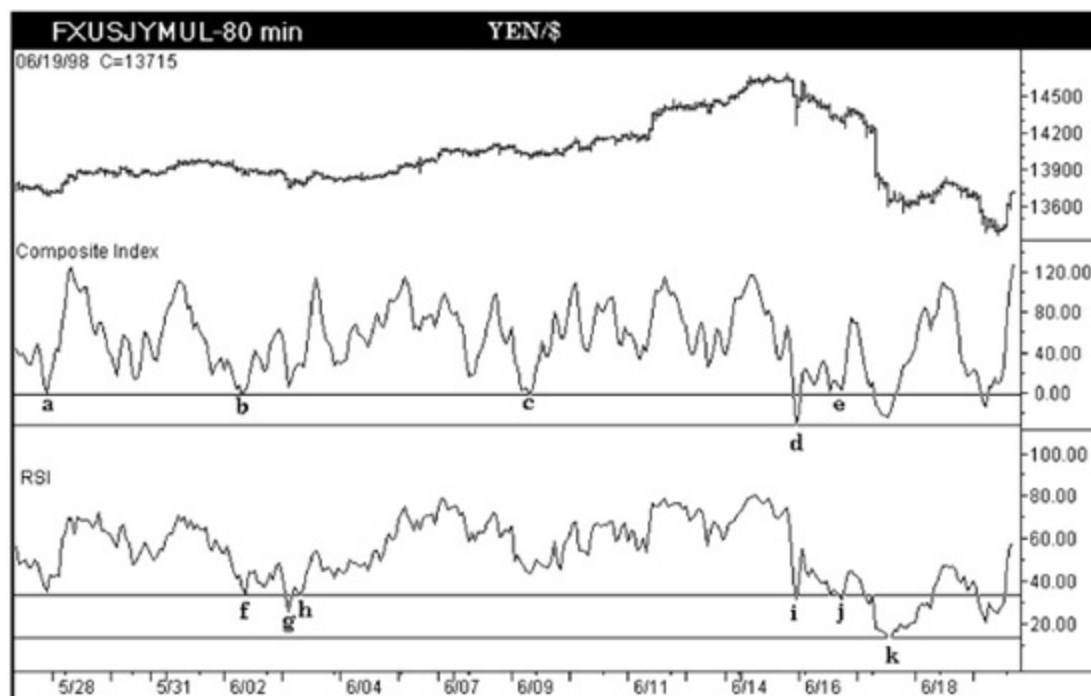


Figure 4.9 **Aerodynamic Investments Inc.**, © 1996–2011,  
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Source: TradeStation. © TradeStation Technologies

In the case of interpreting the RSI, one could establish a long dollar position at point *h* as the old range is being tested. Keep in mind that oscillators plot prices only on the close, and a sharp spike down that closed at current levels would have the same oscillator position. This is not a buy-sell signal. Now move your eye to point *i* on the RSI. The low the RSI makes at *i* can be interpreted as a test of this trend line. The same market move, however, moved the Composite Index to point *d*, *which warns that the market conditions are changing*. What follows from point *d* is an advance, and the Composite Index then pulls back as the Yen strengthens (chart prices decline). While the Composite Index forms a W, or double bottom, at point *e*, the RSI once again tests the trend line at point *j*. If only the RSI were viewed, the second test at point *j* could easily be interpreted as a completed correction in a slightly overextended, but secure, uptrending market. Instead, the Composite Index has warned that market conditions



may be changing, and once the prior support level is tested at point *e*, the character of the market should be carefully observed.

In this situation the oscillator advances from point *e* without the price data following proportionately. If you pick up only a single notion from this book, let it be the following: *When an oscillator advances or declines disproportionately to the markets' movement, you are on the wrong side of the market if you are positioned with the oscillator.* In market downtrends, oscillators will travel rapidly upward as a market correction develops, and the opposite will be true for uptrending markets. In [Figure 4.9](#) the Composite Index begins to advance rapidly beyond point *e* and, though the oscillator is capable of advancing, prices fail to exceed minimum objectives for a rally. Intervention then occurs to support the Yen, showing that the market drop could have been technically forecasted. The RSI does not warn that conditions changed until after the fact at point *k*, which is too late.

If the oscillator low at point *d* is a new extreme move for the indicator, a horizontal trend line should be drawn and maintained on the chart. If the prior range resumes and this oscillator low scrolls off the screen to the left, it will no longer be in view. However, over the life of the market or contract, the level will be recorded. Should the market drop to new extremes, it is frequently to these prior levels, and the old horizontal trend line would once again become visible. The same should be done for oscillator peaks.

One last comment about trend lines on oscillators: it was demonstrated how the intersection of trend lines drawn on price could be used as an indication of the timing of a market reversal. This is less so for oscillators unless a change is made. To increase the probability of trend lines forecasting market turns from an oscillator, the indicator should be plotted by hand. The reason for resorting to manual drafting is that the oscillator scale versus time will be linear. Computer screens are not linear. The *x* axis and *y* axis are never a 1:1 ratio for their grid lines. A computer with approximately 240 characters from side to side will only have 24 lines from top to bottom. This will vary with screen resolution. If the effort is made to chart oscillators by hand for longer horizon work, it will be found that intersecting trend lines will have greater accuracy and importance than those drawn on price or indicator by a computer.

The time has come to test some of the concepts discussed in this chapter. There are no wrong or right answers concerning trend lines, but one method of drawing a line could prove to be of greater value to the trader than another. There will be two charts with which you can test your own eye.

[Figure 4.10](#) is the German DAX Index. Find these trend lines:



Figure 4.10

- The four major trend lines on price that show why the double top in prices has occurred in the most recent data
- Two significant levels of support for this same market with which to identify the nearby objectives for a pullback
- In the RSI, the trend lines that mark the levels of greatest current interest for this indicator

[Figure 4.11](#) displays the trend lines that I would have favored for this chart. There are numerous small arrows to show you that, once a trend line is started, the angle of the line is set by using key points that fall in the middle or midsection of the chart in an effort to minimize errors that would occur in the most recent data. The *T* under the RSI pivot is a time projection that has become a support level. When we address price objectives, we will reverse engineer a price target from the oscillator.

Clearly, if the oscillator could decline to point  $T$ , it would be of value to know beforehand at what market price the oscillator would realize point  $T$ . That is a topic we will approach at another time.



Figure 4.11

Let's move on to the last trend line quiz and discuss [Figure 4.12](#), displaying a 20-minute bar chart for the September U.S. Bond market. This time you have the Composite Index and the RSI plotted against price. We have discussed drawing trend lines on oscillators that diverge with prices, but trend lines can also be drawn from divergences between indicators. In [Figure 4.12](#) a few key bullish and bearish divergences between the oscillators are already marked so that you may be introduced to this concept. As a short-horizon trader, you have two critical questions to answer:



Figure 4.12 Aerodynamic Investments Inc., © 1996–2011,  
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1. What trend line is present within the price data to have caused the bond market high in the last bar to stall? The market has already exceeded the nearby moving average displayed on price; visually you will want to see why the market has not advanced further (marked with a black arrow on the price scale).
2. If the market pulls back from this trend line that caused the market to stall, what moving average in the Composite Index, marked with arrows A and B, will the oscillator likely decline toward? If you know the moving average that is most likely to be the target, you will be able to calculate a price objective beforehand or recognize the price level once the indicator has declined. The Composite Index graph has an indicator peak marked with a black arrow. The peak forms underneath the point where two moving averages cross over. This is a major signal which will be discussed in the next chapter. The trend line you draw on the Composite Index should bisect this

important peak. (The RSI in this case is used to find the divergences that form in the Composite Index. You will find that the trend lines on the RSI will be less informative as to the preceding questions.)

In [Figure 4.13](#), trend line *A* marks the reason that prices have stalled at current levels. Trend lines 1 and 2 on the Composite oscillator are drawn from divergences between the RSI and the Composite Index. Trend line 1 is derived from a major bullish divergence formation and, projected forward, it actually identifies the oscillator peak of greatest value to start trend line 3. As trend line 3 originates from a peak that respects trend line 1 and crosses the peak marked with the black arrow, it is moving average B that would offer a price objective for bonds.

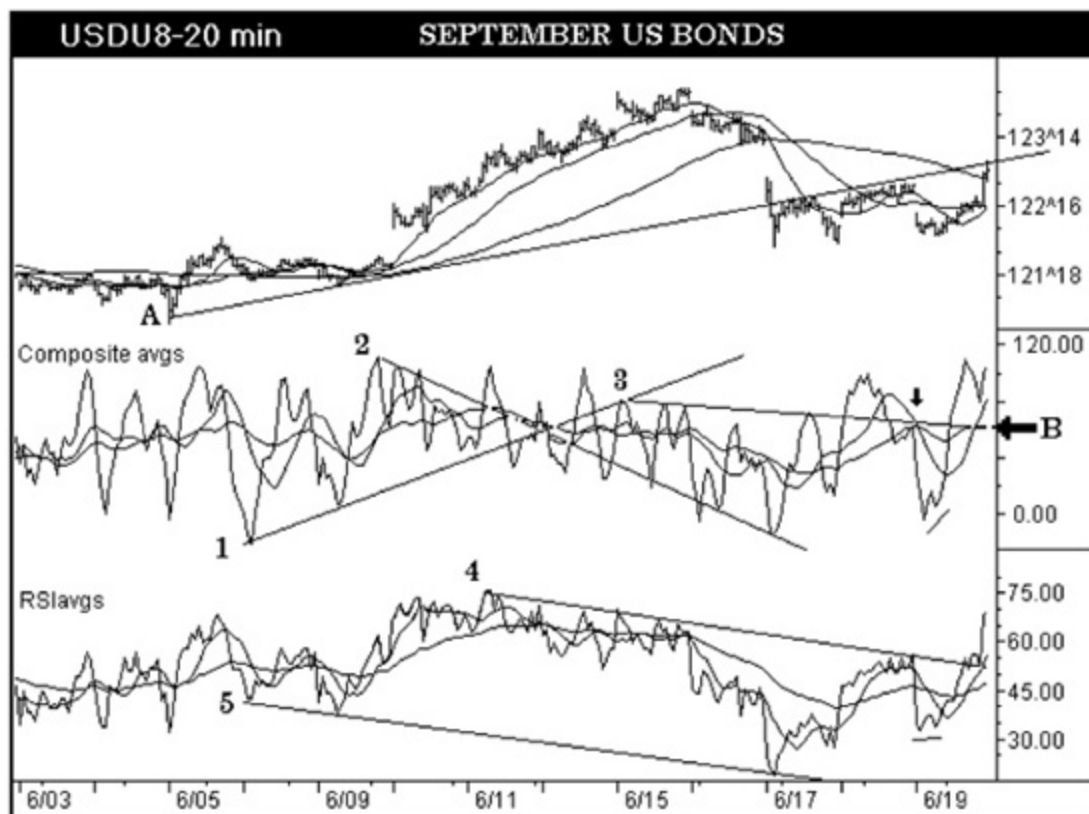


Figure 4.13

Both the Price and Oscillator windows have included moving averages. In [Figure 4.12](#) the RSI displays only a single moving average so that the RSI can be more easily seen. In [Figure 4.13](#) both averages calculated from the RSI are displayed. Using averages on indicators is extremely valuable and will be the topic for discussion in [Chapter 5](#).

Before moving away from trend lines, we need to take a look at a specific application derived from gaps. Gaps actually help us identify the most important angles to establish channels within the price data.

The more experience I acquired with Gann analysis, the more often I observed a curious correlation to Gann angles that tracked parallel channels through markets with frequent gaps. The angles became so useful that fast estimates could be created by utilizing the gaps alone.

[Figure 4.14](#) is a daily chart of the Corn futures market. The grain markets often form gaps from a session closing price to the next open. Breakaway, running, and exhaustion gaps are discussed in most books. For this discussion a gap is a gap without further differentiation. The angle of the line drawn at points A1 and A2 is determined by connecting the bottom of each gap. Then the line is extended right. [Figure 4.14](#) shows you at point A3 what value this angle can be for future levels of price support or resistance.



Figure 4.14

However, the value of this first angled line is significantly increased when you create a parallel line. If your software can duplicate the first line, your task is simply to drag the new line, being very careful not to change the angle, into a new location. Do not touch the first line at any time. If you



do not have a feature to copy the first line, just draw a line directly on top of the first and then drag the copy to a new location.

[Figure 4.15](#) demonstrates the new parallel line that was set by using only one point at B1. B1 was selected as it begins a significant decline in this market. The line is the same length as the first as it is created by duplicating the first. I really should have extended both lines to the right into infinity, but it is easier now for you to see that one was created from the other. The new line locates the support level of the secondary retracement at B3. It is interesting that the *same angle* that located support at A3 in [Figure 4.14](#) defines the next major area of support that follows. This is no accident as I have witnessed this relationship for several years in a real-time environment. When my software does not offer real Gann tools, this technique is a useful visual guide to estimate where a Gann confluence area may fall within the chart.



Figure 4.15 Aerodynamic Investments Inc., © 1996–2011,  
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Source: TradeStation. © TradeStation Technologies

Do not stop after you have created a simple channel with two parallel lines. Duplicate one of the lines again and be careful that it remains parallel to the first. In [Figure 4.16](#) the new third line is set by using points C1, C2, and C3. Whenever possible use points where the market challenges the line as both support and resistance early in the data set when gaps are not being

connected. The line extends to October 2010 where it shows C4 is tested two full days before launching into a strong rally. Recall that the first line was created by using the gap above C4; therefore, the market decline to C5 was a move in the future of when the original angle was drawn. The decline into C5 is accurate and important for a trader to recognize that a significant entry level has been realized.

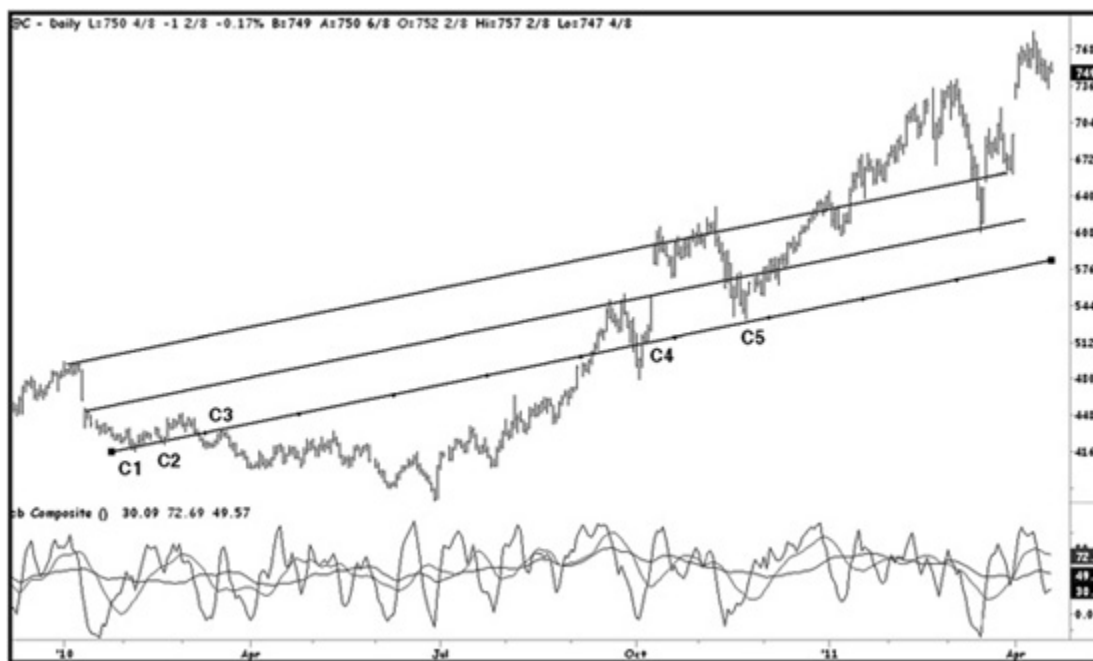


Figure 4.16 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Contents described within books are guarded by book publishers' contracts. So let me add that the point at C5, a diagonal target, is likely confirmed by a Fibonacci confluence target on the horizontal price axis. The method to calculate Fibonacci confluence targets is detailed in my book, *Fibonacci Analysis* (Bloomberg Press). If you bought Corn at C5 a stop does not go under the October low just to the left of C4. This would be a foolish place to enter a stop because such pivots often have voids under them. It is common practice to use trailing stops under prior swing extremes. This is a very risky practice because there is often no support of any kind just under the pivot. The same problem exists for markets declining. Use the Fibonacci technique to create a support or resistance grid through the market data and put stops under the confluence zone identified. Your risk exposure is to the next target zone, thereby making it measurable.



This is a much better approach to risk management than conventions of trailing stops under price pivot extremes.

The final illustration creates the first line using A1, A2, and A3 in [Figure 4.17](#). This remains a demonstration using the daily Corn futures. A1 through to A2 is a consolidation that can be connected by using the price low at A1 and then truncating the small key reversal at A2. Truncating key reversal directional signals is very useful in methods that utilize geometry analysis. The line angle is then set at the gap A3. This is useful when the market only displays one gap. The line is then extended to the right and points A4, A5, and the gap start at A6 all fall on this same angled line.

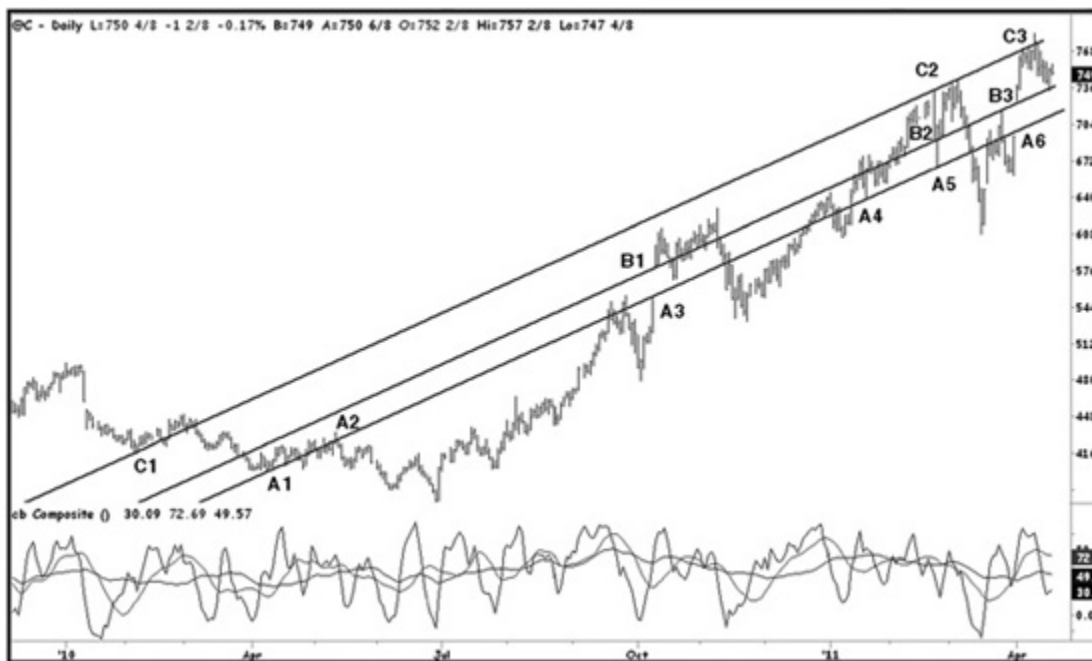


Figure 4.17 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Now create a duplicate line. As you are not changing its angle, only one point is needed to anchor the new line. The most important is to use the top of the gap at B1. What follows is that B2 tries to hold the market, fails, and defines a key reversal between B2 and A5. The market immediately closes back above B2. This is extremely important and is often how key reversals are defined. Then B3 marks the top of another gap showing you there are geometric relationships between gaps.

The final line from C1 is again just a duplicate of the first line “A”. The line was projected forward using only one point at C1 because it is the end of a clear five-wave Elliott wave pattern from the price high to the left of C1. The same angle defines resistance levels at C2 and C3 a year later. Most would use convention and connect the high to the left of C1 and the pivot high just above B1. This would have been a deadly error because the line would cross at point A6 and a trader might be lured into thinking it was a resistance area to sell into after the drop from B3. Instead they would short just at the bottom of the A6 gap. Connecting highs and connecting extreme lows offers a definition of market trend, but does not identify the most important geometric proportions developing within a market.

## Chapter | 5

### SIGNALS FROM MOVING AVERAGES ARE FREQUENTLY ABSENT IN REAL-TIME CHARTS

“How did I miss such an obvious signal like that one?” Chances are that you did not miss the signal; it may not have been present when you were considering the trade. Many traders suspect that signals may have appeared differently to them in real time, but few take the time to really explore the character of the indicators from which they trade. What do I mean by the “character of an indicator”? The character of an indicator is how it moves across the computer screen relative to other indicators or data. The character is also the psychological change we experience because the computer changes the *y*-axis scale to display for us a range defined by the maximum high and low within a fixed number of bars. As new data enter on the right side of our screen and old data scroll off on the left, new extreme highs or lows in price or an indicator may lead to a new *y*-axis scale to accommodate the data.

Technical analysis software allows traders to scroll backward to view historical data. Scrolling offers an interesting means to observe indicators. Scroll forward from the first bar in your database as *fast* as possible toward the most current data. It will be important to scroll forward and watch the movement that occurs nearest the new data entering the screen on the right. Clearly, not much will be gained from a monthly chart as the objective is to scroll through as many new data points as possible for this exercise. As an example, view a 15-minute chart that has 500 bars in its history. The character you will see in your indicators in a 15-minute bar chart will be a subset or micropicture for what will develop in longer time-horizon bar charts for the same market. In a sense you will be animating the still pictures that are normally viewed as static charts except for the changes that occur in the most current bar.

By not looking at specifics and animating our indicators, just for the purposes of observation, we are able to see that the undulations of our indicators may dramatically change their relative positions and scale as new data are added to the right-hand side of the computer screen. Traders must know if the indicators they trade from rescale or operate within fixed

boundaries. Do the indicators we use as graph additions on prices or other indicators shift their positions over time?

As mentioned earlier, I often take a snapshot or freeze-frame picture of a trading screen just after an order has been entered. The purpose is to allow a later evaluation of why the trigger was pulled at that precise moment to enter or exit the trade. These figures are extremely short horizon as this discussion was appropriate for the markets in 1998. However, the figures remain true to the principles being discussed. Markets in 2011 require longer intraday periods. I use 22 and 88-minutes together as a 1 to 4 ratio filters false signals and improves timing. I recall the day the DJIA fell nearly 1,000 points and recovered much of the loss in a single day. Incredibly, I was trading intraday off the monthly chart support and resistance levels. Just recognize please these examples remain to to their concepts, though market ranges have changed dramatically.

[Figures 5.1](#), [5.2](#), and [5.3](#) are all intraday charts. [Figure 5.1](#) is a three-minute S&P bar chart. A good point of reference is the 11:06 time grid mark on the x axis. [Figures 5.2](#) and [5.3](#) are much longer intraday bar charts for different markets that remain anonymous. All three examples have an oscillator high or low that is marked *T1* in the left window and *T2* on the right. In each figure pairing, you are looking at the exact same indicator and market. *T1* shows the appearance of the indicator at time 1. The *T2*, or time 2, label is the same indicator peak or low viewed at a later time. Slow Stochastics, MACD, or for that matter *any* indicator that has a smoothed variable in its formula calculated by applying a moving average, is capable of experiencing the dramatic changes demonstrated in [Figures 5.1](#) through [5.3](#). The degree to which you will see such a dramatic shift will depend on the following:

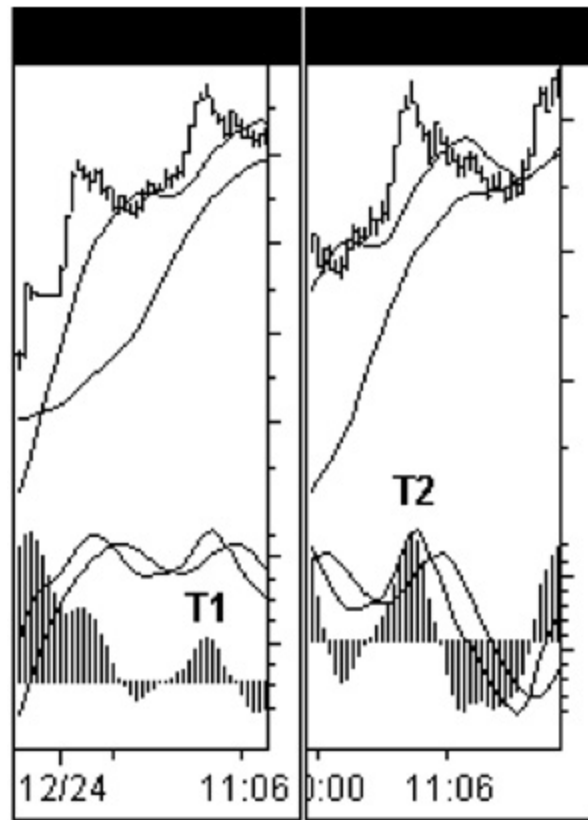


Figure 5.1

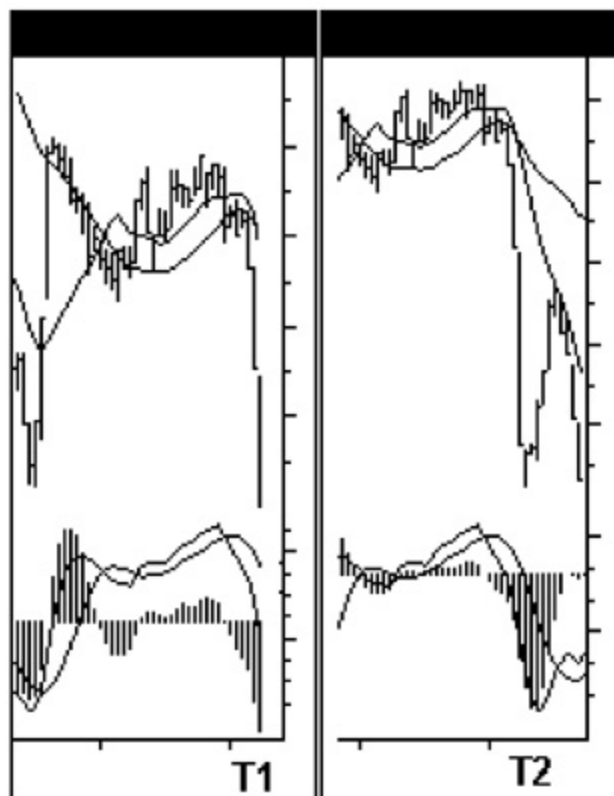


Figure 5.2

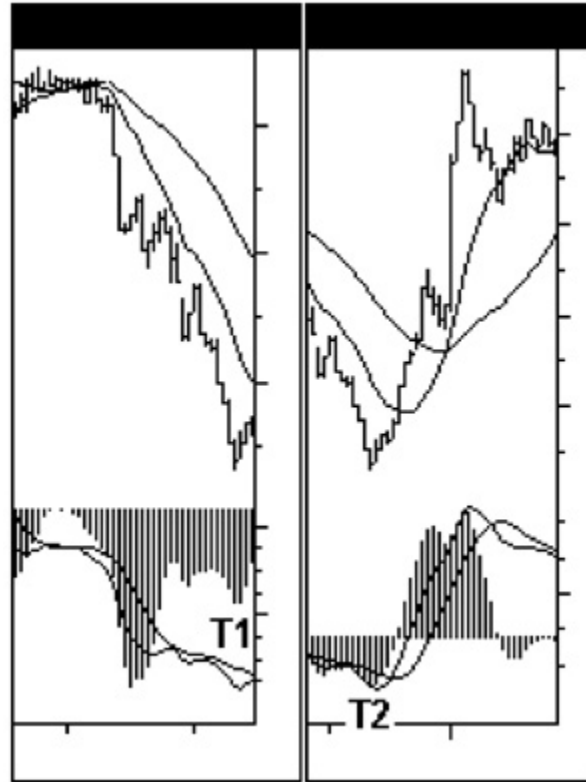


Figure 5.3

1. Consider the formula of the indicator and the type of moving average that is used. Does it use a simple or exponential average, for example? The impact on the current period will be affected by the type of weighting applied to the number of bars being averaged. The smoothing technique selected will also determine how significant it will be for the current bar when extreme ranges drop out of the moving average calculation.
2. The time period or number of bars to be averaged remains the same, but the time interval is volatile. Also, the fewer the elements averaged, the greater will be the displacement that occurs. Short moving averages are extremely dynamic.
3. The size of the window you have chosen to display an indicator will define the number of bars used to chart the y-axis scale.

In [Figures 5.1](#) through [5.3](#), the charts are all narrow-width windows displaying a limited number of bars at any one time. This was deliberately

done to exaggerate the distortion possible with indicators plotted from intraday data on a computer using Microsoft's Windows 95/98 platform. As soon as we are given the ability to define our own dimensions for a chart's size, our natural tendency is to overdo our adjustments. If you like your trading screens to display a mosaic of numerous small windows at one time, just beware that you may want to enlarge a single smaller window to full screen size before making a final judgment.

In [Figure 5.1](#) the oscillator peak is nowhere near the moving averages charted above the oscillator at time interval *T1*. However, at time interval *T2*, the exact same oscillator peak appears much larger in scale and has moved directly under the moving averages, allowing an interpretation in hindsight that the oscillator was peaking directly under resistance. In real time it was not. The reason *T2* is so different from *T1* in [Figure 5.1](#) is that the histogram indicator with the highest peak to the far left of *T1* has now scrolled off the screen and the computer has rescaled the *y* axis to plot the histogram. (The histogram in all three of the figures is the spread or differential between the two moving averages on prices that are charted in the top window.) There is also a dramatic change between the *T1* and *T2* moving averages relative to the oscillator histogram. The change occurs when the look-back period for the averages no longer uses extremes in its rolling forward calculations as the oldest data drops out of the formulas for simple moving averages. Simple moving average periods using the common Fibonacci numbers of five and eight are extremely vulnerable to displacement. They are of great value, but a trader should be cognizant of the dynamic character of shorter period simple moving averages and make allowances in their interpretation of them in realtime environments.

In [Figure 5.2](#) a sharp market decline develops. The most recent bar at *T1* records the oscillator and moving averages as they appeared in real time. Stochastics, RSI, and MACD—in fact, most indicators—use the closing price to calculate the indicator. Some indicators do not see current bars as they cannot calculate the position of the indicator until the next bar forward. In [Figure 5.2](#) the indicators for *T1* are actually off by one bar because of the nature of their formulas, and they do not know that the market is in a freefall. The averages near *T2* have been recalculated, and it appears that ideal support was tested by an oversold oscillator in hindsight. This was not the case at *T1*, and what complicates the matter is that the histogram is the differential of the two moving averages on price. So now

*T1* is at least two bars behind. The MACD operates in this manner. *T1* was in fact an oscillator at an extreme low equal to the low of a prior oscillator extreme recorded a few weeks earlier for the same time interval charted.

Recall the discussion about using a horizontal trend line to mark historical displacement extremes of maximum resistance and support for oscillators. In this case an “extreme” trend line marked a couple of weeks earlier would reappear as the computer rescales the *y* axis. When markets are in extreme conditions, I will use indicators that have been expressly tested for extreme situations only and ignore those that are known to perform poorly in a different climate. Sometimes the same indicator is used, but the interpretation can be different. *In this situation only the histogram is viewed and the averages are ignored.* An oscillator tracking intraday data that are currently at an extreme position that has not been seen in over two weeks is a major piece of technical information. Add an Elliott wave pattern or a price projection system to this oscillator extreme, and we know a signal to buy exists at *T1* that could lead to a sharp slingshot rebound. As the oscillator had declined to the extremes made over two weeks ago and had entered a new range for the indicator, it would also be known that the oscillator would most likely decline to test the prior support lows that defined the range for the last week. Such an indicator move would likely produce a new price low. If you did not know how this indicator performed in different market situations, a trader might have sold at the precise low of *T1* just prior to a short squeeze rally. The breakout trader is the most vulnerable to this type of trap. It will also be a high-risk scenario for the Elliott wave trader who relies on price patterns alone. By understanding the high-probability patterns that develop in oscillators, we can anticipate the next indicator signals before they even appear on the screen.

Once market direction is anticipated, price projection methods can be applied, allowing trades in the market from both sides or at least allowing a market position to be entered with the larger trend that has a minimal capital exposure because we can use tighter stops. There are specific oscillator patterns that will warn us that such a rebound is a countertrend rally in addition to the range rules defined for oscillators. There are oscillator patterns that will be discussed in the price projection section of this book which will offer confirmation that the larger trend will resume.



In [Figure 5.3](#) the oscillator at  $T1$  shows bullish divergence compared to the new price lows that develop. Once the oscillator extreme to the left of  $T1$  scrolls out of view, the moving averages jump up and move to just under the oscillator at point  $T2$ . It may seem hard to believe that  $T1$  and  $T2$  are identical indicators that are being viewed at a later time.

This demonstration does not discredit technical analysis; it does, however, discredit some display setups and warns that extremely short horizon trading is even more vulnerable to these differences between real-time trade decisions and postmortem evaluations. Most analysts are unaware of the dynamic nature that surrounds the current bar on our trading screens. However, the analyst or trader who does have intimate knowledge about the indicators used and understands how their quote vendor calculates and incorporates current data into their formulas will be able to forecast the future travel of their indicators and the market.

It is important to recognize that indicators on prices, or indicators on other indicators, are dynamic and will change their positions once the most recent bar moves to the left and becomes a part of the historical record constantly building. In some cases, we must knowingly jump in front of the indicator signals because we know they will appear perfectly aligned once 10 bars or so of new data have been added to the screen. As an example, we may decide to buy when the market has declined to an objective but the price data remains much higher than the moving average that was being monitored. The knowledge that the moving average will in fact shift upward into a permanent position will allow a trader to pull the trigger with confidence because the signal in real time can be correctly interpreted. While the shift will appear minor in weekly charts, the capital exposure in question will be far greater, so weekly position traders are not excluded from this discussion, *especially if they use moving averages to define initial or trailing stop placement*.

We must know how our indicators are constructed, the impact of our trading time horizon on these indicators, the scale that is normal for charting an indicator, and then, how the indicator responds in normal and extreme market movements in real-time conditions. It is only after endless hours of careful observation that these indicator changes become finely woven into the fabric of our intuition.

Is intuition a gut feeling, some sixth sense, or inner wisdom that some traders are blessed to have had since birth? I think not, as a direct knowing

without conscious use of reasoning can come only after extensive training and preparation. Intuitive knowing is the essential key for success in fast-paced environments. We do not have the luxury of time to think. Three-time Super Bowl Most Valuable Player Joe Montana once stated, “If I ever stopped to think about what happens after the ball hits my hands, it might screw up the whole process.” Yogi Berra, baseball legend, stated, “How can you think and hit at the same time?” Both sports legends had to practice thousands of times until their actions became intuitive. As traders, if we have to worry about how an indicator might change with the passing of time, the critical timing of making the trade will be destroyed and will minimize the results. We need to know our indicators through such elaborate study that what we learn becomes effortless and automated. The easiest part of our job is to pick up the phone and say “Buy” or “Sell.” Some readers will be disturbed by the dramatic displacement of the indicators displayed in the first three figures. If this information about indicator dynamics is new to you, it will open the door to many hours of hard work that must be done. You will need to resolve the questions this discussion will undoubtedly leave behind with you about your own indicators in real-time scenarios. Answer the indicator questions before the markets answer them for you. Either way, the questions will be answered over time.

It is also helpful to apply indicators to markets that we normally do not trade so that we can experience how our indicators will respond to market movements and conditions that we may not be accustomed to viewing. This will train and prepare us for those occasions when our principal market changes its character and begins to adopt some other market’s action. An example would be the recent transition that occurred in the 1990s in the S&P 500, which now acts more like a commodity market rather than a financial market as it did in the 1980s.

With the knowledge that moving averages on oscillators or prices will be dynamic in real-time conditions, we can now move forward and discuss using moving averages profitably. There are numerous discussions elsewhere in published books that detail the different kinds of moving averages and comparisons of how to use alternatives to closing prices. I have elected not to cover ground here that has already been well traveled. But if you need to reinforce your understanding of the different types of averages used in our industry, a good reference can be found in Perry

Kaufman's book, *The New Commodity Trading Systems and Methods*. For now, our discussion will focus on applying moving averages to three oscillators: Stochastics, the RSI, and the custom oscillator Composite Index. Adding moving averages to traditional plots for the RSI or Stochastics will require some custom setup changes to most quote vendors' software.

In [Figure 5.4](#) are the PowerEditor formulas required to add moving averages to Omega's *TradeStation*. Other vendors will gladly convert these equations for you to fit their system's charting conventions. The periods that work best for you should replace the unknown variables *X*, *Y*, and *Z* within the first lines that state LENGTH(*X*), PERIOD(*Y*), and PERIOD2(*Z*). The RSI will use a fixed period of 14 for reasons that will be addressed later. Now that you know how the charts can be constructed, let's take a detailed look at the results and interpretation.

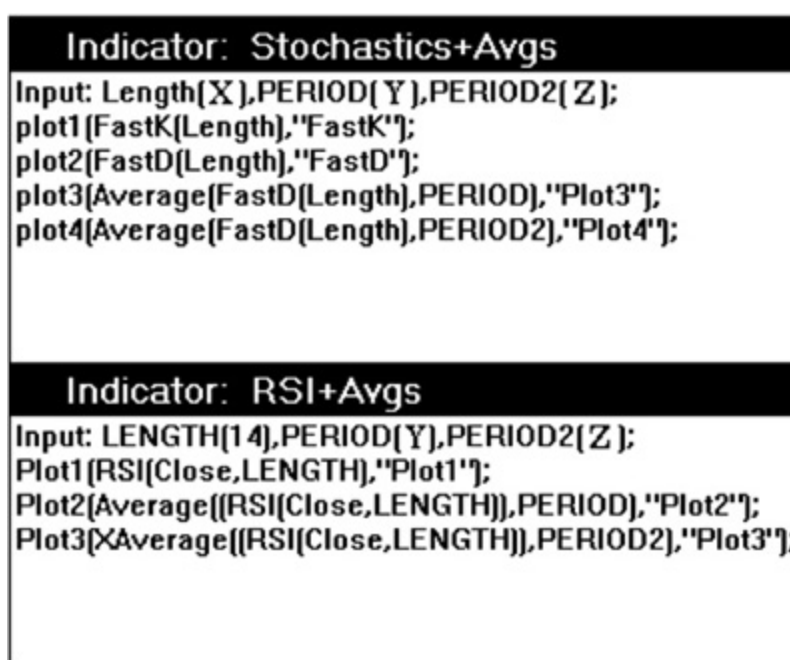


Figure 5.4 Aerodynamic Investments Inc., © 1996–2011,  
[www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

In [Figure 5.5](#) the Weekly German Deutsche Mark per U.S. Dollar is charted with a Fast Stochastics study that includes two moving averages. When a Slow Stochastics is used, or %D is smoothed, it is smoothed by a moving average. This chart alternative simply offers more flexibility. Both

of these industry leaders add two moving averages to their oscillators because doing so adds tremendous clarification and depth in the oscillators' interpretation that may otherwise be easily overlooked.

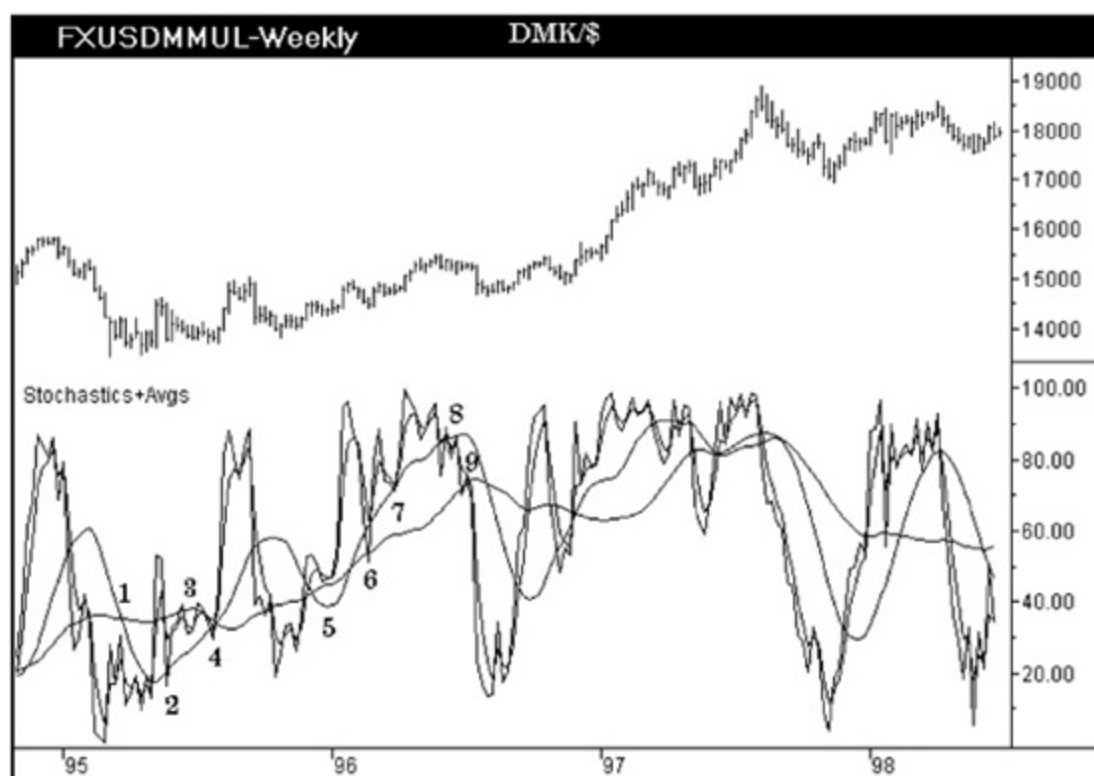


Figure 5.5

Source: TradeStation. © TradeStation Technologies

In [Figure 5.5](#) the Stochastics study has a short- and longer period moving average. We begin the chart evaluation at point 1, which is where the Stochastics study has rolled up to test the point where two moving averages are crossing over one another. If the shorter moving average is crossing down through the longer period, the signal is bearish if the indicator fails at this intersection. In real time the shorter moving average would most likely not have crossed the longer period average, but Stochastics would still be failing under the averages. The sharp angle of descent in the shorter period moving average would be accurate, and one can easily see that an intersection would form if the oscillator failed to break above the longer average. At point 2 the moving average is tested by Stochastics after the indicator breaks above the longer average and fails. The important difference is that at point 2 the Stochastics indicator is staying above the shorter average, and in previous attempts the Stochastics

indicator was below the short-period average. As we know, short-period moving averages will shift upward into their permanent chart positions from the real-time chart position, and the Stochastics indicator would have been slightly higher than the short-period average, giving a stronger signal than that which is present in this chart.

Point 3 shows a double top in the indicator *under the longer moving average*. An M pattern in the indicator can be interpreted as a double top provided the pattern forms under the trending average. Is Stochastics really under the average at point 3? The slower component of Stochastics remains under resistance so it is viewed as a market failure signal. At point 4 the faster component %K breaks below the moving average, but the slower %D stays above the average. The angle of ascent in the shorter period is important as it is soon to intersect the slower moving average. Therefore, point 4 occurs at an intersection and is a stronger signal. Oscillators frequently respond to such formations in the same way as one would jump from a trampoline. The market accelerates from signals like point 4, as the dollar does in this chart. The oscillator then travels into highs that form an M-pattern top and breaks sharply. Note where the oscillator stalls briefly near the averages and then breaks below. This break requires the use of more than one method and a knowledge about the normal character of currency markets. Using the Elliott Wave Principle, a trader would suspect a series of first and second waves is developing. Whether you knew this or not, a trader should know that currency markets commonly form deep retracements early in their transition to a trend change. Second waves very often retrace nearly all of the early first waves.

There is an extremely important juxtaposition in the Stochastics oscillator lows that develop just prior to point 5 compared to point 4. The oscillator low at point 4 is higher than the current Stochastics position, but the prices on close for these corresponding lows are higher. Therefore, the indicator is becoming oversold at higher price levels, which denotes growing market strength. At point 4 the oscillator stays above the longer moving average for the first time, and it is a trader's last warning that the trend reversal is now in force. The Stochastics pullback at point 5 is at the support zone for a bull market, testing the 45 level in this situation. The information at point 5 is overwhelming that the dollar wants to attempt a rally. However, because most traders do not read information from the Stochastics other than divergences at extremes, they would not be aware of

this important signal. The Stochastics indicator then jumps upward and pulls back a second time to test the longer moving average. Notice at point 6 that the %D component of Stochastics is above the shorter moving average while %K tests the slower moving average. This relationship would have been important in real time as more likely the %D would have been testing the longer average. The signal is the same, but the shift in hindsight could have been anticipated.

At point 7 Stochastics remains above both the moving averages, which is where it would have been in real time as the angle of ascent for both averages has been in force for some time without change. At points 8 and 9 a gradual trend shift develops as the indicator rolls under the averages. As the oscillator then breaks sharply to the screen lows opposite point 2, but with prices staying much higher than those that formed at point 2, the decline is confirmed to be a correction within a developing uptrend. Points 1 through 9 detail most of the important patterns that will be seen between moving averages on a Stochastics study. Note the series of three W bottoms that form in Stochastics after the oscillator low in 1996. The third W forms near the 75 level, which conforms to an earlier statement that one would have permission to buy the market when the Stochastics pulled back to the 75 level in an uptrend. Confirmation of the signal is present because the two moving averages have a positive differential; that is to say that the shorter period average is higher than the longer period. This is a price projection that accompanies this pullback and will be discussed later. But in a quick summary the market has only attained half the distance it will achieve from the prices that developed at the oscillator lows in 1996 up to the price highs that followed prior to the current buy signal in Stochastics. We will go into more detail on price projections at another time. Let's take a look at a chart applying the RSI indicator.

The weekly DMK/\$\* chart is again displayed in [Figure 5.6](#), but this time with a 14-period RSI that includes two moving averages. The two averages in this chart use the exact same period, but one is a simple moving average while the other is an exponential moving average. In my own charts I will use one fast simple moving average and one slower exponential moving average. In [Figure 5.6](#) the signals are discussed for the RSI as the indicator relates to a single average. You need to decide if you prefer to use the simple or exponential moving average formula. In [Figure 5.4](#) the true formula I use has been given to you, but [Figure 5.6](#) shows that

you may elect to use two exponential averages or two simple averages. It becomes a matter of how you want the real-time displacement to be handled relative to this indicator, which can be determined only if you evaluate the differences on your own.

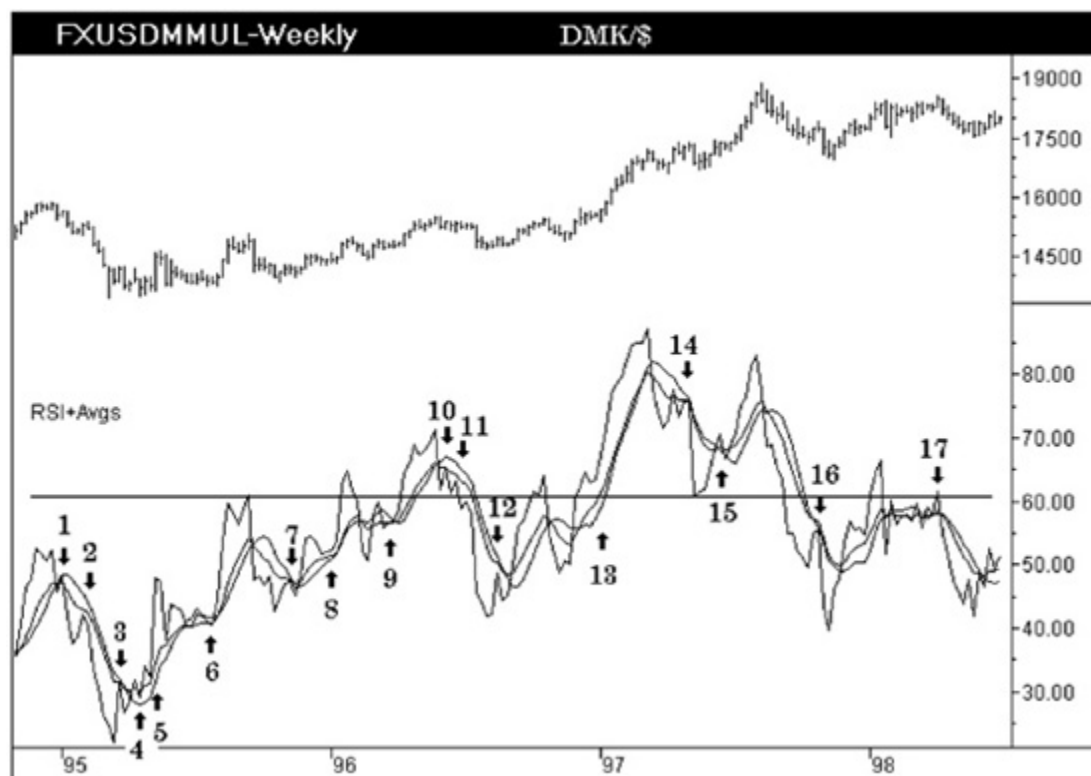


Figure 5.6

In [Figure 5.6](#) a horizontal line near the 60 level has been added to help your eye see when the RSI is failing at the upper zone for a bear market or using the zone as support in a bull market environment. The same market and chart was used with just the RSI when we discussed detecting trend reversals in [Chapter 1](#). This chart interpretation adds another dimension of detail. Points 1, 2, and 3 are all RSI pivots that occur below the moving average. Points 4, 5, and 6 are also straight forward, showing the RSI pivots developing above the averages.

The RSI at point 7 is more difficult to interpret in this chart. Is point 7 a failure to exceed the averages that will lead to a market decline? This is the same point that was so distinctive and clearly a buy signal for [Figure 5.5](#) when the Stochastics were discussed. So is something wrong with the RSI, or is this a contradiction between oscillator formulas? What is wrong is that the slower exponential RSI is not displayed in this chart but, if it were



present, it would show that the RSI was forming a buy signal at the same time as the Stochastics. But the difficulty is not in the omission of an average; *it is in making a blatant observation about an oscillator relative to a moving average without giving it further consideration once the first interpretation has been made.* How often are we satisfied because we have formed “an answer” to the puzzle at hand, after which we confidently move on to something else?

There is a wealth of information developing at and around point 7 that has been overlooked:

1. The two RSI oscillator lows that straddle the high at point 7 form bullish divergences with prices.
2. This divergence occurs above the 40 to 45 support zone defined as the lower range for a bull market.
3. In addition, the price level on close associated with the oscillator peak at point 3 is the *same price area* that forms the bullish divergence oscillator lows surrounding point 7. An oscillator that once formed a peak at a price level that later develops an oscillator low is a market that has found a former resistance level of great significance and the former area of resistance has become support. These signals can occur at extreme oscillator lows, or they can develop in the midpoint of travel and become hidden signals. The hidden signals are in fact far more powerful than the patterns that form at the oscillator extremes because they are frequently confirming signals that developed earlier in the same chart or within the chart time horizon that is longer than the present chart. In other words, this signal in a weekly chart may be confirming a signal that formed in the monthly chart much earlier.

With or without the slower moving average on the RSI, the signal is bullish. The pivot high at point 7 is just a stall for time. We need to consider this signal that develops in the lows surrounding point 7 further. It was stated above that frequently these hidden signals are confirmations for an earlier signal located in a longer horizon chart. It is this transfer and confirmation of signals from long-time horizon charts right down into shorter time horizons that increases the probability of the signal in the shortest time horizon used to decide when the position should be entered. A



similar formation seen in a 60-minute chart may in fact be the last hidden warning of a ballistic rally that has been building within a market for months. The progression of signals that develops from month, week, day, intraday charts, and through the different time horizons we use for trading a market is in essence a domino effect. A few dominos being out of sequence is the warning we need to find an alternative path that a market may travel in order to realign all these domino signals into their correct sequential order. This is how more complex market corrections can be detected before they develop and how patterns such as time-consuming triangles versus sharp quick pullbacks can be anticipated before they develop.

Often I have been asked, “How could you have possibly known a complex correction would have developed instead of a fairly quick simple one?” It is this struggle to understand how all the pieces of the domino puzzle will fit together that brings results. This aspect of fitting different time horizons together into a sequential order is exactly what I do in my analytic work between international markets. An example of how this method is applied is offered in [Appendix A](#), where the Yen/\$ has been identified as the key to understanding the next major move for the American S&P 500 Index. The indicators in fact were ignored for the S&P in favor of believing that the Yen/\$ would be the first trigger signal that would cause the chain reaction of falling domino signals throughout the global financial complex and ultimately dictate the short-horizon direction for the S&P 500. Our markets are interlinked and complex. Companies that strongly believe each market is an independent entity have not kept pace with the expanding global communication highways that are tying us all more closely together. Technical analysis offers us a universal language to assimilate the masses of fundamental reports printed in foreign languages. Without the techniques offered by technical analysis, we could not possibly process all the global fundamental factors in time to make a correct decision about probable market direction. It is for this reason that the number of people using technical analysis is growing.

Returning to [Figure 5.6](#), points 8 and 9 show oscillator lows over a moving average which are easily interpreted as buy signals preceding a dollar rally. However, take a look at the oscillator pivot low that forms between points 8 and 9. The oscillator low is below point 8, though at a corresponding higher price. This is confirmation of an uptrend as the oscillator became oversold at a higher price showing market strength.

Points 10, 11, and 12 all form oscillator peaks below the average. The averages again clearly make the indicator easier to interpret. The reentry signal to buy the market does not actually develop until point 13. An exit signal forms at point 14. When an M pattern forms under an average in the oscillator, it is generally viewed a major sell signal; similarly, a W just above an average would be viewed as a buy signal. In this situation the M pattern declines to the 60 level and uses the old resistance zone for oscillators in a bear market as a support zone, adding confidence that the market will remain in an uptrend. At point 15 confirmation develops, and the rally resumes with renewed enthusiasm. Points 15, 16, and 17 all become important considerations for a major trend reversal that was discussed in [Chapter 1](#). The saving grace for the U.S. Dollar is that the oscillator after pivot high 17 leads to the support zone defined for a bull market, the 40 to 45 area for the RSI. The danger area for the dollar will come if the next advance fails to push the RSI through the 60 level. Such an oscillator pattern could lead to a long-term bear market for the dollar as the Deutsche Mark strengthened.

Up until this juncture, global rates have been largely ignored in the chart examples. Let's correct this imbalance now and focus on a daily chart for London's Gilt Bond futures market in [Figure 5.7](#). Now we are beginning to apply all the techniques discussed at great length in the first five chapters. Averages are added to prices and oscillators; cycles have been identified. (In [Figure 5.8](#), we will add trend lines to this same market to see how they might contribute additional information to the details we obtain from [Figure 5.7](#).) [Figure 5.7](#) includes the RSI with two averages that use the exact same period, but one is simple and the other is exponential. As I mentioned earlier, I would normally use a longer period for the exponential moving average on the RSI, but in this market the longer average makes it hard to see the RSI in a black-and-white image. So the two averages in the chart allow you to explore the differences between simple and exponential weightings. The RSI uses a 14-period interval. The middle indicator is the Composite Index with two simple moving averages added to the oscillator: one short and one longer period. Starting at point 1 on the Composite Index, there is a sharp divergence between the angle of the peaks that form in the RSI. Bearish divergence at an extreme is a sell signal that leads toward bullish divergence between indicators at point 2. The RSI remains below the short-period averages, but it declines only to

the 45 level in the RSI, indicating a correction in a bull market. The Composite Index has unlimited range between its upper and lower displacement, so range rules will not apply to this indicator normally. At point 3 the RSI is testing the averages, and the Composite Index is maintaining its distance above the shorter moving average. Both signals are correctly bullish for London Bonds. Moving along to point 4 is bearish divergence between the Composite Index and the RSI. The RSI travels under the double line, staying above the moving averages, and it offers no warning. The cycles on price remain up. There are only two warnings present in this chart that a decline will soon follow: the first is the bearish divergence between the RSI and the Composite Index; the second is the price advance from the bar marked with the first cycle low into the high that corresponds to point 4 in the Composite Index, which is a very clear five-wave rally, applying the Elliott Wave Principle. The fact that the Composite Index has topped warns that a correction is nearby. Point 4 is marked to show that no matter how much detail and experience one can develop with a single indicator or method, we are certain to be blindsided by the market if we do not develop multiple noncorrelating methods. In this case, the RSI is clearly at an extreme, but it offers no further information about the degree to which the bond market will decline or of its timing. The correction allows both oscillators to alleviate their overbought condition, and the first bounce in the market is foretold by a bullish divergence between indicators that forms at point 5.

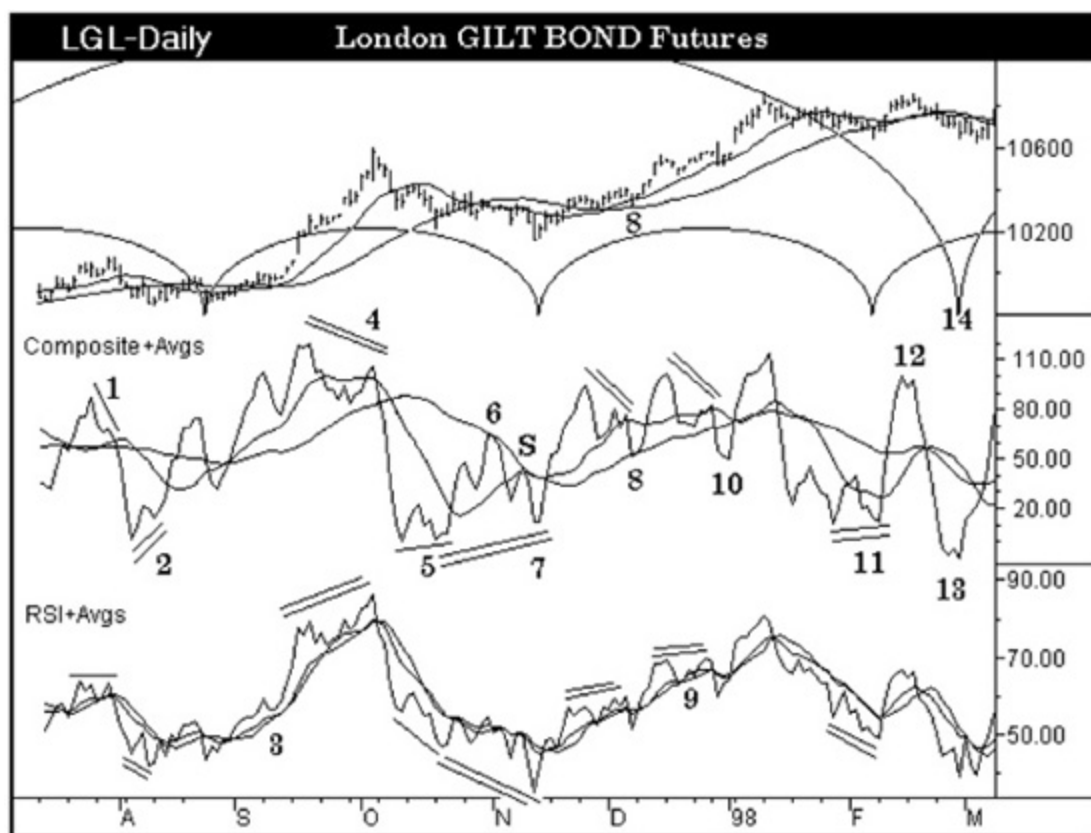


Figure 5.7

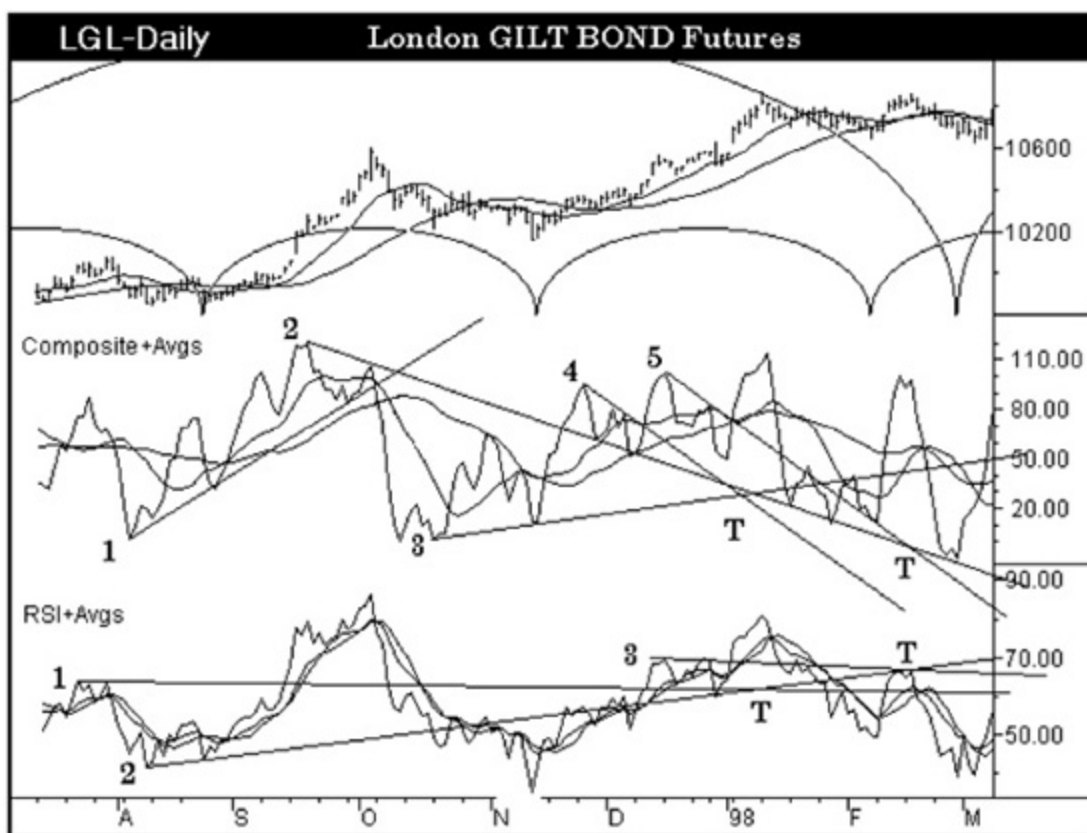


Figure 5.8

At point 6 the Composite Index fails to exceed the long-period moving average, which is a little easier to read than the formation that forms in the RSI. Move to the oscillator peak that develops at point *S* in the Composite Index. The Composite Index is directly under the crossover point of two moving averages, which warns that the buy signal at point 5 is premature. The RSI has a similar warning as it is unable to exceed the moving averages. The RSI then declines to new lows, but the Composite Index does not form a bullish divergence a second time at point 7 with the RSI. Point 7 coincides with a cycle low in price that is important coincidental evidence.

Following point 7 in [Figure 5.7](#), both oscillators break above their moving averages before prices are able to exceed their own averages. This is a lead that should not be missed. Minor divergence between the Composite Index and the RSI leads to a pullback toward point 8. Point 8 in the Composite Index holds above the longer moving average. At point 9 the trend in the RSI is not broken, but it leads to a push that forms a divergence with the Composite Index. Point 10 is an oscillator low that has

broken the averages in the Composite Index. However, note that point 10 is lower than point 8, but the oscillator is at a higher price at point 10. The market has become oversold at a higher price level, denoting strength. The RSI forms a similar pattern between the new low and point 9. The RSI is the first to cross back down through the averages, offering the first warning.

At point 11 a bullish divergence develops, and a rally soon follows into point 12. Point 12 is an M pattern in both the RSI and the Composite Index that warns that the cycle low approaching at point 14 will soon be seen. The oscillators then form a W bottom at point 13 which coincides with the cycle low at point 14. The cycle at point 14 is clearly a cycle that could be viewed in a weekly chart, and it is significant that the oscillators form a signal near this same cycle bottom.

Now take the same market and add trend lines from the oscillator lows and highs that have formed bullish or bearish divergences. [Figure 5.8](#) shows that many of the pivots in the oscillators that were not discussed in [Figure 5.7](#) have major support or resistance now at previously overlooked pivots. Trend lines 2, 3, and 5 on the Composite Index have become extremely valuable additions. Trend lines 1, 2, and 3 have also become valuable as drawn on the RSI. While it would be difficult to see all the notations drawn in [Figures 5.7](#) and [5.8](#) in one black-and-white chart, the lines are easily differentiated with systems that use color.

Now that we have a strong arsenal of tools from which to define market direction, we are ready to discuss various price projection methods, which is necessary because knowing the market direction alone is insufficient.

**PART | 2**  
**CALCULATING MARKET PRICE**  
**OBJECTIVES**

## Chapter | 6

# ADJUSTING TRADITIONAL FIBONACCI PROJECTIONS FOR HIGHER PROBABILITY TARGETS

When this chapter was written 10 years ago it was a specialization of mine at that time. Add another 10 years of experience and the subject became a book released early in 2006. The book is called *Fibonacci Analysis* and it was published by Bloomberg Press. This chapter should be viewed as a light introduction on the subject that I view as the most critical first step of any analysis work I do.

My first step in analyzing any market always begins by identifying the Fibonacci price grid that identifies support and resistance levels. Only then do I apply and consider other methods to answer how the market will react to the targets: whether nearby targets will end the trend, if there will be an interim swing, or if I need to invest time in evaluating the probability of multiple Fibonacci targets by adding Gann targets as a confluence test. Oscillators reveal how a market will react to a target. They give us permission to act and tell us when to enter the market, hold, or exit. The better you are at calling a market reversal, the better your risk management and position leverage will be.

When indicators conflict it is a technical signal that means keep out or trade with smaller size. It is a valuable fourth option for newer traders to recognize. The old dog fights leave scars over time and soon enough everyone learns to pick their battles more wisely if they want to do this for a long time. But understanding how Fibonacci confluence zones develop a grid throughout a market chart is the single method I believe has controlled my equity curve all these years through changing volatility.

It is clear that many people share a few common beliefs. As an example, many experienced traders believe Fibonacci analysis is easy. Just take a measurement of the distance traveled by a market from *obvious* price extremes—for example, from an extreme price low to the market high—then calculate the corresponding price levels that represent a retracement equal to the Fibonacci ratios 0.382, 0.50, or 0.618, relative to the total distance. It sounds very straight forward, but in practice traders soon discover that their limit orders at these retracement levels are frequently



missed. Worse, protective stops tucked safely below or above these Fibonacci price objectives are washed out of the market, forcing a trader to accept greater risk by having to chase a market move or be left out entirely. Traders fail to consider that their view of Fibonacci analysis might be too simplistic for the reality of the markets they trade or analyze.

Another common misconception is thinking that Fibonacci retracements must *always* be calculated from the extreme price highs and lows. This method of using price extremes to define a range has to be changed. The overly simplistic approach fails when the price internals of a trend begin to proportionally expand or contract within the move. Price swing proportions are rarely constant throughout a trending move. The early swings might be short and the termination swings might be exaggerated. On the other hand, the early swings in a trend might be elongated, while the termination swings may show weakness by becoming short as momentum dies. Markets have an expansion and contraction character to the price swings that form. *We are able to measure precisely how the market is expanding or contracting by using the longest bars within the move.* A detailed discussion about market expansion and contraction will be found in *Fibonacci Analysis*, but it is important for you to know now that every market has milestones in the internals of a swing which define the mathematical grid a market is using to build future price movement. This is true regardless of time horizon, type of market, price range, volatility, or volume.

The most common error I see when coaching traders is to find they stop looking at the internal details within a data swing. Yet the most valuable details lie hidden within the internal bars that are the longest and strongest rather than the extremes that mark the significant pivot points.

Often the best ranges to subdivide require truncating market directional patterns like key reversals. Always use the start of third waves and any bar that begins a strong move to mark the start of the range to be subdivided. You will find four different markets at the end of this chapter with actual trading screens to help you develop a stronger feel about how your working screens will appear when this method is applied correctly.

[Figure 6.1](#) is a weekly chart of the T-Bond futures market. Most traders will calculate the Fibonacci retracements from the extreme price high and low marked on the chart to project the price objective for the correction at *R*, the retracement target. The traders who made this calculation and

entered buy orders at the 0.382 retracement calculation were left behind when a sharp rebound resumed in the direction of the larger trend. The first observation is that bonds are in a bull market in this chart and *we do not want to see a 0.618 retracement*. A full retracement would tell us the larger trend was losing strength. You should also be aware of the longest bar within the up trend. If it is exceeded in a deep retracement it is a warning the trend reversal is far more significant.



Figure 6.1

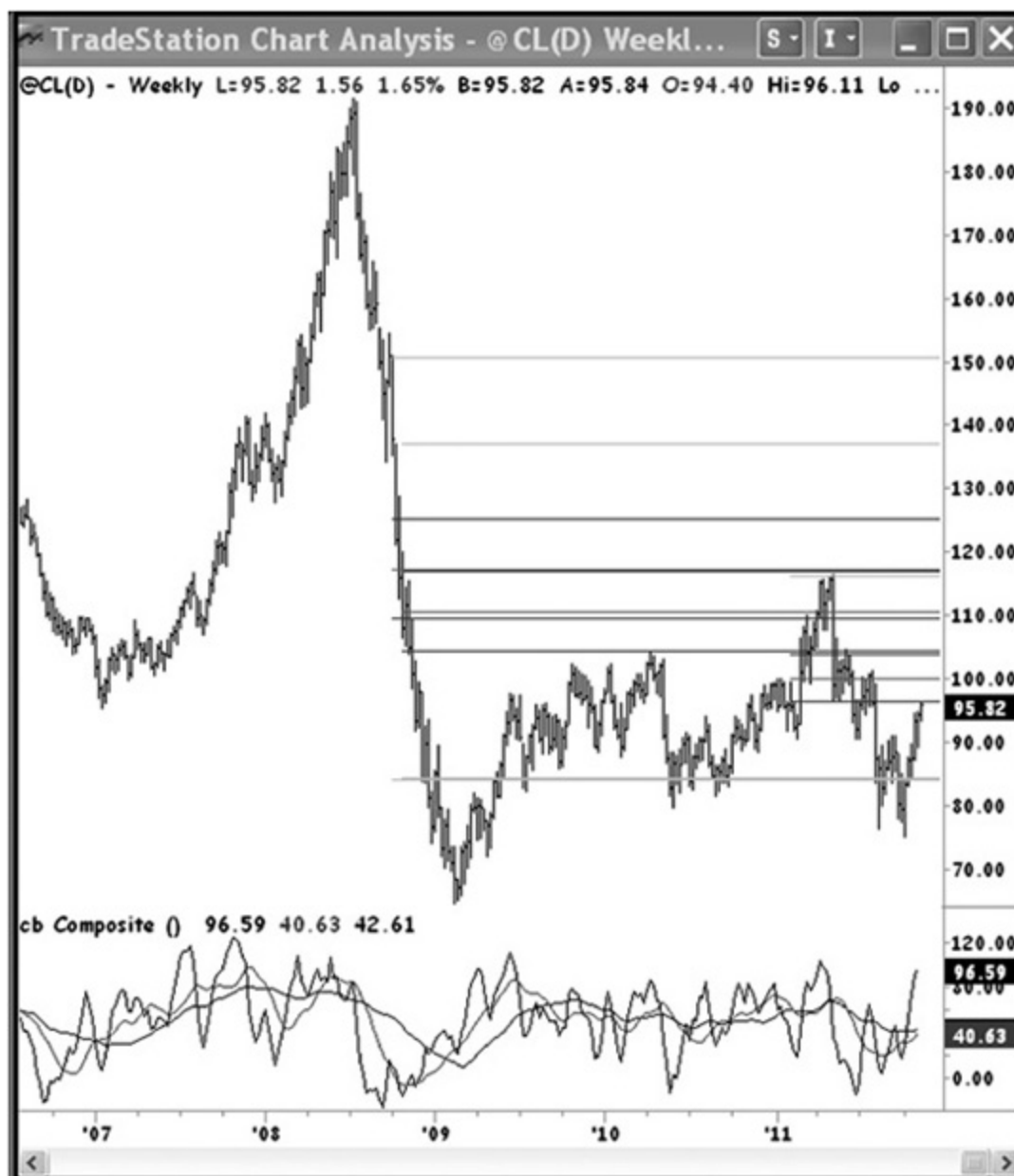
The chart in [Figure 6.2](#) shows the Fibonacci retracements when a change is made to use the strong start of the rally after the key reversal in the secondary pullback. The price projection range ended at 'R'. The resulting subdivisions contain the 0.382 target that *R* becomes the exact level for the bond market reversal.



Figure 6.2 Aerodynamic Investments Inc., © 1996–2011,  
[www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

In [Figure 6.3](#) is a chart of weekly Crude Oil futures. It gives me a chance to show how a market respects the confluence or clustered areas of Fibonacci ratios. The price pivot just under \$120 level is stopped by the multiple cluster of ratios 0.618 and 0.50 at the same price. The subdivided ranges both began from the gray line that runs across to the \$84 area on the y axis. The endings of both ranges are the last two top lines within the chart data. Under this area is another confluence zone at \$110. The market does pullback, but it is clear from the oscillators that the larger rally was incomplete. Therefore on the next attempt the market challenges the target for major resistance under \$120 and fails.



**Figure 6.3 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)**

*Source:* TradeStation. © TradeStation Technologies

The fact the market uses the lower Fibonacci ratios from this resistance method is a way to confirm the accuracy of your selection to start the range. The price high in 2011 was used again after the failure to make a new calculation. The 2011 high to the low of the range used to identify that high risk top, was again subdivided into the ratios of 0.382, 0.50, and 0.618. Notice how the market uses these levels as resistance in the down trend back towards the lows.

If the market had pulled back and then exceeded the resistance levels identified at the 2011 high, new and higher levels of resistance would have to be known. How this is done is by using the exact same low that started the earlier range selection. Then end the new range on strong bars above those already used in this chart. The new ranges covering a wider price range will create the new Fibonacci clusters.

Important. The endings of a range and a Fibonacci ratio subdividing a larger range do not make a confluence target zone. Only Fibonacci ratios make a confluence target and the ratios **MUST** be different ones. As example 0.618 and a 0.50 is a target.

Check the default Fibonacci ratios that your vendor uses as the start-up as they are often wrong. They should be set at 0.382, 0.500, and 0.618. Any time you add, subtract, multiply, or divide a Fibonacci ratio you will get another Fibonacci ratio. Therefore creating ratios from multiple ranges will define levels that are also additional Fibonacci values. You will only need three in your setup.

Beware that several professional charting products on the market still limit the trader from using Fibonacci calculations correctly and keep the user from moving beyond elementary applications. As an example, CQG for Windows draw their Fibonacci ratios in such a manner that the grid will project backward toward the oldest data when you start from a price low and move the mouse upward toward a price high when a resistance target is required. If you are calculating support or resistance the subdivisions need to move toward the y axis so they align with the current bar. This allows you to study internal price pivots as they relate to the Fibonacci grid being drawn. In up trends, when support levels are needed, always start from the

price high and move down toward successive price lows. If you start from the bottom you are locked into picking the high. It becomes your only option and you will never get past being a beginner.

The chart in [Figure 6.4](#) is a 240-minute intraday view of Gold futures. It will look very similar to the weekly Oil chart to help you see how these methods apply to any time horizon and any market. However, in [Figure 6.4](#) is an error in an implied confluence zone near 1750. Do you see it? It was mentioned that confluence zones only form when different Fibonacci ratios cluster together at, or very near, a market price. You cannot consider the end of a range as a line that satisfies the criteria needed to reveal a major area of resistance.





**Figure 6.4 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)**

*Source:* TradeStation. © TradeStation Technologies

With that clarification a confluence zone does develop at 1750 when a range higher than the ones seen in this chart is added. So I will use the 1750 area in this discussion as major resistance. We see the Gold market respect the target by developing a decline that again breaks below 1700.

When the market falls through 1700 do not think the lines under the market are to serve as support levels. While they may on occasion serve both needs, this is not how to use these calculations. To determine support the process must be repeated. To create support you start at a bar high and work down through successive strong price bar lows. Only then do you reveal the true support levels that become major objectives.

You will need to read my book *Fibonacci Analysis* to learn how to do more advanced work such as using the target zones themselves to create future price swings beyond a second or third swing relationship. It indeed can be done and you can work backwards from future targets as if they were already on the screen to verify targets for the nearby market swing have been correctly defined.

We have discussed only one method of calculating price objectives using Fibonacci ratios. Another common practice is to calculate Fibonacci price expansion swing projections. Contrary to the discussion about ignoring spikes for retracement calculations, we will want to use the price extremes for swing projections in this next method.

[Figure 6.5](#) continues with the same 240-minute Gold futures chart as we discussed in [Figure 6.4](#). However this time a different price objective will be made. Points 'a' and 'b' are the diagonal or rise of this market swing. The height is what is actual measured and then added to the point selected at price 'C'. From 'C' a series of Fibonacci ratios are obtained. We see the market near 1750 use the 138.2% relationship of the height from the first swing mark a respected resistance price target. There is a catch with this tool that is widely used by swing traders. The catch is vendors create the measurement and project a percentage rather than actual price. It creates a significant error in markets that trade in higher price scales. To avoid this problem I use boxes or the Fibonacci retracement tool and add it to the pivot. This is actually a very brief introduction and needs

considerable more development to do it justice. But it will get you started in the right direction. The key is to use multiples from different ranges to create the targets of greatest significance.



Figure 6.5

Source: TradeStation. © TradeStation Technologies

[Figure 6.6](#) displays my Composite Index and the RSI with their corresponding moving averages with the daily price data for the AMEX Computer Technology Index. The Elliott wave interpretation has also been transferred from the price data to the pivots that correspond in the indicators. The indicators are not being given wave interpretations, but an effort is made to show the juxtaposition of price label to the corresponding oscillator position.



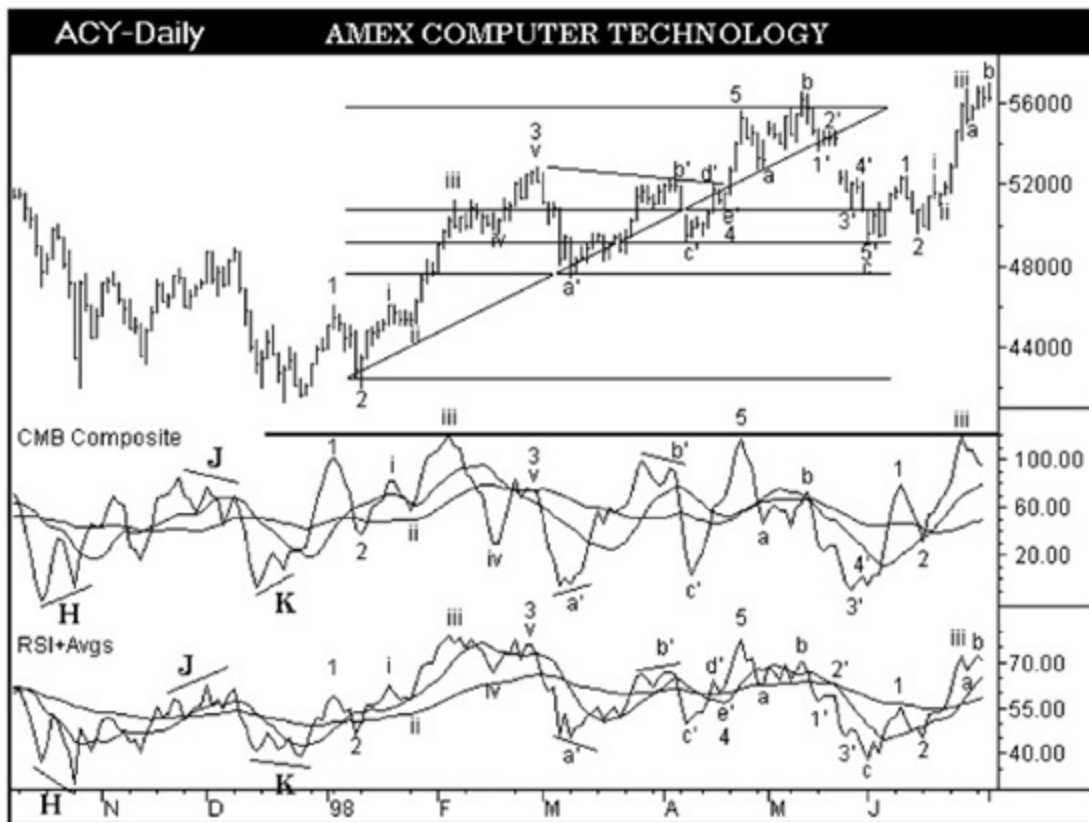


Figure 6.6 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

How would the non-Elliott trader have known that the market low at 3' was not the final bottom? While the price low at 3' declined to a 0.382 retracement target, the oscillator lows corresponding to this price low did not display bullish divergence or signal a market bottom. When a new price low develops to the bottom of wave 5', the indicators diverge and offer the first visible buy signal. The safest buy signal for this market is at the bottom of wave 2 down, which is to the right of the oscillator divergences. The Composite Index corresponding to the price low at 2 on the far right tests the support level where two moving averages cross over one another. We have discussed in previous chapters how this indicator formation frequently leads to a strong market move.

You may want to come back to this chart after we have discussed the EWP in [Chapter 10](#). The RSI range rules for identifying trends that we covered in [Chapter 1](#) are important in [Figure 6.6](#). Do not overlook how the market reacts to the extreme oscillator trend line highs. It is important to

point out that the market reacts and frequently changes direction when the Composite Index and RSI indicators diverge from one another. The Composite Index will be discussed further in [Chapter 12](#), but this divergence between the RSI and Composite Index is one of the primary reasons for the formula. The Composite Index warns when the RSI will fail to detect a market reversal before the failure.

If you are familiar with the EWP, notice that waves iii, 5, and iii all top at the same Composite oscillator extreme. This is an important observation to carry into [Chapter 10](#) when we develop wave structure with oscillators to guide us.

[Figure 6.5](#) began the discussion of how to calculate Fibonacci swing projections. The most common projections are 0.618, 1.00 (equality with a former move), 1.618, and 2.618. You may not realize that you can easily make these projections on your computer screen if your software allows you to reposition Fibonacci calculations. In [Figure 6.5](#) we discussed how to calculate the Fibonacci swing objectives for a market decline. Now we will determine the primary objectives for a market poised to make a new historic high.

[Figure 6.7](#) is an 88-minute bar chart of the September S&P 500 futures contract on July 9, 1998. This particular example is being created in a real-time situation. The calculations described for you are being written before the outcome of the market move is known to both the author and the reader. Let's begin by creating a Fibonacci grid from a price low and high. The first or original grid will become our template for calculating the Fibonacci price ratios 0.618, 1.00, and 1.618 for the next rally relative to the first advance.

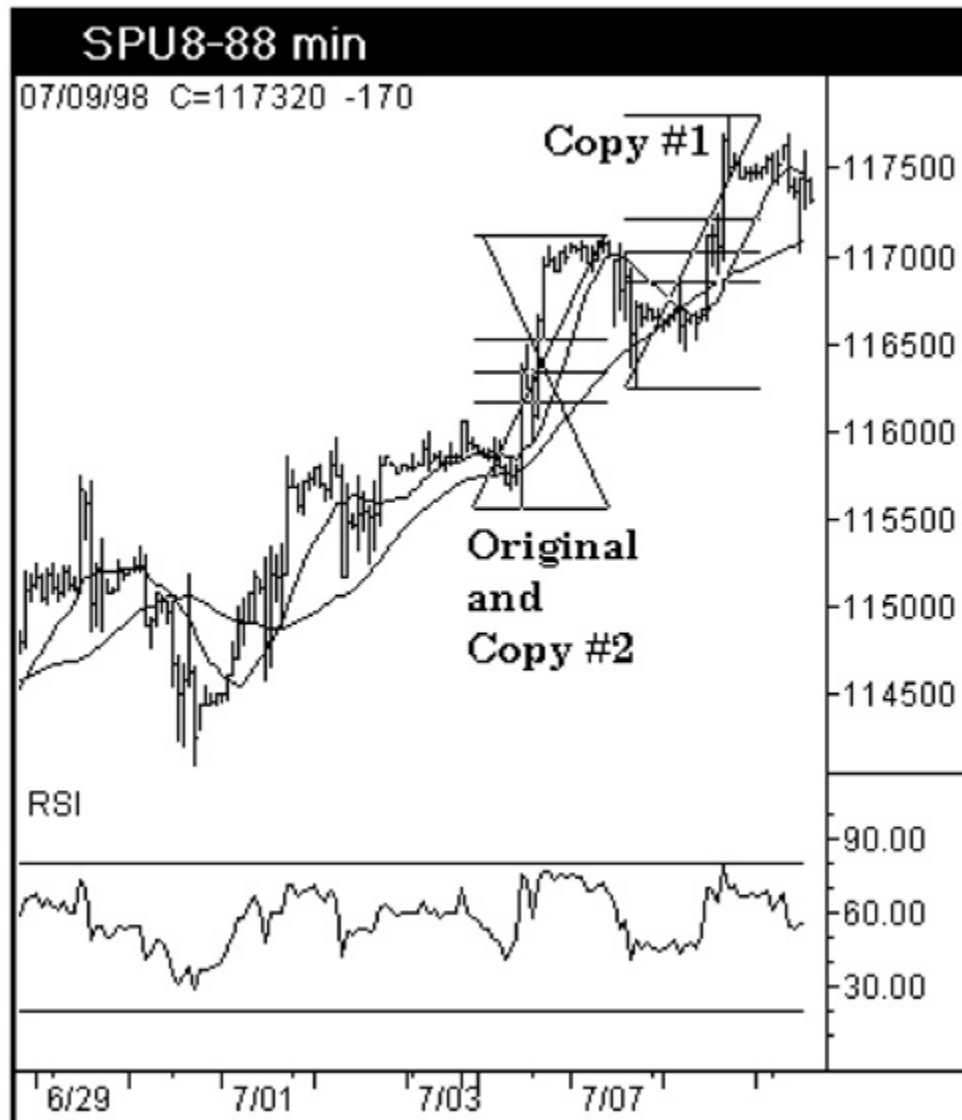


Figure 6.7

Source: TradeStation. © TradeStation Technologies

[Figure 6.7](#) shows that a strong market swing is selected to calculate the first Fibonacci targets. Draw a second grid right on top of the first. Now pick up the duplicate or copied Fibonacci grid and move it, being careful not to change the size of the range. In this example the Fibonacci grid, “copy 1,” shows that the market advanced an equal distance relative to the first advance. We can see this relationship into the present high. As the market has already realized this target, we need to find the next higher objective. Where will the market go? [Figure 6.7](#) shows an X as the original Fibonacci grid has another copy overlapping the original for a second projection. The second copy will be added to the first copy to project where

the 1.618 price objective is located relative to the original move. This is the method I referenced in [Figure 6.5](#) that would solve the Fibonacci expansion tool issue when most vendors add a percentage and the result is inaccurate in higher price scales.

[Figure 6.8](#) shows the relocated copy #2 added to the top range of copy #1. By adding a second copy, we have an exact price objective drawn at the 1.618 relationship. The top line in the second copy is at a 2.00, 2.382, 2.5, and 2.618 target. Are we done? This is where most people will stop, but we can do much better. We can improve the price objective accuracy by adding additional price projections from different market swing ranges. The calculations or swing projections will be made from several *meaningful pivot levels*.

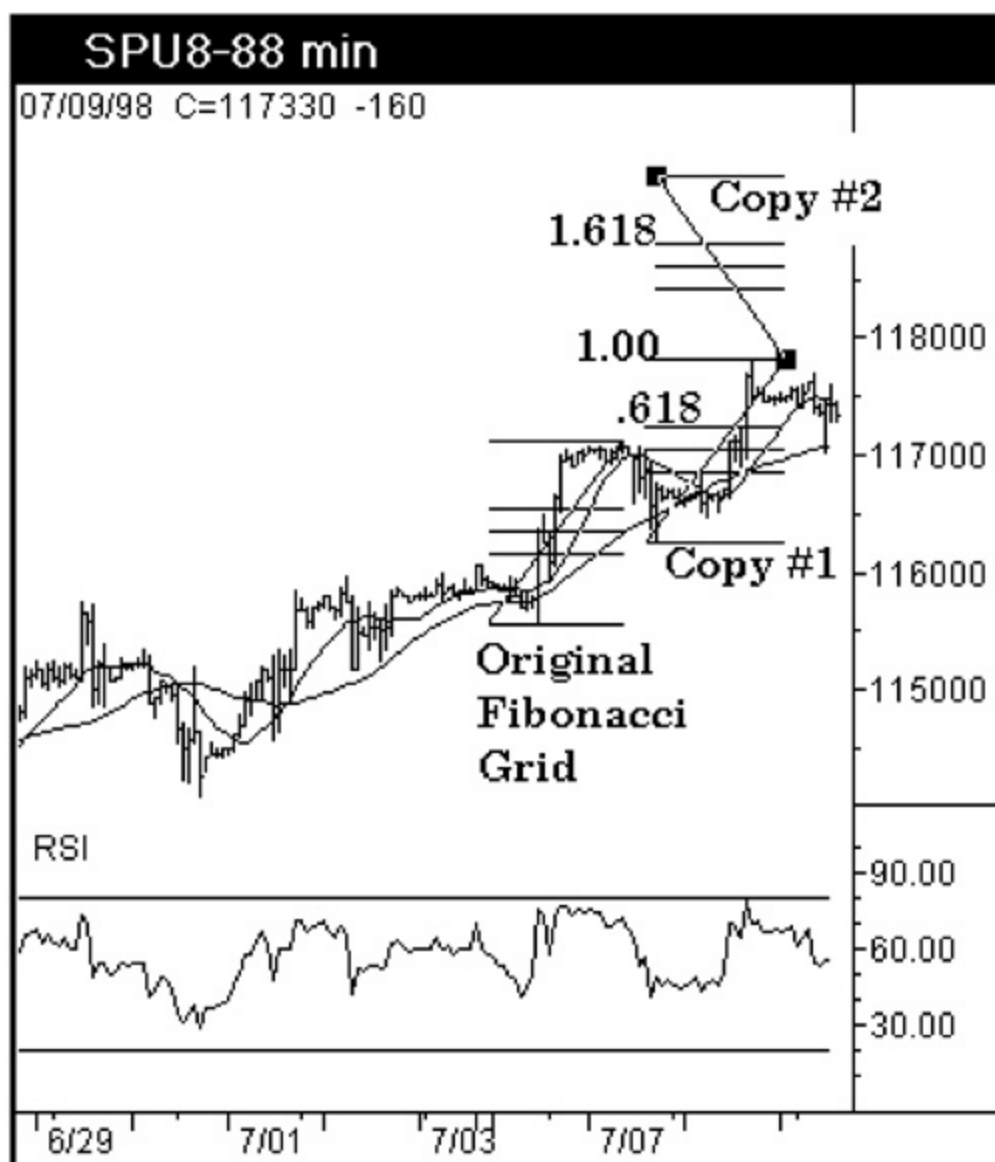


Figure 6.8

Source: TradeStation. © TradeStation Technologies

In [Figure 6.9](#) the price projections remain on the screen from the steps developed for [Figure 6.8](#). Now we need to create a second swing projection. Start by drawing a Fibonacci grid at position 1. This is a longer market swing that will create the new calculations. It begins from a different price low and the range when subdivided will be different Fibonacci ratios than those obtained from the first projection. The next step is to draw a duplicate grid right on top of position 1, then pick it up with the mouse and move it into position 2. Now this is what becomes extremely important: The 1.00 or equality price projection identified from the

Fibonacci grid at position 2 (the upper range for position 2) has a confluence zone common with one of the first calculations. The 1.00 projection in position 2 overlaps the 1.50 price target created in [Figure 6.8](#). Therefore, the important price objectives are 1.00, the former high, and 1.50—not 1.618. The 1.618 objective will be too high. When you have overlapping Fibonacci projections that form a cluster, you have found the price objective of greatest significance.

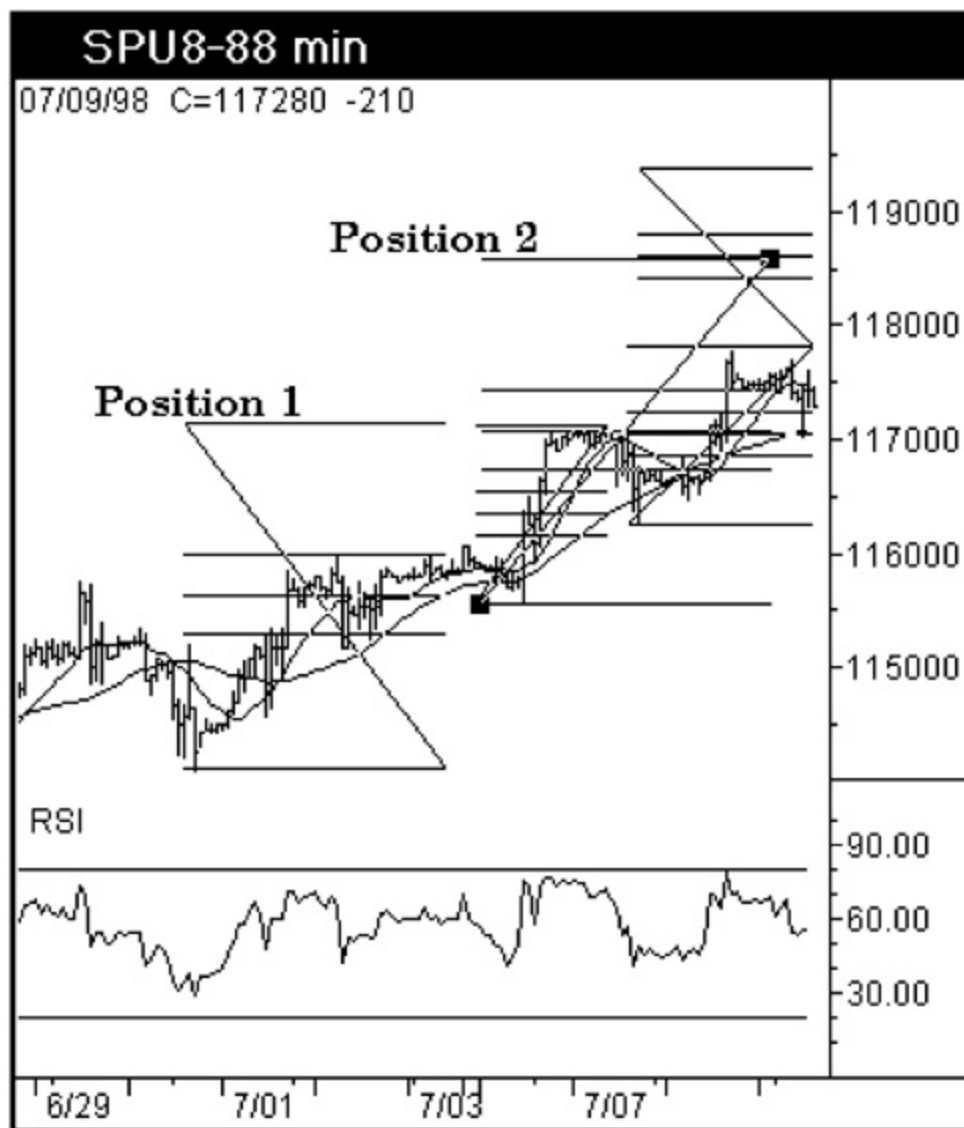


Figure 6.9

*Source:* TradeStation. © TradeStation Technologies

Five days have passed since the explanation for [Figure 6.9](#) was written. It is now July 14, 1998, and a breakout rally into new highs has occurred in

the September S&P 500 contract, which can be seen in [Figure 6.10](#). The chart shows the market consolidated under the old high for several days. The old high was the 1.00 objective we identified from [Figure 6.8](#). We then identified that the 1.50 relationship would be the next target if the market successfully penetrated the former highs. A void space is the absence of resistance levels between two major targets, in this case the old high and the 1.500 objective from [Figure 6.8](#) and the 1.00 target (same level) from [Figure 6.9](#). Below the 1.500 objective is a minor resistance level at 1.382. The market breaks out above the old high and produces a fast market condition right to the 1.382 line that has been extended for your comparison from our original calculations. The market then pushes up to the major objective and again shows respect for our projected target. The progression of steps we described in [Figures 6.8](#) and [6.9](#) would now be repeated as new market pivot levels have been added to our trading screens.



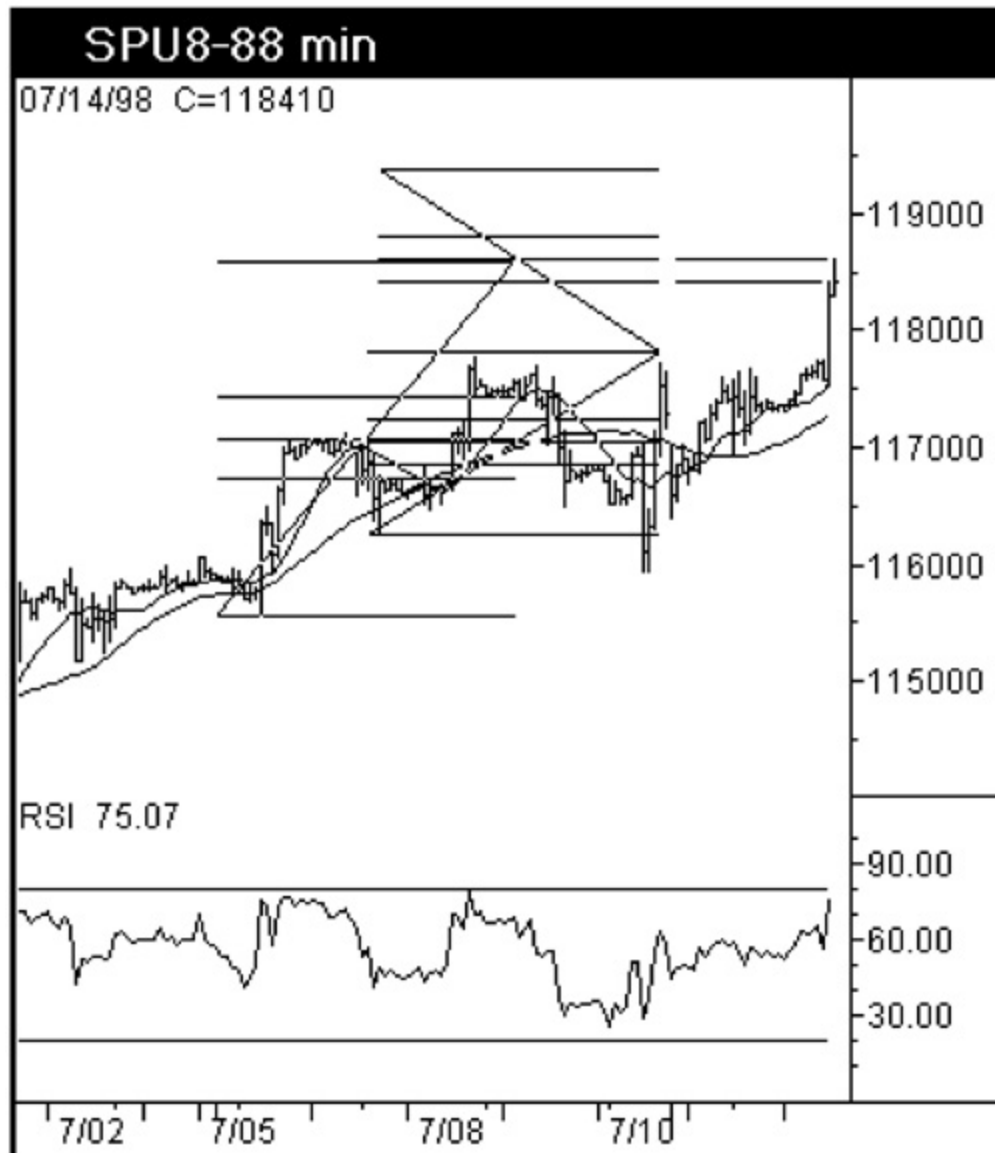


Figure 6.10

Source: TradeStation. © TradeStation Technologies

What would have happened if the market had failed to acknowledge these objectives? If you are learning, you made an error. You are likely looking at swings and not using strong bars. But if you did the method correctly you will find that corrective expanding and contracting triangles will ignore these targets. It is the only time I have trouble with this method and it is so consistent it is a reliable early warning that a triangle is forming before the swings make it obvious what pattern is developing. The reason this occurs is that the market data is rescaling. After a triangle the grid of support or resistance lines may define clustered targets using different

pivots. It is not a guess, as the market will be very clear it does not want the old ranges. The group of clustered Fibonacci ratios fall into place easily, as you will see at the end of the chapter.

I have a strong reputation for price projection accuracy. But what people may not realize is that the support-resistance price targets I use are derived from three noncorrelated price projection methods. Each independent method is then compared to identify the major clusters that overlap from the different methods. When clusters, or confluence zones from independent methods overlap, it marks the price objective of greatest significance. In [Figure 6.10](#) the 1.50 Fibonacci projection from earlier steps was respected by the market. This could define a minor correction in this market's larger trend. This intraday target gains significance when the same target levels develop in longer horizon charts. Always be aware of the target grid that develops in longer horizon charts, though confluence patterns within monthly and quarterly charts will be sparse.

The three methods identified in the 1998 first edition were Fibonacci, Gann, and the RSI. Now the three methods I use can handle any type of market volatility. They are Fibonacci, Gann, and the EWP. I use the RSI with the Composite Index all the time, but not to create price objectives because any price objective method I feel must be able to use more than just closing prices. This was particularly demonstrated when the DJIA fell nearly 1,000 points in a single day. The Fibonacci confluence zone accurately identified the historic support level of that wild day. I was trading intraday off a monthly chart, but the market continued to respect the Fibonacci confluence zones. Only the time horizon changed and not the methodology. However, I had experienced years earlier, as the volatility increased, that targets derived from RSI were of limited use. We will look at the oscillators I consider to be essential in later chapters and a few unconventional applications that increase your probability of being accurate at the critical decision point when you need to know what will happen at a Fibonacci confluence target. There is no question that the method of greatest importance for me after Fibonacci and Elliott derived from momentum oscillators is Gann. Gann is the only method I have found that can warn when a long choppy correction is about to begin before it happens. But adding time analysis will not be useful if your work on the horizontal axis is weak to start with.

We have discussed multiple Fibonacci swing projections; we now need to cover how to create multiple retracement levels and define why the extra effort is worth it.

One of the advantages of capturing markets as you trade them is to review the historical performance of the methods used. Begin with Gold and Oil to show you how historical charts help to recall why a trade was entered when and where. The first real-time chart is in [Figure 6.11](#), which shows the monthly and weekly Gold futures market as captured on January 9, 2009. In the monthly chart you will find horizontal lines at 887, 852, 820, 745, and 697.

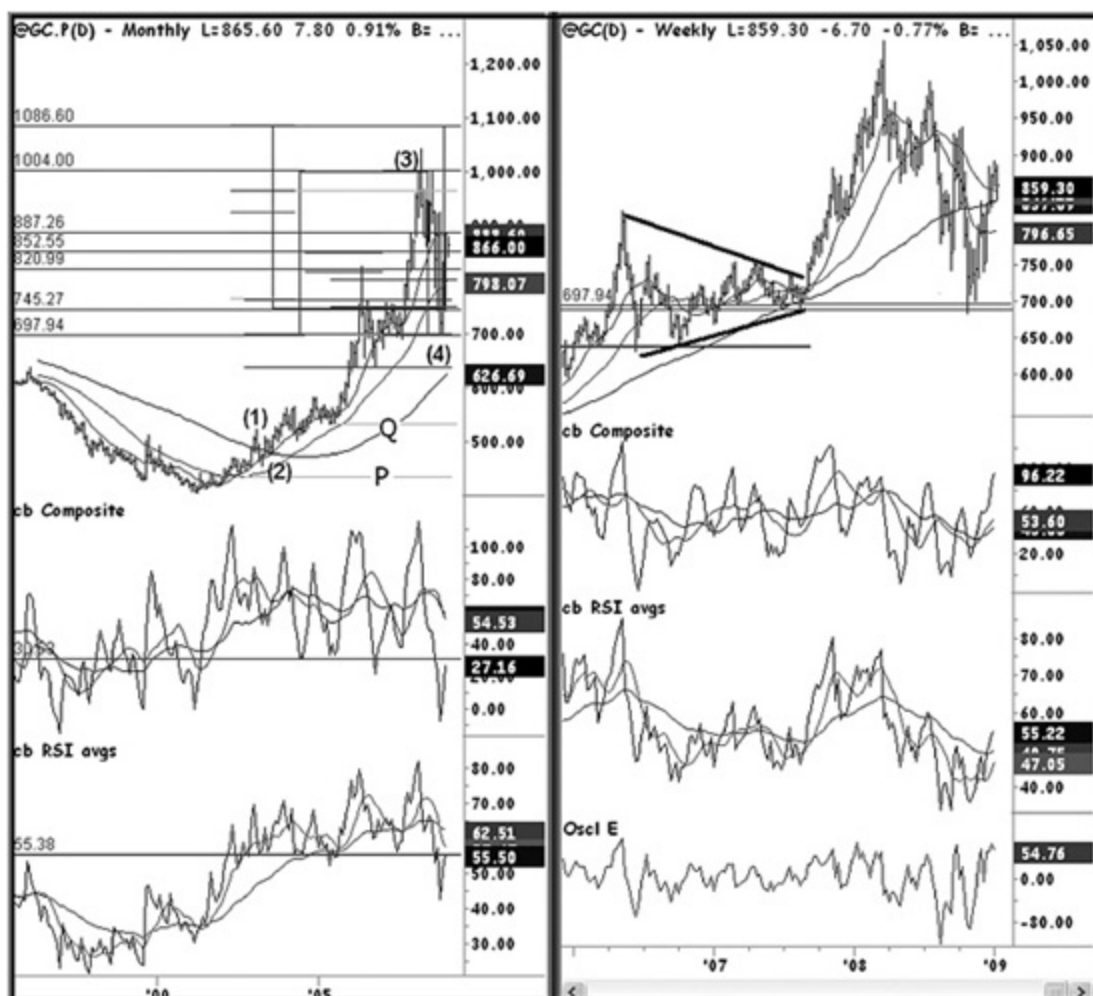


Figure 6.11 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Study the price level at 697 and you will see that there are multiple Fibonacci ratios overlapping one another. A similar clustering of different ratios develops along the price levels 745 and 852. The 1,004 and 1,086 target levels were obtained using a different method. A measured move is projected above and below a Fibonacci confluence zone from a Fibonacci confluence zone rather than a conventional swing relationship. The new projection in a box is then subdivided into Fibonacci ratios. Contract limitations with Bloomberg prevent me from detailing this method further here as to why the 697 level was used, but you will find it detailed in the book, *Fibonacci Analysis*. The box is used like an equality swing from the low to the Fibonacci confluence zone. Therefore the price differential under the bottom of the box and above it are equal. There is a second box projected from a higher Fibonacci confluence zone at 745 with an 1,086 target. It means three market swings have been identified before the first is complete.

1. A target was made for the swing up that ended near 1,004.
2. Before 1,004 was realized the corrective retracement to 745 or 697 could be made.
3. Then a target for the next swing up after the correction could be made that identified 1,086.

I am often three swings ahead of the market. I do not know if the decline from 1,004 will stop at 745 or 697 by using just Fibonacci retracements. That is where I use Gann analysis, the EWP, and my oscillators to read how a bottom will form.

The 697 target zone is identified as a major area of support because several Fibonacci ratios cluster together in this area. The 1,004 level was used as the top of *all* the ranges selected. The lows along lines Q and P show the bottoms of two of the selected ranges. The brief spike that runs through 1,004 is truncated and I used the top of a second key reversal that fails at 1,004. There are numerous ranges selected within this monthly chart all starting from 1,004. Do not assume extreme price lows of prior swings will always be used. Bottoms of other ranges selected are located at levels P and Q.

The horizontal lines across the chart mark an extension from the narrow confluence zone of Fibonacci ratios that define the targets of price support.

I often mark the confluence zones with a horizontal line and then delete the Fibonacci calculations entirely to remove the noise of unnecessary ratios. The confluence or areas of clustered ratios are the major support levels. Resistance is calculated from ranges that all have a common starting low and then the ranges end at sequential tops of bars. Notice I did not state the end of price swings or highs of entire trends. Use the internal bars showing strength; when the confluence zone has a dimension of width it is important to mark these accurately as they dictate stop placement and you never want stops to fall within a confluence zone.

In the weekly chart of [Figure 6.11](#) it is clear that the 697 target is also the apex of the triangle in the previous swing up to the left. The market then respected the support target at 697 which was first drawn when the key reversal top developed in the monthly chart. The target at 697 is bought when the market passes *back up* through the target zone or tests the same target a second time. But the astute reader might ask: why would you not buy the 745 target?

To answer the question of why the Gold market was not bought near 745, a higher support zone, we would need to go back in time to see the screens as they appeared then. In [Figure 6.12](#) we see that the monthly and daily Gold charts were captured on September 14, 2008. The market has spiked down and back up through the 745 support zone. However, the daily chart on the right shows an Elliott wave count with an incomplete decline. Wave iv upends just under the 855 confluence zone. The fifth wave (wave v) then develops and the detailed chart of the daily data shows it is incomplete because it is missing one downward swing. All impulsive waves will subdivide into five-wave structures, so Elliott wave is one reason not to buy early. So where is the first possible target for a bottom? In the monthly chart the next Fibonacci target is at 726. It is also important to notice that the market has yet to react or rebound from support confluence zones in the monthly chart.

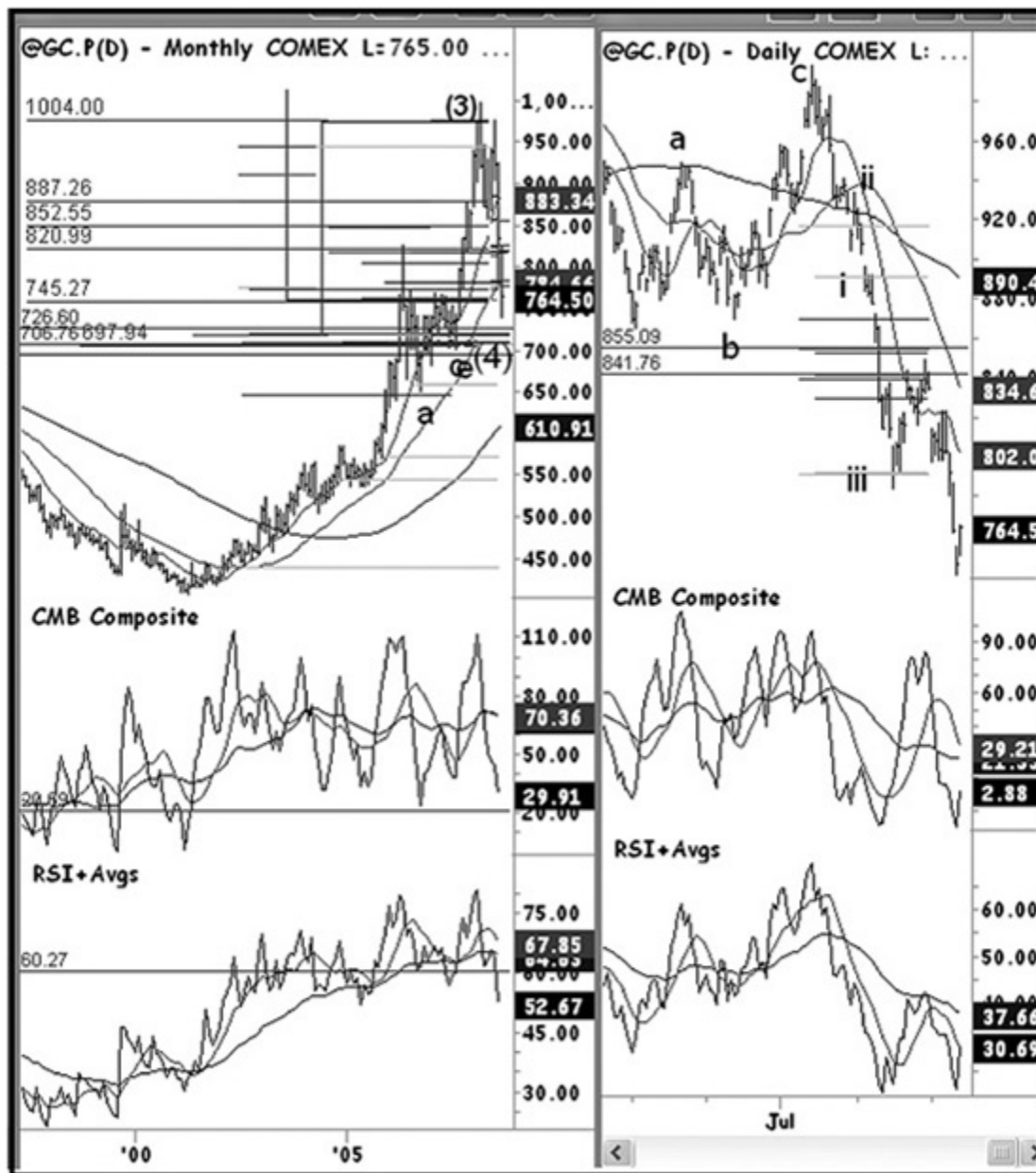


Figure 6.12 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

In the daily Gold chart the Composite Index is making a double bottom but when we cover the oscillator it will be clear this is a low probability for defining a final low as the indicator needs to roll up and over its own moving averages. That fits a minor bounce that leads to a last swing down which causes divergence with the oscillator.

The next confluence zone under 726.60 is a narrow band where the confluence zone falls within the price levels of 697 and 706 as marked on the chart. This is the target. Why? Because I know the RSI and Composite Index do not develop sustainable bottoms off a W formation. They need to build upon divergences and return to a prior oscillator range which the market creates within its own chart. The range will be a horizontal trend line connecting momentum reversals. We will cover this another time, but the important point is that the supporting tools warned the trend remains down and a bounce will only be corrective.

To clean up the screen I must have deleted the 706 price line sometime after September 14, 2008, as it is no longer displayed in the charts captured on January 9, 2009. Remember these are my actual trading screens and you will see the longer horizon charts do not change all that much. The monthly chart of September 14, 2008 shows wave (4). I label the wave under development with possible targets. Wave (4) does not imply the triangle pattern to the left. I know, I am jumping the gun a little bit to reference Elliott structure again, but if this is new to you it shows I do use it in all time horizons during trading and it weaves into the interpretation of trend and oscillator position. It also shows you one chart representing some of the long horizon work is easily visible next to a trading screen, although I am a short horizon trader.

I always need to know entry levels and stop placement before pulling the trigger. Therefore I use the width of a target zone in the following way. In declines I mark the bottom of the target zone for stop calculations that must be just away from these areas. In rallies I mark the top of the zone as stops *must* be placed outside the confluence zone. If you tend to do things in approximate and close enough estimates, this method of analysis will force you to pay attention to details and make you more patient to gain accuracy. The traders who do everything fast and rough guess will be in trouble fast. Keep in mind that this is a very precise method which is very repeatable, but which requires you to be exact when aligning price bar ranges. Stops should be at least one full confluence zone away from a target entry zone. So do not guess; I scale into positions and exit positions early as I unwind with the trend as the target zone approaches. I make up for getting out early by having accurate entry levels to leverage into with full positions. It took me many novice years to realize that you do not get bonus dollars for unwinding at the exact target. Bank it early in the event



that a bigger fish slams your trend as you gloat about how accurate you can be. There are no bonus dollars either for being the guy holding the best fill at the start of a trend. Be patient and you will trade longer.

I recall one of the best pieces of advice of my career was given to me by George Lane. George told me to use my methods on the Oats market during an historic parabolic spike. My first comment was to say, “George, I don’t trade Oats.” George was quick to reply with a hardy laugh; “Exactly!” he said. “Use your methods on markets you have never seen to see how they work for you. If they don’t work; figure it out now. Then when your own market adopts that character, and someday it will, you’ll be ready.”

It proved to be incredibly valuable advice over the years. The secret was to drop down in time and use two charts in a time ratio of 1:4. Then use an oscillator on both that is *not* normalized. When they both are at extreme displacements that agree, pull the trigger or get out. It was the way to resolve how to establish positions in strong trending markets and how to use a multiple price target grid in a market that is going parabolic.

The drop in Gold in 2008 was similar in character to the drop that developed in 2006 in Oil. I knew before it began that it would be corrective. But I also knew it would be a hard deep price fall because of the spread between support confluence zones. Fibonacci confluence zones are far more than just a price. The spread between these targets can warn how the market can move, where gaps will form, and how fast or complex the corrective phases of larger trends will be. In [Figure 6.13](#) we have the NYMEX Oil futures in monthly, weekly, and daily charts. This is my standard template screen display as I need all three time intervals available to handle volatility extremes.



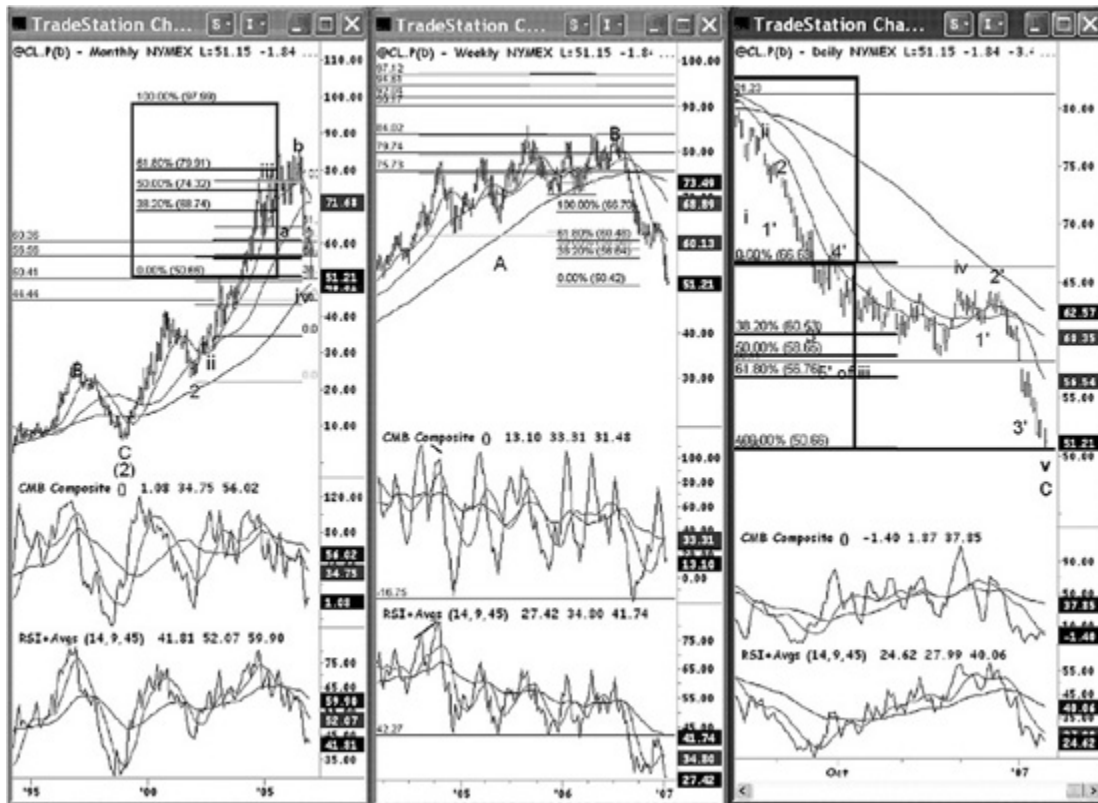


Figure 6.13 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)  
Source: TradeStation. © TradeStation Technologies

This particular Oil move became the basis of my contribution in *Breakthroughs in Technical Analysis*, edited by David Keller (Bloomberg Press). I mention these different books so you know where to find more details than a single chapter can offer. Trust me when I say you do not make any money writing books. Authors get pennies and 40 percent goes to distributors, with the rest to the publisher. I have to straighten that misconception out as it sends me crazy. We cannot design the cover and we cannot set the price a book will be sold at, but the real benefit is intellectual property. I learn who is doing what within the industry and this helps me, as the author, grow to new levels of understanding that I might not have been able to do on my own.

In [Figure 6.13](#) the weekly chart identified the 84 price level as the end of a middle leg up in a large correction we Elliott analysts call an Expanded Flat. The five-wave structure that is promised from such a setup fell to major support levels with great accuracy. Here is what you need to take away from this chart. You will know the character of the correction, and

know it is a correction within a larger trend that will resume, before it even starts. We also know from the spread of the confluence zones the character of the correction to come. When the zones have wide spaces between them with no or very few single Fibonacci ratios between confluence zones a crash character will always follow. The 2008 equity crash was known in advance because every global market had a similar setup that was feeding off of China's growth: the Middle East, Asia, South Africa, India, and especially Australia. Yet the American Indexes lagged far behind. The confluence zones cannot give you the timing, but you know the character of the resolution.

How do you know it is corrective when the freefall hits? That is where I must lean on other methods—Elliott, Gann, and oscillators as covered in this book. Here in the Oil market you have a clean demonstration of how the support zones will fall within your chart when done correctly. Notice proportional swings through the use of boxes are also added by measuring confluence zones. The daily chart cuts right through a price swing near 4', but the final target is right on at 51. I will not buy 51, but wait for the first reaction.

[Figure 6.14](#) shows Oil eight months later, on September 18, 2007. This chart shows I bought Oil based on the RSI signal. The wave count was complete and the oscillator gave permission to buy when it tested the horizontal range that held the market from 2004 through mid-2006.



Figure 6.14 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

The Oil contract has rolled over to a new front month several times and the basis spread had changed the actual low in this perpetual contract. How to handle the basis spread differential when contracts roll over is probably a chapter in itself. Now is not the best time to step into this tar pit, but we will look at the problem in the Gann discussion later.

A note about future contracts when they roll over before I forget: Do not subtract the basis differential from your old Fibonacci confluence zones to estimate the key support or resistance levels in the new futures contract. You must create a whole new grid of confluence zones by selecting ranges specific to the new contract. This is a problem futures traders alone encounter. The best solution is to use Gann contracts and that is why this discussion will be passed over until [Chapter 9](#).

In [Figure 6.15](#) the Oil market is captured on March 19, 2008. The wave counts have been changed to recognize a strong extending trend based on the oscillator position that must be considered when developing wave interpretations. The Fibonacci confluence zones are being used to project Fibonacci expansions and at this time 110 was important, though only a top for wave v of 3 of (3). It is important to see the old buy signal in 2007 is still on the chart, as the long horizon target at 110 is the end of the projected move. Then you have to start all over again to calculate the support levels and project the target for a swing up to form wave (5). When confluence zones fall into clean clusters these become the best markets to trade. The trade was not from the 50s to the 110 target. This was the big picture as shorter horizon trades were made throughout the trending move based on shorter horizon charts.

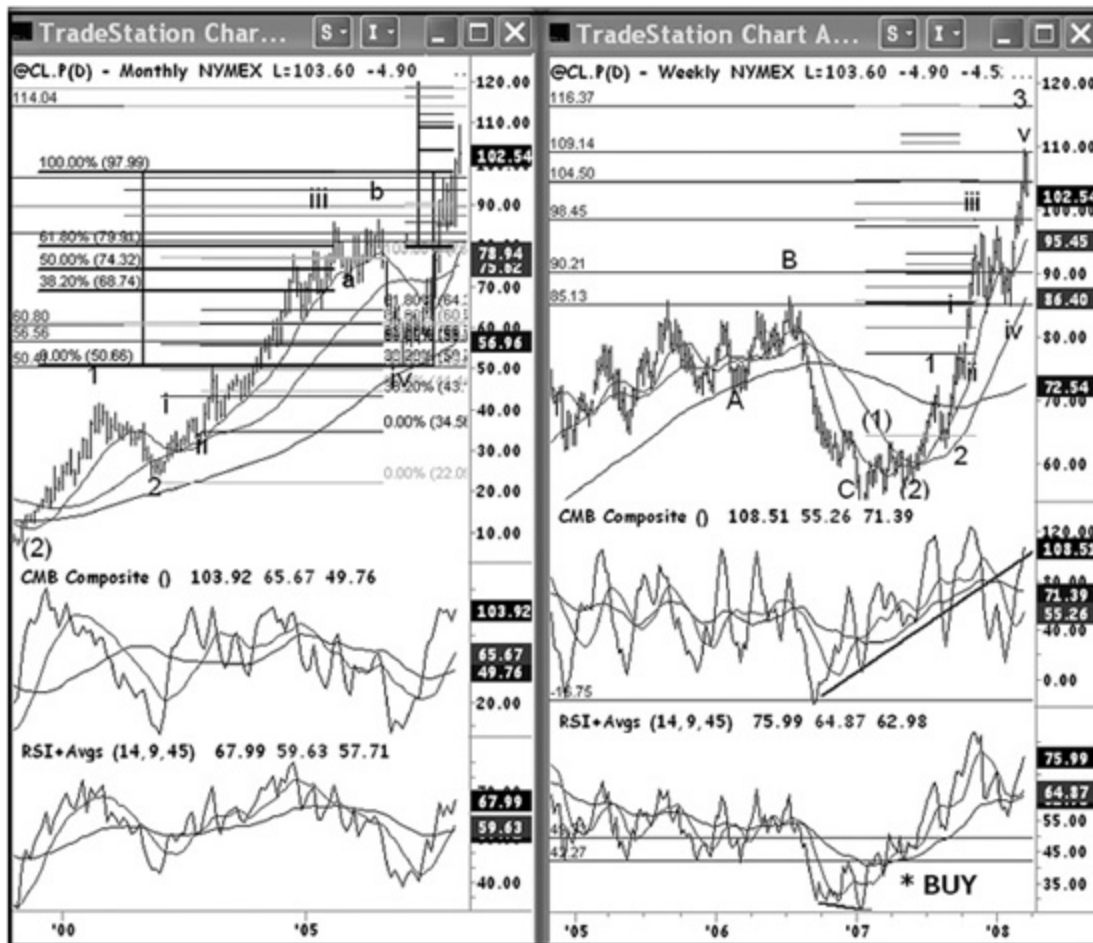


Figure 6.15 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

A quick study to help you develop a feel of how a chart should look with confluence zones is displayed in [Figure 6.16](#). The daily Nasdaq was captured on February 27, 2007 and this figure shows you that the support confluence zones were all started from the same high marked b. This is not the actual price high to the left of the screen. Then the multiple ranges selected end at the levels marked R, Q, and P. The strong freefall the day before stops right on the first confluence zone near 1,740. For those readers less familiar with TradeStation, the black highlight price on the y axis of 1,750 is the closing price and not the zone itself. Do not overlook the horizontal lines on the Composite Index. That is an historical reference line where the Composite Index defined a new extreme or a horizontal support level. Therefore when both hold support the Fibonacci confluence zone and the indicator become important. One Fibonacci zone is marked MID. It is



the mid-point where an equality swing was made in September of 2007 using the box technique. The swing up was an accurate target that ended wave “v of 3”. Keep it simple and just look at the top of the second box. Because the wave structure was incomplete we again knew more was coming. But the target was exceedingly accurate. The trade was over as the market approached the top of the second box.

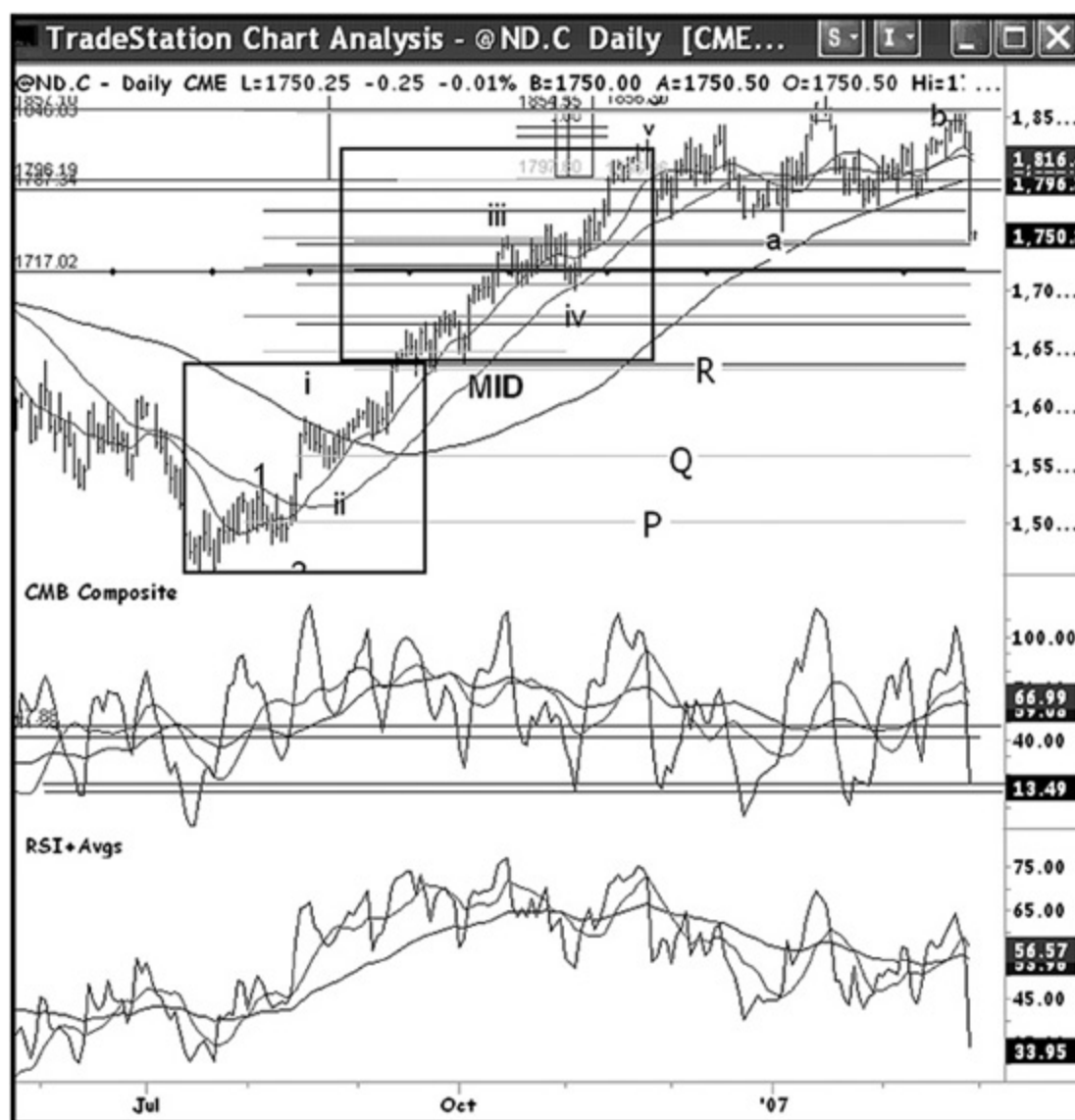


Figure 6.16 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Practice with strong trends first and work your way to more difficult chart patterns. Your observation skills will be your best teacher once the

basics are correctly in place. The question I used to ask of every price swing pivot was, “hello, where did you come from and who’s your daddy?” Every pivot has a mathematical family within the chart. If it is part of the one you are familiar with, the pattern you expect continues. When it is a lone event it is hard to see the mathematical connections; it is an early warning that you might be in for something different from what you believed at first, and it is just the first warning that your bigger picture has begun to change.

## Chapter | 7

# PRICE PROJECTIONS BY REVERSE-ENGINEERING INDICATORS

A clarification is needed in this second edition about reverse-engineering indicators. This is an analytic method and not a trading tool. It is a calculation to define a worst case scenario. It might be needed in trading someday, but not every day. Often it is professional analysts who have to guide their firm in extreme scenarios. Prepare beforehand because it is more difficult when chaos surrounds us.

The example that follows of the USDJPY in [Figure 7.8](#) was indeed a real-time calculation and result. However, to my surprise, I have never been asked why I elected to calculate “y” in [Figure 7.1](#) as a “what-if” scenario to drive the oscillator to point ‘2’ and not some other momentum extreme for y. The level y was the first price level that contained *both* a Fibonacci and Gann Wheel confluence zone. Not every confluence zone derived from Gann will overlay the major levels identified from multiple Fibonacci ratios derived from different ranges. However, when the two methods identify the same target, it is as if the market is stating that the Great Wall of China has been found at this level. So the method that follows has a step in front of it. I create the support grid described in [Chapter 6](#). Then I apply Gann as an overlay described in [Chapter 9](#), to find the strongest levels that coincide with the Fibonacci analysis. I study my oscillator to see the displacement that correlates with the two overlapping confluence zones. Only then do I play the “what-if” game to see what price is needed in the next bar to drive the oscillator back to that specific displacement. Now you are in better shape to read what was first written without further changes.



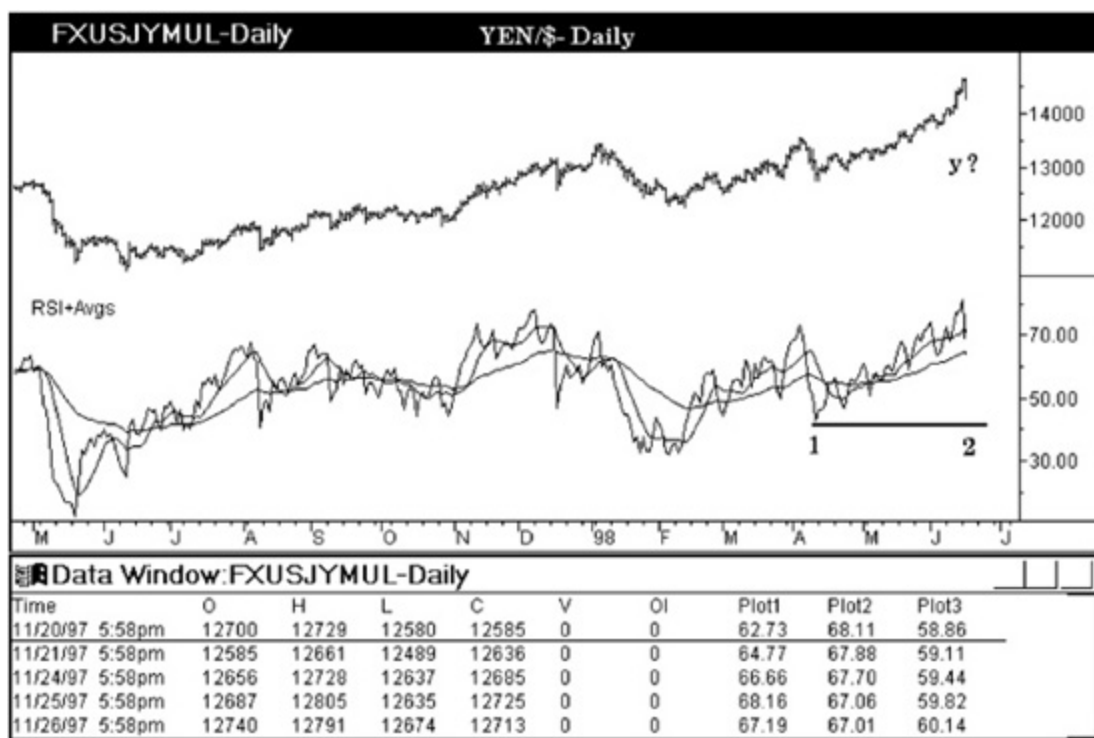


Figure 7.1 Aerodynamic Investments Inc., © 1996–2011,

[www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

In the first five chapters we discussed ways to increase our probability of correctly interpreting indicators to determine market direction. Many of the techniques gave us the means to identify precise targets for our *indicators*. As an example, we know that a trend line drawn from oscillator pivots that form bullish or bearish divergence with prices, or another indicator, is a significant area of future support or resistance for that indicator. If we know the chart position toward which an indicator is focused on traveling, then we are left with one unknown variable: the price level required to drive the indicator to that projected chart position. Therefore, we are about to embark on a discussion of reverse-engineering our indicators to define an extreme scenario price objective.

Technical analysis software products generally do not give us the ability to reverse-engineer our indicators to solve for an unknown future price, at least not at this time. However, Microsoft Excel does provide us with the means to expand the functionality of our realtime quote systems. It is not difficult to create a chart or project the price within Microsoft Excel; the difficulty is in exporting the raw data from the real-time quote system

into a format that could be imported and recognized by Microsoft Excel. As the discussion about reverse-engineering an indicator will be useless if you cannot import your data file, I will get you past this horrendous hurdle by displaying a step-by-step demonstration of how to accomplish this task. This procedure will export real-time FutureSource data files into an Excel application. I suspect the procedure will be similar for any data vendor that offers ASCII text format or CSI/Metastock data format.

The objective of this exercise is to import the data and the indicators displayed in [Figure 7.1](#) into Microsoft Excel for further analysis. [Figure 7.1](#) displays the TradeStation chart of the daily Yen/\$ with the RSI and two moving averages on the indicator. We discussed how the moving averages were added to the RSI graph in a previous chapter. From the range rules we discussed in [Chapter 1](#), we know the major support level is at 40 to 45 for the RSI in a trending bull market. This chart clearly shows an upward trend for the Dollar versus the Yen, and the RSI produced an oscillator low near the 45 level at point 1 in [Figure 7.1](#). We will make the assumption that the RSI will return to this important level of support from current highs in anticipation of a significant decline. As we know the level the oscillator will most likely target, we need to solve for the unknown variable  $y$ , the price that is required to push the RSI down to point 2 in this chart.

[Figure 7.1](#) shows a data window below the chart. Display this window by clicking the left mouse button on View from the pulldown menus on the top of the TradeStation screen, and select Data Window. The data window will correspond to the active chart you were last viewing. So make sure that if you have multiple charts in one WorkPlan, you have the correct data and indicators displayed. Most likely you will not have all the data visible in the data window. Move the mouse cursor to any position within the header bar that has the title Data Window, and click the right mouse button. A small menu will appear, and you will need to put a check mark beside Show All Data. Press Enter, and the data window will now contain several new columns that include your indicators. One severe limitation to note: TradeStation will transfer only six columns of indicator data. In [Figure 7.1](#) we have the RSI and two averages. Three columns have been used. If you have more than one indicator, you will likely have to do this procedure a couple of times as it is very easy to exceed the six-column limit of TradeStation.

Now move the mouse cursor back into the title bar data window of [Figure 7.1](#), and right-click the mouse. The small window menu that offered Display All Data will also display Send to File .... This is the last option on the bottom of the pop-up menu. Double-click the mouse, or select Send to File, and press Enter on the keyboard.

[Figure 7.2](#) displays the window that will open after the last step. This is a very important step. A file name has to be entered in the empty box. I am transferring the file to a floppy disc in drive A: because I use a different computer for my offline analysis work. You may want to use the same computer. Type the drive letter, directory if needed, and then name the file with no more than eight letters. No spaces or fancy characters—just use letters. *Then you must type the extension .txt after your file name.* Excel will know this is a text file because you added this extension. Do not allow the computer to designate a default extension, which it will do if you do not type .txt, and you will be stuck at this step for ever more. Another quirk to mention: if your directory or floppy disc already has a file with the exact same name, in this case yen.txt, TradeStation will merrily beep at you that it has transferred the file to the disc, when in fact it will not overwrite a file with the same name. TradeStation will not warn you that the file was not overwritten and revised. You will go through all the steps that follow and discover that the old file is still the one in memory.

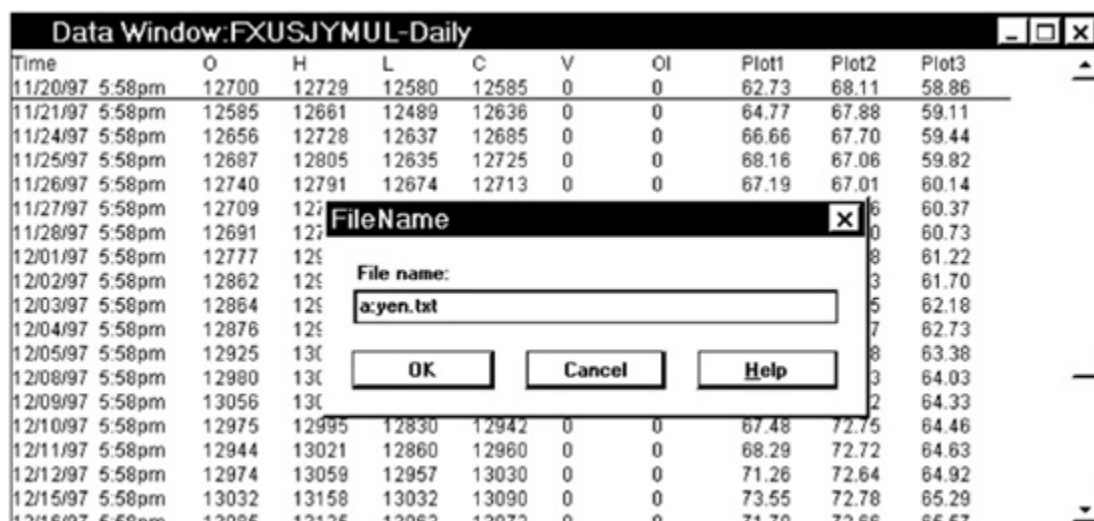


Figure 7.2

Once you have decided on a file name, press Enter or click OK as illustrated in [Figure 7.2](#). That was the last step from TradeStation. Now we

need to import the saved text file into Microsoft Excel.

From START > PROGRAMS > EXCEL, open the Excel spreadsheet program so that a new screen is displayed. Select from the top menus FILE > OPEN. The screen displayed in [Figure 7.3](#) will appear. You will need to change the default file type on the bottom left to All Files (\*.\*). Then select the directory or drive where the data file was saved. In this example the file is on the floppy disc I used to move the file over to a different computer. The text file yen.txt will be displayed in the window. Double-click on this file name to open it.

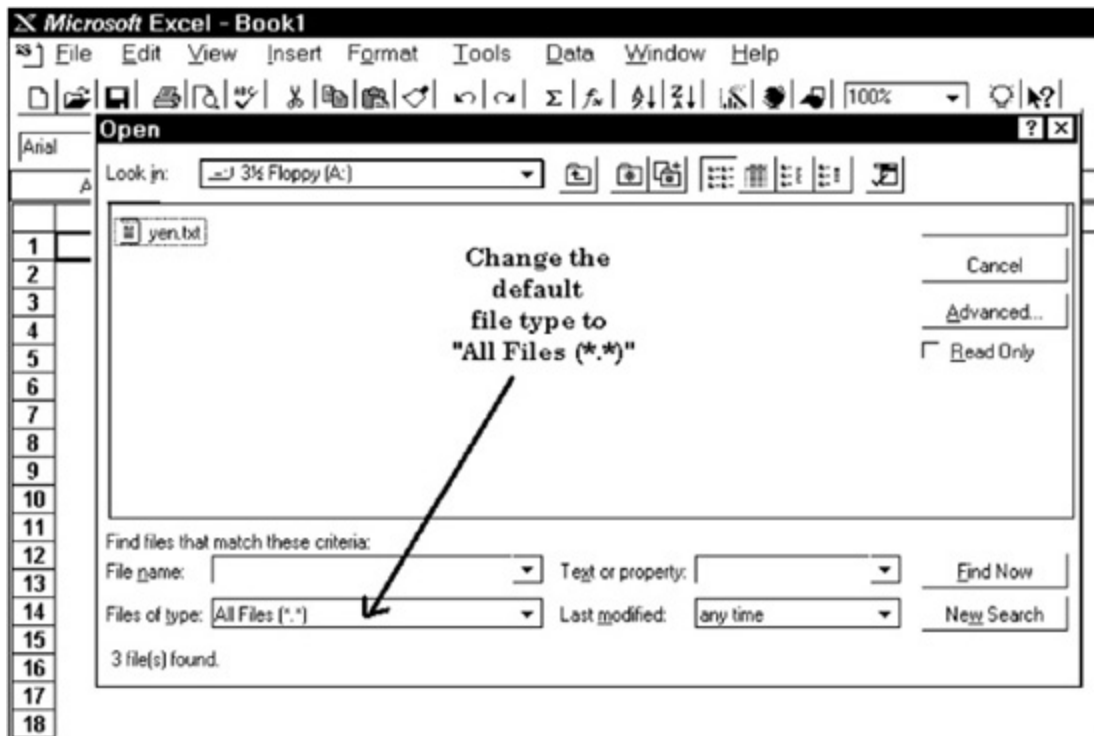


Figure 7.3

Excel will display the Text Import Wizard that will walk you through the three steps required to import this file into a recognizable format for the Excel program. Step 1 of 3 is displayed in [Figure 7.4](#). Ensure that this screen has the following selected: Original Data Type is Delimited, Starting Import row is 1, the File Origin will be Windows (ANSI). These are my defaults but not necessarily yours, so check them. You are ready to click the next button.

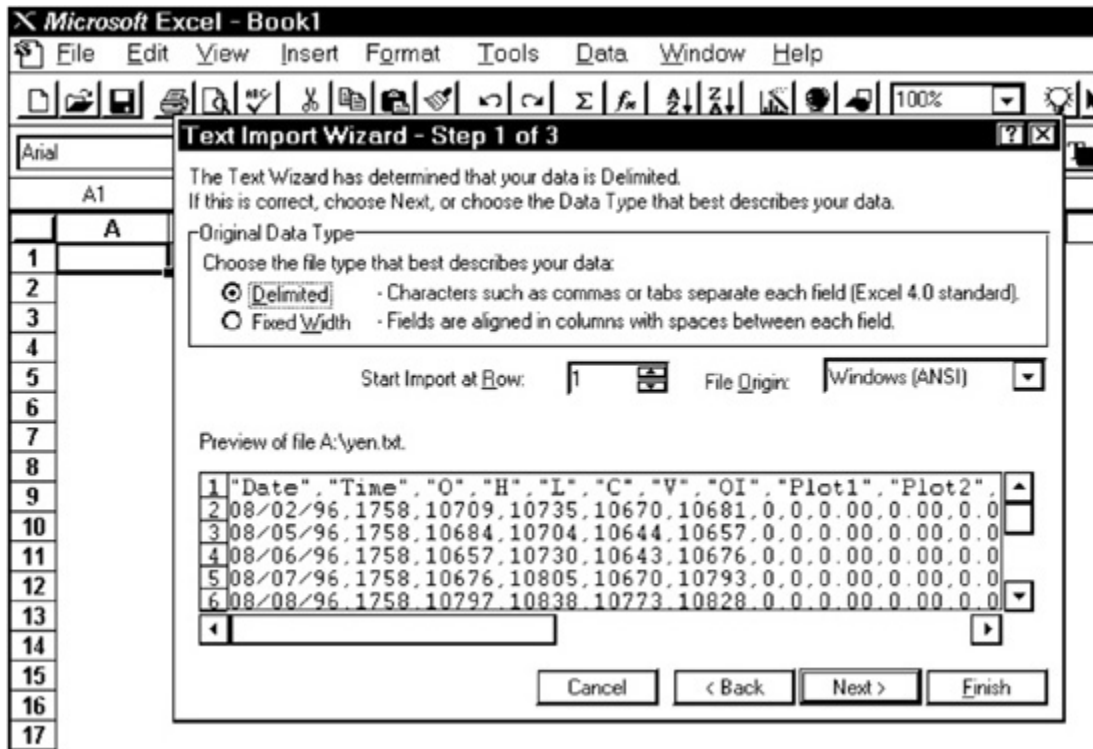


Figure 7.4

The second step is displayed by the Text Import Wizard. The options to select in [Figure 7.5](#) will be Delimiters—select Comma, and be sure to uncheck any others. I always have to uncheck the Tab box. The Text Qualifier should be the quote symbol. It may be your default as I never seem to need to change it. Click the Next button, and move on to the last step.

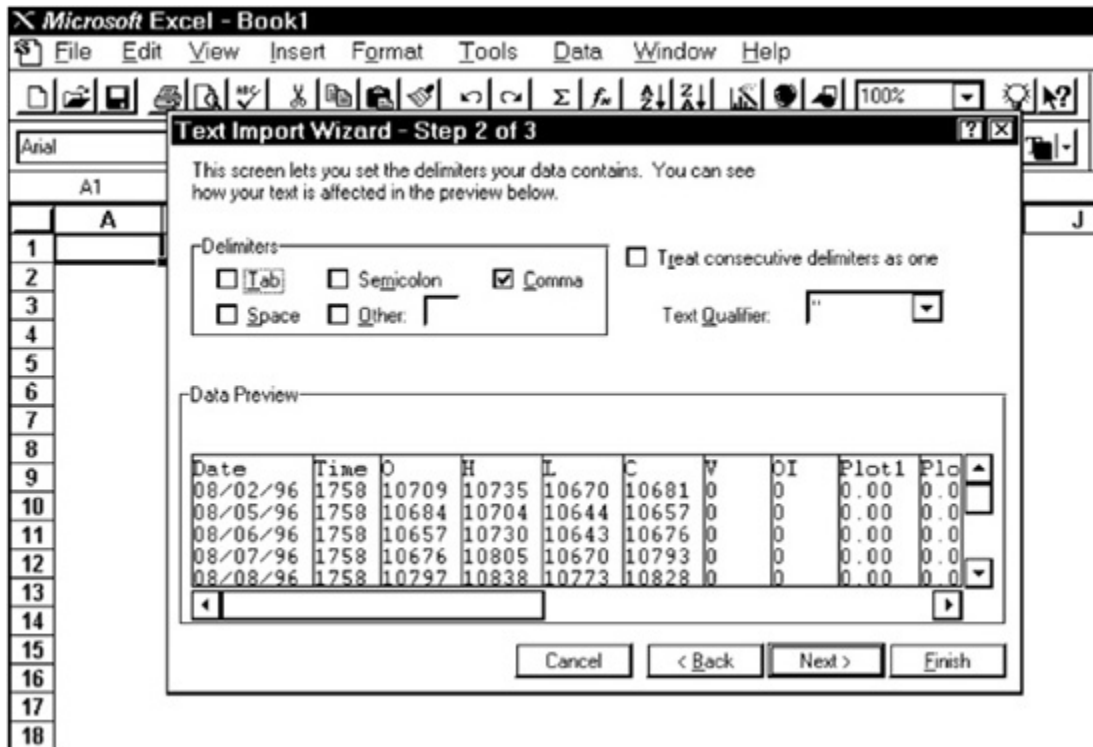


Figure 7.5

In the Data Preview group, click on the column of data that has the dates. The column should be highlighted and may already be highlighted when this screen first appears. Then we move to the Column Data Format options on the top right. Click on Date (General is the default that needs to be changed in [Figure 7.6](#)). The last step is to select MDY in the list for American users or DMY for the rest of the world. Now just click Finish.



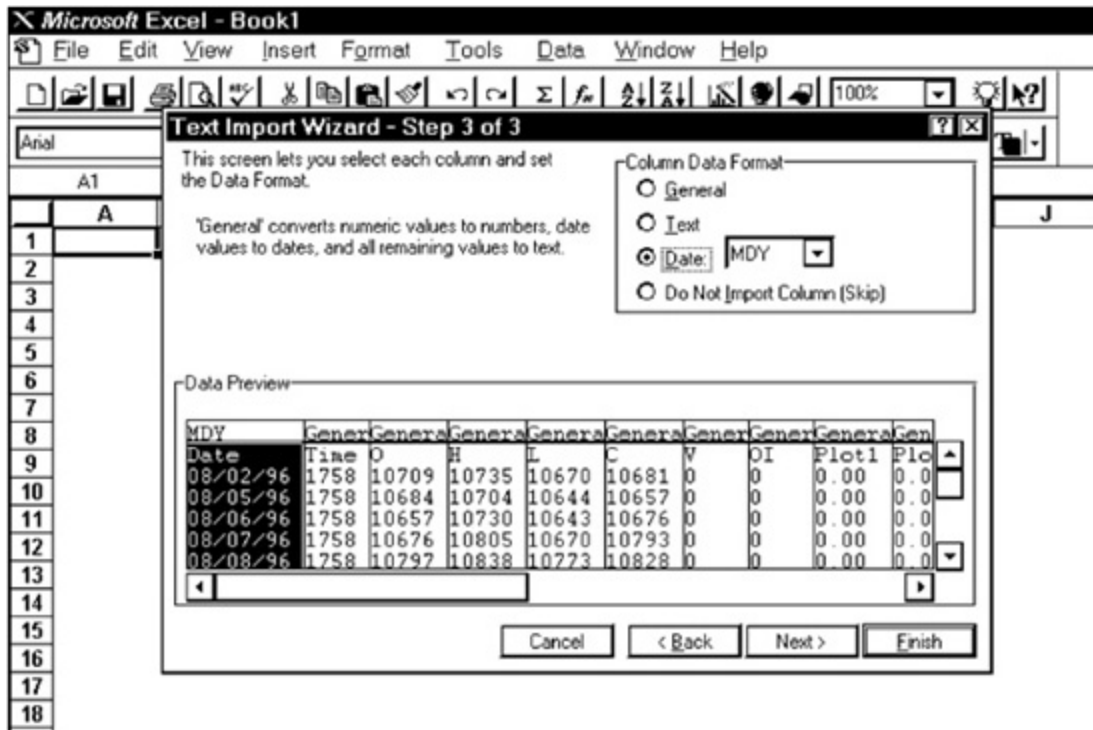


Figure 7.6

Voilà! It has been done. Your data and indicators have just been transferred into Excel and should look similar to [Figure 7.7](#). I would suggest saving the file immediately as an Excel file rather than as text. I will leave you at that step, knowing that you have data from which to learn how to create charts. It is up to you to learn how to use Excel. The charting is relatively easy. Just know that some of the reverse-engineering projections require you to know the indicator formula and to have Excel generate the results, rather than just plugging in the indicator values from TradeStation.



Microsoft Excel - yen.txt

File Edit View Insert Format Tools Data Window Help

Anal 10 B I U \$ % , +.00 -.00 100%

|    | A        | B    | C     | D     | E     | F     | G     | H     | I     |
|----|----------|------|-------|-------|-------|-------|-------|-------|-------|
| 1  | Date     | Time | O     | H     | L     | C     | Plot1 | Plot2 | Plot3 |
| 2  | 12/6/96  | 1758 | 11227 | 11301 | 11177 | 11290 | 52.15 | 57.23 | 56.92 |
| 3  | 12/9/96  | 1758 | 11299 | 11354 | 11286 | 11343 | 55.62 | 57.48 | 56.86 |
| 4  | 12/10/96 | 1758 | 11344 | 11373 | 11301 | 11338 | 55.21 | 57.05 | 56.79 |
| 5  | 12/11/96 | 1758 | 11338 | 11338 | 11262 | 11281 | 50.66 | 55.74 | 56.52 |
| 6  | 12/12/96 | 1758 | 11282 | 11364 | 11245 | 11313 | 53    | 54.61 | 56.37 |
| 7  | 12/13/96 | 1758 | 11312 | 11402 | 11274 | 11390 | 58.15 | 53.56 | 56.45 |
| 8  | 12/16/96 | 1758 | 11397 | 11433 | 11367 | 11385 | 57.71 | 53.79 | 56.5  |
| 9  | 12/17/96 | 1758 | 11382 | 11420 | 11342 | 11384 | 57.61 | 54.19 | 56.55 |
| 10 | 12/18/96 | 1758 | 11385 | 11395 | 11327 | 11362 | 55.47 | 55.07 | 56.5  |
| 11 | 12/19/96 | 1758 | 11360 | 11420 | 11336 | 11408 | 58.92 | 55.82 | 56.61 |
| 12 | 12/20/96 | 1758 | 11407 | 11441 | 11403 | 11430 | 60.49 | 56.36 | 56.78 |
| 13 | 12/23/96 | 1758 | 11423 | 11435 | 11387 | 11410 | 58.3  | 56.7  | 56.84 |
| 14 | 12/24/96 | 1758 | 11415 | 11457 | 11407 | 11457 | 61.8  | 57.94 | 57.06 |
| 15 | 12/25/96 | 1758 | 11445 | 11473 | 11440 | 11468 | 62.59 | 59    | 57.3  |
| 16 | 12/26/96 | 1758 | 11467 | 11510 | 11447 | 11494 | 64.46 | 59.71 | 57.61 |
| 17 | 12/27/96 | 1758 | 11492 | 11617 | 11472 | 11530 | 66.93 | 60.73 | 58.02 |
| 18 | 12/30/96 | 1758 | 11557 | 11626 | 11555 | 11622 | 72.24 | 62.36 | 58.63 |

yen

Figure 7.7

[Figure 7.8](#) displays the data and the RSI in an Excel chart. We knew the target for the RSI was point 2; it was the same indicator level that developed at point 1 where a Gann and Fibonacci confluence target zone overlapped. Now we can solve for  $y$  and determine the price that will move the oscillator to point 2. The projected price for the Yen/\$ is at 133.72. Excel can draw these new levels on the chart if desired. The last bar in this chart is the hypothetical projection.

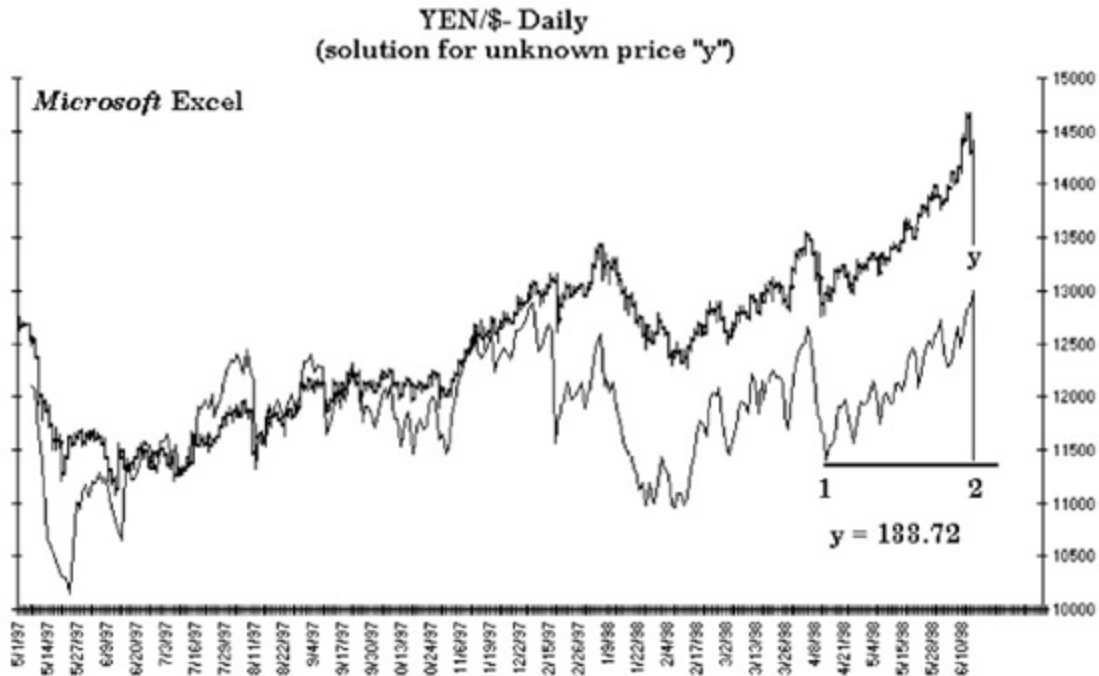


Figure 7.8 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

[Figure 7.9](#) returns us to TradeStation and the actual market move that developed on June 16, 1998. The price low that the market recorded was 133.67, based on Spot currency market. The difference between the estimate and the actual market price low could not have been much closer. The oscillator is just slightly higher than our original assumption and has not formed a perfect double bottom. The reason is that the market required more than one day to realize the objective. While it took four days for the market to realize the price objective thereby having an impact on the oscillator, it did not modify the price objective. This is not a method you will want to use for short intraday market moves. It is a method to consider when a significant market extreme needs to be identified in case the worst-case scenario develops. To determine a corresponding price, you can pick any indicator level you want. In fact, you can use any other indicator to reverse-engineer a price objective.



Figure 7.9 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

One of the most valued indicators I use to reverse-engineer an indicator to project a market move is displayed in [Figure 7.10](#). In the chapter that addressed trend lines, it was recommended that a horizontal line be plotted to mark the historic highs and lows for an indicator. This helps to keep in perspective the idea that an oscillator extreme displayed in the chart window is in fact a lifetime extreme or a lesser displacement that remains unchallenged over a long period of time. I will view a year of daily data and pick the maximum displacement extremes to establish a worst-case market scenario.

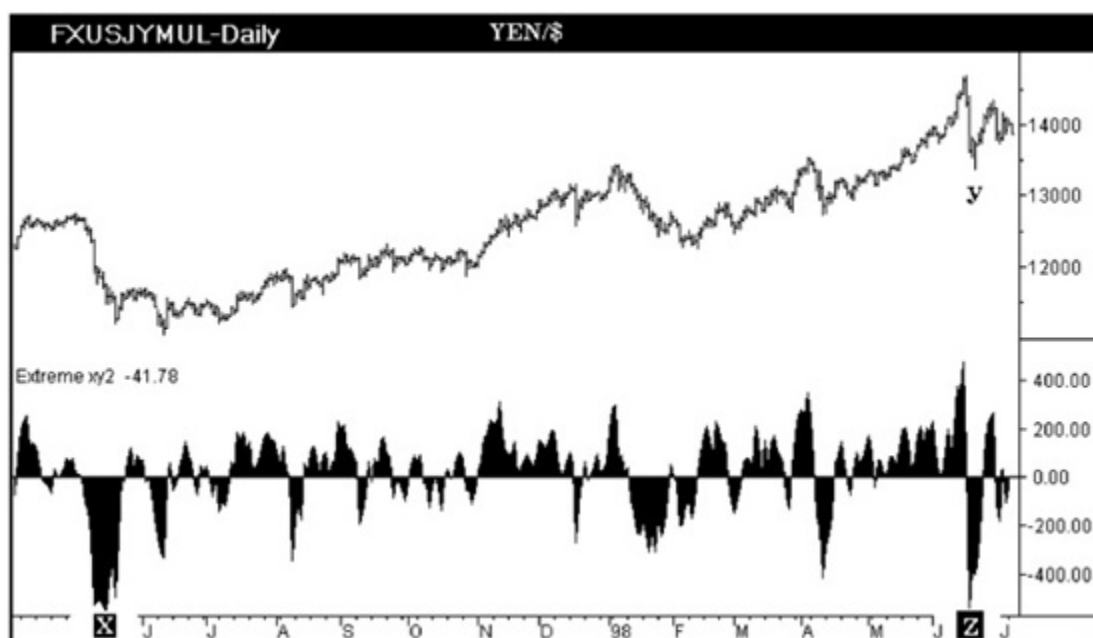


Figure 7.10

In [Figure 7.10](#) the extreme oscillator low at point X was clearly the maximum displacement in this daily chart of the Yen/\$ prior to June 16, 1998. The weekly chart warned that it was time to make a projection by solving for the unknown price variable  $y$ . The chart shows the actual displacement in this indicator when the market intervention on June 16, 1998, occurred. The oscillator at point Z was displaced an equal distance to that which occurred at point X. The price projection from this indicator which used an entirely different oscillator was 133.40. The chart itself shows the actual market move at point  $y$  that formed a market bottom at 133.67 low. What is this magical indicator displayed in [Figure 7.10](#)? The oscillator in [Figure 7.10](#) is just the difference between the closing prices and a simple short-period moving average on price. I made it look really fancy by plotting the same differential as a histogram and a line chart. The zero line is where the closing price crosses this simple moving average. Not so high-tech after all, but it works like a charm in extreme market situations.

The reason why the oscillator extreme was used to project a price extreme in June 1998 was that the weekly Yen/\$ chart displayed in [Figure 7.11](#) was recording a maximum displacement equal to the one seen in 1995. When a market records a displacement equal to the extreme unmatched over a three-year period, that is of great interest. The indicator in [Figure](#)

[7.11](#) is the exact one used for [Figure 7.10](#): the differential between market closing prices and a simple short-period moving average. The difference is that the displacement was just plotted as a line this time and the histogram and zero axis were not added. When you plot a moving average of prices as an oscillator, you are in reality just detrending the moving average, or in this case the differential between closing prices and the average. A detrended indicator is frequently easier to read when extremes occur.

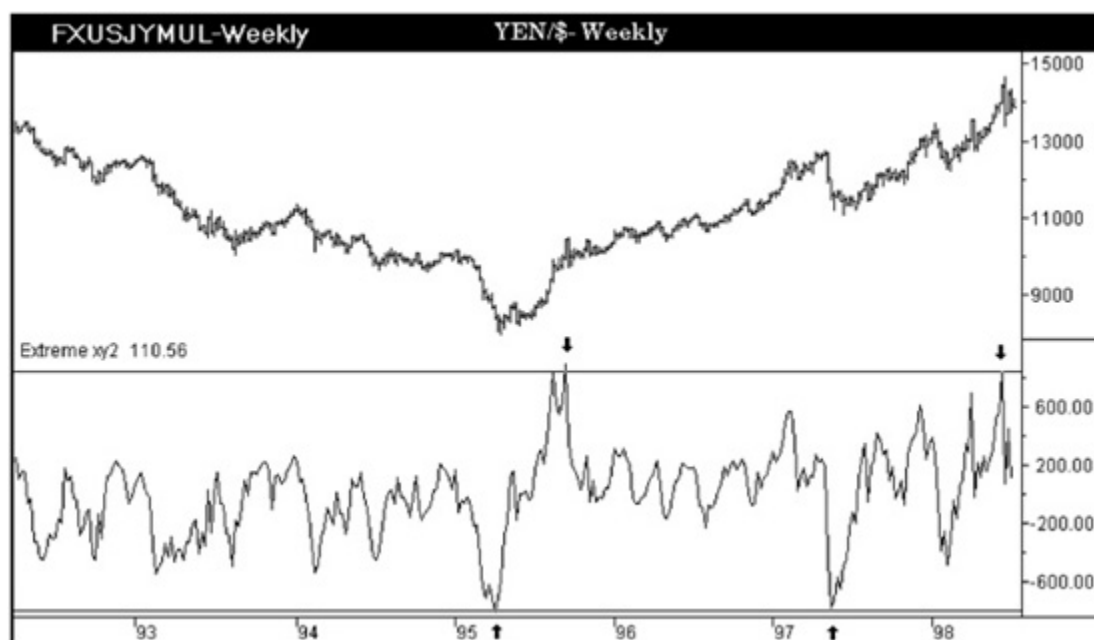


Figure 7.11 Aerodynamic Investments Inc., © 1996–2011,  
[www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

If the market realizes a price objective derived from reverse-engineering an indicator, and the indicator challenges the former historical displacement, as occurred in [Figures 7.10](#) and [7.11](#), what happens next? First, use the extreme that just occurred to define an intraday projection for the next extreme. In other words, assume the indicator is capable of making a double bottom the very next day as the market attempts to follow through on the prior day's emotional environment. The level you calculate for price  $y + 1$  day will be the intraday pivot point that will likely precede a forceful market move in the opposite direction. If the market produces an intraday move equal to  $y + 1$  day, you had better not be greedy and expect more from the market. As a major reversal often follows and the close for the market is much higher, the oscillator will never show you a double bottom

in the indicator. It will develop only on an intraday basis. The indicator will now be off the extreme low or high. My experience has been that you then need to allow, using this method, a minimum of three days to pass before calculating another extreme. The reason is that the indicator includes a simple moving average and needs about three new price bars to incorporate the new extreme displacement into the indicator formula and in effect to reset the price projection capability of the indicator.

Recall from the moving average discussion in [Chapter 2](#) that some indicator formulas will shift to a permanent position. Knowing an indicator shift could develop when new data enters the screen will explain why we need to refrain from using any indicator utilizing moving averages for price projection purposes until after it has shifted into its permanent chart position.

This method may be tested by a market only once or twice a year. However, I tend to calculate my primary trading markets for worst-case projections on a regular basis when extreme conditions are possible or present. It is used on the days that a shock wave hits the market with unexpected news. Usually the support or resistance table I have defined for a single day's session is quickly exceeded, and I then know the worst-case price projection is the more probable target. It is a price objective that offers a secure milestone when others become engulfed in total panic and chaos. It is really comforting to sit calmly with a price objective in hand when others are madly scrambling around you trying to figure out where the market's unexpected move could be heading. The preparation is well worth the effort.

As a final note for this particular application of price projection in extreme environments, S&P traders should calculate both the Cash S&P and Future price extremes. In a meltdown or extreme advance, only one index will realize the extreme projection. Usually it is the Futures market, but I have been grateful to know that Cash has realized an extreme without Futures and taken the appropriate action to unwind immediately. That is a significant signal that means step to the sidelines whenever this technique has a price objective realized.



## Chapter | 8

### PRICE OBJECTIVES DERIVED FROM POSITIVE AND NEGATIVE REVERSALS IN THE RSI

Of all the methods in the first edition, this method of recognizing positive and negative reversal signals in RSI was the most often incorrectly applied technique by early readers. Part of the problem is the change in market volatility. But the primary reason for the misunderstanding is not recognizing when a method is an analytic method versus a trading technique. I had written that this is one of the methods I use along with Fibonacci, Elliott and Gann analysis, but I never gave you a detailed example to show when a method *changes its weighting* and becomes far less favored when it becomes part of the decision tree for trading. Therefore, I now have the opportunity to clarify the use of reversal signals in general and to develop a new discussion about the differences between tools that help us analyze markets versus those better suited to trade them.

The original discussion defining the signals themselves remains valid. The signals form in all markets and all time horizons from long term to very short intraday intervals. Even the example using the Deutsche Mark is valid because there is a very real risk the EURUSD will uncouple and cease to exist in its present form. [Figure 8.1](#) uses bold lines to mark the conventions of bullish and bearish divergences present in this weekly DMK/\$ chart between the price data and indicator. Bearish divergence occurs when the market forms a new price high *on close* that is not confirmed by the indicator. In this chart the RSI is clearly at a lower peak when the closing price high is recorded. Conversely, bullish divergence will occur when the market makes a new price low *on close* and the indicator does not. This must be firmly rooted now within your technical skills before moving on. If you are still training your eye to recognize divergences, consider skipping this chapter until a later time. Reversal signals and divergence signals develop in oscillators on opposite sides of a momentum channel. Therefore, focus first on divergence relationships between oscillators and price before tackling reversal signals relative to price.



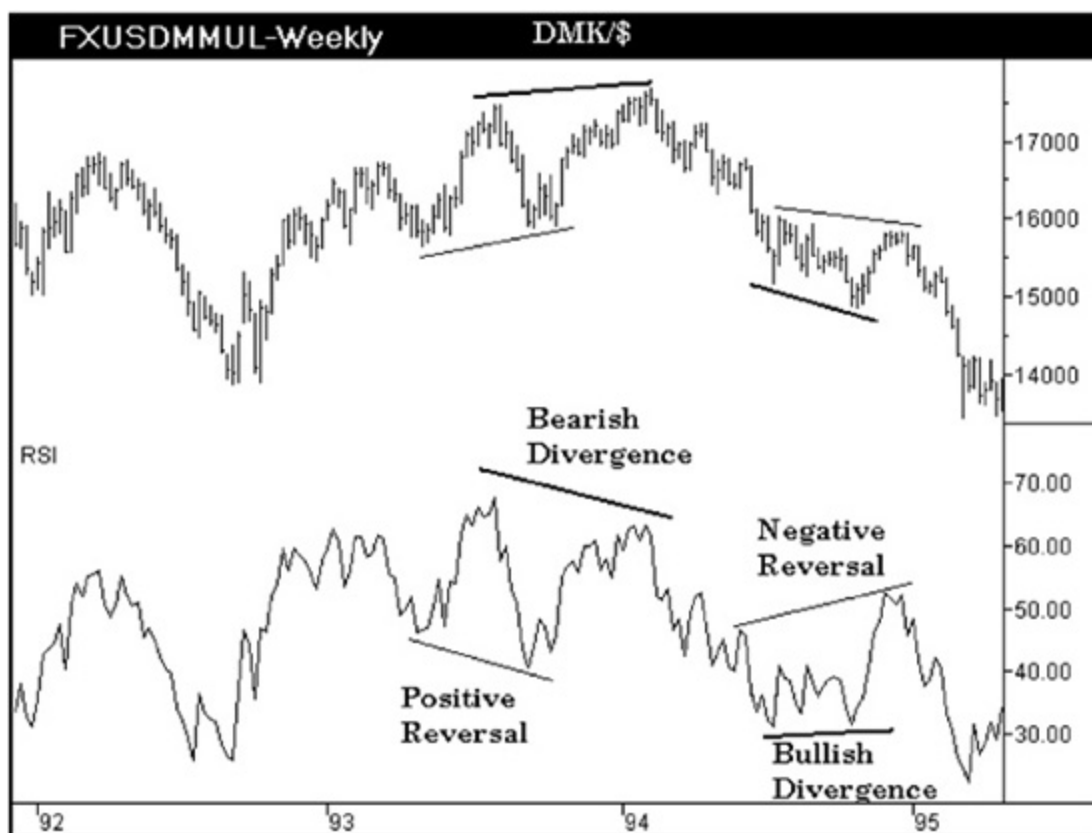


Figure 8.1 Aerodynamic Investments Inc., © 1996–2011,  
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[Figure 8.1](#) conveniently has both bullish and bearish divergences in the same chart and displays examples of the new RSI signals that offer rough estimate price projections. The new signals are called *reversals*. There are *positive* and *negative reversals*. In a positive reversal, the RSI will develop a new oscillator low relative to a former oscillator low when the price data is at a *higher* pivot low. Look at the positive reversal in [Figure 8.1](#). It makes perfect sense that this indicator pattern would be bullish as the oscillator is becoming oversold when the market is trading at a higher level. This tells us that the market is building underlying strength when this indicator formation is present. Conversely, a negative reversal develops when the RSI is able to develop a new momentum peak relative to a prior oscillator peak, but the closing price associated with the new oscillator peak is at a *lower* price level. As the oscillator is becoming overbought when prices are at a lower level, it warns that the market is beginning to erode and become weaker.

In [Figure 8.1](#) a positive reversal pattern is labeled that forms from fairly blatant oscillator lows. *Reversal signals do not have to be at oscillator peaks and troughs that form extremes.* The negative reversal in [Figure 8.1](#) shows that the first RSI peak is not at an obvious extreme pivot. However, the second RSI pivot high on the right side of this negative reversal signal is clearly associated with a lower closing price. This will be clearer when the price projection method is discussed. When an RSI reversal signal occurs within the larger trend for the oscillator, it is called a *hidden signal*, and they can be much stronger market signals than reversals that form at blatantly obvious pivot extremes. (This observation can be said about most oscillators. The strongest signals are often those more subtle and closer to the zero line or under two averages crossing over on the oscillator.)

The positive reversal in [Figure 8.2](#) is the same signal introduced to you in [Figure 8.1](#). It now has three oscillator pivots labeled: two oscillator lows I have arbitrarily called pivots W and X, then an oscillator high marked Y that is the highest momentum extreme located between points W and X. Frequently the momentum high will not be the closing price high as oscillators form divergences with price. We will always look for the momentum peak that is the highest level for the positive reversal price projection calculation. Keep in mind that the closing price for a price bar is used, not the high or low, when we want to know the associated price for the oscillator pivot. Any method that only sees closing prices cannot be used for trading purposes and should never be used to calculate or assess stop placement. That is why this is only an analysis method. The negative reversal has three oscillator pivots labeled W, X, and Y, where Y is the extreme momentum low between points W and X. As described for a positive reversal, the momentum extreme at point Y in the RSI may not be the actual price low because divergence may be present. The oscillator will always determine the correct closing price to use.

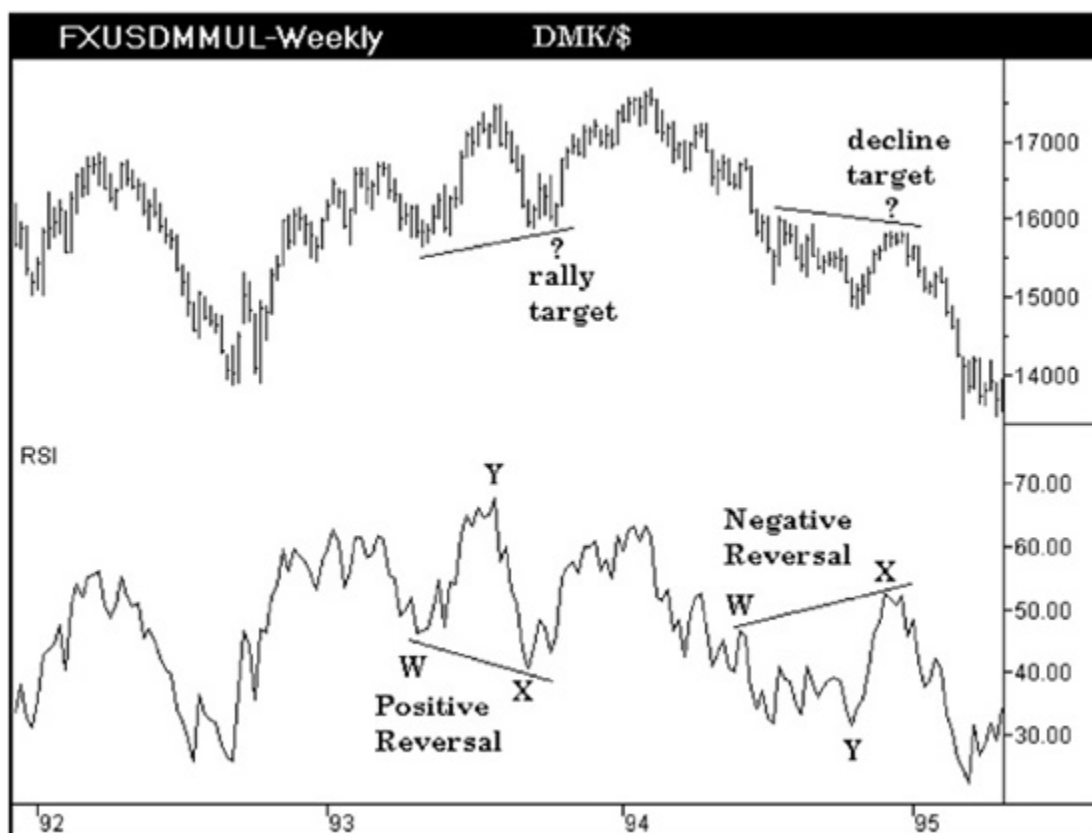


Figure 8.2 Aerodynamic Investments Inc., © 1996–2011,  
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To make a price projection from a positive reversal signal, use the following formula:

$$(X - W) + Y = \text{the new price target}$$

In [Figure 8.3](#) the closing price associated with the RSI low at point W is 1.5835. The closing price associated with the RSI low at point X is 1.5957. In a positive reversal the closing price associated with point X must always be greater than or equal to the closing price associated with the RSI pivot at point W. It is this positive differential that defines a positive reversal signal in the indicator. Therefore, the price projection from near 1.5957 is  $(1.5957 - 1.5835) = 0.0122 + Y$ . The differential is then added to the closing price associated with the momentum extreme at point Y. The closing price that corresponds to the momentum high at Y is 1.7415. Therefore, the final target is the differential  $0.0122 + 1.7415 = 1.7537$ . The actual price at close

on February 11, 1994 was 1.7540, and it marked the end of the dollar rally at that time.

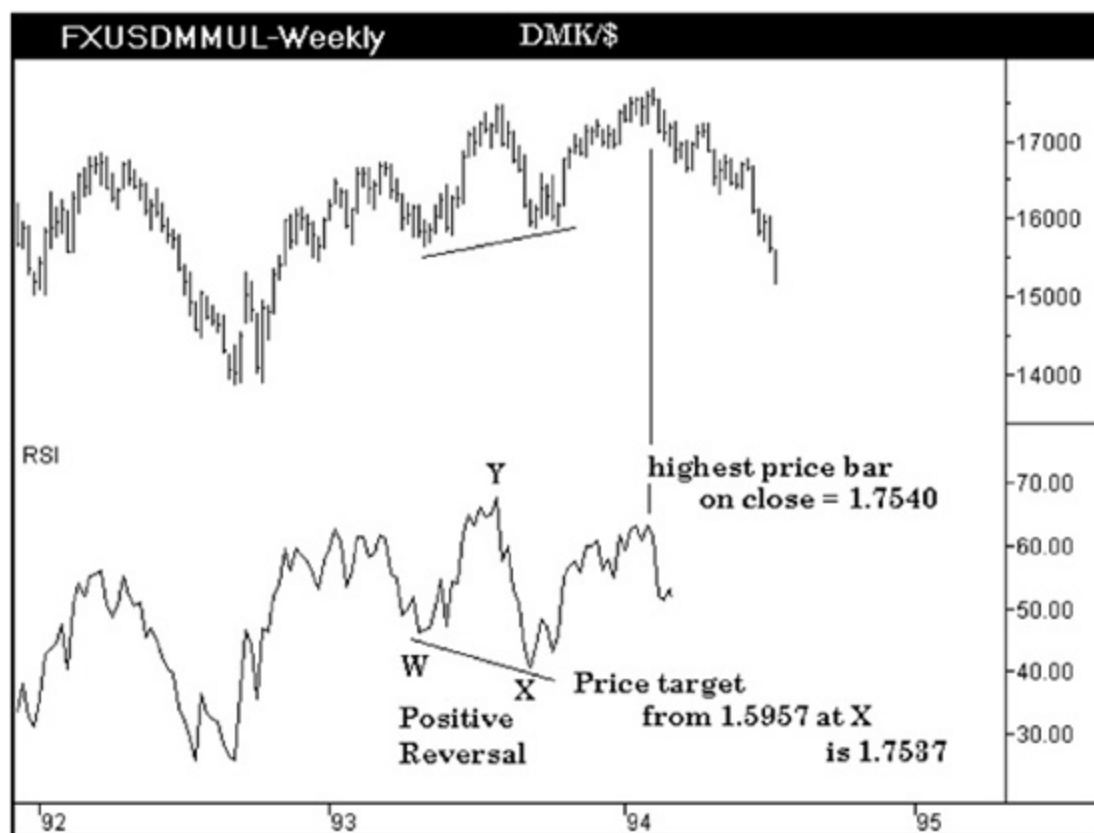


Figure 8.3 Aerodynamic Investments Inc., © 1996–2011,

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The formula to use for calculating an estimated market decline from a negative reversal is as follows:

$$Y - (W - X) = \text{the new price target}$$

In a negative reversal the second pivot high at point X will always be less than *or equal to* the associated closing price at point W. Therefore, the points that create the differential are switched, and the result must be subtracted from the closing price associated with the RSI oscillator extreme at point Y. The signal in [Figure 8.4](#) is actually a negative reversal that follows a series of price projection signals within this decline. We will look at each of these negative reversal signals and the price targets that develop in [Figure 8.5](#).



Figure 8.4 Aerodynamic Investments Inc., © 1996–2011,  
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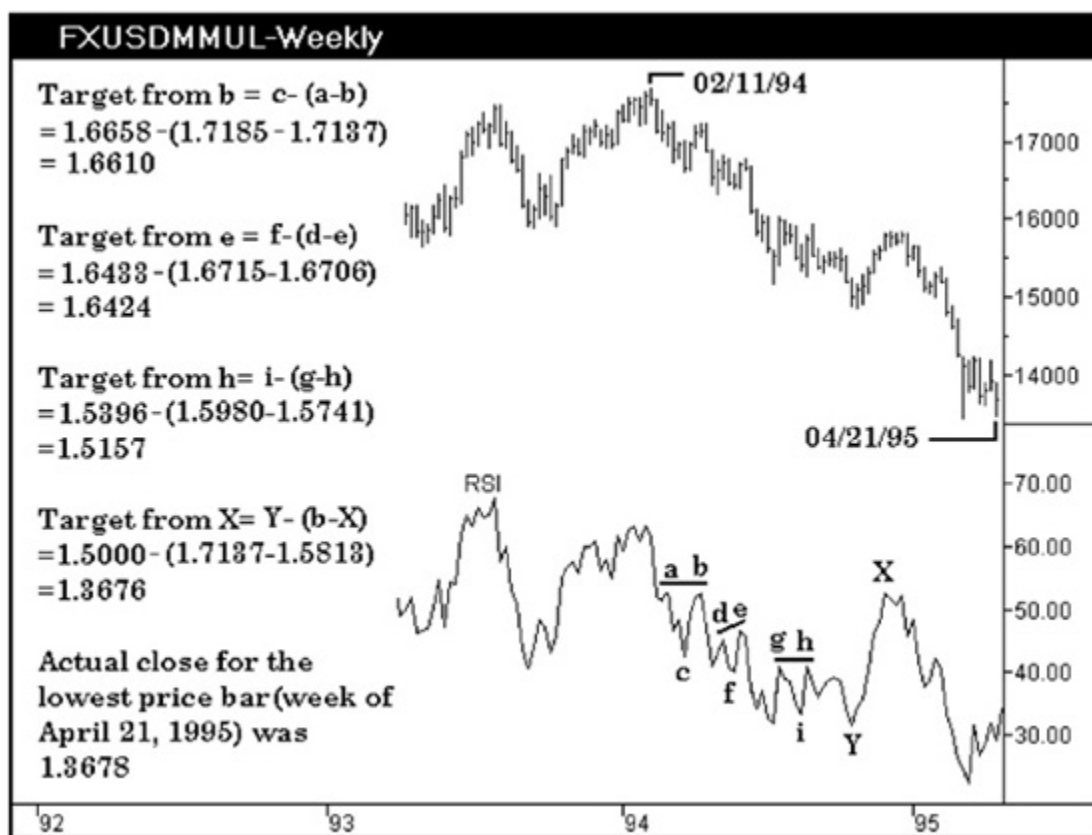


Figure 8.5 Aerodynamic Investments Inc., © 1996–2011,  
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There are four negative reversals labeled in [Figure 8.5](#). (There are actually eight signals present. Can you locate the other four?) The three pivots that we use to make the price projection will name the signal being described. The negative reversals labeled in this chart are signals abc, def, ghi, and bXY. There are also signals at eXY and hXY. EXY is in fact the same signal marked in [Figure 8.4](#) as WXY.

The target from the RSI pivot b is calculated  $c - (a - b)$  to obtain the new price objective. Therefore,  $1.6658 - (1.7185 - 1.7137) = 1.6610$ . The target from the RSI pivot e will equal  $f - (d - e)$ , or  $1.6433 - (1.6715 - 1.6706)$ , which equals 1.6424. The third target is from pivot h. The formula to use is  $i - (g - h)$ . The results are  $1.5396 - (1.5980 - 1.5741)$ , giving a 1.5157 objective for DMK/\$. Finally, the last signal is bXY, where the price objective from X is calculated using the formula  $Y - (b - X)$ . Therefore,  $1.5000 - (1.7137 - 1.5813)$  offers an objective at 1.3676. As mentioned in the beginning, the actual close for the price bar that ended the

decline was 1.3678. Because of the range rules that define a trend using a 14-period RSI discussed in the first chapter, a 14 period should always be used for RSI in all time horizons.

Sometimes Forex traders ask, “Why are my spot prices different from yours?” Some traders who have been in the business for years are unfamiliar with how their Spot market data is created. So I had better digress for a moment and explain why differences can occur.

The major quote vendors—Reuters, Bloomberg, TradeStation, and CQG, to name just a few—must create Forex spot market quotes from contributing banks and major financial institutions which report their trades to the vendor. This information is gathered in several ways. Some contributors have trades captured and electronically transmitted directly to the vendor with exclusive agreements. Other data vendors collect trades in secondary ways. Sometimes it is the bid and ask that is reported by a contributor and not an actual market level that was traded. Regardless, the more contributors a vendor has reporting trades, the more accurate will be their market indication. Reuters has the largest number of contributors reporting Forex market levels at this time. Bloomberg was second when last I checked before the 2008 bank implosion. Software vendors are constantly trying to collect as many contributors as possible for their exclusive databases so that the more esoteric cross rates and secondary markets can be given fair market value indications. What this means is that if you are working with TradeStation data, as an example, you may have different price ranges from a Forex trader using Reuters. If you have a vendor that is primarily a retail stock specialist, the data for a Forex trader using the same quote system may find significant differences at times that do not meet your needs. Some of these products allow third-party data feeds and that solves the problem. But this is just a heads-up that problems with limited and different data sources into the various software platforms will exist. Futures traders must have access to the spot market. Targets and technical analysis should be done in both if you trade futures only.

The weekly DMK/\$ chart in [Figure 8.5](#) offered a perfect example that was chosen to introduce you to reversal signals in RSI. But there should be a lot of questions in your mind before the signals can be used in a real-time environment. Questions I would raise about any method or formula that was new to me are the following:



1. Does the indicator work equally well for any market in any time horizon? The method and techniques you favor should work in any market. However, you may find one method could be favored over another when markets accelerate versus stall in consolidation ranges. For example, a simple detrended moving average plotted as an oscillator is useful in strong trending environments.
2. Is the indicator as useful in a rising market as it is in a declining market? How would you check this? Use the cross-hairs on your pointer and then scan from right to left across the entire history of data available. Look at the amplitude of the signals as a displacement from zero. Look at the pattern of the signal. Does the oscillator form a simple inverted ^ top and then require a W-shaped bottom before the market actually turns? At momentum extremes do you find these align with the ends of third waves in price and then divergence is needed to fit the timing where a fifth wave move ends before a bigger trend change develops?
3. Does the signal or method work equally well in times of low and high volatility? Keep in mind markets moving day after day in a straight line have low volatility. When markets chop back and forth with wild swings the volatility is high. Volatility does not imply trend. Here is where RSI reversal signals do not perform consistently well. When markets chop or see-saw back and forth, how accurate is the price objective so you know where you are wrong in a timely manner? RSI cannot see price ranges because RSI uses closing prices in its calculation.

The calculation developed by J. Welles Wilder for RSI is stated as follows:

$$RSI = 100 - [100 / (1 + RS)]$$

where  $RS = \text{Average of } n \text{ period closes up} / \text{Average of } n \text{ period closes down}$ .

The formula begins with calculations for average gain and average loss over the past 14 averaged periods. The average gain and loss is determined by using closing prices only.

- First average gain = sum of gains over the past 14 periods/14
- First average loss = sum of losses over the past 14 periods/14

Reversal signals only ‘see’ the closing prices and are therefore better suited to analysis work than risk management in trading applications. In Wilder’s formula when RSI is 0 the average gain equals zero. In a 14-period RSI a zero value would mean all 14 days within the formula had closing prices that moved lower. It never knows if the DJIA experienced a 1,000 point swing before the market close.

4. How much time after any signal does the market take to react?  
Consider opportunity costs as a risk exposure variable when you evaluate a technique. Sitting on a position going nowhere is costly if other markets are moving in fast trends that you would have traded had your capital not been tied to a ship anchor.

5. *Is this a signal that has merit as a trading signal?* This is the question I did not list in the first edition. A signal can keep you on the right side of a market trend, but it may not improve your market timing to enter and exit positions. Trading signals limit your capital drawdown exposure and allow you to react quickly and see follow-through in the market shortly after. The NYSE Advance-Delay line is not a trading tool as it can stay at extremes for very long periods of time with no reaction in price. It has no ability to time the market. For outright buy/sell position traders the VIX is not a trading tool as the extremes give you no help on correct market entry or exit timing. Option traders will speak out loudly against this view, but they trade implied volatility and cannot enter stops based on market levels. The VIX is of little value to a futures trader who simply wants to buy and sell outright positions.

Positive and Negative RSI reversal patterns cannot “see” the full price range of a bar. Therefore using the price targets derived from these signals as a place to hide stops would be an inappropriate use of the technique. However, the reversal patterns themselves give guidance with merit in trends and transitions. Therefore they are of value in strategy development and better left off the battlefield.

6. Why does an indicator work and how do you increase the probability of its accuracy? Under what conditions will the indicator fail? What is the probability it will fail? A signal that fails with high probability can also be valuable because it is consistently wrong.

Use this indicator pattern within the RSI to explore some of these questions. We know the weekly DMK/\$ chart offered a perfect scenario from which to learn how to identify future market objectives from the RSI reversal signals. But do these signals work equally well in other markets? [Figure 8.6](#) is a weekly chart of the S&P 500 futures market. This example uses a weekly time horizon to keep the time interval the same, only changing the market for comparison. The April 1997 low allowed the RSI to form a low that was below the oscillator extreme recorded in 1996. As the oscillator pivot at point X is produced from a higher price level, there is another positive reversal signal present. The target the signal offered at 911.35 was realized and then was significantly exceeded. It confirmed the trend, but if you exited the trend because of the target from this signal, how would you reenter the position? The market keeps going with no significant retracement. Strong trends actually need indicators that are not normalized in a 4:1 time comparison. Moving on, we need to consider how this indicator performs when a monthly chart is evaluated or an intraday time interval is the focus.

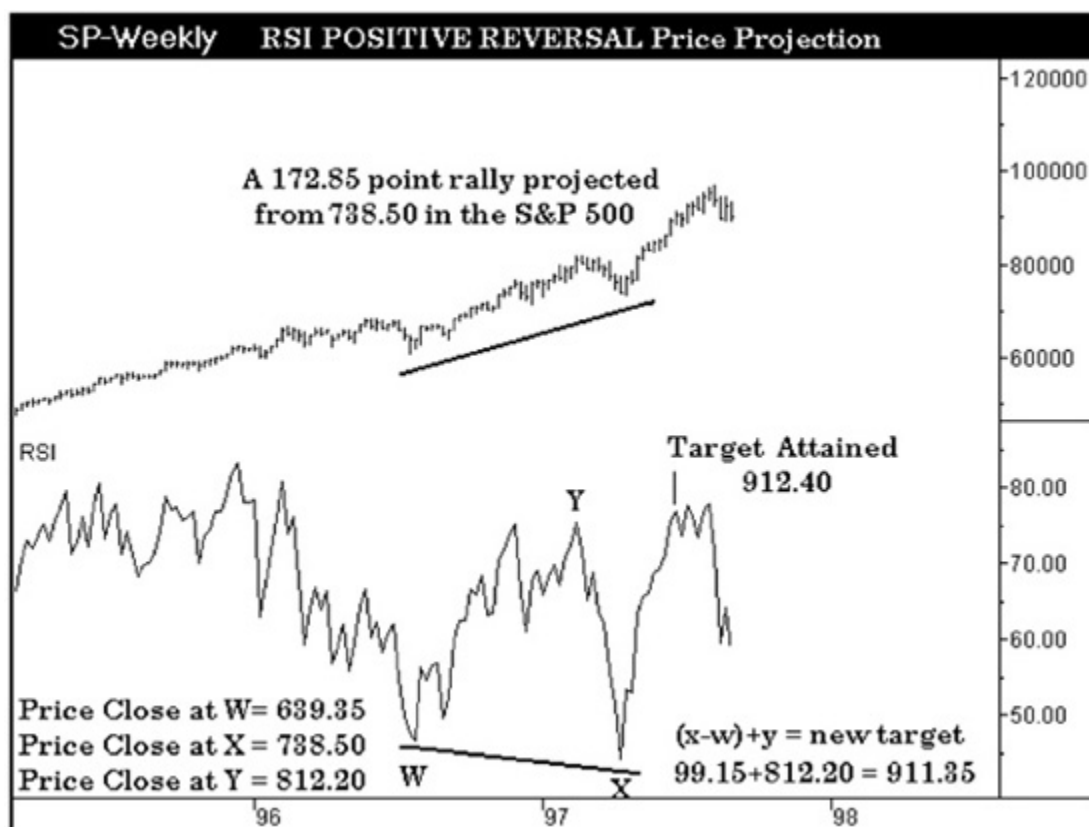


Figure 8.6 Aerodynamic Investments Inc., © 1996–2011,  
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The monthly chart of the S&P 500 Index is displayed in [Figure 8.7](#). The positive reversal signal that formed in 1997 in the weekly chart was just one signal within an entire series of positive reversals that had developed throughout the monthly chart. Signals *abc*, *bde*, *fgh*, and *ijk* have all had their price objectives realized by the market. The method is true to the trend indicated, but gives no indication as to how rough a ride it could be toward the target. The signals do not give a sense of how strong the trend will be that follows. That is true of any oscillator, but the positive reversal has a pivot low within the target calculation that fails to mark the exact market entry. Pivots *b*, *d*, *g*, and *j* are not the final price lows before the larger trend resumes. Therefore this again shows that this method is better suited to analysis work that develops strategy rather than market entry/exit trading applications, because it has limited value for execution tactics.

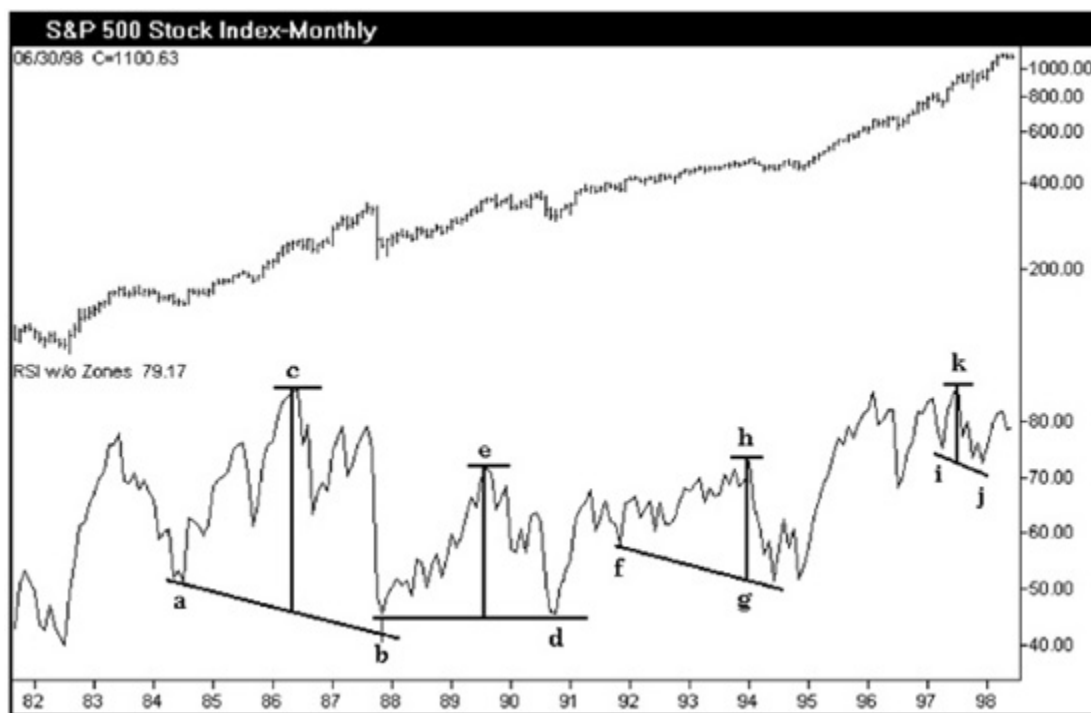


Figure 8.7 Aerodynamic Investments Inc., © 1996–2011,  
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Source: TradeStation. © TradeStation Technologies

There are numerous smaller signals not marked in this chart, but as their price projections are inconsequential now, they are not labeled. The crash of 1987 produced an enormous positive reversal signal in the RSI with point *b* forming a bottom above the 40 level, which we know is the support range for the RSI within the context of a bull market. Then we see that the three signals that follow develop at higher levels. The RSI pivots that form at *i* and *j* are at a higher level on the RSI *y* axis than the pivots that form at points *f* and *g*. This is an interesting observation that would make one wonder at what point could these signals warn of an end to the expansion cycle in the market and the uptrend. This question can be answered by comparing signals that form *along the same horizontal level*. Does the market always respect the signals that develop in the same range where pivots *i* and *j* are located? Can you determine a probability from such a comparison? The answer is yes. Study how many times a signal develops on a specific support or resistance level within the indicator.

Be aware that the amplitude, or distance between the momentum highs from the RSI pivot lows, are becoming narrower. The rise from point *b* to *c* is much wider than the rise from point *d* to *e*. Each has a narrower rise than the previous signal. Now we are beginning to actually think about what makes an indicator work and to question what has to occur when it has its best performance. Another observation is that the number of periods that separate points *i* and *j* are less than the spread between points *f* and *g*, which in turn is less than the spread between *b* and *d* or *a* and *b*. Therefore the element of time has entered our evaluation of the signals. When signals develop quickly they have a higher probability of being correct.

Our curiosity should prompt us to ask if these same characteristics can be observed in different markets with uptrends? What happens in downtrends?

[Figure 8.8](#) is a segment of the weekly S&P market that developed a positive reversal signal. Segments of the signal are labeled so a statistician could study them. Does the amplitude impact on the signal's accuracy? Does the spread or delta of *X* minus *W* make a difference? The answer is yes because the tighter, or the less time the pivots need to form the signal, the higher the probability that the signal's targets will be realized. You will find segments of five hand-drawn RSI charts on the last five pages of Chapter 14 to illustrate the concluding Zen story. They show you how detailed my examination of RSI signals was in the early years of my career.

Do signals of this nature develop in other formulas? Yes they do. You can take the spread of two simple moving averages and find reversal signals develop in any detrended oscillator.

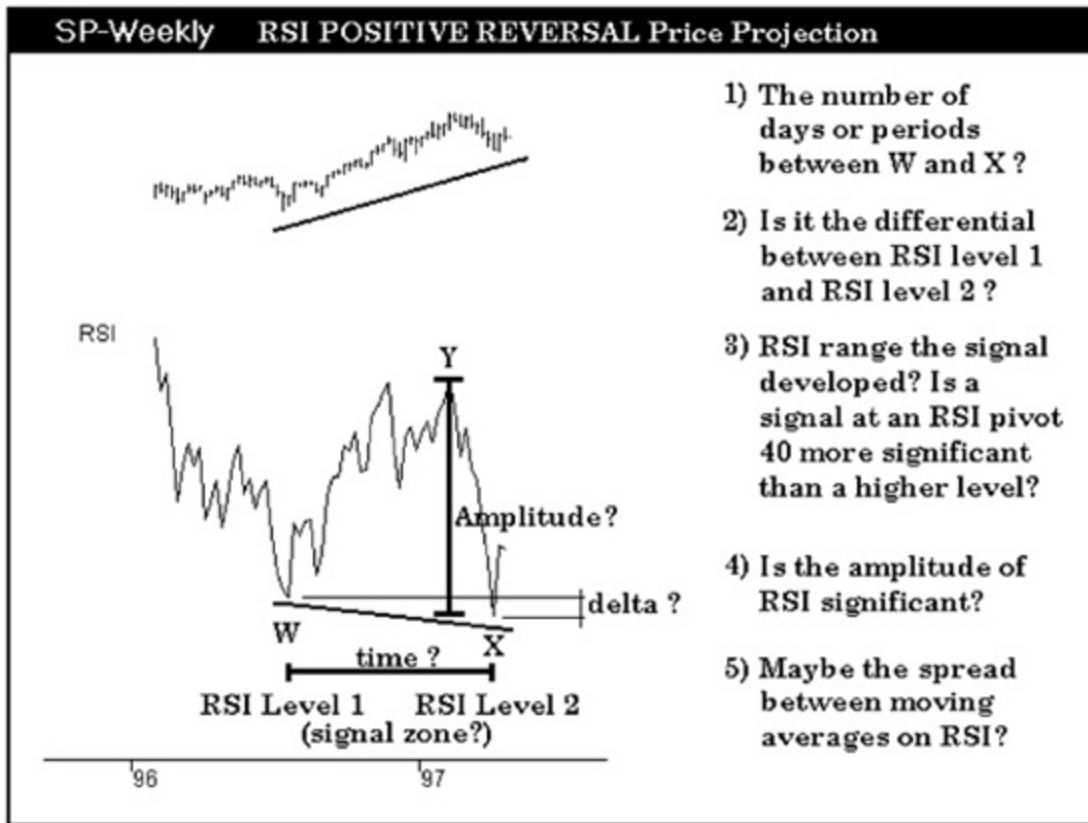


Figure 8.8 Aerodynamic Investments Inc., © 1996–2011,  
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[Figure 8.9](#) is the monthly Gold chart captured on August 2, 2011. It is a real-time working chart with wave structure and targets still displayed. The rally is believed to be working toward the end of wave iii up with the implication that the uptrend is incomplete but starting to get a little over extended. There are three different oscillators under the data: my Composite Index which has momentum imbedded within a very fast RSI (more will follow on this oscillator in [Chapter 12](#)); the middle oscillator is the Wilder 14-period RSI with two averages; and the bottom oscillator is the simplest one of all as it is a detrended average.

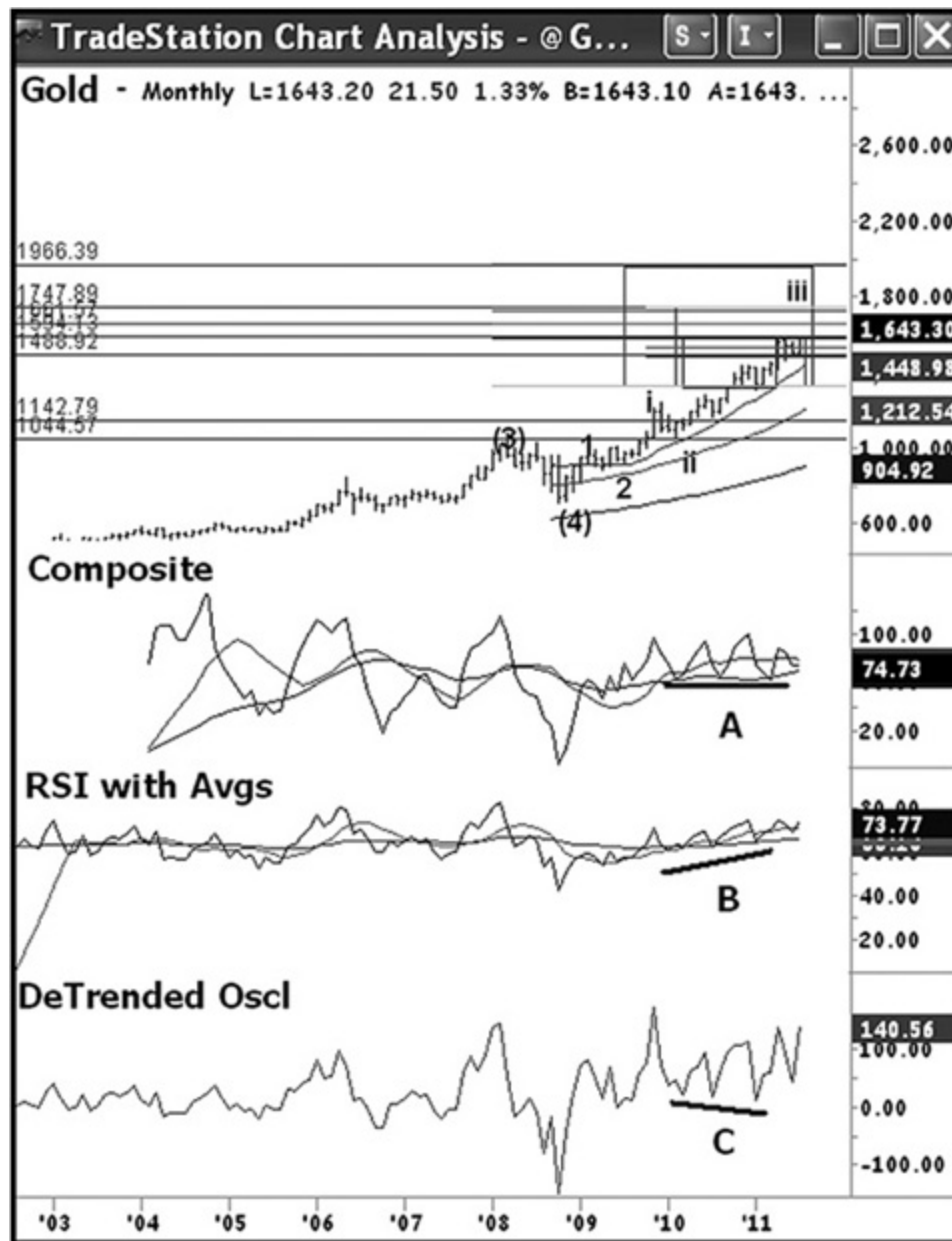


Figure 8.9 **Aerodynamic Investments Inc. Daily Market Report.**

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A detrended average uses two moving averages on price. I used a one-period average that simply connects the closing prices, then a fairly fast moving average like a 13-period simple moving average. When the slower moving average is at the point where the two averages are the same value (the slower average is about to cross through the faster average), the spread



between the two averages is zero. When the two averages separate, the spread is positive when the faster average is above the slower. It is vice versa for downtrends, as the faster average will track below the slower moving average, yielding a negative spread between the two. Plot the spread of the averages as a displacement from zero and you have created the simplest oscillator possible. In flash crash scenarios this is the best oscillator to use. However, all oscillator indicators are similar. They all use the difference between two. When plotted as a spread differential above or below zero it is considered to be a detrended technique. However, not all will be normalized by forcing them to track between zero and 100.

In [Figure 8.9](#) there is a strong uptrend in Gold in 2010. A line has been drawn under the three different oscillators labeled A, B, and C. In this strong uptrend the *only* oscillator that did not develop positive reversal signals was the 14-period RSI along the line B under the RSI indicator. The detrended oscillator in C produces the reversal signals that are the most pronounced and easiest to read. I read the signals forming in the Composite Index and detrended oscillator as confirmation of the uptrend. However, I have no interest in calculating their respective price objectives because I know I have other methods that are far more accurate than we have discussed in earlier chapters. We also have the new Gann chapter approaching in [Chapter 9](#) that will reveal far more to you than was released in the first edition. Between Gann and Fibonacci confluence targets this method does not come close for developing trading targets. However, the pattern formation remains of value and forces us to look deeper into our other methods when these formations develop.

This chart in [Figure 8.9](#) happens to contain a method using boxes to make geometric targets along with Fibonacci projections that are more accurate. The boxes are projections from internal wave structures which use full price ranges within earlier parts of the move. It is like a swing trader projecting equality relationships to earlier price swings, but this method utilizes the mid-point of the developing trend to project the future swings and subset corrections that will develop based on geometric relationships. This method is fully detailed in my book *Fibonacci Analysis*.

RSI was not the only formula for developing positive reversal signals to reinforce and confirm the trend, but the RSI is the only formula that tracks the ranges discussed in [Chapter 1](#). The RSI lows along line B also hold the

moving averages on the RSI indicator. This offers a place to add or reestablish a position that may have been scaled back.

Recognize that the simple detrended oscillator with signals along line C just outperformed the RSI signals in this Gold chart. Oscillator lows along lines A and C are positive reversal signals in formulas that are not normalized. This means they can travel as far away from zero as required in a strong trend to separate two moving averages. Oscillators in the style of line C can be used to compare historic crashes.

This is an extremely important study. The week of November 10, 1929 established an oscillator extreme that was used as a comparative benchmark in future market extreme events. With the extreme in place near  $-75$  from the 1929 Crash, a horizontal line is drawn to record the extreme placement in [Figure 8.10](#). What followed from this momentum low was the historic 50 percent counter-trend retracement in the Dow Jones Industrial Average that lead to the devastating slide into the 1932 lows. The declining swings that followed the rally into the weekly high of April 15, 1930, never again moved the oscillator to such an extreme displacement below zero as occurred in the first swing down into the November 1929 low.

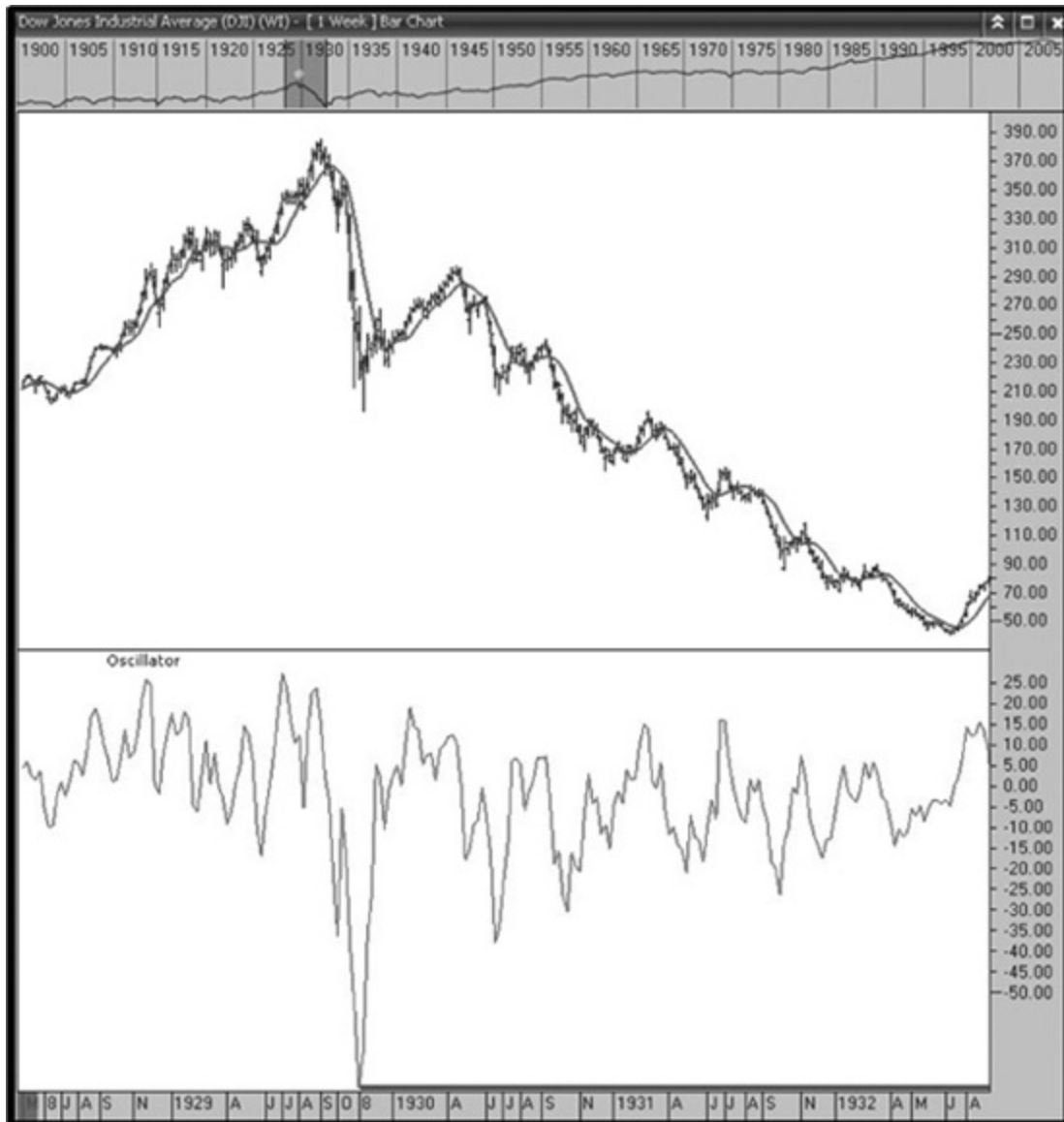


Figure 8.10 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: Charts by Market Analyst 6, © 1996–2011

In [Figure 8.11](#) the history of the weekly oscillator in the DJIA market does not challenge the 1929 extreme displacement again until the week of November 28, 1973. A new historic momentum low is established. Take notice that the old extreme displacement created in 1929 must be tested again as support before a major market reversal can be sustained. The challenge to the 1929 extreme displacement occurred the week of September 10, 1974 and from this momentum low begins the multi-decade

bull market that follows. *It is important to see the pattern that old extremes are tested after new historic lows are made.*

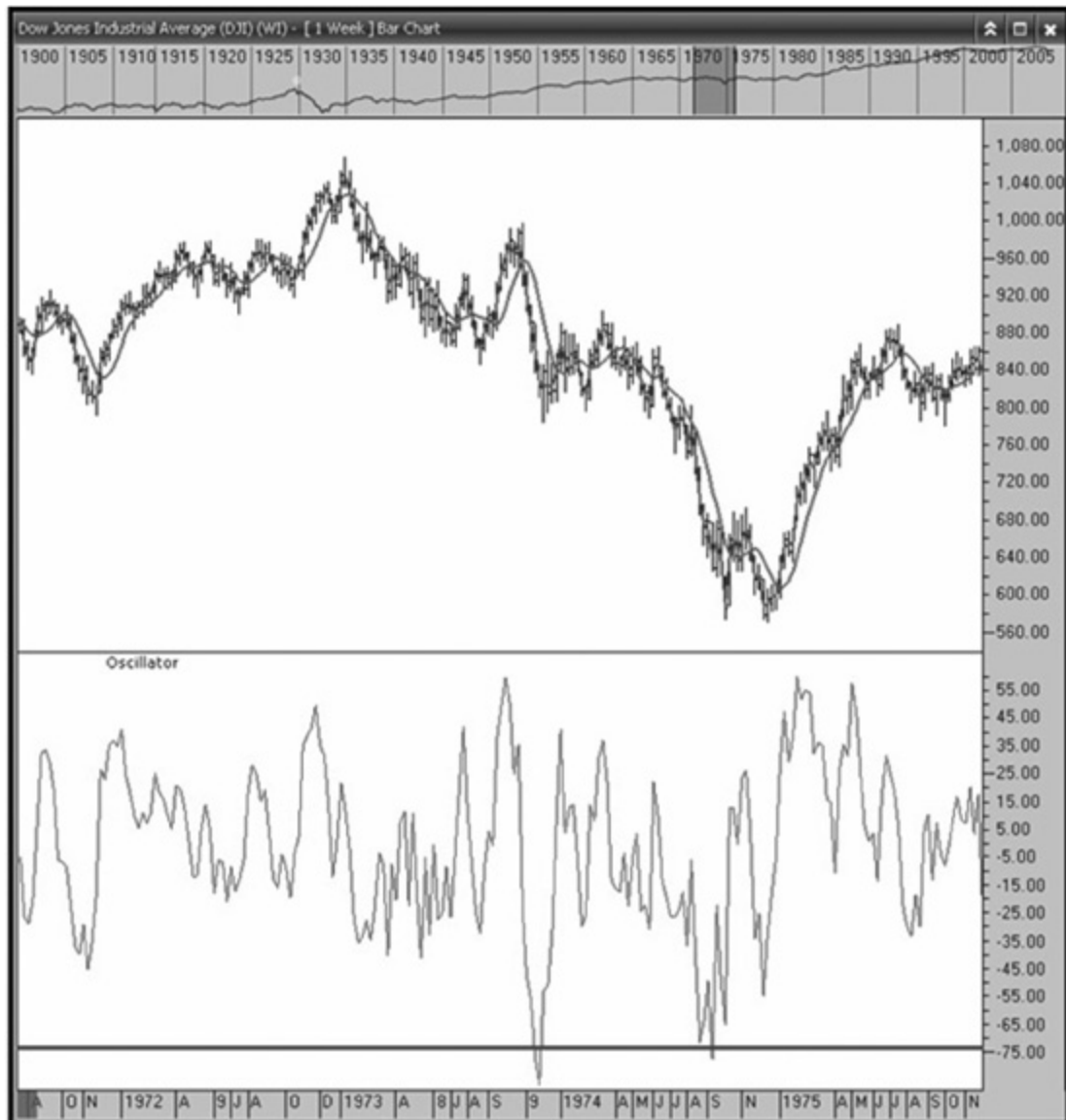


Figure 8.11 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

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[Figure 8.12](#) shows history challenges the old 1929 momentum extreme in the 1980's, but it is not until the October crash of 1987 that a new extreme momentum low is established. The heavy line under much of the history of this oscillator is the old extreme established in 1929. The 1929 extreme was important support for the DJIA prior to the 1987 crash and it defined support again after the crash.

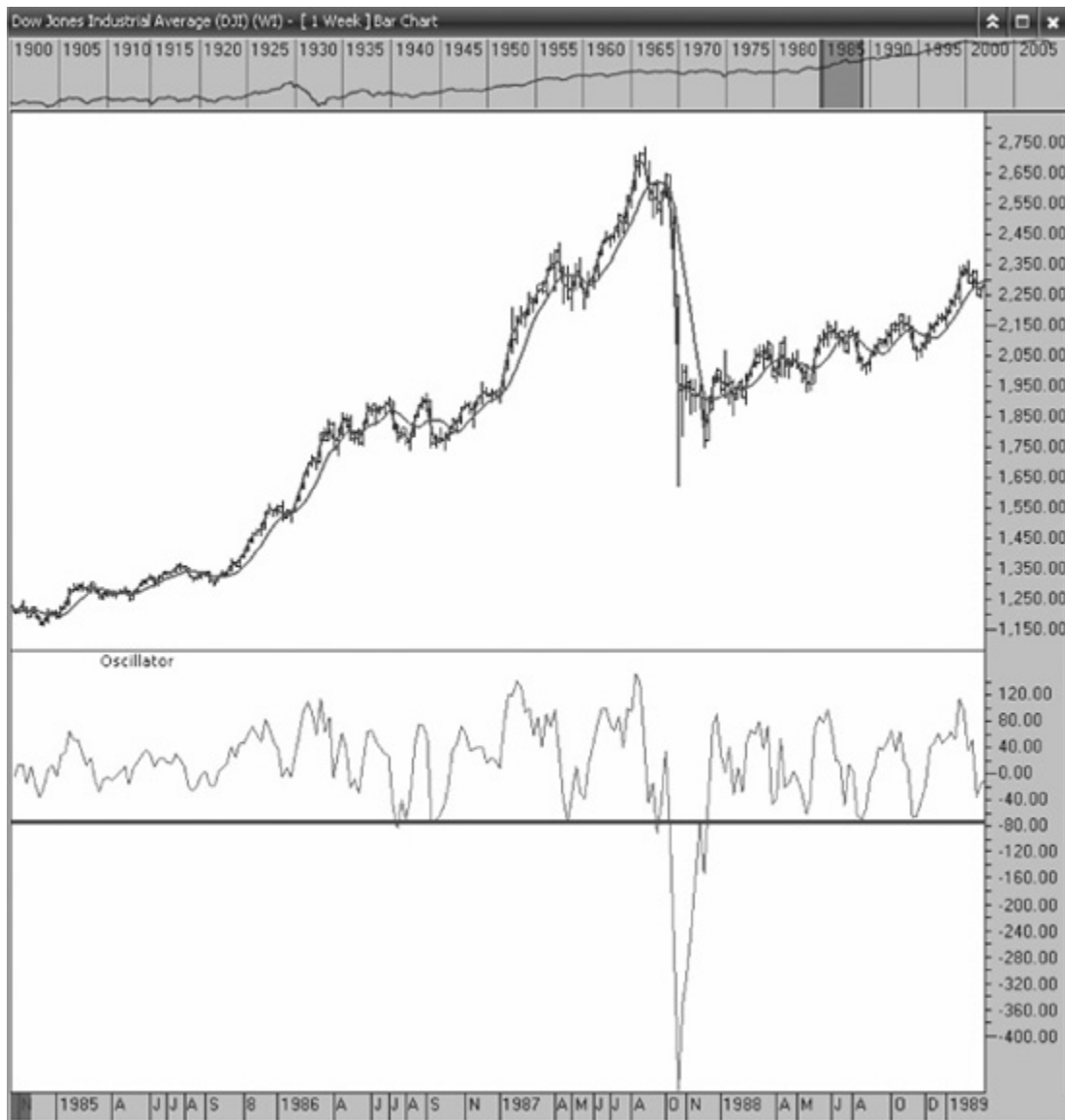


Figure 8.12 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

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After the 1987 crash, the old displacement established during the 1929 crash becomes the perfect support level for market entry throughout the balance of the 1980's. The new oscillator extreme in October 1987 was established near  $-478$ . It was tested again in August of 1998. September 11, 2001 established a new historic extreme near  $-1511$ . But once again the rally did not form a recovery until a test was made near  $-478$ , the prior historic momentum extreme low.

These old extremes become very important levels to begin reversal trends. However, in [Figure 8.13](#) the DJIA chart established a new momentum extreme low in October 2008 at a level of −2296. As of November 2011 the old historic extreme at −1511 has not been retested. If history repeats; and we know it does, the bear market of 2008 is not over and the rally unfolding cannot build a long horizon bull market. Only time will tell if we are about to see a negative reversal develop that carries an historic message of what lies ahead.

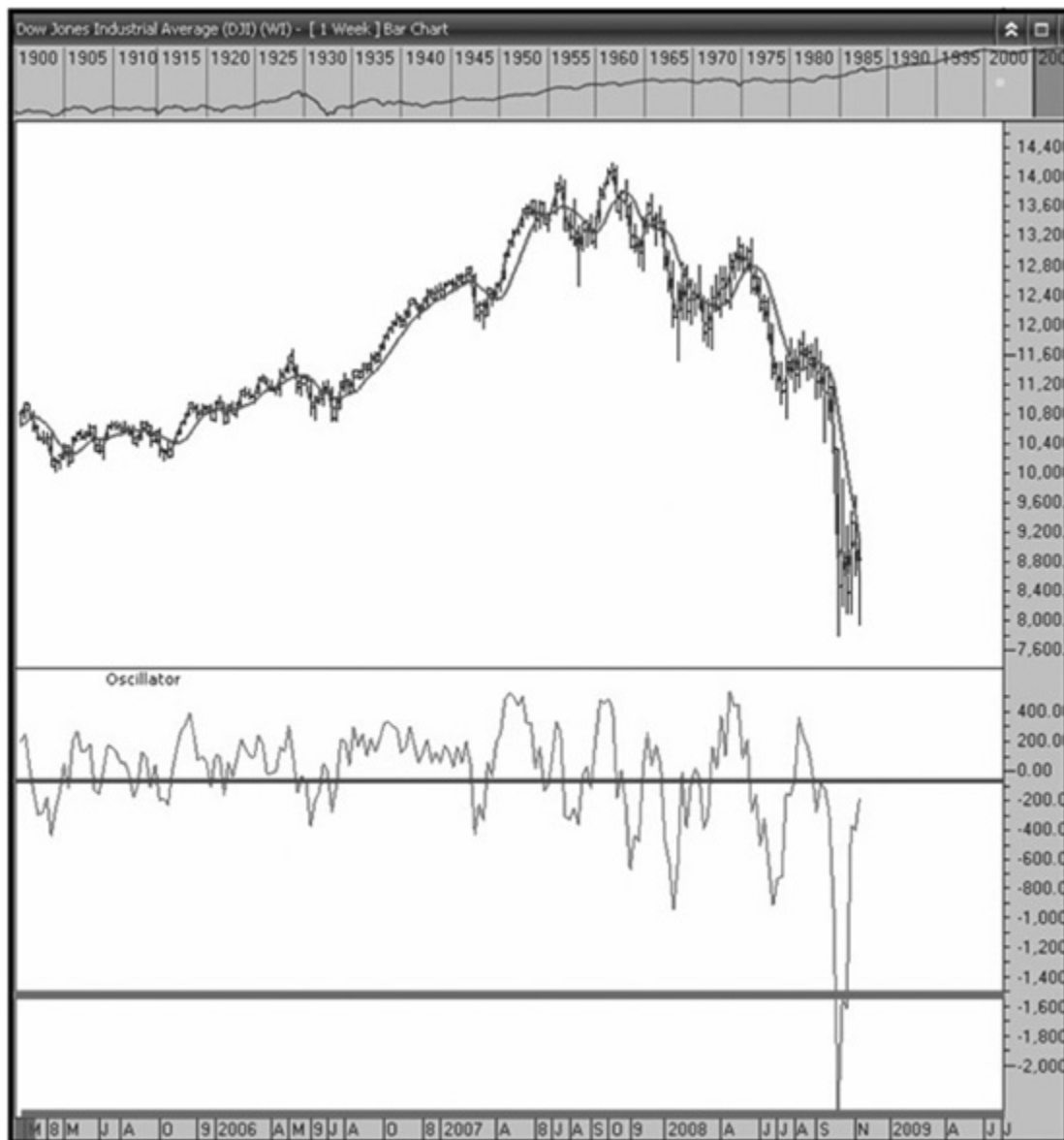


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## Chapter | 9

# GANN ANALYSIS: CALCULATING PRICE AND TIME OBJECTIVES

### Introduction

In [Chapter 2](#) the following statement was written in the discussion about cycles. “We easily miss the fact that *a cycle is a rhythmic fluctuation that repeats over time with reasonable regularity*. It is not until the rhythm persists over a long span of time that we recognize this regularity cannot be the result of chance.” A lot of people have been waiting for me to write a Gann book. I promise it will be written and will fully disclose a career’s lifetime of research and application, but a solid introduction can be offered in a chapter that can begin your journey and offer enough information for you to stay clear of the many guesses that are in print at the moment. This chapter follows 15 years of study and I likely have at least five more years ahead just to complete all the original work of Gann’s that I was given by Elinor Smith Sullivan, a former pilot who did contractual flights for Gann and many other business men of that era. (see *Breakthroughs in Technical Analysis*, edited by David Keller (Bloomberg Press)).

Therefore, if you have the first edition of this book, rip the Gann chapter out; the place where I find myself now is light years away. Many use the methods of Gann’s son and they have been led astray. The books in general about Gann are often misleading. What is a beginner to do? Working directly from Gann’s courses is the best way. The aim of this chapter is to offer an introduction to a few methods that will get you started and give you enough information to know when you are being duped.

Gann was a master of cycle analysis. He used several different approaches with the aim of finding confluence between price, time, and diagonal analysis. One of Gann’s approaches to identifying when a trader has permission to exit or enter a market is to use what are known as the “laws of vibration” or “natural laws.” These are two very antiquated terms which refer to celestial motion. Gann’s prestige grew in 1909 when Richard D. Wyckoff interviewed him for *The Ticker and Investment Digest*. Wyckoff further witnessed a trading period with an impressive win:loss ratio. Keep in mind that the year of the interview was 1909. If you want to



know what makes a trader, *study the materials you think brought them into their era of success*. I made the mistake of beginning with modern resources, when books written in that era would have been easier to use as the language was the same as that used by Gann.

As an example, books of the late 1800s use the term natural law freely to describe the “stellar vibrations” of our solar system. It is a natural law, which we now call “diurnal motion,” where the Earth’s rotation on its axis has an influence on us to move from a cycle of conscious alertness to a state of sleep and back again every 24 hours. It is the natural law of celestial motion, first recognized by Copernicus, where the Earth’s revolution around the sun has a significant effect on the timing of when life springs back to life, blooms, matures, withers, and decays in a rest phase. These two cycles of celestial motion we accept easily, but the third is more difficult, the precision of the equinox as a timing mechanism within the markets.

### **Expansion and Contraction Properties between Cycles**

Before we go any further, consider the following Wheat charts in [Figures 9.1](#) through [9.5](#). The agricultural markets will be extremely important in the years ahead and even though you may only trade an equity index, treasury, or Forex markets, it is important to know that coming years will place greater emphasis on grains. History has taught us that the cost and availability of food is a more politically destabilizing force than a financial crash.

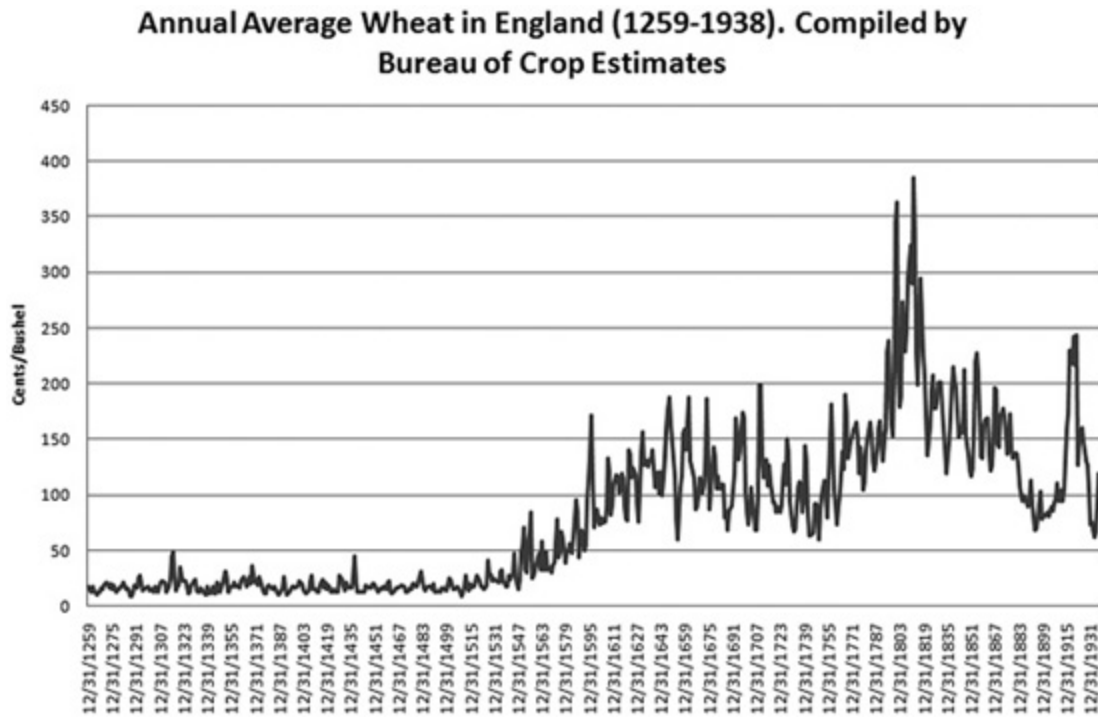


Figure 9.1

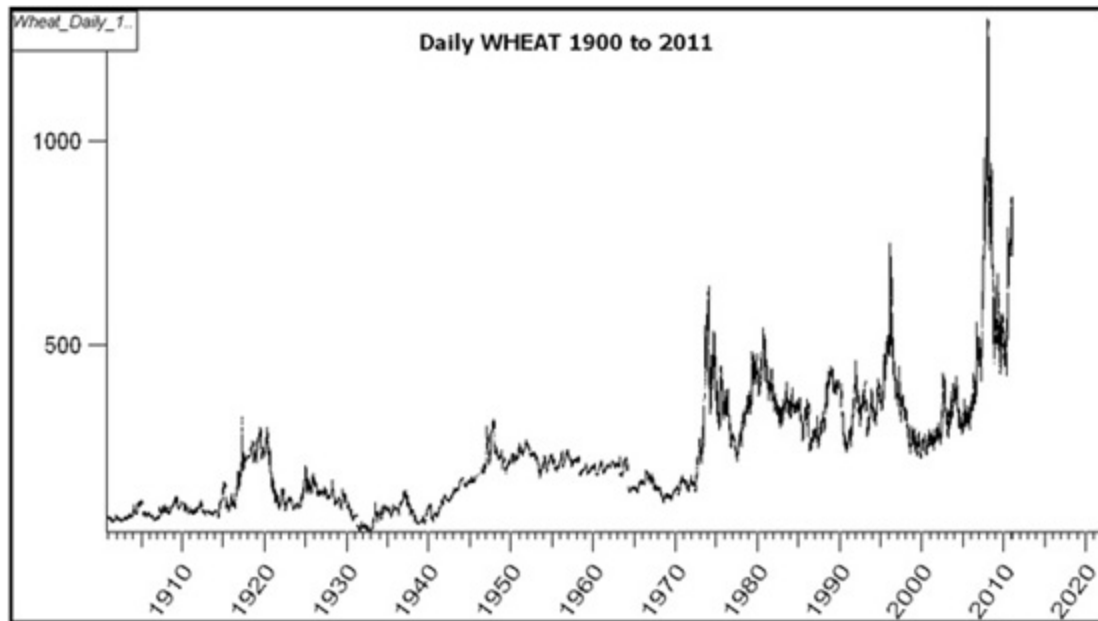


Figure 9.2 **Daily Wheat 1900–2011**

*Source:* Market Trader Gold, Alphee Lavoie and Sergey Tarasov

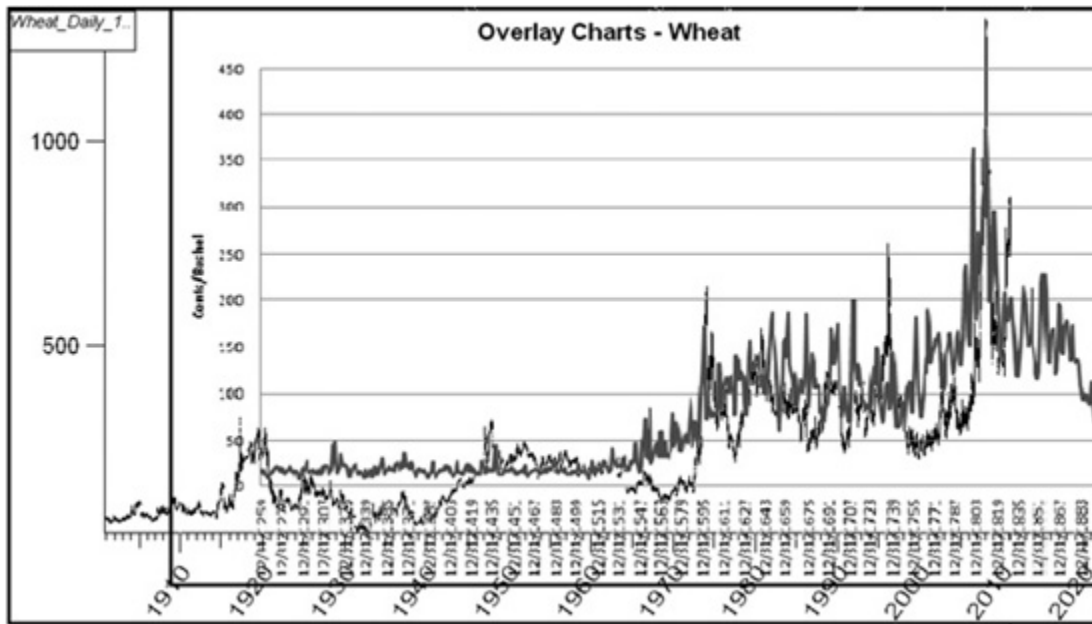


Figure 9.3 **Overlay Wheat 1259–1938 (black) and Wheat 1900–2011 (gray)** Aerodynamic Investments Inc., Daily Market Report

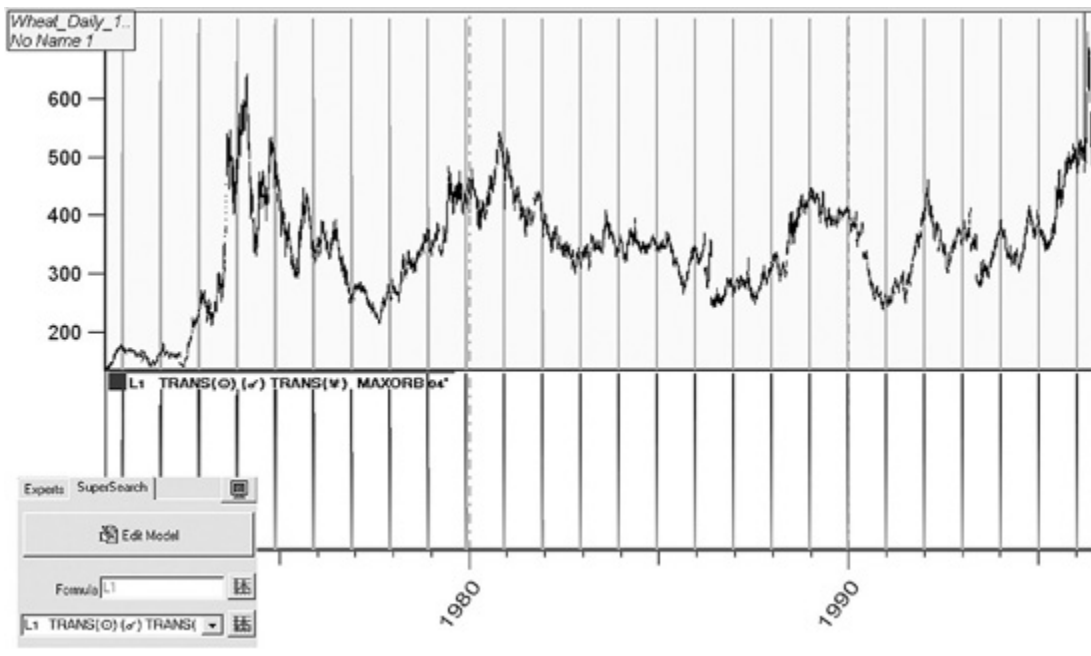


Figure 9.4 **Daily Wheat**  
*Source:* Market Trader Gold, Alphee Lavoie and Sergey Tarasov

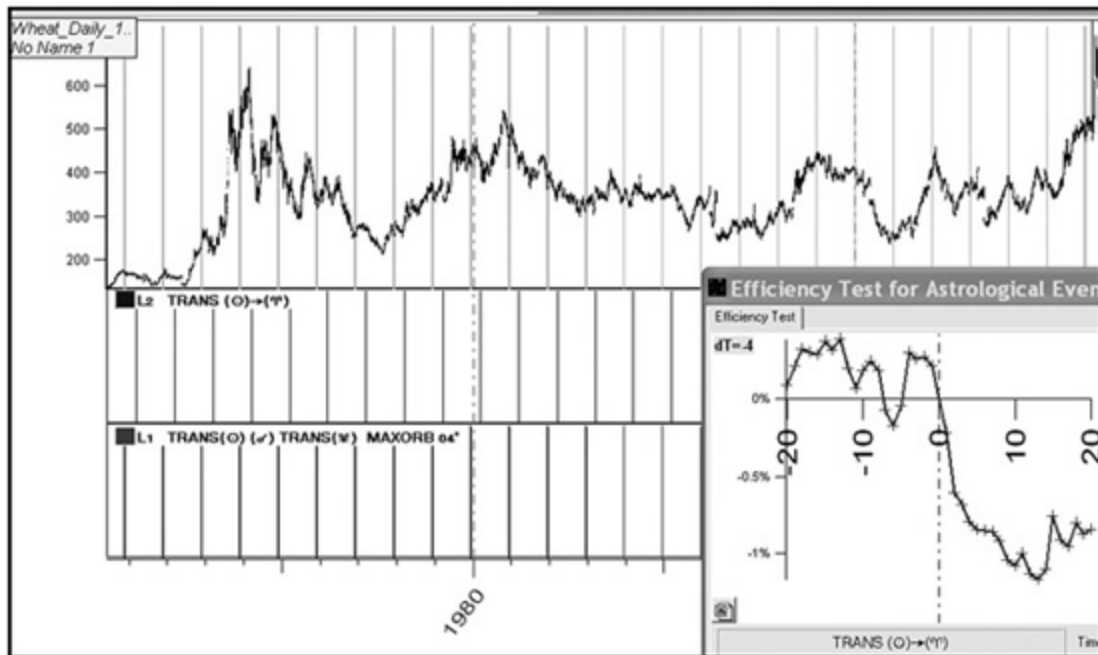


Figure 9.5 **Aerodynamic Investments Inc.**, [www.aeroinvest.com](http://www.aeroinvest.com)

*Source:* Market Trader Gold, Alpee Lavoie and Sergey Tarasov

[Figure 2.10](#) in [Chapter 2](#) showed the European Wheat prices in the fixed cycle work of Edward Dewey. As part of that discussion I mentioned the data was collected by Lord Beveridge of London. For years the only chart I had seen was the Dewey chart that spans data from 1500 to about 1850, yet Lord Beveridge reportedly spent a lifetime collecting European market prices. How far back was he able to go in Wheat? He went back to 1259. The interval Edward Dewey charted for us makes it hard to see a truly remarkable comparison to more current Wheat markets.

[Figure 9.1](#) includes all the data Lord Beveridge collected, with a continuation into 1938 by the Bureau of Crop Estimates in London. If you are a Wheat trader and have never seen this historical data before, you might think it looks oddly familiar.

[Figure 9.2](#) is the daily Wheat prices from 1900 to 2011. If you do not see the relationships and similarities easily between [Figures 9.1](#) and [9.2](#), turn to [Figure 9.3](#) where the historical data of 1259 to 1938 in England is an overlay on the historical market data of Wheat in North America from 1900 to 2011.

If I placed the data from 1259 to 1938 any closer over the data from 1900 to 2011 by adjusting the scale of the y axis, you would not be able to see the upward price spikes in the underlying set of data at all. Cycles do

indeed repeat, *but they do not all mirror a fixed interval of time*. Most charts that examine the mirroring properties of cycles suggest the  $x$  axis should remain a constant to support fixed cycle theory. However, [Figure 9.3](#) is a comparison that shows that cycles do repeat but the cycle may experience an expansion or contraction attribute. The relative ratios that define the significant beats within the larger cycle remain similarly placed. These expansion and contraction changes have a mathematical basis. They are logarithmic and have harmonic ratios that explain their internal relationships to one another.

To understand Gann, you need to study what brought Gann success. The answers are not easily extracted from his original charts alone. Gann was a thirty-second degree Freemason and that was the education path he followed. To fully comprehend Gann analysis you must have a comprehensive working knowledge of geometry, harmonics (the theory of music), numerology, and astronomy. These four fields of study will mathematically flow into and out of one another though they seem from the outside looking in to be unrelated. These four areas of study are four of the seven that defined the curriculum of the *Quadrivium*, studied by such scholars as Pythagoras and Plato.

## **Harmonic Ratios**

Readers new to Gann will discover that those of us sincerely intrigued by Gann can spend decades in pursuit of his understanding and wisdom. There are endless rabbit holes to explore that branch and branch, and branch yet again. But my task is to stay focused on how this knowledge can be applied within our industry. The start is to see that cycles have expansion and contraction phases themselves that proportionally change cycles relative to one another. Our job is to gain a mathematical understanding of these expansion and contraction attributes. The mathematical glue that explains how cycles expand and contract is contained within their *proportional ratios*. Consider [Figure 9.3](#) where the compressed years of Wheat prices from 1259 to 1938 have cycle beats that align to the data overlay of 1920 to current. The principle market spikes in the two charts have similar proportional spacing. The length of one cycle versus the other suggests cycles have fractal properties. As you study hundreds of charts it becomes clear the proportions themselves have a mathematical basis of unique harmonic cohesiveness.

In the next discussion regarding harmonic ratios I only want you to take away the understanding that some ratios have very special properties. As an example, Elliott is not harmonic just because it may have a Fibonacci ratio. Some ratios that create the Fibonacci spiral pattern from rectangles are harmonic, but not all. Several books have hit the market lately using the word “harmonics” as a buzzword; their contents show the authors have no idea what harmonic proportion is about. Harmonics fit within the field of physics and harmonic theory is a precise science. There is a great Web site you can explore at Georgia State University—they have an app as well for iPods and iPads: [hyperphysics.phy-astr.gsu.edu/HBASE/hframe.html](http://hyperphysics.phy-astr.gsu.edu/HBASE/hframe.html). (If the link changes, try a search using “HyperPhysics C.R. Nave Georgia State University”; my test moves the site right to the top of a Google list.) This site is hosted by their Department of Physics and Astronomy. Be sure to work your way toward the discussion on Pythagorean Temperament in the “Sound” category. However, this site offers several useful categories of interest for a Gann student from the main menu.

While we do not concern ourselves directly with pitch, harmonic ratios originate from the vibrations of two proportional string lengths. Together they produce a pleasing sound to the ear because each string length when plucked produces a vibrating frequency per second that is mathematically related to the other one.

- Lengths of 180 to 360, a ratio of 2:1, is called an octave. The tone from the shorter string, exactly half the length of the longer, will vibrate exactly two times faster than the longer string.
- Lengths of 216 to 360, a ratio of 5:3, is called a major sixth.
- Lengths of 240 to 360, a ratio of 3:2, is called a perfect fifth. The perfect fifth had great significance to the Pythagoreans. It has great significance for us as well. As an example, a Gann Wheel can calculate a perfect fifth price projection from a pivot point. Our Solar System contains perfect fifths. Have you ever heard of the phrase “harmony of the spheres”? Past scholars in history meant it literally.
- Lengths of 270 to 360, a ratio of 4:3, is called a perfect fourth.
- Lengths of 288 to 360, a ratio of 5:4, is called a major third.
- And a ratio of 1:1 is called the first or keynote. I prefer to think of it as the price pivot note from which all others are derived.

Vibrating strings can be drawn as oscillating sine waves along a zero axis. Harmonic waves share some common intersecting points on the zero line. Why we end up learning about harmonic ratios is that they explain why certain price objectives are respected by the market *more often* than targets derived by other methods. Targets derived from harmonic ratios also reveal which target is of greater importance in a series of objectives.

One of the primary reasons I entered this field of study was to see if Gann analysis could identify when *not* to trade a market. Technical analysis has no other method that can more clearly show when to stay out of a market *and* identify for how long. Elliott wave has its guideline of alternation between corrections, but it cannot define when it starts and ends as Gann's work can offer.

When Gann analysis creates a congested mess of cycle targets in a wide interval of time on a chart, this is not confluence. It can be thought of as disharmonic noise in time. The result is a market that is unable to decide the direction it will move. Noise can be thought of as two sine waves fighting one another. The congestion of cycle beats must be worked through over time. When the market breaks past from the congested time period the trends that follow are often very free flowing and strong. Even if for no other reason, this is why you should give Gann analysis a chance. The concept of vertical confluence targets in time is very similar to when a market is trapped within a cluster of Fibonacci ratios on the horizontal axis. Then, when prices break through the congestion levels of resistance or support, the market trends freely toward the next confluence zone on the horizontal axis. The same concept applies to Gann time analysis on the vertical axis.

### **Time Cycles: Examples of Gann's Analysis on the Vertical Axis**

Time objectives are significant when time cycles congest in very narrow bands that confirm one another. If confluence is important on the vertical axis, there must be a way to test what cycle should be used. [Figure 9.4](#) is a subset of daily Wheat data from the 1900 to 2011 series. The software is called Market Trader Gold by Alphee Lavoie and Sergey Tarassov. The program will swear at you in Russian English and is far from intuitive to use, but it is brilliant because a Russian space program wizard and a professional astrologer have developed the perfect search engine to identify cycles that apply to Gann market analysis. I use a program called Market



Analyst with flashier graphics to chart and present some of the astronomical research results, but some of the cycle conditions derived from Alphee's program cannot be duplicated in the Market Analyst. It is very difficult to find software that is easy to use, stable, consistent, and all inclusive in one package. Some readers will know that Peter Pich developed the first Gann charting program, called Gann Trader 3. It was accurate, but incomplete and very thin to nonexistent on the astronomy side needed for time analysis. With his passing, the product remains in Microsoft DOS format and is slowly becoming extinct. There is no easy solution right now. Market Analyst is rewriting their entire software product in need of a new platform to resolve several issues. I have not seen the new platform at this time. I have invested years of detailing feature specifications for this product. But the previous versions have been unstable for advanced Gann users. It is hard to stay true to Gann methods in a very exclusive and small market. Soon as numerous additions are added to any product it becomes more challenging to learn. However, this one has the greatest potential of getting it right.

[Figure 9.4](#) has an imbedded cycle that slowly expands the timing between cycle beats and then contracts. This is common for cycles based on orbital motion because planets follow elliptic patterns that give the appearance a planet can change speed along the path. To see the expansion and contraction character of a cycle, use [Figure 9.4](#) to look at the  $x$  axis near 1994. The cycle beat is nearly aligned to the axis hash mark denoting the start of the year. As you scan left the hash mark for a year on the  $x$  axis no longer aligns with the cycle beat. The contraction phase is not visible in this segment of the data, but the alignment with the start of a year returns. As the chart scrolls toward 1900 the cycle beats clearly display phases of expansion and contraction rhythms within the history. You are looking at a planetary cycle based on the aspect angle between two planets. As planets move around the sun they change their positions relative to one another. If we consider their positions as seen from earth it is called geocentric. Beginners can learn the basics of astronomy from the Internet. Begin by exploring the online information posted by universities for astronomy courses offered by their physics departments. Focus on discussions of motion.

In [Figure 9.4](#) the expansion and contraction character of the cycle beats are again caused by the elliptic orbit of the planets. L1 is a formula that will

map every occurrence when the Sun and Neptune appear to be very close to one another as seen from Earth. We refer to the four degrees criteria as the period the planets are in orb. A zero degree alignment is rare. Therefore we accept plus or minus four degrees in orb is close enough to say in this example that the Sun is conjunct with Neptune. Had the Sun been 180 degrees from Neptune (plus or minus four) they would be in opposition to one another. The opposition aspect would have produced a different cycle beat. *The angles between Gann's Fan lines have been found to be of significance in aspect planetary cycle studies.*

Alignments with more than two planets will magnify the task rapidly. The asteroid Ceres is important. But you will read in *Fibonacci Analysis* that Ceres is needed to show how the planets all add up to a mean distance of 1.618 when measured in astronomical units from Mercury as the center. This mathematical relationship becomes more interesting when you know that Mercury had great significance in ancient Egypt. Gann travelled to Egypt to further his studies.

Why look at the Sun and Neptune rather than some other planets in combination? Well in fact every planet, every angle, every multiple combination, individual speed, acceleration, position, direction, or mathematical orbit measurement has been evaluated. Speed? Did you know the motion of the Sun along the ecliptic is not uniform? The seasons are of different lengths of time because the Sun moves faster in December and January, and more slowly in June and July. The perceptions from Earth as the center of our Solar System is called geocentric. The Earth's tilt on its axis creates several mathematical issues that must be considered. In fact there are also small differences in the length of seasons from year to year due to perturbations of our orbit by other planets and our motion relative to the barycenter of the Earth-Moon system.

Interestingly the Sun that gives light and Neptune associated with water define one of the cycles of great influence on the grain markets. The cycle must then be statistically evaluated to determine the significance of this event. Only then are the signals tested further to see what kind of market action might be expected from the cycle beat over the entire 700 years of Wheat data on record.

Astronomy is a science and the universal language of science is mathematics. The new cycle in [Figure 9.5](#), L2, is called an Ingress study. L2 is directly under the price data and marks every occasion the Sun enters

a specific degree on the celestial equator. As the sun passes that precise angle it forms a cycle beat. In this particular study there would be 360 degrees between each cycle beat because only one degree of angle along the celestial horizon has been requested (Sun entering Aries). [Figure 9.5](#) includes an efficiency test for this astrological event. The cycle beat is on the zero axis and the -20 to +20 scale shows 20 days before and 20 days afterward.

Gann gives time cycles in his books, but he does not give you charts to make it easy to see his references visually. It is not until you create the chart that it is clear Gann did not reference the start or end of significant price swings. This is very confusing at first, but Gann was teaching us what cycles he used for specific markets. Patrick Mikula makes a valuable study in his books, but they are incomplete and Patrick did not filter out John Gann's work that must be ignored. Gann's work is amazing considering it all had to be done by hand. Be aware he made errors and omissions because he lacked the ability to use a computer. He also never traded a market overseas. Do not assume what works in North America translates exactly in China, as an example.

We are still discussing vertical cycle analysis used by Gann to define time objectives. [Figure 9.6](#) is a two-week chart of Corn prices. This is a different Ingress study where the planet Venus is tracked when it enters the ninetieth degree or cusp of Cancer. With the cycle beats marked on the chart you can easily see the expansion and contraction character of the downbeats on the vertical lines on the bottom of the price window. The expansion and contraction phases are also rhythmical.

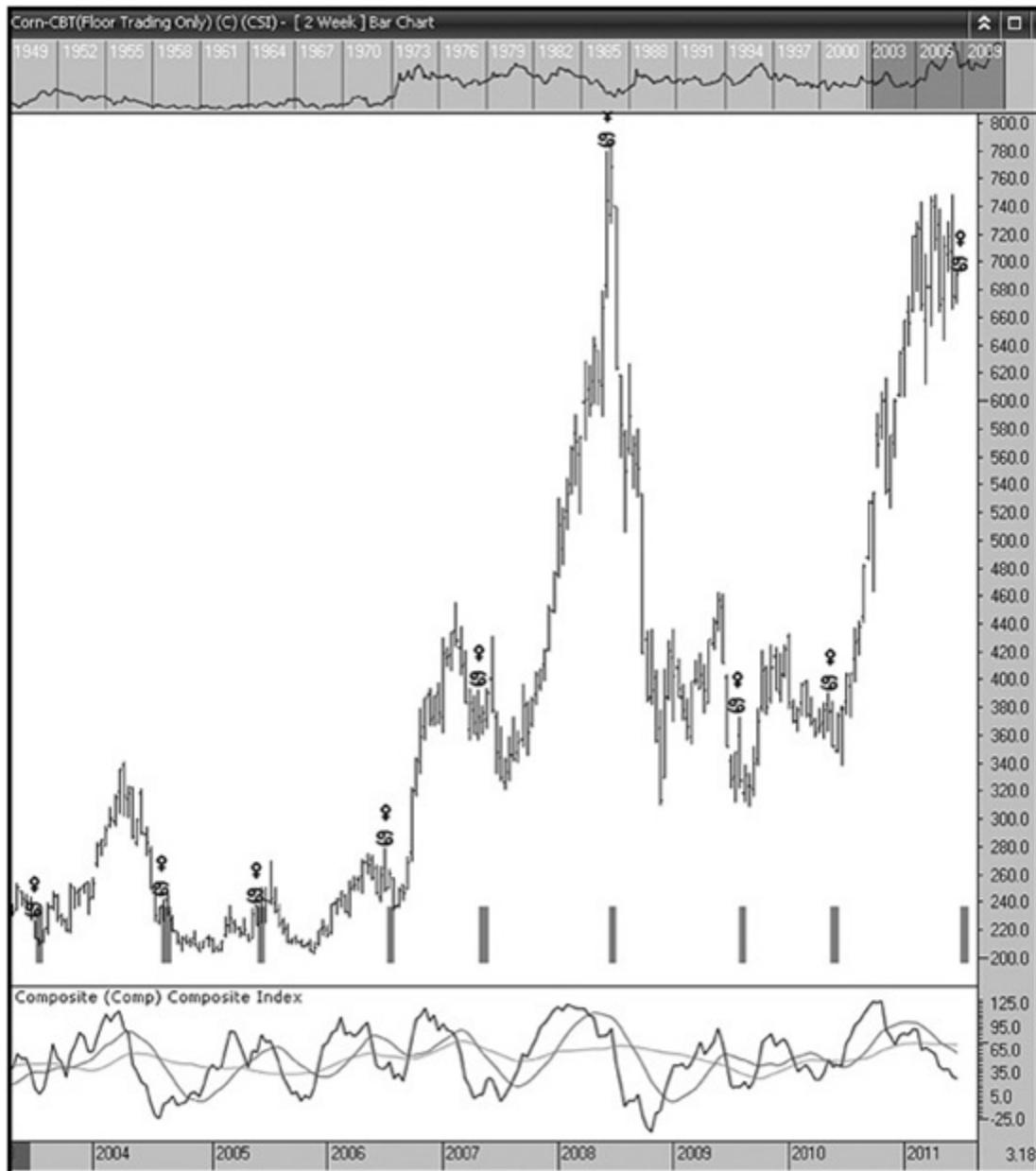


Figure 9.6 **Aerodynamic Investments Inc., Daily Market Report,**  
[www.aeroinvest.com](http://www.aeroinvest.com)

Source: Charts by Market Analyst 6, Copyright 1996–2011

We have only touched on two different kinds of astrological cycles Gann used. Other cycles you will want to learn about, other than ingress movement and aspect relationships, are solar and lunar eclipses, moon phases, and retrograde motion to name a few more. In the book *Breakthroughs in Technical Analysis* (Bloomberg Press), I had a copy editor who corrected my corrections describing retrograde motion several

times. I finally submitted a title to the graphics department so the image would be correct, although the copy editor explains the retrograde movement backwards. We are all so visual no one has brought this inconsistency to the publisher of my attention. However, it is wrong in that book. So let me use a NASA image to do a better job on this particular time cycle explanation. (see [Figure 9.7](#)).

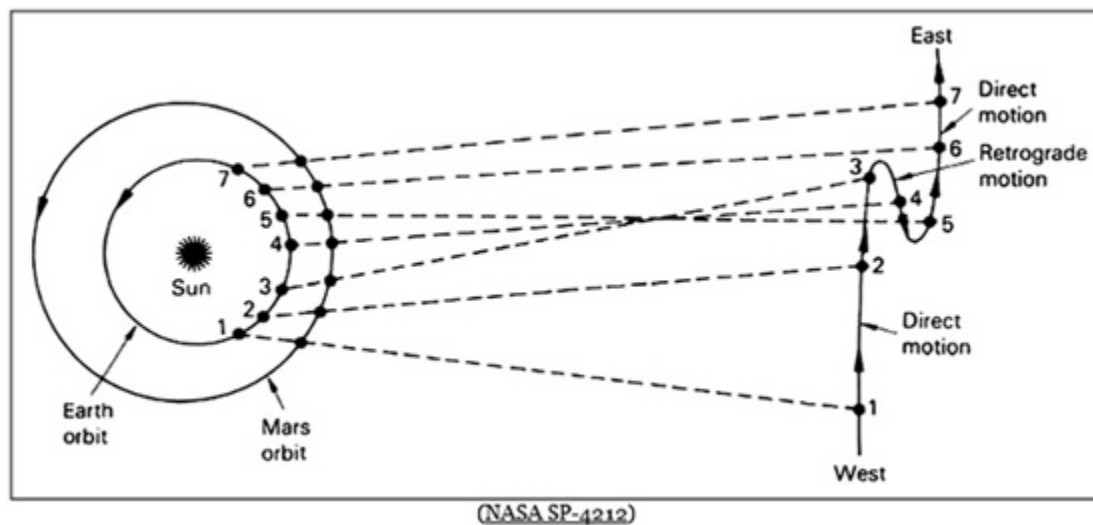


Figure 9.7

Source: [www.history.NASA.GOV/SP-4212/p3a.html](http://www.history.NASA.GOV/SP-4212/p3a.html)

Most people use the term “retrograde” to mean retrograde motion. Retrograde motion is the apparent backward motion of a planet caused by its being lapped by another planet, or vice versa. Both planets move in a direct (eastward) motion around the Sun, but the planet with the inside (smaller) orbit moves faster than the planet on the outside (larger) orbit, and when it passes the slower moving planet, each sees the other one as apparently moving backward relative to its usual motion around the sky. *In this “retrograde” motion, neither planet is actually moving backward; it only appears that way, during the time that one laps the other.* There are several periods we Gann analysts study to find the best correlation with a market: the period when the planet enters its retrograde motion, the interval of time just before retrograde when the planet appears to decelerate its orbital speed, the time when the planet seems to stall and have no motion, the period it returns to direct motion, and the period when it accelerates away and returns to the original speed along its normal orbital path. There are two other types of retrograde movement in astronomy, but we do not

concern ourselves with the backward path of some moons as they orbit around their planets or if a body spins in reverse on its axis to most other bodies in the solar system. (On Earth everyone is shifting to the east. “Clean cups please.” A.K.A. *Alice in Wonderland*.)

I wish I had seen the NASA illustration earlier because it makes retrograde motion drawn within market data so much easier to understand.

Retrograde Motion is found in a Gann market chart in two different ways. The first is to mark the cycle itself for the planet as was illustrated in [Figure 9.6](#) when an ingress cycle was identified. However, retrograde cycles vary because inner planets create a downbeat that is very narrow in time and the outer planets create wide bands over longer intervals of time because they move so slowly. This changes the width of the cycle duration.

### Examples of Gann’s Analysis on the Diagonal Axis: Planetary Lines

The other way you will see retrograde motion represented in a Gann chart is when planetary lines are plotted as channels. [Figure 9.8](#) is a daily chart of Corn futures. The squiggly lines are typical of diagonal channels derived from inner planets, or the five planets closest to the Sun. The outer planets create orbits with retrograde motion as well, but the planets move so slowly from day to day from Earth’s view that the lines change very slowly.

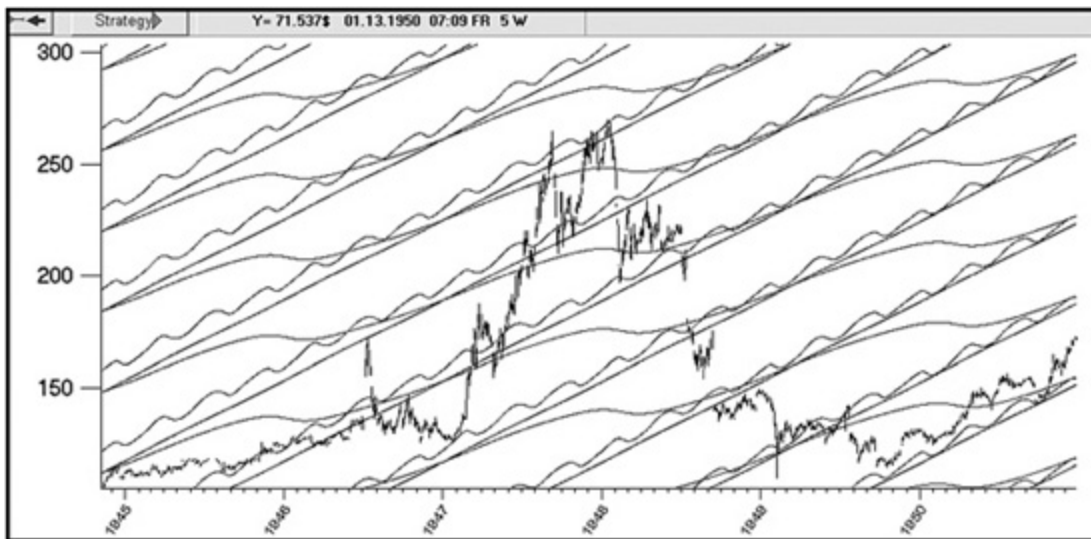


Figure 9.8 **Aerodynamic Investments Inc.**, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: Market Trader Gold, Alpee Lavoie and Sergey Tarasov

How do you plot a planet’s orbital movement on a chart? It is very easy to do; however, believing the market has any relationship to a channel line



derived from a planet is a tougher challenge at first to accept. If you are standing in the middle of the New York Stock Exchange on market close, and take a snapshot to freeze the location of all the planets at that moment, each planet will have a position at a specified degree within a circle. Within the 360 degrees, let's say to view Venus you need to turn 47 degrees. Now add 360 to 47 until the value enters the range of prices on the chart. That works for the DJIA for the moment, but [Figure 9.8](#) is trading in a range where 360 cannot be added to 47 without exceeding the price range of Corn. Therefore, factors are involved.

The multiplier for one harmonic in [Figure 9.8](#) is one degree equals 0.1. With each new day the planet has moved to a new angle where it can be seen. Let's say the new position is 49 degrees as the base and  $360 * 0.1$  is then added to the new channel position on the chart. During periods of retrograde the channel line begins a wave action as seen in the NASA illustration for [Figure 9.7](#). The channels are created from the first line and replicated through the chart 360 units higher, or by means of the factor required for the specified market. When you know the correct factor it does not change. But the process of correctly defining the factor to use cannot be addressed here because we need Gann Squares and other geometric tools to step through a process that becomes very precise.

When the channel forms a straight line it is mapping an outer planet that is exceptionally slow. [Figure 9.8](#) has the channels for three different planetary lines. These particular lines cannot be reproduced in Market Analyst.

The factor used for Corn used the term "one harmonic." The word harmonic in this context is widely misunderstood in numerous Gann books. If you want to take a single channel and subdivide it in two, it will have a parallel line in the middle of the channel. We would consider this a 50 percent division line in a conventional channel, but it is not linear geometry being applied. Spherical mathematics will state two harmonics have been created. If one harmonic creates a channel line every 360 units from the y axis, then two harmonics will be drawn every 180 units. You need the original channel range of 360 drawn in one color to find it again. The subdivision lines will be different colored lines. Three harmonics will mean a *range spread of 360* is divided into equal thirds. So the math is easy. But there is a lot of misinformation on the Internet and in print.



Planetary lines show you one example of Gann's diagonal calculations. Do I personally use them? No. But I do not trade from moving averages on price, or use standard deviation volatility bands, or favor conventional channels applied to any chart for any time horizon. Have I ever needed channels? Yes. It was a tool that solved the problem when a former boss asked me to give a price target for the Italian Lira and Thailand Bhat currency cross. I am showing my age as this cross no longer exists. But the data looked like Swiss cheese with gaps after every bar as this was the definition of thin market. To solve the problem I created a line chart and used channels. The trader that favors channels in general will be intrigued by this example of Gann's work on a diagonal axis.

The last example demonstrated just one method along the diagonal that utilized planetary movement. Now we will step away from methods derived from astronomy and focus on a few geometric applications.

### **Examples of Gann's Analysis on the Diagonal Axis: Fan Lines and Gann Squares**

Squaring price (the horizontal axis) and time (the vertical axis) is often misunderstood. This is simply a box whose sides are equal. I will not be addressing the issue of calendar versus trading day differences here. Just keep it simple to develop the concept. One unit of time is equal to one unit of price. The difficulty follows for people because they do not know or have forgotten the simple math associated with a box. In [Figure 9.9](#) there is a monthly chart of the Nikkei 225 Index. In the same chart are four boxes. Box number one was created as the square of 90. If I smoothed out the corners and had each point along the box an equal distance from the center, what shape would I have drawn? A circle. A circle has 360 degrees. For the box to have sides of equal length and still be connected as a solid, the four corners must be equal to 90 to be right-angled. Four times 90 equals 360 degrees. All right, try this one. Turn the circle with 360 degrees into a triangle with sides of equal length. How many sides are there in a triangle? Three. How many degrees will be between two sides of the triangle that connect at the corner? The answer is 120 degrees. An equilateral triangle has three sides of equal length. Therefore 360 divided by three equals 120. I do not see the difficulty here, but this causes many people a problem.

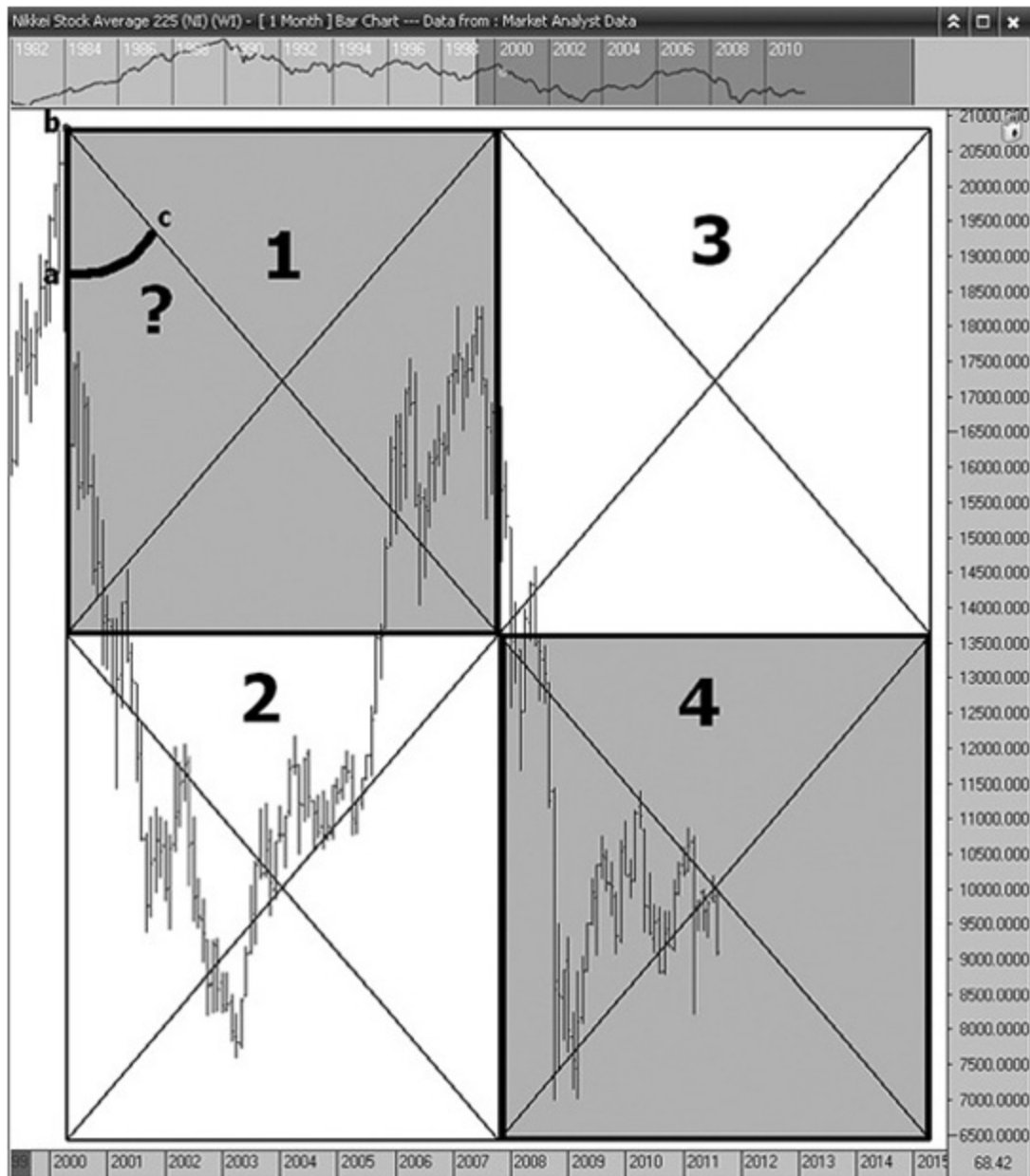


Figure 9.9 **Aerodynamic Investments Inc.**, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: Charts by Market Analyst 6, Copyright 1996–2011

Now study box 1 in [Figure 9.9](#). Why does it look less than perfect? Are the lengths of the sides for height and length really equal? Yes. It will often look less than perfect because of the pixel array of a computer screen. Computers and how we elect to scale our  $x$  and  $y$  axes will affect how the box looks to us.

Next, if you have one box and multiply it by two, how many boxes will you create across the Nikkei chart? Did you think the answer was two?

Most people do. You have forgotten this is a box. If I multiply a box by two, the one side (height) doubles for the dimension of height and the box length will be twice as long also. Therefore I get four boxes. Multiply four boxes by 2 and the screen would display 16.

Box 1 has a cross in it that connects the corners. If my box is truly a box with equal lengths in height and width, when I connect the corners with lines they will cross dead center in the middle of a box. What is angle *abc* that defines the top left corner of box 1 that lies between lines *ab* and *bc*? It has to be an angle of 45 degrees as the line passes from corner to corner. Therefore the right-angled corner is divided equally by two.

Notice a line connecting the corners of box 1 will pass through the corners of box 4. Every line of 45 degrees will connect corners of other outer boxes. It becomes extremely important that you recognize this about the square of 90, or any square of 90 that is a multiple of two. Therefore the square of 45, 90, 180 etc. will contain an exact 45-degree angle.

Here is a new question for you to consider. The range of the Nikkei does not accommodate the use of one unit for the price and time relationships. This chart has an old price high still visible near 21,000. I would need 21,000 days to 21,000 price units and a very, very big wall to create the chart—not practical. So how do you fit such a price scale into a chart and keep the geometric proportions correct? That is one of the big questions that cannot be answered with a sound-bite quick answer. There is a very precise way to determine the correct factor to use. In addition, it is not experimental as a Gann software vendor believes. *As soon as you start messing with the proportional relationships between width and length, such as thinking it might be better if a Fibonacci ratio were used, the analysis has turned into an experiment that is no longer Gann analysis.* If your sources advise you Gann analysis is only about experimentation, they do not understand how the dimensions interlock between the horizontal, vertical, and diagonal.

Consider [Figure 9.10](#) where the monthly Nikkei data is displayed with four Gann Squares as described in [Figure 9.9](#). The difference is the addition of Gann Fan lines that subdivide the right-angle corner on the bottom left. A Gann Fan subdivides a right-angled triangle into very specific angles. If you create a line from the corner with a growth ratio of 1:1, the line will move one unit up and one unit to the right, equally dividing the right-angle

corner of 90 degrees. It becomes a  $1 \times 1$  line that is a 45-degree line through the chart.

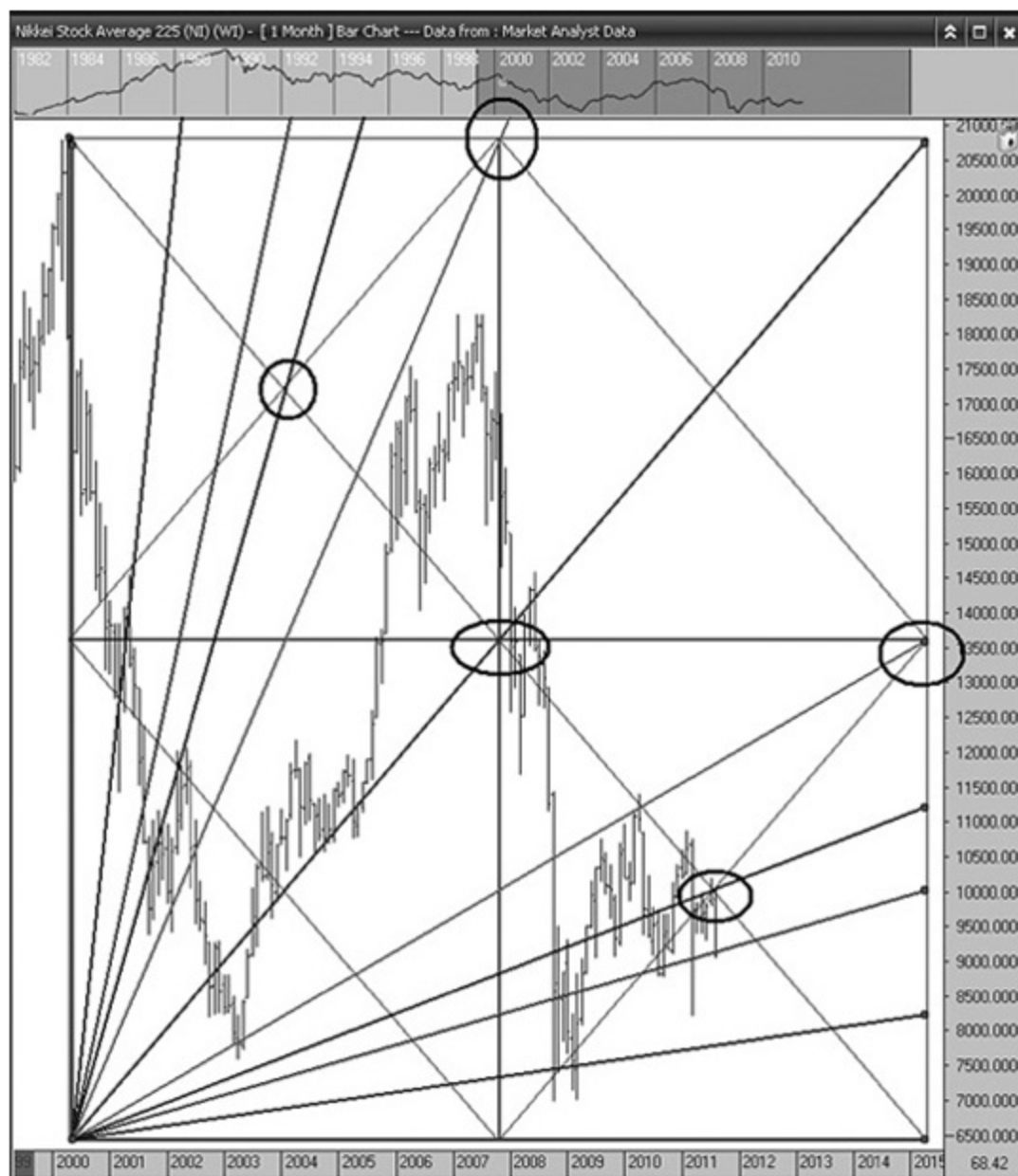


Figure 9.10 **Aerodynamic Investments Inc.**, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: Charts by Market Analyst 6, Copyright 1996–2011

A Gann Fan is a series of lines subdividing 90 degrees. Each line will dissect the right angle at the following degrees: 3.75, 7.5, 15, 26.25, 45, 63.75, and then 82.5 and 86.26. The thirds created from  $3 \times 1$  and  $1 \times 3$  will be on degrees of 18.75 and 71.25.

The ratios needed to create these lines precisely from price and time are  $16 \times 1$ ,  $8 \times 1$ ,  $4 \times 1$ ,  $2 \times 1$ ,  $1 \times 1$  (the 45-degree angle line), then  $1 \times 2$ ,  $1 \times 4$ ,  $1 \times 8$ , and  $1 \times 16$ . In each, the first value is how many units along the x axis you move before moving up the y axis scale. So  $1 \times 16$  is over one unit and up 16 units.

We mention the use of  $1 \times 3$  and  $3 \times 1$  separately because these are thirds and they do not multiply by factors of two and do not retain an important relationship about to be demonstrated. If you have software with a tool that looks like Gann Fan lines, they must be these specific angles. If not, they are simply speed lines used to observe acceleration and the slope of data swings.

[Figure 9.10](#) contains circles so you can see more easily the Gann Fan lines that intersect box corners and the diagonal crosses. These relationships between Gann Fan lines and box proportions are important. These relationships also relate to the Gann Wheel that defines the horizontal axis. When a software vendor has an error in any one of these three tools, the Gann Square, Gann Fan, or Gann Wheel, it will be recognized by the advanced Gann practitioner because the factors used will no longer be correct that bind these proportional attributes.

If I multiply my Gann Fans drawn in [Figure 9.10](#) by two, where would the 45-degree line that is in the middle of the chart be drawn next? It would shift and be drawn *exactly* on top of the line above the  $1 \times 1$  in [Figure 9.10](#) and become the new  $1 \times 1$  line. Why? It is a line and not a box. So the  $1 \times 2$  moves to  $1 \times 4$  and the  $1 \times 4$  moves to  $1 \times 8$ , etc. That is why the  $1 \times 3$  and  $3 \times 1$  are mentioned separately. But Gann used to subdivide each box into thirds. How many boxes form inside one box that is divided by three? Nine. The  $1 \times 3$  and  $3 \times 1$  will intersect the corners and intersecting crosses within the nine boxes of a single larger box exactly.

I have not made a comment about the highest and lowest Gann Fan lines that do not connect to any corner or middle intersection in [Figure 9.10](#). They will bisect corners or intersecting crosses when additional boxes of equal size are added to a larger chart in width and height. The line circled in [Figure 9.10](#) that bisects the middle of the top left box is heading toward a corner when you zoom out and find the boxes continue above and to the right. When you read Gann's courses and he describes how he draws Gann Fan lines, it can be confusing because he calls them moving averages and not trend lines. When you delve more deeply into Gann you will



realize you are working with a harmonic cycle that is better named a moving average.

I have just demonstrated some of the attributes of the square of 90. We use other squares. For example, the square of 144 will have a diamond-shaped appearance and will be of interest to soybean traders. How do you find the 45-degree angle in a square of 144? That is a good question which I have to leave with you. I can only touch on the tip of the iceberg to give you a conceptual understanding about Gann analysis.

The key thing to take away from this discussion is the understanding that the relationship between Gann boxes and Gann Fan lines is very precise. *There is no room for guessing.* But many books do guess.

Some describe the intersecting corners and centers of the boxes to be the time objectives for trend changes. Think about this. The length of each box is equal from one to another. The lines that cross in the middle are always half the length or width of the box when the intersection is extended vertically down to the  $x$  axis. Books and books write about these patterns giving you time, yet all they have done is to create a fixed cycle again. We know fixed cycles are not the best cycles to use in trading applications. More importantly, Gann did not use the boxes in this manner. In [Figure 9.10](#) the intersection of box 4 (bottom right) has a circle showing a diagonal target in the year 2011. (The Gann vertical time objective from astrological cycles for the SP500 will be October 22, 2011.) This method of just looking for intersecting points from a Gann Square will have inconsistent results and poor performance. I would always favor Astrological cycles over this method for time analysis. But diagonal analysis is never used alone. Therefore there has to be more to it, and there is indeed.

[Figure 9.11](#) is the same monthly Nikkei chart as [Figures 9.9](#) and [9.10](#). Two gray areas will help your eye stay within the white Gann Fan area under the 45-degree-angled line originating from the bottom left. The circled intersections at A, B, and C are the only signals in this chart of Gann significance. Why? Because they occur when price targets have been realized as derived from a Gann Wheel and they are confirmed by diagonal angles. Point B was not even identified in [Figure 9.10](#) because it falls upon a measurement from thirds. Point A was not in [Figure 9.10](#) either, but could have been as it fits the criteria for that discussion. By adding objectives on the horizontal axis only points A, B, and C are of interest because

confluence develops on the horizontal, diagonal, and vertical axes. For example, point B is where the 240-degree price target from a Gann Wheel falls on the horizontal axis. It bisects a descending 45-degree line in the bottom right box. It is also using the Gann Fan line radiating from the bottom left box as resistance. It is *also* a vertical target in time which developed a confluence target zone from astrological cycles (not shown). *Therefore all three cycles in price, time, and diagonal converge at points A, B, and C.* This is what Gann analysis can identify for you and offers an introduction to the geometry involved on the most elementary level. The Nikkei price high in 2007 was not discussed. Much has to be overlooked in this introductory discussion.



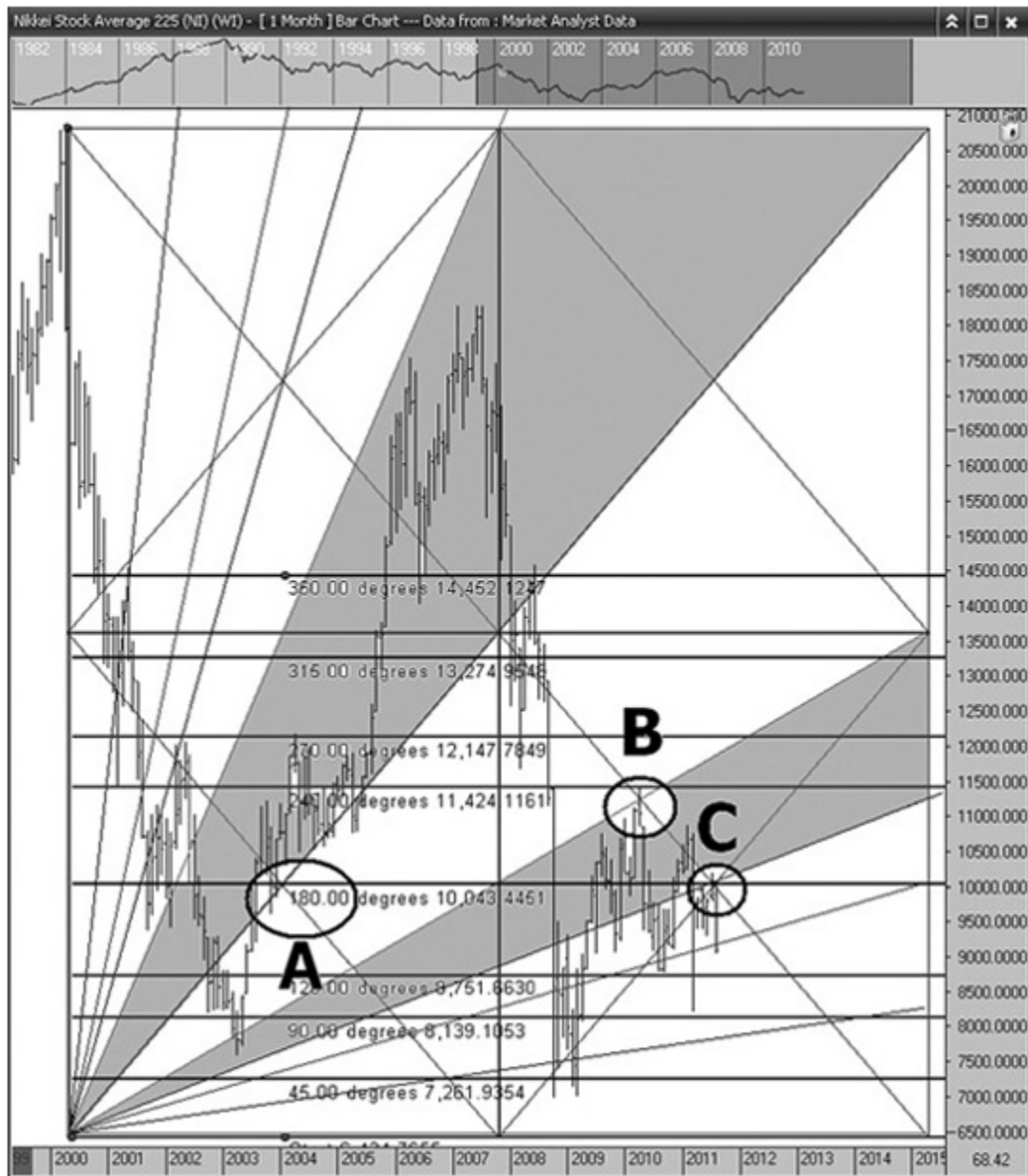


Figure 9.11 Aerodynamic Investments Inc., Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: Charts by Market Analyst 6, Copyright 1996–2011

### Gann Price Analysis on the Horizontal Axis: The Gann Wheel

How do you extract price objectives from a Gann Wheel? [Figure 9.1](#) is a Gann Wheel called the Square of Nine or a harmonic wheel. Gann used other wheels such as the hexagon wheel, which is a honeycomb pattern. The honeycomb pattern is better for calculating in units of thirds such as 30

and 60 degrees. The wheel called the Square of Nine starts at the center with a value of 1 and the first box ends at the number 9.

In [Figure 9.12](#) you can follow the numbers to 9 and then run into the first tricky part where beginners can make an error. The bottom left corner requires you to move outward by one square and then the numbers will continue to increase by one sequential unit again until the next outer square is filled again. The numbers 81 and 82 on the bottom left clearly illustrate this movement. If you do not pay attention you can easily find yourself on the wrong column or row. The numbers will be incremental as you move in a clockwise rotation through the wheel. Here is how the numbers relate to one another and how this pattern becomes a calculator.

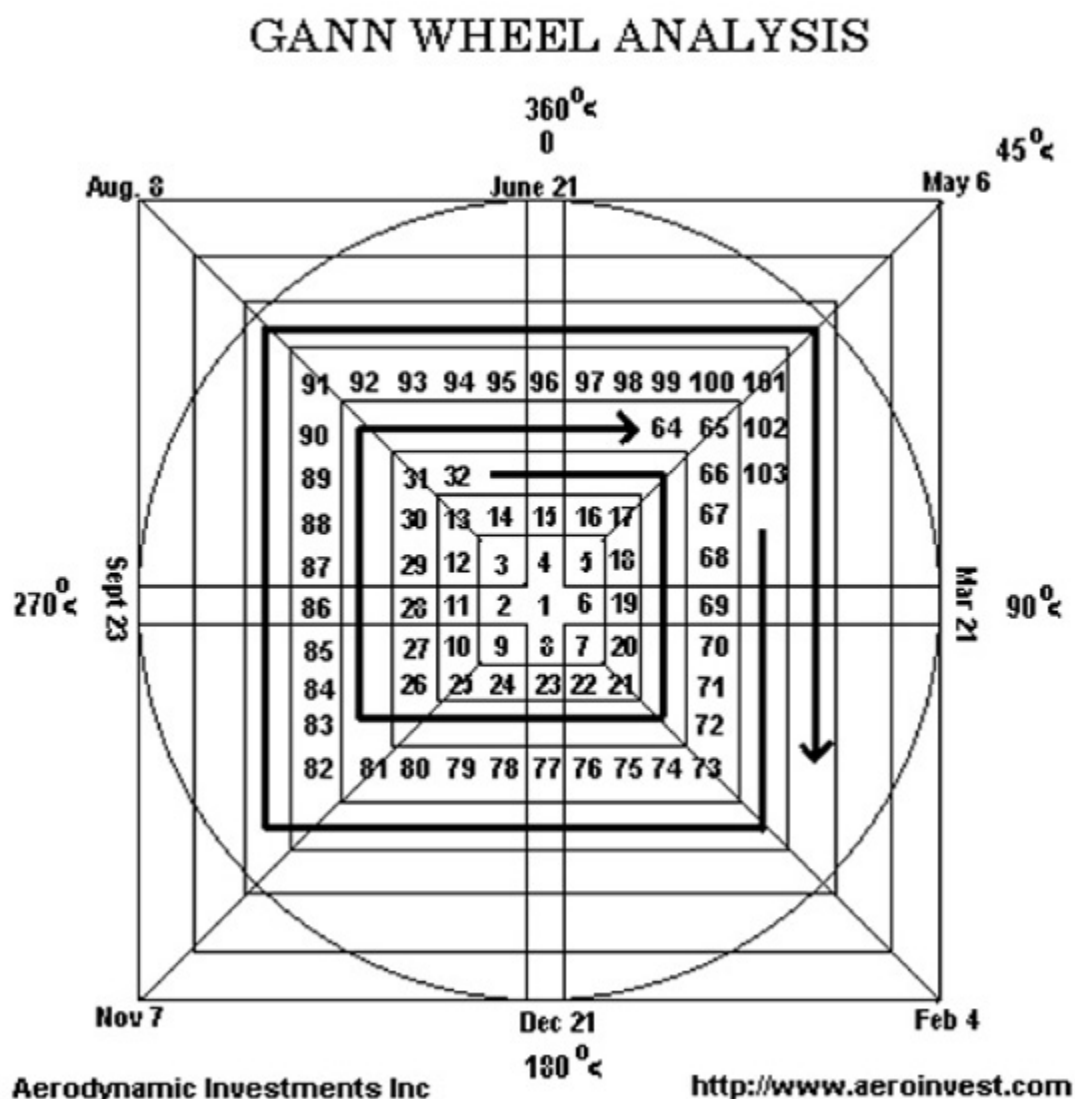


Figure 9.12

The horizontal and vertical cross-sections display a double line so that I can later rotate the cardinal cross and angles of the circle as a fixed unit when 'zero' is set over a starting price. Here is how the wheel becomes a calculator to create a price objective. If a stock were trading at a price of \$15, what would the price objectives be, using a Square of Nine Gann Wheel? Find the number 15 on the Gann Wheel. The number 15 is perfectly aligned under the zero and 360-degree angle marked on the top of the wheel. Because the number 15 is aligned with zero, we need make no further adjustments; just read the Gann targets straight off the wheel. The 45-degree price objective from 15 is 17. The 45-degree line from the center of the circle travels toward the top right corner. The number 17 is the value where the 45-degree line bisects the path of numbers in rows and columns. We would use the phrase "\$17 is 45 degrees up from \$15." Now skip over to 90 degrees and find \$19, then 180 degrees up from \$15 is \$23. The target of \$23 is directly opposite \$15. (We would still say, "\$23 is 180 degrees up from \$15," even though 180 degrees is directly opposite the place where we began. As long as you are obtaining higher price objectives from the wheel, the results of the angles are always "up" from the starting level.) At 270 degrees, \$28 is the price objective. A full 360 degrees up from 15 is 34. (You will have to add two numbers from 32 to fill in the blanks and complete the wheel in this diagram.) That is how a Gann Wheel is used. To make your first example easy I have left out the targets from three other degrees. The angles of greatest interest to us in financial markets are 45, 90, 120, 180, 240, 270, 315, and 360. Are all these angles important? No—not in all markets. Bonds seem to be attracted to 120 degrees when a counter-trend move develops. Currencies love 90 degrees. Each market has its own personality that is consistent.

How do we calculate the major support levels from a stock pivot of \$15 using the wheel? Instead of moving clockwise as we did to find resistance levels, we will move counterclockwise to find support because the numbers decrease as you move counterclockwise. The first target will be on a 45-degree line to the left. It is located at \$13 where the 45-degree line crosses the top left diagonal. The \$11 level would define 90 degrees down. A full 180 degrees down is at \$8. (Do not forget to jump the corner at numbers 10 and 9.) Now skip to the 360 degree target, which is at \$4, the number just below \$15. If you can follow the wheel to identify these price targets, you will be able to obtain the price objectives for the next example. The first

example we covered used a value of \$15. But a stock that trades in this range would need targets that did not have such a large spread. Therefore Gann used a wheel with increments of .50 cents. A factor could also have been used.

What if the price low is \$87? The start has to be changed. Move the Mylar overlay on the top of the numbered boxes to the left so that the zero line at the top now crosses through the number 87. The first target from 87 will be 92. It is just a matter of reading right off the wheel once the start is set correctly. How do you use a wheel for the Nikkei? How do you use a wheel for a market that trades in fractions? There is indeed more than just these basics.

The best Gann Wheel on the market is made by the Lambert-Gann Publishing Company ([www.wdgann.com](http://www.wdgann.com)). They have done a great job of writing a booklet that describes the logarithmic series. You will find Gann Wheels within Gann software and they have made a great effort to create a graphic reproduction of *a physical wheel*. But if you have a computer, why recreate a physical wheel? Let me plug in the starting value and run a list of angles to targets. Why go through all these time-consuming steps?

The Square of Nine is a very cool calculator. A four year project to decode it took me through a Journey back in history and to Cairo, Egypt. It has much more to it than just this brief introduction can offer. But we can look at one of the mathematical properties behind this calculator.

The Gann Wheel is really a square root calculator. The square root of 15 from the first example is 3.873. Now add 2 and it equals 5.873. The square of 5.873 is 34.49. Rounded to 34 it is 360 degrees up from 15. This is a full 360-degree rotation of the circle. But using this method creates issues once you try to extend past 360 degrees. The simple formula above is not the whole story. The logarithmic properties of the wheel will cause errors if you do not understand what you are working with when doing math in harmonic ratios. But stay within the first 360 degrees and you will be able to create your own wheel.

## **Create Your Own Gann Wheel in Excel**

To identify levels of resistance from a price low, use the following formulas in Excel for each of the degrees. The formulas are:

45 degrees (up) = ((SQRT(\$A\$27)) + 0.25) \* (SQRT(\$A\$27) + 0.25)

90 degrees = ((SQRT(\$A\$27)) + 0.5) \* (SQRT(\$A\$27) + 0.5)

120 degrees = ((SQRT(\$A\$27)) + 0.67) \* (SQRT(\$A\$27) + 0.67)

180 degrees = ((SQRT(\$A\$27)) + 1) \* (SQRT(\$A\$27) + 1)

240 degrees = ((SQRT(\$A\$27)) + 1.37) \* (SQRT(\$A\$27) + 1.37)

270 degrees = ((SQRT(\$A\$27)) + 1.5) \* (SQRT(\$A\$27) + 1.5)

315 degrees = ((SQRT(\$A\$27)) + 1.75) \* (SQRT(\$A\$27) + 1.75)

360 degrees = ((SQRT(\$A\$27)) + 2) \* (SQRT(\$A\$27) + 2)

\$A\$27 is a fixed cell location where the pivot price low is entered. I have entered 34 in column A, and row 27. Use '\$' if you have a habit of cut and pasting formulas in other locations within the spreadsheet and you must still reference where you entered the original price low.

The spreadsheet results for a price low of \$34 are:

| start | 45    | 90    | 120   | 180   | 240   | 270   | 315   | 360   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 34.00 | 36.98 | 40.08 | 42.26 | 46.66 | 51.85 | 53.74 | 57.47 | 61.32 |

The Gann Wheel results for a price low of \$34 are:

| start | 45 | 90 | 120 | 180 | 240 | 270 | 315 | 360 |
|-------|----|----|-----|-----|-----|-----|-----|-----|
| 34.00 | 37 | 40 | 42  | 46  | 51  | 53  | 57  | 61  |

These results in the spreadsheet track closely to the values extracted from the Gann Wheel. However, the number 34 is very close to the center of the physical Gann Wheel.

How well will these formulas track if you move further out or away from the center of the Wheel?

The spreadsheet results for a price low of 721 are:

| Start | 45     | 90     | 120    | 180    | 240    | 270    | 315    | 360    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 721   | 734.49 | 748.10 | 757.43 | 775.70 | 796.45 | 803.80 | 818.04 | 832.41 |

The Gann Wheel results for a price low of 721 are:

| start | 45     | 90     | 120    | 180    | 240    | 270    | 315    | 360    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 721   | 737.00 | 748.00 | 760.00 | 776.00 | 796.00 | 804.00 | 821.00 | 832.00 |

The resistance targets from the spreadsheet for 45 degrees, 120 degrees, and 315 degrees are slightly off. How well will these formulas track if you move even further out or away from the center of the Wheel?

The spreadsheet results for a price low of 1624 are:

| Start | 45      | 90      | 120     | 180     | 240     | 270     | 315     | 360     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1624  | 1644.21 | 1664.55 | 1678.45 | 1705.60 | 1736.30 | 1747.15 | 1768.11 | 1789.20 |

The Gann Wheel results for a stock price low of 1624 are:

| start | 45      | 90      | 120     | 180     | 240     | 270     | 315     | 360     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1624  | 1647.00 | 1664.00 | 1677.00 | 1706.00 | 1738.00 | 1747.00 | 1770.00 | 1789.00 |

You are not going to track the Gann Wheel much closer so the formulas above are correct. The 315 angle in the spreadsheet will always be a tad off due to the type of calculation the series of numbers represents. As a result most people do not use 315. I recommend that you do. The results from the Gann Wheel will give you levels to practice reading from a Gann Wheel itself.

To find targets from a price high to identify levels of support, the formulas will be the following;

45 degrees (down) = ((SQRT(\$A\$27)) - 0.25) \* (SQRT (\$A\$27) - 0.25)

90 degrees = ((SQRT(\$A\$27)) - 0.5) \* (SQRT(\$A\$27) - 0.5)

120 degrees = ((SQRT(\$A\$27)) - 0.67) \* (SQRT(\$A\$27) - 0.67)

180 degrees = ((SQRT(\$A\$27)) - 1) \* (SQRT(\$A\$27) - 1)

240 degrees = ((SQRT(\$A\$27)) - 1.37) \* (SQRT(\$A\$27) - 1.37)

270 degrees = ((SQRT(\$A\$27)) - 1.5) \* (SQRT(\$A\$27) - 1.5)

315 degrees = ((SQRT(\$A\$27)) - 1.75) \* (SQRT(\$A\$27) - 1.75)

360 degrees = ((SQRT(\$A\$27)) - 2) \* (SQRT(\$A\$27) - 2)

*I do not recommend using the spreadsheet beyond 360 degrees.*



The method of convention when using a physical Wheel is to continue past 360 degrees as you might with Fibonacci expansion calculations to identify a target at the 2.618 level as an example. But this is not the most accurate way to produce a longer horizon price objective.

The set of formulas I have released above will work well until you need a conversion. How do you put the Treasury T-Bond price scale with 32nds into a Gann Wheel? How do you handle the Nikkei Index? How do you handle currencies that trade less than one? How should an intraday scalper adjust the spread of values and keep them meaningful? If you have values obtained from the outside of a Gann Wheel, why would you want to convert them into the inner-wheel dimensions or visa versa? These questions cannot be addressed here, but they show you where you will be heading and important steps remain as you advance.

For years I used the following in the S&P. It is different, but extremely successful for how that market moves intraday. It will also start you off with a clue on how to handle the questions raised above.

The formula for the S&P 500 is:

45 degrees (down) = (((SQRT(\$C29)) - 0.21) \* ((SQRT(\$C29)) - 0.21)/10) + 300

90 degrees = (((SQRT(\$C29)) - 0.5) \* ((SQRT(\$C29)) - 0.5)/10) + 300

120 degrees = (((SQRT(\$C29)) - 0.67) \* ((SQRT(\$C29)) - 0.67)/10) + 300

180 degrees = (((SQRT(\$C29)) - 1) \* ((SQRT(\$C29)) - 1)/10) + 300

270 degrees = (((SQRT(\$C29)) - 1.51) \* ((SQRT(\$C29)) - 1.51)/10) + 300

360 degrees = (((SQRT(\$C29)) - 2) \* ((SQRT(\$C29)) - 2)/10) + 300

Cell \$C29 adds 3,000 to the handle of the traded price level.

Why is there a conversion in cell 'C' to add 3,000 to the price? Why do I divide by 10 and add 300 in separate steps? It makes life with Gann much easier down the road when you have to work with global markets of all kinds. Why do I use -0.21 and not -0.25 for 45 degrees down? I'll leave you with that carrot for thought to think about. There is a lot of information



in this chapter. Why would I give this away? This is not the complete story to be sure. But nothing has been held back in this discussion about Gann, because the more you know about Gann, the more you will want to know about Gann. By giving you an honest foundation and solid footing to begin, you might be able to avoid some of the nonsense online that will send you off in the wrong direction. The only way I know to end this chapter is with a promise for the future... 'to be continued'.

## Chapter | 10

# USING OSCILLATORS WITH THE ELLIOTT WAVE PRINCIPLE

### Objections and Misunderstandings

I am not going to remove or change the original text because it had tremendous positive feedback. But first, may I please ask you to consider the last chart that was published in the 1998 edition in this chapter. It is the next chart in [Figure 10.39](#) (August 1998). My suggested forecast for the DJIA using just the principles of R.N. Elliott is likely skipped over by readers today because they believe it to be the current chart for the DJIA.

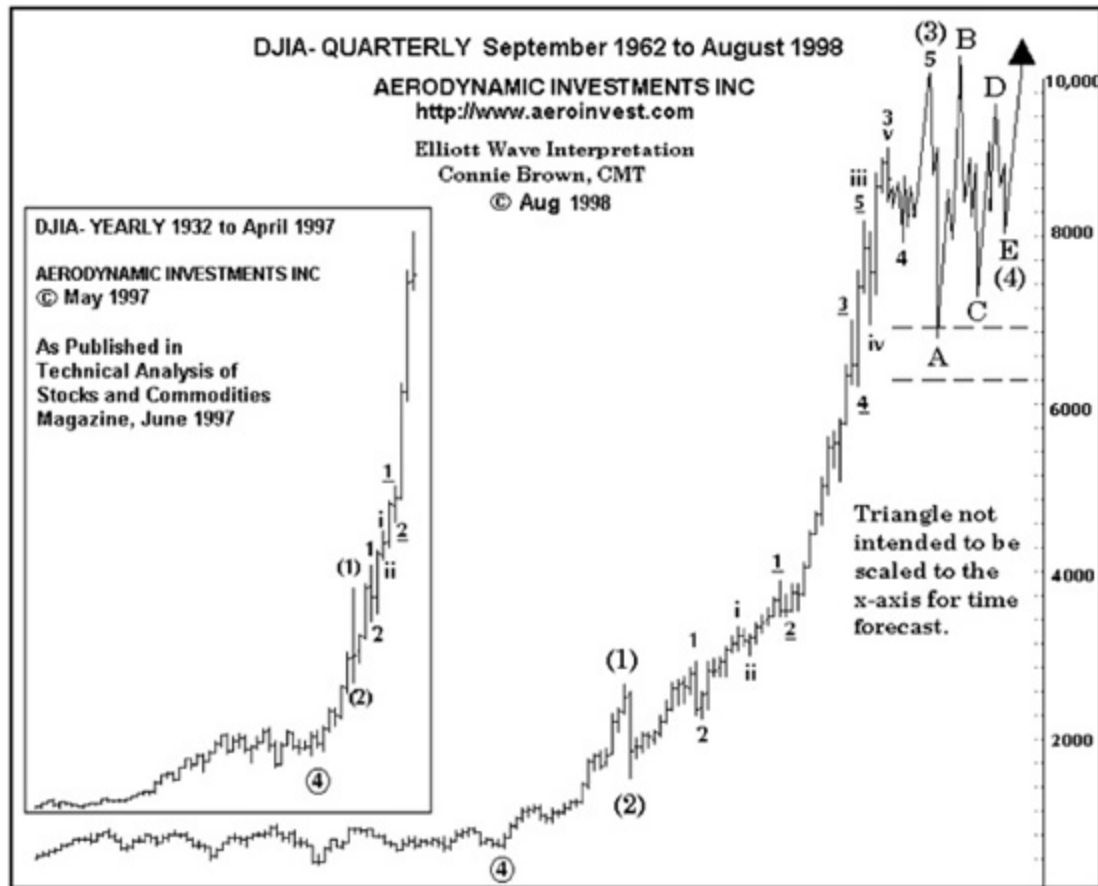


Figure 10.39 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Compare chart [Figure 10.39](#) (August 1998) to the recent chart in [Figure 10.40](#) (August 2011) with a projection for the 2012 year ahead forecast.

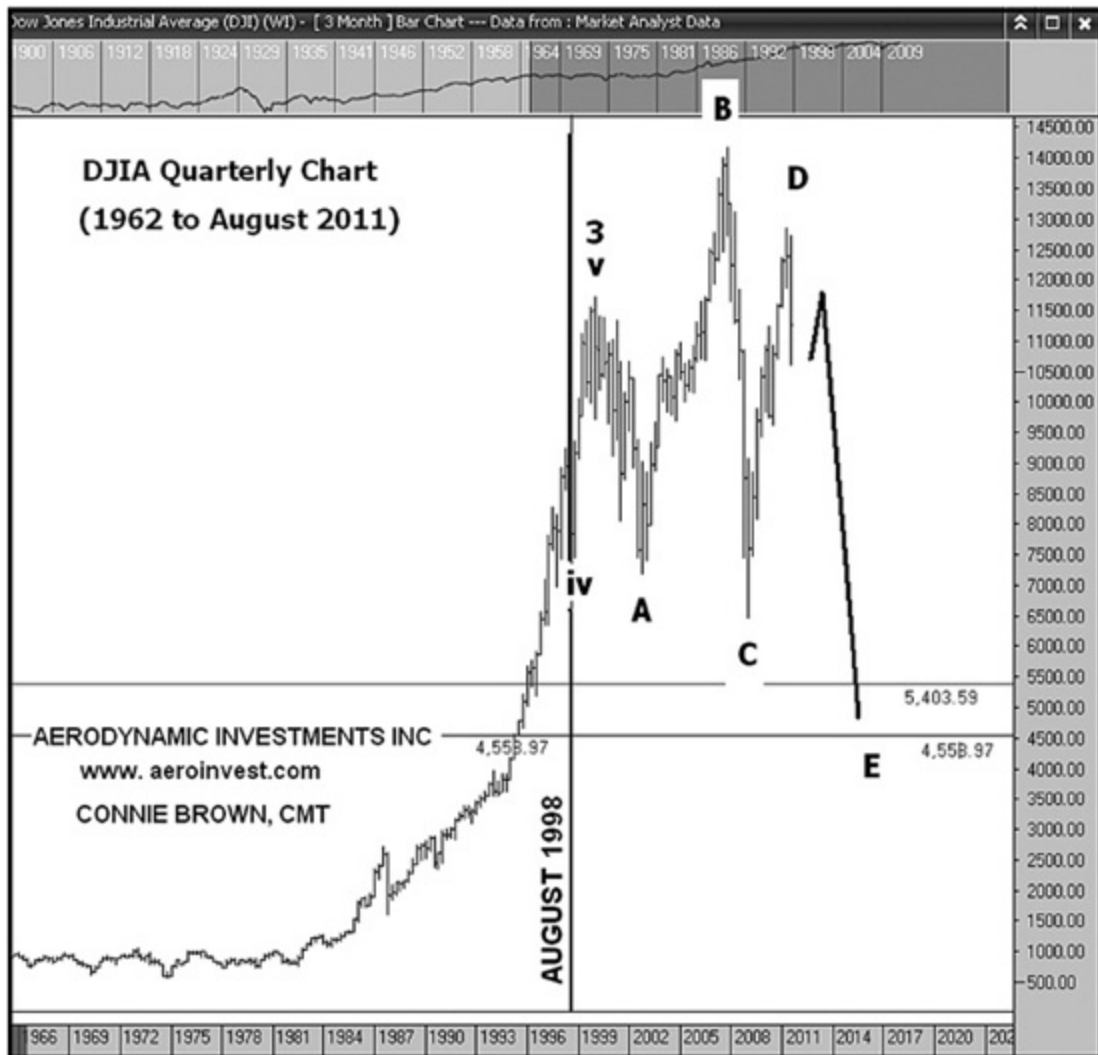


Figure 10.40 Aerodynamic Investments Inc., Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: Charts by Market Analyst 6, Copyright 1996–2011

[Figure 10.40](#) (August 2011) has a vertical line marking where August 1998 occurs in the price data. *The indicated coiling pattern that followed had not even begun the first swing in 1998.* IN fact, the last swing up from the end of wave 4 into wave 5 of (3) had not developed at the time of this suggested path. Yet that upswing prior to the start of the coiling pattern did develop. The suggested future pattern was a multi-year contracting triangle. Time is not implied in the scaling of the x axis now or then. However, the text under the chart states that May of 2000 is when the start might begin.

The start of the first swing down began in January 2000. For a quarterly chart that is an error of one bar. (The time target reference was from my early studies of Gann and not using Elliott.) Then the coiling pattern in the DJIA began to track the forecast with one twist; the suggested contracting triangle is likely an expanding triangle in the actual data. Not an unacceptable forecast when the market was still in the major rally that was incomplete. You will read about corrective patterns in this chapter. The outcome for the DJIA still requires wave E, the final swing in the pattern, to finish with a spectacular decline. Now I will leave you with the current forecast in [Figure 10.40](#) (2011) for the DJIA. The minimum target is 5,400 but likely 4,550 is a potential capitulation bottom if 5,400 cannot hold. Keep in mind none of the coiling price swings were in place when this was first suggested in 1998. Now only the last leg is missing after 13 years. How was this done? I know the guideline of alternation between corrective waves and I know that wave structure is fractal in nature. If you learn about the Elliott Wave Principle you will know these things too. You may be interested to know that I have written 2 books on Elliott Wave. The book was very large so we split it. The first should be released April 2012 called *Mastering Elliott Wave Principle: Elementary Concepts, Wave Patterns, and Practice Exercises*. The second will follow shortly after called *Advanced Elliott Wave Analysis: Complex Patterns, Intermarket Relationships, and Global Cash Flow Analysis*. My first editor moved to Bloomberg from McGraw-Hill and Bloomberg then sold their book division to Wiley. So my books cross all publishers in our industry. That is rare. But it is no reflection on the publishers themselves. The work that goes into a book is mind boggling.

The balance of this chapter remains as written in the first edition without edits. The real-time scenario that develops is said to be very useful by readers. I have a new way to help the “wave deaf” that has been favored by many traders who struggled in my new books. Help is on the way if this describes you. But this chapter will give you a real-time example that walks you through all the patterns in an environment that makes the first steps easier for most.

Perhaps the most hotly debated and controversial analytic method in our industry today is R.N. Elliott’s Wave Principle. Some of the common arguments used to build a case against the Elliott Wave Principle are the following:

“It is too subjective.”

“Analysts have been caught on the wrong side of the market or with diametrically opposing views about the Dow Jones Industrial Average.”

“Too many alternative market scenarios can be suggested by the same analyst.”

“Different analysts can interpret the exact same pattern in different ways.”

“If you scan different time horizons, for the same market, you can find any pattern you want to prove your market opinion.”

Did I leave any out? Probably, but I have certainly listed the most common points often raised as objections toward this methodology. I can take these issues further by addressing each separately.

Let's start with the first objection: “It is too subjective.” Yes, it is. Did an Elliott wave practitioner just cross the line to stand beside the “nay” voters? Don't jump to that conclusion so quickly. I contend that there are several causes contributing to the subjectivity issue. The first problem is that there are a vast number of wave interpretations demonstrated in countless newsletters and published services that violate the basic tenets of the Wave Principle. This problem can be resolved by specifically highlighting some very apparent and common misunderstandings within our industry.

However, these misunderstandings are not the only cause contributing to the subjectivity argument. I will show you in a few pages a wave interpretation that meets every rule and guideline for this methodology. However, when this chart was labeled in a real-time context, I knew the interpretation would most likely be proven wrong by the market. The chart in question will offer an interpretation that most Elliott wave practitioners would have used. The difference is that the skill level required to label the current data versus developing a wave interpretation that will provide a map for the market's future path will require a higher level of skill. An analogy can be offered to illustrate the difference. While many people can learn how to press the correct keys on a piano to reproduce a sonata written by Beethoven, few will develop their skills sufficiently to learn how to turn these same notes into music that others would pay to hear played. There is

a rhythm and harmony in the movement of the markets, and some people are “wave deaf” as others might be tone deaf or musically challenged. Some people can hit all the right notes, but it still comes out wrong.

If not outright wave deaf, one can be “wave handicapped” to the character or frequency of a market’s action for a variety of reasons. As an example, I currently rely on Gann analysis for U.S. T-Bonds and then consider wave counts only if they are very distinctive. However, I know why intraday bond charts are complex and choppy at this time as it fits the wave character of the larger picture for this market and actually adds weight to the longer-horizon outlook. Therefore, my current intraday problem in bonds is only a temporary situation. Unfortunately, some people cannot see wave structure at any time because they are unable to see proportional balances within that market’s price chart. In equity indices, I know that I can pick up wave frequencies and structure very quickly. That gives me the confidence to listen to my gut feeling when price structure suggests overriding another technical method. The hardest aspect of the Wave Principle is to tell people they are technically right, but then to state in the same breath that they will likely be wrong because there is no balance or proportion in their interpretation.

Might you be wave deaf? It really comes down to a left-brain/right-brain issue. You already know if you have an artistic ability or not. I do not mean that you have an ability to paint or draw. Find a stick from a tree that is at least two feet in length. Don’t look at your pen or pencil and think you will improvise. That will be too easy as a pencil is too short. Live in a big city? Find an object like a fireplace tool that is used to poke logs or shovel ashes. Even a broom would do. Put the object on the floor by only grabbing the extreme top so all you gain by moving the object is information about its weight. Now before you pick the object up, study it closely. You must pick up the object at its fulcrum point by using no more than three fingers. That is the point where the object will be balanced and the left or right side will not suddenly take a dive back toward the ground when you pick it up. If you need to make only a minor adjustment of no more than one finger’s width to find the perfect fulcrum point, then you likely have a sense of proportion and balance in your mind’s eye.

Another easy test. Are you the one in your family who gets to proclaim a picture is straight when it is hung on the wall? Or do you have to run for a level to rely on scientific fact? Good luck in an old Victorian home where

the corners, floor, and ceiling are rarely perpendicular or parallel. A picture in such an environment will not look straight if you use a level as you have to balance the picture to offset the multiple parallax errors within the room. My father would have been wave deaf as he measured every picture to perfection from the floor or ceiling. Scientifically he knew the picture was perfect. However, my mother, an interior designer, would quietly “fix” his final calculations that my eye also required so that the picture would look straight to anyone else who could tell the difference. He could not see the adjustments, and one day we had him measure a picture to prove we had made a change. He was horrified to learn he couldn’t see that a large painting had been shifted nearly seven centimeters between its top corners from the base boards. The change was needed because the ceiling caused a parallax distortion, and the shift made the picture appear straight within its environment.

Anyway, if you think about it, you already know if you are graphically handicapped or not. You can still learn to label charts and understand other people’s wave interpretations, but your own interpretations as a real-time trading tool might be weaker. In my opinion this is the most important area of study once someone knows the basic building blocks of the Elliott Wave Principle. There are a few methods that can help you find higher-probability scenarios. *As an example, start your wave count in the middle of the market’s move instead of from its origin or extreme high or low.* You will see a few different methods used in this chapter to develop a wave count.

We are not quite done with the subjectivity argument. A strong point people make is that “analysts have been caught on the wrong side of the market or with diametrically opposing views about the Dow Jones Industrial Average.” That is true. I worked for Robert Prechter a few years prior to the Centennial Olympic Games in Atlanta. I was accountable for the day-to-day analysis of the S&P 500 Index. In addition to an evening report, I transmitted frequent intraday real-time wave counts with market objectives for institutional traders to consider with their own analysis. These traders monitored the live updates throughout the day on their Bloomberg, Reuters, Telerate/Bridge, and DTN quote systems.

During the time I worked for Bob Prechter, I was extremely bullish on the U.S. stock market. I will show you why later. While that particular outlook was correct, there have been other occasions when the market has



proven my opinion to be dead wrong. The institutional traders who used to monitor my live wave counts from their quote screens know I had to eat humble pie for dinner on several occasions.

The S&P 500 is my specialty, and you will fully understand how two people can utilize the Elliott Wave Principle differently and derive different opinions by the end of this chapter. In a capsule summary, you will see that I *construct* wave interpretations from technical indicators. The final results will look the same to you, as a labeled chart will be defined, but the underlying considerations that went into that wave interpretation will be entirely different from using price structure alone. This is a very unorthodox method of applying the Elliott Wave Principle.

Therefore, the technical indicators one uses in conjunction with the Wave Principle and how they are used will contribute to the subjectivity of our wave interpretations. The balancing act between indicator direction and price structure will be demonstrated. Find the right balance, and it is possible to move in perfect synchronization with most of the twists and turns the market will develop. However, overlook an important piece of information from either the Wave Principle or an indicator and the synchronized dance will assuredly step off track. Of course, we can step off track using indicators alone. *However, use the Elliott Wave Principle alone and you will be out of sync more often than if you just used indicators.*

I can see how that last sentence may be used out of context. But before you jump to the conclusion that I have implied the Elliott Wave Principle is of little value, let me point out the flaw in that hasty assumption. Indicators have a very serious inherent weakness that cannot be corrected by just adding another indicator or developing a new formula.

[Figure 10.1](#) displays similar sell signals when the Composite Index and RSI diverge in four different markets. How do you know just how large a correction will unfold from these identical signals? Oh sure, we have calculated targets, lots of targets, *but which one will be the likely bottom?* The monthly Hang Seng signal preceded a 56 percent decline. A daily S&P signal has *so far* produced a 6 percent decline. Gold fell 29 percent before the Composite Index found its first pivot. The weekly DMark futures chart fell 20 percent, and it had not bottomed. These identical bearish diverging sell signals leave us with the same question: “Just how far down will this market go?” You can see that the markets are oversold and that a countermove up can be expected, but will the next sell signal lead only to

an even stronger leg down in these markets? So the Elliott Wave Principle becomes the much-needed tool we can use to obtain information about the size of the reaction we can expect from any given indicator signal. Elliott is hard to live with, much harder to live without. Just don't live with it alone!

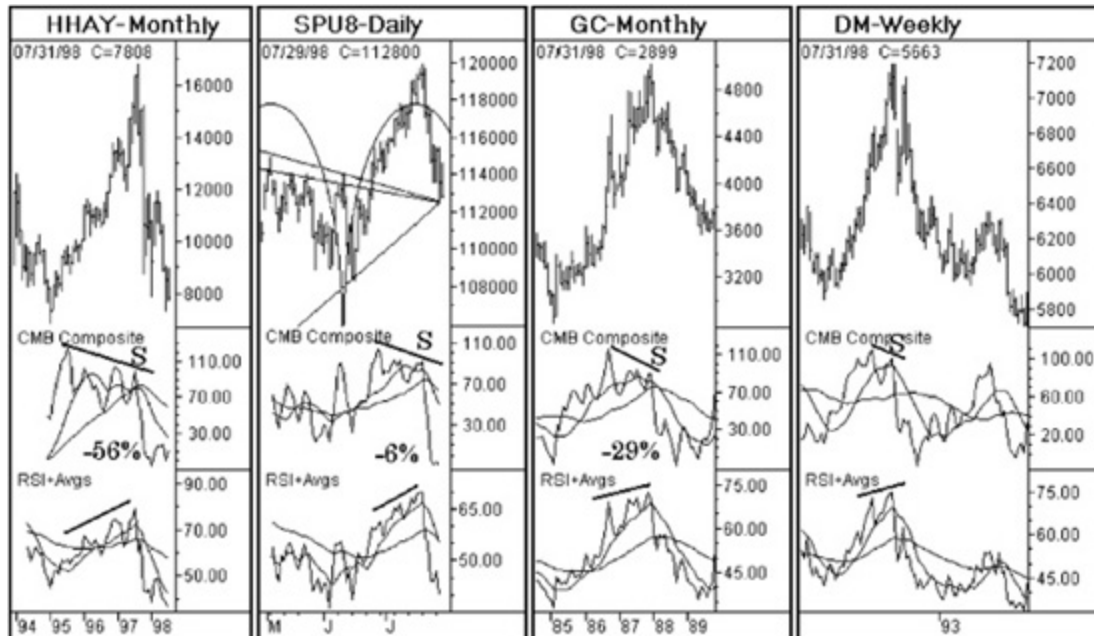


Figure 10.1 Aerodynamic Investments Inc., © 1996–2011,  
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Another common objection is that there are “too many alternative market scenarios that can be suggested by the same analyst.” We can also fold into this same argument: “Different analysts can interpret the exact same pattern in different ways.” An intellectually honest Elliott wave practitioner will admit that there are times when there are no discernible wave structures from which to build a highly probable interpretation. It is better to openly admit that sometimes the Elliott Wave Principle has little more to offer than the development of a slew of scenarios. Every analytic method will have periods when it is not decisive. Sometimes we just have to wait, and we would be better off keeping the ideas being considered to ourselves until the market becomes more defined. Elliott takes numerous hard knocks in this regard. In an effort to pick up a lost trial, we may openly discuss all that we might think or hypothesize from little more than muddled, congested price bars that form wandering data tracks on our screens. Guilty as accused. But recognize that one who “sees” waves in

market data will lose his or her own center of inner balance when he or she has lost the pattern of the primary markets.

My whole day goes out of whack just because my world has lost its quiet knowing that “my” S&Ps are tracking and are at a certain position within a larger framework of the Universe. All is right in my small world when the market’s footprints have again been identified. So the inner struggle that goes on when you “lose it” is the needed incentive to dig deeper into the markets to see what is being missed, if for no other reason than to restore a sense or balance and inner peace. Sounds odd, but is very true.

Just one last addition to the too-many-alternatives argument before we move on: Some people will not tolerate seeing the word *alternative* at all. If you fall into this group, you might be among those who do not understand why there should be an alternative market scenario. It can be strongly stated that there is no doubt in your mind that the market will move in a certain way to a certain target level. That outlook should always be stated with a market level that identifies where you believe you are wrong. Should the market exceed or penetrate the marker you have defined as proof that you have stepped off track, then there should be a scenario prepared in advance to explain what might be developing that you had first considered to be *a much lower probability*.

The problem with the alternative view is when you are not given a do-or-die level to show where the analyst believes his favored outlook will be wrong. The analyst who does not have an obligation to state where he is wrong is not trading that market. *The accuracy that a trader must have about where she may be wrong is more important to her longevity than will be the accuracy of her market forecasts.* Knowing where we are wrong will dictate where our stop placement should be and further defines our risk-to-reward ratio. I would much prefer to be wrong on the reward aspect of the ratio than to have made an error on the risk portion of the equation. The reward might be more or less, but risk exposure to capital must be very precise.

Placing stops near market levels that negate a favored wave interpretation is poor money management. As an example, never place a stop below the third swing in a triangle that we call “wave c.” The slippage exposure will be horrendous. Therefore, you must devote as much effort to defining the levels where you might be wrong as you do to calculating

where you believe the market might go if you are right. Within this framework the alternative game plan is not a hedge to a favored opinion. Preparing an alternative scenario simply shows we are trying to think ahead, knowing that when in battle, it is hard to be objective about a new market direction once the better view has been proven wrong.

If analysts ever use their alternative market scenario to state “You see, I was right all along because we said the market might would do xyz,” then they are not being intellectually honest with you or themselves as their higher-probability scenario was wrong. Just step back. Reassess your position. Then move forward again. But if there is no favored outlook to begin with, that is an entirely different problem. Far too often analytic services read “If not this, then that,” and they use this sentence construction all the time. It warns me that something is lacking in the methodology being applied.

The last common objection mentioned at the start of the chapter was, “If you scan different time horizons for the same market, you can find any pattern you want to prove your market opinion.” Sigh. This objection about picking the best time horizon to support your wave count is usually expressed by traders who are wave deaf. We will go through how larger patterns subdivide. Short time horizons are just the smallest building blocks of the whole *and must fit the whole*. However, the shorter the time horizon, the faster you can see when a market is beginning to develop a move not within your larger game plan. Traders who focus on the smallest building blocks within a larger pattern will be able to react faster than traders who focus only on the larger pattern. The latter group often gets caught in an updraft or downdraft because they tend to force the short horizon to fit their longer horizon opinion. Traders and analysts focused on the long-term pattern will be caught more often. Before we can address this topic fairly, we need to discuss the basic patterns of the Elliott Wave Principle.

## **Impulsive Waves**

Let’s try something different. We will not be discussing stick charts or line-on-close charts because many people find it hard to translate a straight-line illustration into a High-Low-Close (HLC) bar chart in a real market environment. It is also more important to realize that it is the market action above and below the close that can kill a trader! So no line charts this time.

In addition, it is really boring for the reader to have to wade through pattern after pattern when there is no real context in which to see how all these patterns may flow together. You do not want to read a descriptive list about Elliott patterns, and I certainly do not want to spend the time writing one. *So let's do this in real-time.* I have a chance of being dead wrong in a book that is expected to have global distribution. Is that any different from a market report transmitted live around the world? Not really. But be assured that I have used every single method outlined in this book in order to try and find the starting point for a real-time scenario that will give me the best chance possible to start off on the right side of the market.

We will apply all the techniques previously described as they are needed. This will help you understand how they can be used in a real market environment that will become a time-sequenced event. If I step off track, it will be extremely informative to show you how to reassess your original game plan and understand when to pick the new count up for a trade. So, right or wrong, we should end up with much more information than a cataloged listing of 13 Elliott wave patterns when the chapter concludes.

[Chapter 1](#), [Figure 1.4](#) showed Hong Kong's Hang Seng Index on June 3, 1998, and the comment was made at that time when the chapter was written that the Hang Seng market did not have a bottom in the daily chart. Looking back now on July 24, the market low in that chart was 8,351 on June 2. The market has since declined to 7,351, which is a major Fibonacci support cluster and Gann confluence zone.

As the Gann chapter has been entirely replaced from the first edition, I will have to transfer one paragraph from the first edition over to start this trading example. it gave the analysis and time targets for the market interval that follows.

“A market top occurred July 20, 1998, near a time confluence objective, and there has been a decline from a high of 9,367.8 to a current low as this is written to 8,855.7. A 512.1 point decline in the DJIA from the high is only a 5.5 percent decline. But you might agree that this is still a fairly respectable reaction to a Gann time and price confluence point, *and we will soon turn to other methods that warn the current correction may not be over.*”

So that is the market we will track.

The S&P traders might be frustrated that I will use the DJIA to track a real-time scenario rather than our futures market. I chose the DJIA because I am concerned that traders unfamiliar with the Elliott Wave Principle would become completely lost if they were to see the Globex night session data that we have to contend with now in the S&P 500 futures market. It would make a difficult topic more complex than it should be for someone less experienced. (2nd Edition note: This is no longer a concern or factor. The data must always be used for the 24hr period.) I promise to spend extensive time on the S&P itself at some point within this chapter. But the DJIA always creates a cleaner wave pattern. (2nd edition note: Now the Toronto TSE is a good alternative Index to track for cleaner wave structure against the SP500.)

I had created a problem for myself in a public broadcast. On Friday, April 17, 1998, I was in the Los Angeles television studio KWHY-TV being interviewed by Richard Saxton. The following excerpt is from that live interview:

*Richard:* Are you looking toward Dow 10,000, as most analysts are, now that the 9,000 level is behind us?

*Connie:* No, 9,000 is of no particular significance in the methods I use. What will be far more important is how the DJIA reacts to 9,339. Both Gann and Fibonacci work suggest this is a critical area. If we can pass through 9,339 without a hitch, we will reach 10,000 fairly easily. But I do not think the market will be able to break through 9,339 without some sort of [a] reaction.

So, unwittingly on my part, DJIA 9,339 became public record and was given much more attention by some than was ever intended. I am now in a bind as the DJIA closed four days ago at 9,337.9. I did not even know that was the close until e-mail messages flooded my inbox. In truth, I think the target was missed as the high in place is 9,367.8. The September S&P target is much closer with a high at 1,199.40 and shows a better pattern to use as a start. However, I'll stay with the DJIA and avoid the S&P Globex problem that will distort even the simplest pattern. First, we need to discuss the most basic building block within the Elliott Wave Principle: a five-wave pattern. Then we can begin the real-time journal.

The world of R.N. Elliott, and your lifetime sentence to count waves for ever more (at least I warned you!), begins with a simple five-wave pattern. [Figure 10.2](#) is a one-minute bar chart of the Cash S&P 500 Index so it cannot be subdivided any further into a smaller bar chart. As mentioned earlier, don't use tick charts for wave pattern purposes. In my opinion if you cannot use tick charts for wave patterns, then you should not apply them to technical indicators either. Tick charts are bars where a fixed number of trades define a bar. As an example, a 25-tick bar chart *will have no time axis*. While using tick charts is not recommended, Point-and-Figure charts are recommended for use as diagnostic tools. We will have to come back to this later so that we do not stray too far off our present discussion.

## *Aerodynamic Investments Inc.*

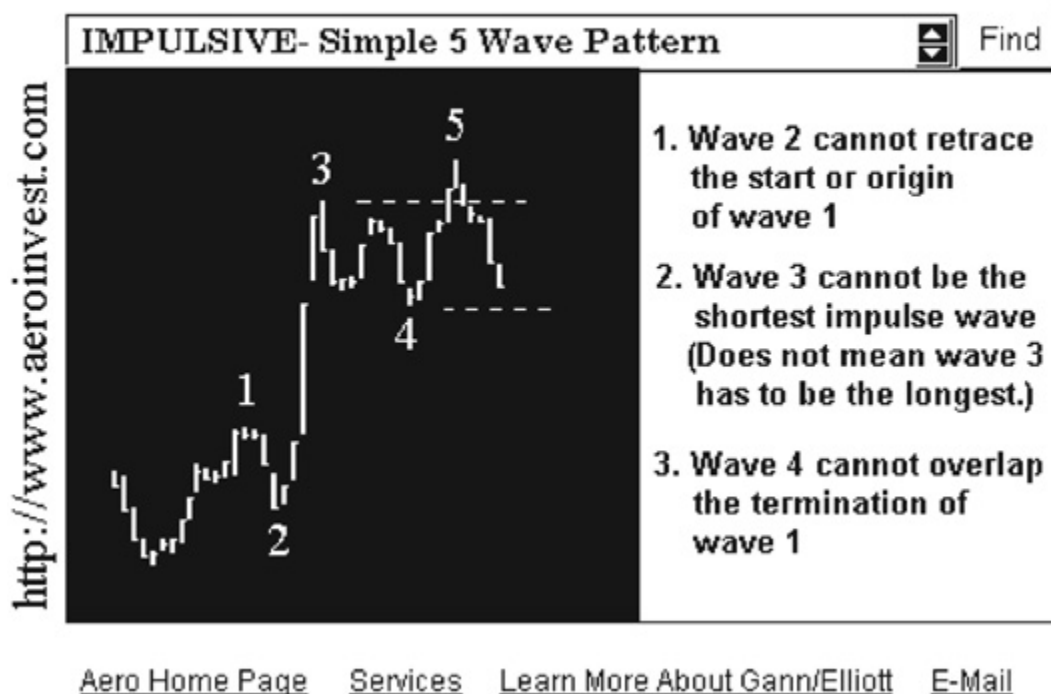


Figure 10.2

The expansion cycle of a market unfolds in a pattern of five waves. A new trend begins with a few well-informed or lucky traders who move the market in what will later be seen as the start of a larger move. The first leg is called “wave 1.” The rest of the crowd assumes the prior trend is still the dominant market direction, and this causes the first correction we call “wave 2”:



**Rule 1:** Wave 2 may not break below the origin of wave 1.

In [Figure 10.2](#), wave 2 down retraces part of wave 1. Some markets, such as currency markets, characteristically retrace most of the first wave. That comes from knowing the personality of your market after years of sitting before a computer screen. Whatever is the normal character for a market in a very short horizon chart will someday be seen in that market's longer horizon charts.

From the end of wave 2 a strong rally then develops because the sleepy traders who assumed the former trend was still in force are now squeezed out, and they have to unwind their positions at the same time as the majority are trying to establish a position when they realize a new trend is unfolding. Everyone is entering orders on the same side of the market for one reason or another so the third wave is most often the strongest:

**Rule 2:** Wave 3 cannot be the shortest.

This rule actually leads to a common misunderstanding. *Wave 3 does not have to be the longest*; it just cannot be the shortest when compared to waves 1 and 5.

Then you have traders who want to take some profits, and this action forms the second correction that becomes the fourth wave:

**Rule 3:** Wave 4 cannot overlap the end or termination of wave 1.

The Wave Principle only has three rules. Easy. Everything else is a guideline. Meanwhile the traders that missed the strong rally that developed in the third wave position have been sitting on the sidelines of the market waiting for a chance to participate in the next move. So, sure enough, after some profit taking, they step into the market and buy in unison, forming a fifth wave up in the direction of the larger trend now in force. In a very short horizon, who is left to buy? Right. The retail traders who just discovered something is happening in this market and their orders press the trend just a little more. Now the whole pattern is ready to be corrected with a three-wave movement down. The five-wave cycle can then repeat itself once again.

Waves 1, 3, and 5 are called *impulsive waves* as they are clearly dominant and define the direction of the larger trend. Waves 2 and 4 are the corrective phases of the five-wave cycle. People get so fanatical about the internal construction of these waves and how they are built upon blocks of

fives and threes and threes and fives it makes their head spin. It is far more important to understand and feel the rhythm unfolding in a market before diving into the construction of the different patterns. Some quote systems allow you to compress the  $x$  axis. *By compressing the scale, you force yourself to study the rhythm and proportions unfolding in the market because you cannot see the finer details.* This is something I will frequently do within any time horizon as it is too easy to get caught up counting every little squiggle wiggle in the chart.

[Figure 10.3](#) displays three markets with a compressed  $x$  axis: the weekly Hang Seng Index, the weekly NASDAQ Index, and a 40-minute DMK/\$ chart on the far right. Your first task is to please mark each chart so that balanced five-wave patterns emerge.

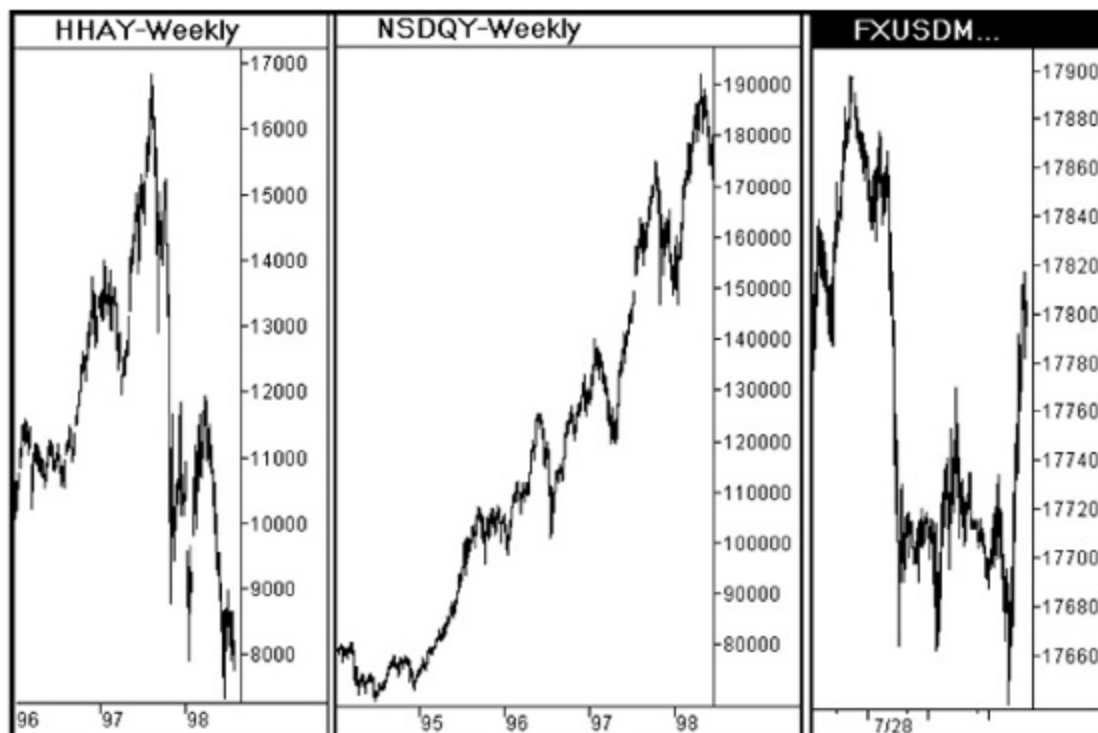


Figure 10.3 Aerodynamic Investments Inc., © 1996–2011,  
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Source: TradeStation. © TradeStation Technologies

Look at the Hang Seng chart first on the left. Would you mark five waves down from the top of the chart data to the very bottom? Or would you feel five waves down ended at the low in early 1998? Guess what—it does not matter which one you prefer because if you thought a five-wave structure ended at the low in early 1998, you would be on the right side of

the market because a large rally then followed. You had the right rhythm. Your indicators would have warned you that the rally into the 1,200 level in late March was another major sell signal. We have guidelines to help us determine balance and proportions, but you didn't need them as you were on the right side of the market.

Next, review the weekly NASDAQ chart in the middle of [Figure 10.4](#). I deliberately had to scroll this chart back so that you could not see the present data. The real chart is a five-wave advance. However, if you found a five-wave pattern from bottom to top in the NASDAQ chart in [Figure 10.3](#), you have a problem. You need to be able to see that some of these waves should be grouped together as they have similar character. As a group, they also have balanced proportions within their relationships. There are two pairs of five-wave structures in this chart. The second five-wave pattern into the high is much more forceful than the first.

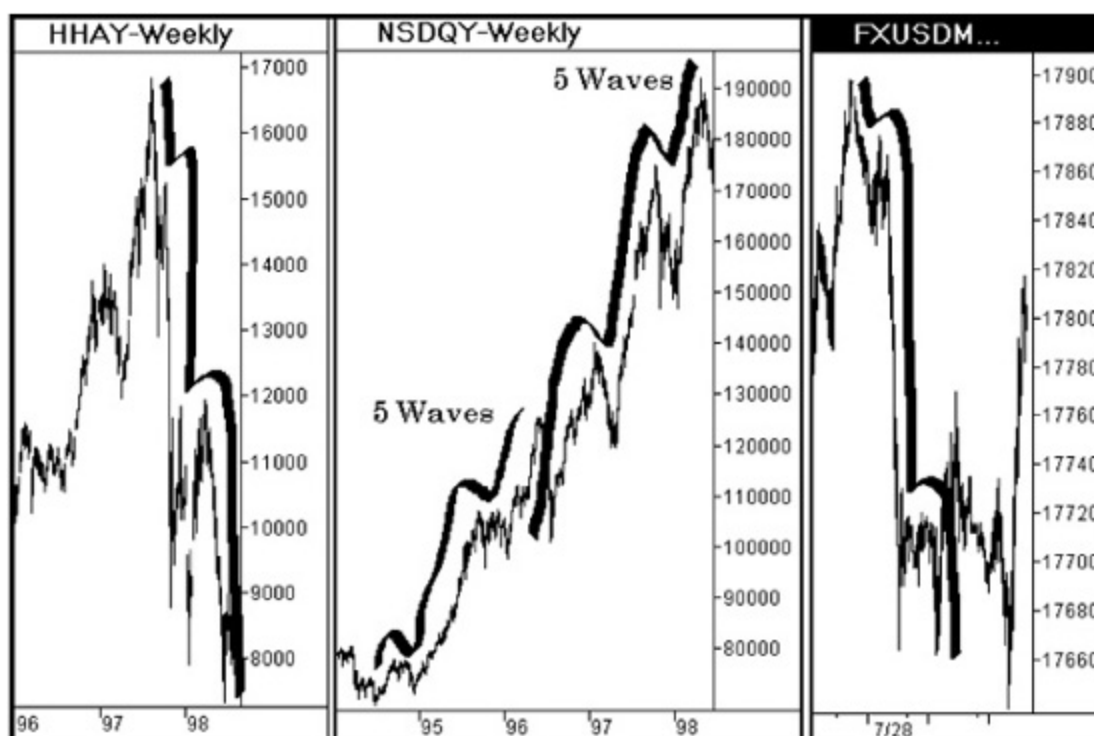


Figure 10.4 Aerodynamic Investments Inc., © 1996–2011,  
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Source: TradeStation. © TradeStation Technologies

Textbook Elliott wave practitioners may become troubled with the fifth wave in the first five-wave pattern in this chart. You'll immediately start to subdivide it as we cannot stop ourselves from doing so. The data has been

compressed precisely for this reason so that you are unable to see clearly if any structure has internals that subdivide into 5s or 3s. Who cares about the internals in this chart? When the first five-wave pattern concluded, the market declined right to the previous fourth wave target zone and then produced a major rally. So stick with a view of the total picture. (If you are new, note that I'll explain the "previous fourth" comment in a moment as I know I jumped ahead of you. Stay with me.) But this is why some of the strongest textbook Elliotticians get themselves into trouble toiling over every little squiggle with an objective to catalog and connect perfect patterns endlessly together. The point is that *you did not need that level of expertise to make money from the pattern.*

I had to jump ahead, so let's back up and fill in the gap. Once we have a five-wave pattern in place, there is going to be a move in the opposite direction to correct the entire five-wave cycle. After staring at these redundant patterns so often in all time frames, we know to anticipate where the next target will be located when the market corrects a completed five-wave cycle. We call this target zone *the vicinity of the previous fourth wave*. Take a look at [Figure 10.2](#). Where wave 3 topped and wave 4 bottomed, there is a dotted line marking the start and end of wave 4. The target following a five-wave pattern will be to this zone, which is *anywhere* within the range of the previous fourth wave. That is extremely helpful to know in long-horizon charts as we now have a sense of the size of the correction that will follow from any indicator signal that coincides with the end of a five-wave pattern. If my Gann time projections are correct and we now have a five-wave pattern visible in a weekly DJIA chart, our real-time scenario could get pretty interesting.

In [Figure 10.1](#) we were unable to determine the magnitude of those market corrections from just observing divergence in the indicators. It is only after we have added new information obtained from the Elliott Wave Principle that we gain a sense that there is a larger road map that we can turn to as a guide. It is as if someone were giving us directions by stating, "Turn left at the next corner and go straight until you reach California" as opposed to stating, "Turn left at the next corner and go straight until you reach the next McDonald's restaurant." The scale is entirely different, although both directions correctly begin with an immediate left turn at the next corner.

The last market in [Figure 10.4](#) is a 40-minute DMK/\$ chart on the far right. If you are just learning, you will likely mark the entire data in this chart as a five-wave pattern from top to bottom. That's OK for the information you have been given so far. The more advanced Elliott wave analyst will recognize that the last leg down is part of another pattern that the novice will easily recognize by the end of this chapter. However, both the novice and the advanced Elliott wave practitioner will be on the right side of the market as both would have been looking for a rally in the dollar from the price low in this chart. (The more experienced wave counter would be scrambling to again reverse or step aside where this chart data ends. The novice will soon understand why.)

Let's go back to the NASDAQ chart in the middle of [Figure 10.4](#). We said markets move in five-wave patterns in the direction of a larger trend. This chart shows two five-wave advances in a clearly defined bullish trend. The total picture is not a complete five-wave pattern, and the second pattern of five waves is clearly stronger than the first. What is happening? This market is extending, which means that once *another* five-wave pattern forms over the first two in this chart, we will then have a larger five-wave pattern. The reason is that the impulsive waves in positions 1, 3, and 5 are themselves constructed from smaller five-wave units. So three sets of five-wave patterns that still abide by the three rules stated for the simplest five-wave pattern in [Figure 10.2](#) will become a larger five-wave pattern. Let's take a closer look at an extending five-wave pattern in [Figure 10.5](#), and then we can start our day-to-day tracking of the DJIA.

## Extending 5 Wave Pattern

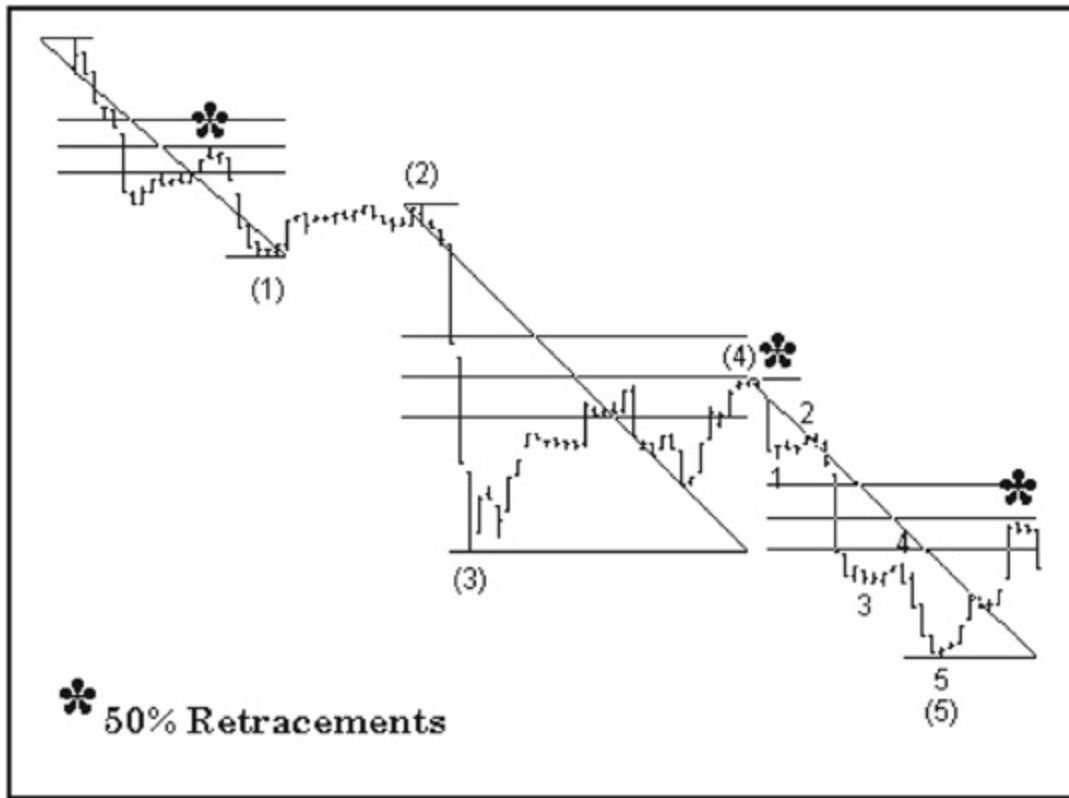


Figure 10.5 Aerodynamic Investments Inc., © 1996–2011,  
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Take a look at the last five-wave cycle in [Figure 10.5](#). Each wave is labeled 1 through 5 into the price bottom. The start of the last five-wave cycle is marked wave (4) at the top and the bottom is marked wave (5). As you look up the data and then study the whole structure, you can see that this last move down is the fifth wave within a larger five-wave cycle. Wave (3) in the middle is so forceful that it is nearly a straight line, and it is hard to see that it can be subdivided into five distinct waves from the top of wave (2) to the completion of wave (3). That is why we drop down to the next shorter time horizon so that we can confirm that a five-wave structure is present as more price bars become available for study. The price decline is so strong, however, that we already know that it is a third-wave decline. The assertion that you should look at different time horizons to pick a pattern that best fits your view is wrong through ignorance. *Regardless of the time horizon we use to view this third wave down, it must have internal building blocks that form smaller five-wave patterns that are complete.*



A market that is extending is much easier to count if you start in the middle of the chart. I know, this one sounds screwy at first. I go great length to describe how to start in the middle of larger trends in the new Elliott Wave books that just went to production. So the quick reference people found confusing in the first edition has been removed. Start in the middle of the strongest bar or swing and counter-balance corrections and rallies above and below it.

What if the next five-wave pattern that the market forms is even stronger than the first that defined our midpoint? We would then have to make an adjustment and use the stronger move as the new midpoint. Our DJIA scenario could create a lengthy extending pattern, and we may have to use this technique at some point. It is always balance, rhythm, and proportion that should be given the greatest thought for any chart.

There are three asterisks marked at 50 percent Fibonacci retracement levels in [Figure 10.5](#). The first asterisk is the fourth wave up within the first five-wave pattern down that completes wave (1). The second asterisk marks a 50 percent retracement for all of wave (3) and becomes the area of resistance for wave (4) up. Once the entire extending five-wave pattern is complete, the first bounce up is to a 50 percent retracement relative to the last five-wave cycle in the sequence or the fifth wave. You would now want to know the Fibonacci retracement ratios relative to the entire decline as well. These repeating ratios show the market is extending, *but not expanding, its scale*. Proportions remain about the same. If the decline were accelerating, the corrective rallies would begin to fall short of the 50 percent retracement levels marked in this chart. We covered this topic in great detail within the Fibonacci chapter so we will not venture down that same road twice. But the internal Fibonacci ratios and resulting math grids on the screen are extremely important. [Figure 10.5](#) gives us an overall picture that has symmetry and balance.

Let's begin to study the DJIA real-time and track it through the remainder of this chapter. The challenge will be to continue building our knowledge about the basic building blocks that we use within the Wave Principle so that we can keep up with the realtime market patterns that develop. Permit me to switch to a journal writing style in an effort to make my task a little easier.

It is now July 24, 1998. In [Figure 10.6](#) we have a seven-minute chart of the Dow Jones Industrial Average. The chart was labeled so that it could be



used in my evening market report. However, it is not the best interpretation when balance and proportion are considered so a new chart had to be constructed.

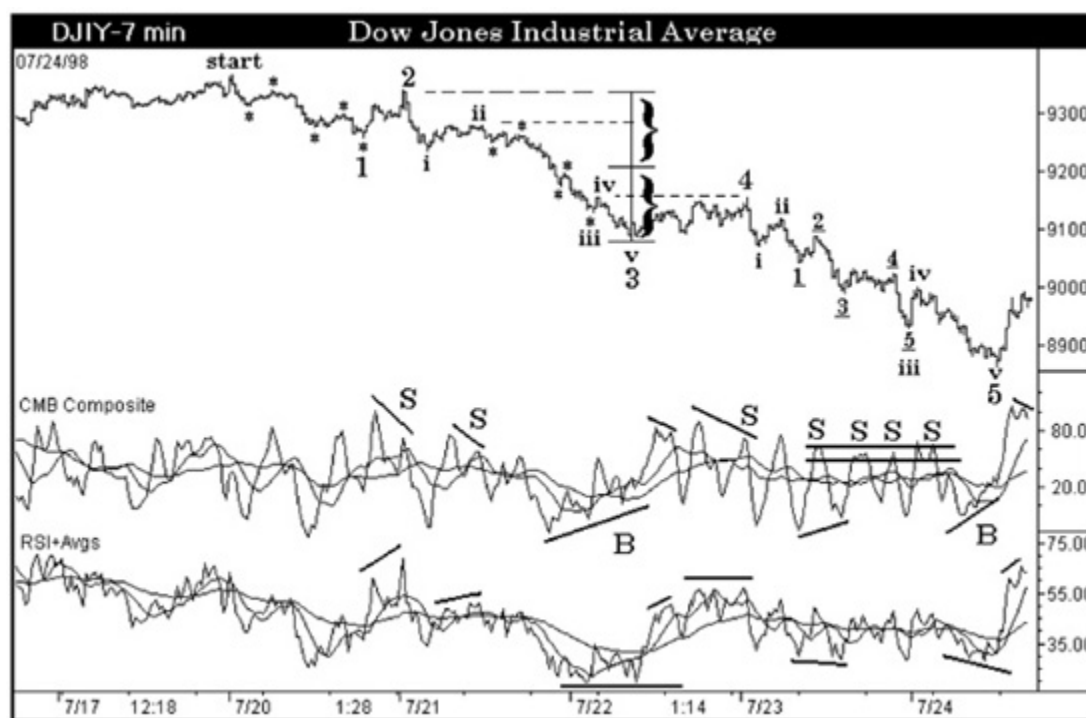


Figure 10.6

Source: TradeStation. © TradeStation Technologies

In [Figure 10.5](#) we saw how a larger five-wave pattern can be subdivided into three individual sets of complete, though smaller, five-wave patterns that follow one after another. It takes three sets of complete five-wave cycles to construct a larger five-wave pattern, and they cannot break the first three rules that were defined for [Figure 10.2](#). However, it is not enough to simply find five waves that meet *minimum* requirements and sit back, content with the knowledge that the market has reached an important pivot. This is true even when our supporting indicators offer major signals to complement our view that the five-wave cycle is now complete.

In [Figure 10.6](#) the five-wave pattern labeled will meet all the rules and guidelines of the Elliott Wave Principle. First locate the pivot levels labeled 1, 2, 3, 4, and 5 in [Figure 10.6](#). As we have not discussed how to label subdivided waves, we can take this opportunity to do so now. The high in this DJIA chart at 9,367.8 was made on July 20, 1998, and the chart shows

the correction into the close of July 24. Start from the price high in this chart and follow the first five-wave decline that forms wave 1 down. The individual subdivisions within wave 1 are marked with only an asterisk. They need to be labeled with something other than numbers 1 through 5 to avoid confusion with the larger structure unfolding. So the smaller subset that we refer to as *one lesser degree* should be marked i, ii, iii, iv, and v. Beneath wave v we put the number 1 to show where we think the first five-wave cycle ended. Then there is a correction marked wave 2 up that leads to wave (3) down. Within wave (3) we again run out of labels, as wave iii itself subdivides further into another small five-wave pattern. The small five-wave cycle that is marked with asterisks between the end of wave ii (better said, the start of wave iii) and the end of wave iii is what we call the *third-of-third* wave because it is wave iii within 3. This wave position is always the strongest part of any market move. We will use an underlined number when we run out of ways to differentiate additional subdivisions in the chart next time.

As the patterns subdivide into smaller portions, we refer to each as one lesser *degree*. Bob Prechter's labels make more sense than R.N. Elliott's, although we keep running out of ways to subdivide intraday data. The following labels are described in more detail in the book *Elliott Wave Principle: Key To Market Behavior* from Elliott Wave International. Waves (I) to (V) are reserved for Supercycle Degree, I to V denotes Cycle Degree, and then numbers 1 to 5 within circles are used for Primary Degree. The degrees which follow are the more common ones you will see; Intermediate Degree uses (1) to (5), Minor Degree uses the numbers 1 to 5, then i to v for Minute, and finally 1 to 5 for Minuette.

When you subdivide wave structure all the way down to a very short time horizon, it is very easy to run out of conventional characters. I will use 1' to 5', then 1" to 5≤ as the primes easily work within electronic word processing. But others have used .1 to .5 and then ..1 to ..5. The dots are very hard to read, particularly if the chart is faxed, but the method I have been using is not a whole lot better. Just know you have to be consistent so that others might be able to follow your interpretations.

We left off where wave 3 down was complete in [Figure 10.6](#). We then see a correction unfold *back to the previous fourth wave*. We covered this phrase earlier, and you may want to turn to [Figure 10.2](#) if you need a quick recap. The correction becomes wave 4 up, and then we have an extending

pattern that creates wave 5 down into the price low. That's it. We have just labeled every twist and turn in an extending five-wave pattern that is now complete. Or is it complete? That is how most analysts will end their wave interpretation *as most people try to find the best fit for only the data that is present on their screen or chart*. This interpretation would be the best fit. However, I do not think that this chart represents a completed five-wave cycle even though there is a buy signal at the price low where the Composite Index is diverging with RSI.

We must now take the chart in [Figure 10.6](#) past the point where others will view their analytic task as complete. The first problem is that the distance traveled in wave 5 is greater than the total distance of the price decline that unfolded in waves 1 and 3 combined. Did I make an error in my identification of wave 3 itself? No, I do not believe so. The reason is that wave 3 is clearly a complete structure with really beautiful proportions and ratios within this unit. I have added some visual guides on the chart so that you can see the tremendous symmetry within the segment defined as wave 3 down. There must be something else going on within this market's data. I then need to study the complementary buy and sell signals within my indicators to see if they align with the significant pivots that mark the end of waves 1, 2, 3, 4, and 5. There is divergence between the RSI and Composite Index to warn us of these market turns.

The buy signal that forms into the bottom of wave 3 appears early. It is not. Look more closely. Both the Composite Index and the RSI are developing negative reversal price projection signals with each new oscillator peak that develops. The divergence near the July 22 date correctly warns that the market will attempt to bounce each time the Composite Index tests the trend line for that indicator. However, the Composite Index advances while prices are only moving a relatively small distance upward. The bounces are very weak. We had charts in prior chapters to highlight this important relationship between oscillator versus price movement. *You are on the wrong side of the market if the oscillators can move without prices following.*

We then see the Composite Index forms a negative reversal where the oscillator makes a new high at a lower price level compared to prior oscillator peaks. This signal marks the end of wave iv up within wave 3 down. There is also a negative reversal signal in the RSI that meets the amplitude requirements we defined for the RSI. (If you skipped the RSI

price projection chapter, you will find the RSI signals that I am referring to very difficult. You might want to go back to pick this information up first as the RSI reversals offer invaluable technical information for constructing wave counts.)

Finally, the buy signal of greatest significance produces wave 4 up. We previously demonstrated that the most significant oscillator pattern relative to the moving averages is a signal that coincides near the intersection where the short moving average crosses above or below the longer moving average on the oscillator. In this chart the crossover in the Composite Index that occurs earlier has been deliberately set up as an early warning. The crossover in the RSI is the true timing signal.

At the top of wave 4 in [Figure 10.6](#) we have a sell signal that leads to a series of four S labels denoting sell signals that align within a horizontal channel of resistance. This is the significant piece of evidence that we have been trying to find. “It is?” you may ask. What did we just find? The channel that you see developing in the Composite Index is a characteristic pattern found within a third wave position or a market coiling in preparation for an expansion eruption to a larger mathematical grid for future internal structure. When this indicator pattern develops, I know to adjust all my future Fibonacci price projections. In [Figure 10.5](#) the five-wave pattern extended, but it did not rescale its symmetrical proportions. The retracements all challenged a 50 percent ratio of a portion of its larger movement, and the decline was orderly. In [Figure 10.6](#) we have a five-wave pattern that will likely develop into a larger five-wave structure. This indicator pattern of consecutive sell signals that form a horizontal channel in the Composite Index is the same as a seismograph recording of a minor tremor before a larger earthquake occurs. Now follow the indicators past this channel where the buy signal leads to an indicator pop into the last bar on the right of this chart. The term “an indicator pop” was coined by George Lane. The indicator screams SELL.

The oscillators are overbought, and the two indicators have diverging peaks within a close proximity to one another. *This is exceedingly bearish.* The chapter on the RSI revealed that peaks that form divergences within a spread less than nine periods apart should be considered very strong signals. In this chart both indicators display this strong signal. However, this is not the only technical information available from the final indicator positions aligned with the most recent data. Both the RSI and Composite

Index are overbought at oscillator highs that form at lower price levels compared to other oscillator peaks which we now know is a *negative reversal* signal. Reversal signals develop only in bear markets.

All right then, we know the chart is clearly telling us that the market will decline further. *But it is also giving us more subtle information warning us not to “bet the farm” immediately.* The market will not make a major decline from the market levels in the last few bars of [Figure 10.6](#). How do we know this? Look closely at the Composite Index peaking in the most current data of [Figure 10.6](#). It is making a peak at a level (compared to the indicator’s y axis) that is higher than any other peak that this indicator created within this chart. Recall a prior discussion that stated, when an oscillator successfully creates a new high or low by breaking through a former horizontal range of resistance support for that indicator, the market will have sufficient punch to come back and test the former indicator range after the new indicator extreme has been alleviated. In my experience the oscillator nearly always returns to test the former range of resistance support for that indicator. That is why I use the Composite Index, because it has not been normalized and can travel any displacement above or below zero that it may want to go. So we now know the market is going down further after it attempts a back-and-fill pattern from nearby levels. *The next step is that we have to think of a wave count that fits this additional evidence.*

We also have to factor in the negative reversal signal present in the oscillators and work with the information we gained from the series of horizontal sell signals that warn us the market will rescale to a new proportion with the next move. Here is how I go about finding a revised wave count that might compliment all the pieces of technical evidence within our current puzzle.

The chart in [Figure 10.7](#) is the exact same chart we saw in [Figure 10.6](#), except that I have made a copy of the first part of the decline from the high, rotated that segment of data 180 degrees, and then pasted the copied segment onto the back end of our existing data. Why? We know markets create symmetrical patterns. When I copied the beginning cycles within our five-wave pattern and pasted them to the last bar in [Figure 10.6](#), it was very easy to see that the market had not formed a completed five-wave pattern that displayed symmetry because it in fact was still trying to extend into a larger structure. We knew that from the oscillator signals. If you look at the



pasted segment added to the right side of [Figure 10.7](#), you will see that the original labels from [Figure 10.6](#) are still present, though upside down, because the data has been rotated. Use the thumbnail method if you have difficulties seeing this. What had been labeled wave v of 5 down is now marked wave iii within wave 3 down. The graphically manipulated interpretation in [Figure 10.7](#) helps us see an extending pattern, but do not forget that the oscillator position into a new high is telling us there will not be an immediate breakdown. A down up and then down pattern is what we need. OK, so the pattern in [Figure 10.7](#) is helpful but not the exact puzzle piece that we need.



Figure 10.7

Take a closer look at wave iv up in [Figure 10.7](#). What if wave iv is incomplete? A more complex correction would incorporate the down up pattern the oscillator wants, and then we can break down into a fifth wave. I like that idea, especially when we consider that the Wave Principle has a guideline for alternating the character of patterns that form within wave positions 2 and 4. If you look at [Figure 10.2](#) again, you will see that waves 2 and 4 alternate in the amount of time each takes to complete their corrections. If you have a simple wave 2, you can expect a tricky wave 4 and vice versa. So the guideline of alternation fits our present scenario really nicely.

There are no cycle lows on the horizon to challenge the back-and-fill scenario, so let's go with the following game plan. The current fourth wave is incomplete, and then we can expect a decline to a new low, and then we can see what else the market will give us. To determine the target for the price low, I will combine the negative reversal signal we have in place in

[Figure 10.6](#), Fibonacci swing projections, and Gann. Gann will have the highest weighting.

One last note about the graphic cut-and-paste technique demonstrated in [Figure 10.7](#) before we move on. This is something you will be able to do in your mind very quickly after you start to utilize the Wave Principle. Knowing that proportional balances may occur between the first part of a market's move and the latter will enable you to identify price targets and also what the character of the move will look like as it nears a resolution. In other words, a slow choppy start might be how the market's move ends by repeating a slow choppy pattern into its conclusion. We cannot make that assumption now because of the series of horizontal sell signals in the chart warning us that an expansion may form.

It is important to know for price projection purposes that wave 5 is frequently equal in size to the first wave or will develop a Fibonacci relationship such as 1.618 relative to the first wave. I will not spend a lot of time on price projections for Elliott waves because you already know how to calculate every Fibonacci relationship by applying the techniques we discussed at great length in the Fibonacci chapter. So there are very few new relationships you need to learn as the prior techniques in the Fibonacci chapter will produce the correct objectives. What we have yet to discuss are price projections within corrective patterns and from triangles, which we will cover later in this chapter.

Someone might think it would have been much easier to just remove some of our subdivisions in the seven-minute chart by moving up to a longer time horizon, rather than going to the trouble of graphing a future path as shown in [Figure 10.7](#). Someone else might see us change our time horizon and think we are looking for a pattern that best fits our market view. Ha! Let's see what the longer time horizons would do for us now.

[Figure 10.8](#) is the exact data that was displayed in the seven-minute chart now plotted in a 15-minute bar chart. The labels in this chart are those we used in [Figure 10.6](#). When you change time horizons in TradeStation, that system will try to keep the labels in place that were added to the seven-minute chart. I have not touched this chart other than to change the time period used to plot the  $x$  axis. The wave structure that unfolds within wave 3 down in this interpretation still appears to be the strongest because it is the most direct and displays fewer back-and-fill retracements. However, you might notice the pattern of sharp breaks throughout wave 5 in this



interpretation and the increasing volatility. These visual clues in [Figure 10.8](#) are harder to read than the indicator signals that we discussed in [Figure 10.6](#), but the wave count is clearly intact and defines a five-wave structure in this time horizon.

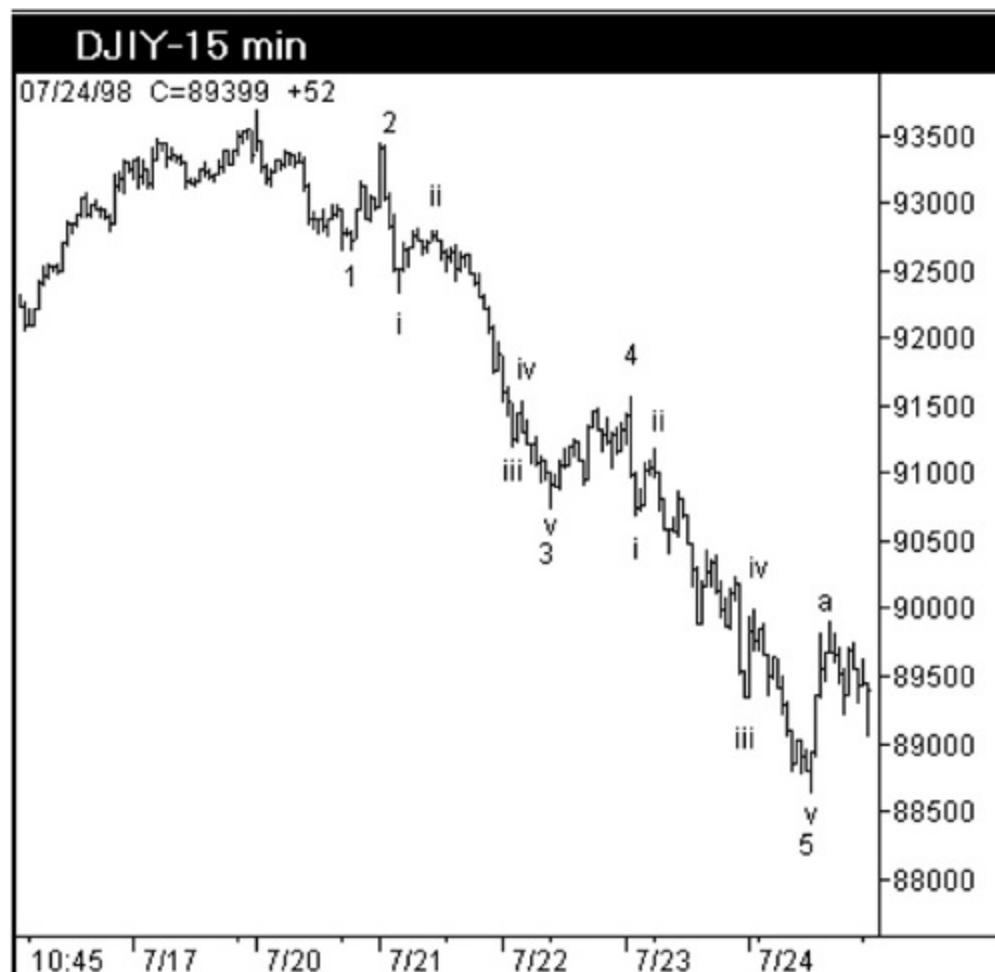


Figure 10.8

*Source:* TradeStation. © TradeStation Technologies

If an extending five-wave pattern can hold together when compressed into a 15-minute chart, will it continue to look like five waves in a 60-minute chart? The labels applied to the seven-minute bar chart in [Figure 10.6](#) remain visible in the 60-minute chart offered in [Figure 10.9](#). While we can still see that a five-wave pattern might have been made from the price high to the current low in this longer time frame, we must consider with much greater interest what has just come into view. The rally that developed into the high still has the old labels displayed from the analysis when the market was advancing. This prior work shows that we were

working toward the completion of a five-wave pattern and the decline unfolding now has already exceeded the previous fourth wave. The previous fourth wave would have been the most likely target for a minor pullback. So we now have to step back and look at an even longer time horizon as it is becoming clear we must know how this current five-wave rally in [Figure 10.9](#) fits into an even bigger picture for this market.



Figure 10.9

*Source:* TradeStation. © TradeStation Technologies

What you are seeing demonstrated is one of the ways I apply the Elliott Wave Principle differently from the way Bob Prechter applies it. While I work from the smallest building blocks possible and work upward into a longer time horizon, he starts with an extremely long horizon interpretation and then looks for substructure within progressively shorter time frames to complement his longer horizon view. I take the approach of building from the small and working upward because my risk management dictates accuracy in the very short time horizons. I can be less accurate in the really big picture because I am always revising the underlying components within a market as they develop. I have little interest in the really big picture just

as long as I'm trading from the right side over the next few hours or days. Prechter, on the other hand, cannot change his view every few minutes or days because his greater interest is in the really big picture that may define major pivots within terms of decades. So this is one way that we apply the Wave Principle differently.

I spend extensive time reviewing the bigger picture when my short-horizon building blocks begin to step off track or they are out of sync and challenge the longer-horizon view. But what if the short horizon does not warn you that a change is brewing? Yes, this can also happen. If you get too complacent in the shortest time horizons and *do not review the global picture* to see what might be brewing beyond the boundaries of your own market, you may be clobbered someday by an unexpected surprise.

Now that we have a completed five-wave rally present in [Figure 10.9](#), we want to see how this latest five-wave structure fits into a rally that has been forming an extending pattern. The top right chart within [Figure 10.10](#) shows the current decline relative to the completed five-wave rally displayed in the 60-minute chart. On the bottom right, using a compressed *x* axis, is the weekly DJIA chart. The second arrow to the right in this weekly chart marks the low that corresponds to the five-wave rally highlighted in a box in the daily data. The weekly chart, bottom right, has a Fibonacci grid added, and what is being tested is to see if the current high and major low that formed in October 1997 would meet the internal relationship test that we discussed in the Fibonacci chapter. It does pass this test as the remaining arrows bring to your attention prior pivot levels where the market showed respect to this same mathematical grid derived from the present high. No wonder our seven-minute chart is warning us that an expansion to its present scale could develop. Now look at the window displaying the daily S&P 500 futures data in [Figure 10.10](#). You will see that all the former signals and wave interpretations that were used in the past are still present. This pattern was the subject of a great debate. The debate concerned a triangle pattern, and we will come back to this chart if the DJIA makes its own triangle. We will discuss corrective patterns later.

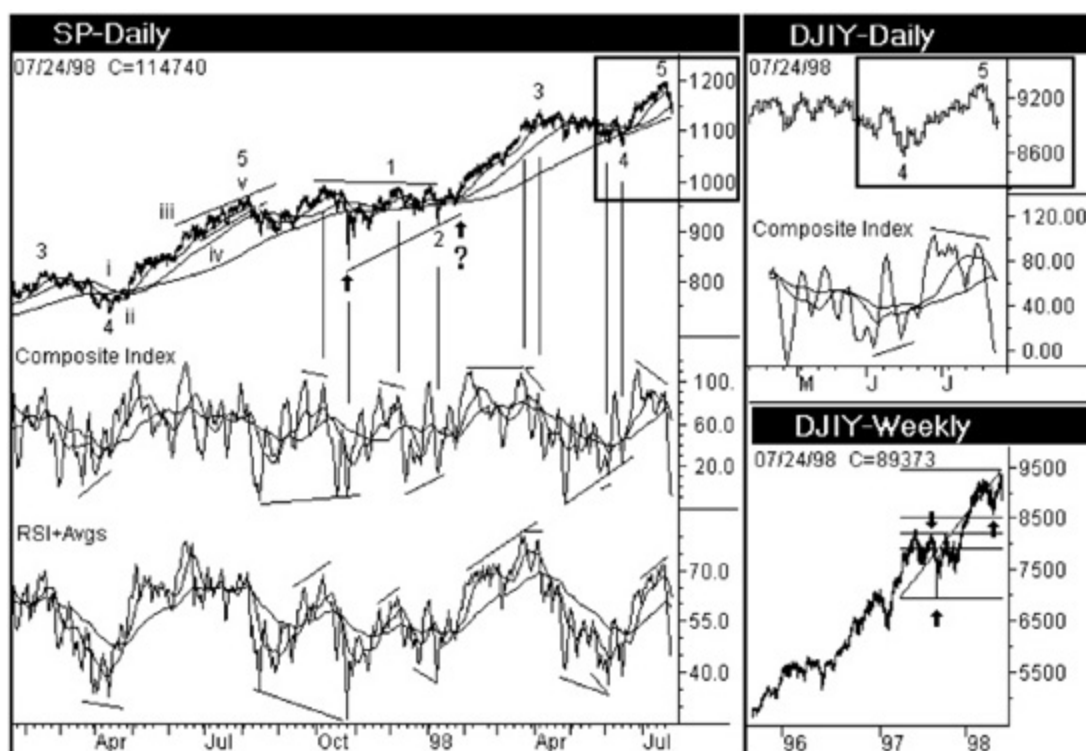


Figure 10.10

Source: TradeStation. © TradeStation Technologies

The price high in this chart may in fact be the resolution of a large five-wave pattern that began in October 1997. The guideline that the Wave Principle provides us with is that a five-wave pattern will target “the vicinity of the previous fourth wave.” Hello. We have arrived already within this target zone. But the range of the fourth wave is admittedly very large. The sell signal present in the Composite Index when it diverged dramatically with the RSI is going to lead to a fairly healthy correction with all the evidence building against the DJIA. The indicators in the daily S&P chart show that a bottom is not in place in this time horizon either, and we therefore know the long-term trend lines marked by moving averages in this chart will be violated. Also what about that additional five-wave pattern marked from the October 1997 low into the high? That interpretation from the October 1997 low may or may not be correct. *All I really care about is that a possible Elliott wave pattern is present that developed into a major Gann price and time target.* I do not care what this current Elliott wave pattern is on my screen. I do not need all the answers to trade tomorrow. I’ve seen enough to know this could get ugly. To go further, I will need to show you how I analyze long-horizon charts as that

would be the next step to study our weekly and monthly bar charts for these indices and the underlying S&P 500 sectors themselves. So I will walk through the approach I use for longer horizon work, but not tonight. It is now 4 a.m. on July 25, and the Globex session has been slipping nicely within our down up scenario that was developed several pages ago in [Figure 10.6](#). Let's see what pattern the market ultimately develops. Good night.

## Corrective Waves

The down up market action our indicators warned us could occur in [Figure 10.6](#) is what has developed in the DJIA and S&P 500 futures market. But to discuss these down up patterns in terms more useful than letter shapes and direction, we need to build our Elliott wave vocabulary to include the corrective patterns that serve to bind five-wave cycles together.

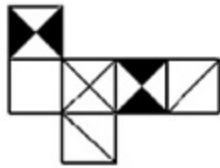
While most people will develop an ability to see a five-wave structure within price data fairly rapidly, some people may find it difficult to see the patterns that correct a completed five-wave cycle. It is clear what a textbook line drawing representation of these patterns should look like, but it is not as clear what the patterns should look like in a real market environment. In addition, more than one individual building block is generally required to complete a market correction, and there is some confusion about the connector between these individual patterns, the dreaded *X wave*. I can understand why the confusion exists because I too had to struggle with corrections until Dave Allman taught me how to feel the pattern for an individual structure. Feel a pattern? Yes. Allman walks you through hundreds of sequential charts to help you gain a feel of a particular pattern in his Advanced Workshops. Although I cannot do that here, I can provide some analogies that may help you.

Before we look at our first corrective pattern, you need to know the level of aptitude you presently have for working with graphic patterns that change their orientation. I am dyslexic in that tables of numbers and letters are difficult for me to read. Tabular characters tend to transpose their positions in my mind's eye. I am not an options trader for that reason because the strike price tables and calculations for delta, gamma, and theta in tabular form are a visual nightmare for me. I work with them only on rare occasions and with great anguish. But the flip side of this limitation is that I have a photographic memory and a graphic aptitude that more than

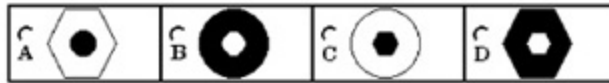
compensates for the tabular weakness. The point is that you may not know that graphic puzzles are difficult for you. Corrective patterns are just puzzles once you know their underlying building blocks. Let's try a quick visual test to see where your starting point might be located.

There are four graphic puzzles in [Figure 10.11](#). You should give yourself no more than four minutes to select your answer based on the original guidelines for these questions. These four questions are from an introductory sample quiz, considered elementary, by MENSA International. Their Web site can be found at [www.mensa.org](http://www.mensa.org), and these questions are from their Mensa Workout page. I'll explain why these questions have the solutions they do and why each is very similar to a market problem. Elliott wave corrective wave patterns are like graphic puzzles, and markets frequently ask us to "complete the series." The difference is that our quizzes are more fun because when we "complete the series" correctly, we put money in our trading accounts. That is the fun part!

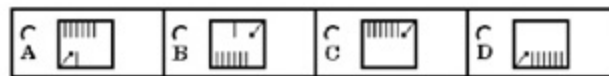
►1. If the following shape is folded into a cube shape, which picture best represents the result?



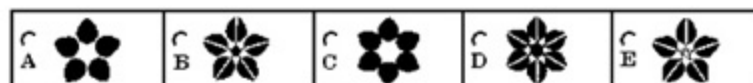
►2. Which of the designs best completes the following sequence?



►3. Which of the figures below the line of drawings best completes the series?



►4. Which of the figures below the drawings best completes the series?



MENSA International

<http://www.mensa.org>

Figure 10.11

If you had any trouble with the first question in this quiz, you will be applying R.N. Elliott's wave patterns in a real-time market environment about as comfortably as I work with options tables. The reason such a bold analogy can be offered is that the first question is the type of puzzle an Elliott wave trader is solving all day long, and the first question in the quiz is far easier than the puzzles the markets will create for us. The correct answer is B.



The second question in the quiz shows how you might be thrown off balance by different market character that serves as interference or noise. Market character can impact corrective patterns. For example, the up-down-up or N pattern referred to earlier may not be a distinct N when you look at it in the data for Euros versus a stock index. Nonetheless, it is the same pattern. In question 2 when the outer shape is a hexagon, the center is a circle and vice versa. The correct answer is A. Two outer circles with internal hexagons would be followed by two exterior hexagons with inner circles. The black and white colors simply alternate. This is an easy question. A harder question would have been, “What would be the next pair of shapes that follow within this series after solving for the missing fourth shape?” That would be closer to what you would be asked in an actual Mensa test. The mathematical relationships have already been defined to extend the series. No, I am not giving you the answer to this revised question; maybe in a seminar or conference.

Question 3 is one I really like as you frequently have to change the orientation of a pattern to correctly identify the mathematical relationship that is developing within a market’s price structure. [Figure 10.7](#) showed one example where I copied the first portion of a decline, rotated it 180 degrees, then pasted it to the back of the actual data in that chart. Question 3 is the same type of puzzle. While this problem is harder than the first, it is very much like an Elliott wave application when adding indicator signals. While the number of lines on the side with the stick will increase by one, the side opposite the stick decreases by one. The correct answer is C. The stick simply shows that the orientation of the entire graphic is rotated 180 degrees with each new frame as the stick is alternating sides. The correct answer requires a final rotation.

Question 4 is another graphic puzzle asking you to “complete the series.” Did you notice that the first column had six petals, while the second only had five? The first row is solid. The second row has lines radiating into the center. The correct answer is E as it is the only solution offered that fits in the series.

How did you do? If these questions were easy for you, we are ready to charge ahead into any corrective pattern at full speed and you will likely have little trouble. At the other extreme, if you struggled with all of these questions, please accept that with work you will learn the mechanics of how to press the correct keys on the Elliott piano, but most likely you will

never learn to play the music using this particular instrument. I bet you are the options wizard in your firm who can manipulate delta, gamma, and theta tables all day long without effort. Even duration and convexity calculations in bonds are a breeze (ugh). It is a left-brain/right-brain development issue again, and it is no reflection on one's intellect. Please accept that this next section may be harder for you, but stick with it as the indicators from prior chapters will be applied in a real-time scenario.

Our indicators told us to look for a price movement that would look like the letter N. This pattern fits into the family of corrective patterns called "Flats." They are illustrated in [Figure 10.12](#). Have you ever watched a springboard diving competition? Think back to the Summer Olympic Games. Even if you saw only an advertisement on television and never watched any of the televised events themselves, you saw divers launch themselves from a springboard into the air. *The Flat pattern is the exact same feel.* The Flat on the left of [Figure 10.12](#) is the diver taking off from the platform, which is a solid structure. You jump up, land with both your feet on the edge of the platform, then jump as high as possible. You do not get much higher than the start of your first leap because there is no give under your feet before your final jump from the edge. On the other hand, the Expanded Flat pattern is the diver on a springboard. The diver takes the same approach by taking a step to the edge of the diving board, but then his weight presses the diving board down below the board's horizontal level. The resulting displacement will be lower than it was with the approaching step toward the edge. The spring displacement of the diving board then projects the diver higher than would have been possible from a solid surface. All divers must then abide by the force of gravity.

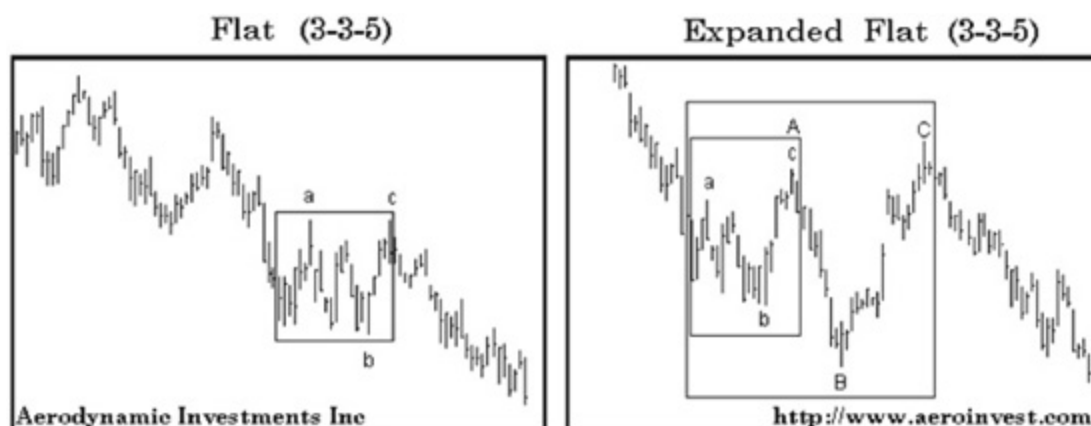


Figure 10.12

The only difference between the diving analogy and the market pattern is that the “diver” can bounce on either side of the diving board or platform in a weightless environment. Hence, the same pattern can develop in an upward trending market as can develop for a declining market as demonstrated in [Figure 10.12](#). The three movements of the “dive,” or correction, are labeled a-b-c to identify that the market action is counter to the five-wave pattern preceding it. Here is the key to this entire pattern: Forget the 3-3-5 references for a moment at the top of [Figure 10.12](#). *What is important to know is that the final move to the edge of the platform or springboard will always be hard to count.* The process of elimination makes our task much easier. The market action will get choppy, and what will frequently be obvious is that the b-wave portion of the move, which can be in the direction of the larger trend, will not be easily subdivided into a five-wave cycle.

If it is not a five-wave structure, it has to be a three. It doesn't matter what kind of three-wave pattern it is. The middle leg within Flat corrections will be choppy because there is a lot going on. A diver will lift only one knee before planting both feet on the edge of the board. Why? *Because he is about to change his direction of trend and he needs to stabilize his prior movement before he can be projected in a new direction.* That is exactly what the market is doing. Don't get hung up on categorizing all the internal squiggles. If you can sniff out a b-wave, you have it made. The point I am trying to make is that it doesn't matter if the first leg looks like a five because the choppy pattern to the edge of a diving board is far more important. Feel them first in your gut. The problem with representative line charts for these patterns is that you never get a chance to feel the pattern's action within a market. In my opinion that is why Elliott wave patterns used without the aid of other indicators are deadly.

Look what happens when we add an oscillator to the corrective Flat patterns in [Figure 10.13](#). The indicators contribute the same type of tension or inner expectation that we might have when we know how a springboard should ultimately move when it is overextended from a horizontal position.

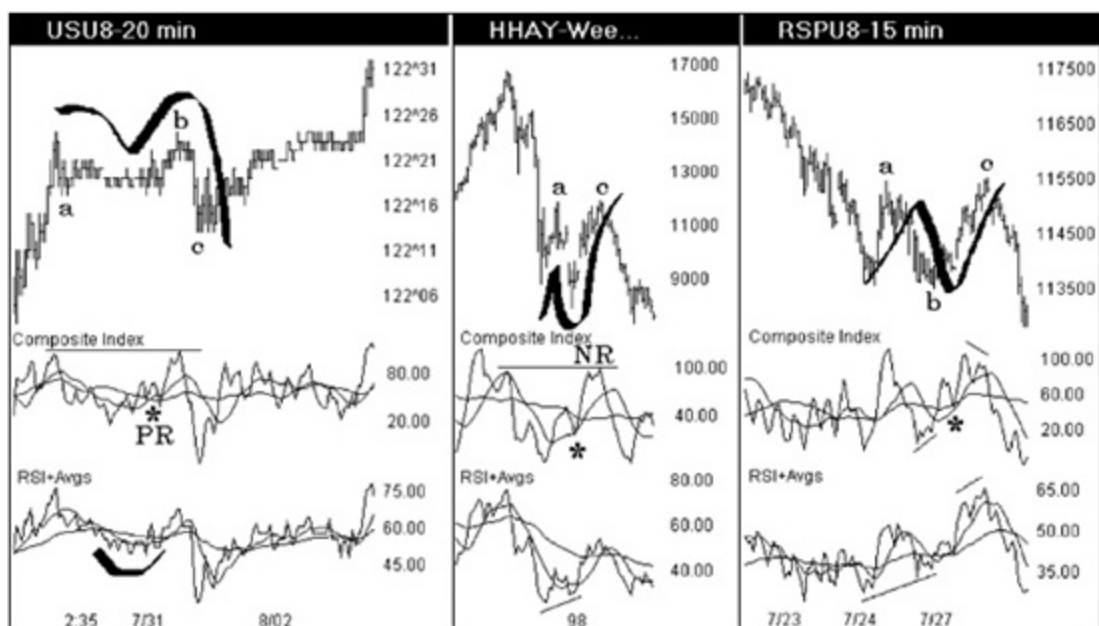


Figure 10.13

Source: TradeStation. © TradeStation Technologies

A 20-minute September Bond futures chart is displayed on the left in [Figure 10.13](#). A very short time horizon was selected to show what is meant by “different character for a market.” Once the Expanded Flat pattern is completed, the Bond market is slow to resume the former trend. The character in this 20-minute chart is exactly what Bond traders are accustomed to viewing in longer time frames as Bonds frequently take time to make a trend change. The Expanded Flat pattern itself for the correction is no different from the market illustrated in [Figure 10.12](#) except that Bonds are forming the corrective pattern under the springboard. Can’t see it? Flip your book over, look at this page from the next page while holding the page in front of a light source. (When you trade take a screen capture and put it in MS Paint. The image can be flipped and inverted easily. Bias problem solved.)

In the September Bond chart in [Figure 10.13](#) notice the positive reversal marked in the Composite Index that forms in the oscillator lows on either side of the asterisk. At the top of wave b the Composite Index forms a double top. Notice that wave b in this example does not move much past the origin of wave a. Did anyone ever say it had to move well past the start of wave a? No. So don’t look for the perfect textbook pattern in the real world.

The middle chart in [Figure 10.13](#) is the Weekly Hang Seng. Now you know why the first decline in early 1998 was not the end of a five-wave pattern in [Figure 10.4](#). The top of wave c of (4) in [Figure 10.13](#) was accompanied by a negative reversal signal in the Composite Index. (The acceptable amplitude of the signal in the Composite Index is much larger than what was defined for the RSI.) Notice that wave b down (the decline from wave a to the next low that leads to wave c up) coincides with a buy signal in both the RSI and Composite Index. An asterisk adjacent to the Composite Index when it is testing support marks a very strong signal.

Turn back to the DMK/\$ chart in [Figure 10.4](#). Earlier I mentioned that you would soon know why the new low in the dollar within this chart was not part of the original five-wave pattern. The chart displays a five-wave decline (into a double bottom) followed by a perfect Expanded Flat. We are able to make a price projection for the distance wave c may travel by first measuring the distance of wave a (from the end of the marked five-wave decline up to the level near 1.7770 in [Figure 10.4](#)). Now flip your precision ratio compass over so that you project a 1.618 relationship from the bottom of wave b from the price low in this chart for the dollar relative to wave a. The rally that follows is in fact exactly to the 1.618 relationship. Do not exceed this measurement; if you do, the probability will be significantly reduced that your Expanded Flat pattern will be the correct interpretation.

Return to [Figure 10.13](#). Wave c up in the Hang Seng is well below the 1.618 relationship with wave a. I did not suggest that wave c had to form a 1.618 relationship, just that it is a frequent target and should be known as it also marks where you may be wrong if it is exceeded. In the Hang Seng chart there is a negative reversal in the Composite Index, divergence peaks in close proximity between the Composite and RSI, and the market is overbought into wave C. The final clincher is that wave C up has a completed five-wave pattern. *Wave Cs will always be five-wave patterns except within triangles.* You are not going to wait any longer to see if the present five-wave advance will extend so that a perfect 1.618 relationship develops with wave a to form a textbook scenario. The Hang Seng chart clearly fits the springboard diver analogy, and we can also see at the top of wave c that the diver is losing momentum.

The last example on the right in [Figure 10.13](#) is a 15-minute view of the September S&P 500 futures market; nice looking Flat. Also look at the date of this chart. This is the down up pattern that our indicators warned us



about in [Figure 10.6](#) on July 24. The S&P correction became a Flat forming the letter N we referenced before we knew what the pattern was called. This pattern and chart allow me to emphasize the point stated earlier that the key in these patterns are the b waves. Wave b down in the September S&P chart is choppy, and we cannot see a distinct five-wave structure with all the internal overlaps that develop. Remember wave four cannot overlap a first wave, so this decline into the low is not a five-wave structure. *It must therefore be a three-wave decline, and that carries the message it is a corrective "Flat."* I know, the wave 'a' looks like a five-wave pattern, and the textbook line-on-close descriptions all state that wave a must be three waves. Nonetheless, wave b is producing buy signals at several points in the oscillators. The information you want to focus on is if wave b within this pattern will break the origin of wave a. The best advice I can offer you for these patterns is that once you identify the chop that forms the internals of the middle leg in the wave b position within a Flat corrective pattern, stop trying to categorize it. Trade it.

Beware that b waves can get very emotional in bigger pictures. Straight-line capitulation drops can be b waves as well. The key is that they will always be a three-wave pattern caused by a battle in sentiment that neither side of the market can win.

Our real-time tracking of the DJIA in a 15-minute chart is updated now in [Figure 10.14](#). While the September S&P developed a Flat pattern, the DJIA produced an Expanded Flat. Notice that wave b down in both the S&P and DJIA retrace back only to the start of wave a. I didn't say that Expanded Flats must penetrate the origin of wave a. Yes, in a perfect Elliott world, that is true. Not in the real world. However, we know an Expanded Flat is forming in the DJIA because it must form five waves up from the end of wave b in either pattern: a Flat or Expanded Flat. The pattern to the end of wave a is only three waves, so to finish five waves, we know the end of wave a will be exceeded. Where will the target be? The 1.618 relationship with wave a, which is higher than the current market high near toward the close for July 27. Now we need to determine the market path for tomorrow. 2nd Edition note: The price target I use now is the confluence objectives derived from overlapping Fibonacci ratios described in earlier chapters. With expanded daily market ranges the need for greater accuracy requires greater care than using estimates.

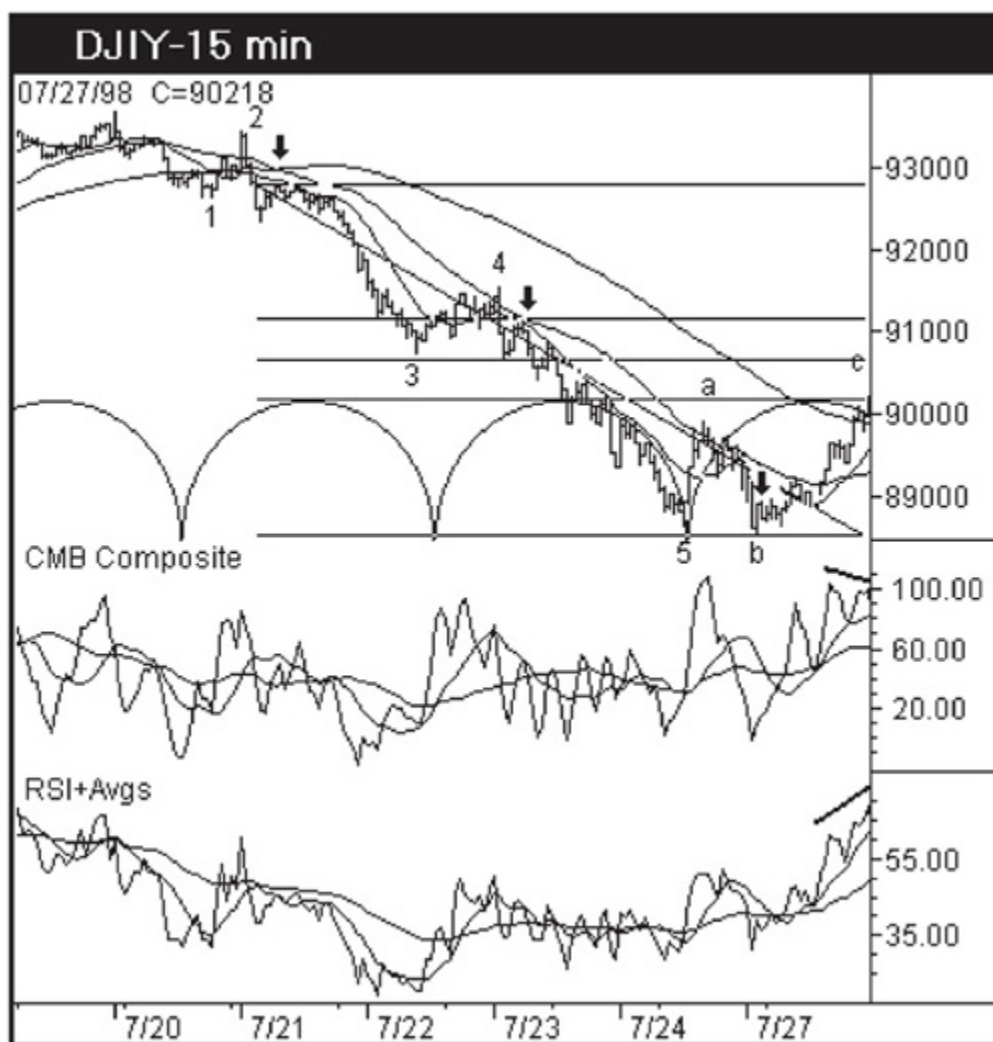


Figure 10.14

Source: TradeStation. © TradeStation Technologies

In [Figure 10.14](#) we have divergence between the Composite Index and the RSI. The RSI is abiding by the range rules defined for a bear market by topping near the 60 to 65 level. Do we have a market top now? No, I do not think so for one reason. If we study the five-wave advance unfolding from the end of wave b, it is missing a couple of bars to form the final fifth wave up. [Figure 10.14](#) also shows the market under a 0.382 Fibonacci retracement that many people will be able to identify. Expect an early advance near the open tomorrow, and we will use the advance from the end of wave b down to the small black arrow in this chart as a tentative measure to define tomorrow's target. Why? Balance. I am a fanatic about balance because the market is obsessed with balance and proportion. Also waves one and five are frequently equal. If we should surpass a small



“pop” to form equality and balance with the first part of the move, we will have to look toward the 1.618 relationship with wave a. That will also mark the level where we view our Expanded Flat pattern to be wrong. Let’s see what tomorrow brings.

It is July 28, 1998, after the market’s close, and we see in [Figure 10.15](#) that the DJIA produced a minor advance on open today and headed south the remainder of the day. The decline into today’s low was a five-wave pattern, which means that we were right to be on the lookout for an extending five-wave pattern when we created [Figure 10.7](#). The DJIA doesn’t look like [Figure 10.7](#) because one leg down is wave b within the Expanded Flat correction. Then the second leg down became the fifth wave to complete our larger five-wave decline from the high. [Figure 10.15](#) shows how the extending five-wave decline would be correctly labeled if you wanted to mark all the internal subdivisions. Notice that wave c of 4 (the high this morning that completes the Expanded Flat pattern) advanced to a 1.382 relationship with wave a. The reason for falling short of the 1.618 calculation (horizontal black arrow marks the 1.618 relationship) is that there was a Fibonacci cluster at 1.382.

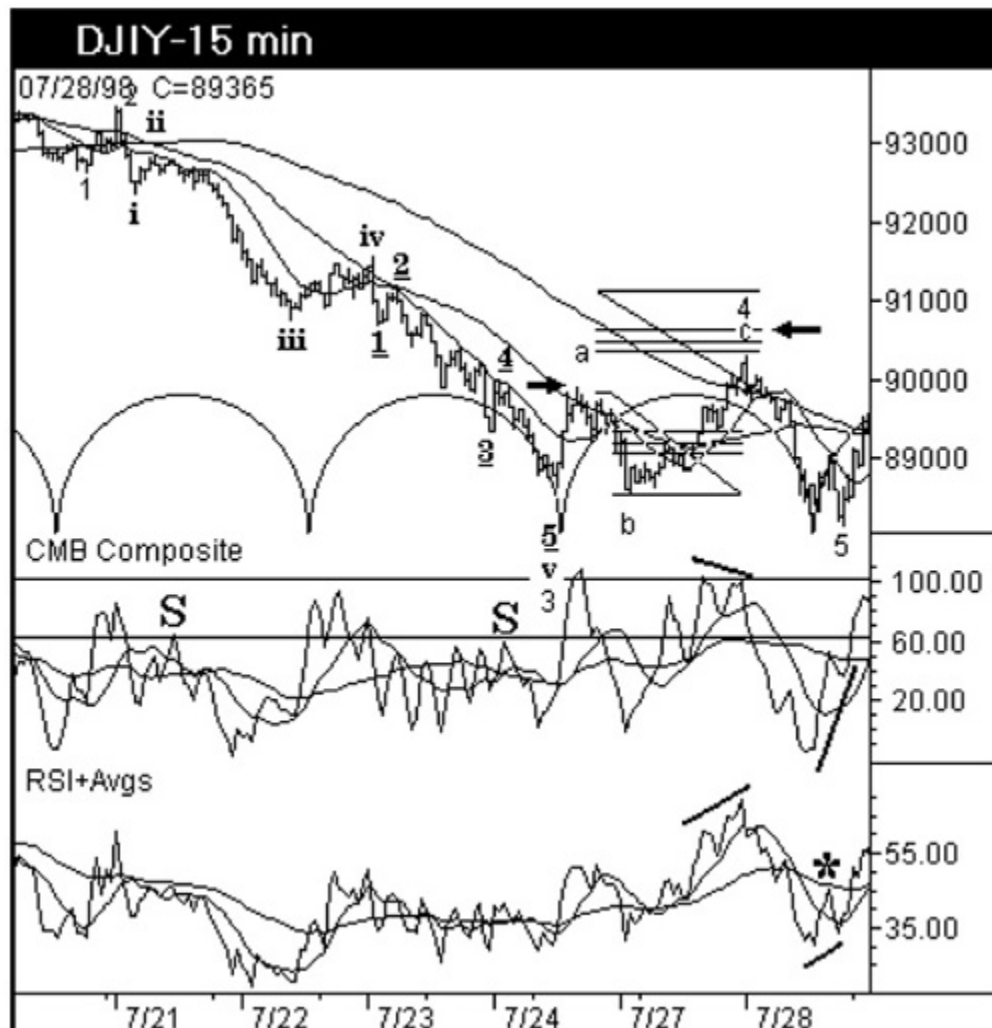


Figure 10.15

Source: TradeStation. © TradeStation Technologies

This is exactly what we discussed in [Figure 6.10](#), when we were considering Fibonacci confluence points in the Fibonacci chapter. We are now finding that earlier discussion being applied by the DJIA market. There was a strong rebound into the close, and the divergence marked on both the Composite Index and RSI, compared to the price low, warns that the near-term advance will develop further gains. The fastest way for a market to develop a countertrend move is to connect two five-wave patterns together and then resume the larger trend. This is not a Flat pattern as the market does not retrace all of the first leg we called wave a. Chances are fairly good that we will see only a minor pullback followed by further gains tomorrow, so we need to look at another corrective building block

that will fit this scenario. We have all the earmarks in place for what we call a *Zigzag* pattern to develop, so let's move on to discuss this pattern.

If you currently utilize the Wave Principle, may I have your attention just a moment longer regarding Expanded Flats before we move on to Zigzags? I really need to try and resolve a point about which the industry is clearly confused and downright befuddled. There is no such pattern as an "Irregular B." There has never been an "Irregular B." Prechter used to call the Expanded Flat pattern an "Irregular Flat." The name referred to the entire pattern, and wave b in this pattern was never irregular. The name was wisely changed because there is nothing *irregular* about it. You will see these patterns far more often than the simple Flat, which is just the letter N in bear markets and an inverted N in bull markets. The expanded variation of the Flat is so common that it makes a lot of sense to call it what it really is: Expanded Flat. So please, no more Irregular Bs. OK?

The next pattern we need to discuss is a Zigzag. I cannot think of an analogy for this pattern because if you miss this one, it is more like a hit-and-run accident and all you want to do is get the license plate number of the truck that just ran you over. You can sense these aggressive corrections on the horizon before they appear on your screen. That is why I am very suspicious tonight of the chart pattern in [Figure 10.15](#). We know a larger correction is due in the DJIA as the entire five-wave pattern could be complete from the high. We also have a five-wave advance into the close that forms from a five-wave decline, so we know the market rebound is incomplete. I do not know if the current five-wave advance into the close will just turn into a three-wave pattern. But should the market keep five waves clearly in place, and then try a minor pullback, we should consider the Zigzag further. Watch for cycle lows, indicator signals that seem stronger than prior signals, and other similar indices like the Cash S&P and OEX all positioned for a larger rebound. This will warn that a Zigzag could be near as these corrections are very common patterns in a strong trending market because *they take the least amount of time for the market to develop*. The market tries to get the correction over with and out of the way as fast as possible so that it can return the larger trend that is usually accelerating. Our DJIA chart has been accelerating. You can see that supporting information fits.

A Zigzag as displayed in [Figure 10.16](#) is made up of two sets of five-wave cycles back to back. That is all there is to a Zigzag pattern. If a minor

pullback develops in the DJIA tomorrow, we know to expect this sharp correction as wave b down *cannot retrace all of the first five-wave structure*. Why? Because then we would have a Flat, and our first five-wave unit would not have been a five-wave structure at all. Remember, I do not care what wave ‘a’ looks like, although five waves will make me think of a Zigzag immediately. However, if a wave b choppy price pattern appears *after the five-wave move that cannot retrace the first leg we called wave a*, get out of the way immediately or reverse. You know a Flat is not developing.

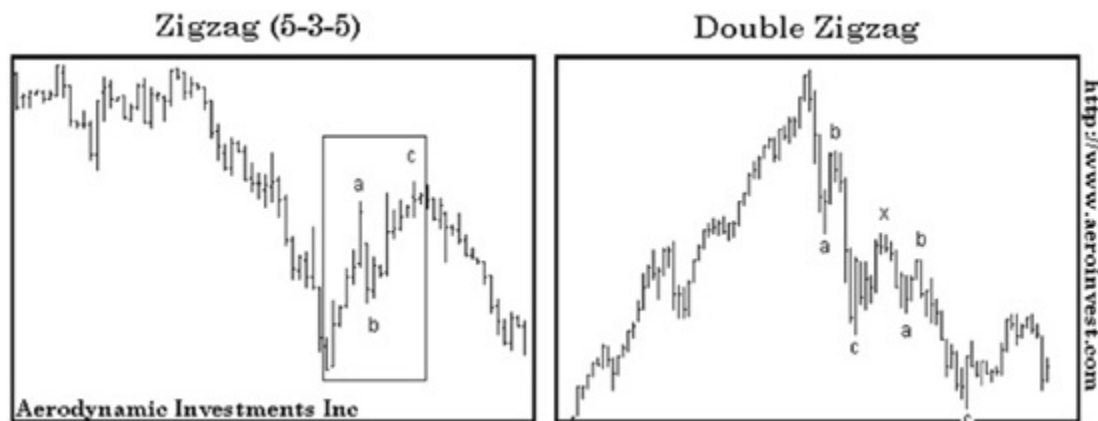


Figure 10.16

The second five-wave pattern usually travels a *minimum* distance equal to the first five-wave pattern that formed wave a. It is common to see a 1.618 relationship in the second five-wave pattern relative to the first. They are sharp. Take few prisoners along the way. Then reverse just as quickly about the time you begin to question if you are wrong about the prior trend returning. You are not wrong—just a victim of the Zigzag.

Zigzags sometimes travel in pairs. [Figure 10.16](#) shows a Double Zigzag where we encounter our first ‘x’ wave. It is also one of the most abused x waves in the business because it is not used when it should be to connect a second corrective pattern. As soon as many analysts see a Zigzag pattern develop and they have an opinion that the larger correction is incomplete, they hastily label the a-b-c internals of their first Zigzag as “wave A within a larger correction.” This is a common misunderstanding. If your Zigzag internals are then called “wave A within a larger correction,” *you MUST imply that the market will retrace the entire distance traveled by waves a-b-c of your Zigzag pattern*. Why? Because an a-b-c that is labeled “wave A in a larger pattern” has only two options: it must develop as a Flat or

Expanded Flat. Period. No other option. Flats always retrace all of wave A, and Expanded Flats should attempt to exceed the origin of wave A. So if you don't think the entire distance will be retraced, the next move must be called "an x wave."

An x wave is simply a wildcard that allows you to take one recognized corrective building block and use it to link another corrective pattern together. The different building blocks should have some sense of balance and proportion between the individual puzzle pieces. You get a maximum of three wildcards for any complex corrective pattern developing. The connectors can each be labeled with 'X' or you can distinguish between them by using 'X', 'Y', and 'Z'. Bob Prechter introduced this latter method in later revisions of his book *The Elliott Wave Principle*. We will look at these more complex patterns at another time. More likely we will not need them for our DJIA chart now. The Double Zigzag in [Figure 10.16](#) is the monthly chart of the Nikkei. Frequently the first Zigzag and the second Zigzag will also have a Fibonacci relationship between them.

Zigzags all look similar regardless of the market in which they develop. In [Figure 10.17](#) the weekly Gold (futures GC) chart and the 60-minute data of the September London FTSE futures look similar. Two back-to-back five-wave patterns. Fast. Direct. Sharp. Then the larger trend resumes. The London FTSE futures on the far right shows a negative reversal signal forming in the Composite Index with the tops of waves a and c black arrows. This is very common. Gold displays an indicator divergence as does LBT. The LBT chart on the left is the monthly chart of Italian Government Bonds. I do not have data in a shorter time horizon to check the substructure of the decline marked between the arrows on prices, but this sure fits the character of a Zigzag. I'll bet it is, and it likely caused a lot of Lira to change hands along the way for some traders.

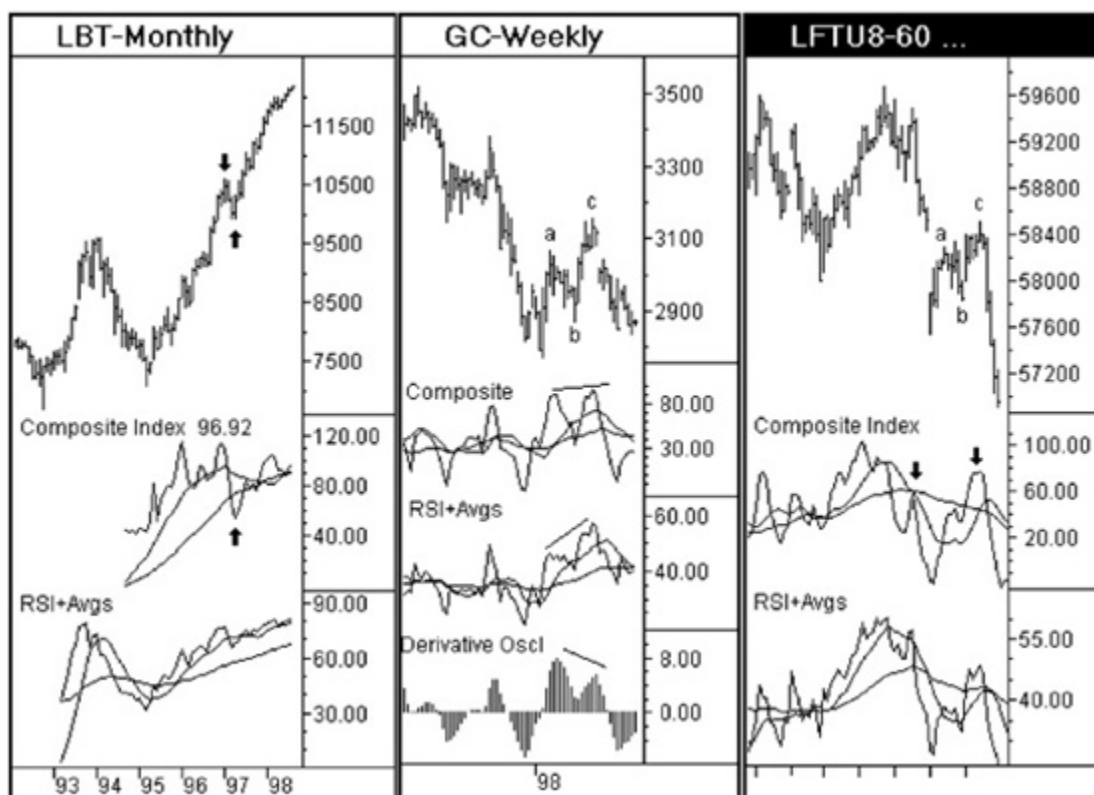


Figure 10.17

Source: TradeStation. © TradeStation Technologies

When the market on July 29 produced a three-wave decline, marked wave b in [Figure 10.18](#), which led to a Zigzag pattern, I started to jump up and down with excitement. Why? A profitable trade? True, but that was not the only reason. I was excited because the market was forming a Zigzag right on cue for the book! So I can now wipe the perspiration from my brow and continue right where we left off two days ago. *Viola!* La Zigzag. While the first five-wave advance extended to complete wave a up, there is a clean three-wave decline to complete wave b down that did not retrace all of the first bounce from the low. In today's session for July 30, 1998, we completed the second five-wave advance to end a perfect textbook Zigzag. It was no major accomplishment to encounter one in real time as most Zigzags are that distinctive and clean. Wave c in our Zigzag has not traveled a distance equal to wave a as measured from the bottom of wave b. I do not think it will this time because just one minor push over today's high will complete Elliott wave patterns developing in the S&P. The S&P will top at a major Gann target. The indicators in [Figure 10.18](#) are at the same levels that marked the top of wave 4 up. We know Zigzags frequently



form in markets that want to get the correction completed as soon as possible, so we have all the right ingredients for a sharp trend reversal. Do not hang around to look for a perfect Fibonacci target between waves a and c. Instead, calculate the next larger move, which should be down.

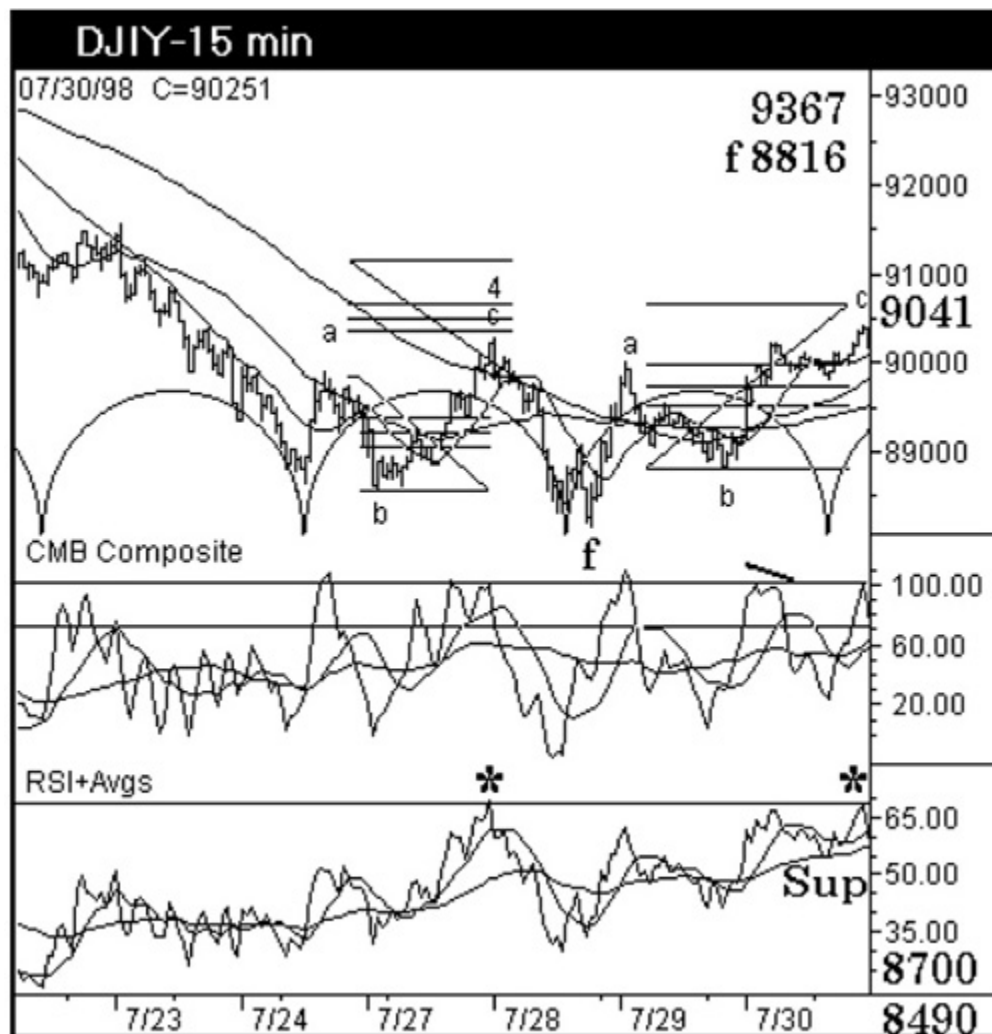


Figure 10.18

Source: TradeStation. © TradeStation Technologies

I have removed the prior label at the low suggesting wave 5 and replaced it with an *f* to make a strong point about this market low. In the DJIA we have five waves down into that price low in [Figure 10.18](#). The Expanded Flat that formed wave 4 up in the DJIA becomes wave A up in the S&P futures. Then wave B into the low and a clean five-wave advance expected to end tonight in the Globex night session will complete a large Expanded Flat. We will look at the S&P futures nearer the end as the



Globex data will be more difficult. However, it means I have two Indices tracking and indicators that suggest further market weakness.

Orthodox Elliott wave practitioners will calculate the next market objectives by measuring the distance of the first five-wave decline and then projecting Fibonacci swings from the end of the correction. The 0.618, 1.00, and 1.618 relationships will be identified. However, traders who want a more accurate price objective should measure the entire distance traveled in the first part of the move. That means the five-wave pattern in the DJIA or the five-wave pattern and *wave B down to the new low as occurs in the S&P*. Always use wave Bs that exceed five-wave patterns for Fibonacci swing projections.

In [Figure 10.18](#) the DJIA high was 9,367, the price low at f was 8,816, and the market high for wave c up is 9,041. The 0.618 and 1.00 price projections are 8,700 and 8,490. The first target is a high-confidence target. The 8,490 level from 9,040 seems extreme. There is also a Gann objective at 9,038, but we need to see how the market reacts to the first objective and what wave structure and indicator action forms prior to thinking about the second target. We are set for the next trading session.

July 31, 1998 brought a decline from our Zigzag pattern. The first target we calculated of 8,700 has not been realized. However, with this new session we can see that our technical indicators do not display a price bottom. Both indicators have declined to prior oscillator extreme lows, and we know to expect a bounce in the next trading session followed by further selling as these indicators will not produce bottoms in their current positions. Wave structure appears to be accelerating as the market is moving in a direct pattern to each new low made throughout the day. The 8,700 objective should not be revised at this time. Notice an asterisk at the price low. I have changed the cycle position in [Figure 10.19](#) from what we had been using in [Figure 10.18](#). Why? We know cycles are not symmetrical, so keep the cycles in view on your chart current. This new period aligns the cycle to the actual price low and captures the early decline from today's action. An adjustment was indicated.

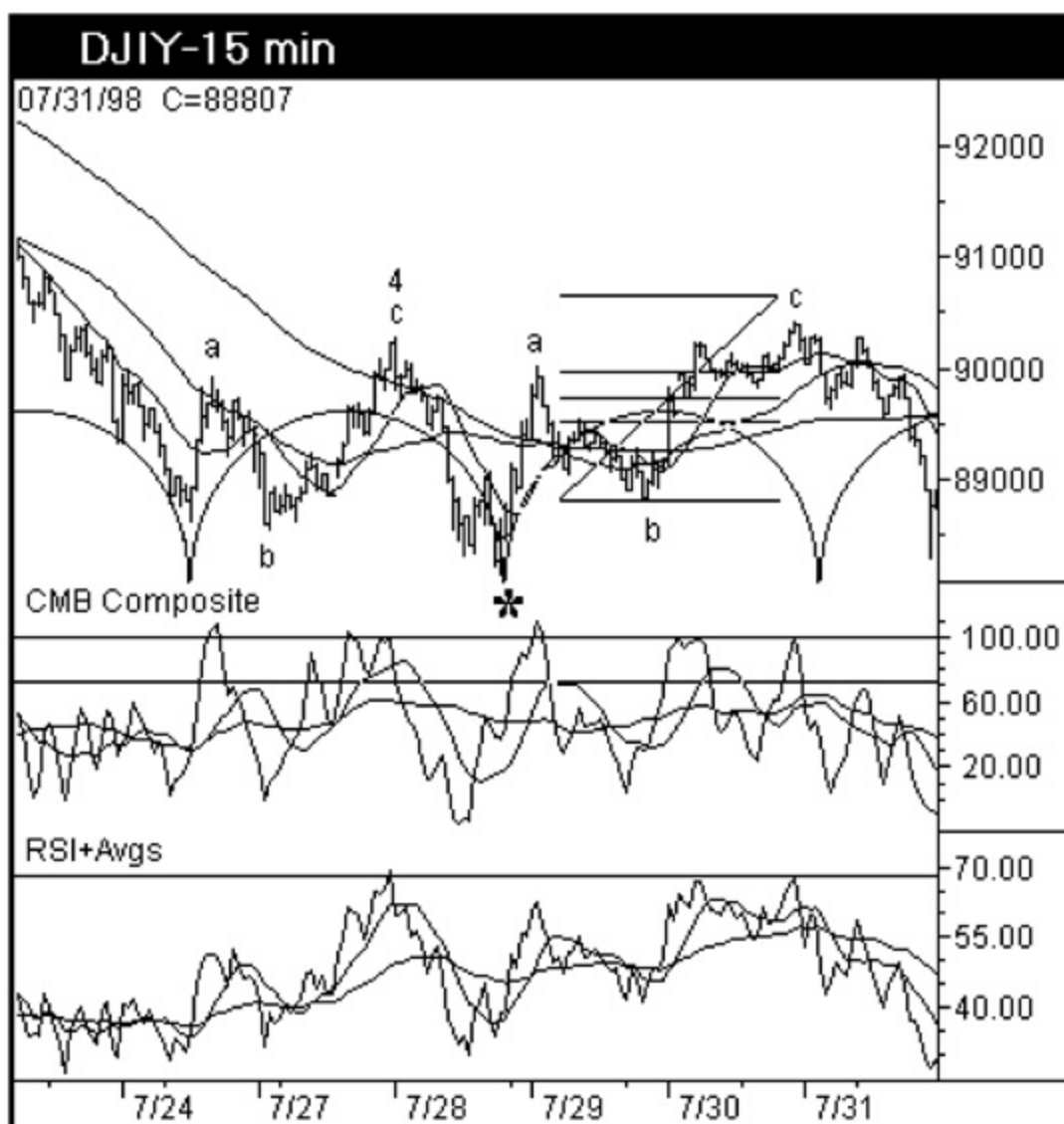


Figure 10.19

Source: TradeStation. © TradeStation Technologies

August 3, 1998: In a startling development, we see that the U.S. market is in serious trouble in [Figure 10.20](#) as we view the chart from today's session. We have a sharp decline followed by a three-wave corrective rally. The market then declines to new lows and closes into the lows of the session. A more serious problem is that the daily S&P chart has a major cycle low due to bottom tomorrow in the daily time horizon. In the short-time horizon the indicators in [Figure 10.20](#) have every bearish signal present that we have discussed in this book to date. I could not have constructed a better summary than this if I had tried. Indicator divergence, a negative reversal in both the Composite and RSI, price structure



target. While the market spent time producing a back-and-fill correction prior to the sell-off into the close, this consolidation into the close is not a fourth wave near the end of a five-wave pattern from the end of the Zigzag.

How do we know this? Not from Elliott wave structure. The RSI has a negative reversal in place, and the two peaks forming the signal are marked *N* and *R* in [Figure 10.20](#). All the price-on-close levels that you need to make a price projection are recorded in the top right corner. The formula is in the RSI chapter if you need to turn back. The price projection from this negative reversal is 8,703. The first target at 8,700 is now confirmed, but so too is the second at 8,490. The amplitude for the RSI is greater than the guidelines I gave you. But we also have a cycle low approaching in the daily data, accelerating wave structure, and strong confirmation of a target much lower than 8,700, which is 8,490. If the market breaks 8,700, there will be a problem. The amplitude in the RSI is not a contradiction. It would be if it were the only evidence present.

I mentioned earlier that wave b's are choppy in short-horizon data, but they may form capitulation lows in longer horizon data. The only way to tell is the position of your indicators. As a cycle low is approaching, it is less likely that the current decline will be wave b down from the Zigzag pattern within a larger Expanded Flat. Only time will tell.

August 4, 1998: The second target was 8,491 from yesterday's price action that confirmed the 8,490 objective from July 30. [Figure 10.21](#) shows what has transpired in today's session. The market did not bat an eye at 8,700. Look at the closing print in the top left corner of [Figure 10.21](#). Target 8,490 to 8,491; actual close was 8,490.9. We got here much faster than I expected, however. Here is the bigger problem: Using the price projection method from the midpoint of the strongest swing in the move from the high in [Figure 10.21](#) it is clear the decline is not over. You should have defined the midpoint to be near the point where the second backward S crosses the price data. The backward S marks only the 1.618 projection that was made from the decline that developed yesterday on August 3. The current decline is not a complete five-wave pattern, and the indicators do not display clear buy signals.

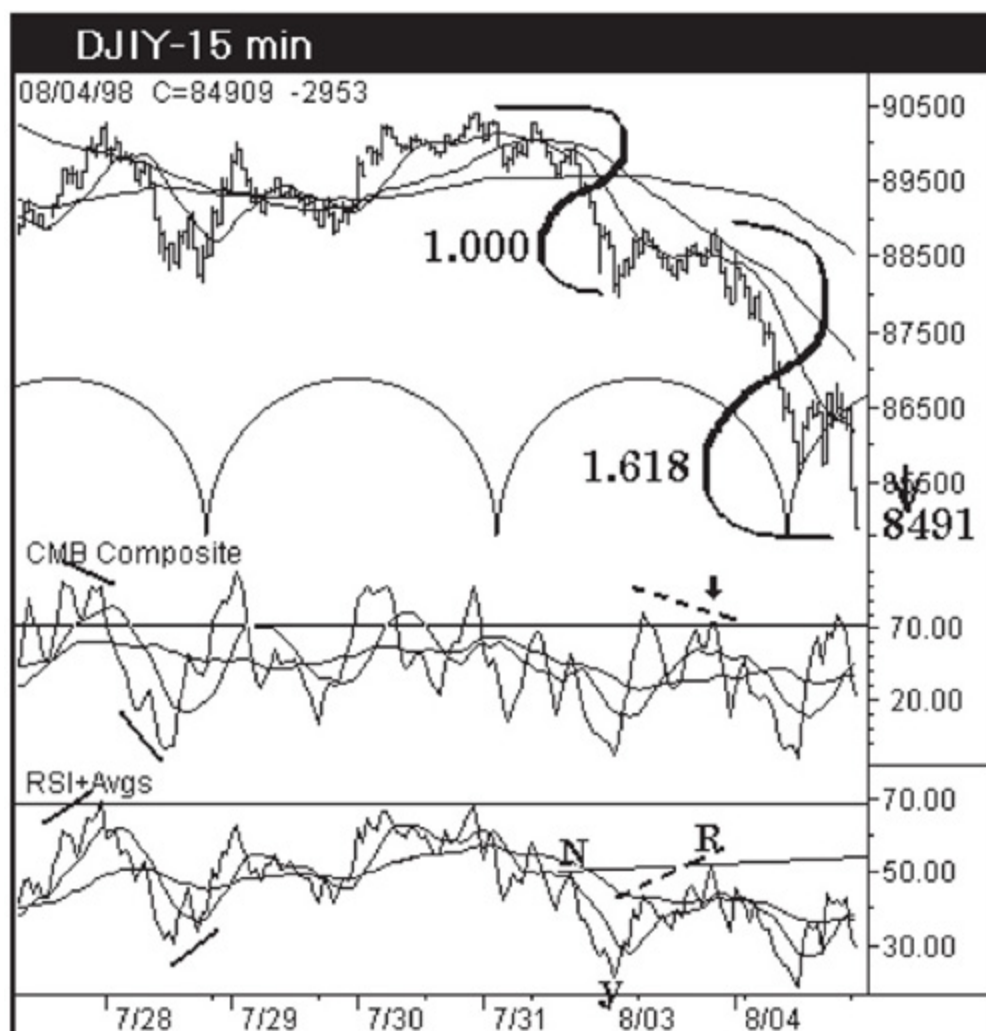


Figure 10.21

Source: TradeStation. © TradeStation Technologies

I'll suggest a minor rebound upward on open as the last decline into the close still needs a small fourth wave up and then a drop to a new low. The Gann target at 8,410 is the objective I would rely on as the Fibonacci projections below 8,490 cannot be confirmed at this time.

[Figure 10.22](#) now shows the DJIA on August 5, 1998, after the market has closed. The last chart suggested a minor bounce with a decline toward 8,410. This was not quite right as a bounce or consolidation did not develop until the market realized the Gann objective providing follow-through from the prior day's meltdown. The market bottomed at 8,411.3. I'll take that since the target was 8,410, and then a rebound was attempted, which is labeled "wave a of 4" in [Figure 10.22](#).



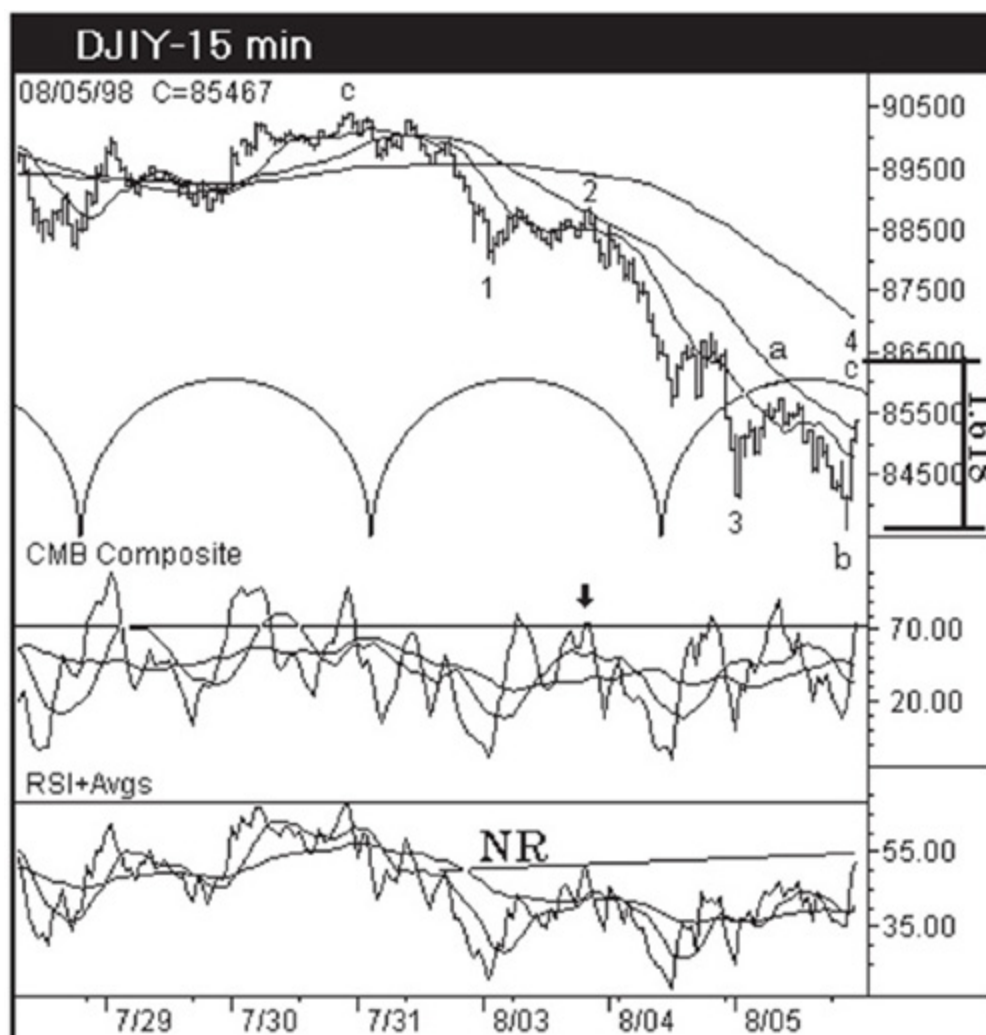


Figure 10.22

Source: TradeStation. © TradeStation Technologies

This may raise the question, how do you know which price projection method to use in which situation? I use all the methods described and lean on Fibonacci analysis first and Gann second in longer horizon time intervals. The 8,410 level was a major confluence zone or cluster of Gann targets that actually fell within a narrow range between 8,409.4 and 8,411.7. The market actually rebounded from the top of the target zone. (2nd Edition note: While the SP500 is in a lower price range in 2011, the expanded trading ranges of recent markets must allow for confluence zones to be wider than this example implies.)

The advance to the high now marked wave a of 4 is a Zigzag pattern that is clearly a three-wave advance. The decline that followed into the low has wave structure internals that could fit either a three-wave or five-wave

decline. That is a problem. However, the advance that follows into the close is clearly a developing five-wave advance, so the last leg down into the low will be viewed as a b wave. Prior to the rally into the close, we thought that we might see an Expanded Flat pattern develop. We know wave c up within an Expanded Flat can target the 1.618 relationship relative to the distance traveled by wave a. This objective has been marked in [Figure 10.22](#). So we know if the market should exceed the 1.618 target and trade near 8,650, we may have to reconsider the final decline, which is now marked wave b of 4 as it is hard to tell what it is.

You will notice that the Composite Index broke above a prior momentum peak and that wave c up has allowed this indicator to return to a horizontal line defining resistance for this indicator. The same horizontal line of resistance is where wave 2 up ended (black arrow in [Figure 10.22](#)). Further weakness to a new low could develop tomorrow, and the target would allow balance to occur from the early stages of the decline from the price high in this chart. Measure the distance traveled by wave 1 down, and use that relationship to measure a 1.00 and 1.618 relationship from current highs.

The decline as labeled from the high in [Figure 10.22](#) needs a fifth wave down to complete the larger decline. However, we have our first real conflict beginning to develop. It is not clear if the last leg down called “wave b of 4” is a five- or three-wave structure. Extending patterns in real-time are always tricky. It is possible that the last leg down is a fifth wave to end wave 3 in the 15-minute chart. There is also conflict present between the S&P futures chart and the DJIA tonight, and the two indices have to be watched.

In [Figure 10.22](#), notice that a trend line extends from the RSI negative reversal signal that gave us the 8,703 price objective in [Figure 10.20](#). The RSI indicator is now approaching this same trend line. If the market produces an immediate reaction to this resistance trend line, we can be more confident about a fifth-wave decline developing. However, if the market is capable of moving the RSI through this trend line, it will be a warning that a more complex pattern could be developing. We need to watch the market closely tomorrow as it is extremely oversold in a 120-minute time horizon now.

It is August 6, 1998. We have finally stepped off track as the market did not decline from the simple Expanded Flat pattern we suggested yesterday.



[Figure 10.23](#) shows today's trading session. We may have correctly identified an Expanded Flat pattern, but this is just one pattern within a larger move, and there are several factors that must be balanced.

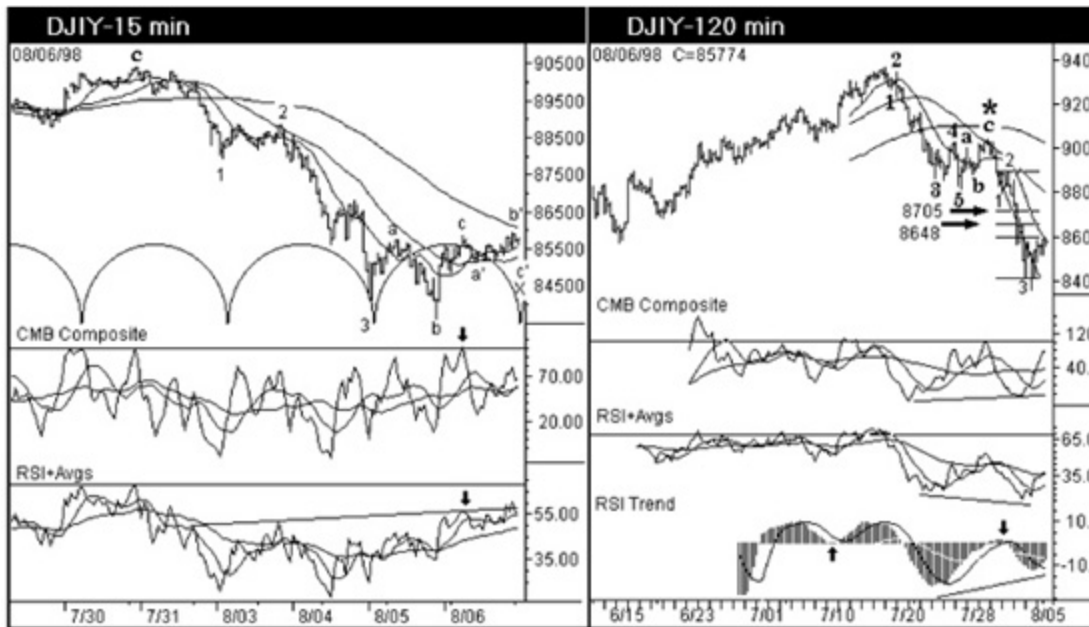


Figure 10.23

Source: TradeStation. © TradeStation Technologies

In [Figure 10.23](#) you will see that the Composite Index challenged the horizontal trend line drawn to define the maximum displacement in the 15-minute chart of the DJIA. The test during today's session is marked with a black arrow. The last time the Composite Index challenged this extreme was at the price high that completed the Zigzag corrective pattern marked wave c up at the high of our 15-minute chart. It is a major top in this time horizon. It is important to know the position of the longer horizon charts such as weekly and daily. If the oscillator breaks above the maximum oscillator peak, it would mean that underlying strength is building within the market for a much larger advance that would be seen developing in longer horizon chart data. From the black arrow the Composite Index then declines rapidly while the price action produces an insignificant choppy pullback that fights the sell signal the entire way down. The decline being described is called wave a' down in [Figure 10.23](#). This is a warning because we know if our indicators move a distance much greater than prices, we are most likely on the wrong side of the market.

A rally is then attempted, and it is a very distorted looking advance that leads into a high near the close marked wave b' up. The advance toward the close is what I would call a "choppy mess," and it is very well suited to be the character of a wave b advance in a short time horizon chart. Either the market is fighting the advance, though that is unlikely as it fought the decline as well into wave a' down, *or the market action within waves a' and b' is screaming at us to look for a cycle low approaching that we have not defined in [Figure 10.22](#).*

We have witnessed the corrective patterns called "Flats" and "Zigzags" develop in this decline. However, the market has three basic patterns that it may use to create a corrective pattern. The third pattern is the triangle, which occurs when a market becomes range bound and moves sideways. Maybe we are due. Triangles are very common in small corrections when the market is waiting for a cycle low to pass. (2nd Edition note: Now that I am much stronger with Gann Analysis, it is Gann that is the best way to detect large degree triangles in markets. They develop when the time targets form a cluster. The trend resumes immediately after the x axis time cluster is exceeded.

The cycle in the 15-minute chart of [Figure 10.23](#) has now been adjusted from where it was positioned in [Figure 10.22](#). The new position selected offers an alignment with three prior price lows. (2nd Edition note: I make no cycle forecasts intraday now. Only use Gann time targets in a daily time interval. In fact, 2-day charts are extremely helpful.) But this dialogue with a fixed cycle intraday I no longer support.) It now suggests that the market will experience a cycle low on open tomorrow. Markets will either decline into cycle lows, *or they will do all they can to waste time until the cycle low is in place*. In a long-term chart, markets may form extensive corrective patterns that aggressively go nowhere until a cluster of cycles has bottomed. (2nd edition note: This remains true of cycles in general.)

In [Figure 10.23](#) the price action that forms from the low marked wave a' into the high marked wave b' is undeniably choppy and distorted price structure. There is not going to be a five-wave structure within that mess. However, this choppy action has been incredibly informative for us already by highlighting the cycle we have now identified. The same choppy price action is also telling us what the market will do tomorrow. All this information from just the two small moves labeled waves a' and b'? Yes. The technical indicators would not be much help to us right now. The

market will either complete a small Expanded Flat pattern that it started today by forming wave c' down into the cycle low that should bottom early in tomorrow's session, or the market is simply wasting time until the cycle low is in place, after which it will advance sharply without further delay. As I do not think the market will make a new low from this price structure, we have now been politely introduced to our first complex correction.

We now have to use the dreaded x wave because the corrective pattern is becoming a complex correction. We first encountered the use of an x wave in [Figure 10.16](#) when a Double Zigzag was introduced. People in the industry clearly hate to use the letter x. I suspect there is confusion about how to use it. If the waves marked a'-b'-c' in [Figure 10.23](#) form a very small Expanded Flat, we would then have only two corrective patterns. The first is an Expanded Flat pattern with internals marked a-b-c, and the second corrective pattern would be a smaller Expanded Flat with internals called a'-b'-c'. The price action into the price pivots called a' and b' are very small moves in both time and movement relative to the structure we called a-b-c. For these proportions it would be wrong to imply a' and b' were the same degree as waves a-b-c in the first pattern. Therefore I know to immediately drop the wave count down by one lesser degree because of the balance consideration. I should use a and b with an underlined to be formally correct. But TradeStation does not offer an underlined text feature, and in the heat of battle I do not care. Just know it is one lesser degree. When the second corrective pattern is complete by forming wave c' down, we will then have two back-to-back corrective patterns. This is a problem. Markets always require at least three patterns to satisfy a larger correction. So the second pattern with internals called a'-b'-c' is just a connector, and we call it "wave x." Our complex pattern will not be satisfied until the market completes a structure with waves a-b-c-x-a-b-c.

Knowing that we must always develop at least three corrective patterns back to back is of tremendous value now. If the market can produce a wave c' decline that just breaks below the start of wave a' into tomorrow's cycle low, that would be ideal. Then the market could continue upward to develop the advance we need to produce waves a-b-c. That would mean a fairly decent rally to develop another a-b-c advance in the DJIA chart. Instead of a wave c' decline, the market may stall and go nowhere until the cycle low is in place. But that would imply the market will develop an a-b-

c advance from nearby market levels. Either way, the market should go up tomorrow.

While the small price action marked wave a' and wave b' is offering us a wealth of information, there is another reason to anticipate that further gains are a high probability. There are conflicting indicator signals present in [Figure 10.23](#). The 15-minute DJIA chart is displayed along with a 120-minute bar chart of the DJIA. The Composite Index and RSI are diverging in the 120-minute chart, suggesting that an advance could be near. Another indicator has been added called the *RSI Trend*. We have not had an opportunity to discuss this indicator, but it is needed right now. I am looking at the RSI Trend oscillator to see when an overbought or oversold condition has been alleviated by watching to see when this oscillator crosses back through its zero midline. This is one of the main signals I am looking for in this indicator. You will find a black arrow pointing down toward the RSI Trend oscillator that coincides with wave 2 up. That juxtaposition in wave count and oscillator position is a confirmation signal. There is also an upward-pointing arrow that has developed a signal in conjunction with a fourth wave during the rally into the high. We can see this oscillator has much more room to advance before it will cross the zero line again. That means the idea we are developing of a complex correction that will produce another a-b-c advance will fit the technical picture within this 120-minute DJIA chart. There is tremendous divergence between the RSI Trend oscillator and our price data. We have just seen an example of how this oscillator is used, and we will give it more attention when we discuss using oscillators on oscillators. The RSI Trend is an indicator derived from another oscillator, and it is used only as a lead signal. It is leading. We will follow it into tomorrow.

In contrast, the 15-minute chart is once again overbought. Our previous overbought signals have been aligned with declining oscillators in the 120-minute chart. If you study the two time horizons in [Figure 10.23](#), you will see that there is a directional conflict. It is this indicator conflict that will create complex corrective patterns. I'm not sure how we will end up.

I knew this conflict was developing yesterday. But the key is not to jump ahead of the facts present within our data. We can think ahead, but we must not trade ahead of the facts. Patterns actually take *much* longer to develop in the market than they do in our minds. This timing difference is probably the primary source of most of my own trading errors. I trade from

the ideas constructed within my head sometimes rather than from what is on the screen. Trading too far ahead of the market's structure and its corresponding technical evidence will cost you money.

On the other hand, we have to be ahead of the market in order to trade. I struggle with this fine line constantly, and it is only strict money management that keeps me in the P/L race. Being able to read small pieces of the market's puzzle, as we have done for waves a' and b', can be a fault as well. I do not trade the S&P well from a one-minute chart in an effort to reduce capital exposure because I continually have a stream of ideas developing through the trading day as the market action unfolds. *The fault is losing sight of your original game plan.* So the evening reports are as much to keep me in control and focused within the next trading session as they are to inform clients about what I may be thinking. (2nd edition note: Interesting, my objective of writing an evening report has never changed 15 years later. It is a major reason I continued to learn and improve.)

Tonight we can see that the DJIA has advanced to a level directly under a Fibonacci 0.382 retracement in the 120-minute bar chart and to a Gann target that aligns with the moving average. This is a wait-and-see juncture at a critical market level. If the market declines immediately from this area of resistance, wave c' of x down will be favored. Even a stall into the cycle low will lead to another a-b-c advance, so we should be able to read the innuendoes that the market is transmitting fairly easily tomorrow. If the market *unexpectedly* reacts more strongly to the cycle in [Figure 10.23](#), then expect wave 5 down as this will be against the longer-horizon chart, and a key reversal swing back up could follow in the same trading session tomorrow. No damage has been done financially in either of these views that tracks with the cycle low.

Did I just suggest three-wave interpretations from the same price data? Yes. The favored opinion is that a minor decline on open will then lead to a three-wave advance toward 8,705. The target is marked in the 120-minute chart and is the 0.618 relationship of the measured move. The market is currently at the 0.382 retracement in this same chart. A variation is that the market will ignore the cycle entirely and just advance. Is that an alternative? No. It is allowing some room for the market to take control of the timing on how it will advance toward the *same target*, and the data must still develop a three-wave structure into that price objective. A weak



open or not does not change the favored view that the market will advance. That is where people get so confused.

The alternative wave count is a market decline to a new price low. That is what is unexpected. We know it would be wave 5 down. But we must have a price objective that defines where our favored scenario may be proven wrong. We know wave c' down should not exceed a 1.618 relationship with wave a'. We now have a target to monitor if wave c' down gets too zealous. A break below that relationship would mean that we are in trouble as the market would then challenge the current low in the chart for [Figure 10.23](#) and we would then be trading from the alternate scenario. A decline to a new low is a much lower probability because the 120-minute DJIA indicators are clearly attempting to advance.

The chart prepared for [Figure 10.23](#) is in fact the chart used in tonight's client report to show the risk now present from conflicting time horizon signals. Predicting the market open is not as easy, but the view that a rally will then develop is a high confident outlook. While the target for the DJIA is 8,705, the target for the September S&P is 1,107 derived from a Gann Wheel, which is an important objective from the current price low.

There is an asterisk in the 120-minute chart that marks the high where the Zigzag pattern is completed. The convention is to mark the first five waves down with the number (1) below wave 5. The a-b-c Zigzag pattern would then be wave (2) up. I am not sure that the larger picture is going to become an extending pattern that will end at wave (5) down, so I'll just label two back-to-back five-wave units together and then see where we are at that time. I tend not to give much attention to larger-degree labels until forced to confront them. These charts are not perfect cataloged illustrations but rather day-to-day charts of working battle plans within a larger war in progress.

The DJIA market action for August 7, 1998 is displayed in [Figure 10.24](#). We are doing very well today as the DJIA has rallied to a market high of 8,710.0 and the September S&P has realized a high of 1,108.50. Our original targets were 8,705 and 1,107.

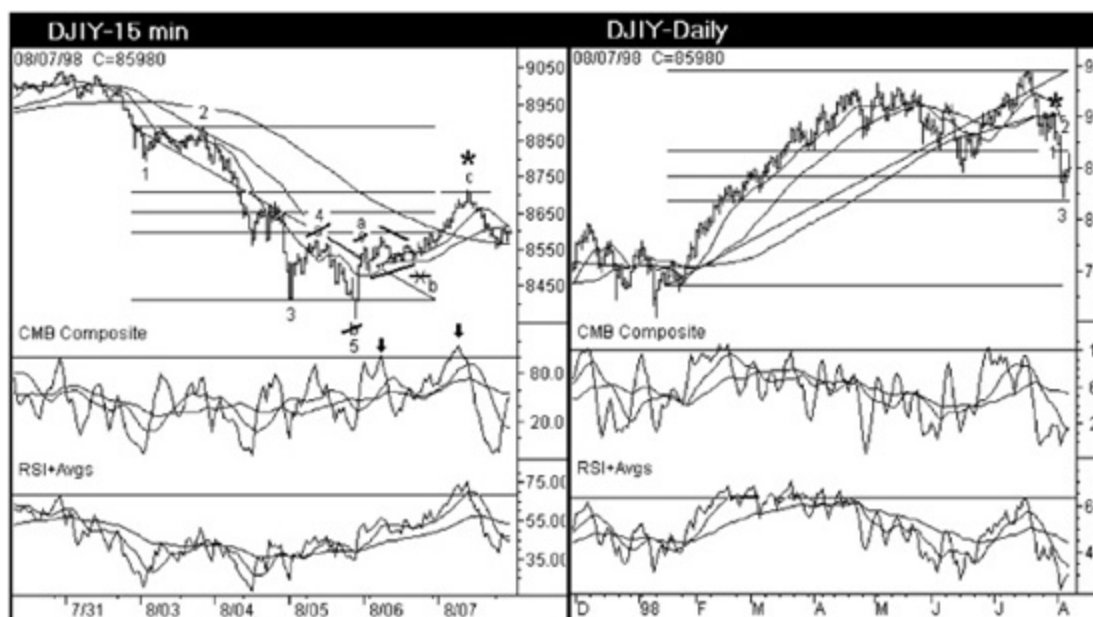


Figure 10.24

Source: TradeStation. © TradeStation Technologies

Just one problem: *Right market direction, right targets; wrong pattern.* We needed a three-wave advance into these objectives and did not get one. The cycle identified yesterday has not produced a wave c' decline to complete a small Expanded Flat pattern. Instead, the market has elected to stall into that cycle low. It was an option we had considered as we knew the cycle was present that would allow the market to react in this manner to the cycle. Therefore, wave x has become a triangle. A rally then unfolds throughout the remainder of the day toward our objectives. Here is the problem. The advance that develops out of the triangle is not a three-wave structure. It is a five-wave pattern. So that means we have a Zigzag in place from the market low into a major price target. The current rebound to a 0.618 ratio in the 15-minute chart from the price low means that we must look at a much bigger picture now to consider our options. In addition, we are now forced to accept that the final leg down is not wave b of 4, but a fifth wave. We are making a wave count adjustment based on facts, not based on trying to fit structure into our analysis. Big difference, and the change can be seen in [Figure 10.24](#).

[Figure 10.24](#) also displays the current chart for the daily DJIA. The daily chart shows that the current price low at 8,361.9 is nearly an exact 0.618 retracement. The current advance that has developed today to 8,710 is to the 0.382 ratio within this same mathematical grid marked on the daily



chart. The reasons that these specific pivot levels have been used in both these charts to calculate Fibonacci ratios are fully described in the Fibonacci chapter. Why the price spike in the daily chart has not been used to calculate the Fibonacci retracement targets is also explained in the Fibonacci chapter in great detail. This offers a real-time example of why spikes should not be used to create Fibonacci retracements.

We have a new problem. We can see from the daily DJIA chart in [Figure 10.24](#) that the entire decline is not a completed five-wave structure from the high marked with an asterisk. We have just labeled this same decline as a five-wave structure in the 15-minute chart. Is the current price low wave 5 down or wave 3 down in an extending pattern? (2nd Edition note: If I switch to Point-and-Figure, I generally know something ugly is hiding within a chart. I start looking at it in different ways and pay particular attention to patterns in overseas markets.) To try and answer this question, I sometimes use Point-and-Figure charts. Use the dimensions  $100 \times 3$  and  $50 \times 3$  for intraday decisions in the S&P. We need to be addressing if the second five-wave unit is extending further or is complete. The question developing in the short-horizon data is, “Where will wave 4 up become too proportionally large to still be within wave (3) down?” The asterisk in [Figure 10.24](#) would be wave (2) up having followed our first five-wave decline. The current bounce in our daily chart that we know is a Zigzag from the price low is not too large yet to still be considered wave 4 up within wave (3) down. I just painted myself into a corner, and I am now forced to label the charts with the higher degrees. OK, I’ll give in and add them to our next chart.

The time frame or corrective price structure that constitutes “too large” and out of proportion relative to the whole structure developing is an important issue. As a general guide, if a correction has taken over twice as much time to develop as a more simple pattern within the same “unit” or cycle, it is less likely a correction within the same degree. In other words, we do not know if the rally that developed right to our target today is wave 4 up in an extending wave (3) decline, or wave a up within a developing wave (4) correction. Wave (4) is a larger degree and might develop more than just a simple Zigzag from the bottom. That is why the idea of wave a of (4) is suggested. But is today’s simple Zigzag rally sufficient to satisfy an entire correction?

It has been so long since we first discussed [Figure 10.2](#) that I suspect you may have forgotten a point or two from that chart. So, a quick recap: The Elliott Wave Principle provides us with a guideline to anticipate alternating corrective patterns between waves 2 and 4. We need to know that now. The guideline implies that if we have a simple pattern develop within wave 2, there will be a higher probability that a more complex pattern will form in position 4. Easy.

When we look at the daily chart in [Figure 10.24](#), we see a sharp quick rebound characteristic of a Zigzag correction. We also know Zigzags frequently develop when the market wants to get the correction over with so that it may resume the larger trend. The current advance is about half the time the market required to rally into the asterisk. It fits the guideline between waves (2) and (4). Now look at the rebound relative to the decline from the high. Wave 2 up is choppy, and this bounce is clean and simple. The rally into the 0.618 retracement objective does not overlap wave 1 down. We can go either way still, so we are not getting anywhere fast from just looking at structure in these charts.

We are forced to look at the bigger picture before we can do any further work in the shorter horizon charts. But what is the current market opinion? No opinion. The point is that no opinion should be attempted until additional analysis is considered. We are tapped out, you might say, in the short-horizon charts.

Won't we miss a trading day if an opinion is not offered? Yes. However, we have been tracking a 1,006-point decline in the DJIA from a pivot level most people never suspected would become a significant top. We haven't missed a beat throughout the 10.7 percent decline now in place. Our indicators even warned us about the sharp rally that developed today which became the strongest retracement since the entire decline began. We can afford to take a day off now to evaluate where we stand in the bigger picture. Let the short-horizon price action go where it will without us on Monday. Today's session for August 7 is a Friday, and we have a weekend ahead. I'm tired because describing the evening analysis in this format has meant a workload that frequently takes until 3 a.m. to finish. Monday will be reserved for longer horizon work, and then we can continue. It is called *pacing*. Take a mental "time-out" after a big move, and then come back to the short-horizon price structure. We can pick it up from there.

It is now Monday, August 10, and the DJIA and S&P are drifting nowhere in particular. We have not missed anything in the market so far. It would appear that the market is taking a day off as well. Until now we have focused only on the DJIA. The September S&P futures contract must use the Globex night session for both wave structure and price projections now. The S&P chart has an important indicator signal in this chart.

In [Figure 10.25](#) is the 240-minute chart for the September S&P 500 futures market that was captured today about 2 p.m. on August 10. The structure labeled in this chart suggests that the decline from wave (2) is not a complete five-wave pattern. Waves (1) and (2) have been added to make this discussion easier to follow. But I still resist implying that this entire decline will develop into a five-wave pattern because in the very big picture this will become a fourth wave down. It will likely end after a very large Zigzag pattern from the high is in place. (Why? This is the fastest way for the market to get the correction over with as the larger trend will return to record new price highs.) The proportions developing fit nicely. We would then label the entire decline waves A-B-C. So do not assume I am a bear for much longer.

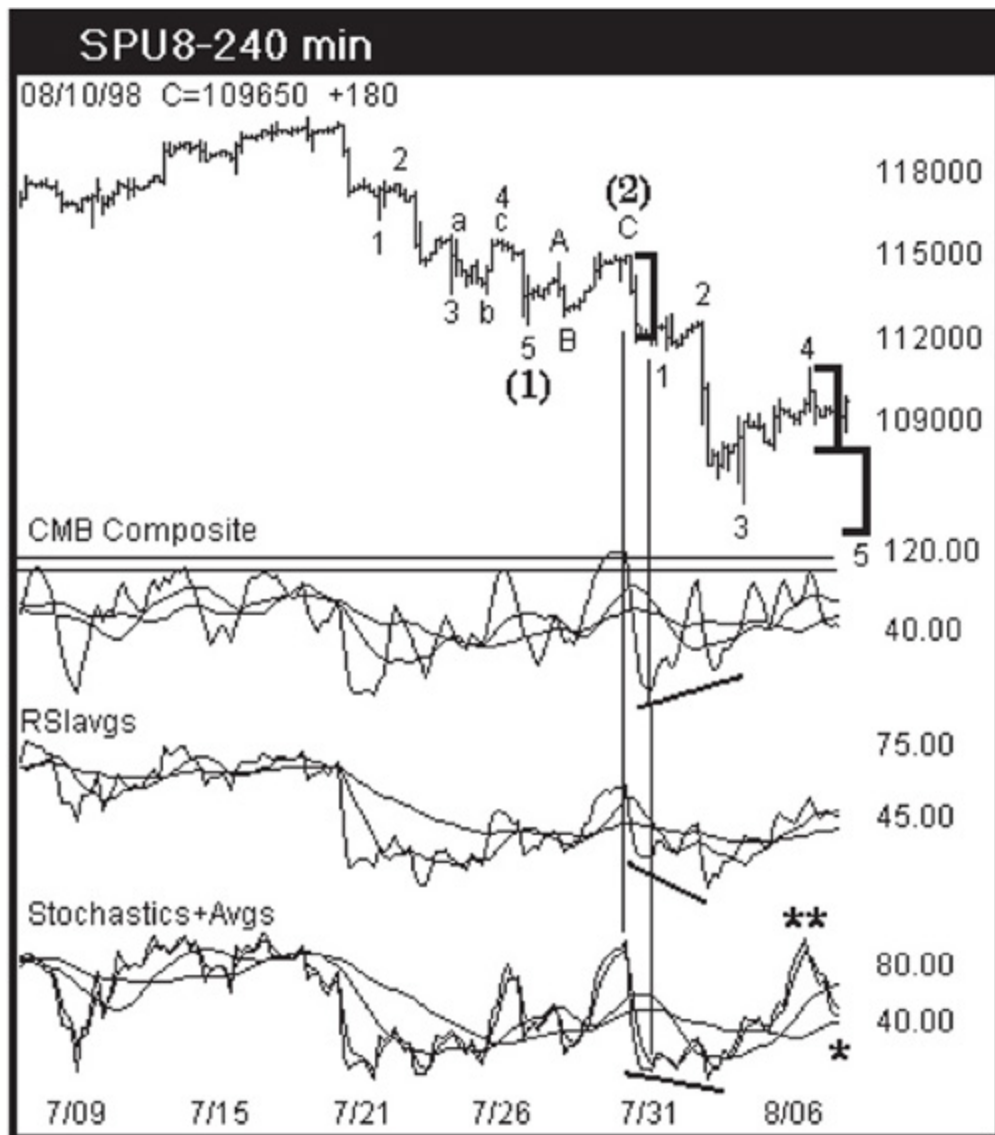


Figure 10.25

Source: TradeStation. © TradeStation Technologies

Wave 4 up, to my sense of balance, is on the verge of being too large to proportionally fit the decline from the top of wave (2). However, it has not exceeded twice the time consumed to develop wave 2 of (3) so we are still within acceptable boundaries. If this advance is wave 4 up, it should be satisfied now at the 1,108.50 high that was made on Friday.

My sense of balance needs wave 4 up to end right now, and this view is given some confidence by Stochastics. This indicator is telling me what the next market move will be. How would you interpret this indicator? The Stochastics indicator in [Figure 10.25](#) has declined from the last peak

(double asterisk) to a support level created by placing moving averages on the indicator (single asterisk). Meanwhile prices have held their ground. Why, that is exactly what we have used to suggest we would be on the wrong side of the market if we were short. The market is not following the indicator. Therefore, the market should advance provided that the indicator holds the support average. So why am I comfortable with the idea that wave 4 up has a top in place now?

Because viewing Stochastics as a buy signal right now is not a correct interpretation for this indicator. I am very relieved that this signal developed now because it would have caused a lot of people to step off track at this juncture and I did not think to discuss it earlier. I do not trade from Stochastics as you are seeing, but I watch it for two reasons: to monitor the Stochastics Default Club discussed at the beginning of this book and to monitor this formula when it is correctly set up for one specific signal. The first interpretation to suggest a rally tomorrow considers only the indicator travel from the double asterisk down to the single asterisk. *It does not consider the character of this indicator and how Stochastics responds within a trending market.*

Wait. This is not fair because we have not been tracking the S&P, and we have not spent a lot of time discussing Stochastics. Fair? This is war! Grab anything you know works in war. I use the Composite Index and RSI with moving averages as the basic palette from which to analyze a market. I know there are specific signals that must be watched for in other indicators. The signal in Stochastics that is present now is one of those I must be on the lookout for at all times. The methods we covered for reverse-engineering, other indicator formulas, and various price projection techniques are called upon as well when they are needed. Not before. I do not need a slew of indicators just to confuse me. I can do that very nicely without any help. But when I need clarification, there is something in our arsenal of techniques that we have covered that would be a fit for the problem.

Now we have a Stochastics signal present that is like being hit in the head with a baseball bat. I cannot ignore it. I know what it feels like to be hit by the market's bat, and I have been taught to pay attention to this signal. While the Composite Index diverged with prices near the bottom, both the RSI *and Stochastics oscillator did not diverge*. This is important for Stochastics. This is a trending market in this time horizon, and

Stochastics has not “locked up” where it becomes a flat line at the bottom of our screen, but it is clearly spending the majority of its time below the 40 level. At the first chance this indicator is given to alleviate the oversold condition, it pops up to the top of the screen. Look at the pop into the high that became wave (2) up (or wave B up as we still don’t know which will be correct). Again we see that the indicator has popped to the top of the screen and has formed a peak at the same displacement that developed wave (2). This pop out of an oversold market condition is what George Lane calls a “pop.” The reverse? A “poop.” It offers us an immediate signal and a price projection to go along with it. If you look at the RSI and Composite oscillators, there are no similar patterns present. This signal is unique to the Stochastics formula.

I know I covered this earlier, but here’s how to make the price projection from the Stochastics signal. Measure the distance of travel in the Stochastics indicator preceding the current pop, and take the corresponding price move to make the price projection. (You can use the Stochastics bottom, but let’s be conservative first.) This price decline can then be used from the high that formed the Stochastics pop by projecting 1.00, 1.618, 2.00, and 2.618 targets. In this chart from the top of wave 4 up is a projection to equality and two times the first measurement. The market will make a new low.

In addition to this signal, it is important to view the longer horizon charts so that we can determine how the current market decline fits within a larger picture. The following chart in [Figure 10.26](#) was displayed in my Internet report for August 10, 1998, to address longer horizon analysis.

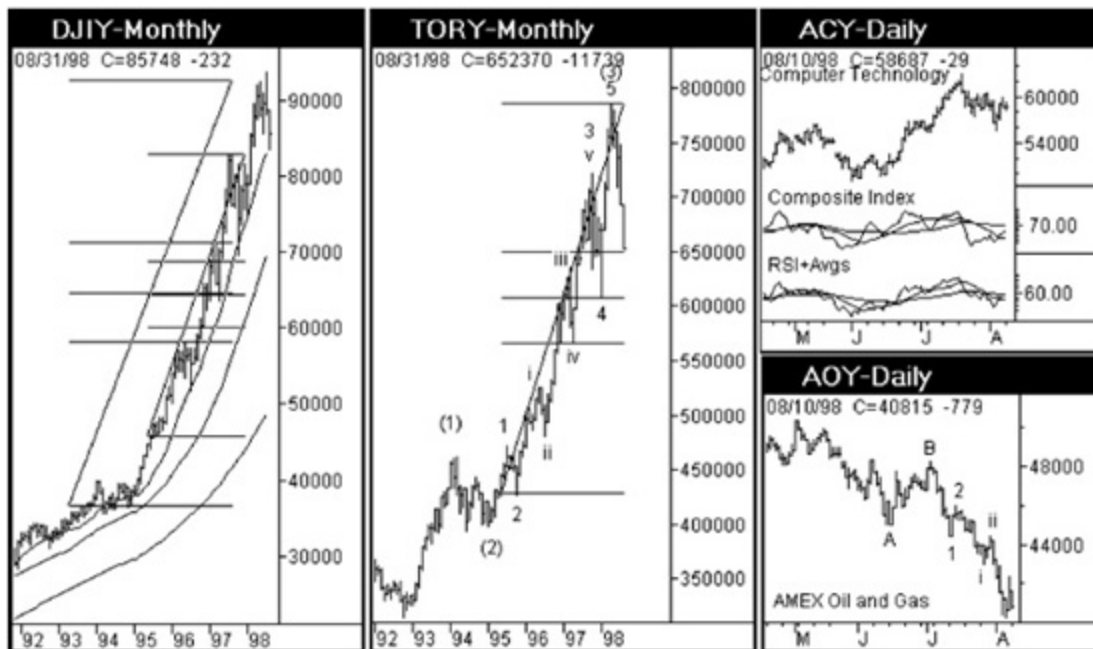


Figure 10.26

Source: TradeStation. © TradeStation Technologies

Suddenly all the Elliott wave traders have been lost to the chart in the middle of [Figure 10.26](#). Don't jump to conclusions. You need to understand that I label every subdividing five-wave pattern as wave (1) up to start the move. The 120-minute DJIA chart also used waves (1) and (2). This situation is no different. Everyone quickly assumes that I am making a statement about the relative subdivisions in context to a Grand Supercycle top. Sorry. Not this Elliott wave practitioner, because the bottom of the 1987 low in my view was a second wave. We will return to a big-picture outlook near the end of this chapter.

In [Figure 10.26](#) the middle chart is the Toronto Stock Exchange. It is interesting relative to the American stock indices because it has a high correlation, develops a very clean wave structure, and frequently tracks with a timing displacement compared to the American market as it did in this decline. Toronto was already declining when the American markets were developing their fifth waves into new highs. Toronto formed a second wave up as wave 5 developed in the S&P. So the Toronto Index is used to show how the market is forming a fourth-wave decline that has realized the first Fibonacci target before the American Indices. Globally I might add that the German Dax Index is the leader at this time.



Someone is going to ask me, “Why did you use the price spike to calculate the Fibonacci retracements in the Toronto Exchange?” Much time was devoted to setting Fibonacci ratios based on prior market action. Look at the lows that form at waves iv and 4. The market tells us if we should use the spike or not. That’s why I did not ignore the spike this time. The decline that has developed has now realized the 0.382 retracement. The market is suggesting that this was the right calculation.

On the far right is the daily AMEX Computer Index and AMEX Oil and Gas Index. As these two sectors make up more than 10 percent of the total S&P 500 Index, they have a strong influence on the direction of the S&P. Both indices display incomplete patterns.

On the left in [Figure 10.26](#) is the DJIA. It shows the market has now declined to a very long-term trend and to the top of the previous fourth wave. *The Fibonacci grids within this chart show how the Toronto Index was used to define the start of a large third wave.* We have balance as the midpoints overlap if we align the American Index with Toronto’s. So we have a short-horizon opinion that a new market low will develop. But my guess is that we will form a Zigzag decline within a large fourth wave from the high. We will track only one more short-horizon chart in our real-time scenario to see if the Stochastics signal is correct or not. Then we can move forward and begin to look at the longer horizon.

This is a good place to end the short-horizon journal. [Figure 10.27](#) shows today’s action for August 11, 1998. The Stochastics pop correctly warned that market weakness would be seen today. New price lows have developed in the S&P and DJIA to confluence levels defined by Gann and Fibonacci. The Stochastics objective has been exceeded slightly from that projected in [Figure 10.25](#) (lower target at 2x). The daily chart is being used to show that this latest decline is occurring into a cycle low. The derivative oscillator is clearly diverging. The Stochastics pop described in [Figure 10.25](#) is now present in the daily DJIA chart in the reverse. The momentum extreme indicator we discussed earlier in the price projection section of this book is diverging. The DJIA should rebound tomorrow. I need to look at the indicator positions and wave structure into the advance. Will it just be a corrective pattern up? I do not know. I can only try to stay one day ahead of the market. I think tomorrow will be an up day. Our day-to-day scenario will be dropped now because we have the much longer horizon outlook to consider.

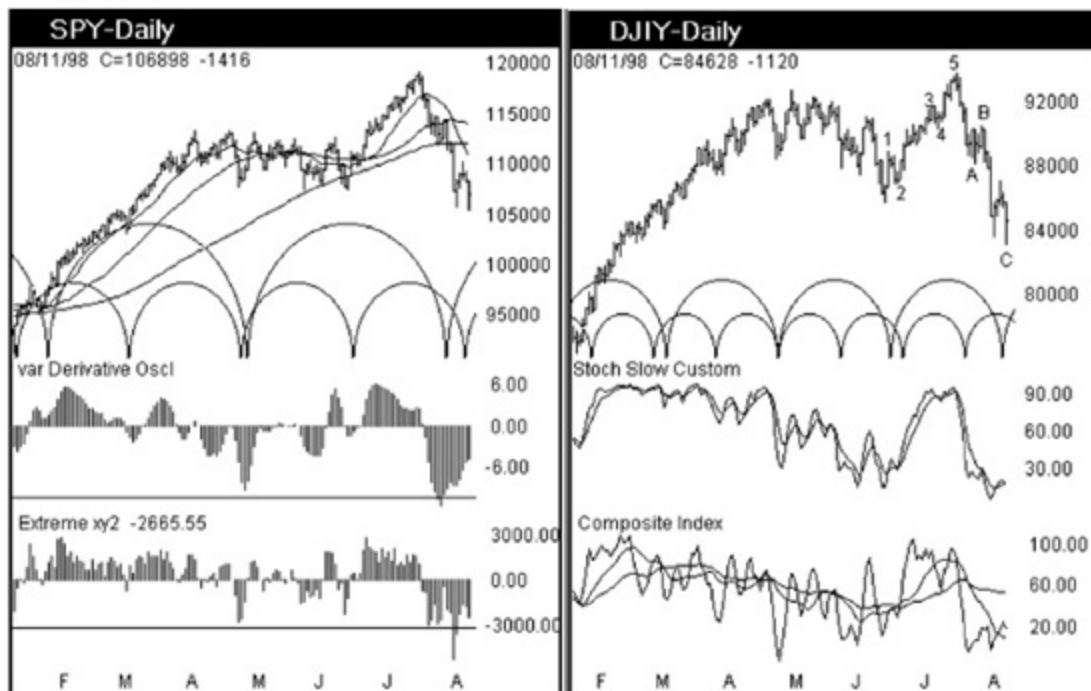


Figure 10.27

Source: TradeStation. © TradeStation Technologies

What will the market do next in the bigger picture? Will wave x up follow after this Zigzag decline that will lead to a larger correction? Will a large wave b rally form the second leg up within a triangle? Will the market develop five waves down from the high? I cannot tell today, but the indicators will tell us and will paint a picture for us every step along the way. For this reason I never know timing as I have to see the footprints made along the indicator trail. At this point you have a very good idea of how the day-to-day indicator signals can be used *to create a wave count*.

Always keep in mind that balance and proportion are of much greater importance than having all the internals perfectly cataloged. If the balance and scale is not right, fix it. This is the same as making adjustments to cycles as required. The longer the time horizon, the more time you should devote to the balance, proportion, and symmetry of your wave scenario. With practice the balance becomes more than just playing the right notes on the piano. We were fortunate to have a market reaction to a key objective that could be turned into a choreographed dance. It can happen. Not always. But it is worth the effort to study all you can because you can now understand what it is like to fall in step for even a brief period.

Once you experience this flow and harmony, it becomes an addiction. You will easily become motivated to work hard to find the next sonata that may grow beyond just the notes within a chart. The right notes in perfect harmony can become music to your ears, and your accountant's. Might not the Elliott "Piano" have a bit more potential than you first thought? I cannot convert anyone, but the Elliott Wave Principle is clearly a viable technical method that has its own strengths and weaknesses. We have seen both illustrated over the last few days.

There are two patterns remaining that we have not discussed. However, the daily S&P 500 data will provide us with ample opportunity to discuss both patterns. We encountered a small triangle in [Figure 10.24](#). The pattern that developed in the DJIA is in fact the most common way this pattern develops. [Figure 10.28](#) displays a contracting triangle in a short-horizon DMK/\$ chart. Most people have tremendous problems with this pattern because it is common for wave b to exceed the origin of wave a. The problem might be that most illustrations in books that show line charts nearly always show a perfect pennant formation. A dotted line in the contracting triangle pattern in [Figure 10.28](#) is the pattern most books use to illustrate this pattern. However, markets are permitted to and will frequently produce a wave b second leg that breaks the origin of the orthodox high.

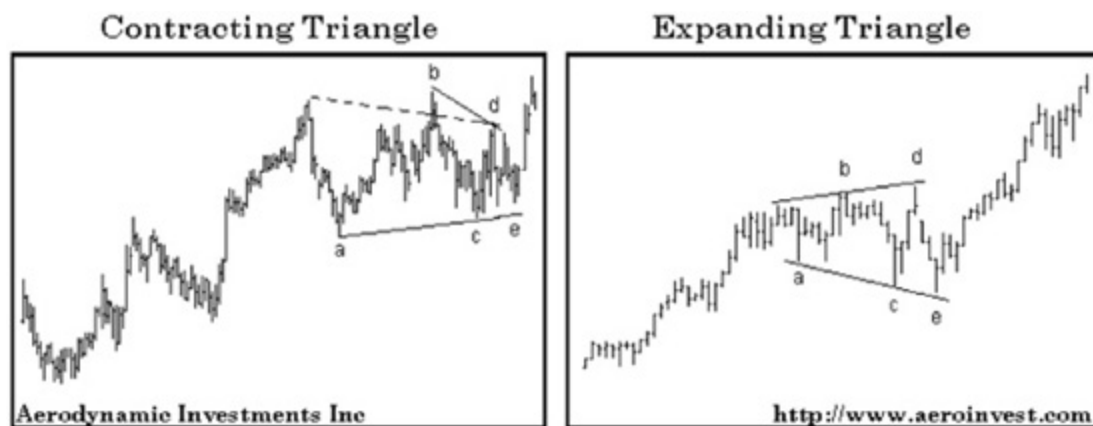


Figure 10.28

We actually had two triangle examples in our real-time market scenario, and I tried to squeeze past the first triangle when it developed. In [Figure 10.18](#) there is a Zigzag rally. Wave c in this rally may have bothered some people as the five-wave structure is made more difficult to see by a sprawling fourth-wave contracting triangle. It was not a three-wave

structure if you wondered about it at the time. Also the market clearly fell to new price lows when the Zigzag was complete, confirming the pattern. In [Figure 10.18](#) the three-wave decline that is just prior to the high marked wave c up is actually wave c' of four in this small five-wave advance. I would have had to compress the data to make it very obvious that the fourth wave was indeed a triangle, and that might have confused some people.

There is in the industry a lot of misunderstanding about triangles. I say this because there are so many examples in our industry to illustrate a common error. Suppose that five swings develop within a triangle pattern. That part is easy. Each swing is called wave a-b-c-d-e. That too is easy. Here's the catch. Every single leg you label as one of the swings within a triangle *must be a three-wave structure*. Case closed. No exceptions. If any of the waves in your triangle has five waves, it is not a triangle. The most abused market in recent years was the weekly chart data for the U.S. T-Bonds. Most people used the outer dimensions of a contracting price structure to suggest that a contracting triangle was forming. If you go back to look at these wave interpretations, you will find a five-wave pattern in the first wave position. That should have been an early warning that this market was not developing a bullish contracting triangle. When the second wave became a five-wave pattern, it ruled out the possibility that the market was forming a bearish contracting triangle. Bonds did not form a triangle.

When the first leg of what is thought to be a contracting triangle is a distinct five-wave pattern, it can be used as wave A, let's say for a decline, and then a bearish triangle will develop to form wave B up. The resolution from wave B up would be a wave C decline. That is how people got caught on the wrong side: they used a five-wave pattern for their first wave.

In a triangle the first leg down is generally sharp. That is why the current decline in the DJIA may develop into only a long-horizon triangle if a Zigzag decline from the high is the correct pattern that the market wants to preserve. Wave B up is then permitted to make a new high.

Wave C within a triangle is very sneaky. It usually takes the most time to develop, and every time you think it is complete, it comes back to form another leg in the complex structure. In a contracting triangle, wave C may not break the termination of wave a. If it does, you have to consider an expanding triangle. This is also displayed in [Figure 10.28](#). In a contracting

triangle, it is well known that wave D may not break below wave C. Do not put your stops just below wave C for this very reason! The slippage exposure for stops below wave C is horrendous (above wave C in a bearish triangle). Use another price projection method to determine stop placement.

Wave D is not as tricky because it frequently forms a Fibonacci relationship relative to wave B. Wave Es, on the other hand, may form their own contracting pattern, which can be very confusing. They are hard to identify. Be aware that wave Es in financial markets are frequently a last leg down that will throw off your timing. Expect this because it happens often. A lot is said about wave Es forming on market news. While it can happen, it does not have to be the cause. One way to determine where the triangle pattern *must* be complete is to extend the converging trend lines of the lower highs and higher lows to mark a projected intersection. Where these two exterior trend lines converge marks the time allowed for this pattern to end. It is the maximum amount of time allowed, not a time projection for resolution of the pattern. The intersection of these two trend lines is the apex of a pennant chart pattern.

The triangle is a coiling pattern building energy within a market for the next move. At the completion of the pattern, the market will explode in what we call a “thrust” out of the triangle. The thrust must occur before the market exceeds the apex of the pattern. If the market crosses through the apex and it is still in a consolidation, the pattern is not developing the triangle you believed to be forming. There may be a larger triangle, or perhaps the first leg of your triangle is not part of the original structure. A triangle that is just one leg off is coiling in the opposite direction, and it will produce a thrust out of the pattern in the opposite direction of your original expectations.

Once the market has developed a thrust out of this pattern, you can make a price projection. Measure the distance traveled by the market in wave B, and then calculate 0.618, 1.00, 1.618, and 2.618 swing relationships. Then project these ratios from the termination of wave E. The resolution of the triangle interpretation in [Figure 10.29](#) is simply called a “fourth wave” because we have not considered the larger picture for this market. Deciding which degree best fits this fourth-wave correction will be deferred until we address the longer horizon analysis.



Figure 10.29

Source: TradeStation. © TradeStation Technologies

When we discussed [Figure 10.10](#), we briefly mentioned that there was a great debate within the S&P Elliott wave community over the price structure that developed from August 1997 to January 1998. The debate concerned whether a triangle had formed or not. In [Figure 10.10](#) the data is compressed. Let's take a closer look at this wave structure now in [Figure 10.29](#).

There are several ways to label this triangle in the middle of the daily S&P 500 futures chart. Move wave a' over to the adjacent low on the right, and you will have a five-wave pattern into the high called wave b' up. That could end the prior advance. Therefore, this triangle can have a sprawled-out first wave a down or a sharp first leg. It will not change the debate. I can give you a triangle with much better proportions, but it does not change the outcome. Each wave within this structure is a three-wave pattern, and it does not matter how you interpret each wave. A valid three-wave swing can be defined. I would also argue about the placement of wave b up in this chart. But whether or not this structure is a triangle will have no impact on the larger issue. *The debate over this pattern was ended once and for all when the decline that developed in April and May 1998 moved the RSI only to the 40 to 45 range for this indicator.* That is a decline within a bull market based on the range rules defined in [Chapter 1](#). Case closed. If you



viewed indicator signals as more important evidence than wave structure, the only conclusion that you could derive would be that the market needed to develop a fifth-wave advance from the June lows.

It should be noted that those in favor of the triangle scenario were forced to use the choppy structure into the high marked wave “5?” as the end of the advance from the resolution of the triangle. When a fifth wave cannot exceed the third wave in a developing five-wave structure, it is called a *failure*. It failed to make a new high in this case. Both interpretations correctly called for a decline. But the indicators made the more accurate call compared to using wave structure on its own. Elliott wave structure by itself is deadly in my opinion. The RSI has an upper and lower volatility band displayed in [Figure 10.29](#). We will discuss this analytic technique in the next chapter.

If a five-wave advance developed, it raises a significant question: “Where is the first wave and from what price low does it begin?” To discuss the first wave, we need to look at a distant cousin of the triangle pattern: the diagonal triangle, or rising wedge.

In [Figure 10.30](#) we have an actual bullish diagonal triangle pattern that formed in a financial market. These patterns will occur at the end of a larger trend when the market is running out of steam, so to speak. While a contracting and expanding triangle will develop in wave positions 4, B, and x *only*, the diagonal triangle will develop only in wave 5 or C. The internals are similar in both patterns since each swing or leg will develop a three-wave structure. Waves 1, 3, and 5 in a textbook environment will develop Zigzag patterns. Do not get hung up looking for Zigzags in a real market environment. As long as the price structure internals are choppy, they will do. The wedge shape should be quite apparent when the exterior trend lines converge. What is more important is that you use a guide to help determine where these rising or falling wedges will end. Once the pattern is complete, the market rapidly returns to the origin of the wedge.



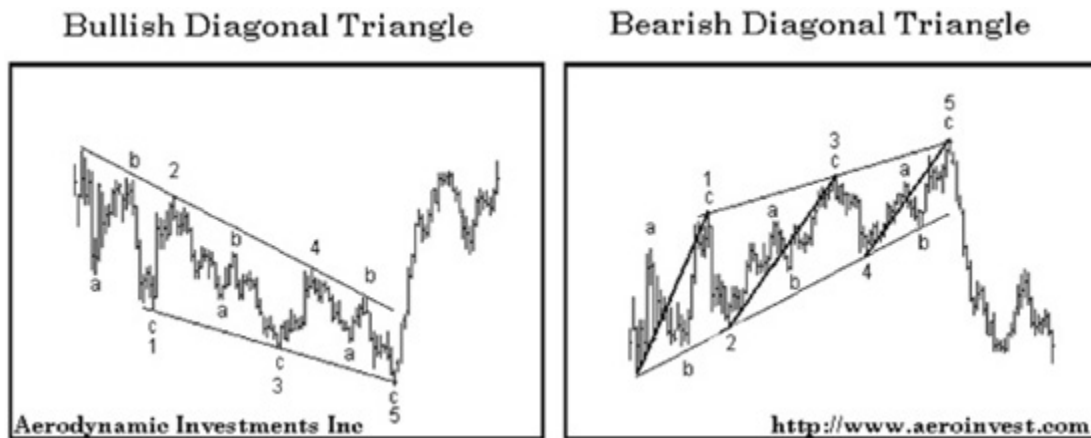


Figure 10.30

Tracking these patterns can be very tricky in a real-time environment because an error can easily be made in the third wave by prematurely thinking it is complete. Here's a useful guide: The same data displayed in the falling wedge that ended a market decline have been horizontally flipped so that I could illustrate a bearish diagonal triangle. You will find three lines in the bearish diagonal pattern to connect the start and end of each impulsive wave. Look at the slope of these lines. They are progressively becoming less steep, and the declining slope of each line gives the impression that they are falling forward. If your third wave has a slope that is steeper than your first, your third wave in the wedge is not complete. The same can be said for the fifth wave relative to the third. The three lines displaying a declining slope between each successive impulsive wave within this pattern will save a trader a lot of money. This pattern in real life can chop your trading account into shreds so that you end up trading the final resolution poorly. The slope is the key to surviving this pattern.

In [Figure 10.31](#) we are viewing the same daily S&P 500 futures chart as displayed in [Figure 10.29](#). However, [Figure 10.31](#) is the better interpretation. This chart shows a five-wave pattern that needs explanation. We will come back to this in a moment. First look at the structure to the left in 1997 that defines wave v of 5. There are five asterisks to mark waves that form a rising diagonal triangle pattern. You can see that the resolution from this pattern is sharp, and the market declines back to the wave iv in June 1997, which is the start of the wave v diagonal that later ends in August 1997. This is the pattern that always marks the end of a trend and leads to a correction.

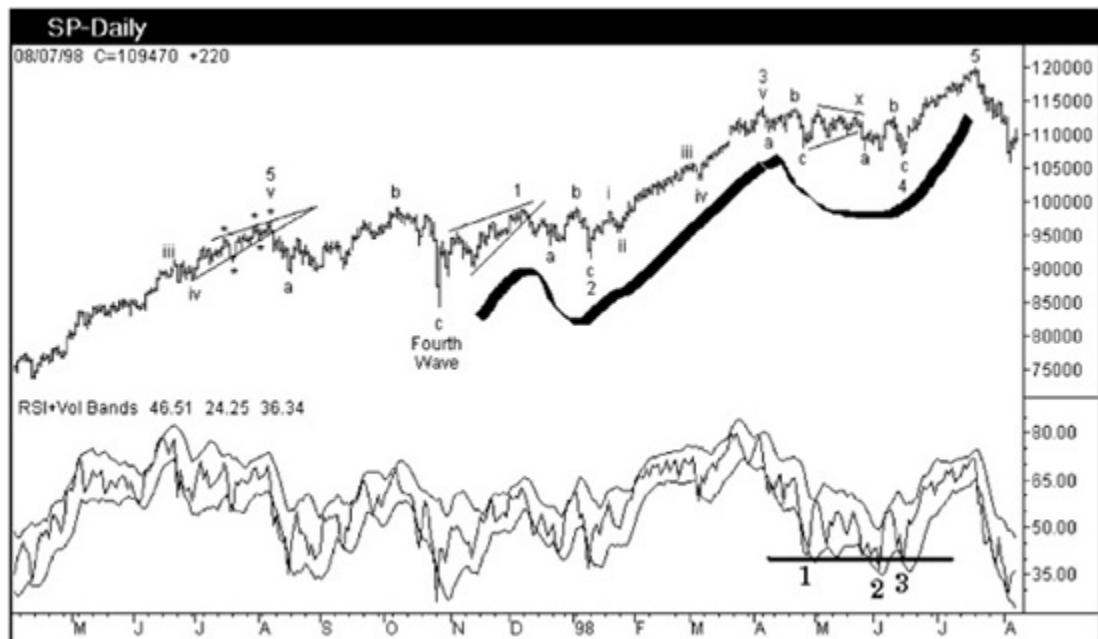


Figure 10.31

Source: TradeStation. © TradeStation Technologies

There are 13 Elliott wave patterns, and we have discussed or used every single one except number 5 in the list that follows. The fifth pattern is quietly mentioned when all the patterns of the Elliott wave building blocks are cataloged. The 13 patterns are:

1. A simple five-wave pattern
2. An extending five-wave pattern
3. Truncated fifth wave or failure
4. Ending diagonal triangle (wedge)
5. *Leading diagonal triangle* (wedge)
6. Zigzag
7. Double Zigzag
8. Flat
9. Expanded Flat
10. Contracting triangle
11. Expanding triangle
12. Double threes

### 13. Triple threes

Pattern 3 in this list is the fifth-wave failure when wave 5 is unable to exceed the termination of wave 3. The term *failure* is used more often than *truncated*. It is a common trading signal when the Cash S&P makes a new low when the futures do not in intraday data. The reverse is also common: The Cash makes a new high as S&P futures fail to form a new high. Futures in these situations are often forming fifth-wave failures. We had to consider a failure for [Figure 10.29](#).

Patterns 12 and 13 are just complex corrections that use connected corrective building blocks together in a group. We will look at these in a moment.

It is pattern number 5 in this list that is the key to the chart interpretation shown in [Figure 10.31](#). A diagonal triangle forms three-wave structures for each wave in a termination pattern. However, there is another wedge pattern. It is the diagonal triangle type 2, or the leading wedge. The internals are 5-3-5-3-5, and the fourth wave breaks the top of wave 1. Is that not a rule violation? Yes, except this pattern must be a distinct wedge, and it is permitted in only one of two positions; wave 1 or wave A. [Figure 10.31](#) demonstrates a diagonal triangle in the first wave position that ends into the market high of December 1997. It is a rare pattern within currencies and equity indices and should be used only in hindsight. However, you will find that this pattern develops more often in bonds because bonds generally are slow to establish a new trend.

In [Figure 10.31](#) the RSI indicator has three oscillator lows marked 1 through 3. The low at point 3 is equal to point 1. Point 2 makes a new low, so the guidelines we discussed that an oscillator will test the prior range are demonstrated once again. However, the indicator level clearly warns that the bull market is leading into a fifth wave, which negates the triangle.

In the list that cataloged the 13 Elliott wave patterns, the two complex patterns did not develop in our real-time market scenario. We were close—I thought we had one developing in [Figure 10.23](#), but it turned into another Zigzag. So [Figure 10.32](#) allows these last two patterns to be highlighted. A double three is just any three complete corrective patterns that follow one another. The minimum is three complete patterns, and the puzzle pieces will be constructed from Flats, Triangles, and Zigzag patterns. [Figure 10.31](#) shows another real-life example as wave 4 is a complex double three.

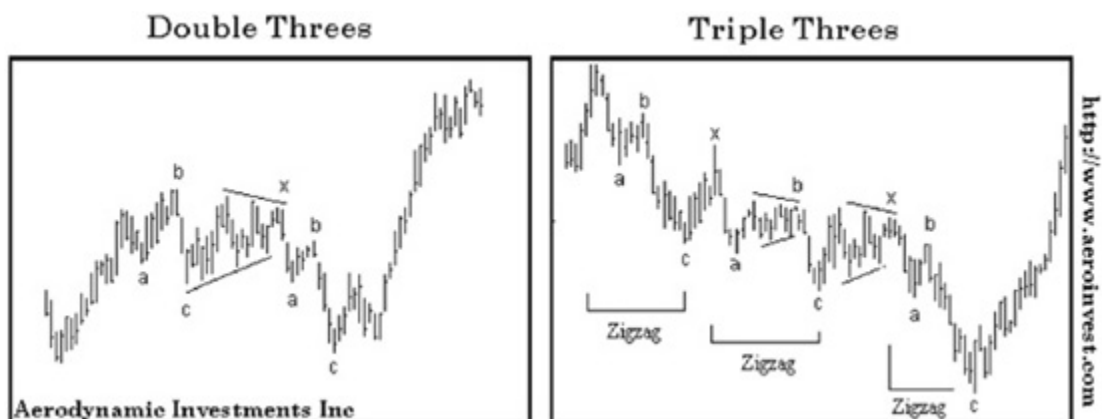


Figure 10.32

A common error made within our industry can be discussed from the double three chart in [Figure 10.32](#). If wave x up were higher than wave b, which is at the price high, would it still be wave X? No. How do you know that the market is not forming a Flat or Expanded Flat? Waves a-b-c would be labeled wave A, and the x wave would become wave B in a larger pattern. You would then have to see a five-wave pattern develop in the market to complete the Flat or Expanded Flat pattern. Wave x's into new highs or lows are usually wrong wave counts. I'm not saying they will never occur, but I have not used an x into a new high or low for any time horizon or financial market within the last six years. That means it is far more rare than the elusive leading diagonal triangle.

### Long-Term Analysis

If the S&P decline we tracked together in this chapter were a game of chess, I would refer to that market decline as a game of chess using a standard two-dimensional board. However, the analysis work is not two dimensional. It is synonymous with playing chess on a three-dimensional board. I would use the indicator signals from underlying components within the S&P 500 Index in conjunction with global equity indices and the key financial markets of Currencies, Bonds, and Gold. The balance between indicators and wave structure must balance in my three-dimensional game of chess. When they align and you see the pattern as a three-dimensional model, you have something to get excited about. I will not go into great detail about how to take the information we have just covered up to yet another level by showing you a three-dimensional model. It could easily be done, but that's why people pay me for my market

opinion, so I'm not going to be stupid and give everything away. But I did promise that I would show you why I had a bullish outlook for equities by utilizing the Wave Principle when others had a different view.

First, you know I construct wave counts from indicator signals, not just from price data structure. That alone will lead to conclusions and market interpretations that are different from those of conventional Elliott wave practitioners. But I also construct my larger market opinions from components within an Index rather than depending totally on indicator signals developing from the Index itself. Let me show you.

The S&P 500 Index is made up of 500 stocks, but most stocks within the Index have no weighted significance in terms of the actual movement of the Index itself. *In fact, there are numerous S&P Sectors within the Index that have no weighted significance on the future movement of the Index.* In [Figure 10.33](#) you will see that 19 S&P Sectors contribute an underlying weighted value of 58.58 percent within the S&P 500 Index. In addition, 12 stocks make up 21.27 percent of the total S&P 500 Index in April 1998. (2nd Edition note: While this is old information now, it is kept in the book for historical reference because of the Tech crash a couple years later. It is also an interesting record for the 2008 crash and third leg to come.) The underlying components of the Index change. A market leader with significant weighting within the Index today may be less influential in a year's time. Therefore, to base all your analytic work on the Index itself is the same as swimming in an ocean and never looking for a shark or barracuda passing under the surface that could ruin your day.

|    | A                           | B               | C                        | D       | E                                  | F      | G            | H          |
|----|-----------------------------|-----------------|--------------------------|---------|------------------------------------|--------|--------------|------------|
| 1  | AERODYNAMIC INVESTMENTS INC |                 |                          |         | April 1998 US Equity Index Summary |        |              |            |
| 2  | http://www.aeroinvest.com   |                 |                          |         |                                    |        |              |            |
| 3  | S&P 500 Index               |                 |                          |         |                                    |        |              |            |
| 4  | Sector                      | (Sector Subset) | % of S&P                 | (stock) | % of S&P                           |        | Russell 2000 | Nasdaq 100 |
| 5  | Financials                  | 16.03%          |                          |         |                                    |        | 23.30%       |            |
| 6  |                             |                 | Mjr. Reg Bank            | 5.08%   |                                    |        |              |            |
| 7  |                             |                 | Money Ctr Banks          | 2.99%   |                                    |        |              |            |
| 8  | Technology                  | 15.68%          |                          |         |                                    |        | 13.40%       |            |
| 9  |                             |                 | Computer (hrdw & Soft)   | 8.81%   |                                    |        |              | 68.94%     |
| 10 |                             |                 |                          |         | IBM                                | 1.44%  |              |            |
| 11 |                             |                 |                          |         | INTC                               | 2.17%  |              |            |
| 12 |                             |                 |                          |         | MSFT                               | 2.27%  |              |            |
| 13 | Consumer Staples            | 14.38%          |                          |         |                                    |        | 2.80%        |            |
| 14 |                             |                 | Beverages (non)          | 2.92%   |                                    |        |              |            |
| 15 |                             |                 |                          |         | KO                                 | 2.02%  |              |            |
| 16 |                             |                 | Consumer Discr.          |         |                                    |        | 16.00%       |            |
| 17 |                             |                 | Foods                    | 2.57%   |                                    |        |              |            |
| 18 |                             |                 | Household Prds           | 2.14%   |                                    |        |              |            |
| 19 |                             |                 |                          |         | PG                                 | 1.27%  |              |            |
| 20 |                             |                 | Tobacco                  | 1.43%   |                                    |        |              |            |
| 21 |                             |                 |                          |         | MO                                 | 1.52%  |              |            |
| 22 | Health Care                 | 10.39%          |                          |         |                                    |        | 9.90%        |            |
| 23 |                             |                 | BioTechnology            | 0.17%   |                                    |        |              | 3.08%      |
| 24 |                             |                 | Health Care (Div)        | 4.05%   |                                    |        |              |            |
| 25 |                             |                 |                          |         | JNJ                                | 1.11%  |              |            |
| 26 |                             |                 | Hth Care (Drugs)         | 4.41%   |                                    |        |              |            |
| 27 |                             |                 |                          |         | PFE                                | 1.06%  |              |            |
| 28 |                             |                 |                          |         | MRK                                | 1.59%  |              |            |
| 29 | Capital Goods               | 9.74%           |                          |         |                                    |        |              |            |
| 30 |                             |                 | Aerospace/Def            | 1.21%   |                                    |        |              |            |
| 31 |                             |                 | Elect. Equip             | 4.21%   |                                    |        |              |            |
| 32 |                             |                 |                          |         | GE                                 | 3.04%  |              |            |
| 33 |                             |                 | Manuf. Diversified       | 2.29%   |                                    |        |              |            |
| 34 | Consumer Cyclicals          | 9.27%           |                          |         |                                    |        |              |            |
| 35 |                             |                 | Autos                    | 1.77%   |                                    |        | 4.10%        |            |
| 36 | Producer Durables           | n/a             |                          |         |                                    |        | 8.60%        |            |
| 37 | Energy                      | 9.00%           |                          |         |                                    |        | 3.90%        |            |
| 38 |                             |                 | International Integrated | 6.41%   |                                    |        | 0.50%        |            |
| 39 |                             |                 |                          |         | XON                                | 2.16%  |              |            |
| 40 |                             |                 |                          |         | RD                                 | 1.62%  |              |            |
| 41 | Communications              | 5.95%           |                          |         |                                    |        |              | 8.22%      |
| 42 |                             |                 | Telephone                | 3.72%   |                                    |        |              |            |
| 43 | Industrials                 |                 |                          |         |                                    |        |              | 19.11%     |
| 44 | Basic Materials             | 5.33%           |                          |         |                                    |        |              |            |
| 45 |                             |                 | Chemicals                | 1.67%   |                                    |        |              |            |
| 46 |                             |                 | Gold Mining              | 0.35%   |                                    |        |              |            |
| 47 |                             |                 | Mat. & Processing        |         |                                    |        | 9.87%        |            |
| 48 | Utilities                   | 3.06%           |                          |         |                                    |        | 6.41%        |            |
| 49 |                             |                 | Elec. Companies          | 2.38%   |                                    |        |              |            |
| 50 | Transportation              | 1.17%           |                          |         |                                    |        |              | 0.65%      |
| 51 | Other                       |                 |                          |         |                                    |        | 1.22%        |            |
| 52 |                             | 100.00%         |                          | 58.58%  |                                    | 21.27% | 100.00%      | 100.00%    |

Figure 10.33

When you consider that Energy and Computer Technology alone contribute an underlying weighting of 25 percent to the S&P 500 Index, you can see why [Figure 10.26](#) had the AMEX Composite Indices for Computer Technology and Energy on my computer screen. If you know 25 percent of the underlying weight in your index, you have a higher probability of being right. So I analyze 20 S&P Sectors that have nearly a 60 percent weighting and align their wave patterns and indicator signals to construct a wave interpretation for the Index. I use the same approach then

for the German Dax and Nikkei. I then have three opinions from underlying weightings of these individual indices. Finally, you can weight the Global indices themselves. Yes. It is a lot of work. But it is worth it to try and stay on the right side of the market.

Bond markets require a similar approach, but the yield curve is weighted and then the Global rates. Currencies become a puzzle between crossrates, Bonds, and Gold. The markets where I have been caught dead wrong are usually markets where I am either unable to look at underlying charts or I failed to do so. I will never trade the markets I refer to as “roots and hooves.” We do not get along at all.

With your understanding of how the underlying analysis is approached for longer-horizon work, we can take a look at the big picture for Bonds and U.S. Stocks. Let's start with a few sample S&P sectors that offer current data up to August 7, 1998. The four sectors in [Figures 10.34](#) to [10.37](#) are wave interpretations that my clients know have been unadjusted wave scenarios since 1993. It explains clearly why I have been so bullish. In the bigger picture I am still looking for the end of wave (3) up. Wave (4) is then expected to form a massive contracting triangle. Why a triangle? We are due. The market has not used that puzzle piece in the really big picture. It will at some time. Within 22 Sectors that I monitor, only four have needed a significant wave change in four years, excluding adjustments for the developing extension. We may well see a fifth-wave blowoff to end wave (3) up in the future, but the entire rally is not a blowoff since 1987 to end a Grand SuperCycle fifth wave in my opinion.



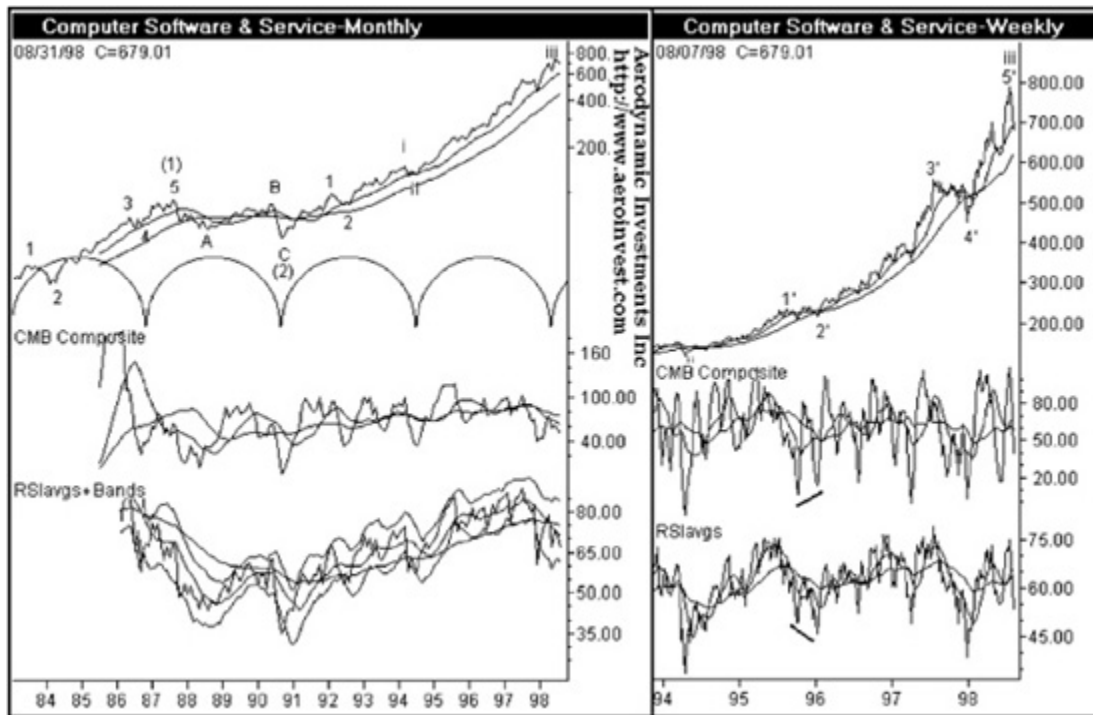


Figure 10.34

Source: TradeStation. © TradeStation Technologies

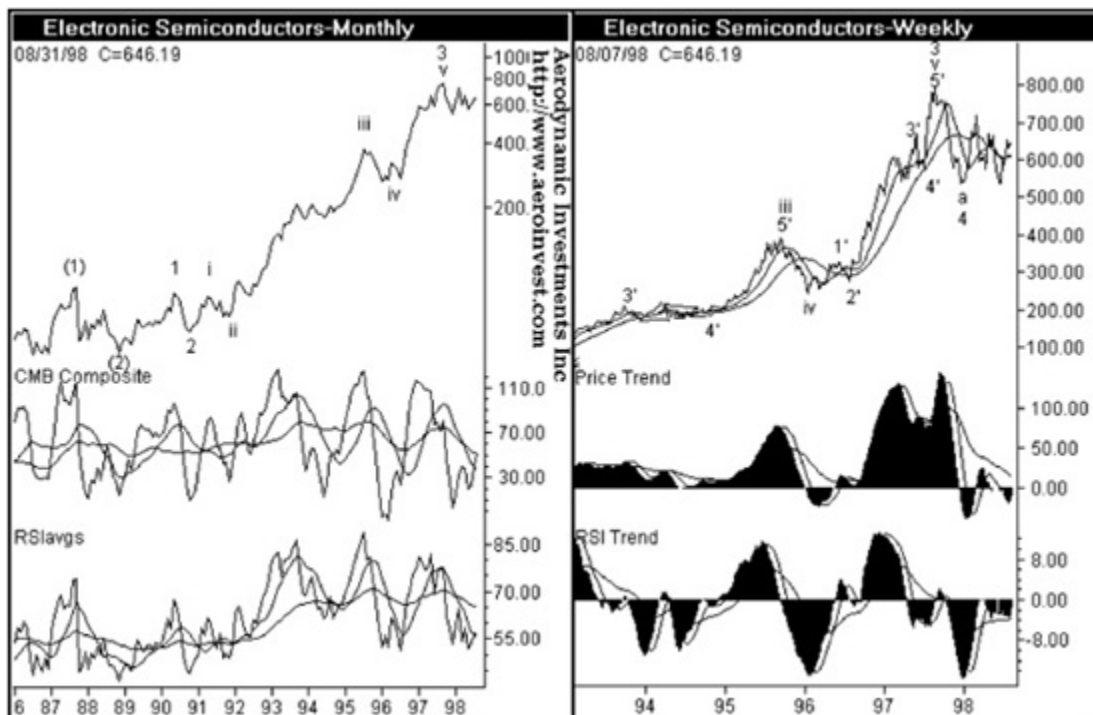


Figure 10.35

Source: TradeStation. © TradeStation Technologies

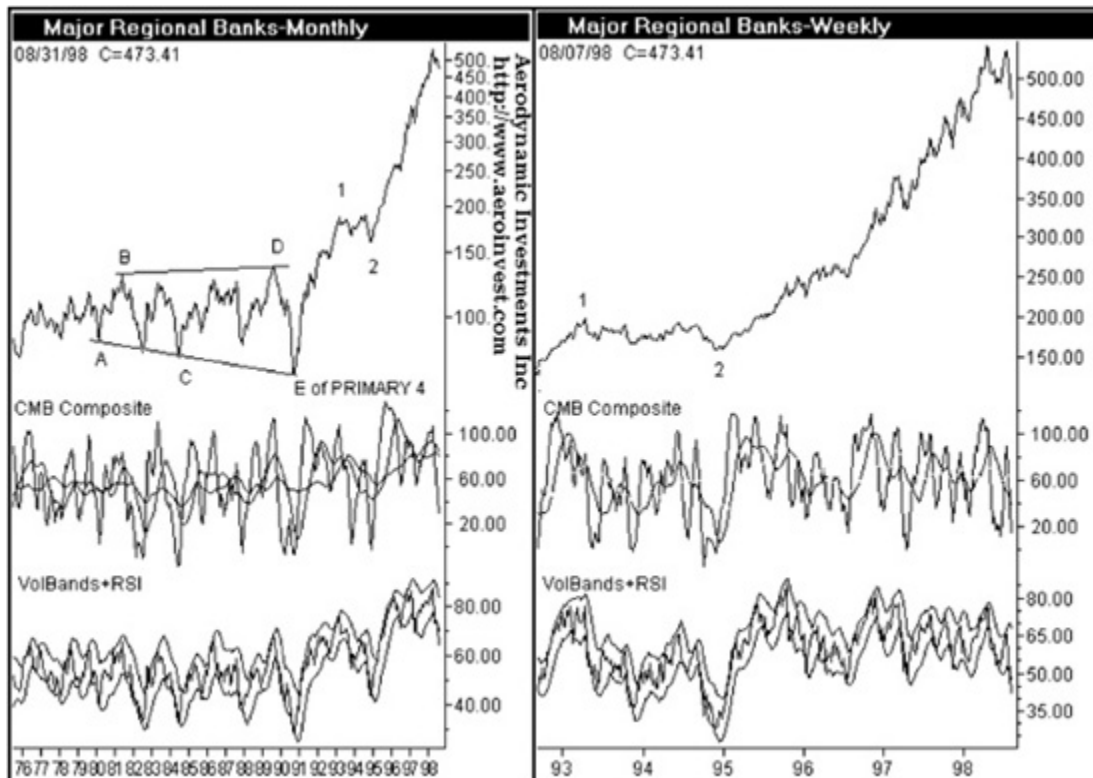


Figure 10.36

Source: TradeStation. (c) TradeStation Technologies

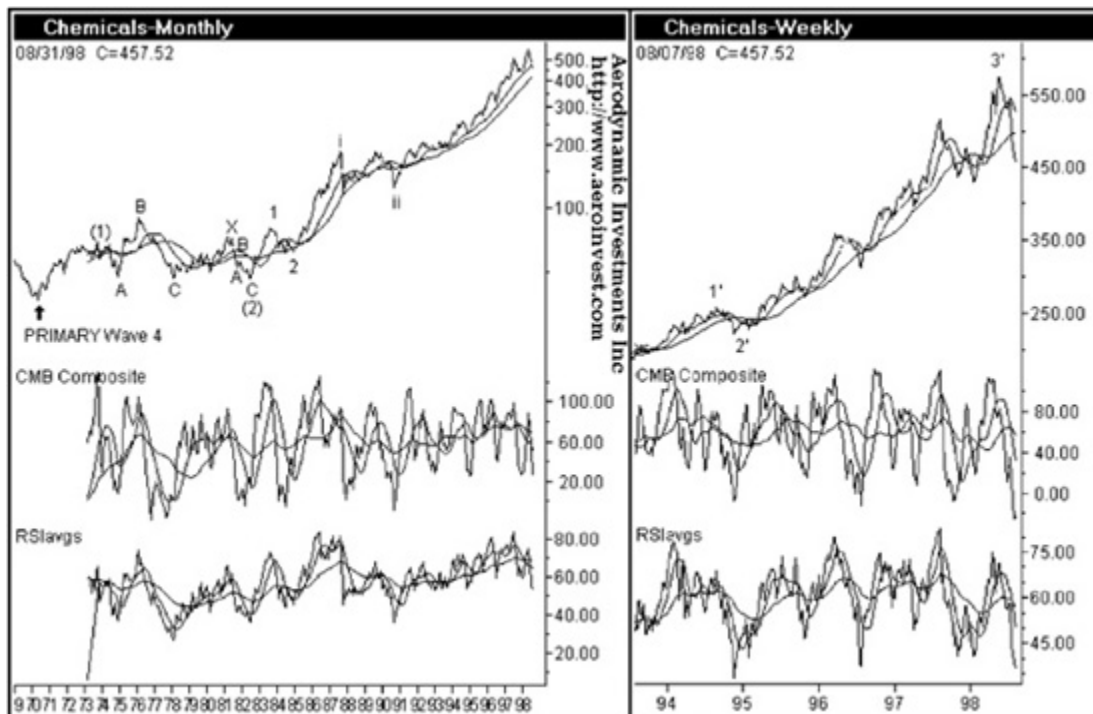


Figure 10.37

*Source:* TradeStation. © TradeStation Technologies

It should be very clear now that my wave interpretations for the S&P 500 Index have been derived from aligning key wave (2) sector declines that have the strongest weighting within the Index itself to “construct” a wave scenario for the Index. Keep in mind that the weighting changes within the sectors change and must be monitored for future wave interpretations. Corrections like the present one have and will change leadership in the underlying Index. This is not an orthodox way to apply the Elliott Wave Principle. But, as I mentioned earlier, this is war. Grab anything you know works to win a battle! This approach has been working in a global environment as well. The last two sector charts in [Figures 10.36](#) and [10.37](#) have the internal wave counts deliberately removed so you can use the thumbnail method. The market will answer you if you are right. By the way, Major Regional Banks is a composite sector that is an interest rate-sensitive Index. When you look at the Bond chart in [Figure 10.38](#), this will raise a few interesting questions. The entire rally is corrective since the introduction of Bond futures at the CBOT.



Figure 10.38

When do I look at the Stocks listed in [Figure 10.33](#)? When I need to see what is brewing under the surface within each sector.

Now the big picture. I'll leave the final charts in your hands for review without further comment. It is time for me to move on to the next chapter. (2nd Edition note: But the last chart that I repeated at the start of this chapter in [Figure 10.39](#) for the 2nd Edition was likely never studied by readers 15 years ago. I never received a single email to show a reader had made a connection to the coiling pattern suggested for the years ahead.

Now if you missed the revised forecast at the beginning with an expanding triangle pattern, I'll flag your attention to it as the last leg down in [Figure 10.40](#) will be a life changing event for many people.)

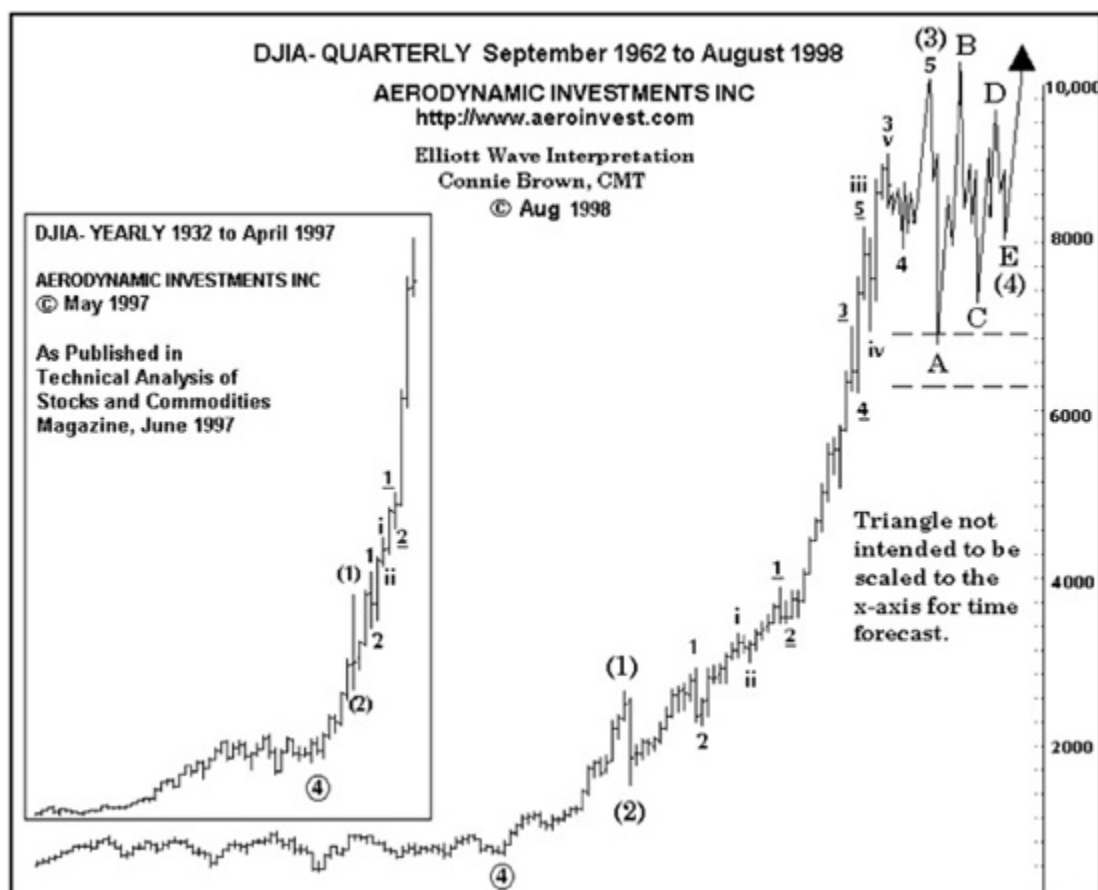


Figure 10.39

**PART | 3**  
**NEW METHODS FOR IMPROVING**  
**INDICATOR TIMING AND FILTERING**  
**PREMATURE SIGNALS**

## Chapter | 11

### VOLATILITY BANDS ON OSCILLATORS

*By the end of Part 3, you will feel certain that no conventional indicator is safe in my hands. I will invert it, smooth it, compound it, disassemble it, superimpose it, and even imbed it—all in an effort to understand it.*

*—Technical Analysis for the Trading Professional, First Edition*

It never occurred to me that some people would tabulate all the indicators I referenced throughout the book to see if they could identify the Composite Index. The Composite Index was the only imbedded formula. Momentum has been added to a fast RSI to break the limitations of normalization when an oscillator must travel in a fixed range of zero to one hundred. I never use volatility bands on an oscillator that has unrestricted movement. Volatility bands prevent detrended averages from defining historical extremes, as was demonstrated in [chapter 8](#).

Many consider common indicators such as the MACD, Stochastics, and the RSI as sacred entities. Most believe an underlying formula must never be altered. Not even the conventional display of an indicator should be changed. But what if Stochastics shouts out a signal to you more clearly if one line is plotted as a histogram? Would you not change it? Chances are high that you do not know because you may not have considered looking at a conventional indicator plotted in an unconventional manner. Therefore, in Part Three my mission is to challenge your perceptions about indicators. The time has come to push the boundaries of convention, to show you that we can mix and match the elements we like and then, more importantly, discard or minimize the elements we do not like. The last three chapters will, I hope, give you greater flexibility and broaden your options.

In this chapter we look at a method with which to address a specific market problem. The problem is, “Just how overbought or oversold can a market become?” Specific questions of this nature are sometimes answered by indicator formulas expressly designed to answer that one particular question. The method or indicator is used only when the question arises in



the market. It is monitored for only one specific signal at one critical market juncture. The rest of the time you might ignore the indicator or method entirely. For example, the momentum extreme histogram displayed in the reverse-engineering chapter is one method that compliments the method we are about to look at now.

Using volatility bands with indicators rather than on prices can answer the question, “Just how overbought or oversold can a market become?” It will not answer the question every time, but when this method steps forward and makes a statement, it should be respected.

The formula for volatility bands that I use was given to me by Manning Stoller. Sadly we have lost him, but one of the things he asked me to change if this book went into a second edition was to give you the TradeStation formula he used on prices. The method I had described omitted his use of two volatility bands on price data. I think his formula is easier to apply as well. So let me fix this now before we move forward.

While the formula below is in TradeStation format other vendors will be able to modify it to fit their standard specifications. Please call them STARC Bands. It was their original name (Stoller True Average Range Convergence Bands).

```
[LegacyColorValue = true];

input:av(6), atrlen(15), factor1 (2), factor2 (3);
var:atr (0), mav (0), top1 (0), top2 (0), bot1 (0), bot2 (0);
atr = average(truerange,atrlen);
mav = average (c, av);
top1 = mav + (factor1*atr);
top2 = mav + (factor2*atr);
bot1 = mav - (factor1*atr);
bot2 = mav - (factor2*atr);

if top2 > 0 then plot1 (top2, “StollerHi”);
if top1 > 0 then plot2 (top1, “StollerHi2”);
if bot1 > 0 then plot3 (bot1, “StollerLo”);
if bot2 > 0 then plot4 (bot2, “StollerLo2”);
```

The AvgTrueRange is used to smooth out price bars with volatility that is higher or lower than normal. TrueRange is defined as the larger of the following:

- The distance between today's High and today's Low.
- The distance between today's High and yesterday's Close.
- The distance between today's Low and yesterday's Close.

The value for the Length input parameter should always be a positive whole number greater than 0. You will find more about this in the book by Wilder, Welles, Jr. *New Concepts in Technical Trading Systems*, McLeansville, NC: Trend Research, 1978.

Manning Stoller used this formula only on price data. It is an alternative to Bollinger Bands because extreme price moves do not exceed STARC bands. There is only one signal that I look for in STARC Bands. The signal is when the market data pulls off the volatility band and then fails to reach the band in a retest attempt. Years later I realized this was a signal similar to what George Lane used when he said to wait for divergence with lower volume to enter. He therefore needed a third divergence signal to gain permission to execute an order. If you really think about these signals they are no different than how someone who favors volume uses it as confirmation. I never display volume because I read oscillators in a way that they deliver the same message.

I had applied Manning Stoller's volatility bands with a modification for use with oscillators. [Figure 11.1](#) is a weekly chart for German Government Bund futures. A 14-period RSI is plotted with volatility bands. The reason I like this formula is *that it gives very few signals that warrant attention*. But it produces one particular signal that nearly always demands respect and states, "Pay attention and look at other methods now because a trend reversal could be near, and you may be missing it." I need blatant signals, especially at emotional market extremes—not ones that can be easily missed after an exhausting week of trading when you are doing analysis at all hours of the night as well. This one signal is a good wake-up call.



Figure 11.1

The signal itself is very simple. Look at the upper and lower extreme ranges for the RSI. When the RSI is *near an extreme high or low* and is touching the volatility band, the indicator will follow the strong move with a pullback from the band. The market signal occurs when the RSI attempts to resume the former trend and fails to challenge or reach the outer band a second time. That is it. Period. Nothing more to add. The RSI does not necessarily have to display divergence or create a reversal signal—just fails to touch the outer band on a second attempt. There are four signals in [Figure 11.1](#) that have been highlighted by black arrows. Other interpretive relationships you might extract elsewhere between the RSI and outer bands in this chart are not used because other methods we have covered offer better timing. Just monitor the extremes for this signal and keep it simple.

Look at the upper band relative to the RSI. The RSI violates the upper boundary only four times in a five-and-a-half-year period. That is a correct setup placement for this band. Now look at the lower band. There are two square brackets to mark an area where the RSI travels outside the boundary of the lower volatility band for a period of time. You do not want this to occur. The RSI may travel in extreme moves along the boundary of the

band, *but not outside of it*—at least not until you are familiar with the character of this signal.

It is important for volatility band formulas to accommodate separate coefficients for the upper and lower bands. It is for this reason that I do not care for band formulas that operate on moving average envelopes or moving standard deviation bands from a simple moving average.

The formula that creates the band displacement in [Figure 11.2](#) is derived from an average of the true range of prices to accommodate data gaps. Each band then applies a separate coefficient so that the user has independent control of the upper and lower perimeters. The modified formula in [Figure 11.2](#) continues to use Stoller's original 6-period average with a 15-period average true range.

### **Indicator: RSI+Vol Bands**

```
Input: Coefdwn(2.1),Coefup(2.3);  
Plot1((Average((RSI(Close,14)),6))+(Coefup*(Average  
(TrueRangeCustom((RSI(Close,14)),(RSI(Close,14)),  
(RSI(Close,14))),15))),“Plot1”);  
Plot2((Average((RSI(Close,14)),6))-(Coefdwn*(Average  
(TrueRangeCustom((RSI(Close,14)),  
(RSI(Close,14)),(RSI(Close,14))),15))),“Plot2”);  
Plot3((RSI(Close,14)),“Plot3”);  
If CheckAlert Then Begin
```

```
    If Plot1 Crosses Above Plot2 or Plot1 Crosses Below Plot2  
    or Plot1 Crosses Above Plot3 or Plot1 Crosses Below Plot3  
    or Plot2 Crosses Above Plot3 or Plot2 Crosses Below Plot3  
    Then Alert=True;
```

```
End;
```

Figure 11.2

The coefficients that I start with are 2.1 for the lower band and 2.3 for the upper band. I find that one pair of bands is sufficient when you use Stoller's formula on RSI.

The same weekly chart for the German Bund futures is displayed in [Figure 11.3](#). The lower band is now using a coefficient of 3.1 instead of 2.3. The 3.1 was selected by appearance alone knowing that the RSI should rarely exceed the band. The upper band has been “tweaked” by using a coefficient of 2.5 instead of 2.1.



Figure 11.3

The lower band now shows the RSI traveling down the same boundary as the band in the areas marked by square brackets. At signals 1, 2, 3, and 4, the signal forms with an M or W pattern in the RSI, showing the second peak or trough failing to reach the outer band. The width of the oscillator pivots within the M or W pattern will vary considerably. The personality of the W or M will remain fairly consistent for an individual market, however.

Signal 3 shows the second peak well under the rise of the band. The first peak did not touch the band. This is an example of how you would examine the relative displacement of RSI to the outer band.

[Figure 11.4](#) contains a very strong signal because of the double bottom that RSI formed. But RSI has a major flaw that will be addressed in the next chapter. RSI often misses the big picture extreme trend reversals. The signal first develops in the monthly S&P 500 Index and is then repeated in

the monthly London FTSE Index and German Dax. These signals are the cleanest, strongest, examples you will experience using these bands. The RSI is forming a bottom between a range of 40 and 50. The zone between 40 to 45 marks the end of a correction within the context of a larger bull market. This is the range rule concept that was demonstrated in [Chapter 1](#).

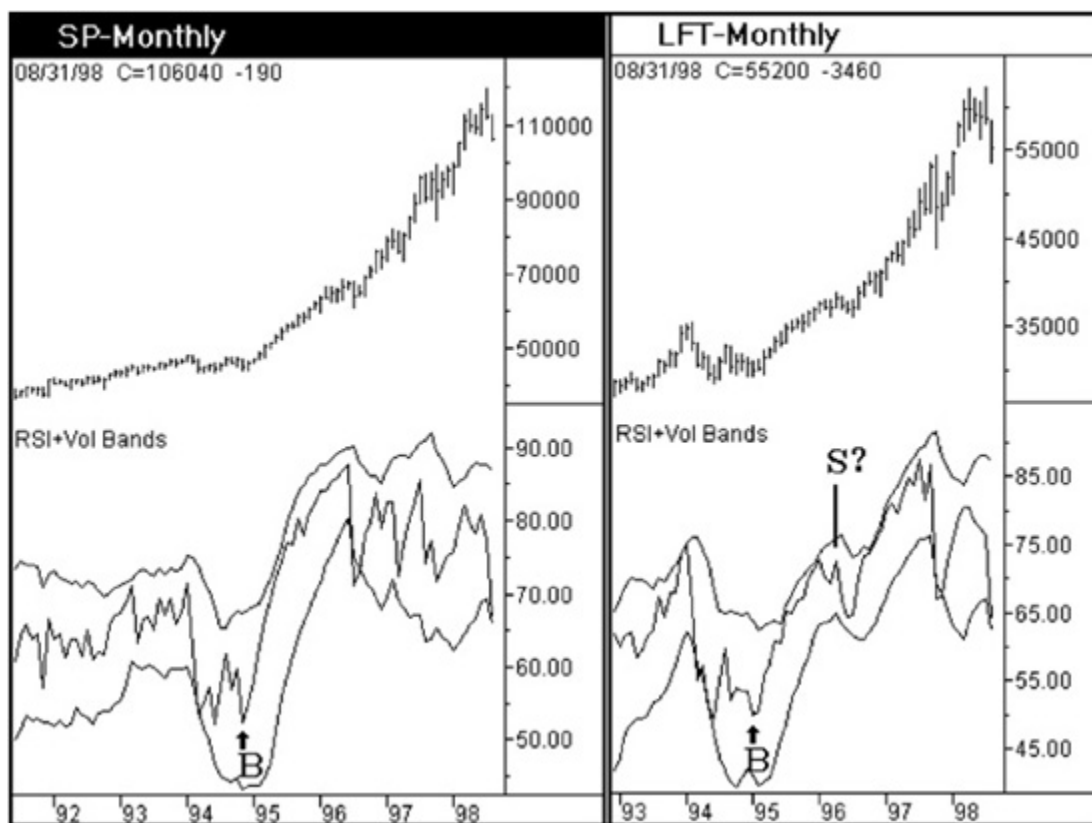


Figure 11.4

There is a sell signal marked in the London FTSE data that has a question mark. This one signal has been highlighted to reinforce the importance of not staying short when the indicator declines and the price fails to follow. The indicator falls nearly to the lower band, and the price just fights the indicator all the way down by forming a choppy corrective pattern. But it is more important to recognize that the RSI declined to the 65 level, which is the upper zone that defines resistance for a bear market. A market that can allow an indicator to hold this level generally explodes into a third wave in prices and allows the indicator to break into a new higher range for that time horizon. When you consider that all this was coming together in a monthly chart, it was a massive buy signal.

[Figure 11.5](#) is used to show that Bollinger Bands applied to prices are very different in character from the band formula applied to the RSI. This would be true even if the band formula on the RSI were displayed with prices. In the monthly FTSE chart the standard deviation bands on prices offer an analytic tool, but timing is a problem. The market is able to track the upper boundary for several years. The Bollinger Band narrowing in conjunction with a choppy price decline, which corresponds to signal 3 in the RSI relative to the upper volatility band, is of value. But, if timing is important, Bollinger Bands alone will offer limited help.

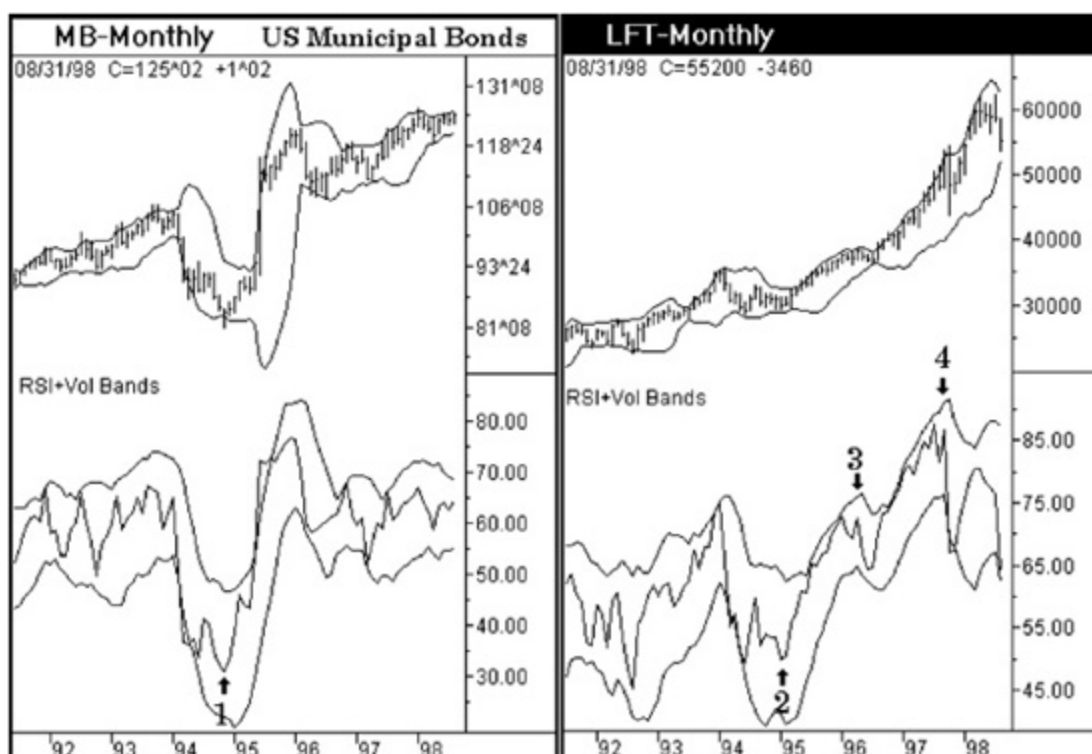


Figure 11.5

Let me strongly caution you about the RSI signal within volatility bands. It is essential that they be used with a price projection system. To simply buy or sell based on this indicator pattern alone would be financial suicide. Please keep in mind that *these signals are based on an indicator that sees only a closing price!* This is a perfect example of a method being only an analytic method and not a trading signal.

[Figure 11.6](#) is a chart showing the 10-Year Treasury Note market in a monthly time horizon. The band formula can be applied to other indicators, but how much value it really adds is questionable. Signals 1 and 2 display



the pattern that is watched for, but it is the divergence between the RSI and Composite Index that offers the stronger signal. More is not necessarily better.

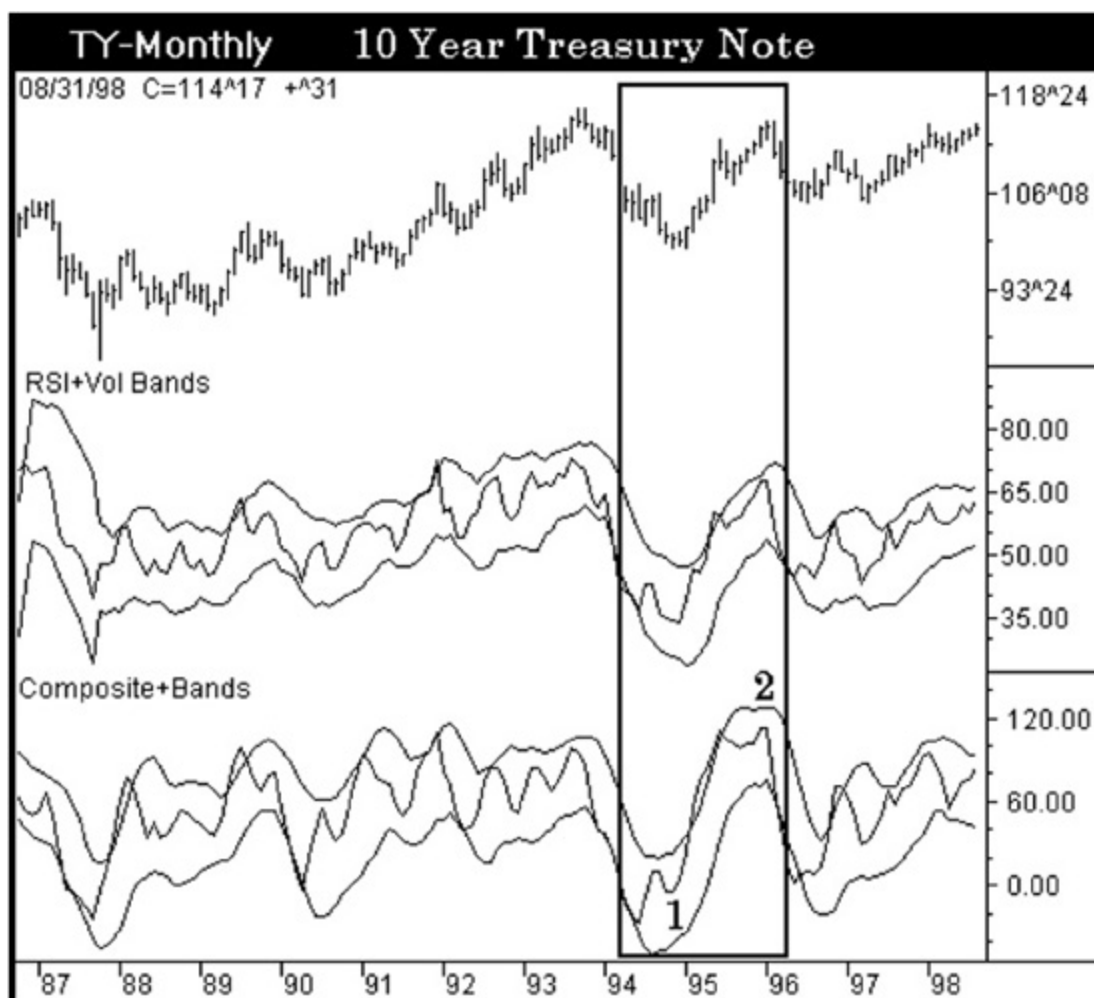


Figure 11.6

## Chapter | 12

# THE COMPOSITE INDEX

Let's get the criticism of the first edition right out of the picture up front. What's the formula?!

The Composite Index will diverge where the RSI often fails to warn a trend reversal is approaching. The reason the Composite will pass on the warning is that it has a momentum indicator imbedded within the RSI formula. In English the steps you need are the following:

- Step 1: create a 9-period momentum indicator *of a 14-period RSI*. Yes, it is momentum on RSI, not price. This is an indicator on an indicator.
- Step 2: create a very short 3-period RSI and then a simple 3-period moving average of the 3-period RSI to smooth it slightly.
- Step 3: add Steps 1 and 2 together to create the Composite Index.
- Step 4: Create two simple moving averages of the Composite Index using the periods 13 and 33.
- Step 5: Plot the Composite Index and its two simple averages as three lines in a separate frame under the price data.

If anybody deserves the credit for developing this formula with me, it was Manning Stoller. Manning worked on the 105th floor of the World Trade Center, North Tower and I worked on the 104th. Manning was my boss. Manning was one of the original "TAG" speakers. This was a major annual event that was an exciting week created by Tim Slater. Tim put the world's first software program together called CompuTrac. Tim is perhaps our industry's most informed historian about who was who, who did what, and how people came into the industry and contributed to it. Other speakers at the Annual TAG conference were industry giants like George Lane, Robert Prechter, Jr., Gerald Appel, Richard W. Arms Jr., Welles Wilder, John Murphy, and John Bollinger to name but a few. Total greenhorns like me could immerse themselves for a solid week before the world's most recognized names in the business of technical analysis. They all gave their

speeches twice and you listened to two speakers in four hours before lunch and another two speakers for four hours before dinner. Then there would be a keynote speaker at dinner. No one was allowed to sell product or merchandise! The halls were filled with people swapping rooms at the crossovers and there was an excited buzz that vibrated from room to room. You knew you were witnessing something incredibly special. For those of us new to the industry it was overwhelming. I recall looking at the weekly schedule to set my plan and stating, “I’ll *never* go to one of those Elliott or Gann lectures.” Ha! Look what happened to “never”. But sadly such conferences no longer occur so far as I am aware, partially because of cost, but primarily because of content concerns. As a speaker you must sign the intellectual rights over to the conference coordinators these days. As a result, most of us with something to say, or something different, do not go to these venues or just offer basic introductions. The value was being with people you never had access to in person and they had the freedom to openly discuss their work. The information was invaluable as you could see how the originators used and developed the tool for which they were so well known. Now people think it is the same to watch from home on their computers. If you do go it seems everyone has something they want to sell *within the presentation*. That sends me crazy.

How the Composite Index was born was out of necessity. TeleTrac, a product once under the Telerate corporate name, was not a Microsoft Windows platform. As a result, the software could not display more than eight tiny windows on a single screen. They could not zoom in/out or move. Manning taught me how to combine indicators into groups to solve the display problem. As example you can put the Derivative Oscillator into the RSI frame. You end up with something that begins to look like a very fast MACD. Manny knew I could program the custom user interface of TeleTrac easily. He once wanted 10 indicators within the maximum eight small windows that looked like postage stamps. He also wanted to be able to see them. I was sent away to solve the problem. Through this problem he gave me a better understanding of how to develop oscillators on my own. He was a great teacher because all his “questions” taught a serious life lesson for this business; *never* walk away from a question. If you can recognize the question, look at it as the opportunity. Without the question there is no forward movement in your learning. As example, I learned that the greatest value of *any* oscillator is its horizontal displacement from the

zero line. Divergence patterns at the extreme ranges are just the beginning of what they tell us about a market.

Ed Dobson who used to own Trader's Press and has since sold the business and retired (as a trader) did a great deal of research within the technical analysis industry to know the stories behind the people and their indicators. When an individual began to claim ownership of the development of this oscillator, Manning shared with Ed the story of how he gave me the challenge to learn how to imbed formulas by adding them together.

To change a normalized formula so it can flow freely in a limitless range, without cluttering the screen, add momentum or just add the spread of a very short and semishort moving average to the original formula. When you detrend two moving averages, the spread differential will move in an unrestricted range. Both methods were effective, but using momentum worked best with RSI.

Why do you want to change the range RSI can move? Maybe you would like to know where an oscillator was capable of extending to during the first leg down in the 1929 crash versus the 2008 decline in the DJIA? We looked at this application of a simple detrended oscillator in [Figures 8.10 to 8.13](#). Then you might ask, "Do markets test prior extremes?" (Yes.) What happens when new extremes are established? Will an oscillator test a prior extreme made in intraday charts? Maybe you would like to see what happens to an oscillator when the exchanges are closed for an historic period of time like the start of World War I? (It is a bottom when they reopen on a giant gap down because all the panic executions exhaust the downside.) How does an oscillator compare in the DJIA at historic tops? Do oscillator highs form sharp peaks but complex W patterns at lows? Are the most significant signals always at the extreme ranges the oscillator can travel? (No.) Is it the same for every market? How do the divergence signals compare to Elliott wave third wave endings versus fifth wave endings? (There will be divergence.) Don't let these questions pass by unanswered because you do not know the answers today. You have to know and if you do not, recognize the opportunity to learn. It all begins with a question.

When I found momentum worked best on RSI, I was incredibly naive about how this business functioned. I sent the formula to an individual, with Manny's approval, for his opinion. I was likely trying to obtain

approval from a mentor as I looked up to him and my ego needed the assurance I had done something of interest. Several months later he sent the same formula back to me to take a look at a new formula he had developed. *It was mine*. He was unable to code it into TeleTrac, because he was extremely computer phobic. So the next time I flew down to his office, I did the programming to add the formula to his TeleTrac. I said he was a turkey because we first sent it to him. I programmed several other setups he wanted on his computer and went back to New York. But I left behind the roots of an ownership dispute that emerged years later. It, however, was never in question.

Intellectual property has become ugly in this business. But it does not need to be. If you develop a new formula you can obtain a copyright. As example, to the individual trying to steal the Composite Index, here's news; there is a Library of Congress Copyright on this formula in my name. I have had it for a very long time. The Library of Congress (in Washington) holds formula copyright applications for *five years* before they even begin to process them. The delay in this timing is to ensure no other applications or claimants arise. Therefore this is a long process, but in this example becomes important nearly 20 years later. So intellectual property rights can be a royal pain in the assets. But it is something to consider if you find a formula that solves a problem. You never know if your formula becomes popular that you may need to defend your work years later.

Why did I not release the formula in the first edition? The chapter was first written with the formula clearly disclosed. I removed it during the editing process. My fledgling hedge fund was about six months old at that time. When my largest and most influential investors heard I was writing a book, he was very upset and threatened to leave if I revealed my methods fully. If this investor pulled out of the Fund it would have caused a stampede for the door. I would have been finished before I had a chance to begin. So I pulled the formula from the book and clues were inserted instead. Some found the clues and emailed me to confirm they were right. Most were just angered. For this I am sorry, it was wrong, but I did not know then, what I know to be true now. ***No formula is the Holy Grail***. A Fund does not need the mystique of a method or formula to attract investors ... only results. Be good at what you do and make it your passion. Period. These things come with maturity.

I regret deeply I could never pay back these particular investors for all they taught me about markets and the support and encouragement that was given to me. But it was not until after Eli Tullis left my fund that I began to take off and do well. Maybe I was partially terrified to fail him and choked. The industry knew Mr. Tullis gave Paul Tudor Jones his start. The opportunity presented to me versus the knowledge level I had was so mismatched the spread differential was filled with fear. My P/L would just go sideways to nowhere. It was partially inexperience and extreme over trading because I had no price projection method of confidence. You need courage and incredible confidence about the methods you lean on. I was *always* overleveraged because I was an analyst learning to trade. It was a pattern in the beginning that steady equity growth would be hit hard by a single mistake. Risk management techniques are learned just as indicator patterns are studied. You just cannot dive in and expect to excel until you know how to manage the risk exposure. That means spend as much time calculating where the market should not go as you do in the forecast itself.

The Elliott Wave Principle gave me a sense of what was coming and the size of the move. Gann analysis gave me a sense of when a move would happen. Fibonacci taught me price targets, correct leverage, and where I was wrong before I was stopped out. Oscillators added to the probability of being right and gave the needed permission to execute at a Fibonacci price target. But it was maturity that taught me not to be in the markets all the time. It was also experience that taught me we see things faster in charts than we will see them unfold in real life. We often understand the cash flow changes approaching and then jump in too early because mass psychology is slower to catch on and move the market. Our indicators do not lag; our need for confirmation causes the lag, and then beginners fail to believe what they see. Realizing these things will contribute to a long trading or analyst career for you as well. But there is no question the lessons come with a few scars along the way.

Learning each method took time and you must understand that trading and analysis skills are very different animals. Without the correct risk management skills I would overtrade and get scared out of positions too early. I did not have the heart of a lion to jump into the middle of a strong trend when I began on my own. Jumping into a strong trend is easy. Switch to an intraday detrended moving average and don't look at the normalized formulas. The detrended oscillator will set the horizontal level of resistance

for you to sell or buy within the strong move. I will forever be in your debt, Mr. Tullis, because you were kind when it was undeserving and mercilessly tough when it was needed. You toughened me up and gave me a kick in the behind that thrust me forward into a career that is now a quarter century old and still going strong. It is hard to believe the time has passed so quickly, yet the passion for markets has not dimmed. That is the thing about technical analysis; the practitioner rarely retires. We have to know what's going on in the world. For traders, Mr. Tullis said it best: "A trader will always be a trader as long as they have \$100 in their pocket."

As a private trader there is no reason to hold back on you now, little to prove for the sake of ego after 25 years, and nothing to have reservations about. That gives me a balance and a freedom hard to describe. But it also means you are about to be given enough information to keep you busy for a very long time. Now, for the rest of the Composite Index story.

I gave it the name the Composite Index because it was in fact the composite of two existing indicators. Manning Stoller taught me how to graph indicators on indicators. I began to imbed indicators within indicator formulas to try to make the display much easier to read. The Composite Index is able to compare where it is currently relative to  $n$ -periods ago. Therefore, the modified RSI can detect a trend change when the standard RSI formula alone fails to develop divergence. However, it does not replace the RSI because the Composite Index does not give the characteristics of range movement described in the first chapter. In TradeStation the indicator will require two functions to create the formula. Here is the formula:

TradeStation:

```
Plot1(RSIMO9 + RSI3,"Plot1");  
Plot2(average((plot1),13),"Plot2");  
Plot3(average((plot1),33),"Plot3");
```

The function RSIMO9 is written:

```
RSIMO9 = MOMENTUM(RSI (CLOSE,14),9)
```

The second function is written:

```
RSI3 = AVERAGE(RSI (CLOSE,3),3)
```

I have passed the formula on in eSignal, CQG, and MetaStock (see [Appendix A](#)) formats to the vendors and many users. I know it has been



custom programmed for institutions using Bloomberg. But it has been in the public domain now since the release of the book *Breakthroughs in Technical Analysis*, David Keller Editor, Bloomberg Press. You must ask your software vendor to add it as a standard menu item, they will do so if clients show a need. The formula is now a standard free offering in Market Analyst.

The charts in this chapter were working charts as I was using them near August 17, 2011. This is useful to know because the methods on the screen are the methods I use most often. Several charts will have price projection boxes. Please refer to my book *Fibonacci Analysis* to see how these are created due to contract limitations with Bloomberg.

[Figure 12.1](#) shows two charts of the Cash S&P500 in monthly and weekly time horizons. I have added a small line over the oscillators to help you see the pattern that was the reason for needing the Composite Index at first. In the monthly chart on the right the RSI shows no divergence with the price data. The Composite Index is diverging. In the weekly chart on the right, the RSI fails to form divergence again relative to price. It is the Composite Index that diverges. In fact the RSI forms a new momentum peak high while the Composite diverges. But the signal that forms in RSI becomes extremely strong and bearish when it swings up toward the 57 level which is where its moving averages cross over. It is important to notice that the fast-moving average (shorter period) is crossing down through the slower average. Often at this very juncture I find a sharp move follows in the market. In this case it was a serious break.

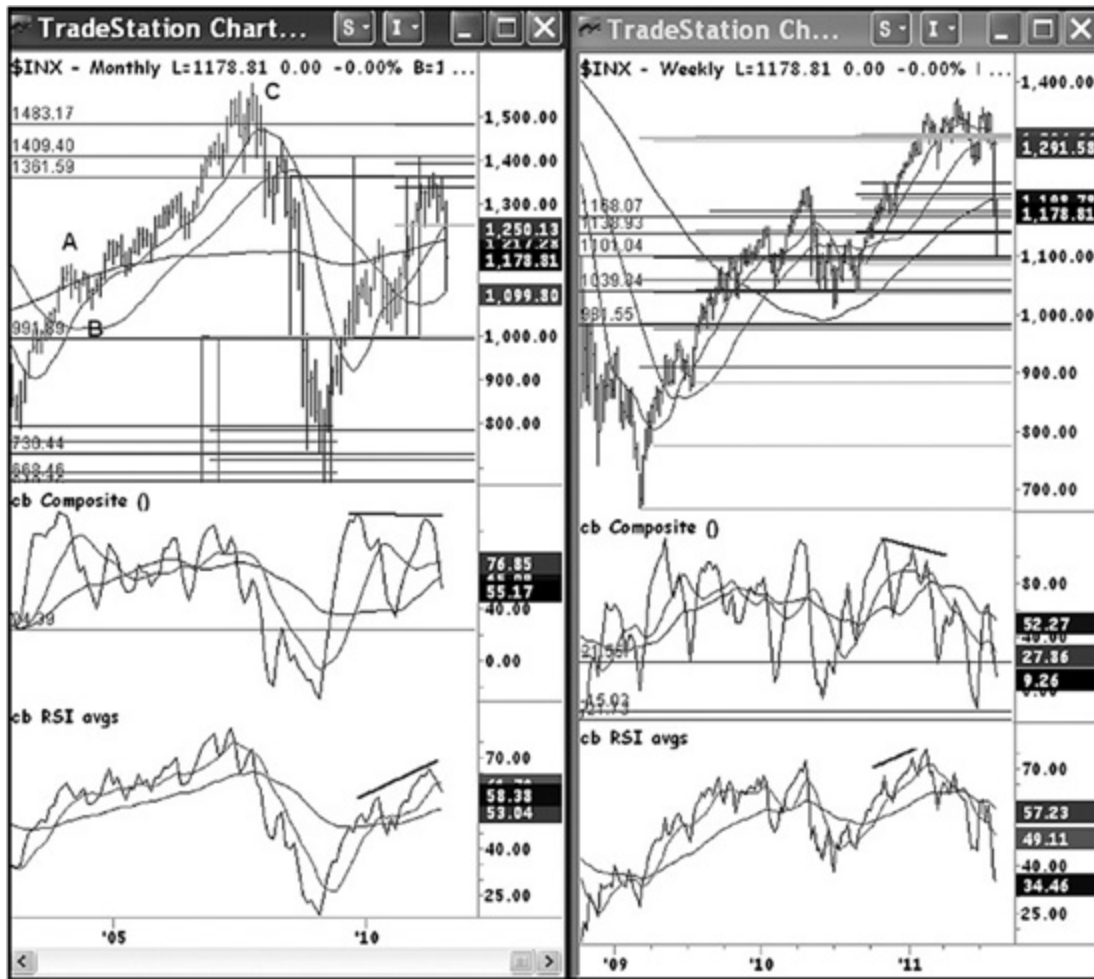


Figure 12.1 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Always be aware of the length of the longest bar within the trend. This is a Gann statement I have found to be true. When the length of the longest bar is broken in a trend reversal, the old trend is finished. It doesn't mean a deep retracement cannot happen or even a slight new high may follow, but for purposes of trading and trend analysis, the prior trend is finished. Another important Gann statement is that the extremes that mark the end of a swing are the end of the swing, but not the beginning of the new trend. The trend begins from the first secondary retracement of the new trend. This is from Gann's stock course. It is important for price projection methods to know this because it changes where the start is located.

So [Figure 12.1](#) shows two charts with the Composite diverging with price. Is that reason to sell? Not if that is all you have. But these signals are

developing into a price target that can only be seen in the monthly chart. The line at 1,361 is a Fibonacci confluence zone, or major objective. The lines in the weekly chart that seem to cut through the swings at the high are the starting ranges defined for Fibonacci support targets. The ranges all start from the origin of a third wave decline. So price target comes first and permission always comes second from the oscillators.

[Figure 12.2](#) is a close-up of the same weekly Cash S&P500 chart. This chart has vertical lines so it is easier to match indicator peaks with price. This is a very common setup that occurs in any time horizon. Divergence occurs first in the Composite Index. A second divergence occurs in the Composite Index. Two divergence signals in the Composite are rare. Usually one will do. But the final price high rarely occurs at the divergence signal. It may end the fifth wave of wave iii of 3. The second momentum swing up will often top wave v of 3. Then a final momentum push into the underside of the averages tops wave 5. The breakdown begins and then it is the oscillator pushing up into the crossover of the averages, or a negative spread that aligns with a third wave decline.

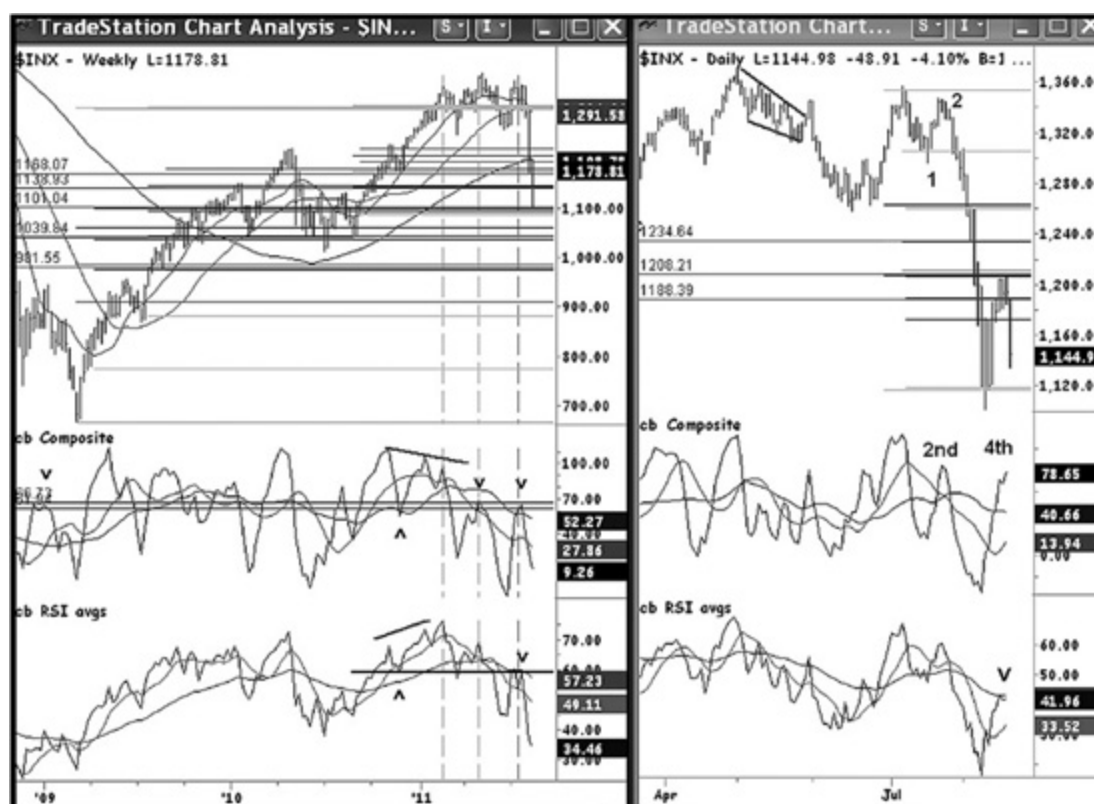


Figure 12.2 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

*Source:* TradeStation. © TradeStation Technologies

Both oscillators provide information that I consider to be extremely important. Notice the horizontal lines drawn through the oscillators. The double line in the Composite Index is more of a narrow band rather than a precise line. As you monitor the Composite Index at this resistance zone the indicator is giving you a probability. Scan across the chart from right to left. Every oscillator pivot marked with a carrot or  $\wedge$  symbol is at that level of resistance/support that the market has respected in the past. Every market swing has a reversal at this level of displacement in the Composite. It is a highly probable scenario that it will happen again when there is a double test at the same zone. There is no way of telling how much of a reaction. That comes from other methods.

In the RSI the two  $\wedge$  and  $\vee$  signals show how resistance can become support. The market respects the indicator at this horizontal level each time as well. What if there is no history to compare to? It is not a trading signal. What if there is a history at this level and the market fails to respect it most of the time? You just found out how an oscillator tells us something more about how it wants to work within this specific market. If it doesn't respect it in the past, odds are pretty good it will run you over again!

Before moving on, let me point out something. The price meltdown in the weekly Cash S&P chart falls to a Fibonacci confluence zone. In the chart is a line that marks the top of the target confluence zone at 1,101.04. The actual swing low that began from 1,347 was 1,101.54. A rally then developed toward 1,208.47. The two target retracements from the 1,101 low were 1,188.39 and 1,208.21. When the market arrived at 1,188 the oscillators did give permission to sell and there was an incomplete Elliott Wave pattern into those lows in German markets. (We are about to discuss this.) The Cash S&P500 continues onward to the 1,208 target. As I am writing this a position keeps nagging me at the corner of my eye. The market topped at 1,208.47. It is in a fast market condition and currently 1,144. I have just photo-captured the screen in a daily time horizon and will add it to [Figure 12.2](#). But it explains why the weekly chart will show a different last bar price of 1,178 and this daily chart shows 1,144. There is a three-day separation between the two charts. It just became a whole lot more interesting and profitable. The Composite Index has topped near the same displacement as the pivot marked as the top of wave 2 on price. It is

marked; 2nd; on the oscillator. The nearby high into the 1,208.21 target is wave 4 up and the fifth wave down is unraveling now. Developing Fibonacci confluence zones for objectives is important, and by adding the daily chart on the right it is a clear illustration of how a target zone occurs, but the trigger is from the oscillator.

[Figure 12.3](#) was screen-captured at the same time as the Cash SP500 weekly chart in [Figure 12.2](#). If you want to increase your probability of being right, you must look at markets offshore. [Figure 12.3](#) is the monthly, weekly, and 88-minute chart of the German DAX Index. The oscillator divergence in the monthly chart is the same as the Cash SP500. The weekly chart shows how the Composite Index pushes up into a horizontal line that marks resistance. The market fell to the target zone drawn before the market fell off the highs. The 88-minute chart is the trading screen that leans on the longer horizon views for trend. In the 88-minute chart are two Composite pivots marked 2' and 4'. These are second and fourth degree retracements in an extending third wave decline. The amplitudes at 2' and 4' warn they are within the same degree and it is extending. Wave iv tops just a tad higher than wave 2. The momentum top just before wave iv to the left is only wave a of iv. That is why I use longer horizon data to help build wave structure. What else can we use to help build a case of higher probability?

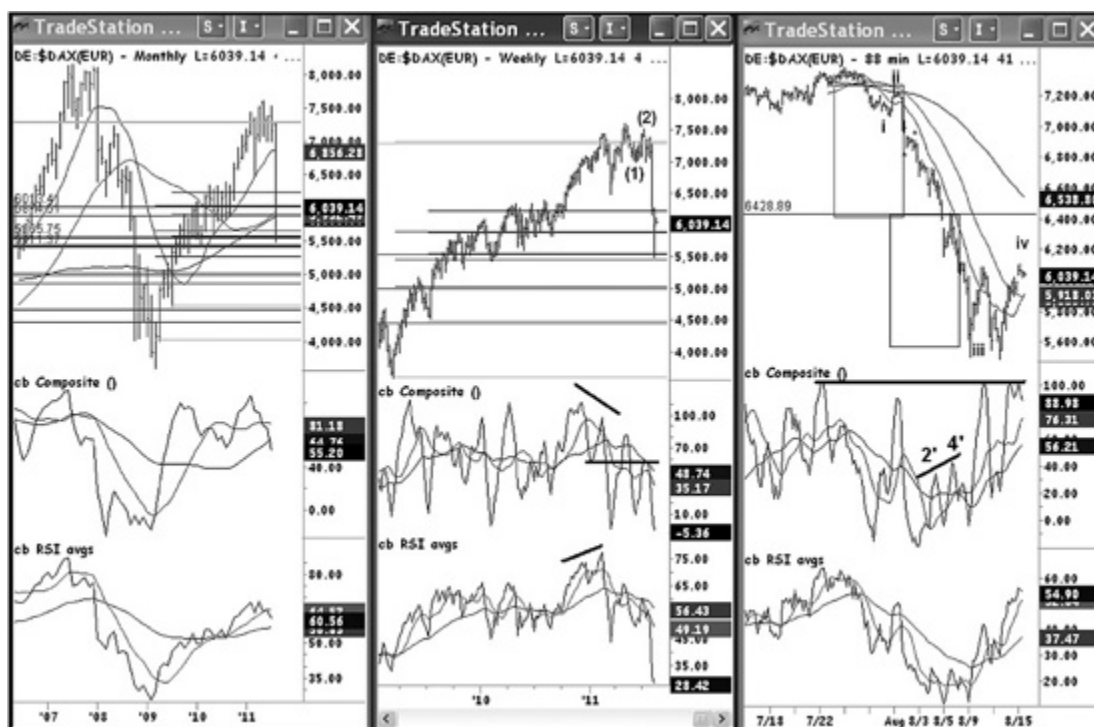




Figure 12.3 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Use a market that is not an equity index, but has a relationship to the equity swings. Oil is a good one to use. (Now all the charts will return to a series captured three days ago at the same time.) [Figure 12.4](#) shows the month, week, and 240-minute December 2011. I only trade the December contract. The monthly rollover sends me crazy in Oil. But the real reason is that in November of 2008 I was checking the open interest in futures from the exchanges. They went out two years further than what was posted by most professional data services. What I saw at that time was a shock. The open interest six years out for 2012 was equal to that in the front contract for 2008. I knew it had to be government activity. The only player in town would be China taking on a triple hedge. They moved the Oil market so it hedged future purchases against inflation. It was a hedge on the freefall valuation of the U.S. Dollar and Bonds. It was too good not to be them, and the Chinese move ever so slowly. I've traded December ever since and my poor dyslexic brain doesn't have to worry about delivery dates any more.

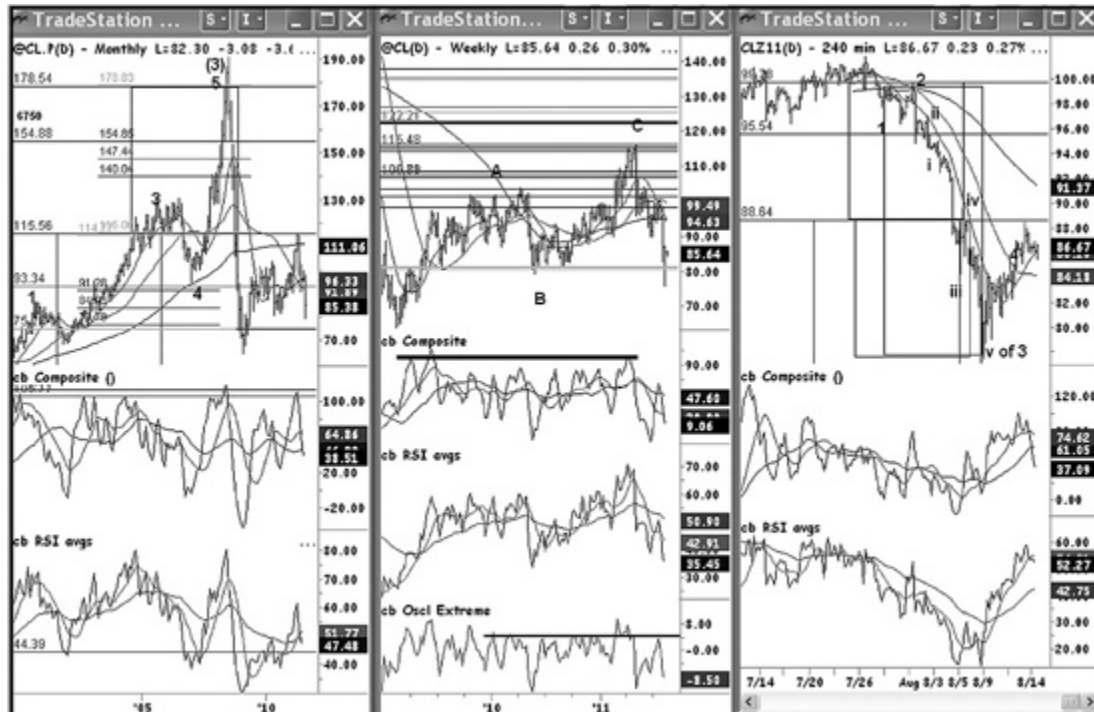


Figure 12.4 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

*Source:* TradeStation. © TradeStation Technologies

Why do I use such short intraday charts against weekly and monthly charts? Remember the flash crash in the DJIA? These moves are so big I trade short horizon against my monthly charts. The 115 price target shows up in both the monthly and weekly charts. The monthly chart shows 115.56 as a mid-point in a swing projection made back in 2007. It is still on my screen. The weekly chart shows 115.48 is a cap of a confluence Fibonacci zone derived from subdividing multiple ranges with the same start near the low marked B. The Composite signal in the monthly chart should be easy to read as the oscillator is at the same displacement as accompanied the historic market high. The weekly chart is a more advanced signal. The Composite oscillator aligned with wave C is at a displacement equal to the displacement one peak behind the most extreme oscillator high. Sell it. That is a test up to the previous range established by the oscillator. When new extremes form, the old range will nearly always be revisited and the market reacts quickly to such tests.

There is an indicator in the bottom of the weekly chart I have referenced before. This is a plain Jane detrended moving average from price data. It is my lifeline at points that lack clarity. You can see it tops under a resistance line that has been around for a long time. It will also become my answer in flash crash scenarios when I have to scale in. Every oscillator in the world is based on a moving average that has been detrended within its formula. Sometimes the best is the simplest.

Do I need to point out the divergence between the Composite and RSI into the price low marked wave v of 3? By now you should be catching this one pattern as the easiest to detect in the chart of any market, or time horizon.

U.S. Treasury Bonds are markets to always be aware of whether you trade them or not. [Figure 12.5](#) shows the monthly, daily, and 240-minute time horizons. The asterisks in the monthly and daily charts are very strong buy signals. In the daily chart the July oscillator low in the RSI swings up and then RSI tests the prior oscillator low behind it. The Composite has a slight upward slope to this signal that could be missed, but the value in the Composite is the fact the spread between the moving averages on the Composite have a positive spread, not as clear in the RSI when the prior range is tested. These are signals that follow the strong signal in the



monthly chart where the asterisk shows the market testing support on the horizontal axis within RSI. Price is testing a channel. The channels were created by a method described much earlier in this book, using strong bars or gaps for the first to set the angle and create parallel lines of the same slope. You are actually starting to learn Gann analysis on the diagonal without all the details demonstrated in the Gann chapter. It is an estimate, but better than simple trend lines to create channels.

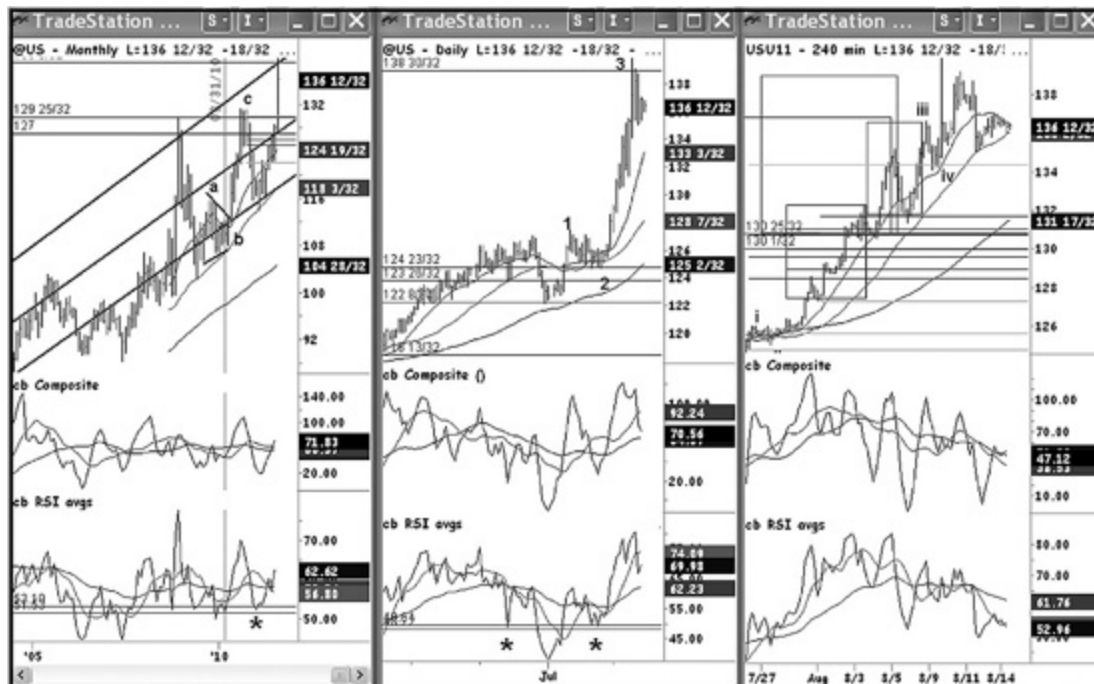


Figure 12.5 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Now that you have a sense of how the S&P500 was only one of several markets developing a strong signal at the same time, I need to return to the Cash SP500 charts with a slightly different oscillator configuration. [Figure 12.6](#) shows the Cash S&P500 in a weekly and daily chart with the Composite Index and detrended simple moving average. It is in the simple detrended moving average that I need to make a few points. The weekly chart shows two arrows under the oscillator. The extreme move to the right has pressed the oscillator to the same extreme that developed at the price lows in early 2009. This is important. A reaction should be expected from such an alignment. You will notice a horizontal line does not mark the 2008 momentum low. That is because it was not the historic momentum low. I

always mark these extremes because when they come back into frame they are important considerations. The nearby reaction in the daily chart was a significant move regardless of the time frame you favor.

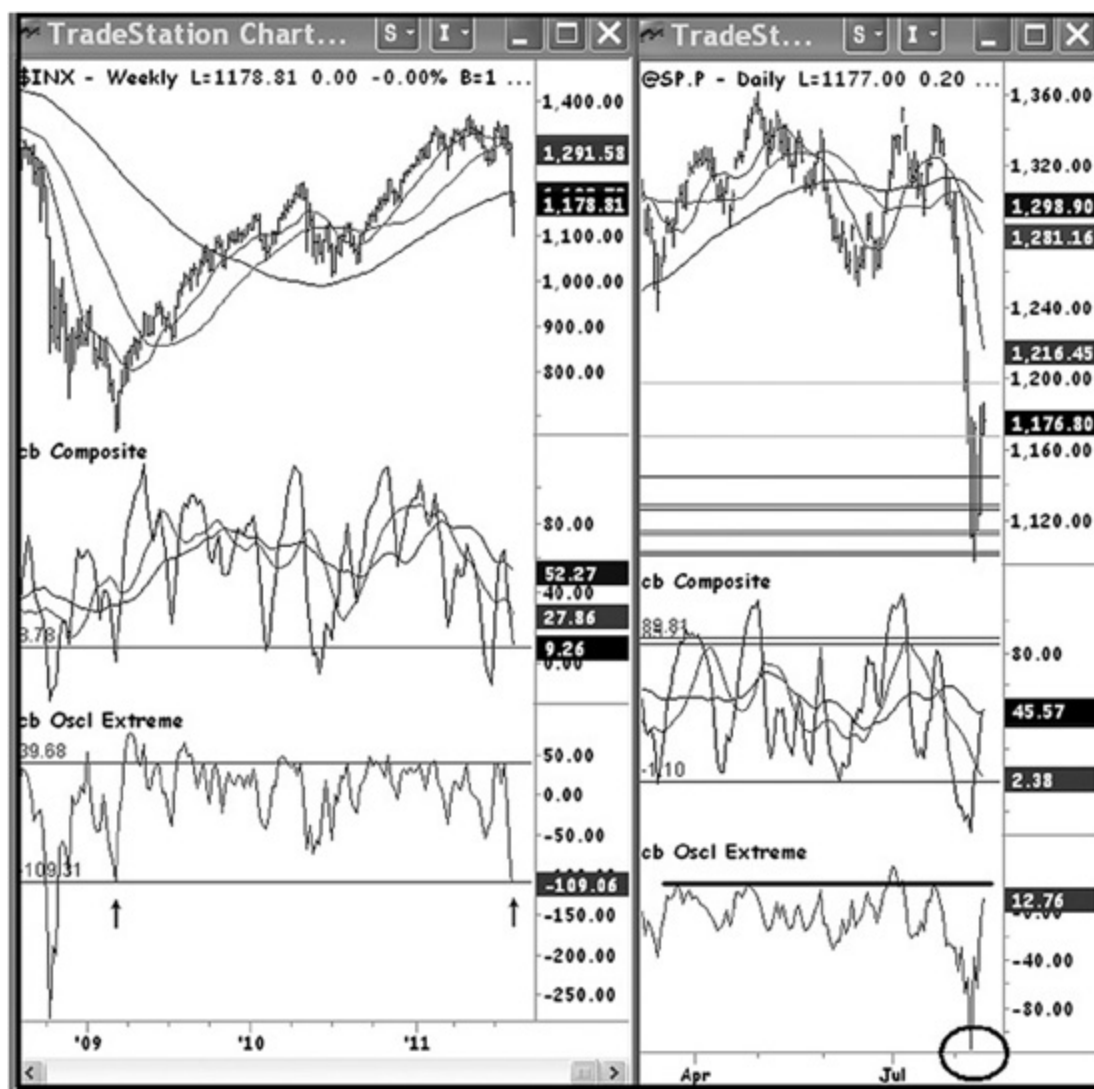


Figure 12.6 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

What other markets should we be tracking and always aware of? China. But what if your software vendor does not provide the Shanghai Index? No excuse. There is always a way.

In [Figure 12.7](#) are three Funds in the monthly charts. From left to right they are the Templeton Dragon Fund, the Fidelity China Region, and the Templeton China World. Use fund Net Asset Values (NAV) as an index.

You can also use exchange traded funds (ETFs). The symbol for China is FXI. All are possible alternatives to monitoring other markets when it might be difficult for you to obtain the actual exchange data. The divergence signals and resistance levels are all valid. In all three funds, what level is the RSI beginning to rollover from in these charts? What is the level that defines a retracement in a bear market? If you are unsure, go back to scan [Chapter 1](#).

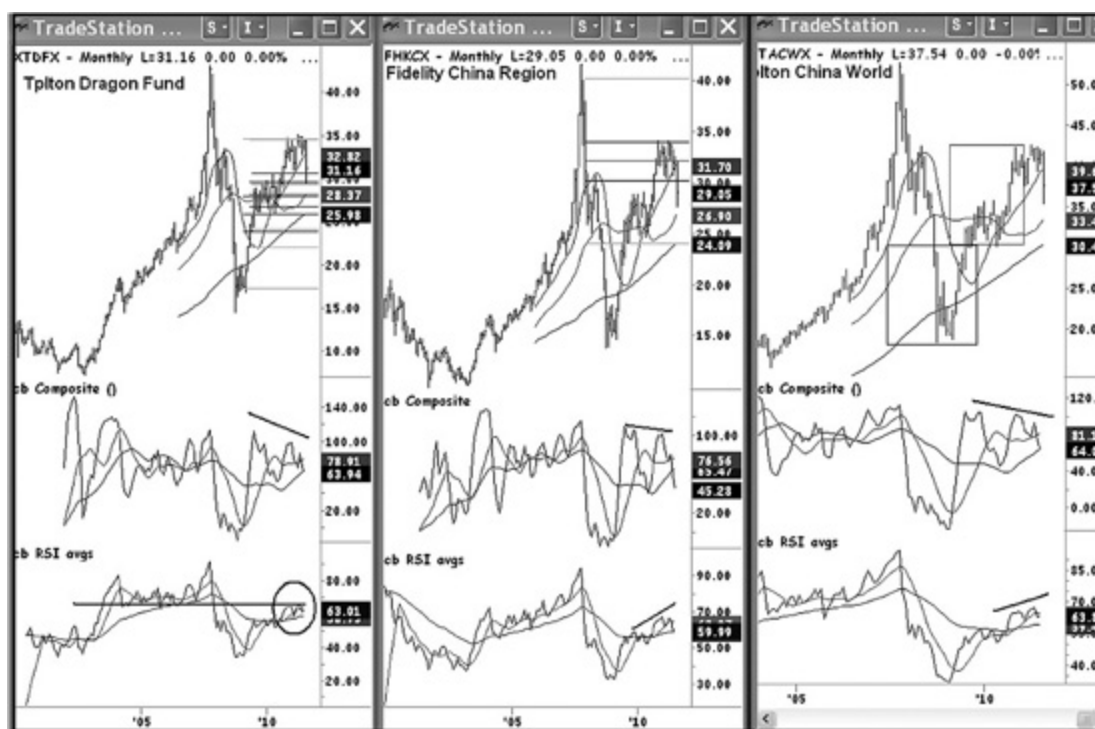


Figure 12.7 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

[Figure 12.8](#) is the screen layout I favor for Asian indexes. From left to right are the equity indexes for China, Hong Kong, and Japan. All three indexes were in trouble before the break in North American indexes. Then Europe was ahead of North America. I am always surprised so many traders still do not watch any other market than their own. Sometimes you can see a blue-print before it happens and still people do not want to watch a market they cannot directly trade. The Shanghai Composite in [Figure 12.8](#) is data obtained from Commodity Systems Inc. (CSI). TradeStation allows third party data again so I download at night to update all the charts with a single button. I have no need for intraday data. The charts in [Figure](#)

[12.8](#) are working screens. It shows actual targets, wave counts in development and oscillator levels of interest that were defined from action in the oscillators years ago. Old extremes do repeat in future data.

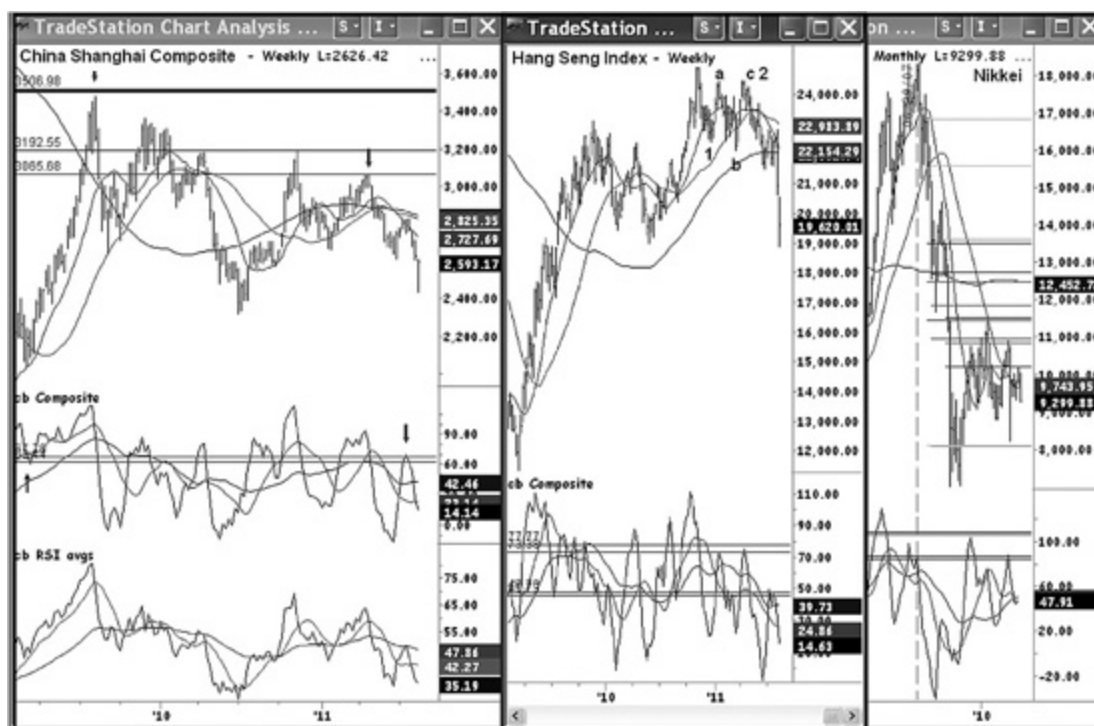


Figure 12.8 Aerodynamic Investments Inc., © 1996–2011, **Daily Market Report**, [www.aeroinvest.com](http://www.aeroinvest.com)

*Source:* TradeStation. © TradeStation Technologifses

For example, the weekly China Shanghai Composite in the far left of [Figure 12.8](#) has a remnant arrow still on the chart on the far left Composite Index. That arrow marks an old buy signal and the swing that followed. Notice the arrow above the same horizontal line in the more recent data. The same level marks a significant failure in prices. The Nikkei on the far right contains the most subtle. There is a horizontal dotted line into the chart high. That same oscillator displacement marks the start of a decline in the recent data. Don't always look for big signals. It is perhaps the most common problem I encounter when coaching traders; you don't look at the internals. Often it's not about the big picture.

[Figure 12.9](#) shows charts for six Funds, all Corporate Debt BBB. These charts are going to be the next crash and I wanted to understand more than just what was in these images. When I started to research some background information I found many are caught in a corner trying to obtain gains in an



environment of zero short-term rates. So what are they doing to boost returns? They are buying as much as 50 percent Foreign Denominated Bonds! That's a ticking time-bomb.

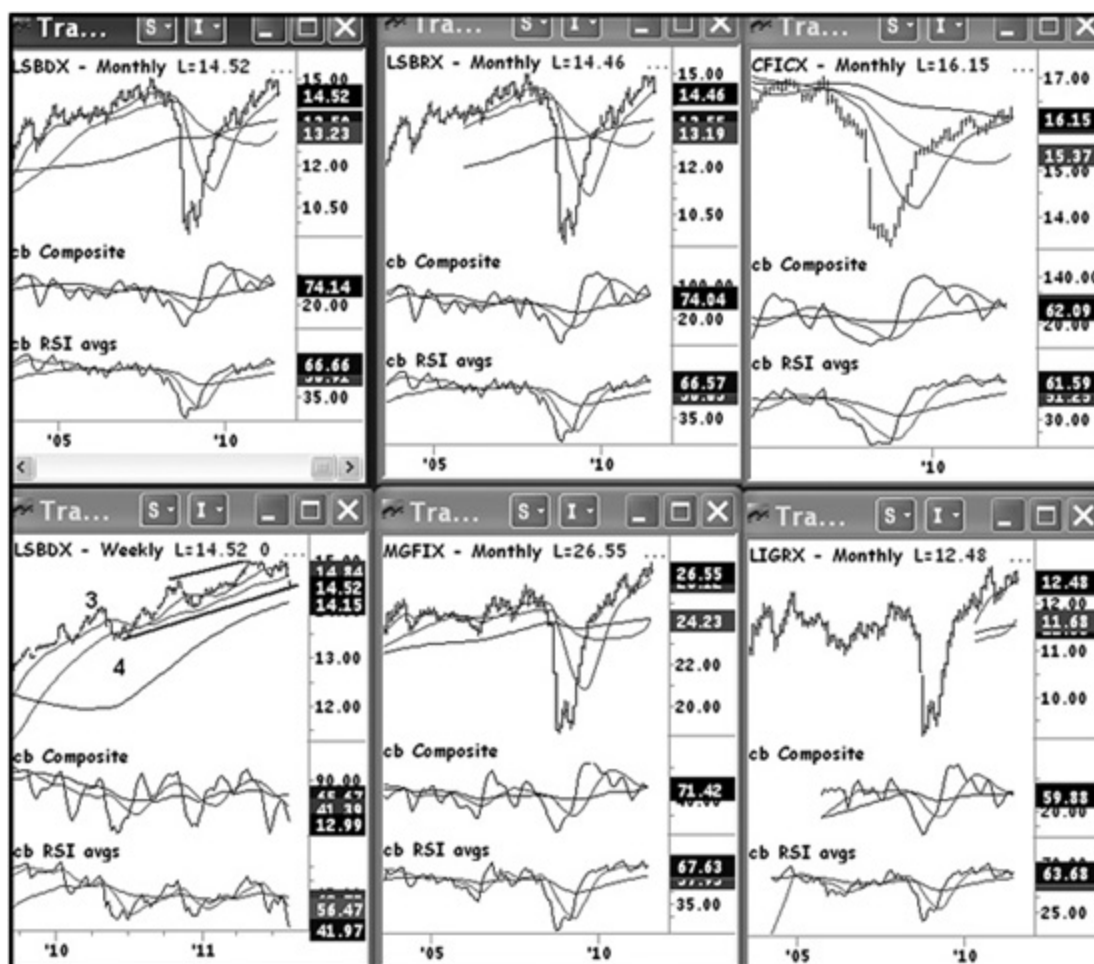


Figure 12.9 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

Suddenly you understand why the next chart follows as I move into currencies. Anyone who thinks a stock trader need not track currencies is in for one rude awakening down the road. The EURUSD is likely to break apart, as most believe Germany will not bail out Italy. However, I had suggested an uncoupling nearly five years ago when it was unheard of at that time because fundamentals could not begin to point to such a problem. But I wasn't trying to think through global cash flow issues and some wizard playing high-level 3-dimensional chess ahead of the masses. The seed of the idea came from something I read. It was Gann's idea and I read

it in his 1941 edition of *How to make Profits Trading in Commodities*. You won't find it in the second edition. But the markets see this coming now and it explains why there is a stampede rush into Swiss Francs.

The first edition of Gann's book is so rare that typing errors are corrected by hand on correction tape. In this edition he freely talks about the growing war in Europe. Do you recall what was written in [Chapter 2](#) when cycles were the focus of discussion? The entire reference can be found in that chapter regarding World War II. It was before Pearl Harbor and the United States was not in the war when his book was released. The section that makes us think about current stresses on the Euro reads:

This war is no different than any other war. It is being fought for commercial supremacy to determine WHO is to dominate the commerce of the world in the future. Germany wants to dictate prices and dominate the commerce of the world, and England wishes to do the same. Russia would like also to do the same thing.

I read this paragraph and see history is repeating itself once again. Germany tried to dominate commerce through Europe with the Euro currency and failed. Now that it has failed they will want out. I think it is just a question of when and how, rather than "if." So what will happen to all those funds with Foreign Denominated Bonds and exposure to the Euro coming unglued? Right. They are toast. The collapse will be a huge shockwave in the United States because people think they are investing in American Dollar denominated corporate bonds. Many people looking for returns on BBB rated funds will likely be living on fixed incomes and they are just trying to keep out of trouble and find something better than a zero return with rates so low.

As you read this, some may think, how is this related to technical analysis? Technical analysis is the means to see what is approaching in the future. We are problem solvers, slayers of dragons, and sleuth hunters of risk exposure others never saw coming. We are really good at it too. But being a master of technical indicators is *not* the end result we seek. Technical analysis methods become our laser swords of choice. They should be the means to thinking through how events could unfold. It is not about becoming the fastest detective in the world to recognize a contracting

triangle! No. Don't lose sight of why we do this. Constantly ask what will follow. I ask who is going to do what to whom?! I just want to be on the strongest side of the rope being pulled.

[Figure 12.10](#) is the daily USDCHF chart. The dollar has been in a nose dive while the Swiss Franc is rallying. Spot currency charts are read as the first currency in the name is the trend. So the U.S. Dollar is in freefall as the Swiss Franc strengthens.

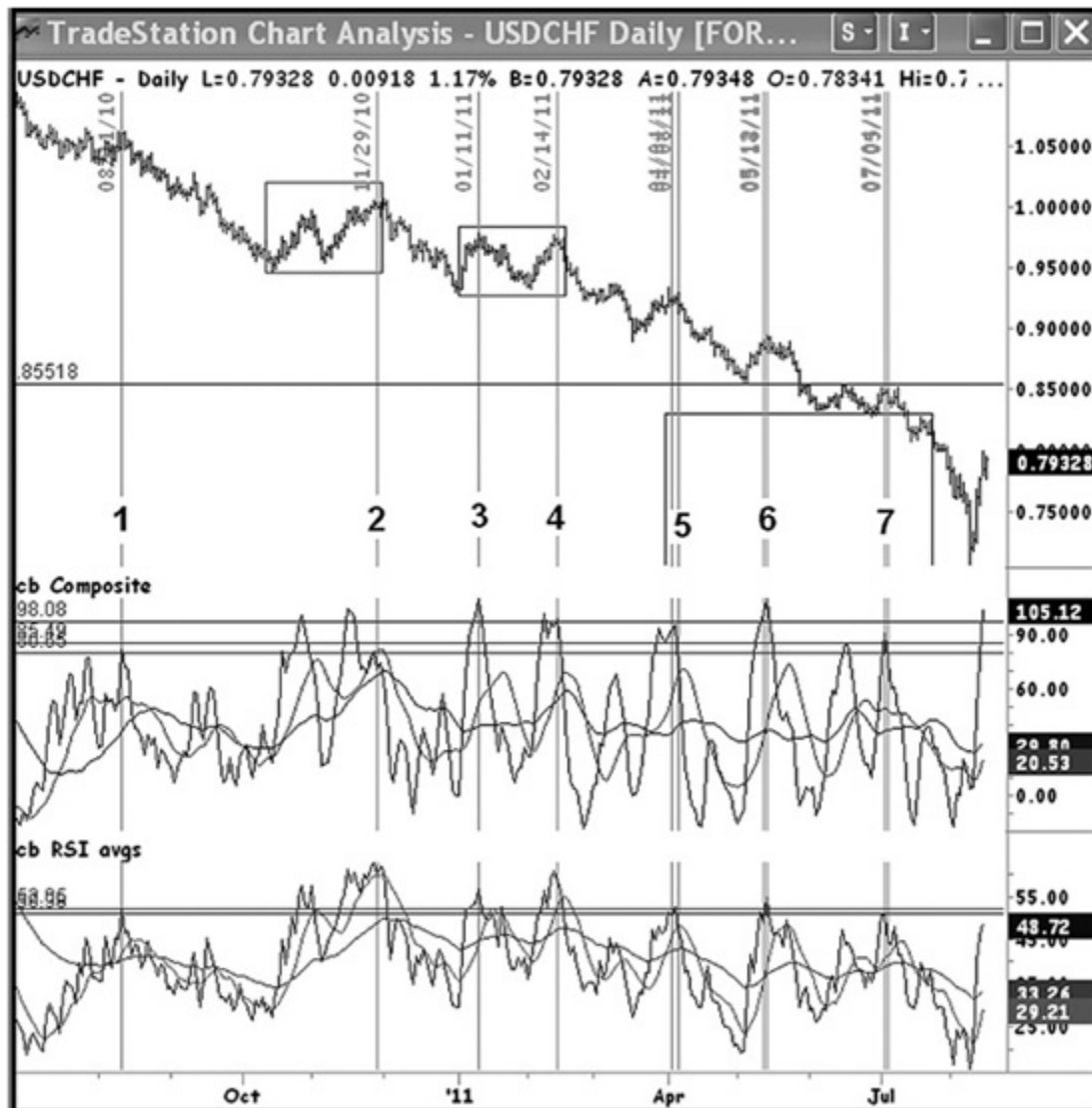


Figure 12.10 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

The daily USDCHF chart has seven vertical lines to help you examine the oscillator positions relative to the price data. The two oscillators are the



Composite and 14-period RSI. This gives me the opportunity to explain the use of these oscillators in a strong trend. Read charts right to left. The first detail of interest is in the most recent swing up. The dollar has rallied, pushing the Composite Index to a level equal in displacement to the same oscillator at extreme line 6. Most analysts will start at the bottom of this swing and state divergence is present in the Composite while the RSI forms a double bottom. Who cares? That's old news. It worked, but can it tell us something about the market now? YES! The double bottom to the far right in the RSI made a new oscillator extreme low in this chart. The prior range will be tested that is the trough low after the vertical line in April. The divergence, however, tells us nothing. If a test is coming the downtrend is still incomplete. If the market were at line 7, what could be told? The price data has just completed an Elliott wave corrective flat pattern. The Composite at line 7 was tested just to the left of it where wave a of four upended. Price at line 7 is testing the underside of a resistance line of leftover support line. Either way, the market is back and failing. Move further left to line 6. While it might be a new oscillator high, it is a corrective zigzag rally. The peak in the Composite at line 6 is the same displacement as seen at line 3. RSI makes a small pullback and then fails on a small push back up to its own horizontal line of resistance. Sell first and ask questions later. The failure in the RSI just to the right of line 6 offers a lower risk entry as price high 6 cannot be exceeded. Move to line 5. The Composite and RSI are confirming the market is weak. Both indicators are forming negative reversal signals relative to the oscillator peaks that fall *between* the peaks on lines 5 and 6. This means the market has become overbought at lower price levels.

Move over to line 5. The RSI is back to the level that marked line 1. The Composite is under resistance. Both oscillators are creating negative reversal patterns between the oscillator extremes on line 5 and the oscillator peaks just to the left that fall between lines 4 and 5. I have no interest in the price projections from these signals. Notice the oscillator lows in the Composite Index that form between lines 5 and 6. It is a double bottom relative to the RSI that shows no formation to bottom.

Move over to line 4. The Composite on line 4 shows a small M pattern and it completes an Elliott wave flat correction. The correction fits in a rectangular box shape in the price data. I had used it to show customers and it was the entry level for this trade. Line 3 shows oscillators in a high risk

scenario, The Composite is at a new high and the market will weaken, but return as we saw at line 4. The RSI at line 3 has no history at this displacement. This is a “no go” in this time horizon. It does not mean, however, one was not present in the shorter horizon. Then with the second swing up into the rectangle both time horizons would switch to say “go” on line 4.

Line 2 is a strong sell. The Composite is diverging under a resistance line while RSI is caught blind. RSI finally clues in with the pivot in RSI just to the right of line 2 that presses up into the underside of its own moving averages. (Think very small pivot.)

Finally, line 1—a line in view because of a prior track record along this amplitude displacement. Each of the lines 1 through 7 are Gann cycle time/date targets. I was watching if I had permission to execute into those dates. There are other signals because I only pointed to one of the setups off a low. But the cycle of analysis does not change. The trend was expected to continue because the price objectives had not been realized.

There is a tremendous amount of information in the three charts in [Figure 12.11](#). I align these three markets together, but the greatest interest to the Shanghai Composite is the Australian market. Why? Australia was clearly the benefactor of China’s boom and it was the global leader. Not currently, but the correlation remains important. China’s cash flowed into India, South Africa, Australia, and the Middle East. However, the DJIA was lagging all through 2007. The economic war started long before the 2008 meltdown. The question was where would the trigger come from? So much news is coming from Europe, but don’t fall asleep because a crack in China would change the entire direction of the crisis approaching.

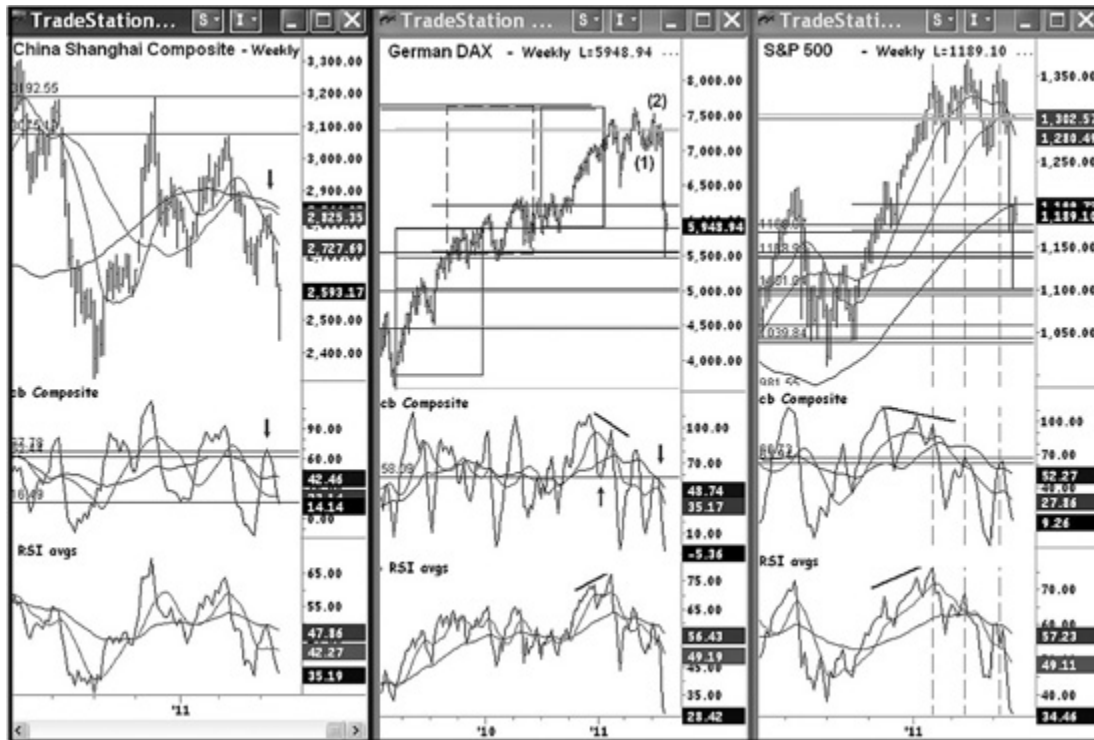


Figure 12.11 Aerodynamic Investments Inc., © 1996–2011, Daily Market Report, [www.aeroinvest.com](http://www.aeroinvest.com)

Source: TradeStation. © TradeStation Technologies

History repeats itself differently each time. After World War I the United States demanded payments in gold bullion. It was the birth of Fort Knox. We held 5 billion of a total 9 billion in the world. What if a currency crisis prompts China to demand payments in gold bullion? The roaring twenties seen in the United States would be small in comparison to what China would fuel in their country. The rest of us would just stumble along tripping over our debt. Would that lead to a multi-decade termination wedge in the American markets? Possible. It fits the chart work. We wedge and China hits a third wave rally, but only after another deep decline to create wave “c” of the larger pattern unfolding. The puzzle pieces are fascinating. If you can do well today, you earn the right to continue with evaluating the new puzzle pieces that reveal themselves tomorrow. Ah, we are so lucky.

## **Chapter | 13**

# **THE PRINCIPLES OF DEPTH PERSPECTIVE APPLIED TO TWO-DIMENSIONAL CHARTING**

My first job out of school was working for Kodak Canada. I then transferred to Eastman Kodak working as a professional photographer and then as a sales representative and on to corporate life in Rochester. I have a secret. I am a Master Photographer and was an apprentice of Ansel Adams. As Kodak struggles on the brink of bankruptcy I am reminded of all that the company taught me and the opportunities it offered. I left Kodak when a hard fought battle was lost not to introduce digital photography before Japan. Traditional films were just too profitable and they shelved the digital capabilities that would have saved them from the near bankruptcy position they find themselves to be in now. It is sad what has happened to great company. But they paid for my life changing experience of 12 weeks with one of the greatest photography masters in our history. That experience had an influence on nearly everything else in my life that followed. Now when traders are struggling to see balance and proportion in charts I usually suggest they take an art class. Sounds odd, doesn't it? But training the right side of the brain is just as important as the left. Drawing a group of objects will train you to see space proportions between objects and from front or behind. A class for drawing a living form trains you to see energy lines and momentum. The beginner sees a silhouette. The artist sees lines of varying strength and lines of insignificance.

An area of research that Kodak spent millions on is to understand how men and women see the world differently. They discovered that men in general do not see depth perception or proportion well. Why? Men didn't need these skills because they were the hunters and trappers who brought in the food. They developed skills of hyper-focus and strength so they could catch the food! Women had to do the tasks that developed the right side of the brain more often. We really do see differently. So don't be offended; I am being factual based on research dollars spent.

Every employee from groundskeeper to executive was given a Munsell Color Test. Men cannot see blues. Period. Over 70 percent of men tested in the 1970s were nearly blind to the blue spectrum. So don't create

advertisements that are predominantly in the blue color spectrum. Most colorblind issues are found in men. I don't know why. Why did Kodak need to know? We used this knowledge in our advertising. I was the brand manager of Professional Color Films and I used images that avoided weaknesses within our target audience. The issues about depth perception would impact billboard image selection and much more.

Why is depth perception so difficult, and why does it become a factor when we look at a two-dimensional chart? The world is three dimensional, but how does this fact change our ability to interpret a chart? Anatomically we can see only a visual representation of our environment in two dimensions. Our brain will always try to reconstruct and recover the third dimension, which is depth. Depth is called the *median plane*. Our minds will unconsciously look for subtle cues to create a solution for the missing plane that has been omitted in our charts. To understand depth perception problems as they relate to chart analysis, it is necessary to understand how we are able to see depth at all.

Generally, there is a great deal of information about depth available to us. The subtleties our mind searches for are *depth cues*. Some of these depth cues are linear perspective, texture gradient, elevation, interposition, clarity and aerial perspective, and visual angle. When you look at a chart, you will be very surprised to know that all six of these informational cues may have an impact on how you see it. Learning to analyze a chart is really a matter of learning to see—to see *correctly*. That means a good deal more than merely looking with the eye. We will look at all six depth perception types, and then look at a few chart formations to demonstrate how these principles will have an impact on traders.

## **Linear Perspective**

Linear perspective is perhaps the one with which you are most familiar. It is common knowledge that lines or edges that are truly parallel, such as railway tracks, *converge upward* as they recede from an observer. The greater the distance, the closer the lines will appear until they merge as one into the distance. The mathematical system for creating the illusion of space and distance on a flat surface originated in Florence, Italy, in the early 1400s. It was an architect, Leon Battista Alberti, who first wrote down the rules of linear perspective.

Technical analysts need to understand the mathematical components of linear perspective because these depth cues have a major influence on how we will see signals in a chart. The example of receding railway tracks is the simplest mathematical system called *one-point perspective*. When we look at charts, we will be applying *two-* or *three-point perspective* based on the chart patterns we are viewing. So let's review one-point perspective to ensure that everyone understands the fundamentals.

The basics of one-point perspective are illustrated in [Figure 13.1](#). Whatever you are looking at, a three-dimensional chocolate chip cookie or a two-dimensional chart, there will be a *horizon line*. If you look out at an ocean's horizon from the cockpit of a plane, or look out from a seashore while sitting on the beach, the horizon line will always be at your eye level. This invisible plane cuts through everything, including your chart! Your horizon line will always be at eye level regardless of where you are looking. If you look down on the trading desk, the horizon line does not change as your eye level remains at the height of your eyes.

The *vanishing point* is the point to which all lines that are parallel to the viewer recede. In one-point perspective only lines that are moving away from or to a viewer seem to recede on the horizon at the vanishing point. Verticals and horizontals stay the same. In a chart the vertical and horizontal lines of the chart grid establish the reference points for our mind to then try to use the indicator swings as points to define a vanishing point. *All the points that can be connected to suggest a line leading to the vanishing point are called convergence lines.*

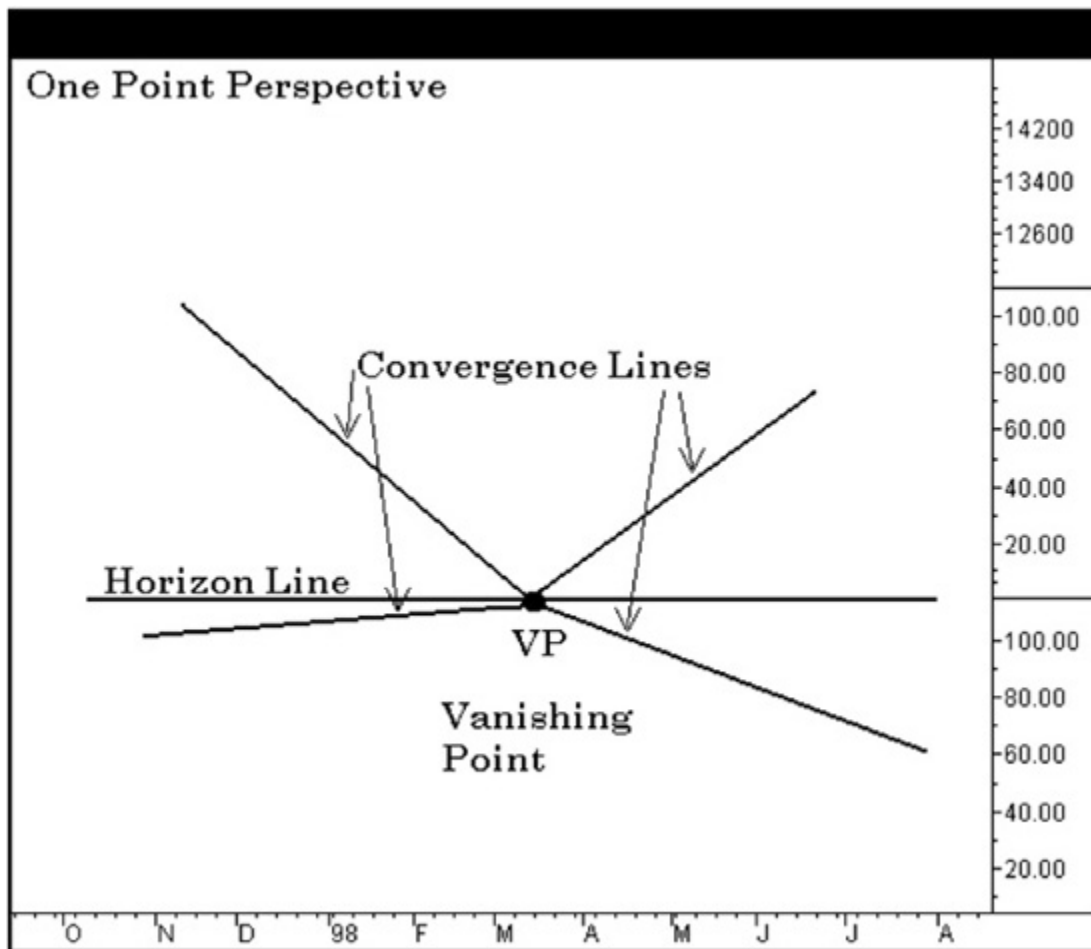


Figure 13.1

In [Figure 13.2](#) a Stochastics signal has been extracted from a larger chart. Above it is a moving average signal. Is the slope of the average with the Stochastics indicator more steep than the chart displaying the averages alone? Why is this difficult? Our eye will use this first Stochastics oscillator peak as additional information. The new Stochastics peak adds a point that is closer to the edge of the chart's frame, making it easier for us to *unconsciously* determine where the vanishing point is located within this chart. As a result, our eye uses this visual cue to create a converging line to mark a vanishing point. It does not matter that Stochastics forms a peak at a later time that exceeds this convergence line. The peak is filtered out as noise and indicated as being filtered by a broken line for the Stochastics travel. Orthogonal lines are visual rays that connect points from an outer edge of a chart toward the vanishing point. The Stochastics peak in [Figure 13.2](#) becomes more important than the inner peak that is a broken line because the first is closer to the outer frame. The first peak in Stochastics



serves as the origin for an orthogonal line. The fact that the vanishing point leads to the far right, not to the center as was drawn in [Figure 13.1](#), shows that the mathematical system defining one-point perspective is insufficient for this chart.

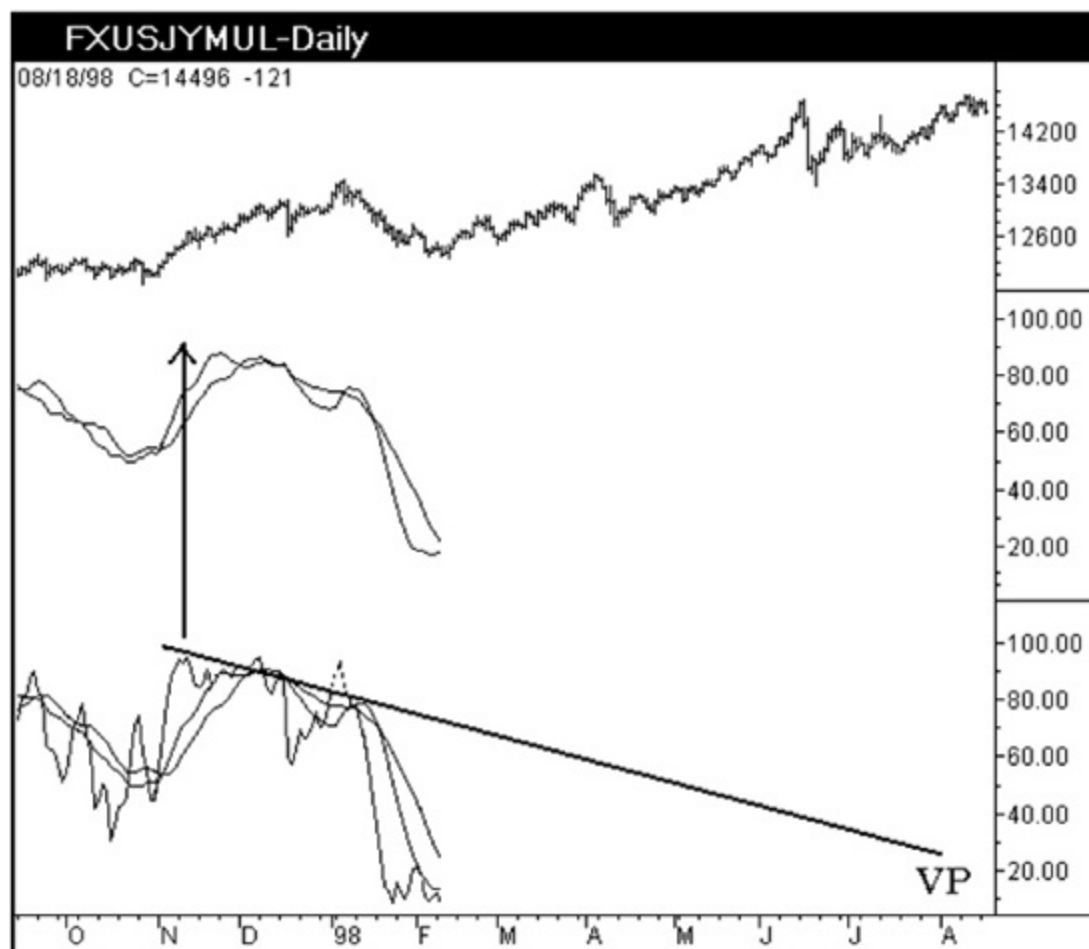


Figure 13.2

We know our brains are extremely complex computers. When we are presented with an abstract chart, our minds try to reference known variables. The placement of an object defines two-point linear perspective. All we need is *one corner* and our mind will try to complete the shape. It is the angles of the object that define where the vanishing points are located. In [Figure 13.2](#) our minds will assume it has located one of the angles for our abstract puzzle to define depth. The vanishing point leads to the right in the chart. Sometimes one vanishing point in two-point perspective *will not be on the page*. Our mind will approximate where the point falls beyond our chart dimensions. Distortions are minimized when our mind establishes

where the horizon line is located. Some charts will have a horizon line defined. That actually adds to our problem as the visual cue becomes stronger. An example would be the zero line for a histogram. When the object we are looking at does not have a perpendicular or parallel point, our mind's eye will find a "corner" within the abstract from which to extrapolate a converging line to a vanishing point. That is what is forming in [Figure 13.2](#). Each of the corners that marks the start of a convergence line in [Figure 13.3](#) becomes the dominant point. Therefore, [Figure 13.2](#) has a dominant point predefined at the first Stochastics peak that is not a trading signal but which becomes an influential point to all other information we are analyzing within this chart.

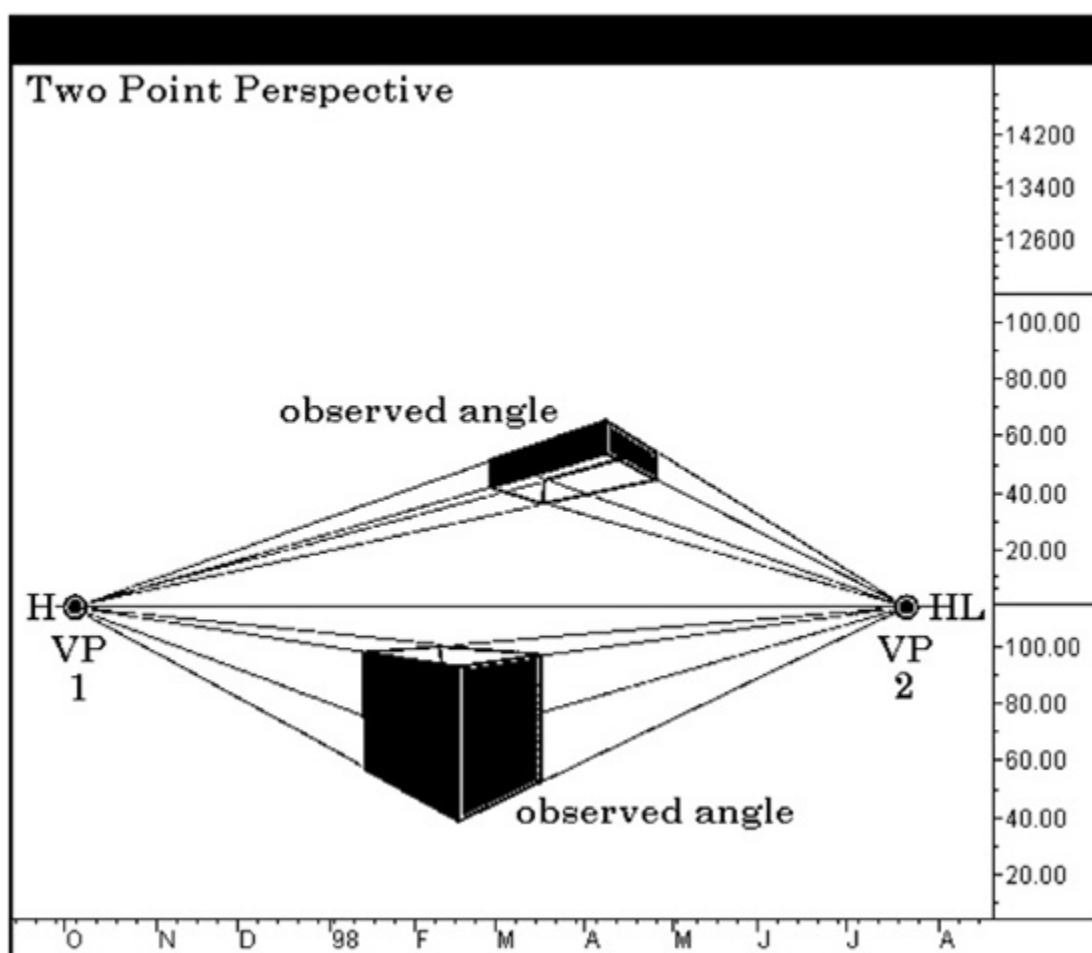


Figure 13.3

Because we are dealing with an abstract image, a third point can come into play that is normally used only with extreme heights or lows. Not only will there be the two vanishing points along a horizon line but there will be

an upward or downward recession to a third vanishing point. *The third vanishing point will always be 90 degrees to the horizon line.* Many complex technical chart squiggles will provide points that lead to a projected third vanishing point.

It is easy to catch you visually in a depth perspective trap. The trap itself applies to three-point perspective ([Figure 13.4](#)). The master of three-point perspective traps is M.C. Escher. Consider his work *Sunmoon* in [Figure 13.5](#) and then return to look at a chart to point out the similarities of distortion.

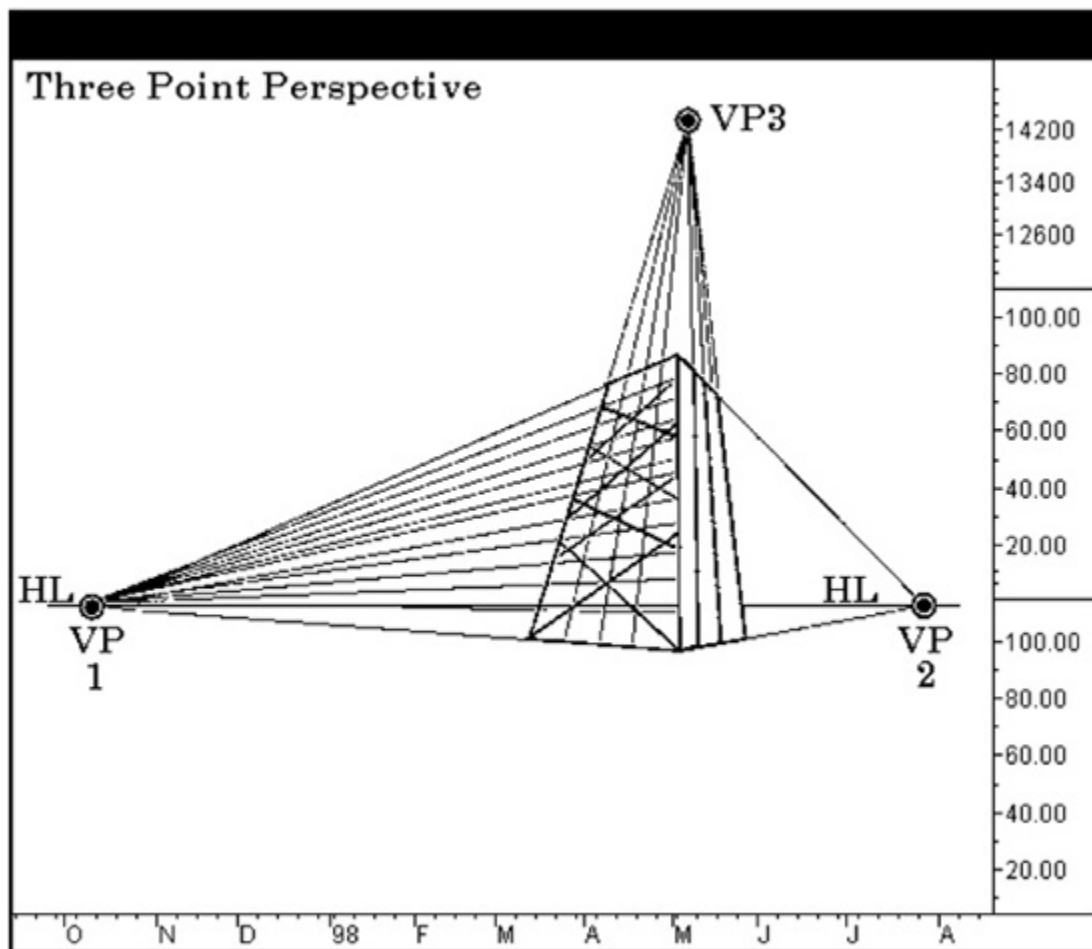


Figure 13.4



Figure 13.5

In Escher's work, there is frequently a play on depth of field. Our mind alternates the dominant image in an effort to determine the correct vanishing points. Generally we see the darker image first and then allow that pattern to recede, allowing us to view the lighter pattern.

The chart in [Figure 13.6](#) can visually trick you. RSI Trend2 and RSI Trend3 appear to give different signals at points *A* and *B*. However, the indicator on the bottom of the chart shows you more clearly that RSI Trends 2 and 3 are in fact the exact same signals. The only difference is that different areas have been selected to plot a filled histogram pattern. Be aware of the visual impact when you add a histogram. The vertical lines of a histogram are 90 degrees to horizontal, and everything else that follows in your chart will be processed as an image that has height and a third vanishing point. The histogram in RSI Trend2 at point *A* becomes even more significant because *it is closest to the outer frame of the chart* and is also an orthogonal line of convergence. Therefore, the pattern that must be used is Trend2, and we will discard Trend3 when we continue this indicator evaluation.

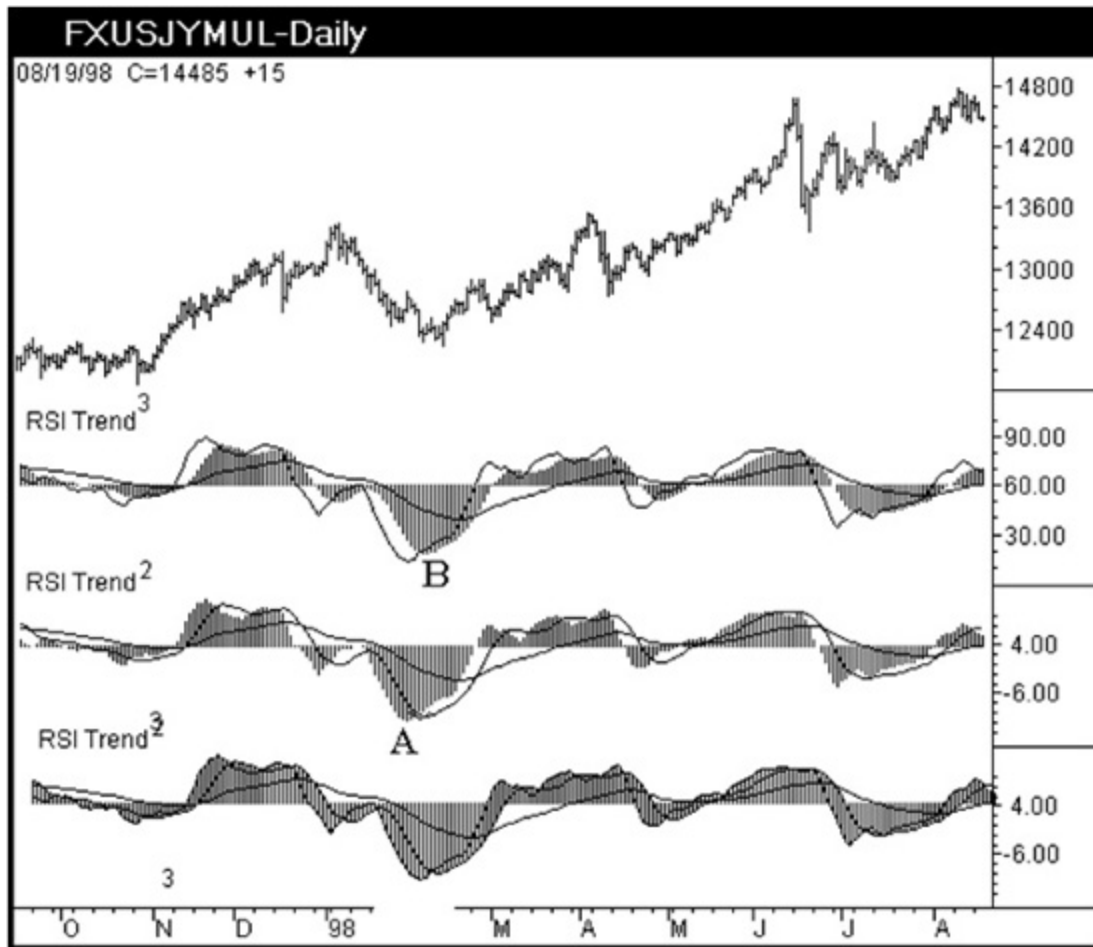


Figure 13.6

## Texture Gradient

Another depth cue that we use to define our missing median plane is called the *texture gradient*. This cue becomes important when there are no straight lines present in an image. This is the case in [Figure 13.6](#). When linear lines are absent, our mind will process any element—such as a dot (parabolic), indicator peak, or pivot—to try to determine the rate at which the elements change size. Our mind's eye sees objects that become smaller and more closely packed together as depth that has an increasing rate of change. This rate normally depends on the slope of the ground. When there is no ground within a chart, our eye may see the juxtaposition of certain indicator patterns as depth cues. You will not be caught by this problem, but it is likely to be one that motivated you to move your vertical line over to a peak or low for further clarification.

## **Elevation**

Objects that fall between us and our horizon will normally appear higher up the farther they are from us. The railway tracks receding into the vanishing point will always move upward to the vanishing point. This upward movement becomes a visual cue from which our eye will travel within a chart. Elevation cues are a given fact and help to set up a visual problem when combined with interposition cues.

## **Interposition**

Normally texture appears to be more dense in a distant object than in an identical but closer object. However, some depth cues will be stronger than others. This is the case when one object obscures part of another. We frequently obscure another indicator such as an average when multiple studies are used as an overlay in a chart. The partly obscured object will be viewed as farther away. However, your mind may again trick you, as illustrated in [Figure 13.7](#). The farther object appears to be closer because the cutout gives us a pseudo-interposition. It looks as though the smaller card is in front of the larger when, in fact, the smaller is positioned behind the larger card with a cutout. Before moving away from [Figure 13.7](#), can you tell if the card that is actually at the back is the same size in both illustrations? I suspect you will have to use your PRC—that is, your precision ratio compass or proportional divider—to prove that these two smaller cards are identical in size. I created the image on the left from the image on the right, so all four cards are in fact the same. However, adding the width of one pixel line to the inside boundary of the smaller card on the left will make it appear larger than its counterpart on the right. That is because shadows are also depth perception cues. When you draw a trend line on a chart, you can shift the proportional dimensions within it. They will be relative if the line is long enough across your chart. But short lines can contribute to visual errors or distortions.

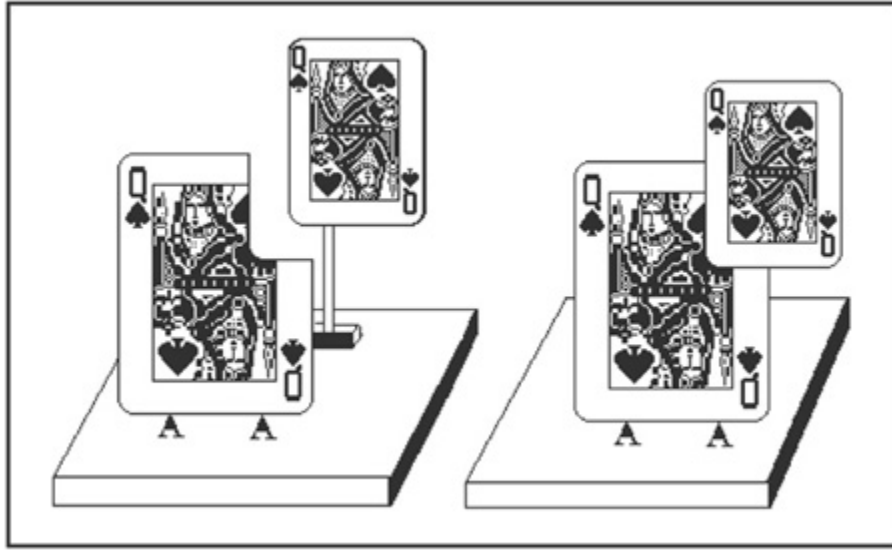


Figure 13.7

### Clarity and Aerial Perspective

It is harder to see the details on objects that are farther away from us than on identical objects that are up close. This alone does not become a factor in a two-dimensional chart, but its near cousin aerial perspective does play a part in chart analysis. This refers to the fact that far objects appear bluish to us because the wavelength frequencies from ultraviolet to blue are scattered in our atmosphere in a higher proportion than reds that fall within the infrared segment of light's wavelength frequency spectrum.

Because we are used to associating blues as distant, these cues can be used to our advantage or disadvantage in a chart. TradeStation offers 16 colors that traders can use for their drawing tools and markings that we may add to any chart. Use them wisely. Fibonacci lines do not have to compete for attention with your price data. Select a soft gray for a Fibonacci line and watch it immediately fall a perceived distance behind price. Be very aware of the impact of the color you use for your signal line. It should not be the recessive one when viewing the technical study. The vendors that offer only colors of equal intensity (brightness) and saturation (color intensity) need to wake up and move out of the dark ages for charting capabilities. It is essential that the technical information on your chart be compatible with your depth perception capabilities. Get after your vendor to make changes if the only colors you can use force you to view needless noise.



## Visual Angle

This is the sixth depth perception cue that will have an impact on our ability to analyze a chart. This cue requires anatomical considerations and elementary physics to relate lens equations to something useful that we can apply. Visual angle is a depth cue affected by pupil size and lens power. Everyone sees differently, and that is why it is as important to know our personal biases as it is to know the indicator patterns and underlying formulas themselves.

Visual angle refers to the size of the image on the retina. When we look at similar objects, the one farther away has a smaller image on the back of our eye. Whether your computer screen is touching your nose or sitting at the end of a table, the size of the object in terms of visual angle *is independent of distance*.

[Figure 13.8](#) shows us mathematically why one degree of visual angle plus perceived distance can determine height. So how is it we can judge the size of an object when the visual angle of an object on the back of our eye is changing all the time? The fact that an object can look the same size regardless of changing retinal image size is referred to as *size constancy*. How this relates to analyzing a chart is that frequently the only cue our brain has to work with is visual angle. As it knows it must define the missing plane of depth derived from distance cues, our interpretive abilities may begin to get creative, and that is when distortions occur.

One of the depth cues of greatest interest to us as traders is *retinal disparity*. The term refers to the fact that, because our eyes are separated horizontally, each eye processes different views of any object. What does disparity do for us? It is the slight disparity between the two pictures on the back of our eye that gives us depth. Our two-dimensional image of a chart is the same as the image that forms in our eyes when we look out the window. The brain views two-dimensional views from slightly different visual angles and integrates them into one three-dimensional image. *Over 10 percent of humans are stereoblind*. There are great differences in our stereovision ability. If you are stereoblind, you will depend on other depth cues that are monocular. The aerial perspective we discussed, which makes distant objects appear less clear and bluish, will be monocular. Therefore, we have all developed different depth cue dependencies that match our anatomical abilities.

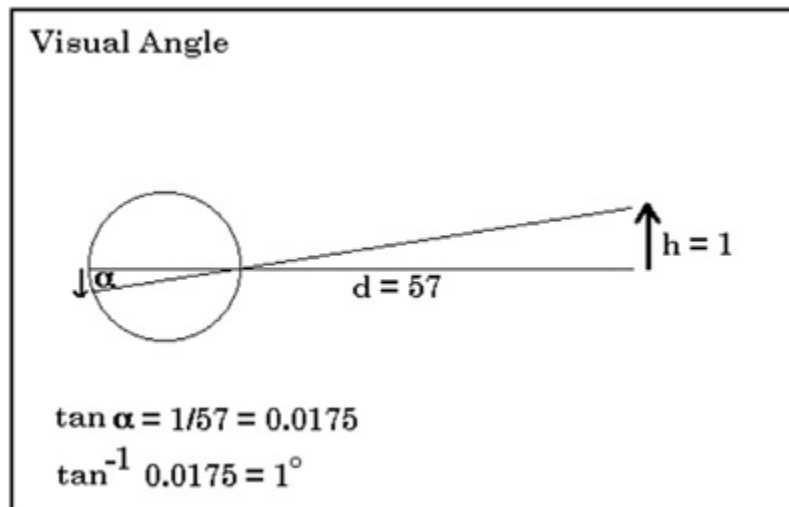


Figure 13.8

One of my eyes is stronger than the other, so I always offset my primary trading screen to the right. [Figure 13.9](#) will show you why making this change produces a smaller visual angle in my left eye, covering less surface area than that which is being projected onto the back of my right eye. The purpose is to capitalize on a stronger visual processor and thereby reduce error. It is easy to determine which eye of yours is stronger or weaker. Cover one eye and read text. One eye will handle the task easily, the other will hurt. More likely the eye you first wanted to cover is your weaker eye.

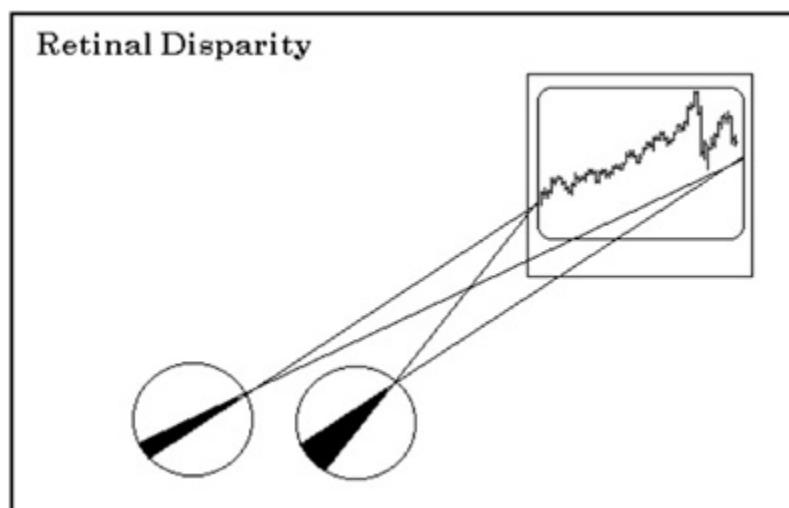


Figure 13.9

Knowing how we process visual information helps us understand why one trader may like one indicator over another although they work in the

same way.

[Figure 13.10](#) is Stochastics with averages plotted under the price data. The bottom of the chart contains two histograms. The middle histogram with averages is called the *XYZ Trend* to disguise its origin for just a short period of time.

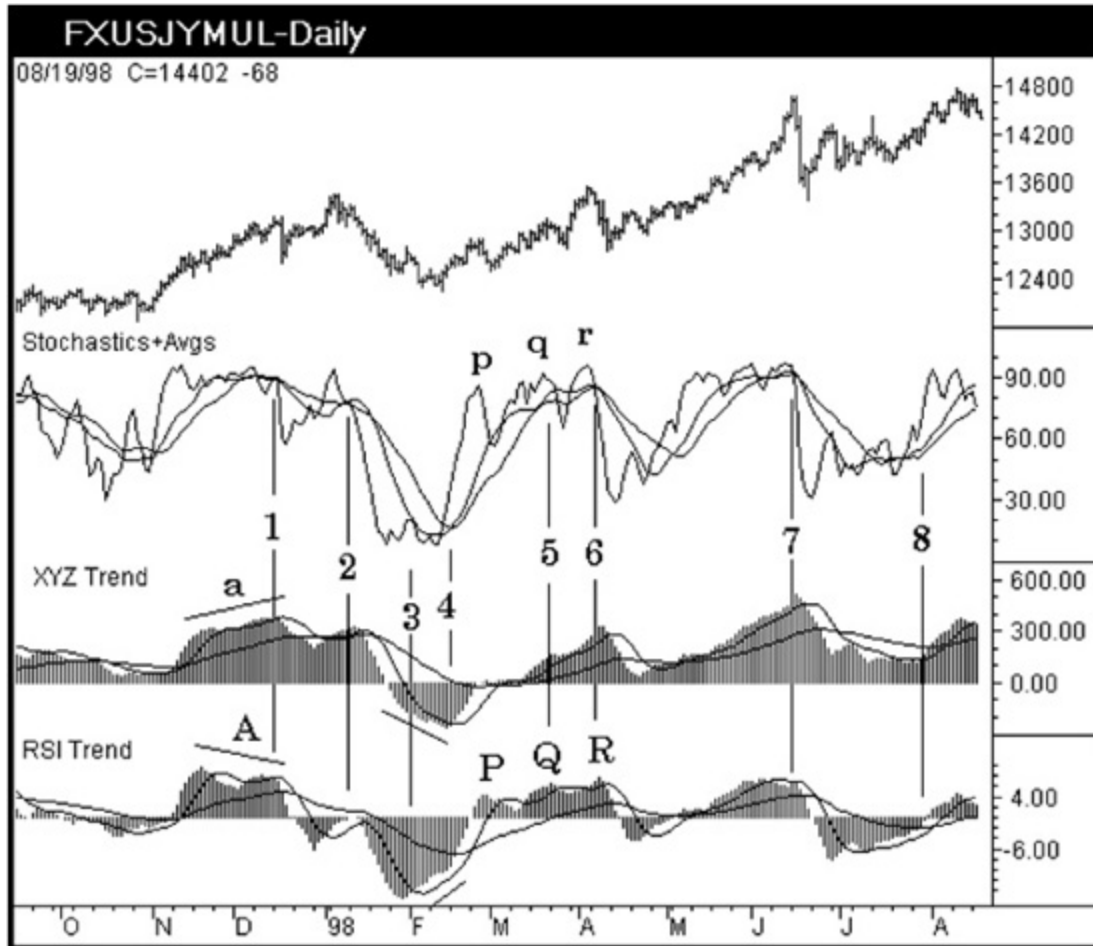


Figure 13.10

We are evaluating the combined signals in the XYZ Trend and the study called the RSI Trend as they compare to Stochastics. At points *a* and *A*, divergence is present. Pattern *A* clearly confirms signal 1 in Stochastics. However, the fact that pattern *a* displays strengths may warn that the market will have sufficient momentum to attempt another advance that would create a more complex top in the other indicators. At signal 2 this is indeed what occurs. The XYZ Trend is now diverging as well with prices. It is an extremely important observation to make that the RSI Trend is

failing just as it tests the zero line. We must later test other market moves that occur in a histogram where the pivot becomes the zero line.

At signal 3 the reverse is developing from what we saw at signal 1. This mirror image between buy and sell signals is important. At signal 3 the RSI Trend is rolling up, but the XYZ Trend is suggesting that the market may have sufficient momentum to still attempt another bottom. At signal 4 both histograms are rolling upward. Points  $p$ ,  $q$ , and  $r$  and  $P$ ,  $Q$ , and  $R$  have been discussed in a prior chart. Signal 7 is much improved by the RSI Trend. However, notice that the moving averages at signal 2 in this indicator had a negative spread where the shorter period average has crossed below the longer period average. In signal 7 the averages are positive. This is an observation that would require back-testing to define statistically whether it is important or not. (It is.) In the XYZ Trend, the oscillator is not diverging prior to the intervention. However, the indicator is at a historic high peak within this chart. Extremes would have to be back-tested in this indicator to see if there is information at this peak that we are missing when it is seen as only an isolated case in the chart. Signal 8 offers perfect timing between the RSI Trend signal and the Stochastics indicator as we have seen at other points in this chart.

If using a histogram is useful when plotting the averages from the spread of two RSI indicators, what would we gain by applying this idea to Stochastics itself? [Figure 13.11](#) shows Stochastics as a histogram. It is extremely noisy with all the long bars plotting above zero.

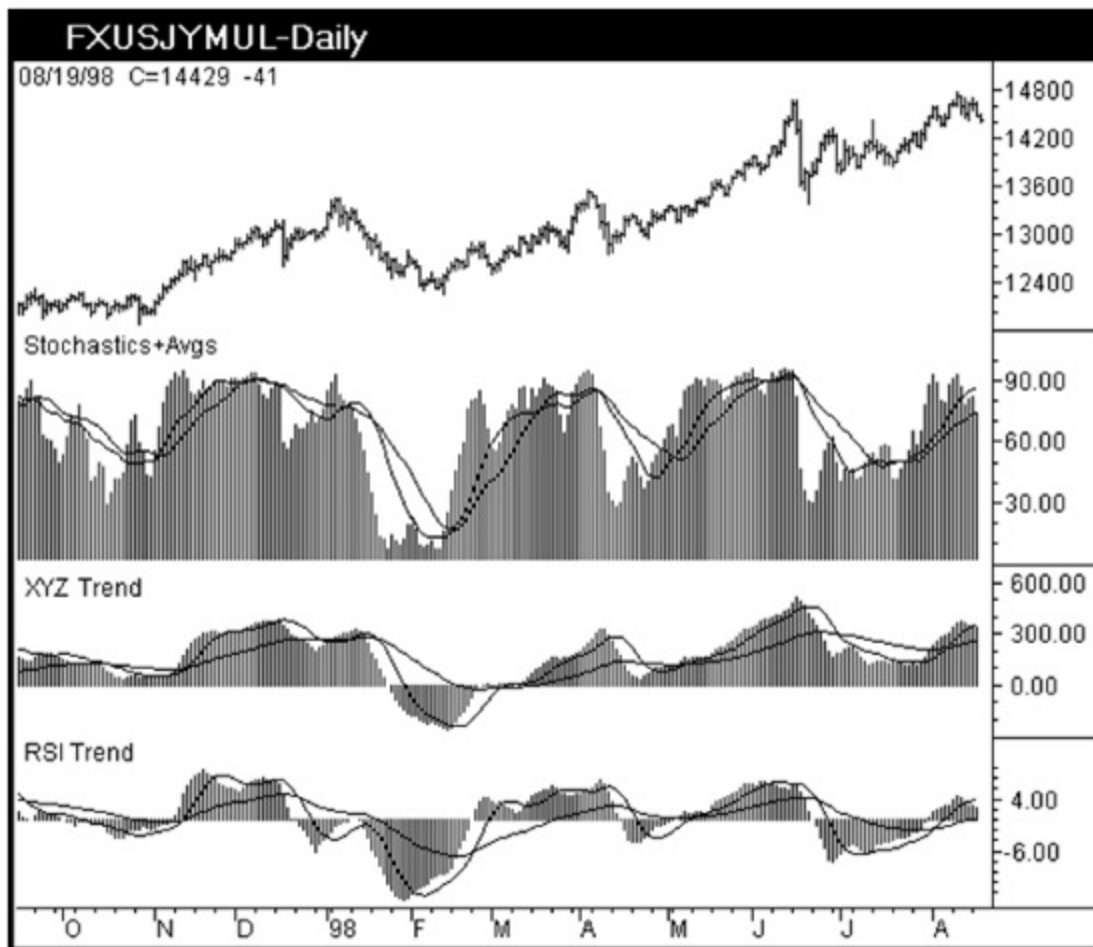


Figure 13.11

We can fix this visual problem, as shown in [Figure 13.12](#). Did I gain anything by changing how I am presenting the Stochastics study? I will let you decide that one on your own. However, it is clear one can have independent control of some of the attributes we observed in the Stochastics study. So what is the mystery indicator called the “XYZ Trend”? It is a simple spread of two averages again on price that define the histogram. Then a 9- and 45-period moving average of this histogram was added. Once you think you have an idea with merit, give it some thought on what will be the best way to display your new indicator. Sometimes an unconventional way will add to its value. Just a little different food for thought. Perhaps you had not known that perspective enters into our business. It does because the mind works in three dimensions at all times. Our craft takes practice and patience. There are so many skills that people bring to technical analysis that it is no wonder we learn so many different and interesting ways to think through market problems. I thank you for the

opportunity to update this book and share a few new lessons learned along the way.

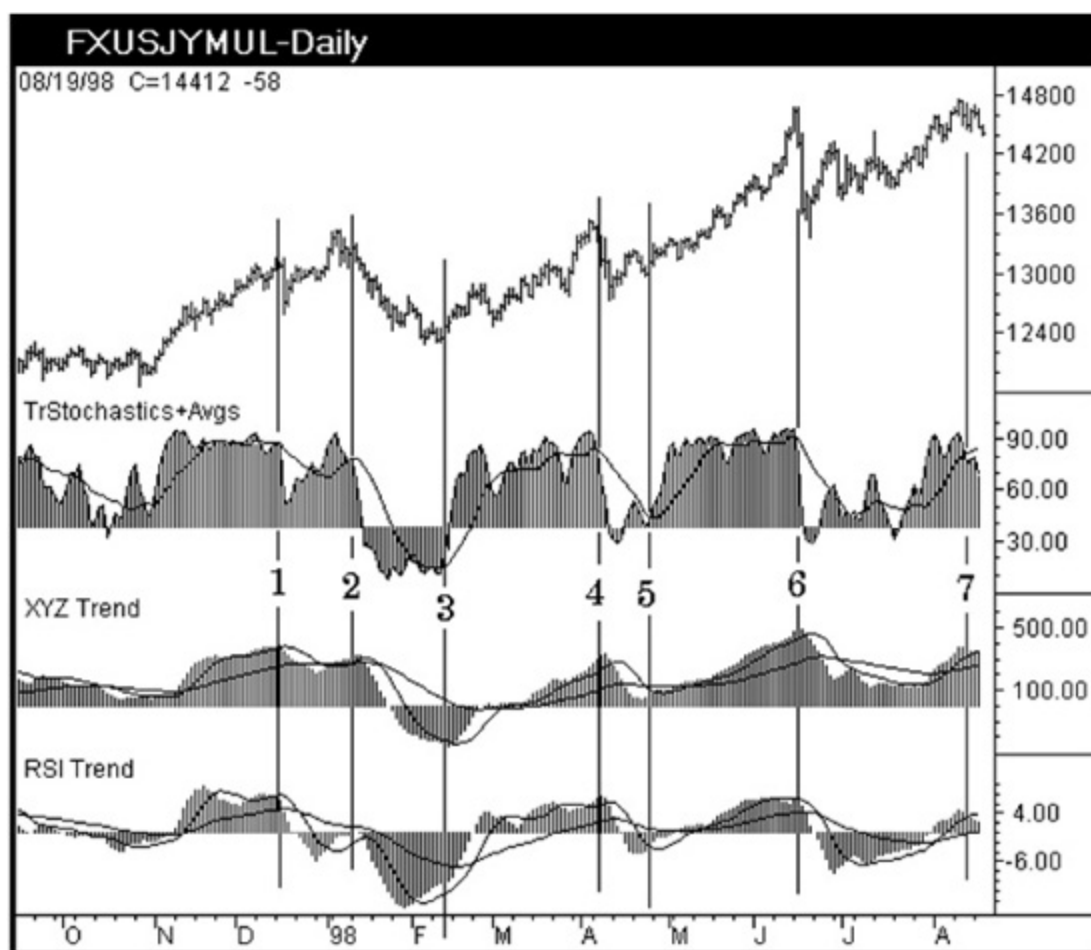


Figure 13.12

I leave with you a Zen Story to offer a final thought:

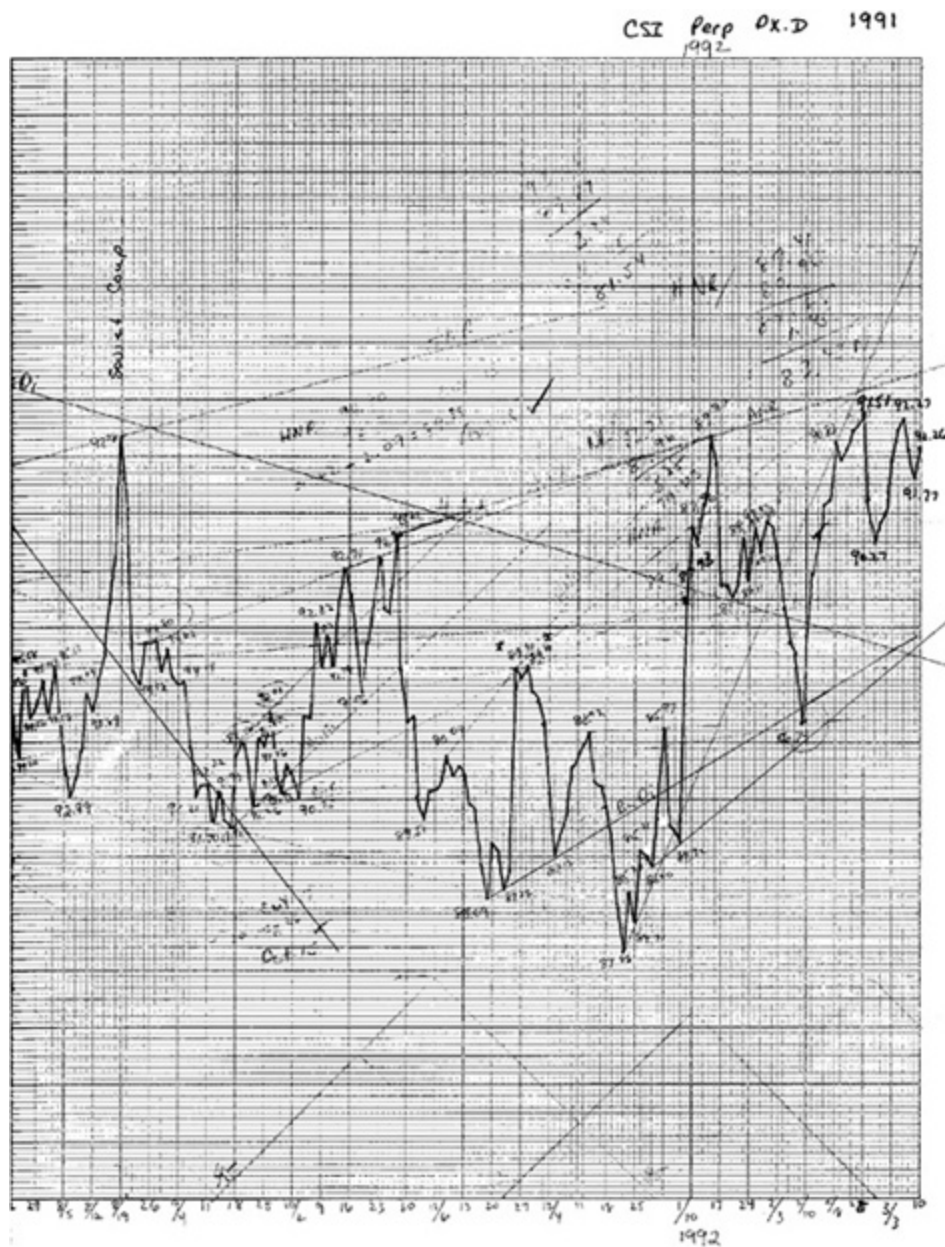
A rich man, fond of felines, asked a famous Zen ink painter to draw him a cat. The master agreed and asked the man to come back in three months. When the man returned, he was put off, again and again, until a year had passed. Finally, at the man's request, the master drew out a brush, and, with grace and ease, in a single fluid motion, drew a picture of a cat—the most marvelous image the man had ever seen. He was astonished; then he grew angry. "That drawing took you only thirty seconds. Why did you make me wait a year?" he demanded. Without a



[illegible]

**[www.aeroinvest.com](http://www.aeroinvest.com)**

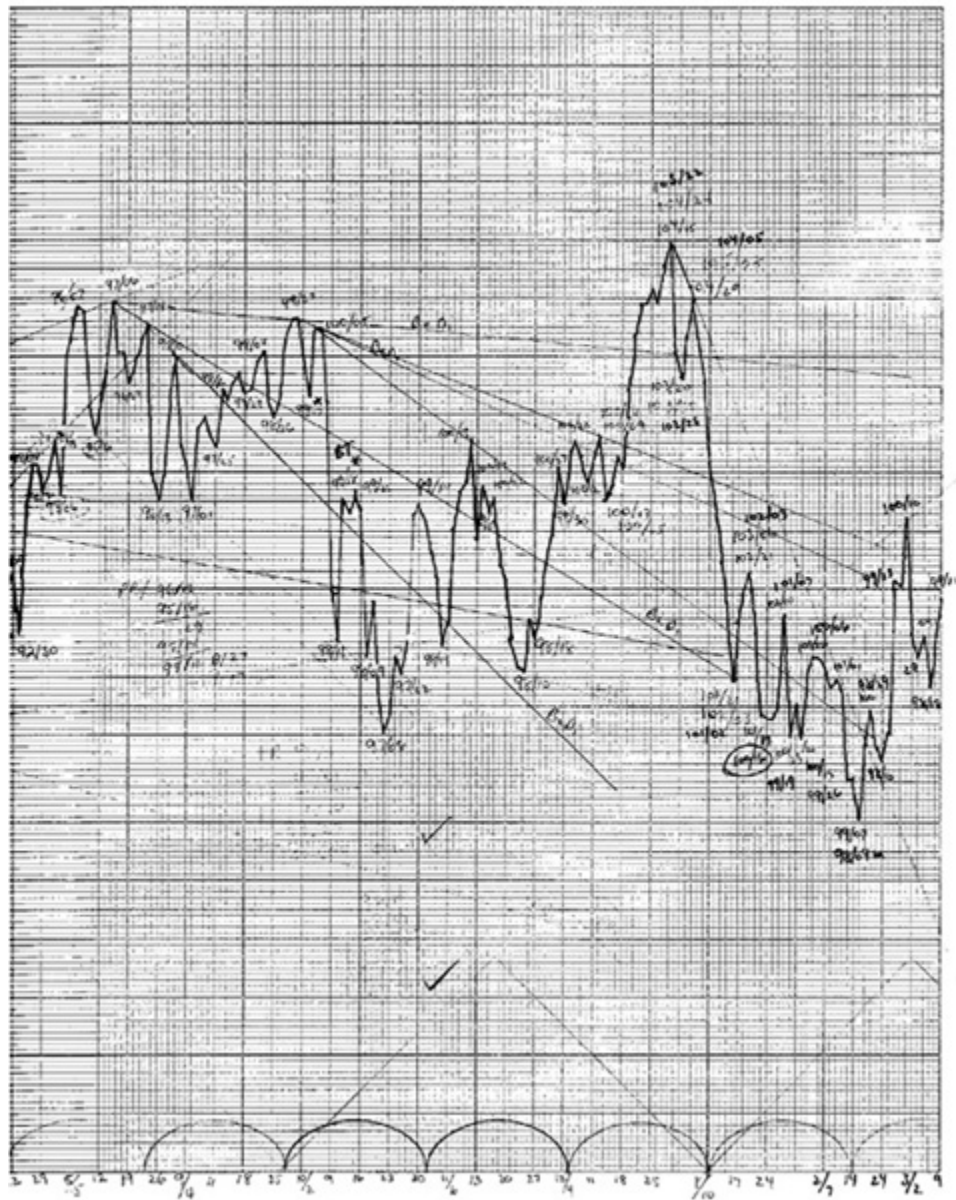




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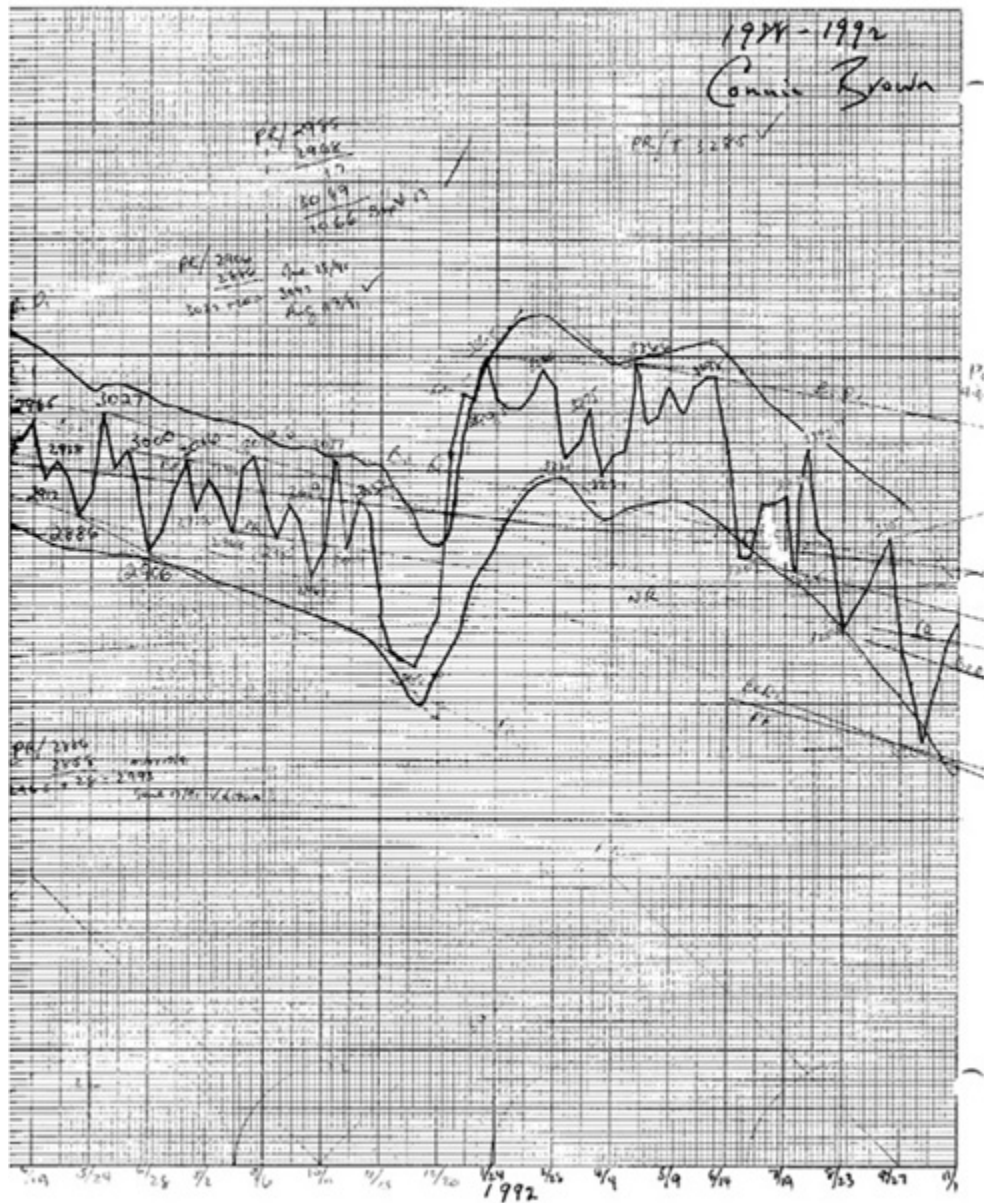
CSE T Bonda. D 1991





DSIA.W

DSIA.W



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All charts with the few exceptions noted below by

TradeStation (a subsidiary of TradeStation Group, Inc.), 8050 SW 10th Street, Plantation, Florida 33324, USA. Web site:

[www.TradeStation.com](http://www.TradeStation.com)

[Figures 2.12](#), [9.4](#), [9.5](#), and [9.8](#):

Market Trader Gold, Air Software, Inc., 115 Caya Avenue, West Hartford, CT 06110, USA. Web site: [www.alphee.com](http://www.alphee.com)

[Figures 9.6](#), [9.9](#), [9.10](#), [9.11](#), and [10.39](#):

Market Analyst—Astro Version, Market Analyst International Pty Ltd., Brisbane, Australia. Web site: [www.market-analyst.com](http://www.market-analyst.com)

[Figure 10.38](#) (The Moody's Aaa Bond data):

Prepared by Grant Noble, Topline Investment Graphics [(303) 440-0157]

[Figures 9.1](#), [9.2](#), and [9.3](#):

Microsoft Excel, Microsoft Corporation

## **Appendix | A**

### **USEFUL FORMULAS FOR TRADESTATION**

#### **How to add two moving averages with Stochastics.**

[LegacyColorValue = true];

Input: Length(17),PERIOD(13),PERIOD2(33);  
plot1(FastK(Length),"FastK");  
plot2(FastD(Length),"FastD");  
plot3(Average(FastD(Length),PERIOD),"Plot3");  
plot4(Average(FastD(Length),PERIOD2),"Plot4");

**How to plot Connie Brown's Derivative Oscillator.** (An early formula described in the first edition. The chapter was removed because it has been replaced by the Composite Index. An alternate is to plot the derivative oscillator as a histogram in the same window as the Composite Index.

[LegacyColorValue = true];

Input: LENGTH(14),PERIOD(9),PERIOD2(33);

Plot1((XAverage(XAverage((RSI(Close,14)),5),3))-(Average(XAverage(XAverage((RSI(Close,14)),5),3),9)),"Plot");

#### **How to plot Connie Brown's Composite Index in TradeStation.**

Create two functions.

The function RSIMO9 is written:

RSIMO9 = MOMENTUM(RSI(Close,14),9)

The second function is written:

RSI3 = AVERAGE(RSI(CLOSE,3),3)

The formula is then written:

Plot1(RSIMO(+RSI3,"Plot1");

```
Plot2(average((plot1),13),"Plot2");  
Plot3(average((plot1),33),"Plot3");
```

Please contact TradeStation if you do not know how to enter these lines as a custom study.

### **How to plot Connie Brown's Composite Index in MetaStock.**

```
A:=RSI(14)-Ref(RSI(14),-9) + Mov(RSI(3),3,S);  
Plot1:=Mov(A,13,S);  
Plot2:=Mov(A,33,S);  
A;Plot1;Plot2;
```

Please contact MetaStock if you do not know how to enter these lines as a custom study.

### **How to plot RSI with two Moving Averages in TradeStation.**

All the examples in this book show you the Composite Index is positioned under the price data and the RSI with moving averages is positioned under the Composite Index.

```
[LegacyColorValue = true];  
Input: LENGTH(14),PERIOD(13),PERIOD2(33);  
Plot1(RSI(Close,LENGTH),"Plot1");  
Plot2(Average((RSI(Close,LENGTH)),PERIOD),"Plot2");  
Plot3(XAverage((RSI(Close,LENGTH)),PERIOD2),"Plot3");
```

### **Manning Stoller's STARC Volatility Bands for TradeStation.**

```
[LegacyColorValue = true];  
  
input:av(6), atrlen(15), factor1 (2), factor2 (3);  
var:atr (0), mav (0), top1 (0), top2 (0), bot1 (0), bot2 (0);  
  
atr=average(truerange,atrlen);  
mav=average (c, av);  
top1=mav+(factor1*atr);  
top2=mav+(factor2*atr);
```



```
bot1=mav-(factor1*atr);  
bot2=mav-(factor2*atr);
```

```
if top2>0 then plot1 (top2, “StollerHi”);  
if top1>0 then plot2 (top1, “StollerHi2”);  
if bot1>0 then plot3 (bot1, “StollerLo”);  
if bot2>0 then plot4 (bot2, “StollerLo2”);
```

### **How to modify Manning Stoller Bands to Plot on RSI in TradeStation:**

```
[LegacyColorValue = true];
```

```
Input: Coefdwn(2.1),Coefup(2.3);
```

```
Plot1((Average((RSI(Close,14)),6))+(Coefup*(Average(TrueRange  
Custom((RSI(Close,14)),(RSI(Close,14)),(RSI(Close,14))),15))), “Plot1”);  
Plot2((Average((RSI(Close,14)),6))-(Coefdwn*(Average(TrueRange  
Custom((RSI(Close,14)),(RSI(Close,14)),(RSI(Close,14))),15))), “Plot2”);  
Plot3((RSI(Close,14)),“Plot3”);
```

```
IF CheckAlert Then Begin
```

```
    IF Plot1 Crosses Above Plot2 or Plot1 Crosses Below Plot2  
    or Plot1 Crosses Above Plot3 or Plot1 Crosses Below Plot3  
    or Plot2 Crosses Above Plot3 or Plot2 Crosses Below Plot3 Then Alert  
    = TRUE;
```

```
End;
```

## **Appendix | B**

### **BOOKS BY CONNIE BROWN**

(Advanced) *Technical Analysis for the Trading Professional 2<sup>nd</sup> Edition* (2011) McGraw-Hill

(Advanced) *Fibonacci Analysis* (2008) Bloomberg Financial

(Advanced) *Breakthroughs in Technical Analysis: New Thinking from the World's Top Minds* (2007) David Keller Editor, Bloomberg Financial

(Intermediate) *Mastering Elliott Wave Principle: Elementary Concepts, Wave Patterns, and Practice Exercises* (2012) John Wiley & Sons

(Advanced) *Advanced Elliott Wave Analysis: Complex Patterns, Intermarket Relationships, and Global Cash Flow Analysis* (2012) John Wiley & Sons

(Advanced Beginner) *All About Technical Analysis* (2002) McGraw-Hill Publishers

(Beginner) *Technical Analysis DeMystified: A Self-Teaching Guide* (2007) McGraw-Hill Publishers

(Reference) *The Illustrated Guide to Technical Analysis Signals and Phrases* (2004)

Kindle and Electronic Only McGraw-Hill Publishers

(Sold Out – In Secondary Market) *Aerodynamic Trading* (1996)

*Aerodynamic Trading* is not a book about technical analysis. It was a book applying the lessons of top international swimming coaches to the trading desk. It is a story book.

## **Appendix | C**

### **SERVICES**

Please visit the web site of Aerodynamic Investments Inc. at [www.aeroinvest.com](http://www.aeroinvest.com) to review a current list of services for

- Investments,
- Current Market Analysis, and
- Education Seminars.

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# INDEX

- Adams, Ansel, [403](#)  
Advanced Elliott Wave Analysis, [246](#)  
*Aerodynamic Trading*, [83](#)  
Alberti, Leon Battista, [406](#)  
Allman, Dave, [288](#)  
Alpha, [5](#)  
Alvin-West Germany, [16](#)  
Angles for trend line, [90](#), [90f](#)  
Appel, Gerald, [77](#), [370](#)  
Arms, Richard W., Jr., [370](#)  
Asian indexes, [390](#)  
Astronomy, [223](#)
- Bear market  
    divergence pattern and RSI, [14](#)  
    divergences present in DMK/\$ chart, [186](#), [186f](#), [187](#)  
    Gann analysis, [56](#)  
    price objectives derived from reversals, [186](#), [186f](#), [187](#)  
    resistance line and RSI, [18](#)  
    RSI ranges, [8](#)  
Benner, Samuel, [28](#), [40](#), [44](#), [48](#)  
    diminishing confidence in currency, [50](#)  
Benner's Nine-Year Cycle in Pig-Iron Prices, [28](#)–29  
    dominant trading cycles, [28f](#)  
*Benner's Prophecies* (Benner), [40](#)  
*Benner's Prophecies* of Future Ups and Downs in Prices (Benner), [44](#)–47  
Berra, Yogi, [116](#)  
Bethlehem Steel, [23](#)  
Bigger picture, [29](#), [49](#), [166](#), [327](#), [350](#)

- short-horizon building blocks, [284](#)
- Bollinger, John, [370](#)
- Bollinger Bands, [360](#)
  - volatility bands on oscillators, [365](#), [366f](#)
- Bond chart
  - using oscillators with Elliott wave principle, [352](#), [357f](#)
- Bond market, [349](#)
- Breakthrough in Technical Analysis: New Thinking from World's Top Minds* (Keller), [55](#), [163](#), [212](#), [226](#), [377](#)
- Brown, Connie
  - list of authored books, [435](#)–436
- Brown's Composite Index in MetaStock, [432](#)
- Brown's Composite Index in TradeStation, [432](#)
- Brown's Derivative Oscillator, [431](#)
- Bull market
  - diagonal triangle pattern, [341](#), [342f](#)
  - divergences present in DMK/\$ chart, [186](#), [186f](#), [187](#)
  - Hang Seng Equity Index, [10](#)
  - indicating correction, [129](#)
  - price objectives derived from reversals in RSI, [186](#), [186f](#), [187](#)
  - RSI ranges, [8](#)
  - RSI shift, [7](#)
  - RSI signal, [124](#)
  - using oscillators with Elliott wave principle, [341](#), [342f](#)
- Candlesticks, [61](#)
- Capitulation bottom, [39](#)
- Capitulation spike, [11](#)
- Charting principles of depth perspective [403](#)–428
- China, [390](#)
  - Shanghai composite with time analysis study, [58f](#)
- Circles, [16](#)
- Coiling pattern, [339](#)
  - using oscillators with Elliott wave principle, [247](#)–248, [249](#), [249f](#)

Composite Index, [357](#), [369](#)–401, [376](#)

Cash S&P 500 in monthly and weekly time horizons, [377](#)–379, [378f](#)

Cash S&P 500 in weekly and daily chart, [387](#)–390, [389f](#)

charts for six Funds, all Corporate Debt BBB, [393](#), [394f](#)

daily USDCHF chart, [396](#), [397f](#)

detrended oscillator, [201](#)

detrended simple moving average, [387](#)–390, [389f](#)

divergence, [130](#)

divergence signal, [380](#)

diverging with price, [378f](#), [379](#), [380](#), [381f](#)

Fibonacci projection adjustments for higher probability targets, [146](#), [146f](#)

forms negative reversal, [272](#)

horizontal trend line, [310f](#), [311](#)

monthly, daily and 240-minute time horizons, [387](#), [388f](#)

monthly, weekly and 88-minute chart of German DAX Index, [383](#), [384f](#)

monthly, weekly and 240-minute December 2–11, [383](#), [385f](#)

resistance zone, [380](#)

and RSI divergence between, [299](#)

Shanghai Composite, [392f](#), [393](#)

Templeton Dragon Fund, Fidelity China Region and Templeton China World, [390](#), [391f](#)

trend lines, [131](#)

using oscillators with Elliott wave principle, [316](#), [316f](#)

US Treasury Bond, [387](#), [388f](#)

Zigzag, [311](#)

Confluence targets

Gann, [57](#)

zones, [143](#), [157](#), [159](#)

Connie Brown's Composite Index

MetaStock plot, [432](#)

TradeStation plot, [432](#)

Connie Brown's Derivative Oscillator, [431](#)

Contracting triangle, [338](#)

short-horizon DMK/\$ chart, [336](#)

using oscillators with Elliott wave principle, [330](#), [331f](#)

Converging lines, [407](#)

triangle pattern, [341](#)

upward, [405](#)

vanishing point, [409](#)

Corrections

Flat patterns, [292](#), [292f](#), [294](#), [294f](#), [296](#)

three-wave decline, [297](#)

using oscillators with Elliott wave principle, [287](#)–[346](#), [291](#), [291f](#), [292](#), [293](#), [294f](#), [294](#), [296](#)

waves 2 and 4, [280](#)

Zigzag, [316](#), [326](#)

Currency, [394](#)

diminishing confidence, [50](#)

Curve-fitting technical indicators, [66](#)

Cycle

analysis, [212](#)

definition, [211](#)

expansion and contraction, [29](#)

fixed periods, [54](#)

low, [317](#)

meaning, [28](#)

rhythmic fluctuations, [28](#)

rhythmic undulations, [29](#)

tools, [28](#)

Daily charts

Cash S&P 500 with Composite Index, [387](#)–[390](#), [389f](#)

corn futures, [100](#), [101f](#), [104](#), [104f](#), [228](#), [229f](#)

DJIA market action for August 1998, [313](#), [313f](#), [314](#), [323](#), [325f](#), [336](#)

dominant trend lines, [100](#), [101f](#), [104](#), [104f](#)

Fibonacci projections for higher probability targets, [157](#), [158f](#), [167](#), [167f](#)

Gann analysis calculating price and time objectives, [228](#), [229f](#)

gold futures, [157](#), [158f](#)



London's Gilt Bond futures market, [127](#), [127f](#), [128](#)  
Nasdaq February 27, 2007, [165](#), [165f](#)  
price objectives derived from reversals in RSI, [204f](#), [205f](#), [206f](#), [207](#),  
[208f](#)  
short-horizon, [311](#), [314](#)  
signals from moving averages, [127](#), [127f](#), [128](#)  
S&P 500 futures, [86](#), [87](#), [87f](#), [342](#), [343](#), [343f](#)  
time horizon oscillations, [10](#), [10f](#)  
timing signal, [89](#)  
tracking patterns, [342](#), [344](#)  
US Bond futures and trend lines, [90f](#), [91](#)  
USDCHF chart and Composite Index, [396](#), [401f](#)  
using oscillators with Elliott wave principle, [312](#), [312f](#), [313](#), [323](#), [325f](#),  
[335](#), [342](#), [342](#), [343](#)  
US Treasury 30-Year Yields, [21](#), [22f](#)  
Deep second wave down, [12](#)  
Depth perception cue, [405](#), [416](#)  
Depth perspective applied to two-dimensional charting, [403](#)–428  
Derivative Oscillator, [371](#)  
Detrended oscillator, [201](#)  
Detrending method, [41](#)  
Dewey, Edward R., [40](#), [43](#)  
    combine with Gann cycle, [43](#)  
    fixed cycle, [215](#)  
    fixed period cycle, [41](#)  
    Index of International Battles, [51](#)  
    9-year cycle in new Presbyterian church members, [52](#)  
Diagonal triangle, [341](#), [344](#)  
Divergence  
    Composite Index, [130](#)  
    patterns, [371](#)  
    price and Composite Index, [380](#), [381f](#)  
    signal, [380](#)  
    warning and RSI, [4](#)

Dominant trading cycles are not time symmetrical, [27](#)–58  
Benner 9 year in pig-iron prices 1834–1900cyc, [28f](#)  
China Shanghai composite with time analysis study, [58f](#)  
European Wheat Prices 1500–1869, [51f](#)  
growth of Presbyterian Church in America 1826–1948, [52f](#)  
index of international battles from 550–1957, [48f](#)  
major real estate activity USA 1795–1939, [42f](#)  
Nikkei 225 Index, [30f](#), [31f](#), [35f](#), [37f](#), [38f](#), [39f](#)  
pig-iron market panics 1800–1991, [42f](#)  
Dominant trend lines not always from extreme price highs or lows, [79](#)–105  
angle for trend line, [90](#), [90f](#)  
daily chart for US Bond futures, [90f](#), [91](#)  
daily chart of S&P 500 futures market show trend lines, [86](#), [87](#), [87f](#)  
daily charts of Corn futures market, [100](#), [101f](#)  
demonstrates new parallel line, [101](#), [101f](#)  
demonstration using daily Corn futures, [104](#), [104f](#)  
German DAX Index trend lines, [96](#), [96f](#)  
intersection of two trend lines, [88](#), [89](#), [89f](#)  
20-minute bar chart for September US Bond market, [97](#), [98](#), [98f](#), [100](#)  
80-minute bar chart of Japanese Yen per US Dollars, [93](#), [93f](#)  
120-minute chart of Dow Jones, [82](#), [82f](#), [84f](#), [86f](#)  
new third line set, [102](#), [103f](#)  
puzzle displays nine squares, [80](#), [80f](#), [81f](#)  
trend line marks reason prices have stalled at current levels, [99](#), [99f](#), [100](#)  
Double bottom RSI formed, [364](#), [365f](#)  
Double three chart, [341](#)  
RSI indicator, [345](#)–346  
using oscillators with Elliott wave principle, [345](#)–346, [346f](#)  
Double Zigzag, [318](#)  
internals, [303](#)  
Double Zigzags  
using oscillators with Elliott wave principle, [303](#), [303f](#)  
Dow Jones Industrial Averages (DJIA)  
Fibonacci retracement, [299](#)

- programs triggered, [5](#)
- real-time scenario, [261](#), [272](#)
- using oscillators with Elliott wave principle, [294](#), [295f](#), [348f](#)

Eastman Kodak, [403](#)

Economic downturn and real estate market, [43](#)

80-minute bar chart of Japanese Yen per US Dollars, [93](#), [93f](#)

88-minute bar chart, [72](#)

- comparison to 60-minute, [70](#), [71f](#)

- Fibonacci projections for higher probability targets, [148](#), [148f](#), [149](#)

- German DAX Index and Composite Index, [383](#), [382f](#)

- 11-period RSI, [72](#)

- S&P 500, [70](#), [71f](#), [72](#), [148](#), [148f](#), [149](#)

89-period cycle, [31](#)

11-period RSI calculated from S&P 500 futures market

- choosing and adjusting period setup for oscillators, [72](#), [72f](#)

- 88-minute chart, [72](#)

Elliott Wave Principle (EWP), [61](#), [68](#), [113](#), [120](#), [129](#), [147](#), [246](#). *See also*

Using oscillators with Elliott Wave Principle

- advanced, [246](#)

- arguments against, [250](#)–260

- basic building blocks, [250](#)

- corrective flat pattern, [288](#), [397](#)

- developed into Gann price and time target, [281](#)

- five-wave pattern, [263](#)

- five-wave pattern labeled, [273](#)

- graphic puzzles, [288](#)

- guideline to anticipate alternating corrective patterns, [326](#)

- interpretation, [146](#)

- mastering, [246](#)

- rules and guidelines, [273](#)

- 13 patterns listed, [344](#)

- wave count, [157](#)

*Elliott Wave Principle: Key to Market Behavior*, [274](#)

European Wheat Prices 1500–1869, [51f](#)  
Excel and price projections, [175](#)–180  
Expanded Flat pattern, [292](#), [296](#), [301](#), [307](#)  
    develop, [314](#)  
    extending five-wave decline, [300](#)  
Expansion and contraction properties between cycles, [213](#)–216  
Extending five-wave decline  
    Expanded Flat pattern, [300](#)  
    using oscillators with Elliott wave principle, [300](#), [300f](#)  
Extending pattern real time, [310](#)  
Extend trend lines forward, [85](#)  
Extreme displacement, [203](#)  
Extreme oscillator low, [180](#)

Failure, [341](#), [344](#)  
Fibonacci, Leonardo, [33](#)  
Fibonacci Analysis, [103](#), [135](#), [136](#), [137](#), [144](#), [156](#), [201](#)  
    two charts of Cash S&P500 in monthly and weekly time horizons, [377](#)–  
    379  
Fibonacci clusters, [142](#), [300](#)  
    support, [261](#)  
Fibonacci confluence target, [103](#)  
Fibonacci confluence zone, [156](#), [161](#), [382](#)  
    accurately identified historic support level, [154](#)  
Fibonacci cycle, [35](#)  
    projections, [32](#)  
Fibonacci grids  
    start of large third wave, [333](#)  
    Stochastics pop correctly warned market weakness, [334](#)  
Fibonacci projection adjustments for higher probability targets, [135](#)–168  
    bought oil base on RSI signal, [164](#), [165f](#)  
    chart of weekly Crude Oil futures, [139](#), [140f](#)  
    daily Nasdaq February 27, 2007, [167](#), [167f](#)  
    displays Composite Index and RSI, [146](#), [146f](#)

88-minute bar chart of September S&P 500 futures contract 1998, [148](#), [148f](#), [149](#)  
exact price objective drawn, [149](#), [150f](#), [151](#)  
Fibonacci retracements, [139](#), [140f](#)  
geometric targets, [204](#)  
monthly and daily Gold charts, [158](#), [158f](#)  
monthly and weekly Gold futures market, [155](#), [155f](#), [157](#)  
oil market captured on March 19, 2008, [164](#)–165, [166f](#)  
price projections, [150](#), [151f](#)  
September S&P 500 contract, [152](#), [152f](#), [153](#)  
240-minute intraday view of Gold futures, [143](#), [143f](#), [145](#), [146f](#), [148](#)  
weekly chart of T-Bond futures market, [138](#)–139, [138f](#)  
Fibonacci ratios, [142](#), [217](#)  
    calculate, [16](#)  
Fibonacci relationship 1.618 relative to first wave, [277](#)  
Fibonacci retracements, [15](#), [321](#)  
    DJIA produced minor advance, [299](#)  
    higher probability targets, [139](#), [140f](#)  
    levels, [272](#)  
    price spike calculating, [333](#)  
Fibonacci swing  
    calculate, [148](#), [309](#)  
    projections, [148](#)  
Fibonacci time cycle, [34](#), [35](#)  
Fidelity China Region, [390](#), [391f](#)  
Financial markets  
    Bethlehem Steel covers period of 15 years, [23](#)  
    daily chart for US Treasury 30-Year Yields, [21](#)  
    range rules, [21](#)  
    weekly chart for stock Novell, [21](#)  
Five-wave advance, [270](#)  
    labels, [274](#)  
    weekly NASDAQ chart, [267](#)  
Five-wave pattern, [270](#)

- decline projecting Fibonacci swings, [307](#)
- Elliott wave pattern, [105](#)
- Elliott Wave Principle, [263](#), [273](#)
- failure, [12](#)
- subdivided using oscillators with Elliott wave principle, [271](#), [273](#)
- tracking patterns, [342](#)
- using oscillators with Elliott wave principle, [266](#), [266f](#), [269](#), [269f](#), [271](#)–[275](#), [295](#), [337](#), [338](#), [338f](#)
- weekly Gold chart and 60-minute data, [304](#)
- Five-wave rally
  - using oscillators with Elliott wave principle, [285](#), [285f](#)
- Fixed period cycles, [29](#), [40](#), [41](#), [54](#), [55](#), [215](#)
- Flat corrective pattern, [297](#)
- Flat forming letter N, [296](#)
- Flat pattern, [292](#)
- Fourth wave
  - triangle interpretation, [334](#)
  - using oscillators with Elliott wave principle, [334](#), [334f](#)
- Freefall, [164](#)
- Gann, William Delbert, [41](#), [53](#), [57](#), [58](#)
- Gann analysis, [100](#), [375](#)
  - calculating price and time objectives, [211](#)–[246](#), [238](#)–[242](#)
  - confluence targets, [57](#)
  - create Gann wheel in Excel, [238](#)–[242](#)
  - daily chart of corn futures, [224](#), [224f](#)
  - diagonal axis fan lines and Gann squares, [230](#)–[238](#)
  - diagonal axis planetary lines, [228](#)–[230](#)
  - Fibonacci confluence target zone overlapped, [178](#)
  - harmonic ratios, [216](#)–[219](#)
  - horizontal axis and Gann wheel, [238](#)–[242](#)
  - identifying exiting or entering market, [212](#)
  - monthly Nikkei data displayed with four Gann Squares, [233](#), [234f](#), [235](#)
  - NASA image time cycle explanation, [226](#), [226f](#)

- next bear market, [56](#)
- Square of Nine, [239](#), [239f](#), [240](#)
- time cycles examples of Gann's analysis on vertical axis, [219](#)–227
- two gray areas helping eye stay within white Gann Fan area, [237](#), [238f](#)
- two-week chart of corn prices, [225](#), [225f](#)
- Wheat charts, [213](#), [213f](#), [214f](#), [220f](#), [215](#), [224f](#)
- x and y axes affecting how box looks, [231f](#), [232](#)
- Gann boxes, [236](#)
- Gann charting program, [221](#)
- Gann confluence target zone, [102](#), [178](#), [261](#)
- Gann contracts, [164](#)
- Gann cycle, [43](#)
- Gann Fan lines, [222](#), [233](#), [235](#)
  - relationship between, [232](#)
- Gann objective, [302](#)
  - US market in serious trouble, [303](#), [304](#)
- Gann Square, [236](#)
- Gann time targets, [312](#)
  - confirmation, [305](#)
  - and five-wave pattern, [269](#)
  - and price, [286](#)
  - real-time scenario, [269](#)
- Gann Wheel, [235](#), [237](#)
  - create in Excel, [242](#)–246
  - Lambert-Gann Publishing Company, [242](#)
- Georgia State University, [217](#)
- German DAX Index
  - programs triggered, [5](#)
  - trend lines, [96](#), [96f](#)
- Global financial complex, [125](#)
- Global indexes, [3](#)
- Golden Section, [16](#)
- Grand SuperCycle fifth wave, [350](#)
- Graphic puzzles



Elliott wave corrective wave patterns, [289](#)  
using oscillators with Elliott wave principle, [288](#), [289f](#)  
Great American Depression, [48](#)  
Great Cycle, [55](#)  
Growth and decay cycle, [29](#), [32](#)

Half cycle length, [70](#)  
Hang Seng Equity Index, [10](#)  
Harmonic ratios, [216](#)–219  
Hidden signal, [186](#)  
High-Low-Close (HLC) bar chart, [260](#)  
High-probability pivot, [36](#)  
Histograms, [113](#)  
vertical lines, [411](#)  
Historic momentum extreme low, [205](#)  
Horizontal cross-sections, [236](#)  
Horizontal level, [199](#)  
Horizontal price axis, [103](#)  
Horizontal trend lines, [113](#), [406](#)  
oscillators, [92](#), [95](#)  
using oscillators with Elliott wave principle, [315](#), [316f](#)  
Zigzag, [315](#)  
*How to Make Profits Trading in Commodities* (Dewey), [52](#), [54](#)

Impulsive waves  
using oscillators with Elliott wave principle, [260](#)–287  
waves 1, 3 and 5, [265](#)  
Independent cycles, [30](#)  
Indicators  
inherent weakness, [256](#)  
pattern develops, [277](#)  
pop, [277](#)  
response to market movement, [116](#)

RSI, [6](#)  
set periodicity (stochastics), [75](#)  
Stochastics, [59](#), [421](#)  
use closing price to calculate, [112](#)  
Intersection of two trend lines, [88](#), [89](#), [89f](#)  
Irregular Flat, [301](#)

John Gann's methods, [41](#)  
Jones, Paul Tudor, [374](#)

Keller, David, [55](#), [163](#), [212](#), [377](#)  
Kodak area of research, [404](#)

Lane, George, [63](#), [68](#), [161](#), [273](#), [370](#)  
Lavoie, Alpee, [219](#)  
*Liber Abaci*, [33](#)  
Linear perspective of two-dimensional charting, [405](#)–412  
Longer time horizon, [284](#)  
Long-period moving average, [129](#)  
Long-term analysis, [346](#)–358  
Long-term pattern, [259](#)  
Long-time horizon charts, [125](#)

MACD, [75](#), [77](#)  
choosing and adjusting period setup for oscillators, [76](#), [76f](#)  
need studies as illustrated, [76](#)  
Stochastics, [109](#)  
Manning Stoller Bands to Plot on RSI in TradeStation, [433](#)  
Manning Stoller's STARC Volatility Bands for TradeStation, [433](#)  
Market  
coiling and third wave position, [277](#)  
and compressed x axis, [265](#), [266](#)

- failure and key reversal, [89](#)
- forecasts and accuracy, [258](#)
- overbought or oversold, [359](#)
- trend and timing, [86](#)

Market Technicians Association, [40](#)

Market Trader Gold, [219](#)

*Mathematical Formula for Market Predictions: Master Mathematical Price, Time, and Trend Calculator* (Gann), [55](#)

Median plane, [405](#)

MENSA International, [288](#)

Microsoft Excel, [168](#)–171

Modified Stochastics Club, [70](#)

Monthly charts

- Cash S&P 500 time horizons, [377](#)–379, [378f](#)

- Composite Index, [383](#), [384f](#), [385f](#)

- Fibonacci projections for higher probability targets, [155](#), [155f](#), [157](#), [158f](#)

- German DAX Index, [383](#), [384f](#)

- Gold futures market, [155](#), [155f](#), [157](#), [158f](#), [199](#), [199f](#), [200](#)–201

- Nikkei data displayed with four Gann Squares, [233](#), [234f](#), [235](#)

- price objectives derived from reversals in RSI, [198](#), [198f](#), [202f](#), [203](#)

- S&P 500 Index, [198](#), [198f](#)

- S&P sector beverages, [20](#), [20f](#)

Moving averages

- crossing over one another, [119](#)

- dynamic in real-time conditions, [117](#)

- frequently absent in real-time charts, [107](#)–131

- oscillator pattern, [276](#)

- oscillators, [117](#), [123](#)

- signals from, [107](#)–131

- Stochastics, [119](#), [121](#), [431](#)–434

M pattern, [119](#), [364](#)

- oscillator, [126](#)

- RSI, [15](#)

Multiple Fibonacci cycles, [36](#)

Multiple retracement levels, [155](#)  
Multi-year contracting triangle, [244](#)  
Murphy, John, [370](#)

NASA image time cycle explanation, [226](#), [226f](#)  
Negative reversal

- calculating estimated market decline, [190](#)
- Composite Index, [276](#)
- price objectives derived, [190](#)–191, [191f](#)
- signal, [277](#)
- signals and price targets, [191](#), [192f](#)

*New Concepts in Technical Trading Systems* (Wilder), [360](#)

Nikkei chart, [232](#), [237](#)

Nikkei 225 Index, [30f](#), [31f](#), [35f](#), [37f](#), [38f](#), [39f](#)

Nine squares, [80](#), [80f](#), [81f](#)

9-year cycle in new Presbyterian church members, [52](#)

Numerous symmetrical cycle bottoms, [39](#)

NYSE crash, [48](#)

October crash of 1987, [204](#)

Oil market captured on March 19, 2008, [164](#)–165, [165f](#)

Omega TradeStation, [117](#)

- software optimize period, [66](#), [66f](#)

One harmonic, [228](#)

One point perspective, [406](#)

- principles of depth perspective, [406](#), [407f](#)

120-minute chart of Dow Jones, [82](#), [82f](#), [84f](#), [86f](#)

Orthogonal line of convergence, [412](#)

Oscillating sine waves, [218](#)

Oscillations do not travel between 0 and 100, [3](#)–26

- Bethlehem Steels covers 15 years, [23f](#)

- charts Hang Seng Equity Index, [10](#), [10f](#)

- daily chart for US Treasury 30-Year Yields, [21](#), [22f](#)

monthly bar chart creation, [20](#)–[21](#), [21f](#)  
monthly chart for S&P sector beverages, [20](#), [20f](#)  
RSI with daily bar chart of Yen futures, [6](#), [7f](#)  
weekly chart for Caterpillar, [19](#), [19f](#)  
weekly chart for stock Novell, [21](#), [22f](#)  
weekly DMK/\$ chart covers five-year time interval, [13](#), [13f](#)  
weekly Dow Jones Industrial Average chart, [9](#), [9f](#)  
weekly Du Pont stock, [24](#), [25f](#)  
Yen futures market but over weekly time horizon, [7](#), [8f](#)

Oscillator. *See also* Using oscillators with Elliott Wave Principle

advances or declines, [94](#)  
bull market, [10](#)  
characteristic swing action, [69](#)  
creates new high or low, [278](#)  
extreme, [181](#)  
extreme low, [17](#)  
high under resistance zone, [17](#)  
horizontal trend line, [95](#)  
horizontal trend lines, [92](#)  
low, [95](#)  
lows, [120](#)  
monthly bar chart created for Electric Companies, [20](#)  
monthly chart for S&P sector Beverages, [20](#)  
M pattern, [126](#)  
pattern for moving averages, [272](#)  
peak, [18](#), [112](#)  
pivot levels, [14](#)  
pivot low, [126](#)  
price data, [90](#)  
relative to moving average, [123](#)  
RSI, [6](#)  
Stochastics, [120](#)  
support zone, [17](#)  
three lows and RSI indicator, [345](#)

- trapped, [15](#)
- warning, [19](#)
- weekly chart for Caterpillar, [19](#)
- Oscillators choosing and adjusting setup period, [59](#)–78
  - add Stochastics study to chart, [65](#), [65f](#)
  - comparison between 88-minute and 60-minute bar chart, [70](#), [71f](#)
  - December 2011 T-Bond futures, [69](#), [69f](#)
  - 11-period RSI calculated from September S&P 500 futures market, [72](#), [72f](#)
  - need two MACD studies as illustrated, [76](#), [76f](#)
  - Omega TradeStation software optimize period, [66](#), [66f](#)
  - RSI plotted with multiple periods, [78](#), [78f](#)
  - Stochastics study using 36 period for %D, [67](#), [67f](#)
  - two-minute chart of September S&P on June 12, 1998, [60](#), [60f](#)
  - weekly DMK/\$ chart, [63](#), [64f](#)
  - Yen/\$ applying, [73](#)–74, [74f](#)

## Period

- finding right to use, [63](#)
- weekly Du Pont stock, [24](#)
- Pich, Peter, [221](#)
- Pig-iron market panics 1800–1991, [42f](#)
- Pivot levels, [269](#)
  - oscillator, [14](#)
- Pivot low, [126](#)
- Pivot points, [137](#)
- Planetary lines (Gann), [230](#)
- Point-and-Figure charts, [61](#), [264](#), [325](#)
- Positive and negative reversals, [187](#)
  - estimate price projections, [187](#)
  - RSI patterns, [196](#)
- Prechter, Robert, [254](#), [274](#), [304](#), [370](#)
- Precision ratio compass (PRC), [16](#)
- Presbyterian Church in America 1826–1948 growth, [52f](#)

Previous fourth wave, [268](#)

Price and Oscillator windows, [100](#)

Price data and three-wave interpretation, [322](#)

Price meltdown, [382](#)

Price objectives

- conventions of bullish and bearish divergences, [186](#), [186f](#), [187](#)

- daily market report, [205f](#), [206f](#), [207f](#), [208f](#)

- derived from positive and negative reversals in RSI, [185](#)–208

- method of calculating, [143](#)

- monthly chart of S&P 500 Index, [198](#), [198f](#)

- monthly Gold chart captured on August 2, 2011, [201](#), [202f](#), [203](#)–204

- negative reversal, [190](#), [191](#), [191f](#)

- negative reversal signals, [191](#), [192](#)

- oscillator pivots, [188](#), [188f](#)

- positive reversal signal, [189](#), [190f](#), [200](#), [201f](#)

- segment of weekly S&P market developed, [200](#), [201f](#)

- weekly chart of S&P 500 futures market, [197](#), [197f](#)

Price pivots, [319](#)

Price projections

- displays data and RSI in Excel chart, [178](#), [178f](#)

- displays window that opens after last step, [173](#), [173f](#), [174](#)

- Excel, [175](#)–180

- Excel Step 1 of 3, [175](#), [175f](#)

- extreme environments, [183](#)

- Fibonacci projections for higher probability targets, [150](#), [151f](#)

- method, [12](#), [113](#)

- positive and negative reversals, [187](#)

- reverse-engineer indicator to project market move, [179](#), [180](#), [180f](#)

- reverse-engineering indicators, [167](#)

- saving file immediately as Excel file, [176](#), [177f](#)

- Stochastics, [331](#)

- TradeStation chart of daily Yen/\$ with RSI, [171](#)–174, [171f](#)

- weekly Yen/\$ chart displayed, [181](#), [181f](#)

Price spike calculating, [333](#)



Price swing proportions, [137](#)  
Price target zones, [57](#)  
Principles of depth perspective applied to two-dimensional charting, [403](#)–  
428  
Project Fibonacci expansions, [164](#)  
Projecting Fibonacci swings, [307](#)  
Projection for 2012 year ahead forecast, [243](#), [244f](#)  
Proportional divider, [16](#)  
Proportional ratios, [216](#)

*Quadrivium*, [216](#)  
Quote vendors, [193](#)

Range spread of 364, [230](#)

Real estate activity  
    economic downturn, [43](#)  
    USA 1795–1939, [42f](#)

Real-time charts  
    conditions and moving averages on oscillators, [117](#)  
    DJIA, [261](#)  
    DJIA in 15-minute chart, [297](#), [298f](#), [299](#)  
    extending pattern, [315](#)  
    Gann time projections and five-wave pattern, [268](#)  
    scenario, [260](#)  
    signals from moving averages, [107](#)–131  
    using oscillators with Elliott wave principle, [297](#), [297f](#), [298](#)

Relative Strength Index (RSI)  
    above bear market resistance line, [18](#)  
    adjusting traditional Fibonacci projections for higher probability targets, [145](#), [145f](#)  
    amplitude, [311](#)  
    bearish divergence pattern, [14](#)  
    bull and bear market, [8](#)

bullish signal, [124](#)  
bull market, [7](#)  
and Composite Index divergence between, [294](#)  
daily bar chart of Yen futures, [6](#), [7f](#)  
Derivative Oscillator, [371](#)  
divergence warning, [4](#)  
Double Threes and Triple Threes, [345](#)–346  
estimate price projections, [187](#)  
Excel chart, [178](#), [178f](#)  
form M pattern, [15](#)  
14-period, [3](#), [122](#), [128](#)  
frame, [371](#)  
identifying trends, [146](#)  
indicating correction in bull market, [129](#)  
indicator, [6](#), [345](#)–346  
indicator pattern, [196](#)  
interpreting, [94](#)  
near extreme high or low, [361](#)  
negative reversal signal, [310](#)  
oscillations do not travel between 0 and 100, [6](#), [7f](#)  
oscillator, [6](#)  
oscillator character, [68](#)  
oscillator decline, [12](#)  
pivot, [14](#), [191](#)  
pivot lows, [199](#)  
range rules, [9](#), [147](#)  
scale used, [91](#)  
signals, [164](#), [165f](#), [185](#), [421](#)  
standard default period, [6](#)  
and Stochastics, [68](#)  
target, [191](#)  
three oscillator lows, [345](#)  
Trend, [318](#), [420](#), [421](#)  
trend line extends, [315](#)

Trend oscillator coincides with wave 2 up, [320](#)  
two Moving Averages in TradeStation, [432](#)  
upper band, [362](#)  
Resistance zone and Composite Index, [380](#)  
Retinal disparity, [417](#)  
Retrograde motion, [226](#), [227](#)  
Reversal signals, [187](#), [195](#), [278](#)  
Reverse-engineering  
    indicator to project market move, [179](#), [180](#), [180f](#)  
    methods, [330](#)  
Rhythmic fluctuations cycle, [28](#)  
Rhythmic undulations cycle, [29](#)  
Rising diagonal triangle pattern, [338](#)  
Rising wedge (Diagonal triangle), [336](#)  
Risk management, [103](#)  
Risk-to-reward ratio, [258](#)

Second wave down, [12](#)  
Sell signals when Composite Index and RSI diverge, [256](#), [256f](#), [268](#)  
Services, [437](#)  
Shanghai Composite  
    Commodity Systems Inc. (CSI), [393](#)  
    Composite Index, [392f](#), [393](#)  
    Templeton Dragon Fund, Fidelity China Region, and Templeton China World, [390](#)  
    with time analysis study, [58f](#)  
Short-horizon  
    building blocks for bigger picture, [284](#)  
    choppy wave b, [311](#)  
    global financial complex, [125](#)  
    shows DJIA on August 5, 1998, [313](#), [314](#)  
    time, [259](#)  
Short intraday charts, [390](#)

Signals from moving averages are frequently absent in real-time charts, [107](#)–[131](#)

daily chart for London's Gilt Bond futures market, [127](#), [127f](#), [128](#)

signals discussed for RSI, [122](#)–[123](#), [122f](#)

trend lines, [127](#)–[128](#), [128f](#)

weekly German Deutsche Mark per US Dollar charted, [117](#), [118f](#), [119](#)

Simple moving averages, [112](#)

Size constancy, [417](#)

Slater, Tim, [370](#)

Small triangle, [336](#)

S&P 500 Index, [70](#), [71f](#), [72](#), [263](#), [263f](#)

contract, [151](#), [151f](#), [152](#)

formulas, [245](#)–[246](#)

futures, [86](#), [87](#), [87f](#), [337](#), [338](#), [338f](#)

futures market, [261](#)

88-minute bar chart, [70](#)–[72](#), [148](#), [148f](#), [149](#)

monthly and weekly time horizons, [377](#)–[379](#), [378f](#)

three-minute bar chart, [109](#), [109f](#), [110f](#), [111](#)–[113](#)

weekly and daily chart, [387](#)–[390](#), [389f](#)

Springboard diver analogy (Expanded Flat), [296](#)

S&P Sectors (19) contribute underlying weighted value, [347](#), [348f](#)

Square of Nine

Gann analysis, [239](#), [239f](#), [240](#)

Gann Wheel, [240](#), [242](#)

Squaring price, [226](#)

Standard default period, [6](#)

STARC Bands, [359](#)

weekly chart for German Government Bond futures, [360](#), [361](#)

Stochastics, [330](#)

above both moving averages, [121](#)

add two moving averages, [431](#)–[434](#)

applied to two-dimensional charting, [407](#), [408](#), [408f](#), [419](#), [423f](#)

averages plotted under price data, [419](#), [423f](#)

choosing and adjusting period setup for oscillators, [65](#), [65f](#)

Fibonacci grids, [333](#)  
histogram, [421](#), [425f](#)  
indicator, [59](#), [421](#)  
MACD, [109](#)  
moving averages crossing over one another, [119](#)  
oscillator, [68](#)  
oscillator lows, [120](#)  
pop correctly warned market weakness, [333](#), [334f](#)  
price projection, [331](#)  
principles of depth perspective, [407](#), [408](#), [408f](#), [419](#), [419f](#), [421](#), [421f](#)  
signal, [331](#)–[332](#), [407](#), [408](#), [408f](#)  
within trending market, [330](#)  
trending market in time horizon, [331](#)  
using oscillators with Elliott wave principle, [333](#), [334f](#)  
Stochastics Default Club, [61](#), [62](#), [324](#)  
Stock pivot, [241](#)  
Stoller, Manning, [358](#), [360](#), [370](#), [371](#), [376](#)  
Stoller True Average Range Convergence Bands, [359](#)–[361](#)  
Support trending line, [85](#)  
Symmetrical fixed-period cycle, [34](#)

Tarassov, Sergey, [219](#)  
Target zone, [286](#)  
Templeton China World, [390](#), [391f](#)  
Templeton Dragon Fund, [390](#), [391f](#)  
Termination pattern (Diagonal Triangle), [345](#)  
Theory of bigger picture, [53](#). *See also* Bigger picture  
Third-of-third wave, [274](#)  
Third vanishing point, [409](#)  
Third wave position  
    market coiling, [277](#)  
Three-point perspective, [406](#), [410](#), [411f](#)  
Three-wave  
    advance Zigzag pattern, [314](#)

- corrective move, [62](#)
- decline using oscillators with Elliott wave principle, [305](#), [306f](#), [307–308](#), [336](#)
- interpretation price data, [322](#)
- swing, [340](#)
- Zigzag pattern, [305](#), [307–308](#), [331](#)
- Thrust out of triangle, [338](#)
- Thumbnail method and Bond chart, [356](#)
- Tick charts, [61](#), [264](#)
- Ticker and Investment Digest*, [212](#)
- Time cycles, [224](#)
  - examples of Gann's analysis, [219–227](#)
- Time horizon, [270](#)
- Time-sequenced event, [260](#)
- Timing signal
  - daily chart, [89](#)
  - market trend, [86](#)
- Tracking patterns
  - daily S&P 500 futures, [343](#), [344](#)
  - five-wave pattern, [343](#)
- TradeStation
  - actual market move, [178](#), [179f](#)
  - chart of daily Yen/\$ with RSI, [171–174](#), [171f](#)
  - formula used on prices, [359](#)
  - indicator requires two functions to create formula, [377](#)
  - projections by reverse-engineering indicators, [171–174](#), [171f](#), [178](#), [179f](#)
  - useful formulas, [431–434](#)
- Trading cycles. *See also* Dominant trading cycles are not time symmetrical ahead of market's structure, [321](#)
  - signal, [40](#), [193](#)
- Treasury Bond
  - futures, [69](#), [69f](#)
  - monthly, daily and 240-minute time horizons, [387](#), [388f](#)
- Treasury Note 10 year market band formula applied, [366–367](#), [367f](#)

Trending market

Stochastics, [331](#)

time horizon, [332](#)

Trend lines, [82](#). *See also* Dominant trend lines not always from extreme price highs or lows

change, [11](#)

Composite Index, [131](#)

identifying and using RSI range rules, [147](#)

intersection of two, [88](#), [89](#), [89f](#)

length of longest bar, [379](#)

marks reason prices have stalled at current levels, [99](#), [99f](#), [100](#)

RSI negative reversal signal, [315](#)

signals from moving averages are frequently absent in real-time charts, [127](#)–[128](#), [128f](#)

tested by market, [87](#)

Trend reversals, [36](#), [369](#)

using RSI indicator, [13](#)

weekly DMK/\$ chart covers five-year interval, [13](#)

Triangle pattern, [286](#), [339](#)

converging trend lines, [339](#)

five swings develop within, [338](#)

interpretation fourth wave, [340](#)

wave x position, [324](#)

Truncated, [344](#)

*Truth of Stock Tape* (Gann), [57](#)

Tullis, Eli, [374](#)

*Tunnel Through the Air* (Gann), [58](#)

Two-point perspective, [406](#)

Two-week chart of corn prices, [225](#), [225f](#)

240-minute December 2–11 Composite Index, [383](#), [385f](#)

240-minute intraday view of Gold futures, [143](#), [143f](#), [145](#), [145f](#), [149](#)

Using oscillators with Elliott Wave Principle, [247](#)–[253](#), [305f](#)

actual bullish diagonal triangle pattern, [341](#), [342](#)



add oscillator to corrective Flat patterns, [293](#), [294f](#), [294](#), [296](#)  
Aerodynamic Investments Inc., [249f](#)  
Bond chart, [353f](#), [352](#)  
Composite Index challenged horizontal trend line, [316](#), [316f](#)  
contracting triangle in short-horizon DMK/\$ chart, [336](#), [336f](#)  
corrective waves, [287](#)–346  
daily S&P 500 futures, [343](#), [343f](#), [344](#)  
decline from high, rotated segment of data 180 degrees, [278](#), [279](#), [279f](#), [299](#)  
decline relative to completed five-wave rally, [285](#), [285f](#)  
DJIA market action for August 7, 1998, [323](#), [325f](#), [336](#)  
DJIA produced minor advance, [299](#), [300f](#)  
DJIA quarterly, [358f](#)  
Double Threes, [345](#)–346, [346f](#)  
extending five-wave decline, [299](#), [300f](#)  
family of corrective patterns Flats, [292](#), [292f](#), [293](#), [294](#)  
five-wave pattern, [270](#), [271f](#), [342](#)–344, [343f](#)  
five-wave pattern labeled, [273f](#), [274](#), [275](#)–280, [299](#)–300  
five-wave pattern subdivided, [271f](#), [272](#)–273  
five-wave rally fits into bigger picture, [283f](#), [284](#)  
four graphic puzzles, [288](#), [289f](#)  
fourth wave, [339](#), [340](#)  
impulsive waves, [260](#)–287  
indicated coiling pattern, [243](#)–244, [245](#), [245f](#)  
long-term analysis, [346](#)–354  
markets with compressed x axis, [266](#), [266f](#)  
240-minute chart for September S&P futures, [328](#), [329f](#)  
objections and misunderstandings, [247](#)–250  
projection for 2012 year ahead forecast, [243](#), [244f](#)  
real-time tracking of DIJA in 15-minute chart, [297](#), [298](#), [298f](#)  
sell signals when Composite Index and RSI diverge, [256](#), [256f](#), [268](#)  
shows DIJA on August 5, 1998, [313](#), [313f](#), [314](#)  
19 S&P Sectors contribute underlying weighted value, [347](#), [348f](#)  
Stochastics pop correctly warned market weakness, [334](#), [334f](#)

three-wave decline, [306](#), [306f](#), [307–308](#), [337](#)  
Triple Threes, [345–346](#), [346f](#)  
US market in serious trouble, [308–309](#), [310f](#)  
wave interpretations, [349](#), [350f–351f](#)  
weekly Gold chart and 60-minute data, [304](#), [305f](#)  
weekly NASDAQ chart, [267](#), [267f](#), [269](#), [294](#)  
Zigzag and Double Zigzags, [303](#), [303f](#)

Vanishing point, [406](#), [407](#)  
    converging line, [409](#)  
Vertical cross-sections, [240](#)  
Vertical lines and histograms, [411](#)  
Vertical timeline, [34](#)  
Vibrating strings, [218](#)  
Visual angle, [416–423](#)  
Visual problem fix, [421–422](#), [426f](#)  
Volatility band formulas, [362](#)  
Volatility bands on oscillators, [357–367](#)  
    Bollinger Bands, [365](#), [366f](#)  
    formula creates band displacement, [362f](#), [363](#)  
    lower band, [363](#), [363f](#)  
    strong signal double bottom RSI formed, [364](#), [365f](#)  
    upper band tweaked, [363f](#), [364](#)  
    weekly chart for German Government Bond futures, [360–364](#), [361f](#)  
    10-Year Treasury Note market band formula applied, [366–367](#), [367f](#)  
Volatility bands with indicators, [359](#)  
Volatility changes, [3](#)

Wars, [53](#)  
    financial collapse, [50](#)  
    political instability, [50](#)  
Wave 1, 3 and 5  
    impulsive waves, [265](#)

Wave 2, [264](#), [270](#), [280](#)

up coincides with RSI Trend oscillator, [320](#)

Wave 3, [264](#), [270](#), [276](#)

buy signal, [276](#)

down, [281](#)

Wave 4, [265](#), [268](#), [270](#), [277](#), [281](#)

up, [280](#)

Wave 5, [275](#)

price projection purposes, [280](#)

Wave a

Expanded Flat, [297](#)

Waves a-b-c-d-e, [337](#)

Wave 2 and 4

corrective phases of five-wave cycle, [265](#)

Wave b

choppy price pattern, [303](#)

producing buy signals, [297](#)

short-horizon, [311](#)

Wave deaf, [250](#)

Wave handicapped, [252](#)

Wave interpretations

construct, [255](#)

using oscillators with Elliott wave principle, [349](#), [350](#)–351f, [351](#)–352f

Wave Principle. *See also* Elliott Wave Principle (EWP)

technical indicators one uses, [255](#)

three rules, [264](#)

Wave structure

subdivide, [274](#)

within wave 3 down, [281](#)

Wave v of 5, [280](#)

Wave x, [304](#), [318](#)

triangle, [324](#)

W bottom, [62](#)

Weekly chart

Cash S&P 500 time horizons, [377](#)–[379](#), [378f](#)  
Cash S&P 500 with Composite Index, [387](#)–[390](#), [389f](#)  
Caterpillar, [19](#), [19f](#)  
Composite Index, [383](#), [385f](#)  
Crude Oil futures, [139](#), [140f](#)  
DMK/\$, [63](#), [64f](#)  
DMK/\$ chart covers five-year time interval, [13](#)  
Dow Jones Industrial Average, [9](#), [9f](#)  
Du Pont stock, [24](#), [25f](#)  
Fibonacci projections for higher probability targets, [137](#)–[138](#), [138f](#), [139](#),  
[141f](#), [163](#), [162f](#)  
five-wave advance, [262](#)  
five-wave pattern, [299](#)  
German DAX Index, [383](#), [384f](#)  
German Deutsche Mark per US Dollar charted, [117](#), [118f](#), [119](#)  
German Government Bond futures, [360](#)–[364](#), [361f](#)  
Gold futures market, [155](#), [155f](#), [157](#), [299](#), [300f](#)  
Nasdaq, [267](#), [267f](#), [269](#), [295](#)  
oscillations do not travel between 0 and 100, [13f](#)  
price objectives derived from reversals in RSI, [197](#), [197f](#)  
RSI, [9](#)  
S&P 500 futures market, [197](#), [197f](#)  
S&P market developed positive reversal signal, [200](#), [201f](#)  
STARC Bands, [360](#), [361](#)  
stock Novell financial markets, [21](#), [22f](#)  
T-Bond futures market, [138](#), [138f](#)  
volatility bands on oscillators, [360](#)–[364](#), [361f](#)  
Yen/\$ chart displayed, [181](#), [181f](#)  
Wheat charts, [213](#), [213f](#), [214f](#), [220f](#), [215](#), [224f](#)  
Wilder, J. Welles, [195](#), [370](#)  
Wilder, Welles, Jr., [360](#)  
Wilder 14-period RSI, [201](#)  
W pattern, [364](#)  
Wyckoff, Richard D., [212](#)

X wave, [304](#), [318](#), [324](#)

XYZ Trend, [422](#)

Yen/\$ applying oscillators, [73](#)–74, [74](#)f

Yen futures market but over weekly time horizon

bull market, [7](#)

oscillations do not travel between 0 and 100, [7](#), [8](#)f

Zigzag pattern, [301](#), [304](#)

Composite Index challenged horizontal trend, [316](#)

correction, [326](#)

corrective pattern, [316](#)

DIJA market action for August 7, 1998, [323](#)

internals, [303](#)

rally, [337](#)

three-wave advance, [314](#)

three-wave decline, [305](#), [307](#)–308

using oscillators with Elliott wave principle, [303](#), [303](#)f

\*The DMK/\$ charts were not removed in the second edition discussions because I believe the Euro will cease to exist and the DMK/\$ will return.