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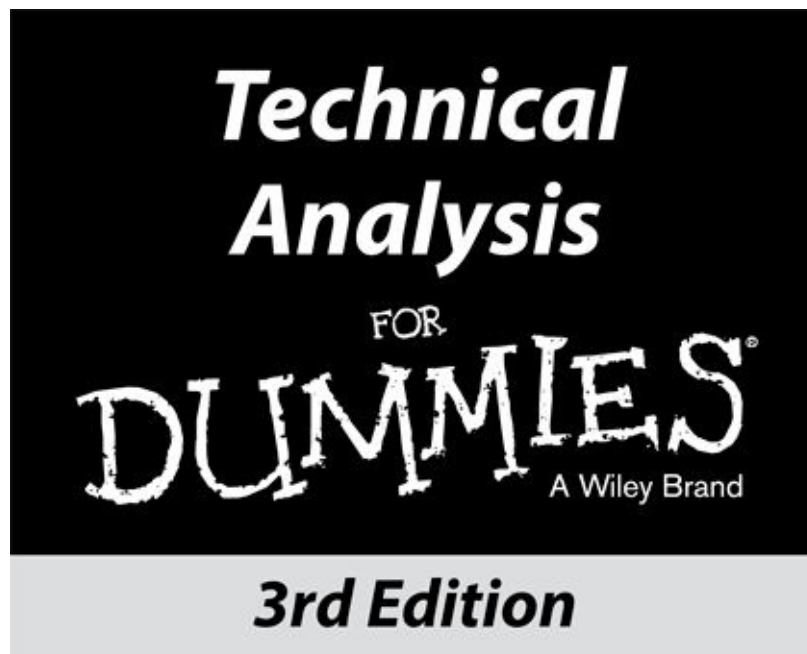
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- Grasp and apply the basic principles of technical analysis

- Improve your profits

- Use data to decide when to buy or sell individual securities

- Join the smart money crowd that knows when to hold, and when to fold

Barbara Rockefeller
Expert on technical analysis

Technical Analysis

FOR

DUMMIES®

A Wiley Brand

3rd Edition

by Barbara Rockefeller

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Technical Analysis For Dummies®, 3rd Edition

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Introduction

Timing is everything.

Timing is critical in cooking, romance, music, politics, farming, and a hundred other aspects of life on this planet. Putting money into a securities market is no different — you need good timing to get the best results.

Technical traders all over the world, amateur and professional alike, earn a living using technical analysis to time their trades in many different markets. They not only earn a living, but are also still standing after a market crash. In this book, I try to explain how they do that and how you can do it, too.

About This Book

The technical analysis industry is positively blooming. Go to an Internet search engine and type in **technical analysis,** and you get 206 million responses, more than four times the number only two years ago. The phrase **support and resistance** results in over 74 million hits, five times the hits from only two years ago. Okay, everyone knows the limitations of Web searches, but even after weeding out the mismatches, that's still a huge amount of material. Don't be intimidated. In this book, I include core concepts, some of which you can apply *today* with no further research.

I want you to grasp the mindset of the technical trader or investor: To think independently, to take responsibility for actions, and most of all, to act on observation rather than conventional wisdom. Try to leave your preconceptions about trading and investing behind. For example, a core technical concept is that the technical trader cuts losses and lets the winning trades run. Chances are you think that, after taking a loss, you should continue to hold the security, because if it's a true value investment, it'll come back.

Technical analysts simply do not use "value" as part of their toolkit. Try to think like a ten-year-old as you read this book. In fact, go find a ten-year-old, if you have one handy, and ask him, "Which is better to hang on to: a thing that has already let you down (losses) or a different thing that's delivering

exactly what you wanted (profits)?” See? Technical analysis is subversive.

Beating the system is fun and rewarding. The market doesn't know you, your age, gender, ethnicity, good looks or lack of them, singing talent, or anything else about you except whether you're a successful trader. The market is blind. In fact, the market is indifferent. It's the one place you can go to be judged solely on your merits. Use this book to help you find your way.

The good news is that *For Dummies* books are designed so that you can jump in anywhere and get the information you need. Don't feel that you have to read every chapter — or even the entire chapter. Take advantage of the table of contents and index to find what you're looking for, and check it out. Here are a few tidbits that may answer some questions before you jump in:

✔ The point of technical analysis is to help you observe prices in a new way and to make trading decisions based on reasonable expectations about where “the market” is going to take the price.

✔ Before you plunge into risking hard-earned cash on securities trading, you have to realize that it's not the security that counts; it's the trade. Each trade has two parts — the price analysis and you. Price analysis tools are called indicators, and you have to select the indicators that match your personality and preference for risk. But most people don't know their risk preference when they start out in securities trading (which changes over time, anyway), so you have a chicken-and-egg situation. By studying the kinds of profit and loss outcomes that each type of indicator delivers, you can figure out your risk preferences.

✔ The price bar and its placement on the chart deliver a ton of information about market sentiment. It doesn't take much practice to start reading the mind of the market by looking at bars and small patterns. The payoff is cold, hard cash, but you have to be patient, imaginative, and thoughtful.

✔ Math indicators are the workhorses of technical analysis. They help you identify whether your price is trending, the strength of the trend, and when the trend is at a reversal point. Applying these indicators carefully and consistently is the key to trading success. If you're mathematically competent, you can take a giant leap into system building, and remove most of the day-to-day judgmental decision making that trading involves.

Foolish Assumptions

Foolish Assumptions

Every author must make assumptions about her audience, and I've made a few assumptions that may apply to you:

- You've never put a dime into a security but you plan to; and when you do, you intend not to lose it.
- You're reasonably well versed in the trading game, but you're looking for new tools to become a more effective trader and improve your profits.
- You're tired of the buy-and-hold approach in which your returns seem unrelated to the supposed quality of the security you bought.
- You want to find out how to sell. You know how to buy, but timing your sales ties you up in knots.
- You've experienced some setbacks in the market, and you need an approach to make that money back.
- You want to know whether technical analysis has any basis in reason and logic — or whether all technical analysts are crackpots.

If any of these descriptions fits the bill, then you've picked up the right book.

Icons Used in This Book

Icons are small pictures in the margins of this book that flag certain material for you. The following icons highlight information you want to pay special attention to.

When you see this icon, you don't want to forget the accompanying info — pretty subtle, huh?

This icon clues you in on hands-on time-and hassle-saving advice that you can put into practice. In many cases, this icon tells you directly how to conduct a trade on a technical principle, usually an indicator crossing something, breaking something, or dancing a jig.

Ignore this information at your own financial peril. I use this icon to warn you about mistakes, missteps, and traps that can sink even the best trading professional.

This icon flags places where I get really technical about technical analysis. Although it's great info, you can skip it and not miss out on the subject at hand.

Beyond the Book

There is much more information available from your author, and from the Dummies brand, for your learning pleasure. Check out these resources to learn more about technical analysis:

- Find the *Dummies Cheat Sheet* for this book at www.dummies.com/cheatsheet/technicalanalysis . Here, you can find more information about candlesticks, secrets for beating the market, and price bar basics.

- *Dummies online articles* can be found at http://www.dummies.com/extras/technicalanalysis . These short articles give you even more insight into technical analysis.

- Numerous websites are worth visiting, including www.stockcharts.com , www.thepatternsite.com , and for foreign exchange, www.rts-forex.com .

Where to Go from Here

If you're new to technical analysis, take a close look at Parts I and II for the scoop on the field. If you are already a good chart reader, what you probably need is help on managing the trade (Chapter 5). Applying indicators is better than willy-nilly trading decisions, but to get The Traders' Edge, you also need the discipline of a winner. How do you become a winner? The same way you get to Carnegie Hall — practice, practice, practice, and hanging out with other winners. Figuring out how to trade technically is a journey of self-

discovery, corny as that sounds. Luckily, it's a journey with a lot of fellow travelers to keep you company. I hope you enjoy the road.

Part I
Defining Technical Analysis

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In this part…

- Learn how securities prices behave and how to exploit that information to make money while avoiding losses.

- Examine the art of identifying crowd behavior in order to join the crowd and take advantage of its momentum — without falling prey to the market's emotions.

- Check out sentiment indicators, also called "market indicators," that describe the overall environment in which your specific securities are being priced, and can be helpful to evaluate your securities in context and when markets are nontrending.

Chapter 1

Opening the Technical Analysis Toolbox

In This Chapter

▶ Defining technical analysis

▶ The straight scoop on buy-and-hold

▶ Defining trendedness

▶ Starting your technical analysis journey

T echnical analysis is the study of the price behavior of securities (and often the accompanying volume, too) in order to predict upcoming price moves. Focusing on price behavior gives you a window into the mind of the market — what the key players are thinking — and helps you make better trading decisions. Technical analysis seeks to identify and measure market sentiment, which at the most basic level means optimistic, pessimistic, or uncertain about future prices.

In this chapter, I take you on a quick tour of key technical concepts and review why technical analysis works. Even when your indicators let you down — and they will — when you adopt the technical analysis mindset, you start to manage the whole trade, from entry to exit. After all, your goal is to make money trading securities, and that entails knowing when to sell as well as when to buy; in other words, managing market risk. But technical analysis is not a crystal ball and does sometimes fail, so I also discuss why technical analysis sometimes gets a bum rap. To dismiss all of technical analysis because it's not 100 percent perfect is a bit like saying doctors do not always diagnose and treat ailments correctly and therefore we might as well avoid all medical care.

Introducing Technical Analysis

Technical analysis is the study of how securities prices behave and how to exploit that information to make money while avoiding losses. Your immediate goal is to forecast the price of the security over some future time horizon in order to buy and sell the security to make a cash profit. The emphasis in technical analysis is to make profits from trading, not to consider owning a security as some kind of savings vehicle. In buy-and-hold investing, you hardly ever sell, sometimes waiting until you have a catastrophic loss. In technical trading, when you sell is just as important as when you buy.

Who are you?

Both traders and investors use technical analysis. So what's the difference between a trader and an investor? Most people consider that a trader is someone who holds securities for only a short period of time, anywhere from a minute to a year. An investor is someone who holds securities from many months to forever. You may also think of an investor as someone who seeks income from dividends or bond coupon payments.

Actually, the dividing line between trader and investor isn't fixed, except for purposes of taxation. Be careful not to fall into the semantic trap of thinking that a trader is a wild-eyed speculator while an investor is a respectable guy in a pinstriped suit. I use the word *trader* in this book, but don't let it distract you. People who consider themselves *investors* use technical methods, too.

You can use technical methods over any investment horizon, including the long term. If you're an expert in Blue Widget stock, for example, you can add to your holdings when the price is relatively low, take some partial profit when the price is relatively high, and dump it all when it falls more than you can stomach, only to buy it back when it bottoms. Technical analysis has tools for identifying each of these situations. You can also use technical tools to rotate your capital among several securities, allocating more capital to the ones delivering the highest gains or the lowest risk. At the other end of the holding period spectrum, you can use technical analysis to spot a high-probability trade

and execute the purchase and sale in one hour.

Choosing a trading style

In general, trading styles are a function of the holding period, or how much time elapses between buying and selling the security.

- **Position traders** identify big-picture trends lasting weeks and months, and are willing to sit out retracements and sideways range-trading situations until they resolve back into a trend. Position traders hold securities for weeks, months, and years.

- **Swing traders** buy at relative lows and sell at relative highs, with "trend" defined as any move that indicators show is likely to persist for some additional time. Swing traders have a holding period of three to ten days, although analysts argue over the "right" holding period.

- **Day traders** are a sub-set of swing traders who prefer to get in and out in a single day, sometimes more than once. Day traders apply indicators to short-terms charts such as the 5-minute, 15-minute, and one-hour chart in order to identify micro-trends that may last only two or three hours. The micro-trend will often be a counter-trend to the big-picture trend on the daily chart.

- **Scalpers** have a holding period of seconds and minutes. Originally the term scalping referred to taking advantage of the bid-offer spread available by different parties or parties in different places, but with the advent of super-fast computer programs, scalping now includes algorithmic trading that automatically places rule-based buy and sell orders based on a few seconds' advantage in obtaining information or identifying a technical pattern.

Setting new rules

Get rid of the preconceived notion that because technical analysis entails an active trading style, or at least a more active style than buy-and-hold, you're about to embrace more risk. Exactly the opposite is true. Because you always know ahead of time where you will sell, you always know your gain or loss before you buy. So, for example, to conduct a one-hour trade is inherently less risky than buying and holding a security indefinitely without an exit plan. The existence of an exit plan is what defines and limits the risk. Where does

the exit plan come from? The indicators you choose — and you choose indicators based in part on how much gain and loss they are likely to entail in real-time trading.

The one-hour trade entails risk management, whereas holding a security without an end in mind on some concept of hypothetical "value" is to take 100 percent risk. That supposedly "valuable" security can quickly tank and go to zero. Think of Enron, WorldCom, Lehman Brothers, or Bear Stearns — all failed companies whose stock price went to zero, even though "experts" said that these names were buying opportunities right up to the last minute.

Preventing and controlling losses is more important than outright profit seeking to practically every technical trader you meet. The technical analysis approach is demonstrably more risk averse than the value-investing approach.

To embrace technical analysis is to embrace a way of thinking that's always sensitive to risk. *Technical trading* means to trade with a plan that identifies the potential gain and the potential loss of every trade ahead of time. The technical trader devises rules for dealing with price developments as they occur in order to realize the plan. In fact, you select your technical tools specifically to match your trading style with your sensitivity to risk.

Using rules is the key feature of lasting success in trading. Anybody can get lucky once or twice. To make profits consistently requires that you not only identify the trading opportunity, but also manage the risk of the trade over the lifetime of your ownership of the security. You never buy it and forget it.

The truth about buy-and-hold

Buy-and-hold is a philosophy that says most equities are best left unattended for long periods of time in your portfolio. They rise more or less in sync with the overall economy, saving you transactions costs and taxes. Besides, the market is efficient, meaning every security price already incorporates all the information available and is priced correctly. There is no point in selling Security X unless you need money for a nonmarket reason.

One reason to distrust buy-and-hold is that over really long periods, returns are not very good at all. According to the National Bureau of Economic Research, from 1836 to 2011, gold earned only an average 1.1 percent per year. Treasury bonds yielded 2.9 percent and equities earned 7.4 percent. Nobody lived over this span of time, of course, but the point is that in order to get high returns, you had to pick one of the periods when market was in a bull market phase.

In the United States, from 1900 to 2013, the Standard & Poor's equity index has been in 24 bull market phases, meaning it rose over 20 percent. Each one averaged about three years, and the average return of each of the bull markets was 127.36 percent.

In other words, to buy and hold securities for a long period of time is a well-documented path to accumulating capital, but *only if you got in at the best time* . Otherwise, buy-and-hold is a path to the poorhouse. Consider the following:

- If you had bought U.S. stocks at the price peak just ahead of the 1929 crash, it would've taken you over 20 years to recover your initial capital.
- Since the end of World War II, the Dow Jones Industrial Average has fallen by more than 20 percent on 13 occasions.
- From January 2000 to October 2002, the S&P 500 fell by 50 percent. If you owned all the stocks in the S&P 500 and held them throughout the entire period, you lost 50 percent of your stake, which means you now need to make a gain equivalent to 100 percent of your remaining capital to get your money back, as Table 1-1 shows. Ask yourself how often anyone makes a 100 percent return on investment.

Table 1-1 Recovering a Loss

Loss	Gain Needed to Recover Loss
10%	11.1%
20%	25.0%
30%	42.9%
40%	66.7%
50%	100.0%
60%	150.0%

That covers the factual aspect of buy-and-hold — you need to get lucky in your entry. Now consider the underlying assumption that all information is already incorporated into the price, the so-called efficient markets hypothesis. Even in the "weak" form of the argument, the assumption is patently untrue.

For one thing, if markets were actually efficient, we should not get bubbles and crashes, and yet undeniably we do. Behavioral economists have found that prices are influenced by all kinds of bias, including overconfidence, wishful thinking, and the whole panoply of possible errors in both reasoning and in evaluating information that's not always unambiguous.

Also, insider trading would not be so profitable (and periodically scandalous) if all information were available immediately. This is why securities analysts follow pharmaceutical and high-tech companies with a microscope — to get the news first. Not everyone can afford to keep up on all the news all the time about their securities.

The Trend Is Your Friend

You can look at most charts and see that in some time frame, securities prices tend to move in trends, and trends often persist for long periods of time. A *trend* is a discernible directional bias in the price — upwards, downwards, or sideways. Many people do not consider "sideways" a trend in its own right, but rather a departure from an upward or downward direction. And yet it can be useful to consider *sideways* a trend, because when you widen the timeframe to include more time, you often see that a sideways move is a transition phase from up to down or down to up. It can also be up to higher up or down to lower down.

De-cluttering your mind

Securities prices are the product of the collective decision making of buyers and sellers. Prices incorporate all known information, including assumptions, about the security. Prices change as new information becomes available. *All known information* consists of hundreds of factors ranging from accurate facts to opinions, guesses, and emotions — and previous prices. They all go into the supply and demand for a security and result in its price. I talk about

supply and demand in Chapter 2 .

Charles Dow, one of the founders of *The Wall Street Journal,* observed around the turn of the 20th century that no matter what the facts are about a security and what people are saying about it, the price neatly cuts through all the clutter of words and is the one piece of hard information you can trust.

Note, however, that prices on a chart don't tell you anything about the underlying value of the security. Where the price "should" be is a totally different subject, named *fundamental analysis.* Most technical traders use both forms of analysis, because technical analysis isn't antithetical to fundamental analysis, as some critics think. The two are compatible and can be used together. Many analysts choose to trade only the highest-quality securities on a fundamental basis, but time purchases and sales according to technical criteria.

The core ideas of technical analysis are not a new flash in the pan, but rather came into being over 100 years ago. Here are some basic observations underlying technical analysis that are attributed to Dow himself:

- Securities prices move in trends much of the time.
- Trends can be identified with patterns that you see repeatedly (which I cover in Chapter 9) and with support and resistance trendlines (see Chapter 10).
- Primary trends (lasting months or years) are punctuated by secondary movements (lasting weeks or months) in the opposite direction of the primary trend. Secondary trends, today called *retracements,* are the very devil to deal with as a trader. (See Chapter 2 for more on retracements.)
- Trends remain in place until some major event comes along to stop them.

These ideas and many more attributed to Dow (sometimes wrongly) are called *Dow theory* , although he never called it that as far as anyone knows. An Internet search of the phrase *Dow theory* yields over seven million hits. A key point is that traders were using technical ideas long before the advent of electronic communication and software programs — technical analysis is

hardly a new-fangled fad that will have a short shelf life. It has already survived over 100 years. In Japan, the candlestick version of charting is said to have begun in the 1700s.

Charting your path

The price chart is the primary workspace of technical analysis. Many technical analysts work only with mathematical re-formulations of prices in order to devise probabilistically optimum trades, but the chart is the starting point for everyone and remains the main workspace for the majority. See Figure 1-1 . This chart shows a classic uptrend following a downtrend.
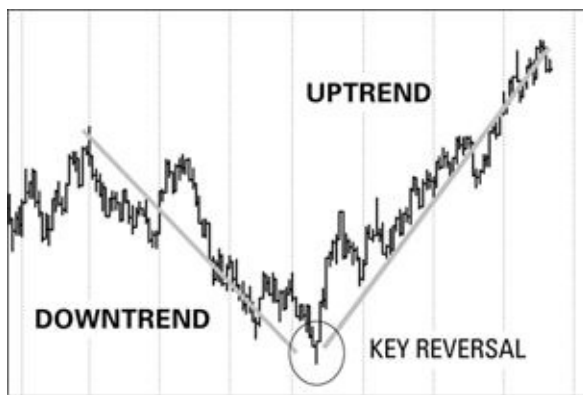
Figure 1-1: Uptrend and downtrend.

At the most basic level, your goal as a technical trader is to sit on your hands while the security is falling and wait to identify the *reversal point* — the best place to buy (shown in the circle) — as early as possible. Figure 1-1 is a good example of the kind of chart with which you spend most of your time.

Trendedness

To say that something is "on a trend" is to say that it is moving in a specific direction and exhibits evidence of a tendency to continue in that same direction. We could say that the use of social media like Twitter and Facebook are a trend, or that the trend in economically advanced economies is for families to have fewer children than in the past.

What's the difference between trendiness and trendedness? Trendiness implies a fashion or fad that may wither and blow away. Trendedness refers

to a measurable directional bias. It's a more serious word reflecting a more serious and enduring phenomenon. Twitter may not be around 30 years from now, but securities charts will still be exhibiting price trendedness.

Picturing trendedness

Creating a chart like the one in Figure 1-1 is easy. To illustrate classic trend behavior, I could've taken any security out of thousands in my database and found some period of time over which the security's price looked like this chart. However, I could have also found many time periods when this same security was not trending. In fact, some securities are frequently in a trending mode, others seldom trend, or their trends are short lived. To complicate matters, some securities exhibit a "habit" of tidy trending whereas others trend in a sloppy way (with high variability around the average).

I give you the key definitions of trendedness in Parts III through V . Chapter 6 describes it as a series of higher highs together with a series of higher lows (for an uptrend). In Chapter 12 , trendedness is defined as the price rising above a moving average or a short-term moving average rising above a long-term moving average (also an uptrend). The rest of the chapters contain other definitions.

Picking a time frame

You don't have to select a timeframe right away. In fact, don't rush. You may fancy yourself a conservative person who would never want to join the ranks of those flibberty-gibbet day-traders, but the fact remains that day-trading is a deeply risk-averse form of trading when it's executed properly. And your position on life's timescale can be important, too. You can't day-trade when you have a day job, but you can when you have retired or are temporarily out of work. We know of one auto company president (yes, president) who got through a rough patch (meaning unemployed) by day-trading.

Viewing the Scope of Technical Analysis

Technical analysis focuses on prices and often on the accompanying volume. Analyzing prices can take many different forms — from drawing lines on a

chart by hand to using high-powered computer software to calculate the most likely path of a price out of all possible paths. Technical analysis is sometimes called by other names, such as *charting, market timing,* and *trend-following.* The press, the public, and even technical-analysis authors all use these terms interchangeably.

When you see these terms in this book and elsewhere, don't fret over a strict interpretation — and don't accept or reject a technical idea because it has a particular label. You can put ten technical traders in a room and get ten definitions of each term. The following sections are my interpretation of these terms and their nuances.

Charting

Charting is probably the oldest generic term used for technical analysis. I cover charting techniques in Parts III and IV . Charting refers to reading supply and demand into bars and patterns. Some technical analysts reject the term charting because it harkens back to the days of colored pencils and rulers. They see charting as subjective, whereas statistics-based indicators (which I cover in Part V) are objective. But many traders use charting conventions developed over decades because they *work.*

Market timing

Market timing is another term used in place of *technical analysis.* All technical trading involves timing, but the term market timing refers to statistical analysis that goes beyond a single chart. It encompasses many techniques, such as sentiment indicators and calendar effects, that many self-described chartists say aren't charting, and at least some technical analysts say aren't technical analysis. I cover these and other tools in Chapter 3 .

Trend-following

The very first question to ask when you look at any chart is "Is the price trending?" Because so much emphasis is put on the presence or absence of a trend, technical analysis is sometimes named *trend-following.* Parts IV and V contain techniques that are trend-following. Some analysts object to the term because you aren't always following, but often anticipating, a trend such as

when you use momentum indicators (see Chapter 13).

Technical analysis

Technical analysis is the broadest of the terms. It's a term encompassing all techniques, but at heart technical analysis seeks to measure and quantify market sentiment.

Technical analysis is not confined to just math-based techniques, as some folks may think. Using math is a breakthrough and a curse. Math may outperform human judgment and the human eye, as many an optical illusion has proved, but it's not true that numbers never lie. Numbers lie all the time in price analysis. You can have a textbook-perfect trend with ten confirming indicators, and it can still run into a brick wall — really bad news that trashes the price of the security overnight. Math can never overcome the inconvenient fact that a Shock, which no one can predict, may overwhelm any price trend. Shocks that we put in capital letters are events like 9/11.

In your quest to define trendedness and formulate trading rules to maximize profits and reduce risk, don't run the risk of turning into an obsessed, nerdy number cruncher. Don't forget that behind the numbers are other human beings who often behave in irrational ways. Technical analysis (so far) remains an art, not a science, even when it uses scientific methods.

Why Technical Analysis Gets a Bad Rap

Technical analysis works because people consistently repeat behaviors under similar circumstances. For example, I say in Chapter 10 that support and resistance lines are a simple and effective method to identify the limits of a trend, and when a price breaks a support or resistance line, it's called a *breakout.* Breakout is a powerful concept and used in many other indicators as well as support and resistance. Why does a breakout attract so much attention? Because over decades of analysts following prices, a breakout reliably signaled the end of a trend many, many times.

While "breakout" is powerful, it isn't always correct. You will run into situations where a breakout is not respected, and the price resumes the direction it was headed in the first place. In short, some breakouts are "false" — they lead you astray.

The biggest mistake that beginning technical traders make is attributing too much reliability and accuracy to technical methods. Experienced technical traders know that no technique works all the time. In fact, many techniques work only when the majority of market participants believe that they will work, forming a self-fulfilling prophecy. You needn't care whether the theory is valid. Your goal is to make money, not to be scientifically pure.

Understanding that no technique works all the time helps you overcome doubts raised by critics who say that the whole field of technical analysis is not worthwhile when techniques are not 100 percent reliable. Because a method doesn't work all the time isn't the right criterion for evaluating it. Just because the meteorologist is wrong 50 percent of the time doesn't mean you should take off in your Cessna when he's forecasting a violent thunderstorm in the next hour.

In financial markets, the value of an analytical method is determined by whether it helps you to consistently make more money than you lose. Notice that this statement has two components: The method, and you. The "you" variable is why two traders — whether newcomers or grizzled old hands — can use the same method but achieve very different results.

Beating the market is hard, hard work

Every day, hundreds of thousands of traders all over the world beat the market. To *beat the market* means to earn a return higher than the benchmark in that market, such as making more from trading a single stock included in the Dow Industrial Average than the Dow Industrial Average index returned in the same period. Beating the market can also mean to earn a return greater than the return on the return on a risk-free investment, usually defined as the three-month U.S. Treasury bill.

Technical analysis is about making extraordinary gains — beating the market — and if you think that isn't possible, you haven't looked hard enough. Many people try to beat the market and fail. Almost everyone knows the story of the hapless day-traders of the 1990s who deluded themselves into thinking that they possessed trading secrets when all they had was a roaring bull market. A few survived — because they adapted their trading techniques to the changing market. To trade well is a skill that takes training, practice, and benefiting from mistakes, just like any other business. You wouldn't open a restaurant without knowing how to cook, but somehow people think they can trade securities without understanding how and why prices move.

Current thinking has it that it takes 10,000 hours of practice to become skilled at any endeavor, and trading is no different than any other skill. You may be disappointed to discover that technical analysis doesn't offer a single, coherent path to market wisdom. You'd think that after 100 years of development, traders would have a rule book with a single set of steps to take and processes to go through, and one that takes a whole lot less than 10,000 hours. But they don't.

Why not? No one can name the single best way to trade a particular price situation. Each trader sees a different amount of risk on any particular chart, chooses one set of indicators over another, and has a taste for taking a certain amount of profit (or loss) for the capital at stake. Theoretically, you could say that the best way is the way that makes the most money, but that fails to account for the trader — his personality, goals, and experience — and how much money he has to risk.

To blend technical methods with your own personal risk profile isn't the work of one day. It's a lengthy and difficult process that requires some soul-searching. To keep the process manageable, confine your conclusions to what you can observe and verify — the empirical approach. Be careful to avoid the error of composition, like reading that one set of technical traders believes in magic numbers and concluding that all of technical analysis involves magic numbers. (It doesn't.) It's astonishing how many otherwise smart people misjudge technical analysis in exactly this manner, based on an incomplete understanding of the field. Many critics take one technical idea, fail to integrate it with

their personal risk profile, and then blame all of technical analysis for their losses.

The truly random — one-time Shocks

Technical analysis is of no use when the world serves up one-time Shocks, such as 9/11. Depending on the timeframe of your charts, you could get false sell signals on prices crashing on events both real and imagined. To be fair, fundamental analysis is of no use, either. Examples include:

- The May 2010 "flash crash" in which the Dow fell 1000 points, attributed to high-frequency "algorithmic" traders.
- Data problems at exchanges (in Tokyo, London, Frankfurt, and New York) during which data is delayed or missing, or the exchange is closed. A subset of data problems is new rules, usually temporary, forbidding the shorting of certain stocks, such as banks.
- The Shanghai Surprise in July 2009: The Shanghai stock index fell 5 percent in a single day and set off declines in equity indices worldwide.
- Associated Press Twitter feed is hacked (April 2013) with the message that the White House was bombed — Dow falls 100 points.

Public information is hard to get

We have almost no hard information on the hedge funds and private fund managers who use technical analysis. Even those who disclose that they use technical analysis are coy about revealing what proportion of total trades are technical-driven, even in foreign exchange and other commodity funds where technical analysis is widely used.

Timer Digest is a subscription-only periodical that tracks about 100 of the top technical advisors in gold, stocks and bonds, and shows their results (some of which are extremely impressive). You can get a sample copy at the *Timer Digest* website (https://timerdigest.com/).

Professionals who keep track of the returns of investment advisors, including technically-based advisors, find that the track record of technical advisors is spotty. The Hulbert Financial Digest is one such tracker. Hulbert reported that during the 1990s and early 2000s, technical advisors outperformed fundamental-based advisors, but in the bull market that started in 2009, nearly

all of them did worse than buy-and-hold.

There's a good reason for this — in fact, four good reasons. The first is that many advisors are just not very good. They found a good set of indicators but failed to notice when they stop working. The market changed and they failed to adapt. A related issue is that many technical advisors are not purely technical — they allow political or other ideological considerations to influence them, or even dominate. A third cause of failure is that technical advisors feel obligated to be cautious, and so they overvalue a sell signal. That means they miss the start of a rally. From 1993 to 2003, for example, the S&P rose an average of 8.5 percent per annum (p.a.), but if you remove the ten best days from that decade, the return becomes negative. You snooze, you lose.

The final reason to give little weight to the technical advisors is that they number fewer than 200, whereas the market is made up of literally millions of participants, both big and small. Many fund managers, for example, would describe themselves as purely value-based, and yet they lighten up on equities when a major index like the Dow or S&P falls under its 200-day moving average. The 200-day moving average is a technical indicator, but these managers would be horrified to be labeled *technical* .

In fact, each of the top five brokers in the United States offer charting to clients on their websites, usually alongside live streaming quotes. All of the foreign exchange brokers offer charting. Individuals clearly do not have the chart phobia that infects the professional fund managers. This is due, in part, to individuals simply not having access to the mountains of information about fundamentals, let alone the time and training to evaluate it, that professionals need to use. In technical analysis, there are no crooked executives and accountants to provide false information. Again, recalling Charles Dow, the price on the chart cuts through the clutter of confusing and sometimes simply wrong or easy-to-misconstrue information about the underlying security.

Technical analysis is easier to learn and to use than value-based securities analysis. Technical analysis levels the playing field for the individual and allows him to compete with the professionals having far greater resources.

Finding Order

Much of the time you can see order in the way securities prices evolve, even though they develop in an infinite variety of configurations. Technical traders attribute that orderliness to the swings of market sentiment. Prices form patterns because the traders in the market behave in regular and repetitive ways. You can identify, measure, and project prices because you can identify, measure, and project human behavior. Most people can do it only imperfectly, but you and I can both do it.

Probably the most intriguing thing about technical analysis is that ideas and insights about price behavior from 1900 are as fresh and valuable today as they were then. Technical analysis never throws anything out — it just finds more efficient ways to capture price moves. Since the personal computer came along, technical analysis has become more math oriented, but the essence of technical analysis is still to grasp the underlying human behavior that makes prices move.

In the grand scheme of things, technical analysis is a fairly new field of endeavor, and still changing. The few things technical traders do know for certain include the following:

- No technique works all the time.
- No technique works on every security.
- Something mysterious is going on that traders don't yet understand. A famous trader named Bernard Baruch said:

    Have you ever seen, in some wood, on a sunny quiet day, a cloud of flying midges — thousands of them — hovering, apparently motionless, in a sunbeam? … Yes? … Well, did you ever see the whole flight — each mite apparently preserving its distance from all others — suddenly move, say three feet, to one side or the other? Well, what made them do that? A breeze? I said a quiet day. But try to recall — did you ever see them move directly back again in the same unison? Well, what made them do that? Great human mass movements are slower in inception but much more effective.

This phenomenon is what technical analysis seeks to explain.

What You Need to Get Started

If you don't already know trading basics, you need to get a few things under your belt to get the most out of this book — things like what a securities exchange is, exchange hours, what trades in after hours, what brokers do (and don't do), trading conventions like "bid and offer" and order types, how to read a brokerage statement, and oh yes, what securities you plan to trade.

After that, all you really need is a newspaper that publishes securities prices, a sheet of graph paper, and a pencil. Fortunes have been made with nothing more than that. But these days, a computer, an Internet connection, and at least one piece of software that allows you to collect data and draw charts are standard issue. You can also do charting directly on broker and technical analysis Web sites without buying software.

Don't skimp on tools to put in your technical analysis tool belt. Buy the data, books, magazines, and software you need. Be careful about paying for seminars and trading coaches, most of which are overpriced and promote only a few favored ideas that can be easily discovered much less expensively in books and online. Do an Internet search for specific terms, and you will often find yourself landing at www.stockcharts.com , which is sane and

reasonable.

You wouldn't try to make a cordon bleu dinner on a camp stove with three eggs and a basil leaf, so don't try to make money in the market by using inadequate tools. Your first task when you're ready to take your technical knowledge out for a trial run is to earn back the seed capital you put into the business, the business of technical trading.

Technical analysis has its fair share of fruitcakes, ideologues, cranks, and scamsters as in any industry. Be careful.

Chapter 2

Uncovering the Essence of Market Movement

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In This Chapter

▶ Looking at a new model of supply and demand

▶ Figuring out the crowd

▶ Reverting to the mean

▶ Handling crowd extremes

T echnical analysis focuses on the price of a security rather than its fundamentals. The collective behavior of buyers and sellers, also known as "the crowd" or "the market," sets the prices. The market may be rational or irrational, but the market is always "right" in the sense that it sets the price of a security. You and I, as minor members of the market, don't get to set the price, no matter how intelligent our analyses and piercing our judgments.

In this chapter, I suggest one way of looking at the supply-and-demand dynamics of crowd behavior that's consistent with the technical approach — the auction model of supply and demand. Next, an outcome of crowd behavior is the tendency of prices to cluster around the average, even when the average is trending. It's useful to identify clustering, in part to know when to heed the prices that stray from the cluster. Finally, another aspect of crowd behavior is price extremes that seem to make no sense. You have to accept that prices not only refuse to move in a tidy straight line, but also deliver excessive moves far from what your eye tells you is normal. Understanding extremes first requires understanding "normal."

The eBay Model of Supply and Demand

Securities are not regular goods, and to apply orthodox supply-and-demand economics to securities trading can result in some silly conclusions. In the biggest macroeconomic perspective, securities are indeed subject to the standard laws of supply and demand, but as a practical matter for your day-to-day trading, the auction model is more useful.

Securities aren't socks: The demand effect

Securities are different from cars, bread, and socks. You don't buy a security for the joy of owning it and using it. You can't drive it, eat it, wear it, or impress the neighbors with it. Aside from getting a dividend or coupon payment, the only reason to buy a security is to sell it again, preferably for more than you paid for it. Unless you're a merchant, you never buy anything with the idea of selling it again — except securities.

In standard economic thinking, the law of supply and demand states that demand for an item depends on its price, which is a function of scarcity. If something is rare, it's expensive. At higher and higher prices, demand falls off. At some point, the high price induces suppliers to produce more of the thing, whereupon the price falls. *Equilibrium* consists of demanders and suppliers finding the mix of quantity and price that both parties find acceptable. This process is called *price discovery*, and it can take time.

In contrast, in securities trading, the pricing process is more like the pricing process in an auction. For one thing, prices move a lot faster. Plus, in an auction (such as the online auction site eBay), demand for the item often rises as the price rises. If you ever participated in an auction, you probably paid more for something than you should have. But you just couldn't let the other guy win, right? Every time someone else outbids you, you want the item more than ever and become determined to be the winner. The intrinsic value of the item doesn't matter. Sound familiar? You may even have an object or two in the hall closet you're ashamed of having bought at an auction. I certainly do.

In an auction (whether live or online), what gets your blood running is that someone else also wants to buy the item in question. Visible demand begets more demand. Auction economics are contrary to what traditional economics

teaches — that demand will *decrease* as the price rises. In the auction situation, demand *increases* as the price rises, sometime to ridiculous levels. The item may or may not be actually scarce in the real world. It doesn't matter.

The immediacy of the auction is what skews prices, sometimes to absurd levels. Later, when suppliers see the high prices, they may indeed be able to find or produce more of the item — but by then, the specific demand dynamic of that one auction is gone.

Creating demand from scratch

When you are wearing your trader hat, you buy a security solely because you think the price will rise. You decide to sell because you have a profit that meets your needs or because you have taken an intolerable loss. You seldom think about the true supply of the security.

Technically, the supply of any security is limited by the number of shares outstanding and the like, but supply may be considered infinite for all practical purposes. If you really have to have 100 shares of Blue Widget stock, some price you can offer will get you those shares. Turn it around, and you can easily see why. A price exists at which you can be induced to sell the stock for which you paid $10. It might be $20, or $200, or $10,000 — but rest assured, some price will force you to part with it, and *right now.*

In technical trading, think of demand for a security as rising on rising prices, not falling ones. Similarly, the supply of a security dries up on rising prices, at least in the short run. (Later, when the long-term security holder sees how high the price has gone while he wasn't looking, he may say "Holy Toledo!" and call his broker to sell, making more supply available.)

Identifying Crowd Behavior

Technical analysis is the art of identifying crowd behavior in order to join the crowd and take advantage of its momentum. This phenomenon

is called the *bandwagon effect.* (A subset of the bandwagon effect is named *momentum investing,* which I talk about in Chapter 13 .) Here's how a bandwagon works: A fresh piece of news comes out. Traders interpret the news as favorable to the security, and a flood of bids allows sellers to raise their prices. You profit by going with the flow. Traders are people, and people often behave in predictable ways. When it comes to emotions like fear and greed, people today are not so different from people 100 years ago or maybe even 1,000 years ago. People become reckless and irrational in a mania. They become overly cautious after a bubble bursts. A *mania* is a situation in which traders buy an object or security without regard for its intrinsic value or even whether they'll be able to sell it again later at a higher price. They fear being left out of an opportunity. They're caught up in the moment and temporarily irrational. A *panic* is the opposite — people can't sell the thing fast enough and will accept ever-lower prices just to get any money back at all.

In economic history, a mania or a panic comes along only a few times in a century. However, in securities markets, mania and panic happen far more often, if in miniature. Emotional extremes lead to price extremes in the context of the hour, day, or week — minimanias and minipanics occur all the time. Those words aren't used in technical trading lingo, but the emotion and the price effects are the same as in big-picture manias and panics. (See "Identifying and Responding to Crowd Extremes" later in this chapter.)

The individual versus the crowd

People behave differently as individuals from the way they act when they're part of a crowd. Crowd behavior encompasses fraternities, sports teams, political parties, gangs, religious sects, mobs, people attending an auction — the list goes on. A crowd is more than the sum of its parts. Otherwise sensible individuals can behave in the most extraordinary ways when they become part of a crowd. One famous case is how people in 17th-century Holland saw tulipmania, the trading of tulip bulbs for sums like $250,000, deflate overnight when someone mistakenly ate one, revealing how ridiculously far prices had diverged from any reasonable concept of value.

Regular people don't shove others aside on their way to the exit. But if

someone shouts, "Fire!" in a crowded theater, people will trample each other to get out of the building. In markets, you see the same thing in the price of a security when bad news about it is released. The bad news may not be actual news at all. It may be a single seller dumping such a large amount of the security that the price falls by a large amount, making other traders imagine that there must be bad news even though they haven't heard it.

In contrast, if someone shouts, "Free ice cream!" people will throw elbows to be first in line. The same thing happens to securities prices as they reach new highs, especially if an authority figure pronounces the security a gem and a bargain. But you don't need actual good news to get a rally. All you really need is a large purchase that drives the price up past what seems normal.

Don't be surprised when traders invent rumors to try to create a stampede — in either direction. As a technical trader, you want to be sensitive to what the crowd is doing without succumbing to the ruling passions of the crowd itself. Technical traders work hard at not listening to chatter about securities, even from experts. You may get information overload — and you may get *disinformation* (deliberately misleading information). All the information you need to make a trading decision is embedded in the price. The price incorporates the crowd reaction to information, and it's more practical to look at prices than to guess what the crowd might be thinking. When you check the news for the cause of a price action, do it with a healthy dose of skepticism.

Playing games with traders' heads

The market is self-regarding — it watches itself. One behavior begets another in a dynamic way. For example, many advisors recommend a rule that if a price falls by *x* percent from a peak, it's prudent to exit the trade. This is a money management rule rather than a technical one based on historical evidence. William O'Neil of *Investor's Business Daily* made the 8 percent rule popular. Famous investor Gerald Loeb and others used the 10 percent rule. Other advisors recommend a 25 percent rule. Because these rules are so well known, many traders use them and cause the rule to be self-fulfilling. Traders know that others will exit at a level of (say) 8 to 10 percent or 25 percent under the peak, and will sell the security specifically to get everyone

else to exit, whereupon they're able to buy the security at a cheaper price. Game playing can become incredibly complex, replete with bluffing, cheating, feints, and double crossing. Note that many top traders are also top competitors in fencing, chess, backgammon, bridge, and poker. Each security or class of securities has a different degree of crowd complexity. The crowd that trades the S&P e-mini futures contract is different from the crowd that trades the soybeans futures contract, and in turn, that crowd is different from the one that trades the Swiss franc and the one that trades Apple stock.

Each security has its own crowd, and you will get a payoff if you can figure out what pushes the buttons of the crowd that trades your security. One crowd may always respect a support line, for example, while others enjoy breaking the support line by just a little to induce selling so they can buy at a cheaper price. (For more on support lines, see Chapter 10 .) In foreign exchange (FX), the Fibonacci number sequence has a grip on many traders' imaginations. You may not respect the theory but still want to know the retracement level that many in the FX crowd expect. See Chapter 17 .

What's Normal, Anyway?

Each crowd, whether a fraternity or a gang, develops criteria for normal behavior, such as wearing certain colors or having a secret vocabulary. In trading, the crowd that trades a specific security has a firm grip on the normal daily high-low trading range and can easily and quickly spot any big price move beyond that normal range. (I cover the high and the low in Chapter 6 and the average range in Chapter 7 .)

This section describes how to identify what is "normal" and outlines a trading technique that some traders use. I think it's equally useful to identify what is normal in order to be able to spot what is "abnormal" — in other words, what constitutes an extreme. Alas, I have to throw in a few math terms, but fear not. You can easily wrestle the concepts to the ground.

Reverting to the mean

The phrase *reversion to the mean* refers to a statistical concept that accepts as

its core assumption that high and low prices are temporary and a price will tend to go back to its average over time. The first step is to identify the normal trading range of the security, say $5 per day. (For more on the trading range, see Chapter 7 .) You can observe that the price varies by about $5 every day around an average price of (let's say) $20 over the past week. Therefore, if the current price is $17.50, that's half of the normal trading range below the average price and a buying opportunity. If the price is $22.50, that's half of the average trading range above the average and a selling opportunity. If prices are normally distributed, you can buy at $17.50 and sell at $22.50 for a $5 profit. In other words, deviations from the average price are expected to revert to the average.

Okay, here it comes — I just introduced a fancy word, *deviation.* The concept of deviation (and its cousin, standard deviation) is not as hard as it sounds. When discussing the idea of normal distribution and deviation from normal distribution, textbooks use the height of a group of people in a room. The average height is (say) 5 feet 8 inches, with some short people distributed out on the left side at 4 feet 10 inches and some tall people out on the right side at 6 feet 4 inches. The height measurement of the majority of people, about 67 percent, falls near the center, while the very short and very tall cases are out near the edges, called the *tails.* In this example, the "normal" height is 5 feet 8 inches — it's the average, and the normal range is 4 feet 10 inches to 6 feet 4 inches. In this crowd, you would instantly spot someone who was 3 feet 2 inches or someone who was 7 feet 10 inches.

Prices clustered around the average are normal and represent the market consensus of the rough equilibrium price for that day. The prices farther away from the normal price tend to deviate by only one unit from the average in each direction: higher or lower. This unit is named a *standard deviation.* Frankly, that's all you need to know about the standard deviation — it's a unit of measurement that describes how far away from an average higher or lower prices are likely to fall, based on the past distribution of highs and lows against a past average.

If your price that normally averages $20 goes beyond its average daily trading range and is now priced at $5, something happened to cause traders to dump it and you have just experienced *tail risk.* If your security frequently

delivers extreme prices beyond the standard deviation, it has *fat tails.*

The one standard deviation region is symmetrical. When you use the normal distribution concept, you assume that an equal number of prices will fall on each side of the average. This assumption isn't always true, of course. Prices are trended at least some of the time, and so if the price is on a generally rising trend, expect to see the distribution curve skewed to one side, toward the higher prices. You'll also see periods in which the prices form a double hump (two averages per period) or are just flat across the daily range.

Trading mean reversion

To trade the concept of mean reversion means that you find an average price over some past period, figure out the high-low range, and simply buy when the price has deviated to the low side of the range and sell when it gets to the high side. Studying reversion to the mean may be useful during periods when the price is going sideways and not exhibiting a directional bias to the upside or downside. This is a case in which you might change your trading style from trend-following to mean-reversion, buying when the price is under the average and selling when it's over the average.

Does this sound too good to be true? Well, it is. Mean-reversion trading ideas have the appearance of applying statistical concepts to derive trading rules, but mean-reversion trading faces severe obstacles, such as:

- How do you determine when a price series is trended vs. when it is going sideways? An example is an ever-widening fan.

- How do you handle a sideways move that looks like a pig in a python — still sideways but with the average daily range expanding and contracting?

- What is the ideal lookback period to determine the average? Say, for example, that Blue Widget stock over the past two years averaged $20 — but that $20 average incorporates a few abnormal prices like $1 and $40. An average can disguise multiple deviations that have already occurred.

- Is it true that securities prices are normally distributed? Statisticians say that securities prices are not actually normally distributed — they just look that way sometimes. In technical analysis, your primary goal is to determine whether your security exhibits a price trend. You also want to

know how strong the trend is and whether it might be ending soon. To accept the assumption that the distribution of prices will be normal is the same thing as saying that you know in advance where the price trend will end — at or near the price represented by the average plus one standard deviation. If the price goes higher than the price that one standard deviation dictates, the trading rule embedded in the mean-reversion trading technique would have you sell.

What if you consider the security "overpriced" on a statistical basis? And yet you can't be sure that the other traders in the market performed exactly the same analysis as you did. Even if they are using the mean-reversion concept, maybe they used a different lookback period to calculate the average. Because the other traders in this security don't see the security as overpriced, they may keep buying, and buying, and buying — pushing the price to the equivalent of the guy in the room standing 7 feet 10 inches. The opposite is true, too. The mean-reversion process would not identify the situation where the price goes to zero.

Mean-reversion trading techniques are beguilingly tempting, but always involve more risk than trend-following because you're using a high number of assumptions, many of which can be wrong.

Understanding Crowd Extremes

Statistical analysis can't capture the nuances of crowd behavior. One way to get a handle on crowd behavior is to master the key terms referring to it. These terms range from general trading-lore descriptions to words that are specific to technical analysis. Here's what you need to know:

- **Accumulation:** As market participants get excited about a security, they become increasingly bullish and either buy for the first time or add to positions, a phase named *accumulation.*
- **Distribution:** When traders become disillusioned about the prospect of their security price rising, they sell, a stage called *distribution.*
- **Change your position:** To buy 100 shares of a stock is to *enter a*

position. To buy another 100 shares for a total of 200 is to *add to your position* or to *"scale in."* If you have 500 shares and sell half, you would be *reducing your position or "scaling out."* To sell all the shares you own is to *square your position.* When you're *square* (also called *flat*), you have no position in the security. All your money is in cash. You're neutral. (I talk more about changing your position in Chapter 5 .)

✔ **Too far:** After traders have been accumulating the security on rising prices, eventually the price goes too far. *Too far* is a relative term and can be defined in any number of equally valid ways. In the mean-reversion case in the "Reverting to the mean " section in this chapter, too far would be a price of $32.50 when the normal distribution would cap the highest price at $22.50.

If you like to draw support and resistance lines (for more info, see Chapter 10), *too far* is a level beyond the lines, a *breakout.* If you're of a statistical bent, you will determine that *too far* lies just outside a band constructed from the average true range, two standard deviations away from a moving average (called a *Bollinger Band*), or some other nonjudgmental measure. See Chapter 14 for a description of those techniques.

Technical lingo: Overbought and oversold

When a price has reached or surpassed a normal limit defined by an indicator, that price is at an extreme. In an upmove, everyone who wanted to buy has already bought. In this case, you can say that the market is *overbought,* a term specific to securities trading. In a downmove, when everyone who wanted to sell has already sold, the security is called *oversold.*

Technical traders apply the concepts of overbought and oversold to market indices as well as individual securities. Overbought and oversold are usually measured by the momentum indicators, which I cover in Chapter 13 .

Notice that the terms *overbought* and *oversold* are applied to the security, but what the terms secretly refer to is how much money the traders in that security have available at the moment. By the time most of the market

participants have jumped on the bandwagon, they are tapped out. All their money is in a position. Traders have to exit their positions just to get the cash or credit to conduct additional trades.

Position squaring is the closing of positions after a big price move. Position squaring doesn't necessarily imply that market participants think a move is over. They may plan to reenter the security in the same direction later on.

Position squaring occurs for many reasons, including the following:

- Traders think that the move is exhausted for the moment.
- Traders have met a price objective — whether profit or loss.
- Traders have met a time limit, such as the end of the day, week, month, or tax period.
- Traders want to withdraw money from the security to trade a different security, or for a non-trading purpose.

Position squaring occurs when a large number of traders have big losses, too. Say, for example, a high percentage of traders believe in a particular price-move scenario that then fails to develop in the expected way. A few traders throw in the towel. The resulting lowering of the price causes bigger losses for the remaining traders, and they, in turn, give up. You get a cascade of stop-loss orders being hit that turns into a down-market rout, or even a panic. A *stop-loss order* is an order you give to your broker to sell your position if it goes against you too far and reaches the maximum loss you're prepared to accept. (I talk about stop-loss orders in Chapter 5 .)

Going against the grain: Retracements

When a price has gone too far and traders deem the security overbought or oversold, the price stops rising or falling. Sometimes it just stops and hovers in a narrow range around a particular level, but just as often the price moves in the opposite direction for a while, as traders take profits or cut losses, as the case may be. A move in the opposite direction of the main trend is named a *retracement.* A retracement is also called a *correction*, which explicitly recognizes that the security had gone too far and is now correcting course,

like a ship. A retracement may also be termed a *pullback* or *throwback*.

Prices seldom move in one direction for long. Even a major trend exhibits retracements. When the market runs out of cash, traders have to close positions to get their cash back so they can put on new trades. If they've been buyers, they need to sell. If they've been sellers (shorting the security), they need to buy. Therefore, at the extreme outside limit of a price move, you should expect a temporary, minor reversal of the previous price move. In an uptrend, a retracement is always a drop in price. In a downtrend, a retracement is always a rise in price.

Retracements can get out of hand and transform themselves into trend reversals, too. At the time a retracement starts, you don't know for sure that it is a retracement. For all you know, it could be a full reversal, with the price switching directions. In this situation, you do well to check the fundamentals — the news and events pertaining to the security. An ordinary retracement caused by normal position squaring can suddenly turn into a full-fledged rout in the opposite direction if fresh news comes out that seems to support a reversal. In Figure 2-1 , the chart shows a primary trend with several retracements, each outlined by an ellipse. In this instance, the retracements last only a day or two, but retracements can last a lot longer, even several weeks on a daily chart, for example.
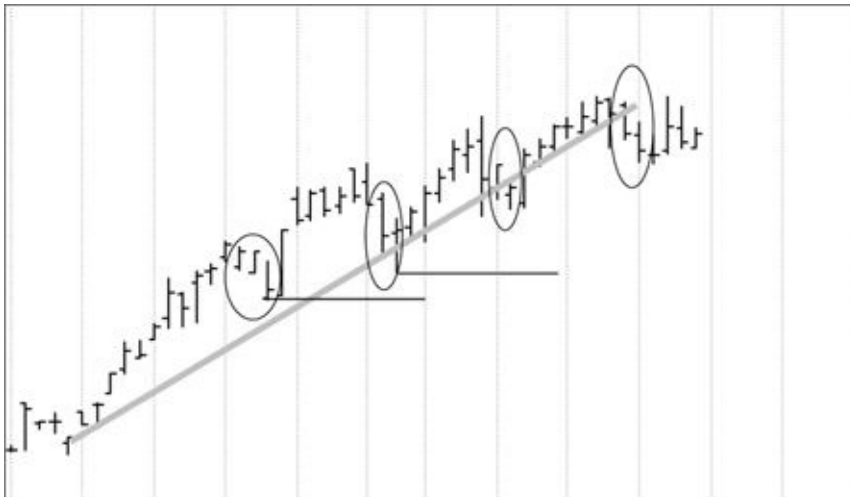
Figure 2-1: Trend with four retracements.

The press often asserts that every retracement is a profit-taking correction. This assumption isn't accurate. If traders took profit on every correction, they'd all be rich. Remember, somebody bought at the high. If the correction goes too far against him, he must get out of the position at a loss. From this observation you should deduce that to stick to a position when it is correcting against you requires the courage of your convictions — and capital. (I talk more about managing money during retracements in Chapter 5 .)

Catch a falling knife: Estimating where and when a retracement will stop

To try to estimate where a retracement will stop is called "to catch a falling knife." In other words, no reliable rules exist to tell you *where* a trend correction will end or *when* the primary trend will resume, or even that it will resume. One of the chief uses of indicators and combined indicators, described in Chapter 16 , is to get guidance on where and when a retracement will stop. Remember that the indicators only indicate; they don't dictate.

Your tolerance for retracements is the key to deciding in what time frame you want to trade. If the security you want to trade regularly retraces 50 percent and the prospect of losing 51 percent turns you into a nervous wreck, you need to trade it in a different time frame — or find another security.

Acknowledging that no one can forecast a retracement hasn't stopped technical traders from trying to establish forecast rules. The following rules are generally helpful, but no one can offer reliable statistics to back them up, so take them with a grain of salt.

- **A retracement won't exceed a significant prior high or low.** In Figure 2-1 , for example, the second retracement doesn't challenge the lowest low of the first dip, and the third retracement doesn't challenge the second. Alas, knowing where it *won't* go doesn't help you figure out where it *will* go.

- ✔ **Look for round numbers.** Research shows that support and resistance levels (see Chapter [10](#)) actually do occur more often at round numbers than chance would allow.

- ✔ **Remember the 30 percent rule.** Measure the percentage change and assume that a majority of traders will place stops to avoid losing more than *x* percent, such as 30 percent. The problem with this idea, and it's a chilling one, is that you're measuring from a peak and you don't know the price level where the majority of traders entered. Logically, you should assume that they're protecting 70 percent of their personal cash gain from their entry, not from the peak. To measure from the peak would be to say that traders make decisions based on opportunity loss rather than cash loss, and while this contains a germ of truth, it's not a reliable assumption about crowd behavior.

- ✔ **Use magic numbers** . Some traders believe that retracements always end at a specific ratio to the preceding move, such as 38 percent or 62 percent. I cover these ideas in Chapter [17](#) .

Empiricists, 1: Academics, 0

Finance academics assert that the price of a security depends on forecasts of the security's underlying value in the future, chiefly a company's future earnings. The price today already contains market expectations about the price tomorrow. This idea is called *rational expectations.*

Rational expectations sound okay until you do a reality-check. It is undeniable that we get far more price changes than information about future earnings! In the 1990s, some dotcom stock prices represented 1,000 times future earnings — for companies that had no earnings. Rational, my foot. Finance academics said people knew the earnings expectations were absurd fictions, but they didn't care because they expected to unload the stock at a higher price to a *greater fool* .

Finance academics stopped at the greater-fool theory. If you buy a security whose price is wildly divergent from some estimate of "value," you're the fool. This is profoundly disappointing, because nobody has a certain way to attribute intrinsic value to any security. So how do you know when you're the last fool, the one who will get stuck with the security at its highest price? Even historical comparisons are iffy. To use the price-earnings ratio over the past 50 years, for example, is to assume that those traders knew the right way to merge price and value, so following this logic, there were no fools in 1950 or 1960. Besides, the losers from times past are removed from the indices, so statistics on the P/E ratio and other data exhibits a "survivorship" bias. Finance academics treat manias and panics as though they're inconvenient and rare exceptions to the rational expectations rule. In 2000–2003, most technical analysts escaped the appalling losses that accompanied the pricking of the dotcom bubble because to them, manias and panics are normal and familiar market behavior — writ large.

Behavioral economics is just starting to define in exactly what ways people fail to be rational. One key is that most people have a lousy understanding of probability. The gambler's fallacy is the most famous example — in a coin toss, after heads comes up 50 times in a row, just about everybody will bet on tails, ignoring that the coin doesn't remember which way it fell last time and the probability of heads is still 50 percent. In fact, the probability of heads may be higher than 50 percent, because the coin may not be a fair one.

But it's more complicated than misunderstanding probability. For example, people will give up a small certain gain for the chance to deprive their opponent of a larger gain. People go out of their way to avoid small risks but then take wild gambles on the word of a stranger. Most people feel twice as much pain at a loss than they feel pleasure at a gain. Behavioral economists, now regularly winning Nobel Prizes, are starting to grasp and quantify these "irrational" behaviors. Eventually this work will lead to a coherent theory of crowd behavior.

Chapter 3

Going with the Flow: Market Sentiment

In This Chapter

▶ Looking into market sentiment

▶ Turning up the volume

▶ Understanding chance

Y our goal as a technical trader is to identify what the crowd is doing and take advantage of it — without falling prey to the market's emotions. The primary technical tools for identifying sentiment are patterns and indicators, and the discussion of these tools forms the core of technical analysis (and this book). You have two other methods of measuring sentiment, however — sentiment indicators describe the market as a whole, and volume directly represents the extent of trader participation. Volume is a powerful indicator in its own right and adds confirmation to price indicators.

Sentiment and volume indicators operate on the principle that "The trend is your friend — until the end," meaning that the crowd is wrong at price extremes and simply clueless when markets are nontrending. Sentiment indicators, also called "market indicators," describe the overall environment in which your specific securities are being priced, and can be helpful to evaluate your securities in context and when markets are nontrending.

You want to know whether your security is going up because its own qualities are inspiring demand, or because the whole market is going up and your security is getting a free ride. The old saw has it that "A rising tide lifts all boats." Knowing your security's place in the overall market

can be handy when the market turns down, because a falling tide lowers all boats, too.

Sentiment indicators that pertain to the entire market are like any other indicator — they're designed to forecast the upcoming behavior of the price. But remember, indicators only indicate; they do not dictate.

In this chapter, I discuss a few of the 100 or so sentiment and volume indicators commonly used. I can't possibly cover all of them, and besides, new sentiment indicators are invented every day. I also throw in a little guidance on the concept of probability, which is not as scary as it sounds. You need to have a basic understanding of probability to accept some of the inherent limitations of technical analysis and also to avoid getting cheated by sellers of advice and technical programs.

Where Market Sentiment Comes From and What It's Good For

The very first market sentiment indicator was set by Charles Dow in the early 20th century. Dow observed that rising transportation stocks, chiefly railroads, reflected robust economic conditions, also called *fundamentals* . When transportation stocks were rising, it was because sales and earnings were rising. The price of industrial company shares would follow for the same reason — rising earnings. The transportation stocks were thus a leading indicator of overall market sentiment. The Dow Jones Company continues to track the transportation sector today in the form of the Dow Jones Transportation Average, although now it contains more than railroad companies. Other indices include the Baltic Dry Index that tracks shipping costs of major raw materials, and indeed, both the DJTA and the Baltic Dry index are highly correlated with major market indices like the Dow Industrial Average and S&P 500.

Dow saw that the price of railroad shares could be used as a proxy for market fundamentals. Fundamentals are beyond the scope of a book on technicals, but at its most basic, market fundamentals are based on economic growth, the sustainability of economic growth, and confidence in government and central banks to keep the economy on a sustainable growth path.

When these three factors line up well, you get bullish market sentiment. We say sentiment is *bullish* when prices are moving upward in a steady and consistent way. The same thing is true of *bearish* sentiment, only prices are moving downward in a steady and consistent way. We go into specific criteria in Chapter 7 .

Sentiment indicators are useful to confirm a trend in your security that is starting or already in place. If market sentiment indicators point to an upmove and your security is also in an upmove, your confidence in your trade goes up. Conversely, if market indicators point to an upmove but your security is not going along, you should consider whether your security is exceptional and it's worth "fighting the tape" (trading contrary to what market sentiment indicators are saying).

Sentiment indicator may offer guidance when trendedness collapses into nontrendedness or sideways, range-trading mode. This occurs during the confusing transition phases between up and down, and also between up and higher, or between down and lower.

Securities are not always trending. Experts can't agree on what proportion of the time they are trending. The consensus seems to be that most securities are trended about 30 to 40 percent of the time. The tendency for trends to collapse into lack of visible, obvious trendedness is very pronounced. The untrended transition phase is sometimes called *trader's nightmare* because all trend-following indicators fail, and many other indicators, including bar-reading and patterns (see Chapters 7 through 9) deliver false signals. The absence of trendedness reflects uncertainty about either the fundamentals or whether the security's price accurately reflects the fundamentals (or might be overbought or oversold — see Chapter 2).

The resulting sideways move in prices, called *congestion* (see Chapter 10), is a frustrating condition for traders. You literally do not know what the next move will be. You might as well toss a coin, which clearly violates the technical mindset of action based on reasonable expectations of gain/loss.

Consulting market sentiment indicators might give you valuable clues

as to the next move in your own security. At the least, market sentiment indicators provide other factors to plug into your estimation of reasonable expectations and may well be a deciding tipping-point factor between taking action and twiddling your thumbs until the sideways move switches into a trend.

Thinking Outside the Chart

You may have the inside scoop on the best stock ever, but if the entire market has a case of the collywobbles, your best-ever stock is likely to fall, too. Conversely, when the market is in a manic phase, even the worst of stocks gets a boost. This ebb and flow isn't only because of individuals, but also because money flows into and out of mutual funds and other institutional players, like insurance companies and pension funds. All these institutions have latitude about how much to keep in cash. In a mania, they get more fully invested, and in a panic, they pull funds out of the market and into cash.

 Nobody knows for sure, but some percentage of any security's price move is attributable to changes in the market environment. Factors include not only the index to which it belongs, but also its size (large-cap or small-cap, for example) and sector (biotech, high-tech, no-tech). A guess is that about 25 percent of a price move in any single issue should be considered a function of what is going on in its index (or other benchmark to which the issue belongs).

Sampling information about sentiment

Most sentiment indicators look outside the price dynamics of a particular security or index of securities for information about whether the trading crowd is humming along with expectations of normalcy or is willing to jump ship. Market indicators are not technical indicators in the strict sense but are consistent with the technical principle that we want to study what people *do,* not what they *say* .

We have at least 30 indicators such as "percentage of stocks above their 200-day moving average" (see Chapter 12 on moving averages) and "number of stocks above the 52-week high." These indicators have their own symbols

and can be charted just like the price history of individual issues.

Monitoring investors: The Bull/Bear Ratio

Key reversals come when the majority of advisors (60 percent or more) are bullish or bearish. In other words, when everyone recognizes the trend bandwagon and has hopped on board, it's over. Investors Intelligence Service (started over 60 years ago) measures the balance of bullish sentiment against bearish sentiment (called the *Bull/Bear Ratio*) and claims an excellent track record in predicting turning points.

Note that other services have sprung up to measure bull and bear sentiment in general, in specialized sectors, and in mutual funds. You can find the Bull/Bear Ratio and other indicators on hundreds of websites and in business newspapers. To get a specific Bull/Bear Ratio from a specific vendor the minute it's published, you have to pay a subscription fee.

Following the money: Breadth indicators

Breadth indicators measure the degree of participation by traders in the overall market represented by an index, such as the Dow or S&P 500. You can track the breadth indicators to get a feel for market sentiment.

Breadth indicators include:

- **Ratio of advancing to declining issues:** This indicator measures the mood of the market. Stocks that are reaching a higher price today than yesterday are called *advancing issues*. Stocks that are reaching lower prices are called *declining issues*. When advancers outnumber decliners, money is flowing into the market. Bulls are beating bears. Sentiment is favorable. When the rally starts getting tired, the number of advancing issues declines while the number of falling issues rises.

  If you subtract declining issues from advancing ones, you get the *advance/decline line*. In the same vein, if you divide advancing issues by declining issues, you get the *advance/decline ratio*, abbreviated A/D.

- **Difference between issues making new highs and new lows:** The logic is the same as in the advance/decline indicator. If more stocks in an index are closing at higher prices than the period before, bullishness is on the rise. When a higher number are putting in new lows, supply is

overwhelming demand and the mood must be bearish.

Following the betting: Options

The Chicago Board Options Exchange (CBOE) publishes the ratio of puts to calls, where a put is the right to sell at a specific price in the future and traders who buy puts are bears (pessimists) who think the index will fall below their set price. A call is the right to buy at a set price in the future, and traders who buy calls are bulls (optimists) who think they'll profit when the market rises to and beyond their set price.

Accordingly, the *put/call ratio* is an indicator of whether sentiment is bearish or bullish. A high put/call ratio means bears are winning. Recognize that an extreme of emotion like this is usually wrong, and marks a turning point. You should start planning to do the opposite. The same line of thinking holds true for a low put/call ratio: When emotions are running strongly optimistic, watch out for an opportunity to take advantage of a change.

Viewing volatility: The VIX

The volatility index (VIX) is among the most popular breadth indicators today. Theoretically, you can create a volatility index for any security in which options are traded, although it takes computational expertise. Its calculation is too complicated to get into here, but for information about volatility, see Chapter 14 . For your purposes, know that when the crowd is jumpy and nervous, it projects that anxiety into the future and assumes that prices will be abnormal.

In other words, the crowd believes volatility will be high. When the price of VIX is high, options traders have been buying puts and selling calls on the index — they're bearish and think the market may fall. What they really think is that the *risk* of a fall is high and worth spending some insurance money on. When VIX is low, the market is relaxed and confident — overly confident.

VIX is generally used as a contrary indicator. When VIX is either abnormally high or abnormally low, you know it's getting to the right time to trade against the crowd. A high VIX value means exactly the opposite of what it seems to mean — the bottom isn't coming, it's already in! If VIX is low, the crowd is girding its loins for a big move.

When VIX is low, traders are complacent. They're projecting the same price levels, or nearly the same levels, into the immediate future with little variation and therefore little risk.

New and improved sentiment indicators

In recent years, many new sentiment indicators have been devised. An alternative to VIX is the *stress index* devised by the Kansas City and Cleveland Federal Reserve Banks. The Cleveland index contains 16 indicators from all corners of the economy and financial sector, including bonds, real estate, currencies, and so on. When the stress index is high, you can expect fear to take over and market indices are at risk of a big fat sell-off.

Another is from Stockcharts.com, a nifty hybrid indicator named StockCharts Technical Rank that places the performance of a stock within the context of the performance of the group to which it belongs on a technical basis, not a fundamental basis. Six technical indicators are used, like how far the stock price is from the 200-day moving average. The S&P 500 is broken up into groups of 50 stocks each and thus you can see instantly whether your security is a leader or a laggard in the context of its technical performance against a similar group, an original and advanced way of looking at market sentiment. Notice that sector (energy, pharmaceutical, and so on) is not the grouping principle, but technical considerations.

Getting the Low-Down on Volume

You are more confident that a price move has staying power if you know that many traders are involved in a price move and not just one or two.

Volume is the term for the number of shares or contracts of a security traded in a period. Volume is the most powerful confirming indicator of a price move, and *confirmation* is a key concept in technical analysis. (See Chapter 16 for more on the confirmation concept.) When you look at price changes, you imagine buyers demanding more of the security at ever-higher prices or sellers offering a greater supply at ever-lower prices, as described in Chapter 2 . But a price can move on a single large purchase or sale, especially if the market happens not to have many participants at that exact moment, a condition named *illiquidity*. (See Chapter 6 for a more-detailed description of liquidity.)

In technical trading, you use volume to measure the extent of trader participation. When a price rise is accompanied by rising volume, you have confirmation that the direction is associated with participation. Volume is outright, direct evidence of demand. Similarly, if you see a price fall by a large amount but the change is not accompanied by a proportional change in volume, you can deduce that the price change was an aberration. Volume tells us only the number of shares or contracts traded, not the number of participants. Obviously you can get a jump in volume that is due to only a handful of participants, and then you will be drawing the wrong inference from high volume.

In this section, you can turn up your use of volume in technical analysis by considering a few top-drawer indicators. These indicators tend to be among the most reliable in technical analysis.

Leading the way with spikes

Volume sometimes leads price. The most obvious situations are when volume spikes. A *spike* is a volume number that is double or more the size of volume on the preceding days. Say volume has been running at 100,000 shares per day for several days or weeks and suddenly it explodes to 500,000 shares. If the price had been in a downtrend, this wild increase in volume means that the crowd is throwing in the towel and exiting en masse.

When everyone has jumped off the bandwagon, get ready to jump back on. Nobody's left to propel the price lower. Conversely, the same advice is usually correct when you see a volume spike as the price is making new highs. The underlying principle is the same — the crowd has exhausted its supply of cash. Think about taking profit if you own the security. If you're considering a new position in a rising security that just had a volume spike, think again. Look at other indicators. Try to understand why so many people suddenly jumped on the bandwagon — does fresh news justify the increase in demand for the security, or is it just animal spirits?

A volume spike is one of the occasions when fundamental information is complementary to a technical observation. Beware a price making new highs

complementary to a technical observation. Beware a price making new highs coupled with a volume spike when there is no fresh news or fundamental information that attracted new buyers. Chances are that the top is in. If the security has new, legitimately exciting news and you can reasonably deduce that it attracted new buyers, you have a nontechnical reason to ignore the usual spike interpretation.

Tracking on-balance volume

On-balance volume (OBV) is a single number representing cumulative volume. A market technician named Joe Granville devised the OBV indicator to display volume adjusted as follows: To calculate OBV, you add volume on days that the close is higher than the day before and subtract the volume on days that the price is lower than the day before. You are assuming that when the price closes higher than the day before, demand was greater than supply at each price level. Buyers had to offer higher prices to get holders to part with their shares.

In OBV, you are attributing *all* the volume on a higher-close day to net buying and *all* the volume on a lower-close day to net selling. This assumption isn't realistic, but hang in there for another minute. See Figure 3-1 , which shows Apple stock. Daily prices are in the top part, volume (in hundreds of thousands of shares) is the center of the chart, and the OBV indicator is in the bottom window of the chart.
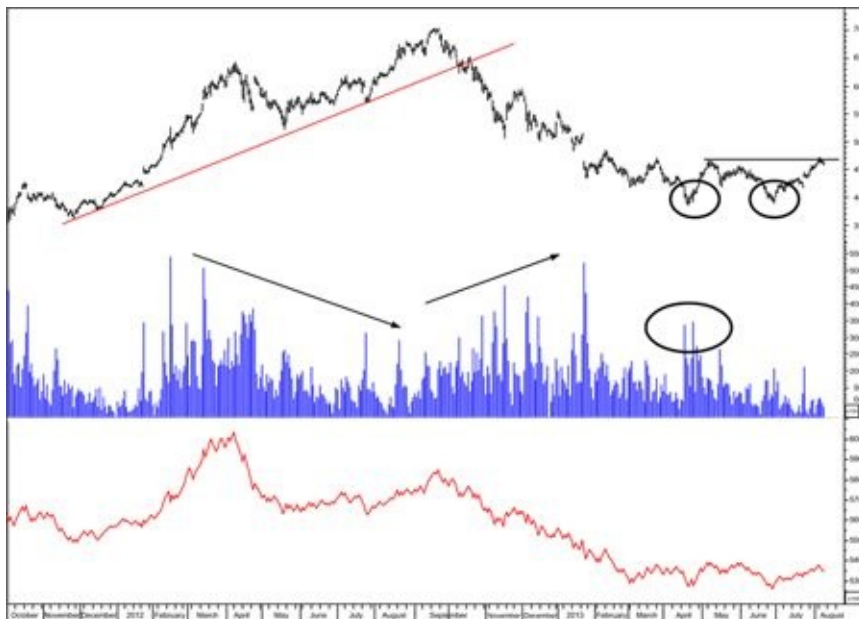
Figure 3-1: : On-balance volume.

OBV doesn't work all the time, but a change in the indicator often precedes a change in the price. You can see how to use the OBV indicator in two instances on the chart in Figure 3-1 . Follow along:

✔ **The down move:** On the left side of the chart**,** the price is rising, as shown by the support line (see Chapter 10), but notice that volume is falling. The OBV indicator in the bottom window is falling, too. This is a warning that the move is running out of participants, even though it's very early; OBV peaks in April and the true final reversal doesn't come until October.

If you waited to sell until you got confirmation from the price breaking the support line to the downside in October, you would have sold at $646.88 and covered your short sale at $385.10 in April (circle) for a gain of $261.78 or 41 percent. How do you know to cover in April? First, you see a spike in volume as the last of the diehards sell. Then you see another volume spike that suggests buyers are back, and this time price rises. The rout is over. Not everyone can sell short, of course. Just consider that if you are a long-time fan of Apple stock, you could have saved yourself from a nerve-wracking 41 percent drop by selling at the confirmed point. *You can always buy it back* .

✔ **The up move:** Apple puts in a double bottom (see Chapter 9). Volume and OBV are falling. But at the right side of the chart, price and OBV are rising while volume is falling. When price rises on falling volume, it means the bulls in Apple stock are persisting. The price has surpassed the previous high (horizontal line). You should keep an eye peeled for a spike in volume that will be reflected in OBV, accompanied by a further rise in price, to determine a new entry point.

The divergence of price and an indicator that normally move in tandem is a wake-up call. A change in volume often predicts a change in price. The indicator is telling you something you can't see with the naked eye — in the Apple case, prices are putting in new highs but not yet on

higher volume and with OBV not yet confirming new participation. Get ready to buy, but not quite yet.

The term *smart money* refers to traders who see an opportunity forming, as in the Apple case, or the exhaustion of a price move ahead of the other traders. They are alert to the moment when the crowd suddenly realizes that it has taken a price too far — and reacts violently in the other direction.

Truth to tell, though, no indicator works all the time, and this one doesn't, either. The OBV indicator was way early in calling the price drop and isn't actually leading as this chart ends, and would have to be called coincidental. Even OBV inventor Granville famously missed a major bull market that started in 1982, and then persisted in saying it was a false bull for the next 14 years. However, OBV correctly predicted the crash of October, 1987 — in August, two months early. So you can see that Granville's personal woes with forecasting do not detract from the usefulness of his indicator, even if it can be tricky to apply.

Refining volume indicators

As noted in the section "[Tracking on-balance volume](#) " earlier in the chapter, the OBV indicator attributes *all* the day's volume to buying. This is not realistic. It makes more sense to attribute only a portion of the volume to the price rise, rather than the whole kit and caboodle.

A technical analyst named Marc Chaikin figured that a more representative amount would be the percentage equivalent of the price that is above the midpoint of the day. You calculate a *midpoint* as the high of the day plus the low of the day divided by two. Chaikin's version of accumulation and distribution is more refined than OBV.

If a security closes above its daily midpoint, bullish sentiment ruled. The close over the midpoint defines *accumulation,* defined earlier in this chapter. The closer the closing price is to the high, the more bullish it was. If the price closed right at the high, then you say that 100 percent of the volume can be attributed to bullish sentiment.

Conversely, *distribution* is the term for sellers willing to accept lower prices in order to induce buyers to buy. Lower prices imply bearish sentiment. Distribution is calculated the same way as accumulation — a close below the price midpoint means distribution. The closer the closing price is to the low,

the more distribution prevailed. If the close is exactly at the midpoint, then the indicator has the same value as yesterday — and you have no reason to add or subtract volume from the running total.

Contrarians and cranks

A *contrarian* is someone who has a fundamental reason for thinking that a security is mispriced. In equities, an example is insider information that an out-of-favor pharmaceutical company has secretly discovered the cure for baldness and its price will shoot the moon on the announcement. In financial futures (stock indices, bonds, and currencies), a fundamental reason to judge a security mispriced may be a forecast of a central bank interest rate change that nobody else can see coming. A true contrarian is quite rare, although lots of people fancy themselves contrarians when they're just cranks. When a contrarian is right, he becomes a millionaire and is called eccentric. When he is wrong, he stays poor and is called a crackpot.

In contrast, technical trading is by its very nature non-contrarian. You want to go with the crowd, not against it (most of the time). To identify when the crowd has gone too far isn't contrarian in the proper sense of the term. When you figure out that a reversal point is impending, you're a crowd leader. Confusion about the meaning of the word *contrarian* arises because some followers of sentiment indicators use it when talking about turning points predicted by indicator extremes. To recognize that at the top of a rally everyone is fully invested and no buyers are left is called *contrarian logic*. But to say that the crowd is wrong isn't contrarian — it's simply understanding crowd dynamics. A true contrarian has a fundamental reason to say that the crowd is wrong.

Blindsiding the Crowd

You may find it comforting to think that you can find regularity and orderliness in charts, using the technical methods that take up most of this book, or the sentiment statistics pertaining to the market at large described in this chapter. But don't get too comfortable.

A big black hole in orderliness appears when markets balloon up into manias and when they crash in panics. The art of technical analysis is to identify the crowd psychology underneath price moves. Rallies are relatively easy to identify after they have started. But technical analysis has failed notoriously to call the big crashes in the past 100 years. Some people use this failure as a reason to distrust all technical ideas. But that's unfair and unnecessary for the simple reason that the technical mindset includes always knowing your exit. So, even if you fail to forecast a crash, like the Apple 41 percent drop earlier in this chapter, you have techniques to avoid taking a personal loss. In the

Apple case, we used a breakout under a simple support line. You don't need to be able to forecast a 41 percent drop in Apple or an equivalent drop in the S&P 500 in order to have made or preserved capital.

Considering historic key reversals

An enduring mystery of market history is that big, key reversal points seem to come out of the blue. Seldom can you find a specific event that triggers a rally taking off or that can be named as the cause of a bubble bursting. To this day people debate the causes of the U.S. equity market collapse in March 2000 — was it just the dotcom bubble bursting, program trading (also blamed in 1987), or something else? Similarly, the crash of 2008–09 can be attributed to the housing bubble bursting but also the financial sector crisis and the government's response to it — the full panoply of fundamentals. As you embrace technical concepts, the point is not to be analytically correct about the causes of manias and panics, but rather to protect your own wealth.

Enduring spikes

Technical traders acknowledge that random events can and do cause the occasional wild price departure from the norm, but the acknowledgement doesn't alter the expectation that prices will behave normally. For example, you sometimes see a price spike so big that you don't know how to interpret it (as you can see in Chapter 7). Often you never find out why such a bizarre price occurred.

A *price spike* is the equivalent of a tornado in weather forecasting. You know the conditions that cause tornadoes — you just don't know exactly when an actual tornado will develop.

Although nature may not be able to deliver a tornado in Alaska in January, the equivalent does happen in markets. Sudden cataclysmic events aren't as rare as you may imagine. Who would have thought that the S&P 500 could fall more than 20 percent in a single day? Most market observers used to say it was impossible. But that's exactly what happened on Black Monday, 1987. Most market tornadoes, like Black Monday, give plenty of technical warnings ahead of time. The problem is that traders often have those same warnings and don't get a Black Monday. This is an inconvenient fact of life that you have to accept.

Spikes are both a problem and an opportunity. If you know why a spike is

occurring because you are well informed about world events and market chatter in response to the world events, you may choose to ride it out. But to exit on fear of randomness is okay, too. You take no risk when you are out of the market. Nowhere is it written that you must have a position in the market at all times.

Remembering the last price

Market panics and crashes on the scale of 1929, 1987, 2000, and 2008 are historic events outside the purview of the crowd's normal trading process. In normal trading, you can assume that a wildly erratic price has a low probability of occurring. But you can't attach a specific probability statistic to an event of historic proportions — partly because those events are so rare.

In weather forecasting, a low-probability event (like a tornado) that happens today doesn't change the probabilities of the usual high-probability events happening next week or next year. But in markets, a low-probability event does change the odds for the next period analysis because traders *remember*.

When you are performing technical analysis on your securities, you count on traders to remember the last prices and to form their trading plans on those prices. We assume that the next price is normally dependent on preceding prices as well as new, evolving factors.

But one or two really big abnormal prices can sometimes upset the apple cart and determining which way the crowd will jump is not knowable. This analogy raises the issue of the reliability of indicators. Indicators there are essentially forecasting tools that depend on past behaviors to predict future behaviors, but they often fail near really big key reversals. Technical analysis is not science, as its inability to capture historic key reversals ahead of time demonstrates. In other words, having the best technical tools on the planet will not save you from a market tornado.

Thinking Scientifically

Even the best indicator fails to work all the time. In fact, some of the best indicators work less than 50 percent of the time, and that's when conditions are normal! If you sign up for advice on charting or stock selection, you will start getting 100 emails per day claiming to have the top trades with a probability of 95 percent success. If you do an Internet search for "top stock

picks," you get 134 million entries! If you narrow the search to "top chart stock picks," you get 12.4 million entries. Good grief, how do you winnow the wheat from the chaff when the silo is so full?

A good place to start is to eliminate all the claims that are mathematically impossible. Many, many advisors claim a fabulous track record when all they had was a bull market. As noted at the beginning of this chapter, you really want to know the condition of specific securities against market indicators.

You may think that it's overkill to discuss scientific method, but I can practically guarantee that this section will have a big payoff for you. With millions of advisors seeking your money and flinging enticing advertisements your way for software or trading programs that are "scientific" and "objective," you need the tools to judge whether they really are. In the end, all math is "scientific" and "objective" — but that doesn't mean you can use the promoters' ideas to make money, and it certainly doesn't mean that using them will help you escape the next market tornado.

Conditions and contingencies

When you hear someone say, "Blue Widget has a 75 percent chance of rising," you can assume that three out of the last four times the technical method was applied, the security rose. The unspoken assumption is that conditions didn't change. But the market is not a laboratory. Of course conditions changed!

The forecast needs to be qualified because of the thousands of factors that may come along and influence the price. *Contingencies* are things that are possible but not expected, or not expected in any great number at the same time. You know what a contingency is — like hitting every streetlight red on the way to the train station to catch the 6:09. If you hit the average number of red lights, you can make it on time to catch the train. If they're all red and you also have to slow down for construction, you miss your train.

When you hear a promoter predict a price change with a 75 percent probability, chances are he's talking through his hat. He may have failed to incorporate all the reasonable contingencies, or he may have attributed too small a probability to any of them (or to all of them). Read

financial history, and you find the ground littered with the corpses of traders who failed to include a key contingency in their calculations.

Unlike promoters, most technical traders hate to attach a probability to a particular outcome, like "Blue Widget has a 75 percent chance of rising." Reluctance to apply the term *probability* is due to a realistic assessment of the contingencies. In statistics, when you want to calculate the probability of two events happening simultaneously (called *joint probability*), you multiply their probabilities. If you have two remotely possible contingencies, each with a probability of 10 percent, the chances of both happening simultaneously is 10 percent times 10 percent, or 1 percent.

Returning to the 75 percent chance Blue Widget will rise, assume a single 10 percent contingency. To calculate the effect of a 10 percent probability contingency on your trade, you take the reciprocal of the probability, or 90 percent, as the amount to modify the 75 percent. In arithmetic notation, it looks like this:

75 percent *times* 90 percent = 67.50 percent

In other words, introducing just **one** contingency reduced the probability of your outcome from 75 percent to 67.5 percent. It gets worse. If you have four contingencies and you attribute a 10 percent chance to each of them, the same process reduces your 75 percent odds to a mere 49.21 percent, which is less than 50-50.

Joint probabilities are a real bummer and are the real reason honest technical traders hate to declare a forecast. The more contingencies you admit, the lower the probability of the outcome.

Sample size

Statisticians say you need a minimum of 30 cases before you can say anything valid about the probability of history repeating itself. Scientists who do really serious science, like missiles and moon shots, demand a minimum of 200 cases. In setting up the Blue Widget example in the preceding section, I attributed a 75 percent chance of the price rising because three out of the last four times that conditions looked the same, that's what happened. But a sample size of four instances is hardly

sufficient.

Your price data seldom presents you with 30 identical cases, let alone 200. Why should you accept less? The answer is that you're using a technical analysis method that works across a wide range of securities and time frames, even if you don't have enough cases in this specific security.

For example, when you have a support line (which I describe in Chapter 10) and your price breaks it to the downside, that's a sell signal. Over the past 100 years, technical analysts have used the break of a support line millions of times, and it worked in a majority of cases. Using this method was the correct trading decision, although using the break of a support line as a signal doesn't work every time. A support line break is an example of a technical forecast that has a high probability in the context of many different contingencies and over many sets of conditions.

Other techniques are less reliable. You may think it would be wonderful to have a list of techniques with their *reliability quotient,* or a ranking of how often they're right. Some writers and software vendors claim that their techniques are "95 percent correct." This lofty proclamation is hardly ever true. For one thing, the vendors aren't considering new contingencies and conditions. Markets are dynamic. Something that worked 95 percent of the time in the past may have worked because a rising tide lifted all boats, and may work only 65 percent of the time in the future. In fact, it may not work at all in a true mania or panic.

Part II

Preparing Your Mind for Technical Analysis
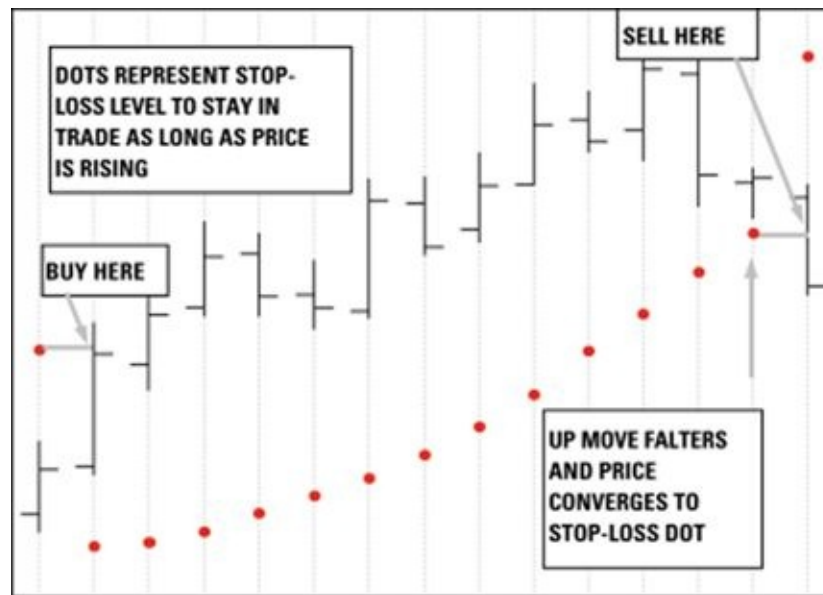
 Visit www.dummies.com/extras/technicalanalysis for great Dummies content online.

In this part…

- ✔ Understand indicators are calculations that you put on a chart to identify chart events, chiefly whether the price is trending, the degree of trendedness, and whether a trend turning point is being reached.

- ✔ Use a five-step plan to develop trading rules that work with your indicators.

- ✔ Learn to read price bars is like a detective examining the forensic evidence — and disregarding witness accounts.

Chapter 4

The Art of Trading

In This Chapter

▶ Moving beyond emotion with indicators

▶ Conquering fear of noise

▶ Selecting indicators

▶ Examining skill vs. art

I ndicators are a shorthand way to identify and measure market sentiment. They give you a platform for making rational trading decisions, bypassing greed, fear, and the other emotions that accompany trading.

In this chapter, I discuss using indicators to help you trade systematically. Technical traders believe that systematic trading has a sporting chance of making significant profits. But indicators don't always work, and I explain why in this chapter. To overcome the unreliability of indicators, a money management plan is necessary, which I cover in Chapter 5 .

Trading is about money, and money arouses emotion. To speak of trading as involving only greed and fear, though, as most commentators do, is to shortchange the range of emotion in trading. Trading is also about personal success and failure. Traders feel remorse, shame, and despair as well as hope, joy, and satisfaction. Technical traders go to great lengths to remove emotion from trading decisions. The chief tool to squelch emotion is the indicator. When you feel mild chagrin at a loss instead of screaming anguish, you have become a technical trader.

But before moving on, first you need to grasp that indicators will never entirely banish noise, including random noise, from your charts. You use indicators to separate the meaningful information, the "signal," from the noise. But you never eliminate noise. The persistence of noise in your indicator universe is a perpetual burden and the uppermost source of frustration.

frustration.

If you are of a mechanical mind set and have some math skills, you can become a successful trader using technical skills alone. But there is something beyond technical skill that is more an art — an intuitive feel for what the market is thinking. Markets, of course do not "think." Only individuals are capable of thinking. And yet, with enough practice and the ability to open your mind to the market's behaviors, you can also acquire an unquantifiable insight into the market that is more art than skill. Leo Tolstoy, when answering the question "What is Art?," said it is "a means of union among men, joining them together in the same feelings."

Noise — The Market Monster

Take as your core assumption that prices are either trending, with a distinct directional bias, or nontrending. In both cases, every price series has a certain amount of noise — price changes that arise from unforeseen quarters, cannot be forecasted, and tend not to be lasting. Noise causes prices to vary from trend, if there is a trend, and therefore to raise risk, although noise seldom changes a trend already in place. Changing a trend or starting a new trend from an untrended condition takes more than noise — it takes a market-moving *Event,* which I like to emphasize with a capital E.

To differentiate between noise and a genuine price Event, consider that in the foreign exchange market, you sometimes get a 1,000-point move in a single day when the average daily range is 120 points. You should always seek to find out what caused the spike. A move of this magnitude is not noise, because noise implies a minor price move with rapidly diminishing reverberations. The 1,000-point shocker is an authentic price Event and almost always signals a major change in trend (or starts a trend from a state of untrendedness).

Note that a barrage of noises, however, can become an Event even though no single component is more than noise. Famous economist Fischer Black said noise is when a large number of small events has a more powerful effect on prices than a small number of large events. In other words, be wary of dismissing an inexplicable price move as "only noise." Noise can rule the roost. You still want to distinguish between Events and noise, because Events change prices for sure, and with noise, you never know.

Where does noise come from?

Noise arises from an external shock, which can be big or small. Big ones are terrorist attacks and war, and smaller but no less influential ones are related to financial conditions, such as a change in the availability of credit or margin requirements, affecting liquidity. In practice, many events that are called noise are in fact predictable, like a change in tax rates on securities trading vs. capital gains. But such a change is still noise in the sense that it comes from outside the security's main conditions and is not inherent in the security itself. Academics are mixed on whether the shock has to be external, and include a variance in dividend from the forecast as a shock and noise, too, even though it's clearly internal to the fundamentals of the security.

Perry Kaufman, author of the encyclopedic *Trading Systems and Methods,* now in the 5th edition, says that noise is a difficult concept. He pictures noise as raindrops falling on a pond, causing what looks like random ripples. The interesting thing about market ripples is that markets adapt to them, and they stop being shocks and become normal, losing their power to change prices.

What's the relationship of noise to randomness? A lot of what is considered noise is not really a surprise and not really unforecastable. For example, you get the U.S. nonfarm payrolls report on the first Friday of every month. You know it affects many market prices, from stocks to foreign exchange, disproportionately. What you don't know is in what direction. Often you know payrolls will likely cause price spikes in *both* directions but the spikes are unforcastable as to extent or duration, let alone which direction comes first. The spikes are noise and certainly reflect shock, but are not random.

Some noise, however, is truly "random." Uncle Fred decides to sell 100,000 shares of Blue Widget to buy a yacht, and his decision has absolutely nothing to do with his valuation of Blue Widget. Imagine that 100,000 shares is a relatively large amount for Blue Widget. Other traders assume there is a story behind the price drop and jump on the selling bandwagon, inflating the volume and taking the price far lower than the original 100,000 shares would have done (see Chapter 3 for more on volume). This is why it's not wise to couple the word *random* with *noise* in all cases.

Noise from inside the market

Noise can arise from traders trying out a bizarrely off-trend price, which is

mischievous and at the far boundary of the price-discovery process (see Chapter 2). One sub-set of noise traders are the high-frequency model-driven traders whose computers spew out thousands of bids and offers, virtually none of which get filled, trying to get a rise out of the unwary. (In the United States, regulators are contemplating a cap on the ratio of unfilled bids and offers to the filled in order to gauge sincerity.) Another subset of mischievous traders is named *noise traders* by academic economists, a class that includes traders driven by ideology rather than information. Noise traders, also called *uninformed traders,* are often contrarian, by the way, and academic studies find they tend to lose money in both noisy and non-noisy market conditions.

From the point of view of a single security, what the overall market is doing is an external factor. But as noted in Chapter 3 , as much as 25 percent of a price move in a specific security may be due to the effect of changes in the index or class of securities to which it belongs. The fundamentals that move the index may or may not affect the specific security, but it gets saddled with the effect anyway.

A nontrending price series is especially vulnerable to random inputs that move the price disproportionately to what rational analysis would say real cause-and-effect ought to be. The shorter the timeframe you're looking at, the more influence noise has on your indicators. Noise, random and otherwise, is one of the main reasons why untrended price moves are susceptible to false breakouts — but trended price moves are not immune, either.

Indicators are "The Edge"

An *indicator* is a calculation that you put on a chart to identify chart events, chiefly whether the price is trending, the degree of trendedness, and whether a trend turning point is being reached. The purpose of indicators is to clarify and enhance your perception of the price move.

To put it bluntly, you want to buy low and sell high. You use indicators to gain an edge in doing exactly that. As noted in Chapter 1 , the technical approach has two key components — a rational forecasting base and, since forecasting goes both ways, a built-in exit/entry.

Classifying indicators

Classifying indicators

Indicators aren't like ice cream with three dozen different flavors. You can classify your indicators easily, because they come in two varieties:

- **Judgment-based indicators:** This group includes visual pattern-recognition methods such as bar, line, and pattern analysis, as well as candlesticks (see Chapters 6 through 10). These indicators can be time consuming to master and to use. They're also hard to translate into software formulations so that you can backtest them to see how they would've worked over the price history of your security.

- **Math-based indicators:** The math group includes moving averages, regression, momentum, and other types of calculations (see Chapters 10 through 15). Expressing chart events in mathematical terms allows you to backtest the event over historical data to discover how well it predicts the next price action.

You may prefer to jump straight to math-based indicators because they're faster, cleaner, and "scientific." But math-based indicators do the same job as judgment indicators — they display price data in a specific format to assist you in making a trading decision. Just because they're based on math doesn't mean that they aren't subjective. *You* determine the specifications of math-based indicators in the first place (such as how many days are in a moving average). Visual recognition and math-based techniques are equally valid and useful. Some traders use only visual-recognition techniques; some use only math-based indicators; and some use both. Remember, the use of math does not confer a crown of authenticity on any technique.

If math isn't your cup of tea, don't worry. The math involved in most technical analysis isn't all that difficult (except up in the stratosphere of advanced technical analysis). You can apply math-based techniques without understanding the math behind them as long as you understand the crowd behavior the indicator is identifying and how to apply the indicator. Think of it as knowing how to drive a car without being able

to build a carburetor.

Understanding what indicators identify

In Chapters 1 and 2 , I point out that securities prices are sometimes *trending* — they have a strong directional bias — and that trends are punctuated by *retracements,* or small moves in the opposite direction before the trend resumes. At other times, prices go sideways, called *range-trading.* Finally, trends end, and after they end, they may reverse to the opposite direction. So indicators identify five conditions; note that in this list, I put some suggestions next to each condition, but someone else could name other, equally valid, indicators:

- A trend is beginning (moving average crossover or pattern breakout).
- A trend is strong or weak (slope of linear regression or moving average).
- A trend is retracing but will likely resume (relative strength index).
- A trend is ending and may reverse (momentum, moving average crossover, or pattern breakout).
- A price is range-trading (slope of linear regression or moving average).

Each indicator works best in one situation and less well in others. Technical traders argue the merits and drawbacks of indicators in each situation, and if you ask ten technical traders to list their top indicator for each task, you'll get ten entirely different lists. To a certain extent, the indicator you choose for each task depends on the security, the analytical time frame, and your affinity for specific indicators. I personally am very fond of MACD, for example (Chapter 12), but other indicators are less intuitively obvious and leave me cold.

Choosing your trading style

Identifying trendedness is always your first task. In a perfect world, you first determine whether your security is trending or range-trading sideways, and then you apply the appropriate indicator. In practice, you can't always classify price moves as trending or not trending in a neat and tidy way. Besides, prices usually have an identifiable range, whether they're trending or not. In addition, retracements always create doubt — you find yourself wondering

addition, retracements always create doubt — you find yourself wondering, "Is it a momentary correction or a reversal?"

The focus on trendedness is necessary because you have to make a choice as to whether you are a trend-follower with a longer holding period (see Chapter 1 on holding periods) or a swing trader with a shorter holding period, including day trading. The reason you must choose is because prices don't move in a straight line, and even the best-behaved price series will exhibit retracements.

Here's why: If you own the security and it has moved from $5 to $10 (100 percent gain) and is now retracing back to $8 (20 percent loss from the high), what do you want to do? If you're confident that you can get even more than 100 percent and the security will triple to $15, you are a trend-following position trader. If the 20 percent loss off the high makes you itch and you feel compelled to secure the $3 gain that you still have (60 percent gain), you need to trade on a shorter timeframe and that makes you a swing trader.

So your first decision as a technical trader is whether you have the psychological (and financial) capability of sitting out losses as the price retraces. Figure 4-1 illustrates the kind of buy/sell decisions that a trend trader makes.
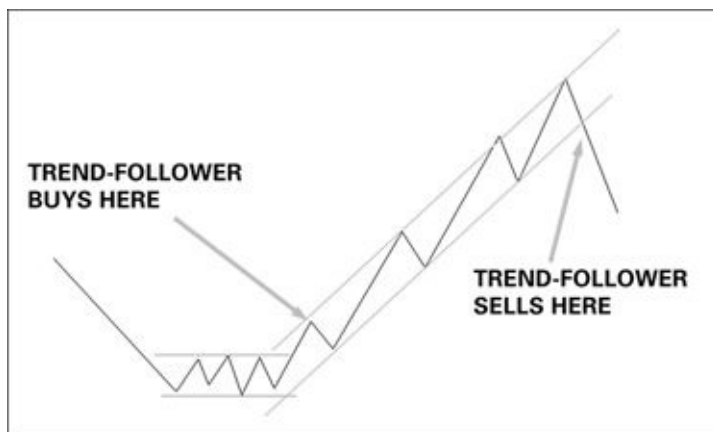
Figure 4-1: Trend-following.

A swing trader, in contrast, buys at relative lows and sells at relative highs regardless of whether the price is trending. Swing trading is more flexible than trend-following, although the trades tend to be more frequent and the profit on each leg of the trade tends to be smaller than in a single trend-following trade.

Figure 4-2 shows how a swing trader views the trading opportunities on the same chart as in Figure 4-1 . The swing trader is putting on trades on the left side where the price is range-trading, and he is *also* putting on trades *in both directions* as the price trends upward.
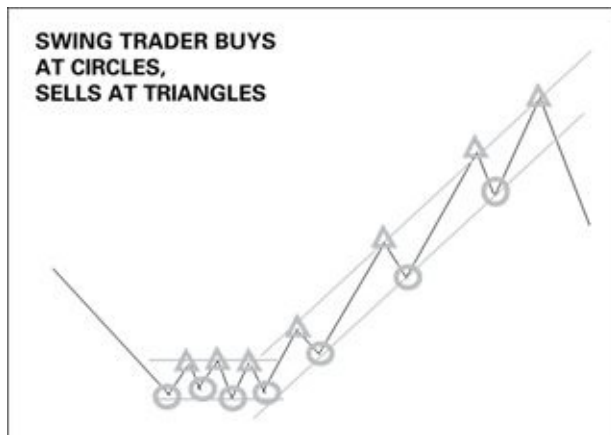
Figure 4-2: Swing trading.

The big difference in trading styles shown on these two charts is that the trend trader is willing to sit out the retracements, while the swing trader prefers to take advantage of the retracements.

If you choose trend-following, you choose to suffer through the downward bounce in an uptrend (or the upward bounce in a downtrend). And if you have correctly identified the trend, your patience pays off and the trend resumes. If you choose swing trading, you need courage, because many times you're trading against the trend. And on the whole, the trend is your friend, so going against it is riskier.

Fading the trend

Prices move two steps forward and one step back. Sometimes you see a pause in an uptrend arriving, and you know that early buyers are about to take profit, setting off a domino effect of falling prices. You know that the uptrend is well established, but instead of waiting for the trend to end, you sell your position and also go short today with the intention of exploiting just this one small downmove retracement. Selling into an uptrend sounds counterintuitive. But in practice, retracements are fairly reliable. Trading the retracement is called *fading the trend,* and it is standard operating procedure, especially in futures. Fading the trend works best if the countertrend trade is very short term (such as hours or days).

When you fade the trend, you break a cardinal rule of technical trading — to trade with the trend, which is based on the Dow principle that once a trend is established, the probability is high that it will continue. Therefore, to fade the trend is a purely opportunistic action based on an understanding of crowd psychology. Fading the trend also illustrates that the frame of reference of technical trading isn't the security and its fundamentals, but crowd behavior. Just remember, swing trading against the trend requires lightning speed, total concentration, and nerves of steel.

Examining How Indicators Work

Indicators cannot be easily categorized as belonging to trend trading or to swing trading, although it's obvious that if you are using a long-term moving average like the 50-day (see Chapter 12), it won't be appropriate to swing trade on a daily chart.

That doesn't mean you can't use a 50-period (or a 200-period) moving average on an intraday chart. In intraday analysis, the period is not a day, but some number of minutes. For example, the 240-minute bar (four hours) is popular in foreign exchange. A 50-period moving average is 8.33 days, fairly long-term when your analysis window is four hours and your holding period is 24 to 48 hours. A 200-period moving average is, therefore, 33.33 days, which in swing trading is definitely a long-term period. (See Chapter 6 for a discussion of intraday time frames.)

In the sections that follow, I describe the general way indicators work, but be aware that technical traders are mavericks and use indicators in an infinite variety of ways.

Finding relevant time frames

Most indicators measure price and volume changes relative to previous prices and volume over a specific *lookback* period, such as 12 days or 21 days.

Most indicators have a range of time in which research shows they work best. Most charting software incorporates this information as standard default parameters. A default parameter is only a starting point, and if 12 periods doesn't work on your chart, you're welcome to use a different number of periods. Twelve periods is the default because researchers found it the best number over many thousands of price

series. Be sure to differentiate between the lookback period, such as the number of days of past data you're putting in the indicator, and your trading frequency. Using a 12-day momentum indicator, say, doesn't mean you will trade every 12 days. It might be 3, or 30. (See Chapter 13 for more on momentum.)

Most indicators and patterns can stretch from a few minutes to several days or even many months, with a few exceptions. You wouldn't use momentum, for example, on a monthly chart, but you could use it on weekly and more frequent intervals. Support and resistance lines can be drawn on a chart of any time frame, and you can often see patterns like head-and-shoulders on 60-minute bars as well as a chart containing a year of data. Technology offers the ability to put an indicator on the screen that traditionally used (say) 12 days — but today it can be 12 periods, and the period could be 15-minute bars. Many traders just leave the default parameters of their indicators in their chart-drawing system and use them on every timeframe — I do.

The ability to apply an indicator over any time frame reflects the *fractal* quality of prices — the weird and wonderful fact that without a label, a price series of 15-minute bars can't be distinguished from a month's worth of daily bars. Intraday bars are like microcosms of daily bars, and daily bars are like microcosms of weekly or monthly bars. Traders respond to price changes in regular, consistent, and repetitive ways no matter the time frame.

To pick indicators to go with your time frame, you should discard the idea that you already know your time frame. You may think you're a long-term trader but then discover a real affinity for an indicator that works stunningly on your favorite securities but entails trading 5 to 20 times per year. You don't want to miss out on an indicator that seems to "belong" to a different time frame just because you've already boxed yourself in. The indicator may be more flexible than you first think. You can use short-term indicators to make long-term trades and the other way around. Thousands of technical traders all over the world are inventing new twists and tweaks on indicators all the time.

Heeding indicator signals

Indicators are designed to give buy and sell signals, although in many instances, the signal is more like a warning and doesn't have a black-and-white embedded decision rule. Indicators generate signals in three ways as I describe in the sections that follow — crossovers, meeting a range limit, and convergence and divergence.

Crossovers

The term *crossover* refers to one line crossing another line. They include:

- **The price crossing a fixed historic benchmark.** (See the "Establishing Benchmark Levels " section, later in this chapter.)

- **The indicator crossing the price or the price crossing the indicator.** (See Chapters 10 and 13 for support and resistance lines and moving averages.)

- **One line of a two-line indicator crossing the other.** (See information on the moving average convergence/divergence indicator in Chapter 12 .)

In most instances — but not all — the price crossing an indicator is named a *breakout,* one of the most important concepts in technical analysis. When a price rises above a long-standing resistance line, for example, technical traders say it "broke out" of its previous trading range and now the sky's the limit — until the new range is established. Usually, you want to scrupulously observe and measure a breakout. If the indicator line is at 10 and the price goes to 12, it's a breakout. If the price goes to 10.05, it's also a breakout.

The word *breakout* itself tells you the crowd psychology behind the price move. In an upside breakout, bullish sentiment triumphed. The bulls broke out of the enclosure and are cavorting in the pasture. When bearish sentiment wins, the bears have broken down the fence and are eating your prize roses. A breakout doesn't necessarily imply a trend reversal, though; sometimes a breakout is a confirming factor that the existing trend is gathering new momentum or passing new benchmarks.

Range limits

Oscillators describe where today's price stands relative to its recent trading range, as I describe in Chapter 13 . Oscillators are usually based on 100, so they range from zero to 100, or minus 100 to plus 100, or some other variation using the number 100.

In practice, traders find that usually the scope of the price range falls well under the outer limits and doesn't vary by more than 20 percent to 80 percent of the total possible range, so they draw a line at 20 percent of the maximum range and another at 80 percent (or 10 percent and 90 percent, or some other variation). When the indicator approaches one of the lines, the price is nearing an extreme of its recent range. This is a warning of an overbought or oversold condition and thus a potential retracement or reversal. Depending on whether you're a trend-follower or a swing trader, you may alter the amount of your position or alter your stop (see Chapter 5). If you're a swing trader, you may use an actual crossover of the range lines as a buy/sell signal.

Convergence and divergence
Convergence refers to two indicator lines coming closer to one another, such as when a support line and a resistance line converge to form a triangle (see Chapter 9) or two moving averages get closer together (see Chapter 13), indicating less difference between their numerical values. Convergence generally means that the price action is starting to go sideways or has a narrower high-low range, or both. A sideways move, in turn, generally leads to a breakout. Convergence does not have an embedded trading rule and is more often used as a warning that a change in direction or the strength of a trend is changing.

Divergence refers to two indicator lines moving farther apart, such as when the spread between two moving averages widens. Divergence also refers to an indicator and the price going in different directions, and this is the most common and useful application of the observation. Momentum indicators, in particular, reshuffle the components of the price bar to come up with a price's rate of change, so that the slope of the indicator is a sophisticated measure of the strength of a trend. When the price is still rising (making new highs) as the momentum indicator starts to fall (making progressively lower highs), the price and indicator are diverging.

Divergence is one of the few leading indicators in technical analysis and something you should note as a warning of a possible trend change, although it, like convergence, doesn't have an embedded trading rule.

Establishing Benchmark Levels

Some price chart characteristics are inherent to the chart and independent of your indicators. Every price series has historic highs and lows that are not indicators, and yet they may serve to indicate future price action, like the 52-week high or all-time high (or low). In some instances, years can pass before the benchmark is matched again. Historic levels are magnetic — they attract some traders to try to break them — but they are also barriers. Hesitation ahead of the breach of a benchmark price can be prolonged, demonstrating that traders are fully aware of "historic levels." In addition to historic highs and lows, we can name the long-term moving averages (20-, 50-and 200-day) as benchmarks, and in some cases, key pivot levels. See "Skill vs. Art" later in this chapter for an application of a monthly pivot level in a real case.

Historic levels are a cause and an effect of strange indicator behavior. If an uptrending indicator like the moving average flattens out mysteriously, widen the time frame on your chart to see whether the price is near a historic level. The market is going to test the old high. If the test fails, expect a retracement and maybe a reversal. If the price passes the test and makes a new high, you expect the price to accelerate with high momentum and deliver a juicy profit. See the discussion on momentum in Chapter 13 .

Choosing Indicators

The good news is that everything works, at least some of the time. Moving average indicators work (see Chapter 12). Channel breakouts work (Chapter 11). Trading in a three-to-five-day time frame with candlestick analysis works (see Chapter 8). But indicators only *indicate*. They don't *dictate* the next price move. For one thing, there's that monster, noise. For another, fresh

news and perceptions of news arrive on the scene.

All newcomers to technical analysis (and many old hands as well) tend to lose sight of the limitations of indicators. Folklore says that technical traders are always seeking the Holy Grail, or the perfect indicator or combination of indicators that is right 100 percent of the time. It doesn't exist. One of the reasons it doesn't exist is that *you* are different from the next guy. Equally important, *you* change over time. The ideal indicator that delivered great profits ten years ago is one that you now avoid as carrying too much risk. In other words, an indicator is only what you make of it.

The old joke has it, "Give 12 technical traders a new indicator, and a year later you have 12 different track records." How you use an indicator isn't set by the indicator itself, but by the trading rules you use. Indicators and trading rules have a chicken-and-egg relationship. The process of selecting and using indicators involves not only the characteristics of the indicator, but also a consideration of the trading rules you must employ to make the indicator work properly for you.

For example, you may like an indicator but find it generates too many trades in a fixed period, so you don't execute every single signal. Someone else may use the identical indicator, but instead of overriding indicator signals with personal judgment like you, he modifies the exact timing of trades by using a second indicator. I talk about combining indicators in Chapter 16 .

Modifying indicators with trading rules is *always* better than overriding them. To override your indicator haphazardly is self-defeating. You're letting emotion back in. Plus, you won't get the expected result from the indicator — and then you'll blame the indicator. Fortunately, most indicators are fairly flexible. They can be adapted to fit the trading style you prefer, such as the frequency of your trades. Indicators are about price-move measurement. Trading rules are about you and your tolerance for risk. Trading rules must be appropriate to the indicators you choose. In short, don't pick indicators that you can't follow, like a momentum indicator that gives ten trading signals per

month when you don't have the time or inclination to trade that often.

Examining Indicators in Detail

The first step in seeing whether a given indicator can work for you is to test how it would have worked in the past. You expect price patterns to repeat, because crowd psychology doesn't change much. *Optimization* is the process of testing a hypothesis on historical data (backtesting) to discover which parameter would've worked the best. In practice, the terms *backtesting* and *optimization* are used interchangeably.

Optimization is a necessary evil because when you're starting out to trade a new security, you don't know which indicators to use or which parameters to put into the indicators. In keeping with the empirical approach, try various indicators and different parameters in the indicators to see what works.

I say that optimization is evil because common sense tells you that conditions are never exactly the same and what worked on historical data may not work in the future. Backtests to find good indicators and optimum parameters give you a sense of accuracy and reliability that is almost always misleading.

Constructing a backtest optimization

Backtesting is a valuable exercise that delivers a measure of how well an indicator parameter might work — in a situation where you have no other evidence that the indicator will work at all. Backtesting is better than eyeballing multiple versions of the indicator on a chart.

A popular place to start backtesting indicators on your security is the simple moving average crossover. The goal of the backtest is to find *x,* which is the number of days in the moving average that would generate the best profit by using a crossover rule (see Chapter 12). Here's the formal hypothesis: "If you buy XYZ stock every time the price crosses above the *x* -day moving average and sell it every time the price crosses below the *x* -day moving average, it'll consistently and reliably be a profitable trading rule."

Just about every software package allows you to search for the optimum moving average and will deliver the results in minutes. In this case, I ordered the software to test every moving average from 10 to 50 days over the past 1,000 days to see which moving average would have delivered the most profit

on XYZ stock (the name is withheld to protect the innocent). I also ordered a buy-only strategy, although you can also test for additional gains from going short (to sell today without owning the security and buy it back later after the price has fallen). You can see the three best results in Table 4-1 .

Table 4-1	Results of Simple Moving Average Crossover Backtest on XYZ Stock		
Number of Days in Moving Average	Average Profit/ Loss	Percent Gain	Number of Trades
10	$1.56	68.60%	178
31	$3.02	59.34%	32
35	$3.32	61.69%	47

The Table 4-1 test results shows that if you had been willing to trade 178 times in 1,000 days, or roughly every 2 weeks, you would have made 68.6 percent by using a 10-day moving average crossover of the price. Is that a good number? One way to judge is to compare it to buy-and-hold; in other words, buying on Day 1 and selling on Day 1,000. In this case, the software calculated the buy-and-hold return as 43.4 percent, so for all that trading work, you made an additional 25.2 percent. On a $10,000 starting capital stake, that's $2,520. Or did you? I didn't include brokerage and other costs in this calculation.

It's common sense to look at backtest results *after* slippage, which is the cost of brokerage fees plus not getting the exact price on your screen. Checking the indicator's performance after slippage can make all the difference between a profitable trading rule and an unprofitable one. Subtracting a $10-per-trade brokerage and slippage cost to the results in Table 4-1 changes everything! Now the optimum moving average is 31 days (from 10), the number of trades is 32 (from 178), and the profit is 49.3 percent (from 68.6 percent). This is only 5.9 percent more than buy-and-hold. You're swapping a very high number of trades for less profit. Quick, which one would you choose?

Too many factors

In the simple moving average crossover test described earlier, I used a single criterion for selecting the optimum moving average — percent gain. But percent gain is not the only goal. If percent gain were the only goal, you

percent gain is not the only goal. If percent gain were the only goal, you could find yourself accepting a trading regime that delivers 100 losing trades for every 10 winning trades. The ten winners must each be a home run to make up for all those losses. But you are looking for systematic trading, not a few home runs that may not repeat in the next 1,000 days. Therefore you also care about the number of winning trades versus losing trades and about the average win-loss ratio. You want as few losing trades as possible and you want to get more profit from the average winning trade than you lose on the average losing trade. Eek! That's four more factors to consider.

Backtesting never delivers a single, no-brainer parameter. Even after factoring in brokerage and slippage costs, you still have to choose between the parameter that calls for more trades over one that calls for fewer trades, and between one that delivers more winning trades than losing trades, and the one that delivers a better win-loss ratio. You hardly ever find a parameter for your indicator that meets all the metrics.

Fixing the indicator

Assume that percent gain is your priority. What comes second? Most people choose "reducing the number of losing trades," and this is the correct choice. The single best way to reduce your losing trades is to add a confirmation requirement, such as one of the momentum or relative strength indicators. Requiring a second indicator to confirm a buy/sell signal will reduce the number of trades by 30 to 50 percent without sacrificing much profit. And because the trades being eliminated by momentum confirmation are generally losing trades, the gain-loss ratio improves, too.

After choosing your indicator parameter, your job isn't finished. Backtests are hypothetical. You didn't actually make those trades. To get a more realistic idea of how an indicator-based trading rule works, backtest the rule on historical price data and then apply it to out-of-sample data. In the case in Table 4-1 , for example, I backtested on 1,000 days of data. Now I should backtest it on the next 500 days of data, named a "walk forward" test. If the results are about the same on the fresh data, you consider your rule to be *robust*, meaning it works across a wide range of conditions.

Evaluating the risks of backtesting

The flaw in backtesting is that the ideal parameter for an indicator is ideal only for the past. Critics of backtesting point out that even if your indicator is robust on the next 500 days of out-of-sample data, after you actually add that 500 days to the backtest, the perfect parameter is now some other number. You can go mad backtesting until you are blue in the face, and you will never find the optimum parameter that stays the same over time.

The unreliability factor gets worse if you fiddle with the indicator with filters. This is named *curve-fitting*, or making the indicator perfect for the past. The probability of that indicator being perfect for the future is low, because the market is dynamic and changes.

Bottom line: Don't count on finding a magic number to put into your indicators. Now you know why many traders just use the default parameters supplied with software and on websites.

The real reason backtesting has fallen out of favor is that it's a massive amount of work that takes a vast amount of time and has to be refreshed repeatedly. Remember, at a minimum you are trying to get the best combination of percent gain, highest gain-to-loss ratio, more winning than losing trades, and an indicator that is robust across a range of conditions. That's a tall order, and the trade-offs are sometimes peculiar. Adding additional indicators to get confirmation increases the work load exponentially. If you are computationally competent and clever with numbers, you can modify the parameters of multiple indicators to generate a trading system having exceptional profitability. While you are doing that, though, you're not doing other things, like watching prices move to get a feel for the rhythm of the market.

Skill vs. Art

If you build a trading system of multiple indicators blended with your risk choices, as discussed earlier in this chapter and further in Chapter 5 , you must take every trade that your indicators throw up. If you cherry-pick the trades, you defeat the purpose of your goal, which is to get the same or nearly the same outcomes as in your backtest. It takes real skill to combine indicators in a system that is robust across varying conditions. Not only do you get the expected gain, but on a daily basis there is little work after the design is done, and not incidentally, a mechanical trading system removes

emotion from the trading process.

But not everyone likes being chained to the indicator, especially if conditions get noisy and Events are on the horizon. An alternative is to study the chart using whatever techniques come to hand and see if a profit opportunity jumps out at you. I call this *guerrilla trading* because you lurk in the bushes, numerous different weapons at the ready, and you take only the shot most likely to hit the target. (See Chapter 5 for more on guerilla trading.)

Guerilla trading (see Figure 4-3) uses technical indicators, but on a one-time basis, and the trade is more artful than skillful. Here's a case where the trader has a feel for the events as they unfolded over two days. The security is on a long-lasting uptrend and overbought. Then earnings are released and lower than forecast. The stock price falls on high volume. In a flash judgment, you decide the news is noise. After all, the uptrend is well-established. The stock is a buy at some retracement level, and you choose the monthly pivot point (see Chapter 11). The stock opened at hand-drawn support and dipped to just under the monthly pivot line. When it returns to the pivot line, you buy. The next day, you sell at the close. You gain $30.83 on $879.87, or 3.5 percent in one day. If you could do that every day, you'd be making 770 percent per year. This is an actual trade, by the way.
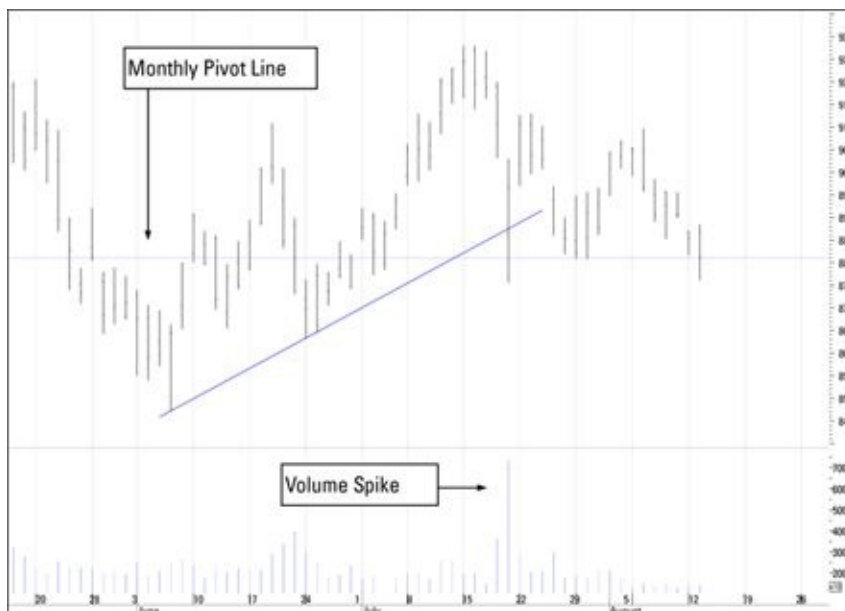
Figure 4-3: Guerrilla trade.

Chapter 5

Managing the Trade

In This Chapter

▶ Creating trading rules: The five-step plan

▶ Blending trading rules with indicators yields trading style

▶ Knowing when to take the money and run

▶ Keeping losses under control

▶ Finding out how to adjust positions

I n technical trading, you use indicators that help you identify what the price is doing, but indicators don't always have an embedded buy/sell trading rule. Even indicators that do contain an inherent buy/sell instruction (like a breakout) can be unreliable. You need to invent a reliability quotient of your own. Indicators are a foundation, but it's up to you to build trading rules around them. Indicators are about price changes. Trading rules are about you and your money.

In this chapter, I talk about developing trading rules that reflect your risk appetite. The emphasis is on stop-loss rules — don't leave home without one.

Talking about managing the trade before I talk about indicators may seem a little strange, but I have a very good reason for it. You may see ads or get e-mails touting "the one indicator that will make you 89 percent in the next three weeks" or "the special secret that guarantees 92 percent profits in a year." Of course you know better than to believe these silly promotions (don't you?). Well, all through this book, I show you just about every one of these "hidden secrets" and magic indicators. Some do actually perform as well as advertised, but only sometimes, and you don't know ahead of time when they will fail. You want to know when to trust them and when to back away, and the only way to do that is with your own personal trading rules.

Building Trading Rules

A *trading rule* is the specific action you take when certain conditions are met. At the most basic, a trading rule instructs you to buy or sell when an indicator meets a preset criterion (like the moving average crossover in the case in Chapter 4). Most indicators have a buy/sell trading rule already embedded in them, as I describe in each of the chapters about indicators (see Chapters 6 through 17).

But technical trading is a mindset that goes beyond using indicators. Trading rules improve your trading performance by refining the buy/sell signals you get from indicators. Trading rules tend to be more complex and contain more conditions than raw indicators, such as "buy after the first 45 minutes if *x* and *y* also occur" or "sell half the position when *z* occurs."

Every trade you take should meet a simple goal: Your expectation of gain is higher than your expectations of a loss. This is a fancy way of saying you want to get the highest return for the lowest risk. But notice that your expectation of gain is based upon the reliability of your indicators, and so trading rules are always related to indicators in a very intimate way. How can you accomplish this? You start with a plan.

Your trading plan outline

You can easily find the "trader's top secrets," "magic indicators," and the "trade of the day" on websites. Many promoters even explain their techniques. But when the trades go wrong — and they always fail at some point — you end up poorer. And you're probably angry at the guy who sold you trading ideas you could easily have uncovered yourself with a little more indicator knowledge and without paying a big subscription fee.

Most importantly, you could have tailored the indicator to your risk appetite and not the risk appetite of the guru selling the trade or the program. The fault lies not in the magic indicator but in the execution of the entry and exit that suits your risk appetite. Good trading isn't about the securities you trade or about indicators. It's about planning the trade in full ahead of time to suit your personal risk tolerance, and following the plan. Managing the trade isn't exclusive to technical analysis. But all successful technical traders manage their trades.

At each step you have to decide which indicators or combinations of indicators to follow, and your exact specifications for them. Here's what your rules need to do:

Rule 1. Determine the current trend.

Rule 2. Establish the rules for opening a position.

Rule 3. Manage the money at risk by scaling up or down.

Rule 4. Establish the rules for closing a position — set stops and targets.

Rule 5. Establish a reentry rule after being stopped or after the target is hit.

The technical trader plans the trade from entry to exit. This is the opposite of traditional investing, where you buy a security for an indefinite period of time without a stop or profit target. But if you want to increase your stake or preserve capital, it's when you sell that counts. You sell for one of three reasons — you met a profit target, you met a loss limit, or you chose to increase or decrease the risk of the trade.

 Rule 3, scaling in and out, is the most important step named by professional futures fund managers. This is logical. It's more profitable to increase funds in the currently winning trades and to withdraw funds from the laggards.

But that's because professionals are already observing Rule 4, controlling losses. For the individual whose mind may still holds vestiges of value-investing and buy-and-hold ideas, Rule 4 is the most important. The paramount rule in technical trading is to control losses.

 You can pick so-so securities and apply so-so indicators to them, and if you're trading systematically, you can still make a decent net gain if you only control losses.

Combining indicators with trading rules

Most technical traders are highly attuned to trendedness whether they are outright trend-followers or not. The key to technical trading success is being

doubly systematic — systematic in identifying what are, for you, tradable trends and conditions, and systematic in applying your trading rules.

Trends can be defined by dozens of different criteria, as I show you in Part II of this book. A trend defined by a simple measure, such as two or more touches of a support line, gains credibility when you can add confirmation from a second indicator, such as volume, momentum, or relative strength. All indicators fail sometimes, so a trend can be deemed more reliable if it's confirmed. By the time you add a third confirming indicator, your confidence level should be pretty high that this will be a winning trade.

But price series seldom cooperate and deliver confirmation after confirmation from multiple indicators. In fact, by the time everything lines up perfectly, the trend is probably ending! It drives some people nuts to have three indicators saying buy and one saying sell, but trust me on this, that's exactly what you will face, almost all the time. Depending on what indicators you choose and how well they tend to perform on your securities, you should rank trendedness by your own measures of reliability. As mentioned in Chapter 4 , it would be splendid to have a ranking provided by old-timers and math geeks, but that's not possible because of the literally infinite combinations and permutations of indicators with securities.

This is why book authors and other gurus who claim to have ideal indicators for their securities are not necessarily lying — maybe they did, for their securities and in the timeframe they were working. That doesn't mean their magic formula will work for you, on your securities, going forward, and with your risk preferences. It's therefore better to learn the principles behind many different indicators and understand why they work so that you can be flexible in choosing the ones that work for you. It took me 15 years of looking at it every blessed day to "get" the stochastic oscillator. It's now on my list of must-haves and I still look at it ahead of every trading decision.

Ranking your indicators as to their value in meeting your trading rule criteria is a personal job. Not all indicators are created equal. The zippy indicator that yields good gains for the high-frequency trader may entail too much risk for you. The reliable slow-poke indicator that's hardly ever wrong may get only minor gains as well as put you to sleep.

Trading styles

As many trading styles exist as there are individual traders in the world. I propose a way of looking at trading styles that aims to blend indicators with rules, but it's very general.

System-mechanical trading

Truly systematic traders take every trade that their indicator system dictates. Indicators are selected because they deliver the desired risk metrics, but after the design phase, the indicators rule. The actual trading is not only mechanical but can literally be done by a computer. Two major system designers are Keith Fitschen and Perry Kaufman, each of whom has written excellent books on building trading systems. See the Appendix for additional resources, including book. If you are a computer whiz, you absolutely, positively need both books.

System design that blends indicator choices with risk management rules is very advanced stuff. But after the system is built and tested, you can sit back and let 'er rip. In the system-mechanical world, especially if indicators are adaptive to changing conditions, you apply no judgment after the design phase. You do not sit around contemplating noise vs. Event (see Chapter 4), or worry about contingencies (see Chapter 3). A successful system should be robust across all conditions.

System-guided trading

Let's say that you have developed a set of indicators that delivers the mix of percent gain, gain/loss, and so on, that you prefer, but sometimes it fails to live up to expectations. This generally occurs during retracements but also when trendedness collapses into lack of trendedness — the dreaded sideways movement. It's very hard to modify indicators to be adaptive in both trending and nontrending situations, and it's equally hard to identify precisely when trendedness is giving way to nontrendedness so that you can change to a different set of indicators.

 Not all trends are created equal.

In system-guided trading, you want to apply additional techniques, usually from the nonmathematical collection (like candlesticks and other patterns) to help you modify your trading style to preserve your trading rule goals. In

other words, your trading rules are more important than your indicators to lasting success. You don't discard your indicators, but you have a healthy skepticism about their usefulness in untrended conditions.

How does this work, exactly? The first tactic is to embrace the idea that you don't have to take every trade. When your chart is a mish-mash with no obvious directional bias, your indicators are still pumping out buy/sell signals that are mostly wrong. Don't hate your indicators — it's not their fault. Just accept that they are not reliable under these conditions and since your priority is to perverse capital, don't trade.

Second, change your timeframe. Let's say you consider yourself a position trader with a holding period of months, but along comes a choppy chart with high volatility, meaning a wide high-low range. Instead of sitting it out twiddling your thumbs until a trend emerges, trade the choppiness on a swing basis using patterns or other techniques.

A third idea is to adapt your risk management rules — stops and targets and perhaps scaling in and out — to the new conditions. If you have been setting profit targets as a function of average range and stops just below support levels, but support levels are broken or can't be found in the new environment, devise new stops that still preserve your gain/loss ratio.

Guerrilla trading

The term *guerrilla trading* is mostly used by one school of analysts that specializes in sideways-market, special set-up situations, but it can be used in other contexts. In military terms, a guerrilla engages in irregular fighting, meaning he chooses his time and place.

Guerilla trading is the least systematic method of trading and relies on special pattern setups and/or an astute eye or intuitive feel for crowd psychology. An example is stipulating a buy entry order below the current level (but still within the normal range) because the desired target would be outside the normal range and therefore not likely to get hit. In other words, the market is not offering you a profit opportunity at current levels but could easily go to your preferred levels while you are not watching. If the price falls to the guerrilla entry, you have a fighting chance to hit the target, but the trade is not otherwise worth doing on a gain/loss basis.

A parallel guerrilla tactic is seeing with blinding clarity where a stop should

be placed and determining the entry as a function of the stop. Again, if the entry is not hit, the guerrilla trader doesn't care. The trade was worth doing only on *his* terms. Individuals can't tell markets what to do, of course; we are always price-takers. But if a better entry is possible using average range or other concepts, why not try? In non-system trading, you don't have to take every trade.

Guerrilla trading comes in at least two flavors:

> Guerrilla trading can take the form of entering and exiting an existing trend multiple times, each with a deliberately short timeframe (like a few minutes) but staying out of the market or reducing the stake (scaling out) when the trendedness ranking is low or medium. It may also entail tactics like specifying non-market entries as described earlier in this chapter. To a certain extent, using a trailing stop (see the following) is a guerrilla tactic, although trailing stops can be system-mechanical, too.

> A subset of guerilla trading is set-up trading, in which trades are inspired by a Shock that results in specific bar configurations, especially in candlestick form (see Chapters 6 through 8) or patterns like gaps (Chapter 9). The Shock, especially if it's noise (see Chapter 4), is expected to be short-lived and so the exit depends on time, usually a very short holding period, or dollar gain/loss, rather than an indicator.

How much is enough?

When you have a gain in a trade, how do you know when to take profits? Unfortunately, few gurus offer guidance on how to design a take-profit rule. You never know at the beginning of a trend how long it will last or how far it will go. The central issue in managing the trade is that you can have control over the size of your losses (via stop-losses), but very little control over the size of the gains. You can buy a stock at $5 and make sure that you only lose $2, but you cannot force the stock to go to $9.

In practice, each individual trader develops his own technique that is a combination of risk analysis and indicator readings. The optimum way to take profit is, in fact, one of the great, unexplored frontiers of technical trading. Here are some choices for selecting a profit target:

✔ **Name a dollar amount.** Logically, you want a gain that is a multiple of the risk you are taking. Say your security costs $8 and you want to lose no more than 25 percent, or $2. You can place your stop at $2 or a smaller amount, like $1.50. Your profit target is double initial risk, or $4. This is a 50 percent return, which may or may not be realistic depending on your holding period, changes in volatility, and other factors. After you have made the 50 percent, however, you obey the target and exit the trade when it reaches $12. The problem with this approach, of course, is that the price may keep on rising and then you have an opportunity loss if it reaches (say) $20.

✔ **Set a true-range amount.** Your security, historically, has an average high-low range of $10 over 20 periods, your expected holding period. You want to capture 75 percent of the range, or $7.50. Because you use indicators to time your entry, you assume that you are entering at the low end of the range; therefore, 75 percent is realistic. When the price reaches your target, you take profit.

The problem with this approach is twofold: The range can widen or narrow. If it widens, you aimed too low and if it narrows, your original target is too ambitious. And, how do you sit through a pullback? You may have met the goal of entering at a low only to have an aberrant pullback take the price down 30 percent rather than up 75 percent. This movement was not enough to hit your stop but now your profit target is $10.50 away from the current price. Because you know the average range is $10, the probability of meeting your $7.50 target within your holding period just went out the window.

✔ **Rely on indicators.** Instead of formulating take-profit rules, most technical traders rely on indicators to signal when a move has ended — the signal is the *de facto* take-profit rule. Relying on indicators is "winging it" and actually requires more market monitoring than the fixed dollar amount or average true-range methods, which deliver a number you can convert into a standing order with your broker.

✔ **Consider the measured move concept.** Some patterns and theories about price movements contain a forecast of how far the price should go (see Chapter 9). There is some evidence that certain measured moves can be trusted to appear x percent of the time but not every time. You are

welcome to test the measured move concept on your own securities' price history and rank measured move as an indicator, just as you should rank your other indicators for reliability.

Controlling Losses

Your level of risk-seeking or risk-aversion is personal. Therefore, nobody can design rules for you. You must do it for yourself. Ask yourself whether you'd faithfully follow every buy/sell signal of a given indicator when history suggests you will have some trades that entail a loss of 50 percent. No? Well, how much of your trading capital *are* you prepared to lose? This is not an idle question. Your answer is critical to whether you succeed in technical trading. If you say you can accept no losses at all, forget technical trading. You *will* take losses in all trading, even well-designed and planned technical trading. If you say that you're willing to lose 50 percent in a single trade — whoa, Nellie! That's too much. Three or four losing trades in a row and you would not have enough capital left to do any trades. I offer some help in deducing your personal number in the following sections.

Experienced traders ask themselves, "How much will I lose today?" when they wake up every morning. They expect loss on some level. In contrast, beginners find losses almost impossible to contemplate. Yet if you don't control losses, the question is not whether you go broke, but *when* you go broke (as a famous trader named W.D. Gann wrote on the very first page of one of his books).

Exiting a losing trade is heart-breaking. For one thing, it means your indicator let you down. Accept that your indicators have shortcomings and that your job is to overcome those shortcomings by using money-management rules.

A bigger problem may be your bruised ego. To sell a losing position means that you failed, and the standard response to a loss is denial. "It will come back!" you cry. In the long run, maybe it will come back. But by then, you may be broke and unable to take advantage of it. Go back to Table 1-1 in Chapter 1 that shows the percentage gain that you need to recover a loss. To recover a 50 percent loss, you need to make a 100 percent gain.

Every top trader admits to taking bigger losses than they planned. Many go out of business for a period of time, only to come back later with essentially the same indicators — and better ways to manage the trade. In fact, some investors say that the best time to place money with a professional trader is right after he has taken a fat loss — because then he's a better trader. Note that such investors aren't predicting he will be a better indicator analyst, but a better *trader*.

Using the First Line of Defense: Stop-Loss Orders

You use a stop-loss order to overcome the unreliability of indicators as well as your own emotional response to losses. A *stop-loss order* is an order you give your broker to exit a trade if it goes against you by some amount. For a buyer, the stop-loss order is a sell order below the market. For a short-seller, it's a buy order above the market.

If market conditions are choppy (high volatility), you may want to widen your stop even though your own particular security is behaving nicely. In this instance, you fear an overflow effect from the general market to your particular security. You may switch from a money-based trailing stop like the 2 percent rule to a volatility or pattern type of stop.

Mental stops are hogwash

You should enter your stop-loss order at the same time you enter the position. In fact, you need to know the stop in order to calculate how big a position to take in the first place, if you're using any risk-management rule. Why some traders don't do this is a mystery. Many traders say they keep a mental stop in their heads, but this "method" is a delusion. The trader is conning himself into thinking that he'll be watching the price every minute the market is open and will have the gumption to sell at a loss if the limit is reached. But no one can watch the market every minute, and in practice, most traders with mental stops sit hopelessly by as the trade goes further and further against them.

Other traders say that their security isn't suitable for stops because it's too volatile. Or the trader is so big that the market would find out where his stops

volatile. Or the trader is so big that the market would find out where his stops are and maliciously target them. Another rationalization is that the trader's stops get hit, and often, only for the price to move back in the original direction right afterwards. This excuse isn't a reason to avoid using stop-losses. It's a reason to reset the stop to a better level.

To pretend that you have a mental stop or to refuse to place stops is to avoid accepting the reality of trading — it's a business, and setbacks happen in business. Setting a stop-loss order is like buying insurance in case the store burns down. Not to take out insurance is to treat trading as a hobby and view the amount at stake as play money rather than as risk capital.

Sorting out the types of stops

Technical traders have developed many stop-loss principles. Each concept is either a fixed trading rule or a self-adjusting one. Stops relate to indicators, money, or to time, and often these three don't line up neatly to give you an easy decision. You have to choose the type of stop that works best for you.

The 2 percent stop rule

Probably the most famous stop-loss rule is the fixed 2 percent rule that was employed by a trading group named the Turtles. The *2 percent rule* states that you should stop a loss when it reaches 2 percent of starting equity. If you're trading risk capital of $10,000, you can afford to lose no more than $200 on any single trade if you expect to stay in business for a long period of time. The 2 percent rule is an example of a *money stop,* which names the amount of money you're willing to lose in a single trade.

Two hundred dollars may sound like a tiny number to you, but in the context of active trading, this figure is quite large. You need only 50 losing trades in a row to go broke. And 50 trades may sound like a lot of trades, but you find that many valid indicators have you trading that often, depending on your time frame. If you're trading 15-minute or 60-minute bars, you could easily have more than 100 trades in a month. If you're trading five securities, for example, you go broke after ten consecutive losses per security.

Risk-reward money stops

The *risk-reward ratio* puts the amount of expected gain in direct relationship to the amount of expected loss. The higher the risk-reward ratio, the more desirable the trade. Say, for example, that you're buying Blue Widget stock at $5 and your indicators tell you that the potential gain is $10, which means that the stock could go to $15. You could set your initial stop at $2.50, or 50 percent of your capital stake, for the chance to make $10. That gives you a risk-reward ratio of 10:2.5, or 4:1. (Strangely, the amount of the gain, the *reward,* is always placed first in the ratio, even though it comes second in the name.)

But consider the premise from this example — your ending capital triples your initial stake. But gee, expecting a 300 percent return is going a bit far, isn't it? Well, it depends on your skills. If you consistently forecast and get 300 percent gains, good for you. You may be able to accept a higher initial stop-loss level than other mere mortals.

To apply the risk-reward ratio in a conservative and prudent manner, turn it upside down. Instead of calculating it with your best-case expected gain, use a realistic worst-case estimate of the loss. Your worst-case gain should be higher than your worst-case loss. For example, say you're prepared to lose $2 for the chance to make $4. Your risk-reward ratio is 4:2, or 2:1. If you practice this exercise on every trade, the risk-reward ratio becomes a filter that winnows out trades that may be high probability but with excessive risk.

Calculating the risk-reward ratio and using it to set a stop has its own dangers. In the Blue Widget case above, you're willing to lose 50 percent of your capital. If you lose, you can take only a few such trades before you run out of money. Moreover, you can start out with a fixed risk-reward money stop but then change it to an adjustable stop as you modify your idea of how much the trade could potentially gain. Say the price falls from $5, your original entry, to $3.50. But the average range is widening and still telling you the potential high price is $15. If you

buy more at $3.50 and the $15 is indeed reached, your gain is even bigger in percentage terms. Using the risk-reward ratio this way is how traders trick themselves into adding to losing positions, the blackest of cardinal sins in trading.

Analyzing risk-reward ratios is a complex task requiring knowledge of statistics and probability — a sophisticated task and beyond the scope of this chapter. But just remember that in technical trading, the general rule is to take small losses and aim for bigger gains, not to take big losses and aim for gigantic gains.

Maximum adverse excursion

John Sweeney developed the concept of *maximum adverse excursion,* which is the statistically determined worst-case loss that may occur during the course of your trade. Using this method, you calculate the biggest change in the high-low range over a fixed period (say 30 days) that's equivalent to your usual holding period. Actually, you need to calculate the maximum range from the entry levels you would've used. Because you know your entry rules, you can backtest to find the maximum range that was prevalent at each entry.

For example, if the security never changes from high to low by more than $10 over the period, you could set your stop at $11. You should see a regular pattern between the maximum adverse excursion and your winning and losing trades over time. In fact, you can use the inverse of the adverse excursion, the *maximum favorable excursion,* to select trades in the first place. See Chapter 14 on volatility.

Trailing stops

Trailing stops use a dynamic process that follows the price: You raise the stop as the trade makes profits. A trailing stop is set on a money basis — you maintain the loss you can tolerate at a constant dollar amount or percentage basis. You could, for example, say that you want to keep 20 percent of each day's gain, so every day you'd raise the stop day to include 80 percent of the day's gain. This method means calling the broker or reentering the stop electronically every day. The important point is to keep the stop updated to protect gains and guard against losses at the same time.

Trailing stops are highly protective, but you risk being stopped out on

a noisy price event that isn't really related to the overall price trend, like the payrolls report the first Friday of every month. The normal average daily trading range encompasses the trailing stop level on most occasions but you can still get stopped out on a random event causing an abnormal, off-trend spike.

Indicator-based stops

Indicator-based stops depend on the price action and the indicators you use to capture it. Indicator stops can be either fixed or self-adjusting. I mention them at various places throughout the book; here are some important ones:

- **Last-three-days rule:** The most basic of stop-loss rules is to exit the position if the price surpasses the lowest low (or highest high if you're going short) of the preceding three days. This idea sounds a little corny. However, it jibes well with another piece of trading lore that says a trade should turn profitable right away if you've done the analysis right and you're actually buying right after a low or selling right after a peak. If the price first rises for a day or two but can't hold on to the gain, the upmove that you think you've identified is probably a false one. Consider the crowd dynamics (see Chapter 2) and how they play out on the price bar (covered in Chapter 6). You need a series of higher highs *and* higher lows to name an uptrend. If you get a lower low in the first three days, the probability is good that the trade is going south.

- **Pattern stops:** Pattern stops relate directly to market sentiment and are very handy. Most are of the fixed variety. I list a few here:

  - The break of a support or resistance line is a powerful stop level, chiefly because so many other traders are drawing the same lines.

  - The last notable high or low (the *historic* level; see Chapter 4) or the high or low of an important time period, like a year, are noteworthy.

  - You can infer stops from other pattern indicators, such as the center confirmation point of the W in a double bottom or the M in a double top (see Chapter 9). When the confirmation point is surpassed, the probability is high that the move will continue in the expected direction. If you're positioned the wrong way when the pattern appears, the pattern confirmation is also your stop level.

✔ **Moving-average stop:** You can also use a separate indicator that isn't part of your buy/sell repertoire to set a stop, such as a moving average (see Chapter 12). Many traders use a breakout beyond the 10-day moving average as a warning to reduce a position, and the 20-day moving average as a stop. You may find it interesting how often a retracement will penetrate a 10-day moving average but halt just short of crossing the 20-day moving average. A moving-average stop is clearly of the self-adjusting variety.

Volatility stops are the most complex of the indicator-based, self-adjusting stops to figure out and to apply, but they're also the most in tune with market action. Many variations are available. Here are three of particular interest:

✔ **Parabolic stop-and-reverse model:** Invented by Welles Wilder, the parabolic concept is easy to illustrate and hard to describe. The principle is to create an indicator that rises by a factor of the average true range (see Chapter 7) as new highs are being recorded, so that the indicator accelerates as ever-higher highs are met and decelerates as less-high highs come in. In an uptrend, the indicator is plotted just below the price line. It diverges from the price line in a hot rally, and converges to the price line as the rally loses speed. See Figure 5-1 . The parabolic stop is both self-adjusting *and* trailing — a rare combination.

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UP MOVE FALTERS AND PRICE CONVERGES TO STOP-LOSS DOT
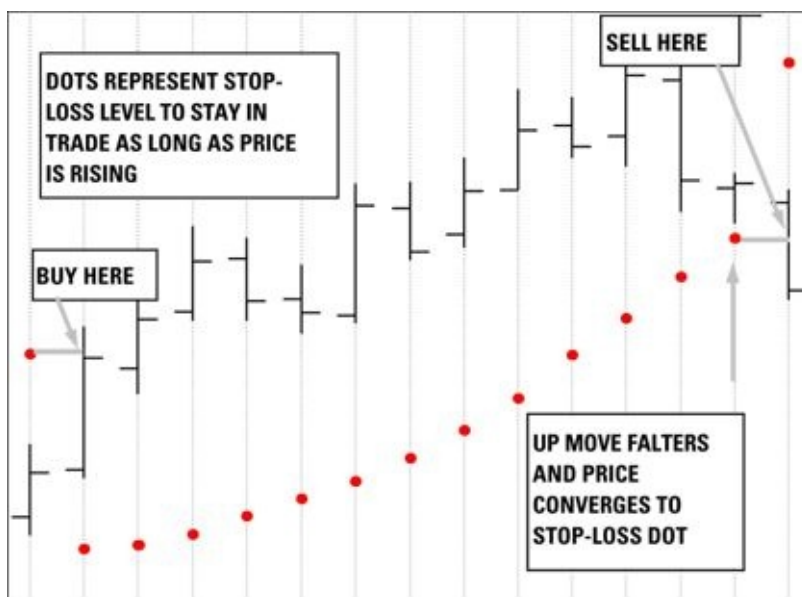
Figure 5-1: Parabolic stop.

- **Average true-range stop:** This stop is set just beyond the maximum normal range limits. The average true-range channel is described in Chapter 14 . You take the average daily high-low range of the price bars, adjusted for gaps, and expand it by adding on a constant, like 25 percent of the range. Say your average daily trading range is $3. If the price goes more than 25 percent beyond the $3 high-low range, you consider it an extreme price and the signal to exit. The average true-range stop has the virtue of being self-adjusting, but it also has the drawback of setting a stop that has nothing to do with your entry.

- **Chandelier exit:** This stop solves the entry-level issue. Invented by Chuck LeBeau, the chandelier exit sets the stop at a level below the highest high or the highest close *since your entry.* You set the level as a function of the average true range. The logic is that you're willing to lose only one range worth (or two or three) from the best price that occurred since you put on the trade. Like the parabolic stop, the chandelier is both self-adjusting and trailing.

Indicator stops usually entail taking a loss greater than the 2 percent benchmark rule (see "The 2 percent stop rule " section on this topic). This factor hands you a hard decision. If you take the 2 percent rule, you have to live with the remorse of exiting trades only to see the price move your way later on. If you take an indicator rule that entails losses greater than 2 percent of capital, but have a series of losing trades early in your trading career, you could lose a lot of money before you figure out how to adapt your indicators.

Time stops

Time stops acknowledge that money tied up in a trade that's going nowhere can be put to better use in a different trade. Say you're holding a position that starts going sideways. It is reasonable to exit the trade and find a different security that is moving. Remember, the purpose of trading is to make money.

Clock and calendar stops

Clock and calendar stops pertain to a price event happening (or not happening) considering the time of day, week, month, or year. Clock-based rules abound. Some technical traders advise against trading during the first

hour in the U.S. stock market, because buy-or sell-on-open orders are being executed then (see Chapter 6). Others say that more gain can be had from the first hour than any other hour of the trading day if you can figure out which way the crowd is trading. As I describe in Chapter 16 , one setup technique is to buy or sell the direction of an opening gap — and be done in an hour.

In foreign exchange, you often see prices retrace at the end of the European trading day — about 11 a.m. in New York — as traders there close positions. Not only is this a swell entry place when you're sure that you know the trend, but it's also a benchmark for the U.S. trading day. If the price fails to close higher or lower than the European close, it means that American traders are having second thoughts about the trend.

Adjusting Positions

Stops are the first line of defense against indicator failures and market catastrophes. But a stop is a blunt instrument when more delicacy is needed.

Most indicators are black and white. You should either buy or sell. But when you're using multiple indicators, you don't always get a clear-cut trading decision, or as the trade progresses, one of your confirming indicators weakens and is no longer offering the comfort of full confirmation. Perhaps a pattern spells doom to your position. You don't normally use patterns, but you can't avoid seeing the darn thing and it nags at you. Maybe you should scale out.

To increase the size of a position is called *scaling in,* and to reduce the amount you have at risk is *scaling out.* In the sections that follow, I go into more detail on these concepts.

Position sizing can add or subtract from your bottom line by as much or more than your choice of securities or indicators.

When you get an itch to change position size, consider whether it's the security's price behavior that has changed, or your risk appetite. Your security makes a giant breakout, and the trend gathers steam in a straight line for an abnormally long period of time. Risk is (temporarily) lower. This is a good reason to scale in. Or, you just got a big bonus and are putting it all into your trading account and are newly willing to take a bigger loss per trade. This is

trading account and are newly willing to take a bigger loss per trade. This is an okay reason to scale in as long as you allocate capital among securities according to potential loss as a percentage of total capital.

Reducing positions

The safest way to reduce the risk of loss is to reduce exposure to it — scaling out. If you've bought on an indicator-based signal but if another indicator or a new fundamental suggests it's not going to be a good trade, get out of part of the position. Similarly, you may have a nicely trending security and get a surprise stop hit that you don't trust, because you think you can identify the cause as an anomalous bit of noise. Instead of being paralyzed or not trading at all, you have a few options:

- Delay following the indicator signal until the nontechnical event risk is past. Some traders advise reducing positions ahead of known event risks, such as central bank meetings, earnings announcements, and elections.

- Stay in the trade, but reduce the amount of money you allocate to it (and perhaps tighten the stop). You can also hedge the risk in the options market or by taking the opposite position in a correlated security, but on the whole, scaling out is the most direct and efficient method.

Adding to positions

You can add to a position, or scale in, when your existing position is highly profitable. Statisticians disagree on adding to winning positions by using unrealized profits from the existing trade, called *pyramiding*. To *pyramid* is to use hypothetical profits to enlarge your position. Say you started with $1,000 and the trade has now generated another $1,000 in paper profits.

Why not borrow against that extra $1,000 to buy some more of this high-performing security? The answer is that if a catastrophe strikes and the trade goes against you, your risk of loss can become huge — more than your original stake if your stop fails (or, heaven forbid, you didn't place one). Be aware that if you engage in pyramiding, you're taking a higher risk than if you don't. Pyramiding without proper stops has probably caused more traders to go broke than any other cause.

Other techniques for scaling in and out include:

Other techniques for scaling in and out include:

- ✔ If you're using a 2 percent stop rule (mentioned earlier in this chapter), when the existing position has gained a profit that is greater than the 2 percent of starting capital you would have lost if the stop had been triggered, you add the amount of the surplus profit to the position with its own 2 percent stop. The problem, of course, is that it's awkward to trade in odd lots, and odd lots don't even exist in futures.

- ✔ If you're using *margin* (where the trader puts down only a fraction of the value of the contract being traded), one rule of thumb is to add to the position when the existing trade has earned the cost of the minimum initial margin of a second position. If you're trading on a 50 percent margin, you add to the position when the existing position has racked up enough paper gain to fund the new position.

  This rule is especially valuable in the futures market, in which the trader puts down only a small fraction of the value of the contract being traded. For example, if the initial margin required by the exchange and your broker is $2,500, you don't add a second contract to your position until the first contract has a profit of $2,500. By then, you figure that the move is well in place. But remember, you have to have one stop-loss order on the first contract and a different one on the second trade.

Applying stops to adjusted positions

If you're using an indicator stop and it signals that the price rise is over, doesn't that mean you want to exit all positions at the same level as soon as possible? The answer from statisticians is "maybe." It depends on whether you're thinking in chart terms or money-management terms. If you're using a breakout concept to set your stop, for example, the price crossing a support line (see Chapter 10) is a sell signal that would apply equally to all positions.

If you're using a 2 percent or other rule (like the chandelier exit I mention in this chapter) that is calculated specifically with reference to your starting point, you exit each trade according to the rule. This method has benefits and drawbacks. The benefit is that you're still in the trade if the stop was triggered for one trade but the price retracement is only a minor, temporary one. You still have other positions left and if the price makes a big jump your way, you're correctly positioned to take advantage of it. The drawback is that a

well-set stop may really identify a change in overall price behavior. If it's a catastrophic price move, you may not get good execution of your stops and may end up losing more than the amount you planned.

Chapter 6

Reading Basic Bars: How to Pounce on Opportunities

In This Chapter

▶ Seeing information in dots and lines

▶ Interpreting trader sentiment from a single bar

▶ Identifying trends 101

▶ Applying bar reading in real time

Y ou may think you understand the basic bar — it depicts the open, high, low, and close — so you probably want to get on to the juicy stuff. But hold on a minute. Each bar contains a vast amount of information, and seeing the real meaning of the bar and a small series of bars can make the difference between a winning trade and an unhappy surprise.

Bar reading is essential for all traders and especially guerrilla traders, who depend on bar reading more than any other style.

Reading price bars is the perfect application of the saying "Actions speak louder than words." Traders may *say* that the price is going up, but the price bar tells you what they really think by showing you what action they took. Reading price bars is like being a detective examining the forensic evidence — and disregarding witness accounts.

Building Basic Bars

The price bar is the basic building block of technical analysis. After you have a grip on the price bar, almost nothing in technical analysis can confuse you for long. Honest. Resist the temptation to skim over the bar material to get to more glamorous-sounding stuff.

To grasp the principle of most indicators, first you have to understand the bar because most indicators are nothing more than an arithmetic manipulation of the four price bar components.

The price bar is also your touchstone for identifying trendedness and critical changes in trendedness. Every major trend starts with a change in the price bar on a single day or over only a few days, and the earlier you get in a new trend, the more profit you make. In Chapters 8 and 15 , I describe two other ways of displaying price information, but right now, focus on getting the components of the standard bar down cold.

I start off here with a brief overview of the price bar and then detail each component in the sections that follow.

Reality in a nutshell

The *price bar* describes and defines the trading action in a security for a given period, meaning actual deals done with cold, hard cash, not what somebody wished, imagined, or contemplated. For the sake of simplicity, this chapter refers to the daily price bar because most of the time, you're working with daily price information. As I explain later in this chapter, a price bar can encompass different periods — anything from a minute to a month. But the scope of the period doesn't change price bar dynamics.

Check out the standard price bar in Figure 6-1 . Like all bars, it consists of four components:

- ✔ **Open:** The little horizontal line on the left is the opening price.
- ✔ **High:** The top of the vertical line defines the high of the day.
- ✔ **Low:** The bottom of the vertical line defines the low of the day.
- ✔ **Close:** The little horizontal line on the right is the closing price.
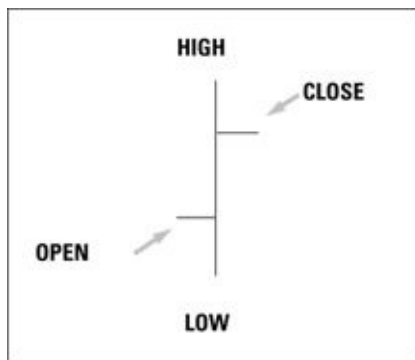
Figure 6-1: The standard price bar.

This Open-High-Low-Close component set of the price bar is often abbreviated OHLC.

The two little horizontal lines on the price bar are called *tick marks.* In trading parlance, a *tick* represents a single trade at a single price, so the tick mark representing the open or the close refers literally to a single transaction or to a batch of transactions all at the same price and at the same time. The high and the low don't need a tick mark because the end of the bar conveys that information.

The daily price bar shows the effects of every price factor in the market for that day, including the overall environment, the fundamentals of the security, and the collective emotional condition of the traders in the security.

The price bar tells you the outcome of the battle between the buyers (bulls) and the sellers (bears). Every bar identifies the winning group and the losing group. If the price opened at the low and closed at the high, the winners that day were the buyers. If the price opened at the high and closed at the low, the winners that day were the sellers. You almost always have to take into consideration the price action embedded in the bar the day before in order to make the winner-loser judgment. For example, you can have an open today that's lower than the previous day's low but the close is at the high of the day and yet not as high as the day before. Who is the winner on this day? Well, anyone who bought at today's low. But he may be a loser by tomorrow.

But back to the single bar. Each bar reflects a very real contest — and you measure the outcome in money. If the bar is very tall, encompassing a $10 range when the normal bar for this security is only $3, the trading was a

Titanic battle. If the bar is very short, say $1, it was a pillow fight. On every single trade, one party wins and the other party loses. That is why trading — like war — is called a zero sum game.

The relationship between prices and volume is important in judging the bar. Everything that you infer about the state of mind of the market needs to be confirmed by volume. For example, if the price bar is three times the usual size, you should verify from volume that a large number of traders were active that day. It's a mistake to see a battle if only one trade was done at the $10 high. The $10 price is an anomaly. Somebody made a mistake — either the buyer at $10 or the data collection department at the exchange.

Setting the tone: The opening price

The *opening price* is the very first trade done between a buyer and a seller on the trading day. It reflects the new day's hopes and fears. The meaning of the open, like all the price bar components, comes from its relationship to the other components of the bar as they develop and to the components of the bars that had come before, especially the close.

Sometimes the opening price does not reflect sentiment about the security. Many decisions have nothing to do with the price, but rather with traders' personal needs or risk management. Maybe Aunt Henrietta got up this morning and decided to sell Blue Widget shares at the open so she could use the money to buy a racehorse. Also, fund managers buy and sell at the open to balance their portfolios to reflect new money in or out the day before.

In U.S. equities, the open is often not actually the first trade of the day, but a synthetic price (like an average of the first five trades) devised by the exchange or the data collector. This is why the opening price varies from one source to another. Not having accurate data drives some technical analysts wild because the opening price sets the tone and if

somebody made it up, it doesn't matter how reasonable the calculation process — it's not literally the first price of the day. This problem is now compounded by the existence of several exchanges trading the same equity securities and related options.

Some equity analysts say that they ignore the open because it's not accurate. And although in futures trading the open is the real McCoy, in many instances (such as equity index futures and foreign exchange), trading has been going on in the overnight markets, so the actual open on the U.S. exchange floor is hardly ever a surprise.

So should you heed the open? Yes. In equities, any particular opening price may not be accurate, but over a series of days, the open adequately represents the sentiment at the beginning of the day and serves as a benchmark for evaluating the upcoming price action over the course of the day. And the placement of the open relative to the close the day before and the close today are two of the criteria for judging whether a bar exhibits trendedness.

The opening price's most important relationship is to the close of the day before. The close is covered in "Summarizing sentiment" later in this chapter.

When the open is up

If the open is higher than the previous close, you deduce that the first trader of the day spotted fresh news favorable to the security, or is expecting favorable news, or has some other reason to think his purchase will return a gain. If you, too, want to be a buyer today, his action reinforces your feeling. The first trade sets the tone.

When the open is down

If the opening price is below the close of the day before, look out! Maybe bad news came out after the close last night. The bad news may pertain to a political event, a change in interest rates, a bankruptcy in the same industry, or a zillion other factors (see the discussion of events in the sidebar "Current events: Buy on the rumor; sell on the news ," in this chapter).

Some traders may have executed a *sell on open,* although to sell on the open is not a common practice. A *sell-on-open order* is just what it sounds like —

an order given the night before to exit the trade no matter what the price happens to be.

Summarizing sentiment: The closing price

The *closing price* is literally the last price at which a buyer bought and a seller sold before the closing bell. The close is the most important part of the price bar. In fact, if you were to draw a chart by using only one of the bar components, you'd pick the close. A set of closes over a small number of days is an indicator in its own right. The close remains the most important price bar component despite after-the-bell trading.

The close is the most important bar component because it summarizes trader sentiment. Traders have watched this price all day, and by the end of the day they have a sense of how popular it was near the lows (lots of buying going on) or how unpopular near the highs (lots of selling going on). They're also looking at volume to confirm these impressions. As the close approaches, traders have to decide whether to hold the security overnight, something they will do only if they think it's going up further overnight and tomorrow.

Note also that the close is what brokers use to value your portfolio at the end of an accounting period, and the close is used to calculate the "mark-to-market" value of a futures position. Professionals whose job performance depends on end-of-period accounting care passionately about the close and will sometimes engineer a higher close in the last few minutes of trading.

After-hours trading creates a problem in evaluating the close. How do you treat the close when your security makes a new high or new low in after-hours trading — only ten minutes after the close? The answer is that you don't adjust the close. In terms of managing your data, the open and close are associated with the trading hours of the primary exchange where the security is listed, like the New York Stock Exchange or the Chicago Mercantile Exchange. No matter how the security trades after the "official" close, the new information is included in the price data for the next day. This can result in some peculiar outcomes, such as the

price opening at $5 and closing at $7 on the primary exchange during regular hours, but both the high and the low occurring in after-hours trading — and reaching (say) $4 at the low and $9 at the high. The new high and low gets incorporated in the next day's data.

As with all price bar components, what's important is the relationship of the close to other bar components, especially the open today and the close yesterday. Over time, the cumulative relationship of the close to the close the day before gives you a good impression of directional bias.

You may hear "it's up on the day" or "it's down on the day," referring to the closing price relative to the close the day before.

✔ An *up-day* is one where the close is higher than the close the day before.

✔ A *down-day* refers to a day on which the close is lower than the close the day before.

When the close is up

If today's close is consistently higher than yesterday's close, day after day, buyers are demanding more and more of the security and are willing to pay an ever-higher price to get it. In other words, the close is up. See Figure 6-2 . With the exception of Day 4, every close is higher than on the day before.
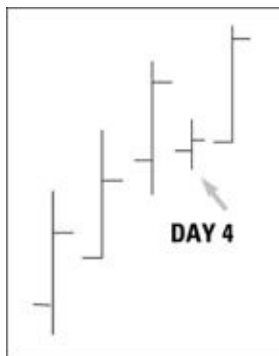
Figure 6-2: A series of up-days.

If you see a trend like the one shown in Figure 6-2 , you want to join the crowd and buy into the trend.

When the close is down

In Figure 6-3 , you can see that Day 3 starts a series in which each close is lower than the day before. Here the sellers are willing to take ever-lower prices to get rid of the security. You can assume that those holding an inventory are willing to sell at lower and lower prices to prod buyers to demand it, just like the car dealer puts last year's cars on sale before the new models arrive. When you see a down move like the one in Figure 6-3 , you should join the crowd and be a seller.
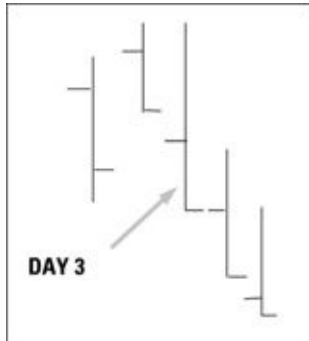
Figure 6-3: A series of down-days.

Hope, fear, and risk management at the close

On an up-day, you hear that "today the bulls won" or on a down-day, "today the bears won," acknowledging the emotional aspect of trading — bulls hope for a profit (greed) and bears fear a loss. But emotion may have nothing to do with it. Traders also make buy/sell decisions to *manage risk* .

Just as some traders buy on the open as a standard practice, some traders sell on the close, chiefly to eliminate the risk of loss if something happens overnight to push the price down. Institutions as well as individuals use his simple risk-management tactic. Should you? Yes, if you're trading without a stop or you fear the market could gap over your stop.

Because so many people exit on the close, the close is seldom the high of the day. And when the close *is* at the exact high of the day, that's useful information. It means people who do hold overnight positions are buying right up to the last minute, offsetting the usual end-of-day sales.

Going up: The high

The *high* of the price bar is literally the highest point of the bar. It's the highest price at which a buyer and seller made an exchange of cash for the security. The buyer thinks the price will rise some more. The seller holds the opposite view, that the price will likely fall.

The high of the day has meaning only in the context of its relationship to other parts of the same bar, especially the close (see earlier section), and to the high the day before.

When the price closes at the high of the day, traders are extremely optimistic of more gains to come (bullish). When the high is at the open and it's all downhill for the rest of the day, traders are pessimistic (bearish).

Current events: Buy on the rumor, sell on the news

New highs and lows are often the seed of a new trend, and usually arise directly from a specific piece of news. Fresh news that causes a new high or a new low is an *event.* The risk that a new high or low will ensue from the news is *event risk.* It may seem odd, but most events are not surprises, but rather scheduled, such as

- News or a rumor about the security, such as a company's earnings announcement
- Market-related events such as options expiration dates or tax and calendar period dates
- Scheduled releases (such as the Fed's interest rate statement or any of a dozen economic reports)

Event risk also refers to unexpected developments:

- Acts of terrorism and war.
- Natural disasters.
- Correlation of a stock to the performance of the major indices. Even if your stock is doing well, for example, it can open down from the close the night before as a side-effect of a drop in the index or sector to which it belongs.
- Previous technical levels, such as a round number (like 10,000 on the Dow) or a historic high or low (see Chapter 4).

Traders treat forecasts prepared by economists and analysts as though the event had already happened precisely as predicted. In other words, they "build in" the forecast to the price, creating the very high on the price bar that the news is supposed to produce. This practice is named *buy on the rumor,* where "rumor" refers to the forecast.

The rest of the phrase is *sell on the news.* The news is the event itself. You sometimes get the seeming paradox of a price reaching a new high *before* the event and falling lower immediately *after* the event, even when the news matches the forecast. The lower price arises from the early birds taking profit on the up move that they themselves engineered. The new low is usually short-lived when the forecast of good news was justified.

If the news is much better than forecast, though, traders don't take profit because they know better-than-expected news draws in new players and sends the price higher still. Then the early birds are positioned to make even better profits. Should the news fail to match expectations, traders and investors alike sell, and the dip may turn into a longer-lasting price drop. Either way, to buy on the rumor pays off for the short-term trader who keeps his finger on the trigger. Still, evaluating forecasts and being mentally ready to buy or sell at the moment of impact of the news is a difficult and risky business. More risk-averse traders get out of the market altogether around scheduled event dates. Buy on the rumor, sell on the news is a primary cause of technical price developments, and in many instances, the only "technical analysis" that commentators mention (along with the 200-day moving average — see Chapter 12).

Getting to the bottom of it: The low

The *low* of the day is the cheapest price at which the buyer and seller exchange cash for the security. The buyer thinks the price will rise. The seller believes the price is going to fall or is already falling.

As with the high of the day, the low has meaning only in the context of its relationship to other parts of the price bar and the bars that precede it. When the low is lower than the open, it probably means that some fresh news has come out after the opening bell that offsets any buy-on-open orders or initial sentiment. When the close is at the low, it means that bad news or negative sentiment ruled for the day.

You can judge the power of fresh negative news by checking whether it inspired traders to produce not only a close at or near the low, but also a low that is lower than the low the day before.

Putting It All Together: Using Bars to Identify Trends

In the previous sections, I talk about interpreting market sentiment from the relationship of the price bar components to one another largely *within* a single

bar. When you look at the components *across* a series of bars, you get even more information. In fact, you get so much information that you risk information overload. Interpretation — figuring out supply and demand from the bars — becomes a lot more complex.

As I discuss in Chapter 2 , the law of supply and demand states that for every security, you can find some price that persuades suppliers to part with it or buyers to purchase it. After a price is established through the execution of a real cash trade, traders have a baseline from which to track all ensuing prices. *Any* transaction may occur at a random price, but not *every* transaction can occur randomly, or the market in that security would collapse.

The central observation of technical analysis is that the price bar embodies all the supply-demand dynamics of the day and that a series of bars on a chart shows the evolution of the supply-demand dynamics over time. Some percentage of the time, the evolution is visible in the form of a trend. In this section, I describe how to use combinations of bars to identify a trend.

Identifying an uptrend

The textbook-perfect *uptrend* is a series of up-day bars (close higher than the close yesterday) that have higher highs *and* higher lows in a majority of the bars. A series of higher highs implies the fourth factor: close above the open.

- ✔ **Higher high:** When the high today is higher than the high yesterday or higher than the high of the past few days, you have a *higher high*. Higher highs refers to visible peaks, not a higher high every single day. A series of higher highs signals bullish sentiment.

- ✔ **Higher low:** You need to qualify the higher high as truly indicating that a trend may be forming. What you want is an additional confirming condition — you can specify that you must also have *higher lows.*

Now you have two pieces of evidence that bulls outnumber bears. A series of

higher highs together with higher lows hints that a trend is forming. After two days, you aren't yet sure what is happening, but you're starting to get excited. After all, your goal in identifying a trend is to buy near the beginning of the trend. As I describe in Chapter 1 , your key assumption is that a trend, once formed, will continue. If you have two higher highs with two higher lows, can you assume that Day 3 will also deliver a higher high and a higher low?

Not necessarily. Alas, prices don't move in straight lines. You often see a series of two or three higher highs interrupted by one or two lower highs. This can happen for several reasons:

✔ Traders already in the security are taking an early profit.

✔ The market is reconsidering whether the new high is really justified.

✔ The higher highs were just a random accident.

You seldom see an unbroken series of higher highs on every single day. Go to Figure 6-2 . You see a series of days on which the close is higher than the close the day before. At the same time, the price is making a fresh high nearly every day, but not every day without fail. See the bar marked "Day 4." On that day, the close was higher than the open and the low was higher than the day before, but the high of the day was not higher than the day before. Oh, oh. What does that mean? Remember, you don't know yet what Day 5 is going to bring at the time you're looking at this chart.

Most analysts tell you not to worry about this particular configuration of bars. It's an uptrend, all right, and you know this because you have an unbroken series of higher *lows.* Day 4 is a disappointment — it doesn't deliver a higher high — but the low is higher than all the previous lows. By considering the additional factor of higher lows, you confirm that the probability is pretty good at getting a higher high, if not also a higher close, on Day 5.

Pinpointing a downtrend

A *downtrend* is a series of down-day bars (a close lower than

yesterday) characterized by lower lows and lower highs in a preponderance of the bars. Moreover, the lower lows tend to lead to the close coming in below the open (although not in every case). Look at the down-days in Figure 6-3 . After the first day, each of these bars has a close lower than the close the day before. Day 3 has the same high as the day before, but a lower low. On Day 3, you start to get the idea that this may be the beginning of a downtrend.

When identifying a downtrend, a series of lower highs is a good confirming indicator to the series of lower lows. The same psychology applies as when an uptrend starts, only in reverse. Sellers see that new lows are occurring — somebody must know something negative about the security. Traders aren't willing to hold a falling asset, and they unload it at ever-lower prices.

Wading through Murky Bar Waters

Reading bar charts isn't always a clear-cut process. In bar terms, a trend has two identifiers — a series of higher highs (or lower lows) and a series of up-days (or down-days). Technical analysis doesn't offer a hard-and-fast rule on which identifier is more important. Traditional technical analysis emphasizes that you need higher lows to confirm the higher highs in an uptrend, but candlestick analysis, which I cover in Chapter 8 , says that the position of the close trumps every other factor, including a new high or low.

So what's the best way to read bars? In this section, I suggest sticking to attributing supply-and-demand analysis to the high and low of the bar. But as you see in the section "Applying Bar Reading in Real Time " later in this chapter, you can rank the profitability potential of bars by the close relative to the open together with the position of the close relative to the high or low.

Paying heed to bar series

Usually a series of higher highs with higher lows or a series of lower lows with lower highs does mean that a trend is emerging, even if the close does not yet confirm. Higher highs imply higher closes are not far behind as the logical outcome, just as lower closes are the eventual logical outcome of a series of lower lows. Market players start wondering why other traders are taking the price to new highs or lows. What do they know that you don't? New highs and lows arouse emotions. A sufficiently large number of new

highs triggers greed — better buy now so you don't miss out, even if you don't know why the new high is occurring. Alternatively, new lows scare just enough traders that they sell their positions, even in the absence of any fresh news that would justify it. Sellers are unwilling to hold a falling asset and so sell, causing a lower close.

Sometimes you get higher closes without getting a preponderance of higher highs. Pay attention anyway because new highs may start to appear. These new highs may happen solely because so many people are aware of the meaning of up-days and down-days. In other words, so many people look at technical indicators — and a series of up-days or down-days is a basic indicator — that they *anticipate* higher highs or lower lows. By acting on that expectation — buying or selling ahead of the actual appearance of a higher high or lower low — they make it happen. You can observe this type of self-fulfilling prophecy often in technical analysis.

Understanding relativity

The textbook uptrend is a series of up-day price bars that have higher highs *and* higher lows in a preponderance of the bars. A downtrend is a series of down-day bars characterized by lower lows and lower highs in most of the bars. Your task is to define when a lower low from the day before is relatively harmless and when a higher high is relatively significant. But markets are not neat and tidy, and not every bar is going to qualify on all three criteria.

See Figure 6-4 . This chart depicts an uptrend — even though not every bar qualifies as belonging to an uptrend. You see lower lows as well as several days on which the bar is a down-day. Down-days are colored black, and up-days are gray. This figure demonstrates two points where textbook definitions of trends are relative.

Figure 6-4: Relative higher highs.

What is relatively harmless or significant is a subjective judgment. Try to think about what highs and lows imply about *immediate* supply and demand.

- ✔ **Significance:** What is a significant high? You determine the answer to that question. You can judge significance by eyeing the chart, or you can specify rules, such as "a significant high is one that is *x* percent higher than the average of the past *y* highs" using simple arithmetic or software. In Figure 6-4 , two significant higher highs stand out. They each represent a 50 percent gain from the previous up-day high.

- ✔ **Preponderance:** Figure 6-4 also illustrates that not every high in an uptrend has to be higher than the one before. You just need to identify a preponderance of higher highs and a preponderance of higher lows. *Preponderance* generally means "majority." For example, a preponderance of higher highs may mean a simple majority, say six of ten bars, accompanied by six of ten higher lows. However, determining a preponderance is your call. Maybe you like seven out of ten. You can eyeball it or use software to develop a precise definition.

  If you create measures for significance and preponderance, you are devising what are named "filters." Filters are beyond the scope of this chapter but keep them in mind if you go for a mechanical system style of trading. If not, you should still turn on the feature in charting software that graphically differentiates between up-days and down-days (white or green or up and black or red for down). It takes no practice to see where a trend is interrupted by bars that don't qualify.

Avoiding misinterpretation

A series of price bars isn't always trended, of course, but sometimes you can misinterpret what you're seeing if you aren't careful. You may see a series of higher highs but forget to make sure that each bar has a higher low and is an up-day. Or you see a series of lower lows but forget to check that the high is lower or that the bars are all down-days.

You may see a price series where every day brings a new high but every day also brings a close lower than the day before and a low that is lower than the lows on preceding days. This situation is shown in Figure 6-5 .
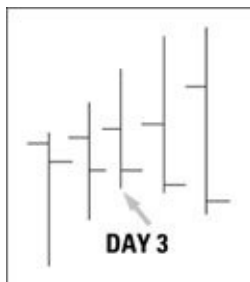
Figure 6-5: Higher highs with lower lows.

Figure 6-5 reminds you that it's not enough to have a series of higher highs in an uptrend — you also have to have higher lows. It's hard to swallow, but this figure displays a downtrend emerging at the third bar. Your eye may want to see an uptrend, but when you look more closely and analyze the bars for all three conditions, you have only one uptrend condition (higher highs) that is more than offset by the two downtrend conditions (lower lows and lower closes). Appearances can be deceiving.

You may never know for sure why such a strange series of bars develops. However, here are a few theories:

- Some traders plan to exit at the end of the day no matter what (I describe the exit-on-close strategy earlier in the chapter). This is a risk-management decision, not a commentary on the price.

- Some group in the market wants to see this security make higher highs, and so they buy near the highs, hoping that a new high will "create demand," as in an auction. Such buyers may be insiders or option traders

trying to trigger a specific price level.

✔ A trader may be trying to test a support or a resistance line (which I describe in Chapter 10).

Knowing when bar reading doesn't work

Some price series are unreadable. You can't figure out what the market is thinking because the market is changing its mind several times a day and from day to day. Figure 6-6 is such a chart. The series of gray up-days is a minor uptrend and the following series of black down-days is a minor downtrend — but then things fall apart. You see higher highs followed by lower lows and no consistency in the placement of the close (up-day or down-day).
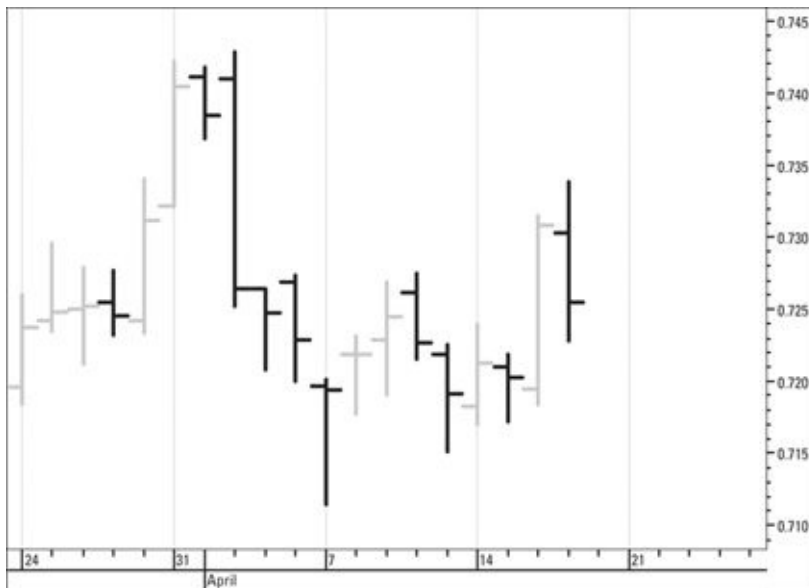
Figure 6-6: Nontrending bars.

What do you do in a case like this? Nothing — at least not anything based on interpretation of the bars. When bars are messy as in Figure 6-6 , the probability of picking the right direction (up or down) is very low. You'd just be guessing. And although you have to accept imperfection and a certain amount of ambiguity in bar-chart analysis, the whole purpose of technical analysis is to obtain a higher probability of making the right decision. Guessing defeats the purpose.

Framing Your Bars

In this chapter, I talk about the price bar as a daily bar. In practice, looking at data in different time frames is useful when you are facing a trading decision. You can zoom out to a higher time frame (such as weekly) or zoom in to a shorter time frame (hourly).

Price bars are fractal, meaning you can't tell by looking at a chart what time frame the bars represent. If it's not labeled, a chart of 15-minute price bars can't be distinguished from a chart showing daily bars. The bar components look the same and traders attribute the same supply-demand assumptions to them. No matter what time frame you select, everything in this book (including the following sections) about the price bar and its components is valid.

Using daily data

Most traders start with the daily price bar. Daily data is widely available and free or cheap. Daily data is the standard because

- Most of the commentary in newspapers and Web sites and on TV refers to daily bars. It's the "base case."
- Embracing daily price bars puts you on the same page with the majority of people in the market.
- Even people who use intraday data (such as hourly bars) also look at the daily price bars.

Technical analysis writers are sensitive to the increased use of intraday data, and today usually speak of *periods* rather than *days.* Changing the vocabulary has the unfortunate effect of making some technical analysis writing sound pompous — but it's more accurate.

Zooming out to a higher time frame

You can display prices in a weekly or monthly format. Mutual fund bars containing all the components are available only weekly. Quarterly and annual charts are seen less often. The universality of standard bar notation isn't hard to understand — after all, a week has an opening price (the first trade on Monday morning) and a closing price (the last trade on Friday

afternoon), with a high and a low somewhere in between. The weekly close is a summary of the sentiment of the majority of market participants for the week, just as the daily closing price summarizes sentiment for the day.

You can often see trends and patterns over longer time frames that are hard to detect on a daily chart. When you look at charts, make the habit of toggling the chart from a daily time frame to the weekly and monthly time frames to see whether anything pops out at you. In addition, you can use, say, a weekly chart to confirm a new trend that you discover on a daily chart.

Zooming in to a shorter time frame

Many traders today track and trade prices on shorter time intervals, like the 60-minute bar.

Getting the data

Live, real-time data used to be too expensive for the little guy and only big firms could afford to buy it for their staff. All of that has changed. Now, with a 10-or 15-minute time delay, you can get intraday price bars for free on many Web sites. All the brokers offer free live data, and most offer free charting capability, some of it very advanced, in return for opening an account.

If you subscribe to a data service, you can organize intraday data in any interval you like — 5-minute bars, 15-minute bars, 60-minute bars, and so on. You could have 7-minute bars or 73-minute bars, if you really wanted to. The notation is the same as in daily bars. The opening price is the price of the first trade during the period, and the closing price is the last trade done during the period, and so on. You can also see *tick bars,* a somewhat weird way of looking at prices in which a bar is created every 20 or 50 ticks no matter how much time it takes. Since each tick represents a true trade, you are incorporating volume in the representation of the bar.

Choosing an interval

If you start using intraday price bars, how do you select the interval? Experts are reluctant to give advice on this point. Leading data vendor eSignal offers standard intervals of 1, 3, 5, 10, 13, 15, 30, and 60 minutes, as well as daily, weekly, monthly, or custom intervals of your choice. (I assume users told

weekly, monthly, or custom intervals of your choice. (I assume users told eSignal they wanted the 13-minute interval to get a little ahead of the traders using the 15-minute bar.) In foreign exchange, traders use bars covering 240 minutes (four hours) or 360 minutes (six hours), a tidy way of keeping track in a 24-hour market as it travels around the globe.

The only logical way to select an interval is to treat it like shopping for a new pair of jeans — try them all on your favorite security and see how they look. Selecting the interval to use in displaying bars is subjective. Remember, bar reading is a visual art. Other times you may prefer to look at what everyone else is looking at, on the principle that following the crowd is usually the right way to forecast.

You want an interval that accurately represents activity in the security and suits your needs at the same time. If you're trading an equity that has trading volume of only 10,000 shares during the day and all of that is done in 5 trades, spacing your bars at 3-minute or 15-minute intervals is silly. Your result would be a chart that is mostly blank, and every trade looks like it gapped from the one before. Be careful not to sabotage your analysis by selecting a time frame that's out of sync with the normal flow of trading in the selected security. (For an explanation of gaps, see Chapter 7 .)

If you're watching a traditionally heavily traded security, such as Google, oil futures, or the euro, though, you get a complete bar for every 1-minute interval, and each bar contains the open, high, low, and close of that minute.

The key to selecting the right interval is the liquidity of the security you're trading. *Liquidity* refers to existing and potential volume — not only the players on the field but also the bench of players waiting around for their chance at bat, meaning a price that pleases them and triggers a trade, with an opposing bench of sellers willing to throw balls until somebody takes a swing. A liquid security has lots of buyers and sellers, with some of them active at all times, including *market-makers* who are required to post a bid-offer at all times. Liquidity results in real trades that are measured as volume. A security with only one or two interested parties is not liquid, as you may have discovered if you ever tried to sell a thinly traded penny stock. When markets freeze up, as the interbank money market did during the 2008–09 financial crisis, it means no trades

are getting executed, and that in turn has a domino effect on many other activities.

Select intraday bar intervals that are proportional to the volume of the security being charted. How do you judge what is proportional? You match the interval to your purpose. If you're trading on a daily time frame in which you make two decisions per day, one to buy and one to sell, you want to see bars that have enough substance to convey real information. If a 1-minute or 3-minute bar chart produces just a dot, you need to increase the interval. If 15-minute bars are big enough to read, perhaps you can stop there. But try the 30-minute and 60-minute bars while you are at it. You may like them better.

Applying Bar Reading in Real Time

Not all bars are created equal. How do you rank bars from those that offer a good profit potential to those that are duds? Keith Fitschen offers methods for "bar scoring" that aims to identify the best bars in his book, *Building Reliable Trading Systems* (Wiley). Techniques include fancy processes like finding how far the close varies above (or below) the standard deviation of the past x number of bars.

The simplest bar-scoring exercise takes four bar types and checks how these bars would have worked to generate a profit on the next day. Fitschen examined the bars against 3,372 stocks from 2000 to June 2011 that qualified by having liquidity of at least $20 million per day. He also ran the bar-type test against 56 futures contracts going back to 1980 and ending in June 2011. In total, he had 3.5 million equity bars that qualified and 363,000 futures bars. Here's what they look like and how the bars shake out.

- **Bar-type 1:** Close over the open and the close in the top half of the range.
- **Bar-type 2:** Close over the open but the close in the lower half of the range.
- **Bar-type 3:** Close under or near the open and the close in the upper half of the range.

✔ **Bar-type 4:** Close under or near the open but the close in the lower half of the range.

Now add the close from the preceding day's bar so the current close is higher or lower. This multiplies the four types of bars to eight. Quick, which bar-type is the winner? See Figure 6-7 .
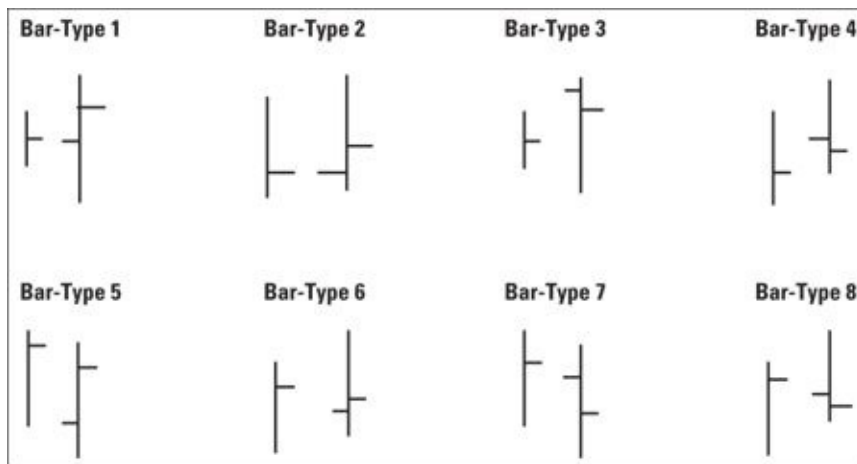
Figure 6-7: Fitschen's simple bar-scoring.

You might think that Bar-type 1 would be the winner — the close on the second day is higher than the close on the first day and it's in the top half of the bar. But for both equities and futures, Bar 1 is not the winner. And to complicate matters, equities have a different winner than futures.

In equities, the winner is bar-type four, which returned 0.1045 percent or roughly $5.00 on a starting stake of $5,000, by the close the next day. It has a higher high and higher close, but the close is in the lower half of the bar and below the open.

In futures, the winner is bar-type 7, returning $18.63 from tomorrow's open to tomorrow's close. The dollar gain is higher than in equities because contract sizes are bigger than the $5,000 assumed for equities. If we assume an average contract size of $20,000, the return is 0.09 percent, roughly comparable to the return on equities. Fitschen notes that in futures, bar-types 5 through 8 are all profitable even though the close is below the close the day before, implying that futures closes are counter-trend, such as a lot of futures traders prefer not to hold positions overnight and engage in "exit on close." (See the section "Hope, fear, and risk management at the close " earlier in this chapter.) He also says three of the four bar types that close up on the day

go down the next day, which means bar reading in futures is trickier than in equities.

Fitschen's bar-scoring demonstrates that you don't need all four bar criteria lined up simultaneously to make profitable trades on bar-reading. In fact, some of the bar-scoring outcomes are somewhat counter-intuitive, like the equity winner configuration having the close under the open (but a higher high and higher close).

Part III

Observing Market Behavior

The Top Five Advantages for Understanding Candlestick Patterns

- ✔ Many candlesticks are simple to use and interpret, making them a splendid place for a beginner to start figuring out bar analysis.
- ✔ Candlesticks and candlestick patterns have delightfully descriptive and memorable names, such as "abandoned baby," "dark cloud cover," and "spinning top."
- ✔ Candlestick bar patterns and their interpretation are widely known, so you can expect other market participants to respond in a specific way to specific patterns.
- ✔ You can use candlesticks on any chart, with any other indicators, just like standard bars.
- ✔ Candlestick shapes can be dramatic, so they can bring your attention to a trend change earlier than standard bars do.

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In this part…

- Use price bar combinations to determine whether your security is starting a trend, staying on a trend, or losing its grip on the trend.

- Learn the advantages of using candlesticks, from being simple to use and interpret to identifying strategic market turning points — reversals from an uptrend to a downtrend or a downtrend to an uptrend.

Chapter 7

Reading Special Bar Combinations: Small Patterns

In This Chapter

▶ Keying in on market psychology in simple bar combinations

▶ Comprehending common and uncommon bars

▶ Getting the lowdown on gaps

▶ Understanding the significance of the high-low range

A s I wrote in Chapter 6 , the price bar is the basic building block of technical analysis. Bar configurations come in endless combinations and permutations, and you can't possibly memorize them all. But knowing about the special bars is useful because they can be powerful predictors — and everyone knows it.

"Special bars" are a small series of two to five bars — called *combinations* or *configurations* — that stand out on a chart. You can see them immediately, and so can everyone else. Most special bars and configurations are either trend-confirmation or trend-reversal patterns, but even when they are ambiguous, you need to sit up and take notice.

As a general rule, you want to "go with the flow" — trade with the conventional wisdom about the meaning of special bars. If you're a very short-term trader (three to five days), the special-bar configurations literally tell you how to trade. If you're a longer-term trend trader, the earlier you use these configurations to identify a new trend, continuation of the trend, or the end of an existing trend, the more profit you make.

Finding Clues to Trader Sentiment

You use price bar combinations to determine whether your security is starting

a trend, staying on a trend, or losing its grip on the trend. The start of a new trend is sometimes the end of an old one, called a *reversal.*

Tick and bar placement

As we saw in Chapter [6] , an *uptrend* is a series of bars featuring higher highs, higher lows, closes higher than the day before, and we would also like a fourth factor, closes above the open. A downtrend has the components in the opposite positions, of course.

You hardly ever see a series of bars where all four factors confirm the trend. Because prices never move entirely in a straight line, you have to accept that some bars in a trend don't fall into line with all the trend criteria. You may have one or two bars in an uptrend that don't have higher highs or a few bars where the close is lower than the day before. Such variations in *tick placement* (the horizontal line marking the open and close) and *bar placement* (position of a price bar relative to the bars that precede it) are normal in even the best-behaved trend.

Some bars are just a little out of line, but sometimes you see bars that really stand out. It takes almost no practice at all to differentiate ordinary out-of-line bars from special configurations that traders consider to be associated with specific interpretations.

In a series of three bars, each having four components, you can get any one of 2,463 permutations of configuration. When you specify joint conditions, such as higher high together with higher low, the number of combinations reaches into the millions — and that's just with three bars! So, when you see the special cases, you know that you've got a valuable clue to upcoming price behavior.

Even so, the interpretation guidelines aren't 100 percent right at all times. In fact, nobody can tell you even roughly what percentage of the time the standard interpretation is correct, because it may be correct all the time in one security but only 30 percent of the time in another, or correct 75 percent of the time in one year but only 50 percent in another.

A bar component or even the placement of the entire bar can be a function of noise (see Chapter 2). After discounting noise, remember that each security has bar configuration habits that reflect the trading habits of the crowd that trades it. Some securities are prone to hysteria (resulting in gaps, such as the Commodity Research Bureau commodities index) and others are beset by indecision (leading to inside days, such as the Japanese yen and Swiss franc). See the following sections for definitions of these special bars.

Types of configurations

When you spot a special small-bar configuration, you're looking for either trend confirmation or a signal that the trend is at risk of ending.

✔ **Continuation patterns:** The trend is continuing. The direction and pace of the trend are about the same as they were before. Relax. The more confirmation you can get, the safer you feel. You see hard evidence of the trend continuing, such as a preponderance of higher highs and higher lows marking bullish sentiment on the part of the trading crowd.

✔ **Reversal patterns:** The trend is switching direction. When the trend shifts from down to up or up to down, the configuration of the bar components and their placement across a series of price bars often shout, "The trend is changing!" If you have a position in the security, a reversal pattern tells you to exit. If you hold on to the position anyway, your risk of loss is much higher.

A reversal pattern is not only a warning to exit when you're invested in the security, it's also advance notice that a good entry place may be coming up. For example, when a downtrend ends, you may see one of the very specific reversal patterns that is a reliable precursor to a buy signal.

Trading range

In every instance of special bars in this chapter, the size of the daily high-low range is a key factor. The *daily trading range* is the difference between the high and the low of the day. You can also say that the range defines the emotional extremes of the day:

✔ If you have a bar with a small range in a sea of larger bars, the market is indecisive. Indecisiveness isn't the same thing as indifference. Indecisiveness can be dangerous — nobody wanted to buy at a higher high, so perhaps buyers are getting tired of that security at current prices. A change in sentiment may be brewing, such as deceleration in a price rise that precedes the end of the trend.

✔ When it's one very large bar in a sea of smaller ones, pay attention. Something happened. Traders are willing to pay a *lot* more for a rising security, or they want to dump a falling one so badly that they'll accept an abnormally low price.

Identifying Common Special Bars

Special bars usually mean the same thing, and therefore you can focus on a few of the special bars with confidence in their reliability. In this section, you can get a feel for the common special bars pictured in Figure 7-1 .
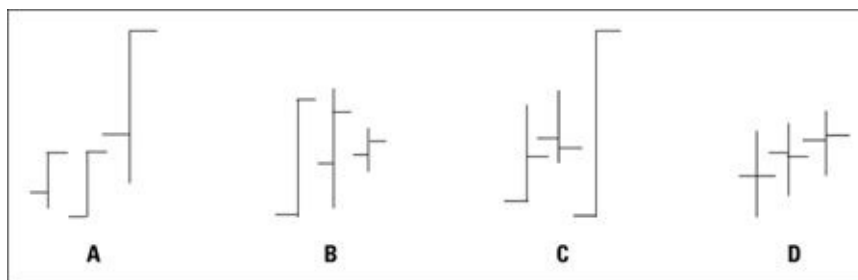
Figure 7-1: Common special bars.

Closing on a high note

It's bullish when the price closes at the high over several days. A series of *closes at the high* — and its downtrending counterpart, *closes at the low* — indicate that the existing trend is likely to continue. In Figure 7-1 , Configuration A illustrates closes at the high for three days running, and the third bar is much longer than the others, which means the high-low range is wider than the previous two days. So, what's up?

The first two bars show the close at the high at about the same level. On the second bar, the low of the day was lower than the low the day before, meaning that sellers came out of the woodwork. But the bulls fought back, buying more and more, so that the close was still at the high, trumping the

lower low. Day three delivers a whopping gain — and a third close at the high. By now you may be ready to bet the ranch on this configuration.

Your instincts are right, with one word of caution: A big gain is often followed by *profit-taking* by active traders. Three days isn't enough to call this configuration a *trend,* so traders call it a *move.* It doesn't matter whether the closes-at-high occur at the start of a trend or while the trend is in progress — a fat gain always inspires some traders to take profit. Profit-taking doesn't change a trend, but can dent performance the next day. You can use your imagination (or turn the book upside down) to envision the parallel configuration on Configuration A of Figure 7-1 — closes at the low. As you may expect, a series of closes at the low imply that a downtrend is forming or worsening.

Spending the day inside

Configuration B in Figure 7-1 shows the inside day. An *inside day* refers to a price bar in which the high is lower than the previous day's high and the low is higher than the previous day's low. In other words, today's high-low range is "inside" the previous day's high-low range. It reflects indecision. Buyers didn't feel strongly enough about this security to buy more. Sellers weren't particularly inspired to sell, either. The inside day doesn't suggest what's going to happen the following day. But it does warn that the market is starting to reconsider what it feels about this security.

Testing folklore

An inside day signals that the market is having second thoughts about a security. Some analysts say that an inside day is always a continuation bar. Others, notably candlestick chartists (see Chapter 8), see an inside day (named a *harami*) as a warning of a possible trend reversal. Which interpretation is correct?

No one can give you a definitive answer. Trading Systems Analysis Group (TSAG) examined the data of 60 equities over four years (more than 60,000 price bars) and found 2,000 instances of inside days. About half the time in an existing uptrend, the bar after an inside day delivered a higher high (a continuation) and about half the time it didn't. For existing downtrends, the percentage was the same, with a small but statistically insignificant bias in favor of continuation. The inside day is still useful to signal that sentiment *may* be ready to change. Also, keep in mind that the TSAG study is limited to the exact question asked — what happened the next day? This doesn't address what happened two days later, or three days. View the inside day as a signal alerting you to watch for a breakout, however

minor, without telling you the direction.

Analyst Dan Chesler describes a head-fake based on the inside day that he names the *hikkake* pattern, a Japanese word referring to trickery (although hikkake is not part of standard Japanese candlestick charting). Chesler points out that you need more than the next day's bar after an inside day to determine whether the move is up or down. In fact, the next day may deliver a higher high and a higher close, tricking you into thinking it's an upmove — but if the *second* day after the inside day delivers a close below the low of the inside day, it's a downmove.

Getting outside for the day

Configuration C in Figure 7-1 is the outside day, meaning the high-low range of the bar is outside the range of the preceding bar. The open and close ticks can appear anywhere on the outside day bar, but two variations stand out:

- **The open is at the low, and the close is at the high.** This configuration suggests that something new has happened to inspire bullish buying right up to the end of the day.

- **The open is at the high, and close is at the low.** You can deduce the opposite supply-demand setup here. Sentiment turned bearish and sellers overwhelmed buyers, right to the end of the day.

The sheer size of an outside day bar gets your attention, but it doesn't mean very much on its own — you also need to consider the placement of the open and close and the configuration of the preceding bar. If the price series is untrended, the outside day alerts you to a possible trend beginning. If a trend is in place, the placement of the close relative to the open may be a hint of an upmove or downmove — but not always.

Finding the close at the open

Configuration D in Figure 7-1 shows a series of bars where the close is at or near the open. As you can guess, a close at or near the open reflects indecision among market participants. Trader opinion is divided as to whether this bar generally signifies a continuation or reversal pattern. Consider it a clue to look at what else is going on, such as trading volume. In candlestick charting, the open at or near the close is named a *doji* , a term I promise you will come to use with ease (see Chapter 8).

Decoding Spikes

While the inside day and the outside day in Figure 7-1 have high-low ranges noticeably different from the preceding bars, they don't make your hair stand on end. Sometimes, though, the market delivers an exceptionally big bar with a wildly out-of-whack high or low. Figure 7-2 shows two of these uncommon price bars, called spikes.

A *spike* is a bar that encompasses a much wider high-low range than the bars immediately preceding it. Do spikes matter? Yes, although sometimes they're just randomly generated by rumors and market silliness.

In some cases, a spike turns out to be an anomaly. The top example in Figure 7-2 shows such a case. The spike low suggests that some people panicked and were selling so much and at such a frantic pace that buyers got a bargain at abnormally low prices. But panic was misplaced. The next day, the price resumed its uptrend and its same "normal" high-low range. The spike was just noise. Maybe the panicked sellers believed a rumor that the buyers didn't hear or knew was false. Or perhaps the sellers were deliberately trying to break a support line, as I describe in Chapter 10 .
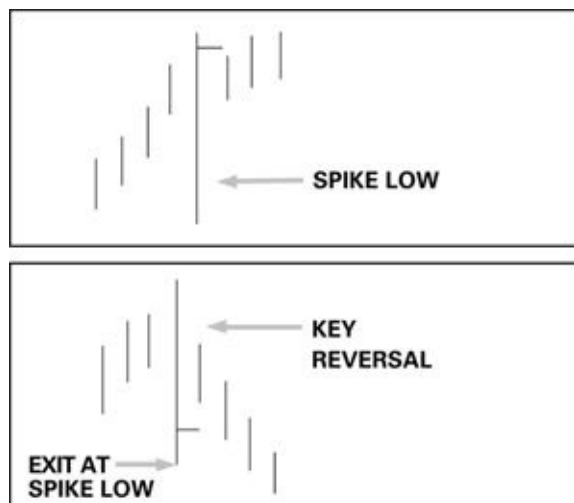
Figure 7-2: Uncommon special bars.

The bottom spike example in Figure 7-2 is, in contrast, an important bar named a *key reversal* because over the next few days, the price proceeds to

make lower highs and lower lows, signaling a trend reversal. Commentators today make a big deal out of the key reversal bar and say that after a spike low, the next bar opens over the spike bar close and makes a new higher high, but then closes below the previous day's close. In practice, you don't need a new higher high; you just need the series of lower highs and lower lows. And it can take more than one bar after the spike low to confirm the reversal, since the confirmation point is the close surpassing the spike low. In fact, a key reversal bar can be an ordinary bar and is not always a spike, but when you see a spike, always ask yourself whether it might be a set-up for a pending reversal.

As the spike is occurring, you don't know where the low is going to come until after the bar is completed, and obviously you can't exit the trade until then (in other words, in the next trading session). You still don't know what bars will ensue, but you can make note of the spike low after it forms and keep it in mind as a benchmark for a stop, even if the bars that follow the spike retrace some of the downmove, as they do in Figure 7-2 . You seldom know whether a spike is random or meaningful on the day that it happens. Only hindsight can tell you that.

You may not know the meaning of a spike until afterwards, but you can still use spikes right after they appear:

- **Investigate the environment.** Sometimes you *do* know when a spike is a harbinger of a major directional change because you know what shock caused it.

- **Trust the close.** As a general rule, you're safe assuming that the close is the most important part of the bar because it sums up the sentiment for the day. To see the usefulness of the close, take a look at the two examples in Figure 7-2 :

  - **Continuation spike:** In the top chart showing a spike low, the close is near the high. The wider high-low range and the lower low are a worry, to be sure, but the position of the close near the high trumps those worries.

  - **Key reversal day:** The bottom chart in Figure 7-2 shows three components to worry about — not only the wide high-low range

but also the lower low and close near the low.

A key reversal bar is also sometimes called a swing bar, although not all swing bars are spikes. A *swing bar* is any bar that is the final and lowest low in a series of lower lows or the final and highest high in a series of higher highs. The problem with the term *swing bar* is that technical writers apply it willy-nilly according to their own personal definition based on the swing trading system they are embracing. The concept of swing trading is well established, but each swing system defines the swing differently and thus also the swing bar, if the system even has one. Thus, we don't have a universally accepted definition of a swing bar. Some people may just like the way it sounds, and I agree — it's a lovely term. When you are looking at swing trading systems, be sure to find the exact definition of swing bar. It may or may not have anything to do with spike bars or key reversals.

A conservative trading tactic is to order your broker to sell the security if the price falls below the low of the spike day over the next two or three days. This method is plain old crowd-following. Everybody can see the same spike low and many will have sell orders at that level, and you should, too. The bar following a spike is often an inside day. Other times the following bar has a new higher high only a few pennies above the spike high and a close lower than the spike bar close. Neither bar is helpful. They're simply inconclusive, and you have to wait for additional evidence to get guidance on how to trade.

Getting Gaps

A gap is one of the most important special bar configurations. A *gap* is a major, visible discontinuity between two price bars on a chart. Because every bar encompasses all the transactions made during a specific period, a gap marks the absence of any transactions at the prices

covered by the gap. In this section, I give you pointers to identify gaps and how to use them.

Pinpointing a gap

The gap is a void — no supply is offered at the prices the gap encompasses. Check out the gap in Figure 7-3 . Prices had to shift upward in order for supply and demand to meet again and for both buyers and sellers to be satisfied. On daily charts, you can often see an opening gap when the opening price today diverges dramatically from yesterday's high or low, although you can also see gaps between bars on intraday charts.
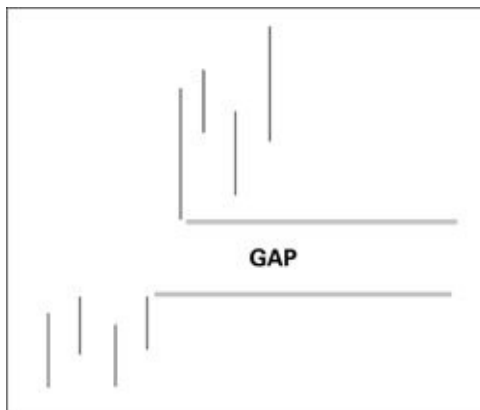
Figure 7-3: Price gap.

You can *identify* a gap at the open of the bar but you can't *measure* a gap until the day's trading is over. Then you measure it from yesterday's high to today's low (for an upside gap) or from yesterday's low to today's high (for a downside gap). The gap is between the bars' highs and lows, not between the opens and closes. If the security opens on a gap but then the gap is filled during the day, the gap doesn't show up on a daily chart. The same thing happens when a security gaps during the day on an hourly chart — the daily bar doesn't show it.

Gaps are usually triggered by news, like earnings or some other event, whether true or invented. That's why gaps are such a valuable pattern — you know instantly how the market is interpreting the news. The reason to read bars is to get an accurate assessment of whether news is big or merely ordinary. Some news is easy to interpret. News will start a new uptrend if it's wildly favorable or halt an uptrend dead in its tracks if it's wildly unfavorable.

But much of the time, you don't know how to interpret news — and we are all overloaded with too much news! — until you see how the market treats it in the form of the bar on the chart. Traders often get the bit between their teeth on news and this is especially clear with gaps.

Consider how a gap develops. Say that Blue Widget stock closes on Monday at $15 per share. After the closing bell, it announces bad news — the bookkeeper embezzled twenty million dollars and ran off to Rio. The market is unforgiving and the next day, Blue Widget opens gap down at $10. Most people deduce that the opening gap down implies further price drops, and they proceed to sell — in droves.

The total gap for the day may not be $5, though. During the course of the day, Blue Widget may trade as high as $12, making the net gap a $3 gap. If the price of Blue Widget normally trades in a $2 high-low range, $3 is still a significant number — 50 percent higher than normal. Gaps are significant when they're proportionally large compared to the trading range (see the "Kicking things off: Breakaway gaps " section in this chapter).

Gaps occur with good news, too. If Blue Widget announces a fabulous new discovery, the opening price on the following day may be a gap up, like the one in Figure 7-3 . You may deduce from this gap that some traders (including well-paid professional analysts) had a whole night to evaluate the news, and *they* bought the stock at the open, so you should buy it, too. The gap implies buyers anticipate the stock rising throughout the day from the opening price, and you want to jump (if not leap) on this bandwagon. In equities, you can pretty much count on an opening gap on the day after an initial public offering.

Using gaps to your advantage

Gaps are, indeed, a wonderful trading opportunity if you can differentiate between a common gap and uncommon gaps. In the following sections, I describe the main types of gaps and how to use them.

Lacking opportunity: Common gaps

A *common gap* is one that appears out of nowhere for no particular reason and should be considered noise. Common gaps can occur in trending and nontrending prices. If the price is trending, it fails to change the trend. If the price isn't trending, it fails to initiate a trend. Common gaps are generally

insignificant.

What causes a common gap? Usually it's a simple error. A trader heard or thought he heard a market-moving bit of news and made an offer above (or below) the market. Or the trader was trying to break a trendline or had some other hidden agenda.

Common gaps often occur when liquidity is low, meaning only a few players are in the market. A security that normally has low volume tends to have more gaps than heavily traded securities. A low-volume security is described as *thinly traded,* meaning few market participants. Don't try to interpret gaps in thinly traded securities. These gaps are usually just common gaps and mean nothing at all.

> To judge an opening gap, consult volume. If volume is low or normal, traders aren't jumping on the bandwagon, and it's probably a common gap. If volume is abnormally high, traders are jumping on the bandwagon, and the gap will probably lead to a big rise or fall in the coming days.

Kicking things off: Breakaway gaps

> A *breakaway gap* is an important event because it almost always marks the start of a new trend. Not only do you get the gap and a new trend, but you also get a major change in the appearance of the chart, such as a widening of the normal high-low daily trading range, an increase in day-to-day volatility, and much higher volume. All these changes occur because the breakaway gaps draw in new traders. A breakaway gap is event driven, usually on some news about the security itself. Figure 7-4 illustrates a breakaway gap.
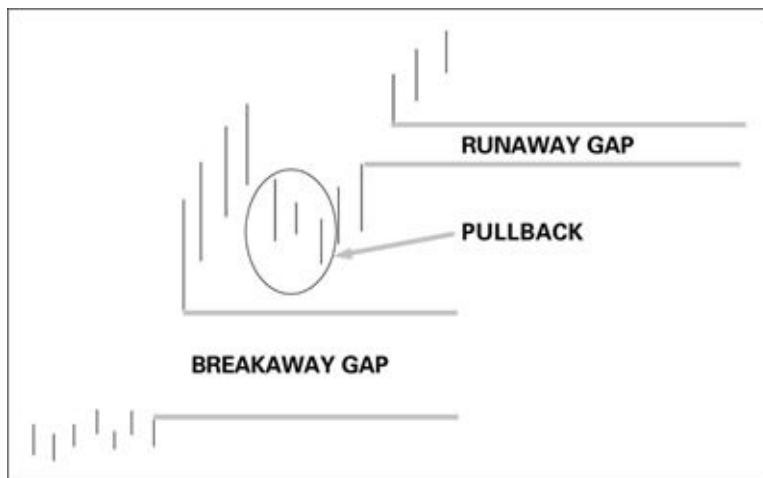
Figure 7-4: A breakaway gap and a runaway gap.

To qualify as a breakaway gap, the gap has to

✔ **Be proportionately big to the usual trading range:** If the security normally trades in a $3 range between the daily high and low, and the gap is $15 between the preceding day's high and the gap-day open, you can instantly recognize that "something big happened."

✔ **Occur when a price is only slightly trending or moving sideways:** Nothing much is going on in the chart, and then bam! Fresh news creates new supply-and-demand conditions and ignites a trend.

You interpret a breakaway gap depending on whether it's upward or downward, according to supply and demand.

✔ **Upside breakaway gap:** Good news creates demand. New buyers want to own the security and are willing to pay ever-higher prices to get it. Volume is noticeably higher than usual.

✔ **Downside breakaway gap:** Traders can't wait to get rid of their holdings and accept ever-lower prices to achieve that goal. Volume is usually (but not always) abnormally high.

Continuing the push: Runaway gaps

A *runaway gap* occurs after a security is already moving in a trended way and fresh news comes out that promotes the existing trend. See the second gap in Figure 7-4 . What's the difference between a breakaway gap and a runaway gap? A breakaway gap starts a trend. A runaway gap continues a

trend. In both cases, buyers become exuberant and offer higher and higher prices. Sometimes fresh good news bursts forth, sometimes traders make up fresh good news, and sometimes the buying frenzy is just feeding on itself in the absence of any news at all.

Notice on Figure 7-4 that after making new highs following the runaway gap, the price fell a little. A falling price after a dramatic move up is called a *pullback.* The security stops making new higher highs and may make some lower lows, but doesn't go as far as the low on the breakaway day. A pullback after a dramatic price move represents profit-taking by the early birds and is very common. In fact, professionals count on the pullback to "buy on the dip." If they get really enthusiastic, reentering professional traders often supply the energy for a runaway gap that follows a breakaway gap.

Calling it quits: Exhaustion gaps

Exhaustion gaps occur at the end of a trend, signaling that the party's over. Volume is usually low. What's exhausted is the news that propelled the security up in the first place and the energy of the early buyers. An exhaustion gap is usually followed by a reversal.

Here's how it works. This example is an exhaustion gap at the end of an uptrend, but the mechanics are similar for a downtrend exhaustion gap as well. When you see a gap up in an existing uptrend *and* volume is low on that day, you have to wonder why the gap appeared. Volume tells you that buyers aren't pounding on the sellers' doors to get the security.

Presumably some greedy seller is out there, along with one last fool who's willing to pay a gap-worth more than the last trade. The buying frenzy is over, but the buyer doesn't realize it. He fails to see that there are a lot of offers and few bids. In short, everybody who wanted to buy has already done so. But somebody has to be the last buyer, and this particular one got taken to the cleaners — in the form of the gap. When he turns around and tries to unload his recent purchase, he finds no buyers, at least no buyers at a profit to him, and has to dump the security at a loss.

You can distinguish an exhaustion gap from a runaway gap by looking at volume, which is usually low at an exhaustion gap. Anytime you see wild new highs (or lows) that aren't accompanied by wild new high volume, be suspicious of the staying power of the move. You can exit altogether or move up your stop-loss order.

Scoring big: Island reversals

Sometimes an exhaustion gap is followed immediately by a breakaway gap going in the other direction (see previous sections for details on exhaustion and breakaway gaps). This occurrence is how an island reversal forms. An *island reversal* is a single, isolated price bar with a gap up on one side and a gap down on the other. It looks like an island in a sea of price bars and is almost always an unusually long bar — a wide high-low range.

Take a look at Figure 7-5 . You see a series of higher highs, including a minor gap up, but then the last buyers realize that they are all alone on top of the mountain. They start to sell in a panic and are willing to accept a much lower price. Now the price takes off in the opposite direction on a breakaway gap. Remember, a breakaway gap tends to have high volume.
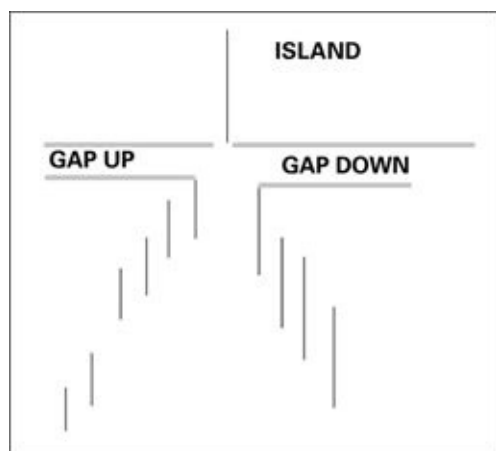
Figure 7-5: Island reversal.

Watching volume can get a little tricky. The island reversal bar has a higher high but is accompanied by low volume. This combination is the warning. The next day, as the breakaway gap develops, it has unusually high volume. High volume in combination with the downward gap is an indication that early selling is strong–later prices are not going to go back and fill that gap.

Now consider this case in reverse order. Everyone and his brother has been dumping the security, and it's been gapping downward as it trends downward. This time the frenzy is a selling frenzy. At some point, traders realize that the selling has gone on long enough and maybe the price is now too low — a bargain. Another trader agrees and buys it from him, and offers it on in the market at a gapping price — and wins. Turn Figure 7-5 upside down and you can see how an island reversal at the bottom looks.

Examine enough charts and you will see a lot of gaps. Seldom, though, do you see an island reversal. But when you do see it, here's how to respond:

✔ An island reversal at the bottom: Buy.
✔ An island reversal at the top: Sell.

Despite its rarity, chances are good that a large number of other people will identify the makings of an island, too, and cause the expected reaction — the self-fulfilling prophecy aspect of technical analysis.

Although you can't know for a day or two after the second gap that you have an island reversal, many commentators speculate that an island is forming when they see the *first* gap. Close your ears when you hear market chatter like this. Form your own judgment. "Is an island reversal forming?" is one of the most-asked question that market technicians hear and one that can't be answered on a technical basis until a day or two *after* the second gap.

Filling That Gap

You may hear that a gap *must* be filled. This emphasis on filling the gap is usually nonsense uttered by people who are trying to sound worldly and wise, but really don't know what type of gap they're dealing with. *Filling the gap* means that prices return to the level they occupied

before the gap. Figure <u>7-6</u> illustrates filling the gap.

If a security takes off on a breakaway gap, sometimes the price doesn't return to fill the gap for many months or even years — if ever. Stop and think about it: When the fundamentals of a security change dramatically, why would market participants sell it back down to the level it was before the big event? Conditions have changed permanently and so has the price of the security. If a company has invented some new must-have product, the new higher stock prices may not be the right price, but the old prices based on the old conditions aren't right either.
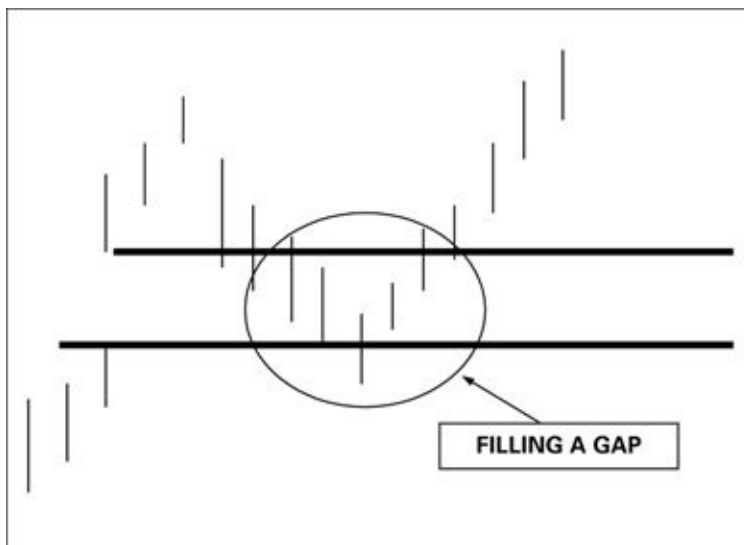
Figure 7-6: Filling a gap.

A runaway gap or common gap is another matter. Demand for the security is normal and not under the influence of news or changing conditions, so the gap may be filled by bargain hunters. Sometimes a gap gets filled because the chatter about "filling the gap" makes it a self-fulfilling prophecy.

How do you know whether a gap will be filled? If it's a breakaway gap, it probably won't be filled, at least not in the near future. If it's a common or runaway gap, it might get filled or it might not. You need to look at other indicators (such as momentum in Chapter <u>13</u>) to confirm whether a price move is at risk of going back to fill a gap.

Using the Trading Range as a Tool

The length of the price bar, the *trading range,* plays a role in the special bar configurations such as spikes, as discussed previously. But the trading range also has meaning in its own right. As I define in the "Trading range " section earlier in this chapter, the trading range is the difference between the high and the low. If you see a security that has been averaging a $3 high-low range and suddenly it starts trading consistently in a $5 range, something happened — no matter where the opens and closes are.

Paying attention to a changing range

When market conditions change, the average trading range is sometimes the first aspect of price behavior to change.

REMEMBER

A change in the high-low range, which you can see in Figure 7-7 , usually precedes or accompanies a change in the direction or slope of a trend. Take note — it's often a leading indicator.
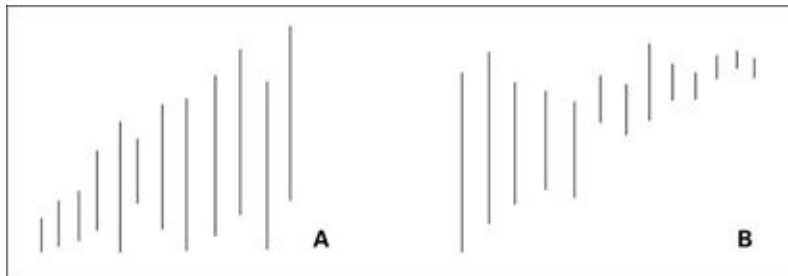
Figure 7-7: Range expansion and contraction.

- *Range expansion* is a lengthening of the price bars over time — the high-low range is getting wider (visible in Chart A of Figure 7-7) — and usually suggests a continuation pattern.

- *Range contraction* is a shortening of the price bars — the high-low range is getting narrower (check out Chart B in Figure 7-7) — and suggests that a trend reversal may be coming soon.

WARNING!

A change in the size of the bars — range expansion or contraction — doesn't tell you anything about the *existing* direction of the price move. The range can expand or contract in both uptrends or downtrends.

Determining the meaning of a range change

As a general rule, an expanding range is a continuation pattern and a contracting range suggests that a trend reversal is impending. Sometimes your only clue to a shift in market sentiment about your security is a change in the high-low range, but check for these confirming conditions as well:

✔ **Volume:** Look to see whether the volume is rising or shrinking.

- **Rising volume:** More people are trading the security, or existing traders are taking bigger positions. This rising volume usually accompanies range expansion and is an excellent indication of an accelerating trend. The acceleration can be in either direction, up or down. If you see an expansion of the range and it fails to have an accompanying rise in volume, you have a mystery and need to look at some other indicators, like momentum (see Chapter 13).

- **Shrinking volume:** Fewer people are in the market for this security, or existing traders are reducing their allocations to this security. Falling volume often accompanies range contraction.

✔ **Open-close position:** Here's an outline of the four possible open-close combinations and what they likely mean:

- **Expanding range, higher closes:** Buyers are excited about the prospect of the price going higher still.

- **Expanding range, lower closes:** Sellers are ever more anxious to unload the security.

- **Contracting range, higher closes:** In all range contractions, traders start to feel uneasy about the direction that the security has been trending. But a higher close can offset some of the negative sentiment inherent in a contracting range.

- **Contracting range, lower closes:** This combination is doubly negative. Traders may not be causing lower lows, but they are unloading at or near the close, forcing it lower. Range contraction usually means that activity is drying up and volume is low — so if

you see high volume and a lower close in a contracting range, you probably want to get out of Dodge.

Looking at the average trading range

The trading range is a valuable analytical tool. But you want to capture a change in the range in some more-efficient way than eyeballing a bunch of bars and trying to figure out whether they're getting bigger or smaller. What you want is an average.

You know what an average is — you measure ten of something, add up the measurements, and divide by ten. If you have ten days' worth of high-low ranges that add up to $32, you know that the average daily trading range for the ten-day period was $3.20.

The average trading range is one of the best tools around for keeping your sanity and perspective. If you know that the average daily trading range is $3.20, the most you can expect to make on this security in a single day is $3.20, and that's assuming that you could buy at the exact low and sell at the exact high — and assuming that it's an average day.

When your broker, your brother-in-law, or an e-mail solicitation says you can make $500 in the next month in a specific security, you can use the average range to judge whether it's even remotely possible. If the security moves up by its full average $3.20 range every day with no pullbacks for the entire 22 days in a trading month, your gain would be $70.40. Unless your informant has certain knowledge of some news or event that is going to change things, his forecast is silly. Under normal, average conditions, you can expect the normal, average trading range to persist.

Checking out the gaps

But how do you measure average range when your prices series has gaps? Say that you are merrily averaging your daily high-low ranges and suddenly you have a gap. You need to account for that gap or you will be literally missing something. Figure 7-8 displays the problem. On Day 1, the high-low range is $2. The next day, the price opens gap up, but the daily range is the same $2. Therefore, the average range for the two days is also $2. Looking at the average range alone, without inspecting the chart itself, you wouldn't

know that the gap occurred. Well, so what? Maybe the gap is just a common old gap that doesn't mean anything. If it's an important gap, like a breakaway gap, the range would automatically expand.

So what's the issue? The reason you need to account for the gap is that it often precedes a longer-term change in the range, which is what you're looking for. If you measure each day separately and average those numbers, the range looks the same from day to day. For the first two days in Figure 7-8 , though, the range is actually from the low on Day 1 at $1 to the high on Day 2 at $7 — or a $6 range. In short, the range doubled but the averaging process doesn't capture this change. In fact, if the range on Day 2 had been smaller, say $1.50, the average would be less than $2. Just looking at the average range on a numerical basis, you would think that the range had contracted — exactly the opposite of what really happened.

DAY 1 RANGE $2.00
DAY 2 RANGE $2.00

AVERAGE RANGE $2.00
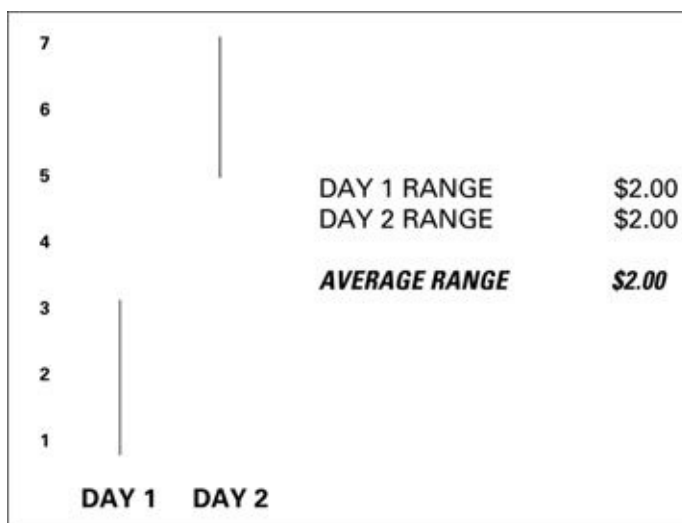
Figure 7-8: The averaging gaps problem.

Discovering the average "true" range

If you want to make a trading decision based on a change in the average trading range, you need to adjust the averaging process to account for possible gaps. You do this by starting at the most important component of the price bar: The close. As a rule, to calculate the true range today after a gap, you start from the close on the day before and end at today's high. You are substituting the first day's close for the second day's *open* in order to incorporate the gap.

In Figure 7-8 , Day 1's range was ordinary. The gap happened afterward.

Why not use Day 1's high rather than the close? Aren't you double-counting by including the space between the high and the close from Day 1? No, because in range work you don't really care about the gap itself — you care about the total range of prices *today* . The close was the end of trading yesterday, and you're now considering it the start of trading today. Because the close is the most important part of the bar, traders are hypersensitive to an opening gap away from yesterday's close.

Figure 7-9 shows this new measurement. Pretend that the close on Day 1 was $3, or $2 over the open at $1. Subtracting that close from the high on Day 2 at $7, you get a true range of $4. Averaging that with the original Day 1 range of $2, you get $3, the average true range. If Day 2's price bar gaps downward, you incorporate the gap by measuring from the close on Day 1 to the low on Day 2.

DAY 1 RANGE	$1.00 to $3.00 = *$2.00*
DAY 2 RANGE	$5.00 to $7.00 = $2.00
DAY 2 TRUE Range	$3.00 to $7.00 = *$4.00*
AVERAGE TRUE RANGE	$2.00 + $4.00/2 = *$3.00*

DAY 1   DAY 2
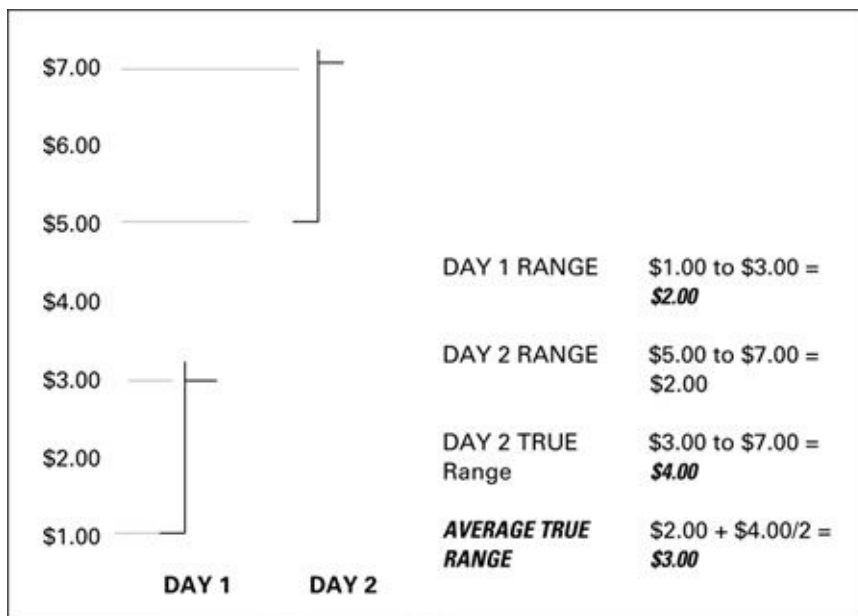
Figure 7-9: The average true range.

Why the word *true?* Because the inventor of the idea, J. Welles Wilder, Jr., selected this word. The average true range is sometimes called *Wilder's average true range,* or simply ATR.

TIP

The bigger the shift in the size of the range, the bigger the trading opportunity (or warning to exit). You judge a shift in average true range the same way as in a regular high-low range but with greater confidence

that you're measuring and not just eyeballing. If your security normally trades in a daily range of $10 and then it starts trading at $6, $4 and $2, something is happening. Go find out what.

In Figure 7-10 , for example, you see a price in the bottom window on an uptrend, but the average true range in the top window is falling. It reaches a low level just as the trend is ending (note the circle). Notice that after the trend reversal, you get a big-bar down day and corresponding rise in ATR.

Figure 7-10: Change in ATR as a warning indicator.

The ATR can be hard to use, in part because the ATR line can be choppy, it doesn't track the trend slope, and it in fact can diverge from it, as it does in Figure 7-10 . Plus, the ATR requires bar reading to get it right. By the time you get the big-bar down day, you already know this trend is ending. But do not neglect ATR as a warning indicator — sometimes it's the only warning you get.

Chapter 8

Redrawing the Price Bar: Japanese Candlesticks

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In This Chapter

► Introducing candlesticks

► Going over a few specific patterns

► Using candlesticks with other market tools

C andlestick charting displays the price bar in a graphically different way from the standard bars described in Chapters 6 and 7 . Candlestick charting was developed in Japan at least 150 years ago, where traders applied it to prices in the rice market.

A trader named Steve Nison brought candlesticks to the attention of western traders in 1990. Candlestick patterns became instantly popular because they embody the principle of imputing trader sentiment to the bars, as in "shaven top," where the close is at the high. As I say in Chapter 6 , the close at the high means strong bullish sentiment. Today charting services and software identify candlesticks by name and offer guidance on interpreting them.

In this chapter, I break down the components of a candlestick and explain why candlesticks are so useful. Note that in some instances, a stand-alone candlestick is a "pattern" in its own right, and such candlesticks always have a name. (For more on patterns, check out Chapter 9 .) Named candlesticks and small series of candlestick patterns number in the dozens, and I can't cover all of them in this chapter. Here I select a few that stand out.

Appreciating the Candlestick Advantage

Candlesticks are visually compelling. You can quickly and easily figure out how to identify a handful of the top candlestick patterns. The following are

some of the advantages you can get from candlesticks:

- Many candlesticks are simple to use and interpret, making it a splendid place for a beginner to start figuring out bar analysis — as well as for old hands to achieve new insights. Your eye adapts almost immediately to the information in the bar notation.

- Candlesticks and candlestick patterns have delightfully descriptive and memorable names — charming and sometimes alarming — that contain the seeds of interpretation. The names help you remember what the pattern means. Among the colorful names are "abandoned baby," "dark cloud cover," and "spinning top."

- Candlestick bar patterns and their interpretation are widely known, so you can expect other participants in the market to respond in a specific way to specific patterns.

- You can use candlesticks on any chart, with any other indicators, just like standard bars.

- Candlestick shapes can be dramatic, so they can often bring your attention to a trend change earlier than standard bars do. As I describe in Chapter 7 , some exceptional bar patterns embody a forecast that's usually correct, such as the breakaway gap and the island reversal. Standard bar analysis offers very few such patterns, but candlestick analysis offers dozens.

- Candlestick patterns excel in identifying strategic market turning points — reversals from an uptrend to a downtrend or a downtrend to an uptrend.

Dissecting the Anatomy of a Candlestick

Candlestick notation emphasizes the open and the close. As shown in Figure 8-1 , the open and the close mark the top and bottom of the box, named the *real body.* A thin vertical line at the top and bottom of the real body, named the *shadow,* shows the high and the low. (See Chapter 6 for a discussion of the basic bar components — open, close, high, and low.)

I present some more details on the candlestick bar components in the

following sections.
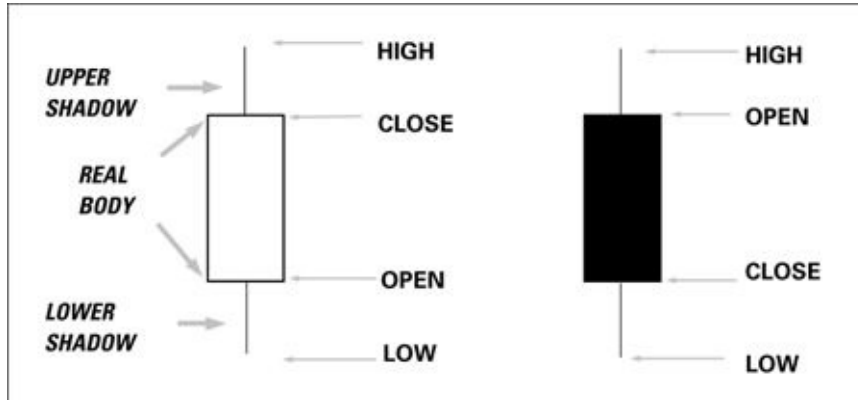
Figure 8-1: Candlestick bar notation.

Drawing the real body

The *real body* encompasses the range between the open and the close. The color of the real body tells you how the daily struggle between the bulls and the bears played out. Note that in candlesticks, the real body emphasizes the open-close range, whereas in traditional bar charting, you look at the high-low range, as discussed in Chapter 7 .

Here's what the colors mean:

✔ **White or Green real body:** The close is higher than the open. A white or sometimes green body is bullish, and the longer the body, the more bullish it is. A long candlestick indicates that the close was far above the open, implying aggressive buying. In the daily battle of bulls and bears, the bulls won.

✔ **Black or Red real body:** The close is lower than the open. A black or sometimes red body is bearish, and the longer the body, the more bearish it is. A long black candlestick indicates a preponderance of sellers throughout the session. In the daily battle of bulls and bears, the bears won.

The two candlestick bars in Figure 8-1 show the identical open and close, but coloring one of them black creates the optical illusion that it is bigger. That black bar demands your attention, which is one reason candlestick charting is appealing — and effective. (For more appealing aspects, see the section "Appreciating the Candlestick Advantage " in this chapter.)

As in all bar analyses, *context* is crucial. Although you may sometimes use a single candlestick bar as an indicator in its own right, most of the time you use it in relation to the bars that precede it. One small white-body bar in a sea of black bars, for example, may mean the bulls won that day, but it was a minor event. The one white bar may signal that the bears are losing power, but you wouldn't use it all by itself to call the end of a black-bar downtrend.

Doing without a real body: The doji

A candlestick that has no real body or only a very small one is named a *doji*. In a doji, the open and the close are at the same or nearly the same level. See Figure 8-2 for three types of dojis. On its own, a doji doesn't tell you much about market sentiment except that traders are indecisive and sentiment is in a transitional phase. It's a neutral bar, neither bullish nor bearish, that gains meaning from its placement compared to the preceding bars.

When you see a doji after a prolonged uptrend, the doji may mean that the buyers are coming to the end of their bullish enthusiasm. A doji immediately after a very long white bar in an uptrend shows that the market is tired. This particular doji is named a bearish doji star. A bullish doji star is a mirror image — it comes after a big black bar in a downtrend. In most cases, it signals an impending reversal.

The doji form contains important information, regardless of the shadows, although shadows have their own additional meaning and are covered in a later section. Always take notice of a doji or series of dojis after a trend has been in place for a while. It's a transitional bar and you should always be on the lookout for any transition that can affect your trade.
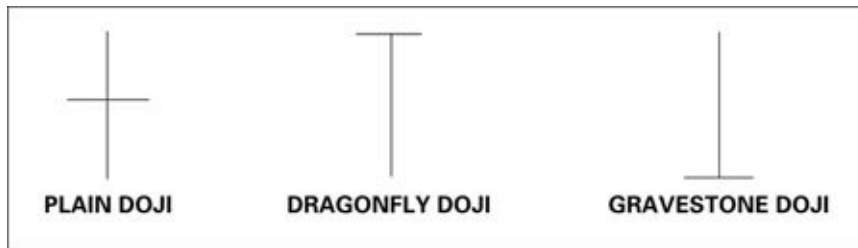
Figure 8-2: Doji candlestick patterns.

Catching the shadow

The high and the low prices are shown in the *shadows,* which you can think of as a candlewick (on the top) or a tail (on the bottom). Although the shadow is secondary to the real body in importance, shadows contribute useful information about market psychology, too, and modify your interpretation of the body. Shadows offer special interpretive clues in three instances:

- The real body is a doji.
- The shadow is missing.
- The shadow is extremely long.

Shadows in the doji bar

In many instances, the doji is just a plain one with ordinary, same-size shadows, as shown in Figure 8-2 . However, the two most useful types of doji bars, also shown in Figure 8-2 , are the following:

- **Dragonfly doji:** Look for the long lower shadow that means the open, high, and close were the same or nearly the same. Sellers were trying to push the price down and succeeded in making a low — but they didn't succeed in getting it to close there. Because the close was back up at or near the open, buyers must have emerged before the end of trading and bought enough to move the close to or near the high.

  How you interpret the dragonfly depends on what bar patterns precede it. Your options include the following:

  - If the price move is a downtrend, the dragonfly may mean that buyers are emerging and the downtrend may be ending.
  - If the dragonfly appears after a series of uptrending bars, buyers

failed to push the price over the open to a new high while sellers succeeded in getting a low, so the uptrend may be in trouble.

✔ **Gravestone doji:** Take a look at that long upper shadow in Figure 8-2 . This bar, the exact opposite of the dragonfly, is formed when the open, low, and close are the same or nearly the same, but a high creates a long upper shadow. Although buyers succeeded in pushing the price to a high over the open, by the end of the day the bears were fighting back and pushed the price back to close near the open and the low. This push is a failed effort at a rally, but you can interpret the bar best in the context of the other bars that precede it:

- If the gravestone bar appears after a series of uptrending bars, buyers failed to get the close at the high. Sellers dominated and the uptrend is at risk of ending.

- If the price move is a downtrend, the gravestone doji may mean that buyers are emerging and the downtrend may be ending.

Missing shadows

The absence of a shadow at one end is called a *shaven top* or a *shaven bottom.* To get a shaven top or bottom, the open or close must be exactly at the high or the low, as you can see in Figure 8-3 . These candlestick bar notations are called *marubozu candles* , and you can classify the types of candles by using the following descriptions:

✔ **Shaven top:** No upper shadow exists when the open or close is at the high. A shaven top can be black or white, and come about in two ways:

- If the open is at the high, the day's trading was all downhill. Not only is it a black candlestick, bearish to begin with, but it's also doubly bearish that no net new buying occurred after the open.

- If the close is at the high, the net of the day's trading was at higher prices, which is bullish. The candlestick is also (by definition) white — a bullish sign.

✔ **Shaven bottom:** No lower shadow exists when the open or the close is at the low of the day. A shaven bottom can come in two ways:

- If the open is at the low, bulls dominated all the day's trading.

- If the close is at the low, all the day's trading points to bearish

sentiment.
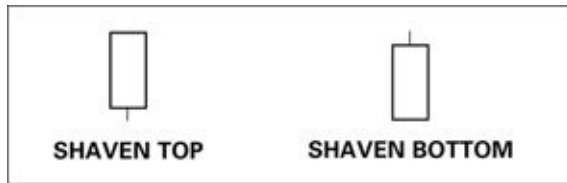
Figure 8-3: Missing shadows.

Really long shadows

When the shadow is as long as the real body, or longer (see Figure 8-4), traders are expressing a sentiment extreme. They may or may not follow through the next day by pushing the *close* to the high or low breaking point, though. Evaluating a long shadow is therefore tricky.

Figure 8-4: Very long shadows.

As a general rule, judge a long shadow by its placement on the chart (relative to preceding bars), such as the following:

✔ **Long upper shadow:** The high of the day came well above both the open and the close, whether the real body is black or white. Here's how you can interpret a really long upper shadow:

- If the price series is in an uptrend, the long upper shadow is a failure to close near the high. If the uptrend is nearing a resistance level (see Chapter 10 for a discussion of resistance), the long upper shadow may signal a weakening of the uptrend. If a long upper shadow follows a doji bar indicating indecisiveness, you should worry that the uptrend may be over.

- If the price series is on a downtrend, the long upper shadow suggests that some market participants are buying at higher levels.

Especially if a long upper shadow follows a doji bar, you should wonder if the downtrend might be ending.

- ✔ **Long lower shadow:** A long lower shadow means that the low of the day came well under both the open and the close, whether the real body is black or white. Here's what that probably means:

    - If the price series is trending down, the long lower shadow is a failure to close near the low. If the downtrend is nearing a support level (see Chapter 10), the long lower shadow may signal a weakening or an end of the downtrend.

    - If the price series is trending up, the long lower shadow suggests that traders were not willing to keep buying at the high levels right up to the close. They were exiting under the high, and therefore think that new highs are not warranted. This signal can be a warning sign of the trend decelerating or ending.

Sizing Up Emotions

Identifying when traders are reaching the end of their emotional tether is one of the primary goals of candlestick charting. And a change in the size of the bar is one of the best indicators of this. The candlestick technique sensitizes you to spot extremes of emotion, which is why it is a valuable tool for marking possible support and resistance at overbought or oversold levels (which I discuss in Chapter 2). You can also easily spot range expansion or contraction (see Chapter 7).

For example, at the beginning of the "Dissecting the Anatomy of a Candlestick " section, I discuss the idea that the longer the bar, the more bullish or bearish it is. If you're looking at a series of medium-sized bars and suddenly see one relatively long bar (as you can see in Figure 8-5), it may be telling you that support or resistance has been reached. Support marks an extreme level where buyers perceive that the price is relatively cheap, and resistance marks an extreme level where sellers perceive that the price is relatively high, inspiring profit-taking or least an end to accumulation. (See Chapter 10 for support and resistance.)

Figure 8-5: Bar placement.

In the top illustration in Figure 8-5 , you see a series of three white bars making higher opens and higher closes, followed by a doji and an exceptionally long white bar. If you look at this chart in standard bar notation, as shown in the bottom illustration of Figure 8-5 , you might say to yourself, "Higher high, higher lows, higher closes, trend okay." But the unusually tall bar stands out more prominently in candlestick mode — especially following the transitional doji — and alerts you to the possibility that all the buyers who were going to buy have just done so in one last burst, and the price may have formed a resistance level at the top of the bar (the close, in this case).

If the long bar were a black bar, denoting that the close was lower than the open, you would find it easy to deduce that the upmove might be ending. A long black bar implies panic selling. But to interpret the white bar as an ending burst in an uptrend is more subtle. In fact, an expert in reading standard bars would see the same thing. Candlesticks just make it easier, especially for traders just starting out.

Identifying Special "Emotional Extreme" Candlestick Patterns

Dozens of possible bar placement combinations and permutations are possible. In this section, I cover several of the most popular patterns and how you can tell the difference between them. These special "emotional extreme" candlestick patterns are unique to candlestick analysis and do not appear in

the standard pattern analysis I discuss in Chapter 9 .

Interpreting candlestick patterns

Two similar candlesticks or candlestick patterns often have the exact opposite interpretation, depending on where they fall in a series. You have to memorize the exact patterns to avoid getting confused. I selected just two of the many candlestick patterns to illustrate how tricky some candlestick interpretation can get.

Hammer and hanging man

Both of these candlestick types have a small real body and only one shadow — a long lower shadow. While similar, noticing their differences is crucial to your interpretation. The long shadow of the hammer extends to the downside off a white body, while the long shadow of the hanging man extends to the downside off a body that is either black or white. See Figure 8-6 for an exact image. How can it be a hanging man if the body is white? You can tell from the placement among the rising and then falling bars on either side.
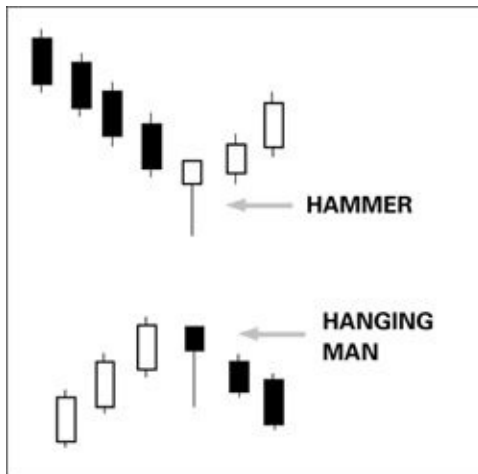
Figure 8-6: Hammer and hanging man patterns.

You'd think that the white-body version would automatically be a bullish indicator and the black-body version a bearish one, but interpreting this candlestick depends on its placement on the chart, regardless of the real-body color. If the candlestick appears in a downtrend, for example, it marks the likely end of the trend even if the real body is white.

You may see a hammer in many other contexts, but when it has a white body and comes after a series of black downtrending bars, it implies a reversal. Note that the close is higher than the previous close, too. In this context, the

Note that the close is higher than the previous close, too. In this context, the long lower shadow means the sellers were able to achieve a new low, but buyers emerged at some point during the day and the close was higher than the open, indicating last-minute buying.

The hanging man looks the same except it usually has a black body coming after a series of white uptrending bars. The long lower shadow marks the bulls' failure to prevent the bears making a new low and also from keeping the close below the open. You may see this bar in other places within a series of bars, but when you see it at the top of an uptrending series, consider that the trend is probably over. The wise course is to take your profit and run.

Harami

A small real-body candlestick that comes after a bigger one is called a *harami*, which means pregnant in Japanese. A harami (see Figure 8-7) implies that a change in sentiment is impending. Technically, the harami pattern requires two bars, so it doesn't stand alone. On this chart, I show the shadows of the harami bar as inside the range of the first big bar, although this isn't essential to identifying the pattern.
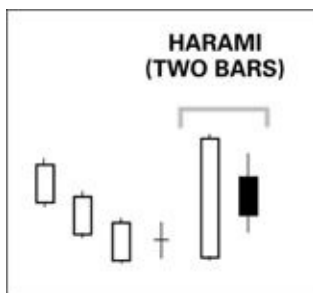
Figure 8-7: Harami.

A harami can be white or black, and in fact, it can even be a doji. The smaller the real body, the more powerful the implication that a reversal is impending. In Figure 8-7 , the white bars are seemingly downtrending — already a confusing combination. You also see a large white bar in Figure 8-7 .

As I discuss in the section "Sizing Up Emotions " in this chapter, the size of the bar is important. Both the exceptionally small harami and the exceptionally big bar preceding it express extreme emotion. The big bar means a bullish "let's-buy" emotion. Seeing just the big white bar after a series of smaller ones that are downtrending, you may think that the bulls finally got the upper hand, and this movement is the start of an uptrend —

especially because you have an indecision doji just ahead of it. But then the small black harami following the big white bar should disillusion you. If an uptrend was forming, the harami just put the kibosh on it.

Turning to reversal patterns

Reversal patterns number at least 40, and identifying reversals is the main application of candlesticks. The following are some of the most popular and easily identified candlestick reversal patterns.

Bearish engulfing candlestick

An *engulfing pattern* signals the reversal of a trend. The word *engulfing* refers to the open and close of the bar encompassing a wider range than the open and close of the day before. In Figure 8-8 , the engulfing nature is the dominant characteristic so that the lower close pops out at you even though the bar also has a higher open. When a bar starts out at a higher open but then closes at a lower level, the bears won that day. Not shown in Figure 8-8 is a *bullish engulfing candlestick*, which is white. The higher close is visually compelling because the real body is so big. Like the harami, the engulfing candlesticks require two bars.
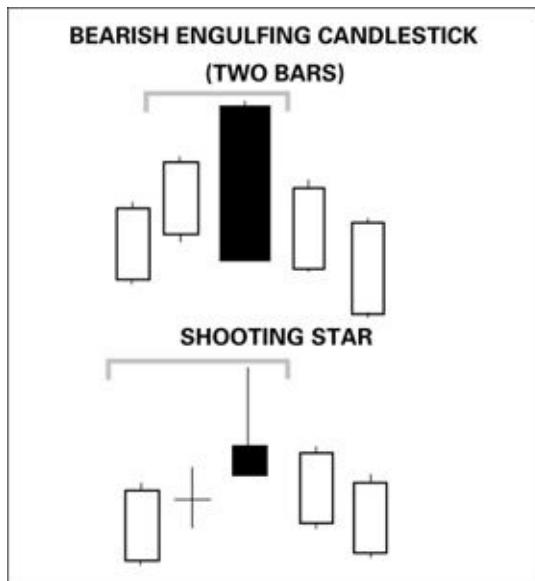
Figure 8-8: Reversal patterns.

Shooting star

You can characterize the *shooting star* pattern by a small real body and a long upper shadow, as you can see in Figure 8-8 . As I discuss in a section "Really long shadows " in this chapter, the long upper shadow in an uptrend implies a failure of the trend — a failure to close near the high. The addition of the doji bar indicates traders were already becoming indecisive the day before.

Continuation patterns

Candlestick patterns are most often used to identify reversals, but continuation patterns do exist. As the name suggests, a continuation pattern gives you confirmation that the trend in place will likely continue. This section covers three continuation patterns you may see.

Rising window

Rising window is the term for a gap, in this case, an upward gap. (A downward gap is a *falling window.*) You can get more on gaps in Chapter 7 .

In Figure 8-9 , the gap separates two white candlesticks, which are themselves bullish. The next bar doesn't "fill the gap" (called "closing the window"). The gap between the two price bars is confirmation of the existing trend, and the market's refusal the following day to go back and fill the gap is further confirmation that the trend is okay.

Three white soldiers

The second exhibit in Figure 8-9 shows *three white soldiers.* In this pattern, note the three large white candlesticks in a row. Seeing the close consistently over the open for three days confirms that the price series is in an uptrend, and the size of the bars indicates its robustness.
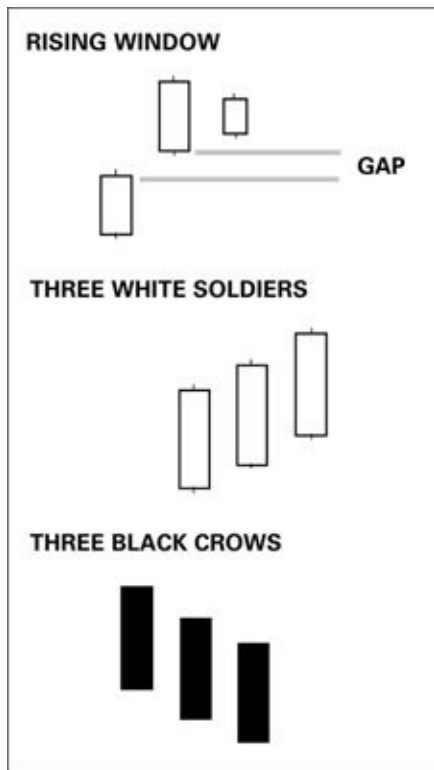
Figure 8-9: Continuation patterns.

Three black crows

Three black crows is the upside-down mirror image of three white soldiers, only with black real bodies. In this pattern (refer to Figure 8-9), you have three periods of the close under the open and lower each time, with the bars fairly sizeable. The price series is now in a downtrend.

Combining Candlesticks with Other Indicators

You can combine candlesticks with other indicators to get a more-powerful description of trader sentiment.

Many traders who don't act directly on the information contained in the candlestick patterns still use the notation on every chart because of its visual appeal and because a candlestick bar or pattern often confirms some other indicator to which they give priority.

Figure 8-10 shows a set of parallel support and resistance lines called a *channel* (which I cover in Chapter 11). You use a channel to outline the probable limit of future prices moves, either up or down. Note that I describe each of the candlesticks on this chart in preceding sections in this chapter. The harami is followed by a rising window (upward gap) and a tall, white candle. These three candlesticks together are bullish and alert you to go back and start the channel at the lowest low, the bar before the harami.
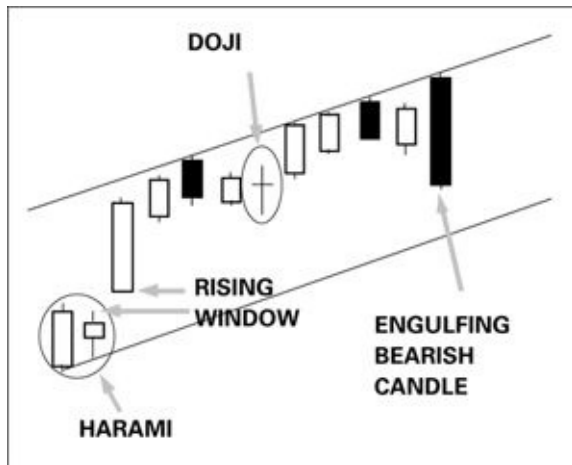
Figure 8-10: Candlesticks as confirmation.

The real bodies in Figure 8-10 proceed to push against the top of the channel resistance line, but the doji, which suggests that traders are having second thoughts, is followed by two higher white candles. The two white candles indicate that the reconsideration of the move on the doji day culminated in traders' decision to keep taking the price up. In this occasion, the doji wasn't a reversal indicator, at least not for the next day. After the two white candles comes a bearish engulfing candle, a reversal warning that this up move may be ending. The engulfing candle alerts you to watch the next day's activity, especially the open, with an eagle eye.

You can also use candlesticks to confirm relative strength, momentum, and many other indicators. Check out Chapter 13 for details on relative strength and momentum. Note that in Japan, a favorite indicator to use with candlesticks is the moving average, which I cover in Chapter 12 .

Some traders use specific candlesticks to identify *set-ups,* or a pattern configuration that is believed to have a high probability of delivering a specific outcome. Say that after a long series of falling bars, you see a doji bar (indicating indecisiveness) or a harami that closes near the upper end of

the previous candle — and then a bullish engulfing candlestick. At the same time, another indicator like the stochastic oscillator or relative strength index shows the security to be deeply oversold. This scenario is a high-probability trade set-up, which means to get out the big guns because you want to buy! You can find many resources out there, including in print and online, for great ways to combine candlesticks with other indicators. I recommend books and Web work by John Person (pivot points and candlesticks) and Stephen Bigalow.

Trading on Candlesticks Alone

Reading candlesticks is like reading standard bars — endlessly fascinating, even addictive. But be aware that all bar reading takes practice. Some specific bars and patterns of bars are well known — and thus likely to get the expected response from market participants. But to do a good job interpreting candlesticks, you need to understand the dynamic and complex relationships of many patterns all at once, like juggling six oranges rather than three.

As with standard bar interpretation, the predictive power of a particular bar or pattern of bars may be limited to the next day or next few days. If you're a swing trader, candlesticks are going to be of more interest to you than if you're a position trader with a very long holding period (weeks and months).

Like all technical indicators, candlesticks work only some of the time to deliver the expected outcome. Evaluating candlesticks alone, without confirmation from other indicators, is a daunting task. First, you have to define, carefully, what each candlestick looks like. As noted in the section "Harami " in this chapter, a harami (for example) can be bullish or bearish, depending on the other bars around it.

Tom Bulkowski took on the task of measuring the predictive value of candlesticks in his book *Encyclopedia of Candlestick Charts* (published by Wiley). Carefully defining each candlestick and set of candlestick patterns for a total of 103, Bulkowski ran them through a gigantic database of 500 U.S. equities over ten years and found that 69 percent of the candles delivered the outcome expected, such as continuing higher closes following "three white soldiers." Bulkowski tested 412 combinations of the 103 candlestick patterns and found that only 100 candles or patterns got the expected outcome, or 24 percent.

Wait — it gets worse. In statistics, you need a bare minimum of 30 to 40 instances of a pattern occurring to see whether it delivers the expected outcome. But Bulkowski found that patterns meeting his definitions didn't occur all that often. In fact, only 10 percent were found a sufficient number of times to "qualify" for workability testing. In short, you find only 10 percent of the candles in sufficient number, and these candles work as expected only 60 percent of the time. Refining the criteria further to a 66 percent success rate, meaning that the candle works as advertised in two out of three trades, only 6 percent of candles (or 13 candles total) are what Bulkowski calls "investment grade." These candles include some that I describe in this chapter, including the bearish doji star, bearish engulfing candle, and rising and falling windows.

Bulkowski's findings don't mean that you cannot find a specific candlestick that works most of the time in your security. A higher incidence of success in candle-reading may be due to other traders in the same security seeing the same candlestick pattern and believing it will work — and so it does. In foreign exchange trading, for example, the hammer, shooting star, and engulfing bull or engulfing bear candles work nearly all the time.

A qualification of the Bulkowski study is that it was applied to U.S. equities, not commodities or other securities, and over a specific ten-year period. Still, the study confirms what you already knew — no technical indicator works all the time. That doesn't mean specific candlesticks won't work for you, especially if you add confirming indicators like the MACD. This only emphasizes once again that chart-reading is an art.

Part IV
Finding Patterns

In this part…

- ✔ Learn about patterns, including the double bottom, double top, dead-cat bounce, and head-and-shoulders.

- ✔ Find out how rule-based trendlines have a long history of actually working to improve trading results, in part because everyone knows the rules and draws the same lines.

- ✔ See how a channel is used to train your eye to accept prices within its borders as on the trend and to detect prices outside its borders as off the trend.

Chapter 9

Seeing Patterns

In This Chapter

▶ Discovering patterns

▶ Figuring out continuation patterns

▶ Going over reversal patterns

▶ Measuring the measured move

A pattern is a type of indicator traditionally drawn on the chart by hand. Technical traders have been developing patterns from the earliest days of technical analysis. Until personal computers came along, *Technical Analysis of Stock Market Trends* by Edwards and McGee was a Bible for chart readers. Chart patterns are powerful indicators, and some rudimentary knowledge of patterns is a good idea for the most sophisticated indicator trader and the beginner alike.

I cover some classic patterns in other chapters, such as the inside day (Chapter 7) and support and resistance lines (Chapter 10). Other bar patterns are also covered in Chapter 7 (island reversal), and all the candlestick formations are considered patterns, too (Chapter 8). In this chapter, I describe a few more of the most common patterns. You often see ads for "the five best patterns" and the like. In practice, the best patterns are the ones that you can identify and use.

Introducing Patterns

Chart patterns are indicators consisting of geometric shapes drawn on the chart, such as a triangle. As with most indicators, a price forecast is embedded in the pattern identification. Here's a quick pattern primer:

✔ Most patterns employ straight lines (such as triangles), although a few use semicircles or semi-ellipses (such as head-and-shoulders).

✔ Pattern lines generally follow either the highs or the lows.

✔ You usually want to organize pattern types according to whether they forecast a continuation or a reversal of the current price move, although you can apply many patterns (like triangles) either way.

The lingo of pattern analysis — double bottom and dead-cat bounce, for example — makes some people laugh. You also see belt-hold, scoop, fry-pan, cradle, and jay-hook. Some of the names do seem a little silly, but they describe the price action efficiently. Nowadays you can have an analyst walk you through specific patterns on websites like www.candlestickforum.com and even YouTube. For a comprehensive review, go to www.thepatternsite.com .

A pattern is always a work in progress. You may think you see a pattern developing, only to have the price action change course and fail to complete the expected formation. You may have to erase your work and start over a number of times on any particular chart.

This makes pattern identification frustrating and time consuming. Resign yourself to mistakes and to indicator failure. The reason to tolerate the pattern recognition process is that when you get it right, you have a powerful forecasting tool that can deliver high returns. In the sections that follow, I cite performance data from Tom Bulkowski's path-breaking *Encyclopedia of Chart Patterns* (Wiley).

Got imagination?

Not everyone can see patterns right away. Pattern identification takes practice — and a lot of drawing and redrawing of lines and shapes until you get the hang of it. For example, consider Figure 9-1 . Do you see the pattern?

The pattern in Figure 9-1 is a symmetrical triangle, as you can see in Figure 9-2 . The triangle is characterized by a series of lower highs along which you can draw one trendline, and a series of higher lows along which you can draw another trendline. The two lines eventually come together at an apex. Before that point is reached, the price must pierce one of the trendlines simply in the course of trading in its normal range. Which one? Because most of the bars are trending downward, you imagine the odds favor a break to the downside.
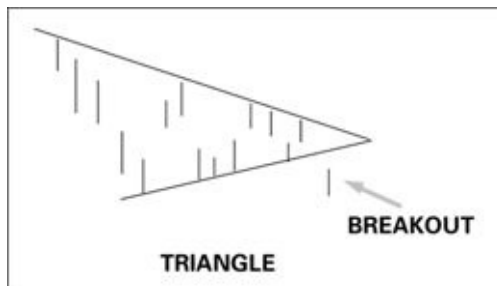
BREAKOUT

TRIANGLE

Figure 9-2: Pattern revealed.

And you're right. In the Bulkowski study of triangles, covering 500 stocks from 1991 to 1996, the symmetrical triangle pattern appeared 146 times. On 83 occasions, or 57 percent of the time, it was a downside breakout. The average decline was 19 percent, and the average decline lasted 74 days. In these cases, the triangle was a continuation pattern (see later section, "Cozying Up to Continuation Patterns ," in this chapter).

But sometimes the breakout is to the upside. In the same study, the price delivered an upside breakout 63 times out of 146, or 43 percent of the cases. The average rise was 41 percent and lasted an average of 163 days. In this instance, the pattern forecast a reversal, not a continuation. Most patterns don't deliver a gift-wrapped buy/sell signal until near the end of the formation. As the symmetrical triangle pattern develops, the forecast is only that a breakout will occur, not the direction of the breakout.

You usually see a burst of higher volume when a pattern reaches completion. This observation makes sense — other chartists in the crowd are seeing the same pattern. For triangles, low volume often *precedes* the breakout, and serves as a bonus warning of an impending

move.

Coloring inside the lines

Pattern identification doesn't require that each single price in a series line up perfectly. Not every price high hits an overhead resistance line, for example. It suffices that several hit the line. All triangles — symmetrical, ascending, and descending — incorporate support (top) and resistance (bottom) lines, as do flags and pennants, and other patterns. Opinion differs on whether the top and bottom lines must enclose every part of every price bar, or if it's okay for the bar to break the line by a tiny amount as a triangle pattern is developing.

Generally, when a pattern includes a form of support and resistance, "color within the lines," so to speak. Victor Sperandeo in *Trader Vic: Methods of a Wall Street Master* (another must-have book in every technical analyst's library), says that ignoring a break of the trendline is always wrong. Commodity price charts offer more usable patterns than equity price charts, according to Curtis Arnold, author of *Timing the Market* and *Curtis Arnold's PPS Trading System;* PPS standing for *pattern profitability strategy.* Arnold recommends using patterns (like triangles) together with confirming moving averages (see Chapter 12 for more on moving averages).

Cozying Up to Continuation Patterns

A *continuation pattern* tells you that buying or selling pressure is pausing. If a big-picture trend is well established, the pattern suggests it will accelerate after the pause. A continuation pattern, therefore, is a good place to add more to a position, because you expect an additional move in the same direction. Continuation patterns tend to be fairly short term, sometimes only a few days, and are often neglected as a consequence.

Continuation patterns serve as reassurance that you've identified the trend correctly. They also often point you to the ideal level at which to place a stop-loss order, such as the ascending line in the ascending triangle that I describe in the following section. (See Chapter 5 for a discussion of stops.)

Ascending and descending triangles

To draw ascending and descending triangles, you draw a line along the highs of a price series and another one along the lows (see Figure 9-3) — just like you do with symmetrical triangles.

In the ascending triangle, the price isn't making new highs, and the topmost (resistance) line is horizontal. You may worry that the failure to make new highs means that the upmove is over. But the price isn't making new lows, either. You can often expect a breakout of the top line to the upside.
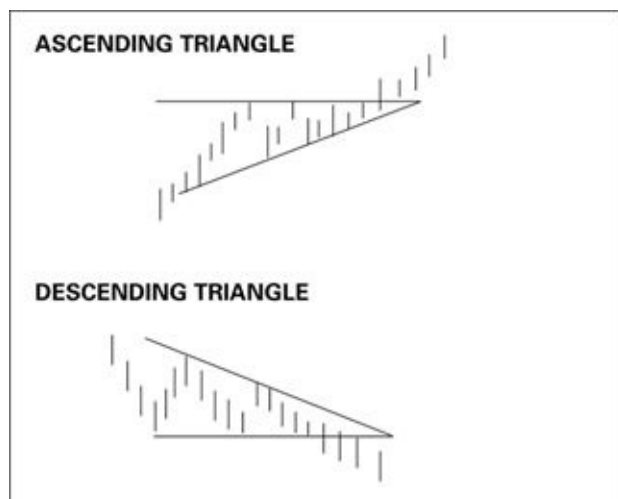
Figure 9-3: Ascending and descending triangles.

When you can draw a horizontal line along a series of highs, remember to look for a rising line along the lows at the same time. Not only does the ascending line of lows confirm the trend continuation, but it also provides you with a ready-made stop-loss level at this ascending support line. The ascending triangle pattern delivers the expected rise about two-thirds of the time, but according to Tom Bulkowski's study, it

fails about 32 percent of the time. If you wait for prices to close above the top trendline, then the failure rate drops to a mere 2 percent. The *expected rise,* by the way, is equal to the height of the triangle pattern. See the section later in this chapter on "Evaluating the Measured Move."

A descending triangle is the mirror image of the ascending triangle. The important point is that in this case, the price is failing to make new lows in the prevailing downtrend. You wonder if the trend is failing. But if you can still draw a line along the series of lower highs, it would be a mistake to buy at this point — the probability is high that the downtrend is going to continue.

Dead-cat bounce

A dead-cat bounce is a peculiar continuation pattern that looks like a reversal at the beginning, with a sizeable upward retracement of a downmove, but then fades back to the same downward direction. Note that a dead-cat bounce occurs only in downmoves, and no equivalent named pattern exists for a parallel sequence of bar developments in an upmove.

The dead-cat pattern starts off with a negative fundamental event that triggers a massive downmove. The average size of the downmove is 25 percent — but the price can shoot down by 70 percent or more in only a few days. The *bounce* is an upward retracement that may make you think the drop is over. The pattern includes a breakaway downside gap about 80 percent of the time, and sometimes the bounce upward fills part of the gap. (See Chapter 7 for a discussion of gaps.) Many traders mistakenly think that if a gap is filled, even partly, the preceding move has ended. The dead-cat bounce is one of the patterns that disproves that idea — by the end of six months after the gap, only 54 percent of price moves had fully closed the gap in the Bulkowski study, which found 244 versions of the dead-cat bounce pattern in 500 stocks between 1991 and 1996. See Figure 9-4 .
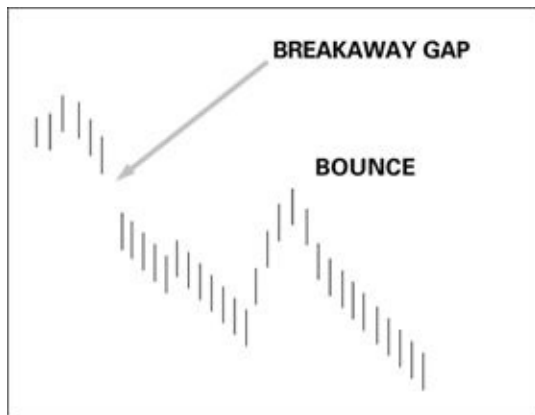
Figure 9-4: Dead-cat bounce.

Bulkowski's statistics on the dead-cat bounce are extensive. A few of the points that stand out are:

✔ The bounce upward averages 19 percent from the lowest low.

✔ The average decline from the top of the retracement bounce is 15 percent and lasts an average of three months.

✔ The pattern fails to deliver an additional decline only 10 percent of the time, making the success rate 90 percent.

Recognizing Classic Reversal Patterns

Patterns come into their own when you use them to identify a trend reversal. No matter how a trend comes to an end, chances are good that a pattern exists to identify it. The reversal patterns I mention in the following sections are definitely ones you want to be able to recognize.

Double bottom

A double bottom looks like a W. The double bottom is essentially a retest of a low and predicts a price breakout to the upside, but only under certain conditions. See Figure 9-5 .
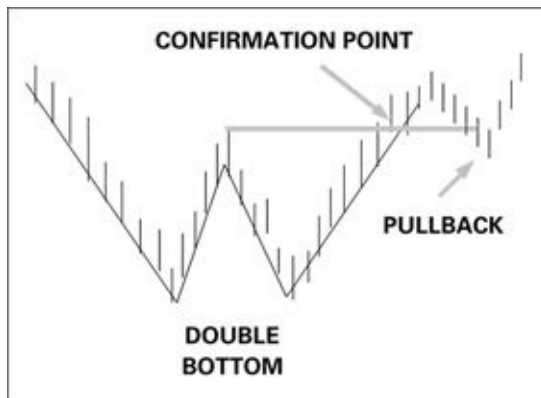
Figure 9-5: Double bottom.

The identification guide for a valid double bottom includes these factors:

✔ A minimum of ten days between the two lows and sometimes as long as two or three months.

✔ Variation between the two lows should not be more than 4 percent.

✔ A center upmove of at least 10 percent from the lower of the two bottoms.

✔ The price must rise above the confirmation line to confirm that the pattern is indeed a double bottom and the forecast of a continued rise is correct. The *confirmation line* is a horizontal line drawn from the highest high in the middle of the W. The point where the price rises above the line is called the *confirmation point.*

Reaching the confirmation line drawn horizontally from the confirmation point, shown on Figure 9-5 , is the most important identification key of the double bottom. This is where you buy.

Notice that some of the price bars break the lines you draw to form the double bottom pattern. Breaking some of the bars is allowed in a formation where the line is not a support or resistance line. Note the pullback, too. A *pullback* is a retracement to the downside right after the price breaks the confirmation line. A pullback occurs 68 percent of the time in confirmed double bottoms, making it hard to trust your pattern identification.

Bulkowski prefers the term *throwback* for the retracement after an upside breakout, as in the double bottom, and *pullback* for the retracement after a downward breakout, as in a double top, but these words aren't engraved in stone. You can use the words *retracement, correction, throwback,* and *pullback* (more or less) interchangeably.

Not every twin bottom is a true double bottom. Only about one-third of all the patterns that look like a double bottom end up meeting the confirmation criterion. In short, the pattern fails about two-thirds of the time.

These odds sound terrible, but wait — on the occasions when you do get confirmation, the double bottom is tremendously reliable. If you wait for the price to break above the confirmation line, the pattern delivers a profit an astonishing 97 percent of the time — and the average gain is 40 percent. The average number of days to the ultimate high is 204 or seven months in the Bulkowski study.

The version of the double bottom that Figure 9-5 illustrates is clear and obvious, but not every pattern is so easy to detect. For example, one or both of the two lows of the double bottom could be rounded rather than pointed. When the first bottom is pointed and the second is rounded, Tom Bulkowski names it the *Adam and Eve* double bottom. You can imagine the other combinations, including two pointy bottoms (*Adam and Adam*) and the first one rounded with the second one pointed (*Eve and Adam*). This is, by the way, as racy as technical analysis ever gets.

Often the two lows of a double bottom are separated by several months or even a year, and you can easily miss the pattern altogether. Also, minor retracements and even other patterns within the W can obscure the pattern. Some analysts note that big patterns lasting months are easier to see on weekly charts that skim off the aberrations in daily data. Some analysts believe they can see double bottoms and other classic patterns on charts using hourly bars or other timeframes (such as

240-minutes). This is probably true, and the interpretation remains the same whatever the bar timeframe, assuming other traders are using that timeframe and see the pattern, too.

Double tops

A double top is the mirror image of the double bottom — it looks like the letter M. In a *double top*, the price makes a high, pulls back on profit-taking (as usual), and then bullish traders try but fail to surpass the first high. The failure to rally a second time through the first high means that the bulls were beaten and the bears are now in charge. A true double top is usually accompanied by falling volume as the second top is being formed.

As with the double bottom described earlier, you need to see the price surpass the confirmation level (the lowest point in the center bar of the M) for the pattern to be valid. When that condition is not met, twin tops fail to deliver a sustained downmove 65 percent of the time. When the condition is met, however, the pattern delivers a downmove 83 percent of the time, which is less reliable than the double bottom (97 percent), but still extremely impressive. In the Bulkoswski study, the average drop after a confirmed double top is 20 percent and lasts two months to the eventual lowest low.

Again, as with double bottoms, the price pulls back after the confirmation 69 percent of the time, causing you to doubt the pattern. Fortunately, the pullback period averages only ten days before the downtrend resumes.

Topping reversal patterns like the double top are usually more short term than bottoming reversal patterns like double bottoms. Tops take less time to form (57 days on average) than bottoms (70 days), because traders are more fearful of taking losses after a big gain than they are trusting of early signs of a bottom. Topping reversals are often more volatile, too, although they occur with equal frequency. According to Bulkowski, nearly all bottom chart patterns — of any type — perform better than tops. Bottoming patterns have average gains of 38 percent, but tops show a drop of just 21 percent, which is your gain if you are

going short.

These statistics confirm market lore that bull markets are easier to trade than bear markets. Bull markets are more orderly and may suggest that greed is stronger than fear. Bull markets tend to have wider and deeper participation, too, because there are more traders who can go long than there are traders who can go both long and short, at least in equities. In equities (but not in securities like foreign exchange), buy-side gains are theoretically unlimited while gains on the short side are always limited — a stock cannot sell for less than zero.

The ultimate triple top: Head-and-shoulders

A triple top or bottom is somewhat rarer than the double version, but the meaning is the same — the price fails to surpass the previous low or high, signaling a trend reversal.

The *head-and-shoulders* pattern is a triple top that's easy to see: One bump forms the left shoulder, a higher bump forms a head, and a third bump forms the right shoulder. (See Figure 9-6 for two examples.) The head-and-shoulders pattern is the most widely recognized of all the patterns, and deserves its popularity because when the price surpasses the pattern's confirmation line, it delivers the expected downmove a whopping 93 percent of the time.
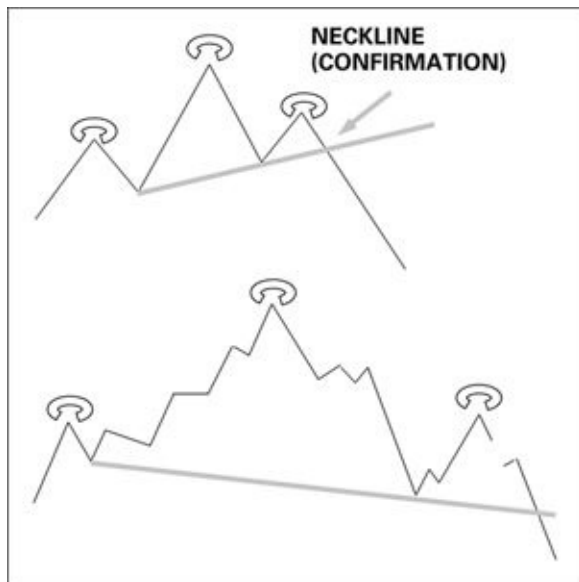
Figure 9-6: Head-and-shoulders patterns.

The confirmation line connects the low point of each shoulder and is named the *neckline.* The price breaking the neckline predicts a price decline, whether the neckline is sloping upward or downward. Seldom do you see the neckline perfectly horizontal. A downward-sloping neckline tends to deliver the biggest price move.

If you stop and think about it, a head-and-shoulders pattern is a logical development of crowd behavior. A head-and-shoulders usually forms after a long uptrend. The dip from the first shoulder represents the normal retracement after a new high. The head then represents the triumph of bullish sentiment and sets a new higher high. The dip after the higher-high head represents more profit-taking, whereupon the bulls buy again. When the bulls are making their third try at a rally, their price target is the last highest high, which is the top of the head. The failure of the second shoulder to surpass the head is the end of the rally. Buying demand diminishes and selling pressure takes hold, forcing prices down, completing the pattern.

According to the Bulkowski study, which examined 500 stocks over the period 1991 to 1996, the head-and-shoulders pattern appeared 431 times and resulted in 406 reversals. A confirmed head-and-shoulders delivers an average decline of 23 percent from the neckline, and the most often-seen decline is 15 percent. The average length of the pattern is 62 days.

As with double tops and bottoms, however, some traders refuse to accept the pattern, and they cause a pullback to the confirmation line 45 percent of the time. Pullbacks average only 11 days before the security resumes its decline. This is your last chance to jump off before the price hits the wall. Do not listen to that little voice that says, "See, it's coming back." That little voice is wishful thinking. The pullback is the only free lunch in technical analysis.

As with every trend that is losing steam, volume falls after the head, although about half the time the highest volume is at the left shoulder and about half the time at the head. Volume is low at the second shoulder. Volume on the breakout day and the next few days after the breakout day, however, tends to be very high. This is not surprising,

because by now a great number of chart-oriented traders have identified the pattern and its neckline. Some traders may see only the break of support without having seen the head-and-shoulders pattern, adding to the number of traders who now want to sell.

The head-and-shoulders patterns shown in Figure 9-6 are easy enough to see, but many head-and-shoulders patterns are more complex and contain other patterns within them. The second head-and-shoulders pattern in Figure 9-6 , for example, contains a little double top and a gap (see Chapter 7). You may also see what appears to be two heads or two shoulders, although one is always higher, which makes it the head.

Evaluating the Measured Move

The term *measured move* is used in a number of contexts in technical analysis, so it can become confusing. In essence, a *measured move* is a forecast of the upcoming price move after a chart event, including completion of a pattern. Unfortunately, these forecasts are seldom correct, or rather, they vary by too much from actual outcomes to serve as reliable trading guides. Below, I outline three types of measured moves. (Point-and-figure charting also features its own version of the measured move — see Chapter 15 .)

Taking dictation from the pattern

One definition of *measured move* is the price change expected to result from a particular pattern. For example, in the ascending triangle pictured at the top of Figure 9-7 , the gray lines denote the height of the pattern. Imagine that the distance between the high and low within the pattern is $5. After the price breaks out above the top of the triangle, you expect the subsequent rise to be the same amount, $5.
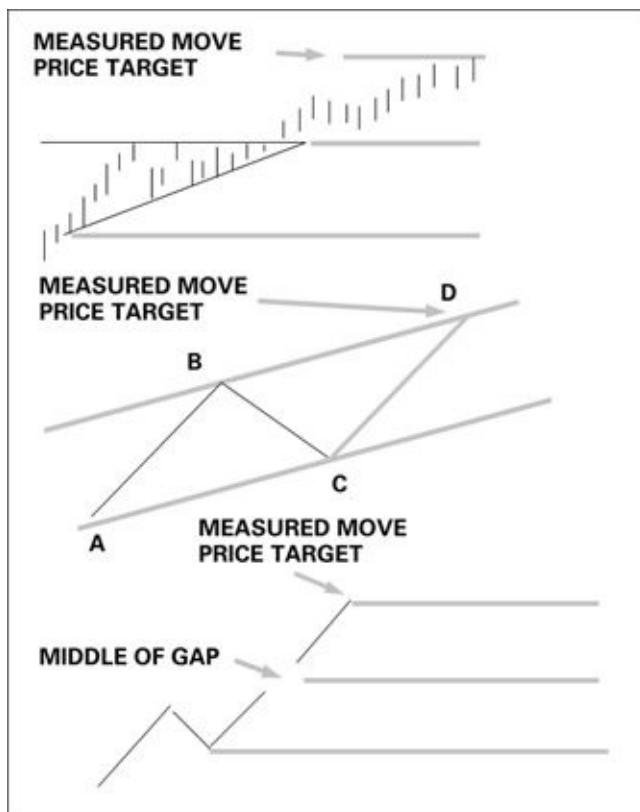
Figure 9-7: Measured moves.

One useful (if general) observation is that the size of a move after a pattern is proportional to the size of the pattern. When a pattern takes a long time to form (three months or more) and when it is very deep (30 to 50 percent of the annual high-low range), the bigger the eventual reaction to the pattern.

As I mention in Chapter 11 , you often get a sideways movement that results in a rectangular horizontal channel (a *Darvas box*). You project the height of the existing box into the future to gauge the extent of the breakout move. A measured move of this type has a certain amount of logic. The traders in a particular security may become accustomed to rises or falls of a certain amount before pausing or retracing.

Tom Bulkowski, in his books and articles, provides measurement guidelines for the range, average, and *mode* (most often seen) price change upon the completion of a pattern. Seldom are they exactly 100 percent of the height of a pattern. Every pattern is measured in its own way. The expected move after

a head-and-shoulders pattern described earlier in this chapter, for example, is measured from the top of the head to the neckline. You then subtract that number from the neckline at the breakout point to derive the expected stopping point of the downmove. This target is met only 63 percent of the time in Bulkowski's study, which falls a little short of a convincing forecasting technique.

Knowing that the downmove on confirmation of a head-and-shoulders is equal to the expected move only 63 percent of the time doesn't mean that you shouldn't heed a head-and-shoulders pattern when you see it. This reversal pattern is still valid, and if you own the security, you should exit at the pattern confirmation neckline, because so many other traders are going to identify the pattern and do precisely that, causing a self-fulfilling prophecy.

Resuming the trend after retracement

Another type of *measured move* is when a price repeats the extent of a first move after a retracement. The retracement takes back 30 percent of the gain from the low to the high, or some other percentage. The point is that after the retracement, you often see the price resume the trend at the same slope and to the same extent as in the first move.

This type of measured move is illustrated in the second chart in Figure 9-7 . Here you see an already established channel consisting of support and resistance lines. (See Chapter 10 for more information on support and resistance.) The price is oscillating between the two channel lines. After you see the price stop at Price C, you simply copy and paste the A-to-B move to C to arrive at price target D.

Bulkowski found that in a measured move up, the first A-B leg averages 43 percent over 87 days while the second leg, C-D, averages 37 percent in 65 days. You have to decide for yourself whether these numbers confirm or repudiate the idea of the measured move. In a measured move down, the first leg averages 25 percent and the second leg averages 27 percent, and that seems to affirm the idea of proportionality. Note that the retracement in measured moves up averages 14 percent over 45 days while in measured moves down, the corrective retracement averages 16 percent over 39 days.

Measuring from the gap

A third type of *measured move* is when you have a gap. (See Chapter 7 for a discussion of gaps.) A *gap* is a price bar whose high or low is separated from the preceding bar by open space, meaning that no trades took place at those intervening prices. A gap is important because it shows, graphically, that something happened to alter perception of the security. In Figure 9-7 , you measure the distance from the lowest low in the upmove to the middle of the gap, and then project that height from the middle of the gap to the upside (in an uptrend). You do the opposite in a downtrend.

Chapter 10

Drawing Trendlines

In This Chapter

▶ Seeing trendedness with lines

▶ Knowing how to draw support and resistance lines

▶ Judging breakouts of support and resistance

▶ Acquainting yourself with internal trendlines

O ften you can see a trend with the naked eye, but to impose order on your visual impression, you can connect the dots, so to speak, by actually drawing a line along the price bars. A *trendline* is a straight line that starts at the beginning of the trend and stops at the end of the trend. Today everyone uses software to draw trendlines, although you can also use a Number 2 pencil.

In this chapter, I cover support and resistance, two of the most important concepts in technical analysis, and also the linear regression, which depicts pure, true trend.

Looking Closely at a Price Chart

Sometimes a trendline pops out at you when you look at a chart. The price is moving in a consistent fashion, either up or down. Usually your eye directs your hand to draw a trendline — but then you see another one that may be more representative. You may find yourself frustrated at this situation and be tempted to give up. Persevere for two reasons:

✔ You have more confidence that your trade is going to be profitable when prices are following your trendline, especially when they follow it tightly.

✔ A break of a trendline is a high-probability indication that the trend has ended and you need to take action.

You never know in advance when a trendline will start or stop. You know only after the fact. So a trendline is a work in progress that needs constant reevaluation. This means persistent price-checking to see where the latest prices are placed relative to the trendline. You probably know people who check their prices every day. It's a mystery why they do that if they don't have an analytical framework in which to judge the day's outcome, even just a rough hand-drawn trendline. To help evaluate new prices, you may extend a trendline out into the future in the hope that new prices will be near it, but remember that the extended line is just a drawing, not real prices.

The time frame of the chart you're looking at influences what you see. A trader with a long-term time frame may see one trend on a weekly chart, whereas a swing trader with a shorter time frame in mind sees multiple trendlines on the same chart.

You may not be able to see or place a trendline on some charts. No security is in a trending mode all the time. On other occasions, you draw one trendline only to realize later that you can draw a better one. Some trends are orderly, making it easy to spot them, while other trends are disorderly and hard to see.

Following the Rules with Rule-Based Trendlines

You are welcome to draw any old line that your eye dictates, but rule-based lines have a long history of actually working to improve trading results, in part because everyone knows the rules and draws the same lines. This gives some practical meaning to the phrase "reading the mind of the market."

A rule-based trendline is one that starts and stops according to well-defined conditions, such as a line starting at the lowest low of the last three days and ending at the highest low of the last three days. A rule-based trendline is better than an impressionistic trendline for three reasons:

- It doesn't let you impose your personal view of what the trend should be.
- It improves your ability (and self confidence) to buy a security when its

price is rising or sell it when the price is falling.

✔ It helps prevent loss by showing you the exit at the right place.

Drawing support and resistance lines

The appropriate trendline for an uptrend is the support line. Here's how you draw it.

1. **Start at the lowest low and connect the line to the next low that precedes a new high.**

2. **As long as new highs are being made, redraw the line to connect to the lowest low before the last high.**

3. **When prices stop making new highs, stop drawing. Extend the line out into the future at the same slope.**

The appropriate trendline for a downtrend is a resistance line. Here's how you draw it.

1. **Start at the highest high and connect the line to the next high that precedes a new low.**

2. **As long as new lows are being made, redraw the line to connect to the highest high before the last low.**

3. **When prices stop making new lows, stop drawing. Extend the line out into the future at the same slope.**

Notice that this is a dynamic process. You often have to erase one line and draw another one as conditions change.

Using the support line to enter and exit

In Figure 10-1 , the trendline illustrates a *support line.* It's named *support* because you expect the line to support the price — traders won't let the price fall below it. You start at the lowest low and draw a line to the next low. This generates a line that can be extended at the same slope, but it becomes a

trendline only when another daily price low touches the line and bounces off it back to the upside. This touch-bounce is confirmation that the line is not just any old line but rather a true trendline. When you use the support trendline as a trading guide, you initiate a new position on the confirmation, right after the third touch.

Some technical traders say that to require a third touch is to be overly cautious and to miss out on some perfectly good trends that fail to meet the third-touch qualification. This is true — many valid trends do have only two touches before they end. If you're waiting for the third touch, you may miss the entire move. You may even say that two touches is better than three or more because that means this security doesn't have a crew of wiseguys always testing support. It's up to you to gain the experience from drawing support lines on *your* securities to determine whether two touches are enough.

Figure 10-1: Drawing a support line.

You use the support line to identify an uptrend. The support line entry rule says: Buy on the second or third touch of the support line. On the flip side, the support line exit rule says: Sell as soon as possible after the low of the price bar falls below the support line. In some securities, including foreign exchange (FX), traders like to play games and push the price to break the support line but then buy it back so that the *close* remains over the support line. This is a trick to weed out weak hands and

let the pros buy at a lower price. You need to examine the behavior of the crowd that trades your security to see whether it's the low or the close breaking the line that matters.

The more times that a low-of-the-day touches the support line without crossing it, the more confidence you should have that it is a valid description of the trend. This is called a *test of support* and encourages buyers of the security to buy more after the price passes the test. Fresh buying constitutes demand for the security. Those who already own the security are reluctant to sell after support has passed the test, because they now expect a flood of new buyers who also saw support hold.

Breakouts and false breakouts

A break of the support line does not automatically mean the trend is over. In Figure 10-1 , the upmove resumes after the support line was broken — but experience teaches that the trendline is no longer reliable. The loss of reliability is due to all the other traders seeing the break.

A minor trendline break (by the low but not the close) has more to do with your risk management practices than to identifying trendedness. If you didn't have a stop near the support line, you need to get one. If you did have such a stop but it escaped being hit, you may want to scale out (reduce your position). Scaling out is described in Chapter 5 .

A *breakout* is any part of the price bar penetrating a line that you drew on the chart. Some traders insist that it be the close breaking the line to qualify for the term "breakout." The word *breakout* is used in a dozen contexts in technical analysis, but it always refers to a significant violation of the trend. Sometimes the offending breakout is quickly roped back into the herd, but even if the trend doesn't change direction, its nature has changed. For example, a downside breakout of support that is *immediately* followed by a series of higher highs indicates that bulls got a second wind and are violently repudiating the breakout. But will they be there the next time?

Sometimes the low breaks the support line for just one day, and then prices

obediently fall back into line. Subsequent prices respect the support function of the line. A one-day break of the line is called a *false breakout.* The word *false* is misleading because the price really does break the line; what's false is the conclusion you draw from it.

To estimate whether a breakout might be false, master trader Larry Williams (author of *How I Made $1,000,000 Trading Commodities* and many other books) recommends that you consider the position of the close on the day before the breakout. In an uptrend, if the close is at or near the high, chances are good that it's a false breakout. The breakout was due to profit-taking that got carried away, it was triggered by a false rumor, or it was noise. If the close on the day before is at or near the low, though, chances are the breakout is real.

Discard the support line as a trading tool after it has been broken. However, you may want to leave it on the chart for a while. Sometimes old support becomes new resistance, and vice versa.

Using resistance to enter and exit

Resistance is the mirror image of support: A line drawn along a series of highs marks where buyers resist buying more — the price is too high for them, and they expect profit-taking sellers to emerge at the resistance line. You should care about identifying a downtrend using the resistance line for two reasons:

- **When a downtrend ends, the next move may be an uptrend.** You want to get in on the action as early as possible, so you care when a downtrend is broken to the upside. The breakout is an important clue that an uptrend may be starting and you should start paying attention.

- **You may someday do the unimaginable — sell short.** If you have been trading exclusively in the U.S. stock market, chances are you're not familiar with taking *a short position,* or selling a security first and buying it back later after its price has fallen. Commodity traders, on the other hand, are familiar with the practice. After all, we're striving to be emotionally neutral about whether prices are rising or falling. Why not profit symmetrically? To make a profit only when a price is rising is to lose 50 percent of the opportunity presented by trend-following.

Figure 10-2 shows two resistance lines drawn according to the rule. The uppermost line correctly advised shorting this security at the third touch of the line. The price falls off the cliff. But the price never returns to this first resistance line. Instead you get the opportunity to draw a new resistance line a few months later.

An experienced trader would probably see the new line as an opportunity to increase his short position. A long-only trader would be watching this second resistance line for the opportunity to buy the security — with a holding period that lasts only until the price nears the topmost resistance line, where it will face (you guessed it) resistance. Note that selling this security on the third touch of resistance and covering the short position when the price breaks the second resistance line would have given you a return of 20 percent.

Figure 10-2: Drawing resistance lines.

The logic for trading using resistance lines is the same as for the support line (see the preceding section), but in reverse. The more times the high-of-the-day touches the resistance line and doesn't cross it, the more confidence you have that it is a valid description of the trend. This is called a *test of resistance* and encourages sellers of the security to sell more after the price fails the test of resistance.

But remember, you can get a false breakout in a resistance line just as in a support line. This occurs when some bullish traders decide the price has gone low enough and the security is now a bargain. They push the price upward to

a test of resistance and succeed in getting the high of the day to break the resistance line. But unless others chip in with buying of their own, the breakout can fizzle.

To trade using support and resistance exemplifies the ruling principle of trend-following trading: You never enter at the absolute high and never exit at the absolute low. The goal is to capture a portion of the trend. Famous trader Bernard Baruch said he was willing to let others have the first third of a move and the last third of a move — he just wanted the middle third.

Fine-tuning support and resistance

You need patience and persistence to work with trendlines, because you need to adjust the lines often, sometimes daily. You will hardly ever be lucky enough to get a clear uptrend along a support line and then a breakout of the support line that turns into a downtrend with a tidy resistance line. Instead the price will wander around and perhaps test the last high, which can be very annoying if you sold at the break of support.

See Figure 10-3 . This chart is an adaptation of one shown by Victor Sperandeo in *Trader Vic: Methods of a Wall Street Master* . It's probably the most important chart in this book. First is the break of the support line. But instead of an inverted V-shaped downmove coming right afterward, the price tests both the highest high and a significant low along the upmove. It is only when it crosses under this previous significant low that you are 100 percent certain that the move is over. Sperandeo calls it the *1-2-3 method* for identifying a change in trend. Not every break of support looks like this, of course, but it's an excellent model, not least because it reminds us that trends hardly ever end and reverse in one fell swoop.

If you grasp the 1-2-3 concept, congratulations! You have just met the most irksome, vexatious phenomenon in technical analysis — the pullback.
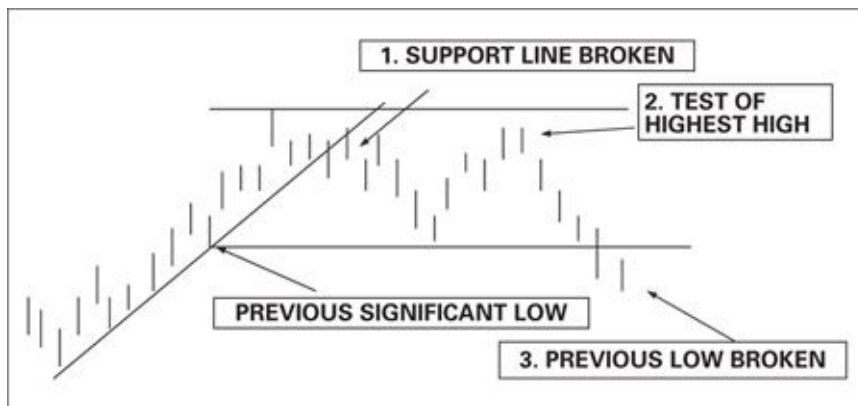
Figure 10-3: Classic break of support.

The pullback is usually characterized by minor countertrend or roughly sideways movement that occurs after a trendline breakout. The pullback is a symptom of *congestion,* aptly describing the market participants milling around like people on a crowded sidewalk trying to dodge one another and impeding progress in both directions as a result. Another term for a sideways price movement is *consolidation* , referring to market participants consolidating their ideas about the security being traded.

Congestion and consolidation describe the same thing — trendless prices trading in a range. Often the range is defined by a previous high or low. Consolidations often precede *and* follow a breakout. If you see a period of sideways price movement and can't find the trend, widen your chart to include more data and switch to a longer time frame (such as weekly). Chances are you are about to get a breakout.

Playing games with support and resistance lines

Support and resistance lines occur so often on charts (and so many people are aware of them), that to some extent they become self-fulfilling prophecies. A large number of people draw and respect the same lines. If they are holders of the security, they may "defend" the price by buying more at support.

Others want the price to fall so they can buy the security more cheaply, or to cover a short position. In some instances, the big players in a market know where the small players have placed their buy or sell orders, because as amateurs, they select the obvious support or resistance levels. The

professionals can then pick off the amateurs for a quick buck. As I note earlier, the pros may push the price under a support line just to spook the amateurs into selling. You end up going through a tricky and complicated train of thought whereby you don't place your order at an obvious level because that's exactly where the big guys expect you to — and then you miss an entry or exit at the best level.

Drawing good trendlines isn't enough. You also want to study how often the crowd that trades your specific security chickens out at a resistance level or breaks support by a hair only to take the price up afterward.

Drawing Internal Trendlines

Wouldn't it be nice to know the "true" trendline? This line would reveal the hidden trendedness of the prices without at the same time alerting everybody and his brother to attack or defend specific levels.

Such a line does exist. It's a line that goes through the center of the price series rather than along its edges, like the support and resistance lines described earlier in this chapter. How do you draw a straight line through the center of each price bar? You can't, at least not by eye, because prices jump around and the centers of the bars never line up properly.

But scientists have a solution to jumpiness: To "fit" a line that minimizes the distance from itself to each price close along the line. The best-fit line is named the *linear regression line*, *linear* referring to *line* and *regression* referring to the mathematical calculation.

Drawing a linear regression line requires a complex statistical calculation, but relax–all charting software comes with the linear regression already built in. Look up the mathematical formula if you must, but spending time observing how it works on your charts is a more productive use of your time. You don't need to know how the line is calculated to be able to use it. You probably can't explain an auto

transmission, either, but you can still drive your car.

Rules for drawing a linear regression

This section is a short one — you get to choose your own rules. The obvious place to start the line is at a significant high or low in the recent past, usually the starting point of the current move. Ah, but what's the "recent past" and how are we defining "current move"? For most traders, the recent lowest low or highest high entails looking back a few weeks or months. I prefer to include two or more successively lower lows or higher highs, as long as the slope of the line still contains a directional bias.

The history check can be trickier than it sounds. Starting at the previous lowest low, a chart of orderly prices yields a nice linear regression line with prices clustered tightly around the line. The clustering tendency gives you comfort that the trend is a solid one and upcoming prices won't stray far from the line.

But as you go further back in price history and add more price data, the tight clusters start to spread out. The more time you add, the more comfort flies out the window.

And some securities have widely dispersed prices to begin with. You see a lot of outlier bars that seem to bear no relationship to the line. The line is still mathematically correct and the slope of the line may be identical to the orderly price chart, but the dispersion is telling you that you can't count on upcoming prices to be anywhere close to the line, let alone cling to it. So, if you are risk averse, pick short timeframes on which to draw linear regressions, or orderly price series, or both.

Where do you end a linear regression? Normally you end it at the current period's bar, or maybe one period before if today's bar is exceptional in some way. After all, you are trying to gauge where the current price is relative to a "standard."

The linear regression does not contain embedded buy/sell trading rules but can be used in other ways. You may choose to trade only securities that have tight price clusters around a linear regression line, or to scale out of a security when tight clusters give way to scattered

outliers.

You may see charts by self-appointed gurus that show a linear regression and advice that prices are "mean reverting" and exhibit a "central tendency," meaning that a big variation away from the linear regression line will automatically correct back to the linear regression. This is nonsense. No reputable trading system features the linear regression alone as a trading tool.

Identifying trendedness

In Figure 10-4 , the linear regression line doesn't actually go through the center of each price bar. In fact, some price bars are outliers fairly far away from the line. But if you look more closely, you can see that no other line gets you as close to Point A *and* to Point B at the same time. Only one linear regression exists for any set of prices on the chart. Despite its somewhat intimidating name, the linear regression should have you breathing a sigh of relief right now because nothing is subjective or judgmental about it. It's "science." Everybody gets the identical line if they are given the same chart and the same starting and ending points.

Figure 10-4: Simple linear regression.

A linear regression is the true, pure trendline. This is wonderful news. If you accept the core concept of technical analysis, that a trend will continue in the same direction, at least for a while, then you can extend the true trendline and obtain a *forecast.* In some software packages, a linear regression extension is called exactly that — *a time-series forecast.* This tool is tremendously useful. You have created a high-probability forecast for the upcoming period that gives you perspective on what to expect.

In fact, you could dress up the linear regression to get a mathematically respectable forecast that is better than just extending the line. It goes by the intimidating name *autogressive integrated moving average,* or ARIMA, and fortunately for me, is beyond the scope of this chapter. But if you really, really like math, see Perry Kaufman's *Trading Systems and Methods* (Wiley).

Assuming you are using a simple extension of the linear regression line, if someone says that the price of Blue Widget stock is going from $5 to $10 in one month, you can test the claim by extending the line out one month at the same slope. Is the forecast even probable or is it hype? That's the good news.

The bad news is that the linear regression line can slope this way or that way or no way (horizontal), depending on where you start and stop drawing. If you take a V-shaped price series like the one in Figure 10-5 and draw a single linear regression line, you get … garbage. This chart shows two trends, and you need two linear regression lines to reflect that. It's common sense to observe that the less daylight between the line and the price points on the chart, the better the fit and the more likely it is that extending the line is a valid technique.

Figure 10-5: Invalid linear regression.

In other words, you can draw linear regression lines that are totally useless. They'll still be scientifically accurate in that they depict the best fit possible to the data, and everyone else will get the same result. However, they won't advance the cause of making a profit in the market or preventing a loss.

How to use the linear regression

The linear regression does not take the place of support and resistance lines. It should be viewed as a supplementary, confirming indicator to identify the trend. If you select a good starting point, the linear regression delivers pure trend. The linear regression line may not contain embedded trading rules, but visually, the linear regression line is the most informative. You can easily see trendedness and orderliness, and thus have a modicum of confidence that your trading plan isn't going to be turned upside down by mere noise.

Sometimes you can draw a linear regression line and it lands smack on top of a support or resistance line, or is parallel to it. This is a stroke of luck and implies that the market players in this security are attuned to the true trend.

However, if you draw a support or resistance line whose slope varies dramatically from your linear regression line, one of them is wrong. In a similar vein, if the line has a very steep slope and this security never before had such a steep slope, you can deduce that the price movement is statistically abnormal. It is probably unsustainable and likely to come to a sad end when traders start taking profit.

This crash and burn is exactly what happened in the NASDAQ in March 2000 (the "Tech Wreck"), and other recent market collapses like the S&P crash in 2007–09 and Shanghai Surprise in 2008.

Can you use the linear regression to detect abnormal price moves that are likely bubbles? Well, I think so. If you see the linear regression steepening dramatically, you can re-draw the linear regression line to stop at the point where the abnormality — the bubble — begins. This is a judgment call. There is no rule to stipulate what constitutes "too steep" a linear regression line. Then extend the linear regression line by hand to see where the price "should" be if the price were still behaving in the normal manner of months and years past. Be careful to remember that extending any line into the future is just a forecast, not fact.

This is what I show in Figure 10-6 . The normal linear regression line starts in April 1980 and ends in October 1998, covering almost 18 years. The line slopes at about a 40-degree angle from the lower left of the chart to about the middle of the chart. The dotted line is a hand-drawn extension of that line covering the period from October 1998 to August 2013. Now see the three extra-steep linear regressions during August 1996 to April 2000, October 2002 to October 2007, and February 2009 to August 2013. The slope of these three lines is more like 60 to 70 degrees (90 degrees would be vertical).

Figure 10-6: Bubble anatomy.

Are they bubbles? Well, the first two were followed by sharp corrective downtrends — also unsustainably steep — and named bubbles after the fact. But there is nothing in financial history that says equity indices should be at one slope or another to be normal. We are choosing to define normal as something that occurred over 18 years, and the world and markets change, so conditions from those 18 years may well be completely irrelevant today. Despite all these qualifications, extending normal linear regressions is an intriguing process and it's a thought-provoking chart. As I discuss in Chapter 3 , experts say as much as 25 percent of an individual equity price is due solely to what's happening in the index to which the security belongs. It would seem that drawing linear regression lines on equity indices may not be a bad idea.

Chapter 11

Transforming Channels into Forecasts

In This Chapter

▶ Getting to know channel drawing

▶ Discovering breakouts

▶ Finding out about the regression channel

▶ Estimating ranges with pivot point support and resistance

A straight-line trendline that extends into the future suggests where the price may go, but suggests only the general neighborhood; it doesn't tell you how high it may go. With a linear regression line, you expect future prices to cluster around the line, but some outliers always show up.

While nobody can create a pinpoint forecast, we can forecast the range of probable future prices. *Range* refers to the high-low scope of prices over a number of periods, generally weeks and months.

In this chapter, I describe the straight-line channel and its forecasting capabilities. I show you two ways to build a straight-line channel forecast and outline how to interpret the information you see on the chart. I also talk about using pivot point analysis to draw horizontal support and resistance.

Diving into Channel-Drawing Basics

A *channel* is a pair of straight-line trendlines (see Chapter 10) encasing a price series. It consists of one line drawn along the top of a price series and another line, parallel to the first, along the bottom of the price series.

The purpose of the channel is to train your eye to accept prices within its borders as *on the trend* and to detect prices outside its borders as *off*

the trend. The channel is a wider measure of trending behavior than a single line. You deduce the trend is in place as long as prices remain within the channel.

Depending on the raw material of your price bars, you can

✔ Start with a top line connecting at least two highs, and draw the bottom line parallel to it.

✔ Start with the bottom line connecting at least two lows, and draw the top line parallel to that.

✔ Draw a linear regression line, and draw the top and bottom of the channel at equal distances on either side of it.

The swing bar problem

How do you know when a high or low is obvious and the right place to start a trendline? You are looking for the significant high or low that's a turning point in price movement, often named a *swing bar* . In practice, the trend may continue for a few more bars after the highest high or lowest low — you don't always get a sharp, clear-cut reversal exactly at a single bar. But a few periods after the highest high or lowest low, you deduce from bar placement, tick placement, a pattern, or simply the absence of new highs or lows, that the move is over. This can be done only in hindsight, of course. Can you mistakenly identify a swing point? You bet. See Figure 11-1 .
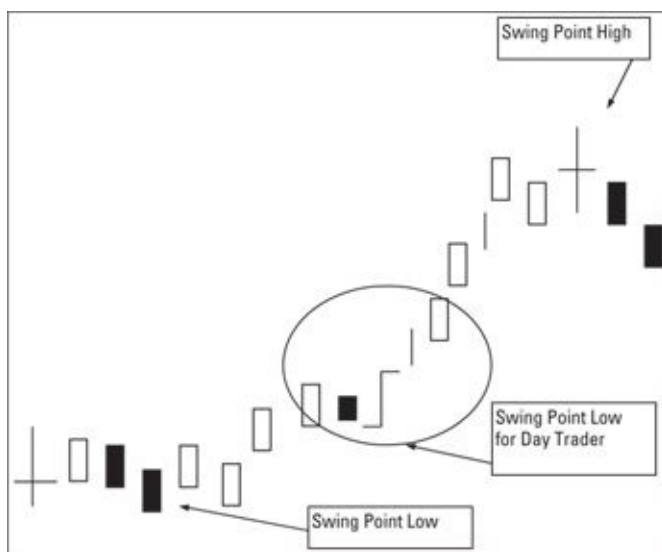
Figure 11-1: Swing points depend on timeframe.

In Figure 11-1 , the swing point low on the left has a lower low (and close under open) and is followed by two higher lows with a lower low in between. You may not recognize it as a swing low for a few more days, and this is a *simplified* set of bars. Imagine them with highs and lows and opens and closes all over the place. Check out Chapters 6 and 7 for a bar review. On the right side of the chart, the swing high is characterized by two lower highs and lows, and a blowout doji that has a higher high but whose close is below the preceding closes. It's followed by two lower highs with lower lows.

Now consider the bar configuration in the center circle. A swing trader or a position trader may ignore this set of bars, but it's catnip for a day trader. Net-net, you can't possibly hope to memorize every set of bars that could potentially constitute a swing low or swing high, and for each trading style. The combinations and permutations that could qualify are almost without limit. And the guidance you will find in books and websites can be subjective and confusing. The best advice we can offer on identifying turning-point highs and lows is to remember that your real purpose is to identify support and resistance, support being where sellers stop selling and resistance where buyers stop buying — in other words, the supply/demand concepts I have been referring to all through this book (see Chapter 2).

Channels organize your vision. You expect the resistance line to cap price rises (a ceiling) and the support line to provide a floor that prevents further price lows. The parallel lines tell you the maximum probable future price range. Note that word *probable.* Channels are visually compelling and can seduce you into thinking that the forecast range *must* occur. It's all too easy to start drawing channels and forget that they're only a forecast and terribly vulnerable to noise and events.

Drawing channels by hand

Figure 11-2 is a model-perfect channel, but you may be astonished at how often you can draw a channel like this on a real security. Here's how:

1. **Start by connecting the two lows at the lower left. This is the support**

line.

Notice that they're the two relative lows because a bar with a higher low comes in between.

2. **With your ruler or through the magic of software, extend that line into the future.**

3. **To form the top of the channel, you have to wait for the next relative high.**

   A relative high can be seen only after you get an intervening lower high (got that?). On the chart, the highest high is the last of three higher highs. You go back to the highest high and start a line parallel to the support line from it. This is the resistance line.

4. **Extend the resistance line into the future.**
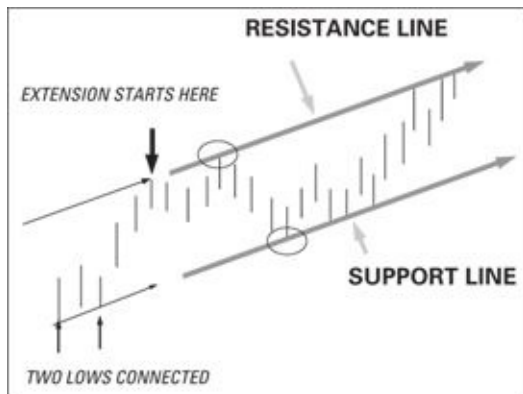
Figure 11-2: A model channel.

Note that sometimes you later get a higher high and have to shift the entire resistance line up, keeping it parallel. Oddly, a high proportion of new highs stop at the old resistance line, even though some stop at the new resistance line, too. It's like having two equally valid resistance lines. To be on the safe side, consider the farther-away channel line as the more-important one. The same thing is true of a second, farther-away support line.

On the chart in Figure 11-2 , the extension lines are gray. At the time they're first drawn, the extended lines are hypothetical support and hypothetical resistance. *Hypothetical* means, among other things, not proven.

The lines stop being hypothetical and become *actual* support and resistance when the next high or low touches the extended line but doesn't break it, validating the extension process. The circles in Figure 11-2 mark where the next high and low occur in this price series — and they do occur at the hypothetical support and resistance lines. As with all support and resistance lines, the third touch is a confirmation point.

Why are the lines parallel?

When you draw a support line connecting a series of lows, you often see a parallel resistance line that mysteriously connects the highest highs. This is so common that most charting software programs have a standard command — "create parallel line." No one knows why support and resistance lines are so often parallel. Here are a few explanations:

- Channel orderliness arises from an orderly trading crowd. Market participants know where the price is relatively high — at the top of the channel. They expect no more gains at this point. Die-hard buyers, in turn, see when the price is relatively cheap — down around the support line. They buy more, propelling the price upward.

- Many technical analysts perceive a cyclical quality to the ebb and flow of prices within a channel. Their trading plan relies on the security alternating between support and resistance. This often works as long as you don't project the price bouncing off support and resistance indefinitely. In other words, don't get cocky.

- Humans have an innate need to impose order and patterns. Parallel lines don't always appear, of course, but they appear often enough that observers speak of channels with a certain air of authority. This kind of parallel support and resistance channel is usually what the commentator has in mind. Beware — channels are not inevitable or divinely inspired.

Considering the benefits of channels

When you use straight lines to represent a range, you get a chart that's easy to read. Your eye fills in the blanks. The benefits include the following:

- Straight-line channels imply absolute limits that give you comfort and the sense that you know where you stand.

- When a new price touches the channel top or bottom, but then retreats, you believe that the channel limits are correctly drawn and valid — and will likely work next time, too. As I explain in Chapter 10 , the more

often a price touches a support or resistance line but doesn't cross it, the more reliable you can consider the line to be.

✔ If a channel line is broken, you feel certain that something significant has happened to the perception of the security by its market participants. Violation of the channel alerts you to changing conditions and the need to consider making a trading decision.

Delving into the drawbacks of channels

On an orderly price series, the straight-line channel is fairly narrow. But if your chart contains a disorderly price move where prices jump around all over the place, the channel is so wide that you can't judge what is usual or normal.

When you draw a channel so wide or so narrow that only you can see it, you can't expect other traders to respond to it. To forecast a price range is really to forecast the probable collective behavior of the people who trade the security. The validity of a channel depends on other traders in the same security seeing the same thing. When everyone can see the same lines, a consensus builds as to what constitutes breaking the lines.

Channeling to make gains and avoid losses

With confidence that the channel broadly describes the trend, you can

✔ Buy near the channel bottom and sell near the channel top — over and over again, as long as the channel lasts.

✔ Estimate your future gain. If the width of the channel is $5 and you bought near a support line, your maximum probable gain over the next few days is about $5 — as long as the channel remains in place and you're able to sell near the resistance line. This is more useful than you may think at first, because

   • It's a sanity check. You can't reasonably expect a gain that would call for a price far outside the channel.

- It's a reality check. You can use the channel to evaluate a forecast made by someone else. If the forecaster is calling for a price far outside the channel, you have grounds to question the forecast.

✔ Calculate your maximum loss. Regardless of where you bought the security, you know that when a price bar breaks the bottom support line of the channel, the channel is no longer valid. The trend is likely over. This is the point at which you want to sell. And you don't have to wait for the actual breakout. You can place a stop-loss order with your broker at the breakout level (see Chapter 5).

Dealing with Breakouts

The *breakout* is one of the most important concepts in technical analysis. It's a direct, graphic representation that something happened to change the market's sentiment toward the security. In the simplest terms, a breakout implies that a trend is over, at least in its present form. After a breakout, the price can go up, down, or sideways, but it seldom resumes at exactly the same level and rate of change you had before the breakout.

A breakout must always be respected, but you want to be sure it's authentic, which is what the following sections are all about. As I mention in Chapter 10 and elsewhere, because so many traders draw support and resistance lines, there's always some wiseguy in the market who tries to push the price through the lines. In an uptrend that's retracing downward, he tries to break the support line and panic holders into selling. He may believe in the uptrend; he's just trying to get a lower price for himself. In a downtrend, he's the joker who buys so much that the price puts in a new high and a close higher than on previous days, which scares the pants off sellers, who then cover their shorts and propel the price higher. In addition, a breakout can be error or noise.

Distinguishing between false breakouts and the real thing

You often see a tiny breakout and don't know how to evaluate it. Say your support line is at precisely $10 and the low of the price bar is $9.50. Is that a legitimate breakout or just an accident? As I note in many places in this book,

sometimes you have to accept imperfection and live with ambiguity. The channel lines are an estimate, not a certainty.

Or sometimes you get a minor break of a channel line that lasts one or two days but then the price returns back inside its channel and performs just as before. The breakout was a *false breakout,* which is a breach of a trendline that then fails to deliver the expected additional moves in the same direction (see Figure 11-3). As I note in Chapter 10 , to call it false is misleading, because the price bar unmistakably breaks the trendline. What's false is the conclusion you draw from it — that the trend is over.

In Figure 11-3 , the channel does define the high-low trading range, after all. Sometimes you have to accept one or two violations of your lines. The challenge, of course, is that you don't know right away whether a breakout is meaningful or just a random outcome. How do you know which it is?
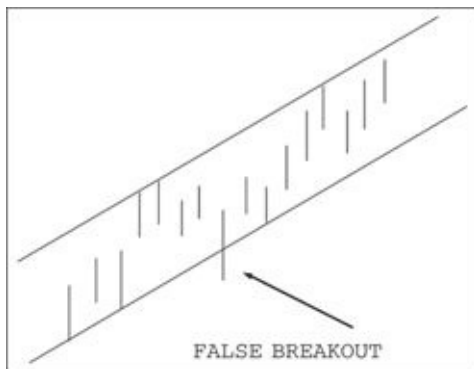
Figure 11-3: False breakout.

The first line of defense

Your first line of defense is the configuration of the breakout bar. A simple judgment is to see whether the breakout is a violation of the channel line by the *close,* and not just the high or low. As I explain in Chapter 6 , the close is the bar component that best summarizes sentiment. A high or a low can be a random aberration, or noise. The close is less likely to be random.

Even if it's not the close doing the breakout, you could have a key reversal bar, an island reversal, or any of several special candlestick reversal bars (hammer, shooting star, and so on — see Chapters 7 and 8).

Does volume verify?

Breakouts are often accompanied by a change in volume, usually an easily noticed higher level. Consulting volume for confirmation is in keeping with interpreting events on the chart in terms of supply and demand, as described in Chapter 6 . You can verify that the breakout isn't random by seeing an equivalent change in volume:

- **Increase in volume:** Extraordinarily high volume on one or two days is named a *volume spike* and often accompanies the end of a strong trend, either a rally or a crash. Buying and selling interest is frenzied.

- **Decrease in volume:** If volume declines steeply after holding steady at about the same level over the life of your trend, demand is falling off but so is selling interest. You don't necessarily know what falling volume means, but it may foreshadow a breakout. All the people who wanted to sell have done so, and the people still holding an inventory aren't willing to sell at the current price. It's like a logjam. It will be broken up when either the bullish camp or the bearish camp takes the initiative and causes a new high or new low, with accompanying higher volume.

Clues from other indicators

While the breakout is a powerful technical indicator, you still want as much confirmation as you can get. As I note in Chapter 8 on candlestick patterns, momentum and relative strength are useful to confirm or deny that a breakout is real. A loss of momentum and/or relative strength in an uptrend almost always precedes a downside channel breakout.

Size matters — and so does duration

You can use a filter to estimate whether a breakout is meaningful or can be ignored. A *filter* is a formula or a procedure used to modify an indicator. In this instance, the indicator is the break of the channel line. A filter can modify the amount or duration of the breakout. Here's how you do it:

- You add some percentage of the total range to the channel line. You stipulate that to constitute a real break of the channel line, the new high or low must surpass this extra amount.

  If the channel is $5 wide, you can specify that a price has to violate the

line by more than 5 percent (or 25 cents). Anything less wouldn't be a real breakout. Where does 5 percent come from? Why not 10 percent or 20 percent? Either one may be effective, or neither. You need to experiment with each security to see whether it has a habit of breaking its lines by this amount or that amount. You can also specify that the *close* has to break the line by *x* percent to qualify as a real breakout. In either case, the result is a new channel line that is a little farther out, effectively widening the channel.

✔ To modify the duration, you can specify that you're willing to accept one price bar violating the channel line, but not two. Or perhaps two violations, but not three. Again, you have to experiment with each security to see what its habits. Also, you can combine the duration rule with the close rule and specify that the close plus *x* percent beyond the line for *y* number of days is the sign of a true breakout. I happen to like 20 percent and two or three days, but those may be totally wrong for your security and your risk profile. I also consult other indicators.

Experienced technical analysts warn against making size and duration filters too complex and fancy, for a number of reasons:

✔ **Rules count.** The breakout principle is a powerful and well-known concept. A lot of other traders in your security are likely to heed a breakout in a black-and-white way. They *always* exit on a downside breakout of a support line by the low, for example. They feel that a breakout is a breakout, and traders shouldn't try to second-guess it.

✔ **One size doesn't fit all.** You can only know that 10 percent is the right amount to put into your filter if 10 percent was the amount that worked in the past on this security. Each security has its own habits; or rather, the people who trade it have their collective habits. In one security, the best filter may consistently be 10 percent and in another, it may consistently be 40 percent. (In the 1930s and 1940s, a filter of 3 percent was standard.) No single correct filter exists for every security under all circumstances. You only know whether a filter is usable by testing different filters on the price history of each security, one by one.

✔️ **Blending works only with coffee.** The orderliness of your security can change without warning. During some periods, a 5 percent filter may be the most effective, but later, volatility can increase and you would need a 10 percent filter to capture all the price highs and lows that really do belong inside the same channel. Looking back over historical data to find the best filter has an enormous flaw: Chances are that you'll come up with a blended percentage filter that's too small for an orderly move and too big for a volatile one. And if today is breakout day, you don't know how volatile the upcoming move is going to be.

Putting breakouts into context

A genuine breakout means that your trend channel is now defunct. You need to discard it. To verify that the breakout truly ended the trend, you need to evaluate it in the *context* of the general volatility characteristics of the security itself. By examining conditions at the time of the breakout, you may gather clues as to what the price is likely to do next.

Neatness counts

As a general rule, a breakout that occurs in the course of an *orderly* trend is more meaningful than a breakout that occurs in a *disorderly* trend. See Chapter 14 for more on orderliness. Orderliness isn't a word you see very often. Instead, the word *volatility* is used, referring to the extent of variation away from a central reference point (like an average). You should see low volatility as orderliness and high volatility as disorderliness.

The more orderly your price bars, the more reliable your channels are. A breakout of an orderly channel is more likely to be the real thing than a breakout of a high-volatility (disorderly) channel. If you choose to trade a disorderly security, you must be able to tolerate a high number of false breakouts — and modify your filters accordingly.

Figure 11-4 illustrates this point. In the first chart, the security is orderly — prices line up neatly within the channel. The breakout is obvious. In the second channel, the security isn't so tidy — prices jump around a lot. The breakout bar is exactly the same size as the orderly channel breakout bar, but

in the disorderly price series, you can't be sure that it's authentic. The people who trade this security are accustomed to big bars and big jumps. You can see that it broke the support line, but perhaps others won't find it meaningful.
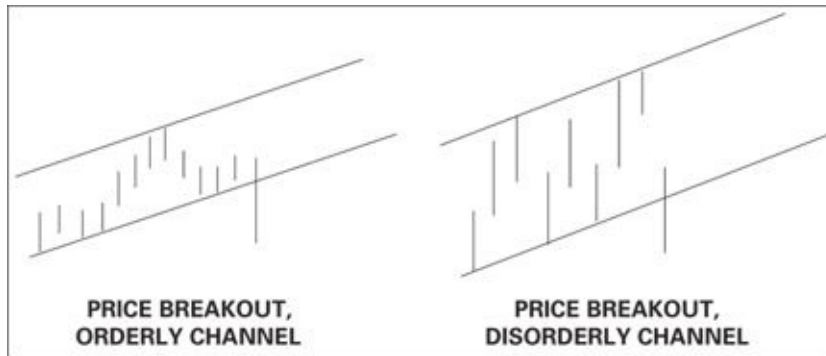
Figure 11-4: Orderly security versus disorderly security.

If your security generates a lot of false breakouts and they make you nervous, find another security. Seek out software and sites that scan a collection of securities for the low volatility candidates.

Transition from orderly to disorderly (and back)

When a price series morphs from an orderly to a disorderly mode, the transformation is almost always accompanied by a breakout and a change in volume. Weirdly, a shift the other way (from disorderly to orderly) also foreshadows a breakout. When prices shift from disorderly to orderly, the sharp decrease in volatility warns you that a breakout is impending; buyers and sellers alike don't know what to do, so they do nothing. On the day of the breakout and in the day or two following, you see a big increase in volume.

Driving faster is always risky

You also want to know the context of the breakout in terms of where the prices were located within the channel just before the breakout. The usual breakout is in the opposite direction of the prevailing trend.

But sometimes you see prices pressing against the top or bottom of the channel line, and this can lead to a breakout in the *same direction* as the trend. In other words, higher volatility can mean an acceleration of an existing trend. We often see a breakout can be to the upside in an

uptrend as well as to the downside in a downtrend.

Figure 11-5 illustrates an upside breakout in an uptrend. It's still a breakout, and you should expect that it still marks a change in the trend even though it is in the same direction. The acceleration of an existing trend may simply signal a steepening of the trend as the crowd develops enthusiasm for the security — but it can also occur near the end of a trend. It is sometimes called a *blowout* (or *blowoff*) *top* or a blowout bottom. In other words, an upside breakout in an uptrend is often a warning of a *downside* breakout to come later, counterintuitive as that seems at first.
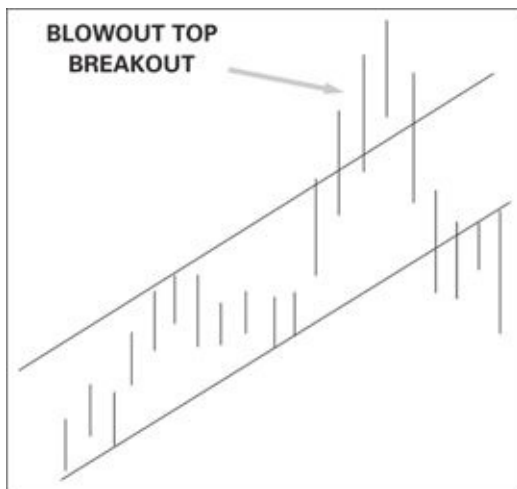
Figure 11-5: Upside breakout in an uptrend.

How can such a pattern come about? Easy. The crowd becomes overheated with greed to buy a security that is rising with tremendous force, or overwhelmed by fear to dump a security that is declining with great momentum. At some point, everyone who was going to buy has bought. Because these are traders who bought only to get a fast profit, when the rise slows down and a lower high or a lower low appears, these buyers exit in a horde. (For a discussion of a lower high together with a lower low in an uptrend, see Chapter 6 .) By selling a lot of the security in a very short period of time, the market has an oversupply, and just like the price of tomatoes falling to ten cents in late August, buyers can command a low price.

The same thing happens when a downmove exhausts itself. Everybody who was going to sell has sold. Supply is now limited. Anyone who wants to buy has to start bidding the price up until he induces a longer-term holder of the security to part with it.

An upside breakout in an uptrend is a buy signal but with a short shelf-life. We all know the phrase "buy low and sell high," but trading guru Larry Williams advises we can also "buy high and sell higher."

Riding the Regression Range

You can construct a more "scientific" set of parallel lines by drawing channel lines around the linear regression line. As I describe in Chapter 10 , the *linear regression* is the line that minimizes the distance from itself and every close on the chart. It is the true, pure trendline, and thus the channel built on it, named the *standard error channel* (also called the *linear regression channel*) is the true trend channel. You can calculate the standard error by hand, but it's laborious. Software is less prone to error and a lot faster.

You use a channel based on the linear regression line the same way that you use a hand-drawn support and resistance channel, as you can see in the following sections. By projecting the lines out into the future, you get a forecast of the future price range, and you deem a significant breakout of a channel line as ending the trend.

Hand-drawn support and resistance channels are formed from lows and highs, and thus do not have a center line. In the linear regression channel, you start with the center linear regression line, and build the channel from the inside out, so to speak.

Introducing the standard error

Computer software places the standard error channel on either side of the linear regression line, according to the statistical measure named the standard error. Like the standard deviation we talk about in Chapter 2 , you don't need to know how to calculate this number or even precisely what it means in order to use it effectively.

The *standard error* measures how closely the prices cluster around your linear regression line. Most chartists use two standard errors, which results in a channel top and channel bottom that enclose a high percentage (95 percent)

of the highs and lows. An extreme high or low constitutes a bigger error away from the trendline than 95 percent of the other highs and lows.

Drawing a linear regression channel

How "true" the linear regression and its channel turn out to be depends on where you start drawing. See Chapter 10 and "The swing bar problem " section earlier in this chapter for information on starting the channel at a reasonable place.

You start a linear regression channel at an obvious low or high, draw a channel line from there to a second relative low or high, and then extend it out. The parallel lines come along for the ride.

As with the hand-drawn support and resistance channel lines (see earlier sections in this chapter), you know that you have drawn your channel line correctly when a third relative high or low makes a touch of the line but doesn't cross it. Sometimes the "obvious" turning point high or low occurs within a previous channel that has been broken and discarded: Go back to the turning point bar and use it as the starting point for the new channel.

Figure 11-6 shows a nicely uptrending security with two channels. Look at the shorter one first. I start it at the lowest low, and let the software do the drawing to the bar after the next relative low. Then I stop drawing and extend the lines by hand, using dotted lines to mark them as hypothetical.
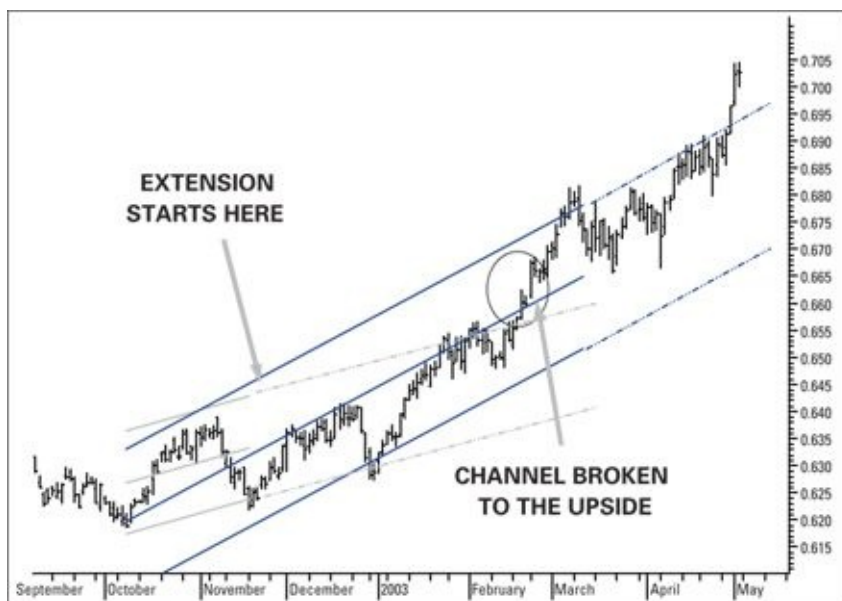
Figure 11-6: Two standard error channels.

It isn't until three months later that prices break out of the channel — to the upside. Oh, oh. A breakout always means something. When it's a breakout in the same direction as the trend, you start worrying that it may be a blowout breakout, as I describe earlier in the chapter in the section "Driving faster is always risky ." Whatever it turns out to be, you still need to discard the old channel for analysis purposes. In this case, I left it on the chart.

Now I draw a new linear regression and its channel (the darker lines on the chart) from the same lowest-low starting point, and keep drawing until just after a new relative high appears. I know it's a relative high because it's breaking the top of the channel and followed by a lower high. I stop drawing at that relative high and extend the channel lines out, as before. Notice that the price does it again! It breaks out of the top of the channel a second time.

As a practical matter, every time a price breaks a channel line, you face a higher risk. The channel defines what is normal, and any foray outside the channel is not normal. What does this breakout in Figure 11-6 mean?

✔ The latest high prices can mark a third shift to a new, more steeply sloping channel yet to be drawn.

✔ A blowout breakout may be forming.

✔ The price series may subside back into the channel.

You have no way to know which of these three outcomes is the most likely from the information on the chart. You may choose to exit on every channel line breakout, or you can add another indicator to guide your decision.

Confirming hand-drawn channels

You can validate a hand-drawn support and resistance channel by superimposing a standard error channel on top of it. Starting at the same low (or high) point that you used to draw by hand, draw the standard error channel and see how closely it tracks your hand-drawn lines. Sometimes the standard error channel falls exactly on top of your hand-drawn lines, which is "scientific" validation that you drew them right and they accurately represent the trend. More often, the standard error channel has a slightly different slope.

Trading a security that moves neatly within its channel, especially a validated double channel (hand-drawn *and* standard error), reduces the stress of trading.

Sizing up the special features of the linear regression channel

You use the linear regression channel the same way you use a hand-drawn channel — to estimate the future range and to determine when a trend has ended with a breakout of one of the channel lines.

The linear regression has a few special characteristics, though. For instance, you want to know the following:

✔ The linear regression doesn't encompass every price extreme in a series, but rather a very high percentage of them. Therefore, some price bars will always break the channel lines without invalidating the channel, unlike the situation in a hand-drawn channel.

✔ To make it less likely that you'll mistake a normal breaking of the channel line with a breakout, you can widen the channel lines to encompass the first two or three highest highs and lowest lows, and then extend it out.

This modification is named a *Raff regression channel* after Gilbert Raff, the man who devised it.

✔ You can adjust the width of the channel lines by instructing your software to use three errors rather than the usual two. A three-error channel encloses 99 percent of the prices. This usually makes the channel too wide, though, and blurs your vision of the trend.

✔ The linear regression is self-adjusting. Every time you update the channel, your software includes the new day's data and modifies both the linear regression line and the slope and width of the channel accordingly. It's therefore a bit of an odd duck — a set of straight lines that isn't fixed, at least until you fix it by halting the updating process.

✔ In order to see a breakout to confirm a trend change, you have to stop drawing at some point. Otherwise, the channel simply adjusts to the new data and you never get a breakout. Don't forget, it automatically incorporates all the price data you put into it. Garbage in, garbage out.

To determine if your channel is stable, you can draw new channels on top of your existing forecast channel. You begin at the same starting point but continue the true channel to the current day. If the width and the slope of the fresh true channel are about the same as your forecast channel, it's stable and thus reliable. A stable channel implies that the forecast embedded in the farther-out lines is probably pretty good. If you notice that the new, true channel that incorporates the latest prices is starting to widen, narrow, or change slope, examine the price bars themselves to see if they indicate a trend change. See Chapter 6 and 7 for information on the price bars.

Discovering the drawbacks of linear regression channels

Linear regression channels are more difficult to work with than hand-drawn support and resistance — you have to exercise more judgment, and it is more of an art. Some of the complications are

✔ **Not a majority process:** A large number of people draw support and

resistance lines and channels, but not everyone draws linear regression channels. A big part of why technical analysis works is that many people are observing the same thing and acting on it, like breakouts. The same can't be said of linear regression channels.

✔ **May not stand alone:** You can draw a very large number of channels on the same chart, and each of them is "right." Often you draw one channel from an obvious starting point but after fixing it and extending it out into the future, you find that you can draw another channel from a nearby starting point that points to a different outcome. I call this *dueling channels* , and it always occurs at trend turning points.

✔ **Not really "scientific":** The linear regression channel is scientific in the sense that the software calculates it to enclose a preponderance of prices, but that doesn't mean that you started it or stopped it at the ideal spot, or that extending the channel delivers a good forecast. The mathematical principle isn't subjective, but your application is always subjective. Consider that your car works on scientific principles of internal combustion, but that doesn't necessarily make you a good driver.

Pivot Point Support and Resistance Channel

What do you do when you stop getting higher highs (in an uptrend) or lower lows (in a downtrend)? In other words, the price is still within its channel but now it is moving sideways.

The pause in movement may be temporary, but the sideways action can also be a warning that forward momentum is gone. From this you may deduce that if you're going to take profit, now is the time. The sideways action may also imply that a breakout in the opposite direction is impending, so now you need a benchmark to figure out which it is *before* it gets to directional support and resistance lines.

One technique for dealing with sideways moves within a channel is to draw horizontal support and resistance lines off pivot points. Technical traders use

the term *pivot point* in many different ways and like swing bar, *pivot point* can have many different definitions.

One standard definition of the pivot point is the median price, or the numerical average of the high, low, and close. This is probably the most universally applied definition. But some analysts define the pivot points as the center bar of three bars (or more) where the center bar contains the highest high or lowest low. Other traders cook up yet more definitions.

Calculating the first zone of support and resistance

The logic of the pivot point is that when a trend pauses, you need a breakout that's a significant distance from the median price to decide whether the old trend will resume or will reverse. Starting with the median price, you add a factor to get upside resistance and subtract a factor to get downside support.

To calculate the first (inner) line of resistance, multiply the pivot point value by two and, from that number, subtract the low of the pivot day. This is named R1. To calculate the first (inner) line of support, or S1, multiply the pivot value by two and, from that number, subtract the high of the pivot day. This procedure sounds like a lot of arithmetic, but don't sweat it. It's easy enough to do in a spreadsheet or by hand, and many trading platforms offer it as a standard option. Plus, the procedure itself is quite sensible — you use a multiple of the median price to estimate a range going forward that subtracts the high and the low to yield a norm. Any price higher or lower would be an extreme. If the upcoming price breaks the horizontal support and resistance lines calculated this way, the direction of the breakout is your clue that the trend is truly over.

You can create a series of pivot support and resistance lines according to these formulas or some variation of them:

Pivot Point = (High *plus* Close *plus* Low) *divided by* 3

Resistance Level 1 (R1) = (2 *times* Pivot Point) *minus* Previous Low
Resistance Level 2 (R2) = (Pivot Point *minus* S1) *plus* R1
Resistance Level 3 (R3) = (Pivot Point *minus* S2) *plus* R2

Support Level 1 (S1) = (2 *times* Pivot Point) *minus* Previous High
Support Level 2 (S2) = Pivot Point *minus* (R1 *minus* S1)
Support Level 3 (S3) = Pivot Point *minus* (R2 *minus* S2)

In Figure 11-7 , R3 is very close to the highest high and S3, while higher than the recent lowest low, meets the hand-drawn support line connecting two lows. Pivot point analysis has become very popular in recent years. Advocates say that by projecting out a reasonable range to the next few days, you can easily see a breakout, and pivot points are therefore predictive instead of lagging, like every other indicator. This is not, strictly speaking, accurate. Any band or channel has predictive value in the sense that upcoming prices, if they are normal, will remain within the band or channel and a violation of the channel top or bottom constitutes a breakout. What is valuable about pivot points is that when many market participants are looking at the same lines, you can expect price movement at exactly those lines.
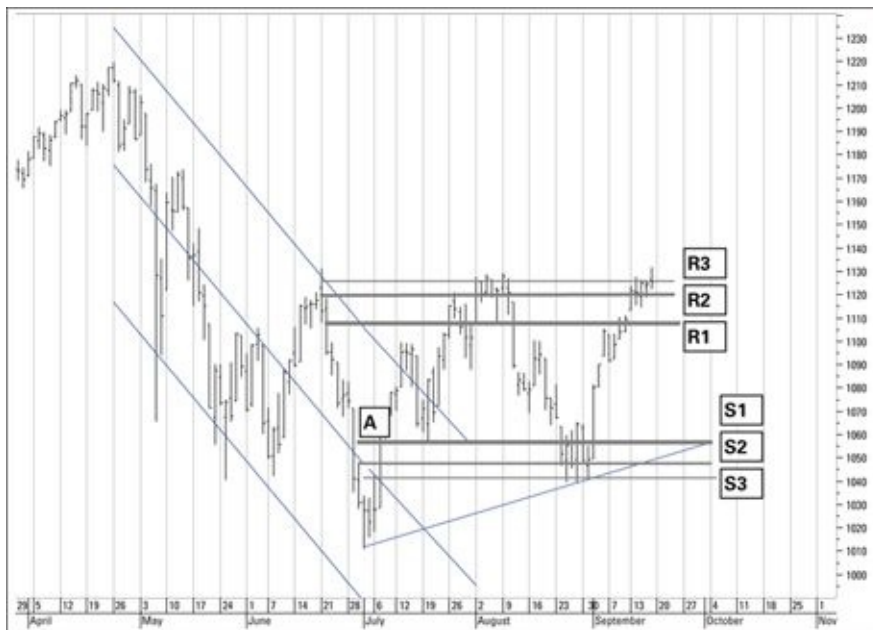
Figure 11-7: Pivot point support and resistance.

Using pivot support and resistance

You can use pivot support and resistance all by itself, and many day traders do. You can also add other indicators like the two moving average crossover (see Chapter 12). In the case I present in Figure 11-8 , if you had bought at Point A, you would set your target at R1 if you are risk averse, R2 if you are an optimist, and R3 if you are swinging at every fly ball. Note that a test of a previous high is commonplace in a bounce off a low. If you're able to go short, you may sell at R3 and target a gain to S3, which conveniently meets the hand-drawn support line.

Figure 11-8: Pivot point levels overlaid with a standard error channel.

What's important about the pivot-based support and resistance lines is that they effectively outline a period of activity where traders don't know the trend. Bulls try to make a new high and get only a few pennies' worth. Bears try to make a new low but fail to get a significant lower low.

In Figure 11-8 , you can see two standard error channels overlaid on the same pivot point chart as in Figure 11-7 . The first channel is drawn from the intermediate high in the topmost oval, and the second channel is drawn from the lowest low in the bottommost oval. Both channels slope upward, suggesting it is a credible identification of the direction, and both are near the hand-drawn support line. This evidence certainly suggests that an uptrend has formed, and yet the moves are choppy and failing to make new highs or new lows. It's a range-trading market and the up-sloping standard error channel could be just wishful thinking. In contrast, the pivot-based support and resistance "channel" offers hands-on, specific places to buy and sell whether the trend uptrend is the real deal or not.

Part V
Dynamic Analysis
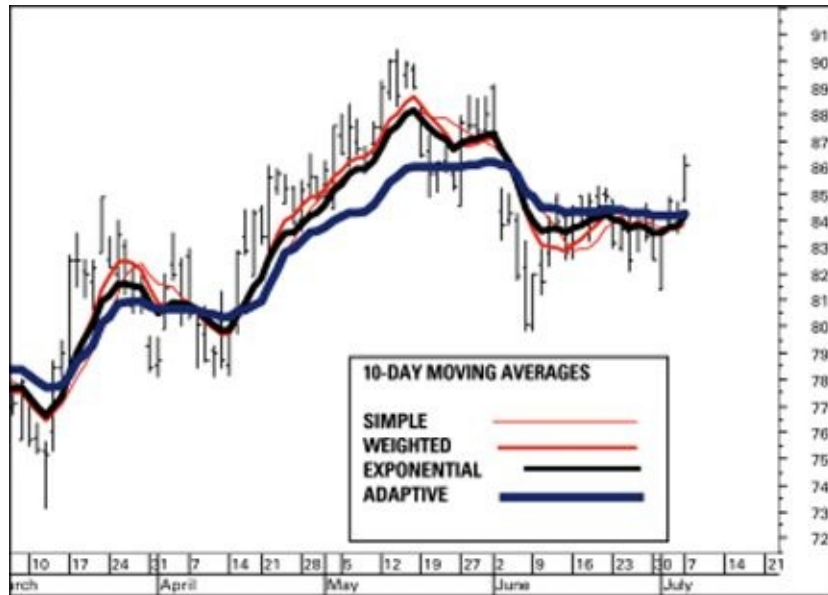
10-DAY MOVING AVERAGES

SIMPLE
WEIGHTED
EXPONENTIAL
ADAPTIVE

Visit www.dummies.com/extras/technicalanalysis for great Dummies content online.

In this part…

- Learn that a moving average is an arithmetic method of smoothing price numbers so that you can see and measure a trend. A straight line is a good visual organizing device, but a dynamic line — the moving average — more accurately describes what's really going on.

- Find out that momentum (the speed of a price change) is the single best tool for detecting when a trend is about to end rather than just putting in a minor pullback.

- Get the scoop on the Bollinger band, the most popular way traders incorporate consideration of volatility into their trading plans.

- Understand how point-and-figure charting strips away time and displays only significant prices on the chart, resulting in filtered price action.

- Survey some combinations of techniques and get some guidance on the process of putting techniques together to forge a systematic approach to trading.

- Check out how the financial cycle follows the economic and business cycles but with the addition of something new — risk management.

Chapter 12
Using Dynamic Lines

In This Chapter

▶ Going over the simple moving average

▶ Getting to know a few other moving averages

▶ Finding out about convergence and divergence

M oving averages are the workhorses of technical analysis. Most traders start out in technical analysis with moving averages, and some traders never see a need to look at any other technique.

A *moving average* is an arithmetic method of smoothing price numbers so that you can see and measure a trend. A straight line (see Chapter 10) is a good visual organizing device, but a dynamic line — the moving average — more accurately describes what's really going on. In addition, you don't need to choose starting and ending points, removing that aspect of subjectivity, although choosing how many periods to put in your moving averages is subjective. In this chapter, I discuss several different ways you can calculate and use moving averages to get buy/sell trading signals.

Moving averages are *trend-following* , and so are all indicators that use moving averages. Be careful not to attribute a forecasting capability to the moving average. The moving average is a lagging indicator — it can still rise after your price hits a brick wall and crashes.

Introducing the Simple Moving Average

You know what an average is — you measure ten of something, add

up the measurements, and divide by ten. You make it a *moving* average by adding today's data and dropping the oldest day's data to keep the day-count constant at ten. You can assume that all moving averages use the close unless specified otherwise.

Before PCs, recalculating the moving average with every new price was a real chore. In fact, a preference for the ten-day average started in the 1930s, because it's easy to calculate by hand (plus it measures two weeks), and it remains popular today. Figure 12-1 displays a ten-day simple moving average.

Figure 12-1: Simple moving average.

Right off the bat, you can see that the moving average clings to the prices and represents their movements better than a straight line and, at the same time, smoothes away the occasional erratic price. You almost stop seeing outliers after you draw the moving average on a chart.

Starting with the crossover rule

When the price is moving upward or downward, so is the moving average line. Because the moving average lags, the price crosses the average after a turning point. At the V-shaped bottom in Figure 12-1 , for example, prices are below the line until the gap (ellipse), and then prices cross above the line.

The crossover rule states that you buy at the point where the price crosses above the moving average line and sell at the point where it falls below the moving average line. In practice, you execute the trades the next day at the open if you're working with daily data.

You can easily see that the moving average on Figure 12-1 captured the trends. The crossovers captured the trend reversals, too. The result is buying at lows and selling at highs. The moving average crossover rule generates a profit. What could be better? Right about now, you may be tempted to shout "Eureka! I have discovered a systematic, objective trading system."

Not so fast. For one thing, the price doesn't always obediently stay above the moving average after an upside crossover (or below the moving average after a downside crossover). See the price bars on Figure 12-1 marked "Outlier." First you get a close above the moving average and then the next bar is almost entirely above the moving average. An *outlier* is just what it sounds like — a data point that lies far off the trendline. This particular chart is tidy — it has only a pair of outliers. Usually you see a lot more.

If you use the crossover rule to buy and sell a security every time the close crosses the moving average, you get a lot of buy/sell signals that reverse in fairly short order, as this one does. In Figure 12-1 , you don't know at the time that the outliers are abnormal. For all you know, the crossover above the moving average is a genuine indication of a reversal. You know only after the price resumes the downmove that they were outliers.

Table 12-1 shows the gains and losses following the moving average crossover trading rule. Notice that I include the short side, which is selling something you don't own in the expectation that you'll be able to buy it later at a lower price. To sell short is only to reverse the normal order of the buy/sell equation. Usually it's commodity traders who can easily sell short, but even if you trade buy-only in equities and never sell short, calculating total profitability accurately is important when you evaluate a trading rule like the moving average crossover rule. For one thing, a rule that applies equally well to downmoves as to upmoves is more likely to be correct in all

cases. For another, the end of a short sale may be the start of a purchase trade.

Table 12-1	Hypothetical Profit from the Simple Moving Average Crossover Rule			
No. of Days	Action	Price	Crossover Profit	Buy-and-Hold
19 days	Buy	$70.61		$70.61
	Sell	$76.00	$5.39	
14 days	Sell	$76.00		
	Buy	$76.40	($.40)	
2 days	Buy	$76.40		
	Sell	$71.50	($4.90)	
28 days	Sell	$71.50		
	Buy	$62.00	$9.50	
38 days	Buy	$62.00		
	Sell	$78.50	$16.50	$78.50
Total			$26.09 (37%)	$7.89 (11%)

To evaluate a trading technique, including moving averages, you judge its effectiveness on the basis of its profitability from identifying trends going in both directions.

If you traded every crossover signal as shown in Table 12-1 , the return is $26.09 on starting capital of $70.61, or 37 percent in less than one year. This gain is more than three times higher than simply buying at the beginning of the period and holding to the end. But in the process of trading the crossovers, you take two losses caused by the outliers.

This profitability exercise assumes a policy of *stop-and-reverse,* which means you close out one trade and put on another in the opposite direction at the same time and at the same price. This method is the conventional way to calculate the profitability of a trading rule, at least the first time around. Later you may adjust your entry and exit rules, as I discuss in the section "Filtering out whipsaws " section later in this chapter.

Dealing with the dreaded whipsaw

A buy/sell signal that's wrong (in hindsight) is called a *false signal* instead of a false breakout, although in principle it's the same as a false breakout of

straight line trendlines. In moving average work, the false signal is a crossover that reverses within a few days, like the outliers in Figure 12-1 . False signals usually reverse fairly quickly, putting you back in the trade in the right direction, but in the meanwhile, you take a small loss, called a *whipsaw loss. Whipsaw* refers to the whipping action of the price quickly moving through the moving average in both directions, resulting in a series of back-and-forth trades. Whipsaws occur in even the best-behaved trend and are common in a sideways market where traders are indecisive about trend direction. These days some traders shorten the word to "whipped."

Whipsaws have a pernicious effect on your profit and loss statement in two ways:

- When trading a trend-following technique like the moving average crossover, you make most of your gains by riding big trends, and you accept that gains are going to be reduced by the occasional whipsaw at reversal points, sideways periods, and any spiky outlier. But if your big trends also contain whipsaws, you end up *overtrading,* which is to make a lot of trades for only a small net gain or loss.
- Overtrading almost always results in net losses because on every trade you have to pay brokerage commissions and fees. In all the cases in this chapter, I am conveniently not subtracting commissions and fees, but remember that they reduce profits and raise losses in real life.

Filtering out whipsaws

Instead of using the crossover of price and moving average alone to generate a buy/sell signal, you can set up additional tests, called *filters.* If the crossover passes the filter tests, chances are it's a valid buy/sell signal and not a flash in the pan. Filters come in several varieties, and you can apply any or all of them to reduce the number of trades. Note that filters may delay entry and exit and thus reduce total gains while reducing whipsaw losses.

Consider the following filters:

- **Time:** The close has to remain above (or below) the moving average for an additional *x* number of periods after the crossover date.

- **Extent:** The price has to surpass the moving average numerical value by *x* percent of the price or *x* percent of some other measure, such as the trading range of the past *y* days (see Chapter 7 for information on the trading range). A fancy version specifies the price has to surpass the moving average by a factor based on the standard deviation of the recent range (yikes).
- **Volume:** The crossover has to be accompanied by a significant rise in volume. Note that volume is tricky in this context, since an initial big move, including a gap move, can take place on low volume, and the big volume comes later.
- **Extreme sentiment:** In an uptrend crossover, the low has to surpass the moving average and not just the close; in a downtrend, the high has to be under the moving average, and not just the close. See Chapter 6 for a discussion of the high, low, and close.

Using the moving average level rule

Instead of looking at the crossover, you can call the end of an uptrend when the moving average *level* today is less than the moving average yesterday, and you call the end of a downtrend when the moving average today is higher than yesterday's. The moving average level rule usually calls the end of a trend earlier than the crossover, although not always.

Here's proof the moving average always lags the price action. In Figure 12-1 , look at the prices and moving average in the left-hand ellipse. From the peak close, it takes the price six days to cross below the moving average — and *ten* days for the value of the moving average to be lower than the day before. By the time the moving average puts in a lower value than the day before, it's Day 10 and the price has fallen from $82.49 to $75.38, or by 8.6 percent.

But despite giving up 8.6 percent from the highest close while you wait for the moving average to catch up with prices, to trade *this* stock by using *this* indicator during *this* period would have been profitable. (See the "Fixing lag" section in this chapter for more information.)

The black arrows on the chart in Figure 12-1 mark the buy/sell entry and exit

points, using the moving average level rule. You buy and sell at the open the day after the moving average meets the rule. Table 12-2 shows the profit you make by applying the rule. Your gain is $43.07 on an initial capital stake of $71.05, or 61 percent, compared to 14 percent if you buy on the first date and account for the gain on the last date.

No. of Days	Action	Price	Level Rule Profit	Buy-and-Hold
22 days	BuySell	$71.05$78.24	$7.19	$71.05
42 days	SellBuy	$78.24$61.54	$16.70	
29 days	BuyMark-to-market	$61.54$80.72	$19.18	$80.72
Total			$43.07 (61%)	$9.67 (14%)

Table 12-2 Hypothetical Profit from the Moving Average Level Rule

Accounting for the gain is what *mark-to-market* means in Table 12-2 . Cash in the bank from closed positions, named *realized gain,* is the main way to keep score in trading, but mark-to-market is the way to keep score on positions that are still open. It means to apply today's closing price to your position to see how much it's worth in cash terms, even though you didn't actually exit the position today. Mark-to-market gains are named *unrealized,* and it's a good phrase, meaning that the gain is only an accounting convention — and not real, although in futures trading you may use unrealized gains to add to positions. Needless to say, a mark-to-market valuation is valid only until the next market price becomes available.

TIP

Be on the lookout for trading system vendor performance track records that rely on mark-to-market gains for wonderful end-of-period gains. Mark-to-market gains are only paper gains and can vanish in a puff of smoke. To evaluate a technique, look at its performance on closed trades.

Dealing with limitations

REMEMBER

Table 12-2 is pretty exciting — a 60 percent plus return in four months. But before you go off the deep end, consider that I rigged the case by finding an ideal chart like Figure 12-1 . It wasn't hard to find, but

for every ideal situation like this, thousands more can be found where applying a ten-day simple moving average crossover or the moving average level rule results in heartache and losses.

The security in Figure 12-1 is trending, and in a tidy fashion. Aside from one outlier, prices don't vary much away from the moving average. But this same security goes through periods when it is neither trending nor tidy. Moving averages lose their power to help you make money when either of these two conditions arises:

✔ **Not trending:** Prices can move sideways for long periods of time while the market makes up its mind what to do next (congestion). In that instance, the moving average is a horizontal line. You get no buy/sell guidance from moving average techniques in a sideways move like the one shown in Figure 12-2 . A sideways movement defeats trend-following by definition.

✔ **Noisy:** A price series with many prices varying far from the moving average is disorderly or *noisy*, likening outliers to the static you get on a car radio as you move out of signal range. The second chart in Figure 12-2 shows a tidy trend, with few outliers. The third chart is the same moving average, but it arises from a price move with many outliers.
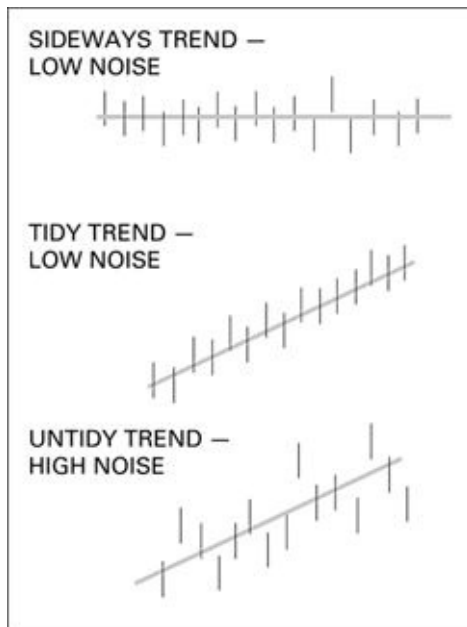
Figure 12-2: Trend tidiness and the moving average.

The trader using moving averages faces a perpetual task of reducing noise

while also reducing lag, and these two goals are hard to achieve simultaneously. Fixing noise entails using a higher number of periods in the moving average, while fixing lag entails using a shorter number — as you can see in the following sections.

Fixing noise

You can't do anything about a sideways move (except perhaps trade the security on a shorter time frame that may contain minitrends). But you can do something about noise — apply a moving average with more days in it. You want to minimize losses, and a noisy price series makes you vulnerable to false buy/sell signals. When you use a higher number of days in the moving average, say 50 days, noisy outliers get put in their place, arithmetically speaking. An abnormally high or low price relative to the existing average is less important in a 50-day moving average than in a 10-day moving average, because it literally carries less weight in the calculation.

But if you're using a 50-day moving average, your buy/sell signals are even later than the ten days that cost 8.6 percent in the previous case. Besides, in some periods, the security is tidy, and in other periods, it's noisy, and you don't know in advance which it is going to be. Fixing noise by altering the number of periods in the moving average is an endless challenge that has launched a gazillion hours of research. Because new data comes along all the time, a lot of this noise-targeting research is wasted.

Fixing lag

Often you can see a dramatic price move, but you know it's going to take days for the moving average to catch up. You're disciplined and committed to following the crossover rule, but potential profits are going up the chimney while you twiddle your thumbs. Why not simply reduce the number of days in the moving average? It will be more sensitive to current prices.

As a general rule, you want to use as few days in the moving average as possible without running into a high level of wrong signals. When you use a very short moving average, like three days, you not only lose the descriptive visual power of the line on the chart, but you also get a lot of whipsaws. In fact, using a three-day moving average on the same data in Figure 12-1 cuts the profitability to under 5 percent — worse than if you used the buy-and-hold approach.

No single number of days is best for a moving average. The best number is the one that fits how noisy the prices are. If your prices are so noisy that you would have to use a high number of days in the moving average, resign yourself to getting late exits long after the price peak. Or you can find a different, more orderly security to trade.

Moving average rules vs. Donchian rules

The Donchian entry rule (named for Richard Donchian, one of the pioneers of technical analysis and a founder of the managed futures industry) calls for an entry when the price hits an x-day high, usually 14 days, and an exit when it hits the x-day low, also usually 14 days. If you connect successive 14-day highs and lows, you get a form of channel (channels are covered in Chapter 11). I bring up the Donchian rule here because I want you to think about the difference between an entry at the crossover of price above a moving average compared to buying at the x-day high. The chief benefit of the Donchian rules is keeping you out of a range-trading market. However, you can get misled by spiky highs or lows, and the problem of selecting the best number of days is the same for Donchian rules as for moving averages.

Magic moving average numbers

Some technical traders think that securities prices move in cycles that are relatively fixed, such as three-to-four weeks, three-to-four months (and its double, six-to-eight months), and three-to-four years. Therefore, they imagine that you should gear the number of days in your moving average to these cycles. But while cycles do exist, too many of them exist. They overlap, and nobody can agree on a single one that rules securities prices all the time, or which one is ruling the market at any one time. You won't find statistical proof of cycle theories consistently working in securities markets, and you will certainly see thousands of situations that don't conform to them.

Whether fixed-length cycles are true doesn't matter. If a sufficient number of traders believe they're true, sometimes traders cause the predicted cycle to occur. Popular moving averages are 28 days and half of 28 days (14 days), and the combination 5-10-20 days, or a variation, 4-18-40. The 28-day number was devised as a monthly number in apparent disregard of the trading month having 20 to 22 days compared to the lunar or calendar month.

Systems designers joke that the four-day moving average was devised to ace out the people using the five-day, and the nine-day to get in front of the traders using the ten-day moving average.

The bottom line: Be skeptical of buying into a magic number. The spirit of technical analysis is empirical: What does the data say?

One moving average really does stand out — the 20-day. When a security is trending, the 20-day moving average often works the same way a support line works — sellers stop selling when it's reached. Less often, the 20-day moving average constitutes resistance. (I describe support and resistance in Chapter 10 .) The virtue of a moving average that works as support or resistance is that you don't have to choose a starting and ending point — the moving average is nonjudgmental and everyone gets the same line. Many traders plot the 20-day moving average on every chart to get a feel for what other traders in the market may see as a benchmark level.

You may also see the 20-day moving average tracking the linear regression. When you see this confluence, you get a sense that maybe the market has some underlying order after all. Beware of superstition! The sense of orderliness may not be an illusion in any particular case, but remember that no trend lasts forever. At the turning point, the 20-day moving average is dead wrong, so enjoy it while you have it.

Folklore versus trading tools

You see reports that Blue Widget stock just surpassed its 50-day moving average, or its 200-day moving average, or that its 50-day moving average crossed its 200-day moving average, a so-called "golden cross." This type of information may or may not be interesting and useful. Maybe the price had been within a few pennies of the 200-day moving average for months on end, and just managed to inch over it. Why is this news?

Without a context, a price crossing a moving average of a fixed number of days is just another statistic. Because of research by technical trader Richard Donchian, the 5-day and 20-day moving averages became popular, and that makes sense — 5 days is a week and 20 days is (roughly) a month. But 50 days and 200 days are just round numbers unrelated to the calendar (the number of business days in a year is about 240). And as I note in this chapter, the best number of days to put in a moving average is

the *smallest* number that still generates as few whipsaws as possible. By choosing a number as high as 50 or 200 days, you're condemning yourself to an inefficient parameter practically by definition.

But that would be to mistake a barometer of the environment for a trading tool. If you're looking for an indicator to describe the general tone of a security or market index, the 200-day moving average is pretty good — mostly because it has been in vogue for decades. To use a fixed number like 50 or 200 makes sense only if everyone else is looking at the same number, and increasingly, they are. Even people who profess to dislike and distrust technical analysis give credence to the 200-day moving average.

But what *exactly* does it mean? Well, the 200-day moving average doesn't have a proven meaning. A security whose price falls below the 200-day moving average has fallen out of favor with traders, and one whose price is in the process of crossing above the 200-day moving average is back in favor. The financial press sometimes reports a "death cross," or the 50-day moving average crossing below the 200-day. *Death cross* is a semantically loaded term that has no statistical basis for reliably predicting outcomes. This technical jargon example is an instance where language influences the outcome far more than the event the language is purportedly describing.

Adjusting the Moving Average

You can adjust the moving average to make it track current prices more closely without sacrificing all the benefits of the averaging process.

Moving averages are often abbreviated. You may see SMA and wonder what *that* is. SMA stands for the *simple moving average* (and you feel like an idiot after you figure it out). Likewise, the moving averages I cover in the following sections are also often abbreviated: WMA refers to *weighted moving average,* EMA refers to *exponential moving average,* and AMA refers to *adaptive moving average.*

Weighted and exponential moving averages

Instead of reducing the number of days in the moving average, a different way to make the moving average more responsive to the latest prices is to weight the latest prices more heavily. You get the *weighted moving average* by multiplying each price in your series according to how fresh it is. In a five-day moving average, for example, Day 5 (today) would be multiplied by 5, Day 4 by 4, Day 3 by 3, and so on. Remember to divide the total by the sum of the weights, not the sum of the days (5 + 4 + 3 + 2 + 1 = 15).

More popular than the weighted moving average is the *exponential moving average.* This moving average is hard to calculate, and fortunately, all the

charting software and websites do it for you. The principle is to create a factor that minimizes the change between the existing moving average and the latest price, creating a smaller bridge than the simple moving average, which has to bridge the entire distance between today's price and yesterday's.

This factor gives the moving average a numerical value closer to the last price and thus makes it more representative of recent prices. The fewer the number of days in the moving average, the bigger the factor.

Adaptive moving averages

The adaptive moving average works like a long-term moving average in that it diminishes the effect of outliers, but without sacrificing sensitivity to trendedness. You always want a moving average to be as short as possible to identify the beginning of a trend quickly, but as long as necessary to avoid whipsaw losses.

In other words, sometimes you want the moving average to contain a small number of days, and other times you want it to contain a higher number of days. You don't want to be forced to select the number yourself, because you have no way of knowing in advance which is right. You want some automatic mechanical adjustment to kick in when variability changes, to adapt the moving average to the new condition. You can't change the number of days according to conditions, but you can get the same effect by making the moving average adaptive.

Trading systems designer named Perry Kaufman devised an ingenious way to achieve this adaptiveness for trading purposes and called it the *adaptive moving average.* It is abbreviated KAMA, for *Kaufman's adaptive moving average,* while other versions of the adaptive moving average are usually named just AMA or have the inventor's initial, like Richard Jurik's JAMA. The Kaufman process of performing the adaptive calculation begins with a concept called an *efficiency ratio,* which measures how straight is the line that prices follow as they move from one point to the next.

Efficient prices follow a straight line. They receive an efficiency rating of 1. Prices that are inefficient resemble the meandering path of a drunken sailor. They get an efficiency rating of zero. Most prices are somewhere in between. The rating is then converted to a *smoothing constant* (which is confusing because in this application, it's not constant, but changes depending on the

numbers; *constant* is a term used by mathematicians for a term in a formula because it's constantly there, whatever its numerical value). As the smoothing constant gets closer to 1, the moving average tracks the prices more closely. When the smoothing constant is zero, the moving average value doesn't change and is carried over unchanged from yesterday — in other words, a spiky outlier is simply ignored.

Wild and woolly moving averages

A classic moving average system was devised by Chester Keltner in *How to Make Money in Commodities* (Keltner Statistical Service, 1960). It starts with a ten-day moving average of the high, low and close, with a channel on either side made from the ten-day moving average of the high-low range. You buy when price breaks the upper band and sell when it breaks the lower band.

Another technique to modify the moving average is the triple exponential smoothed average, devised by Jack Hutson and nicknamed TRIX. Hutson is the author of *Charting the Stock Market, The Wyckoff Method* Technical Analysis).

The TRIX process is too complicated and lengthy to summarize here, but entails a smoothing constant that has the effect of suppressing minor-change prices and emphasizing big-change prices. TRIX removes a great deal of the lag inherent in the moving average and works more like a momentum indicator than a regular moving average (see Chapter 13 for more on momentum).

As you should have started figuring out by now, moving averages are a fertile field for plowing by the computationally ingenious.

Choosing a moving average type

Traders debate which type of moving average is the best. Figure 12-3 shows examples of the four main moving averages I discuss in this chapter, and that doesn't come close to exhausting all the possible modifications.
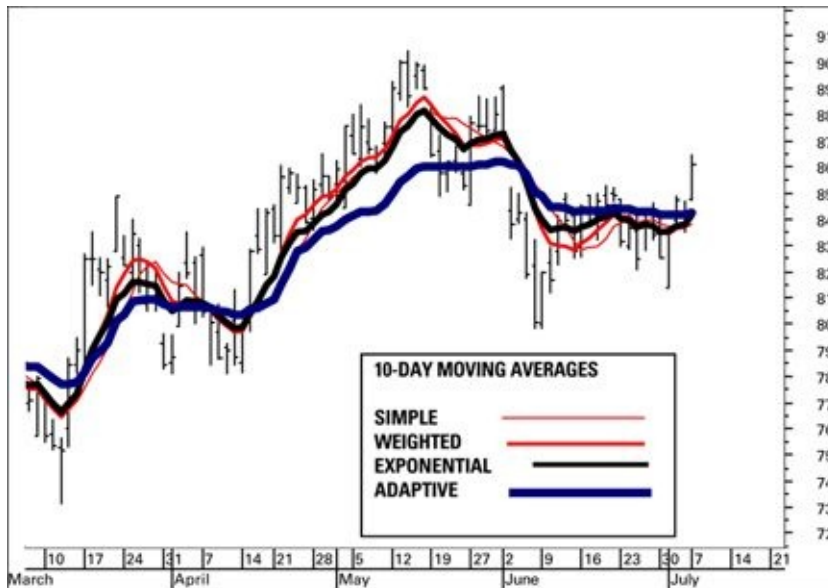
Figure 12-3: Types of moving averages.

Each version of moving averages has strengths and weaknesses. The weighted moving average is the most sensitive to the latest price moves, followed by the exponential moving average. Notice that the KAMA is the best at chopping off the spiky outlier prices that make the price series noisy. That means it works best at reducing whipsaw losses, too. But it gives a value of zero to the breakaway gap like the last bar on this chart. (See Chapter 7 for a discussion of gaps). In a trend reversal like the one depicted on this chart, that's a drawback. You enter the new trend later than if you used a nonadaptive technique, but as a reward, you don't get many false signals.

> Don't invest the moving average with supernatural powers. It's only arithmetic. A moving average can't capture every important move and in fact, rides roughshod over some important chart events, like breakaway gaps. The moving average is a repackaging of the price series, not the price series itself.

Using Multiple Moving Averages

You like a short moving average because it responds quickly to new conditions, and you like a long moving average because it reduces errors. So why not use both of them? Or three — a short-, medium-, and long-term moving average? You can.

Putting two moving averages into play

Instead of looking for the price to cross a single moving average, you look for a shorter moving average (say 5 days) to cross a longer moving average (say 20 days). When you use 5 and 20 days, you chart a one-week moving average against a one-month moving average.

The two moving average crossover trading rule is: buy when the shorter moving average crosses the longer moving average on the upside. You sell when the shorter moving average crosses the longer moving average on the downside.

You are free to use any parameter set in the two moving average crossover model. You could use 3 and 30, or 15 and 24, or any other number set at all. Before getting into how to customize the two moving average model, look at Figure 12-4 , which shows the same security and time frame as in Figure 12-1 , only this time with two moving averages, the short one at 5 days and the longer one at 20 days. You buy when the short-term moving averages crosses above the long-term moving average, and sell when it crosses below. Again, the arrows mark the buy/sell crossovers.
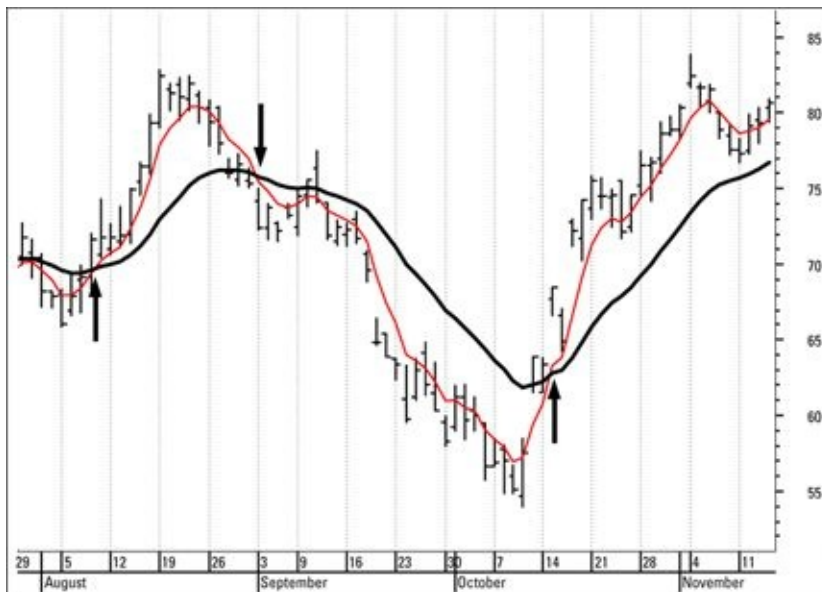
Figure 12-4: Two moving average crossover model.

You may notice the similarity of the buy/sell arrow placement on Figure 12-4 to those in Figure 12-1 . But you can also see that the outlier problem on the

first chart are absent from this chart. The outlier is still there, but the short-term moving average is clearly below the long-term moving average, so you don't care. You hardly see it. On the right-hand side of the chart, some prices close below the short-term moving average, and again, you don't care. The short-term moving average remains nicely above the long-term one, and in fact, you can see a fair amount of daylight between the two moving average lines.

The more open space — daylight — you see between two moving averages, the more confident you can be that the signal is correct and will continue. When the two moving averages converge (as they do near the outlier, for example), you have less confidence that the signal is going to last.

If you trade the two moving average model, your gain is $25.31 on an initial capital stake of $70.61, or 36 percent, as shown in Table 12-3 . This gain is considerably less than the 61 percent you can make by using the moving average level rule, shown in Table 12-2 , but consider the advantages of the two moving average crossover:

- You can *see* the crossover and don't have to calculate the numerical value of the moving average every day, which is a nuisance. You still may want to add a filter, such as waiting a day or two after the crossover to put on the trade or qualifying the crossover by a percentage amount.

- The two moving average crossover is more reliable than the single moving average because it is less sensitive. It lags more but is wrong less often. *You are swapping risk for return* .

- You have fewer trades and therefore lower brokerage expense. In the crossover of the moving average and price, you have ten trades (five in and five out), whereas in the level rule and two moving average crossover, you have six.

No. of Days	Action	Price	Profit	Buy-and-Hold
25 days	BuySell	$70.61$74.20	$3.59	$70.61
43 days	SellBuy	$74.20$66.60	$7.60	
29 days	BuyMark-to-market	$66.60$80.72	$14.12	$80.72
Total			$25.31 (36%)	$10.11 (14%)

Table 12-3   **Hypothetical Profit from the Two Moving Average Crossover Rule**

Trying the three-way approach

If two moving averages are good, three must be better. For example, you could plot the 5-day, 10-day, and 20-day moving averages on a chart, and you would consider a buy/sell signal to be confirmed only when both the 5-day *and* the 10-day cross the 20-day moving average. If you're always a buyer and never a short-seller, you can add a qualification that a sell signal occurs when the five-day moving average crosses *either* of the other two moving averages.

This approach is the belt-and-suspenders school of trading, where you're willing to accept a lot of delay in entering a new trade in exchange for hardly any wrong signals. The three moving average model has one very useful feature — it keeps you out of a trade if the price movement stops trending and starts going sideways, or if it becomes very choppy and volatile, so that you would need an exceptionally long moving average just to see the trend.

In the conventional two moving average model, you're always in the market. When you sell, you not only get rid of the security that you bought, but you also go short. But when the security enters a sideways or choppy period, you're going to get chopped up on whipsaw losses. The three moving average model overcomes that problem by refusing to give you a confirmed signal. You stay out of the security and out of trouble.

See Figure 12-5 . The first arrow on the left marks where the short-term moving average rises above the medium-and long-term moving averages. The arrow in the center marks where the short-term moving average crosses

below the medium-term moving average — and you're out. You don't enter short at the same time, as in the two moving average case. If you had entered short, you would have been whipsawed several times over the next few weeks. Look at how choppy the prices became, up and down by large amounts over a short period of time. Finally, near the end of the chart, the short-term moving average crosses above both of the other moving averages, and you get a buy signal.
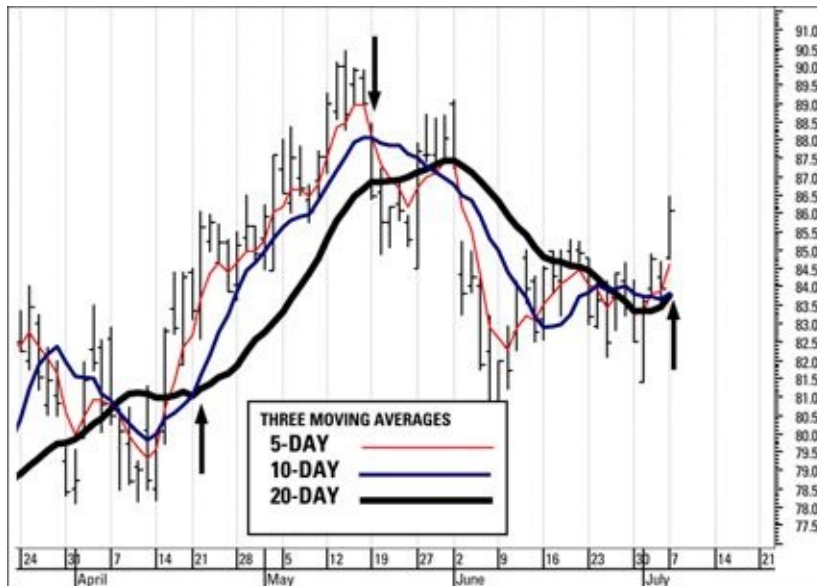
Figure 12-5: Three moving average model.

Delving into Moving Average Convergence and Divergence

When the price crosses over a moving average, or one moving average crosses over another, you have a chart event with an embedded trading rule. But the crossover is a blunt instrument. You can often see a crossover coming, but if you're following rule-based discipline, you're impatiently waiting for the actual crossover.

If you look at any two moving average crossovers, you see that at a turning point, the short moving average converges to the price and the long-term moving average converges, a bit later, to the short-term one. By the time the crossover actually occurs, the price peak (or trough) has already passed.

Similarly, after a crossover, the two moving averages diverge from one

another. Wouldn't it be nice to quantify the convergence and divergence? Then you'd have a measure of market sentiment. You could say that sentiment is turning against the current trend when the moving averages are converging and market sentiment is confirming the current trend as the moving averages diverge.

Here are the convergence and divergence basics you need to know:

- **Convergence:** When two moving averages converge, the trend may be coming to an end. Convergence is therefore an early warning. Because moving averages are always lagging indicators, measuring convergence is a way of anticipating a crossover.

- At a peak, one way to look at the convergence is to say that short-term demand is faltering — traders are failing to produce new higher closes. The trend is still in place, as shown by the long-term moving average. At a price bottom, you can interpret the short-term moving average falling at a lesser pace as selling interest (supply) falters.

- **Divergence:** Conversely, when you can see a lot of daylight between two moving averages, they're diverging, and that means the trend is safe from a crossover, at least for another few periods. In practice, abnormally wide divergence tends not to be sustainable and can be a warning of prices having reached an extreme ahead of reversing.

Calculating and applying convergence and divergence is a little tricky.

Calculating convergence and divergence

To calculate convergence and divergence, you simply subtract the long-term moving average from the short-term one. That sounds backward, but stop and think about it for a minute. If the price and moving averages are rising, the long-term moving average is a smaller number, say $10, than the shorter-term moving average, say $15. The short average minus the long average equals $5. Now the price passes its peak and falls. The short-term moving average loses steam and the next day it is $13, while the long-term moving average is still climbing. Today's price drop is a drop in its bucket. The long-term numerical value is $12. Now the difference is only $1. From $5 to $1 is convergence.

The inventor of the moving average convergence-divergence indicator

(MACD), Gerald Appel, designed it to use exponential moving averages of 26 and 12 days, although the MACD is a model into which you can insert any moving average that suits your fancy and is effective on your charts.

The chart in Figure 12-6 shows a 12-day and 26-day moving average in the top window. In the bottom window is the result of subtracting the 26-day moving average from the 12-day moving average, which is the convergence-divergence indicator. When the indicator line is rising, the two averages are diverging. When the line is falling, the averages are converging. At zero difference between the two averages, you have the crossover. You can verify this crossover by checking the actual moving averages on the price chart.
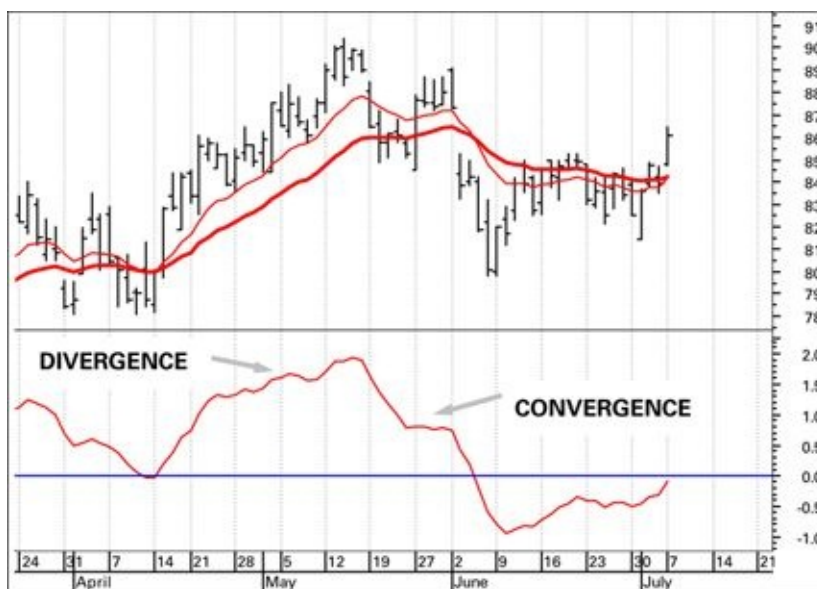
Figure 12-6: Convergenceanddivergence.

Creating a decision tool

So far all you have is an indicator line. To transform it into a trading tool, you need to give it a trigger. Appel designed the trigger to be a moving average of the indicator, superimposed on top of the indicator. Normally, it is a nine-day exponential moving average. The full MACD indicator is shown on the next chart, Figure 12-7 .

The arrows again show where you would buy and sell. In the MACD indicator window, notice that the crossover of the trigger and the MACD indicator occurs earlier than the crossover of the two moving averages in the top window. Looking from the left, the MACD tells you to buy two days earlier than the moving average crossover. The real benefit comes at the next

signal — the exit. Here the MACD tells you to sell over two weeks ahead of the moving average crossover, saving you $4.68, or almost 5 percent. Finally, at the right side of the chart, the MACD tells you to reenter, while the moving averages are still lollygagging along and haven't yet crossed. Actually, you get a crossover of the indicator line about two weeks earlier, but here I waited until there was some daylight between the two lines.

Figure 12-7: MACD indicator.

A refinement in applying the MACD is to note that last upside crossover, but to wait until both the indicator and trigger lines are actually above zero to make the buy trade.

Interpreting the MACD

You may find it hard to "read" the MACD indicator, except when the trigger is actually crossing the indicator line. You're not alone. Another way of displaying the MACD, in histogram format, is much easier on the eye. See Figure 12-8 .

In Figure 12-8 , each bar in the histogram represents the difference between the two moving averages on that date. You don't use the trigger line in the histogram, because you can choose by eye how fast the histogram bars are closing in on the zero line, or diverging from it. At zero, the two moving

averages have the same numerical value — they have zero difference between them. As the bars grow taller, the difference between the two averages is increasing (divergence), and this movement favors the trend continuing. When the bars stop growing and start to shrink, the two moving averages are converging — watch out for a signal change.
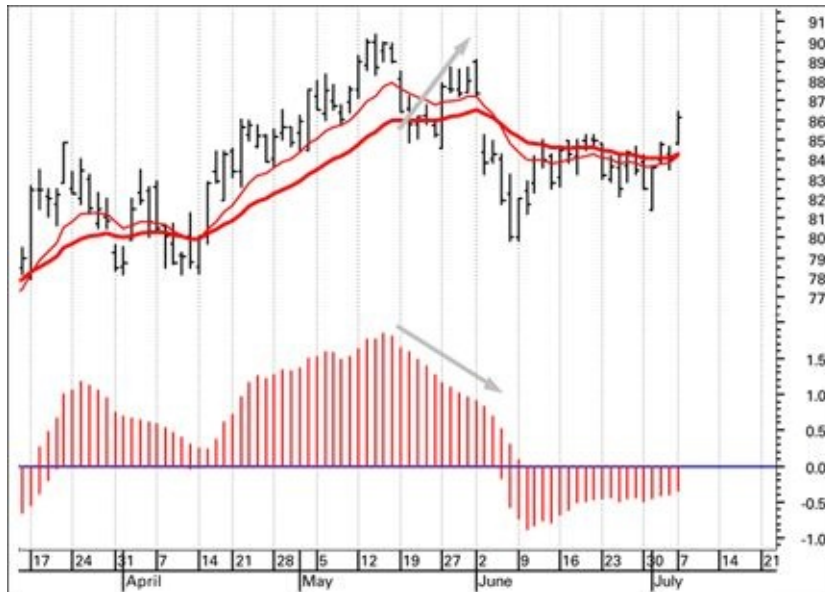
Figure 12-8: MACD histogram.

The histogram format gives you more flexibility in interpretation, but in the process, takes away a guide — the trigger. You are using your eye rather than a number.

When the bars are upside down (below zero), the signal is to sell. What do you do when the bars become less negative? This indicator means selling pressure (supply) is running out of steam. Technically, you don't get a buy signal until the bars are actually over the zero line, but it's up to you whether to act in anticipation that it will cross the line. Notice that in Figure 12-7 , the trigger line does signal a buy on the last day, while on the histogram format in Figure 12-8 , the bar isn't quite up to the zero crossover level. This minor discrepancy is inherent in the calculation method of the software used to make this chart.

The MACD seems to have predictive power, because it gets you out of the trade ahead of the big breakdown, more than two weeks before the shorter moving average crosses the longer moving average to the downside. It also saves you from the gap. MACD leads the moving average crossover, but it's still a lagging indicator. Watch out for gurus who attribute too much to MACD. In a wild new move, it lags like any other indicator based on moving averages. Having said that, MACD is probably one of the most reliable indicators you will ever find.

Chapter 13

Measuring Momentum

In This Chapter

▶ Figuring out what momentum means in trading

▶ Going over the math

▶ Getting to know the relative strength index (RSI)

▶ Introducing the stochastic oscillator

O ne of the biggest problems in technical analysis is detecting when a trend is about to end rather than just putting in a minor pullback. Momentum is the single best tool for doing that. *Momentum* is the speed of a price change and it's just about the easiest indicator of all — you divide today's price by the price x number of days ago. Over time, if the price is rising at a good clip, the momentum number keeps getting bigger, and so a graphic representation on the chart shows a rising line. Momentum refers to the *change* in the price level rather than about the level itself. Arithmetically, prices can still be rising but if they are rising at a slower pace, the line flattens out. When prices start falling, the momentum number gets smaller and smaller and so the line on the chart is a falling line.

That's simple momentum. But it gets more complicated than the original simple formula. For one thing, we want to measure acceleration and deceleration and not just eyeball it on the chart. This is named rate-of-change. In addition, we want to get rid of noise and we want to see momentum in the context of the price range. Some more arithmetic is going to be needed.

Momentum can come in some interesting packages. Think back to the moving average convergence-divergence (MACD) indicator in Chapter 12 — all its raw material consists of moving averages but in the end, what you get is a depiction of how the price is changing. Therefore, MACD is really a momentum indicator.

Most momentum indicators were designed to evaluate the strength of a trend already identified by other indicators, such as the moving average crossover described in Chapter 12 . Now that day trading has become so widespread, though, many traders use momentum indicators on their own to generate buy/sell signals and otherwise guide their trading, such as moving stops or scaling in and out.

Whether momentum is a leading indicator is debatable. How can any number based on past prices be "leading"? It can't. And yet we know that traders, acting as a group, respond in reliably predictable ways to certain stimuli. When we're using a momentum indicator to identify an overbought/oversold condition and a majority of traders judge that the overbought/oversold criterion has been met, we expect them to obey the trading rule embedded in the criteria. It's astonishing how often momentum indicators turn out to be "right" in calling a trend reversal long before other indicators. Beware a mystical interpretation! Momentum identifies when the crowd is becoming more bullish, and traders naturally want to join the crowd. Momentum identifies when bullish sentiment is decelerating and traders want to protect themselves against a possible pending loss. When momentum flips to negative, traders want to join the crowd that is clearly exiting. There's nothing mystical about it — it's crowd-following.

Doing the Math: Calculating Momentum

Momentum is a somewhat glamorous word that is overused and sometimes abused in talk about technical trading. In physics and classical Newtonian mechanics, momentum has a specific mathematical definition and can be measured with great precision. At its most simple, momentum is mass times velocity (think of a truck accelerating down a hill — it will take a big wall or countervailing force to stop it). But market prices are not physical objects, whether atomic particles, billiard balls or runaway trucks. We can imagine metaphors to make market prices comparable to physical objects — mass might be viewed as volume traded, for example — but they are metaphors, not scientific measurements.

Many top writers and system designers are engineers who transfer concepts and formulas wholesale mechanical engineering. This is a useful starting point but confers a false sense of scientific objectivity to the idea of momentum in securities prices. The momentum we are measuring in market prices arises from human behavior and is categorically different from the kinds of changes we observe and measure in physical objects. A runaway truck can be stopped by specific and measurable mechanical means. The only mechanical way to halt a runaway price series is to close down the exchange on which the security is trading. In addition, price momentum can be changed, and dramatically, by a one-time external event (flash crash in the index, war, and so on), each of which has its own momentum that has not yet been measured. That's the point of a Shock — you don't know it's coming ahead of time and you don't know what influence it will have on prices. Review contingencies from Chapter 3 . A crow flying into a runaway truck will affect momentum in a specific and measurable way. The equivalent of a crow flying into market prices has an unknown effect that can be measured only afterwards.

Simple momentum

Everything you really need to know about momentum is that it compares the price today with the price *x* periods ago. You can choose any lookback period when calculating momentum indicators. In this section, I use 5 days, but you usually see 12 or 14 days — the standard parameter used in most software. Why 12 or 14 and not 10 or 15 (two or three trading-day weeks)? Because the inventors of these indicators found 12 or 14 to be the most efficient lookback period.

You can use the subtraction method, whereby you subtract today's price from the price x periods ago. Today nearly everyone uses the method of *dividing* today's price by the price x periods ago.

In Figure 13-1 , the momentum indicator crosses into negative territory (meaning that the latest price is lower than the price five days before) *one day before* the price opens gap down (see Chapter 7 on gaps). A little later the momentum indicator reaches the positive-negative line but fails to hold it for longer than a day. Finally, momentum crosses above the line while the price is still falling. But sure enough, momentum accurately forecasted a price rise. Three days later, the price matches a previous high and breaks out to the
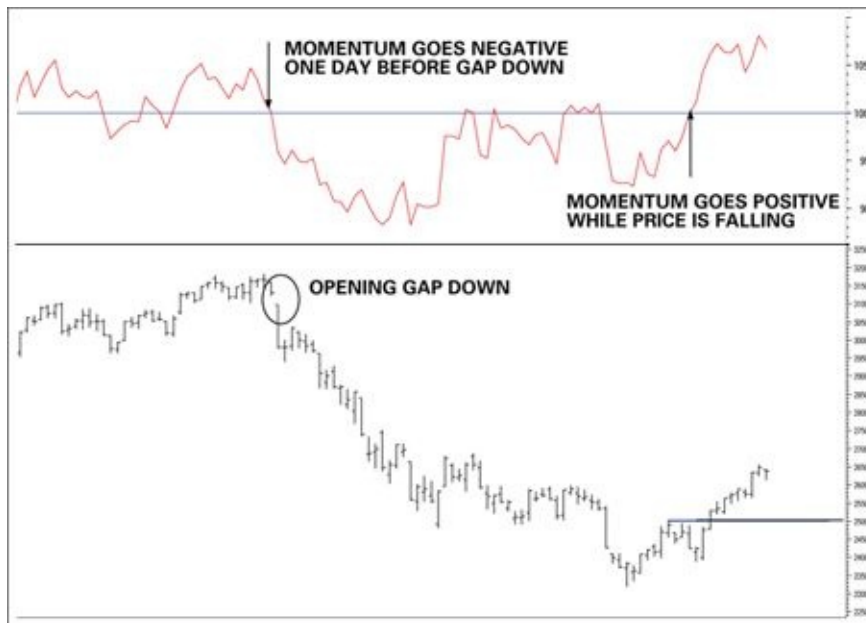
upside.

This simple version of momentum is a powerful indicator but has fallen out of favor in recent years as more complex and targeted momentum indicators came into fashion.

The difference between momentum and momentum investing

Momentum is an arithmetic calculation technical traders use to identify the speed or change in speed of a trend. Momentum investing, on the other hand, entails buying a security just because it is going up without actually measuring the rate of change or considering any other factors. The idea behind momentum investing is that a security that's already rising will continue to rise at least a little longer. This idea sounds like Dow Theory — prices move in trends — but it is incomplete and gives people the wrong idea about the meaning of the word *momentum* to real technical traders.

In the late 1990s, momentum stocks included Internet, telecom, and high-tech stocks that rose on the exuberance of the crowd to valuations many times any reasonable estimate of value. A momentum strategy came to be summed up in the phrase: "If it's rising, buy it."

However, to buy a security just because it's rising is not momentum-based technical analysis because the momentum trader has no systematic entry and exit criteria. To hijack a hot-button word like *momentum* is a silly effort to dress up an undisciplined approach to trading, and obscures a really important use of momentum, using the relative momentum of two or more securities (named *comparative relative strength*) to pick the one that has the best chance to deliver a gain. To choose a security from the universe of securities on the basis of comparative relative strength is a legitimate

Utilizing the rate-of-change method

In practice, the momentum indicator most traders use today fancies up the simple version by converting it to a percentage rate of change. Here's how you calculate it:

1. (Today's close ÷ the close × days ago) ÷ today's close

2. *Multiply* that number by 100.

The result is information presented in context rather than just the difference between the two prices. If today's price is equal to the price five days ago, the centerline now reads 100, meaning that the new price is equal to 100 percent of the price five days ago, which is the same as saying that there is zero change between the two prices.

Stop and think about the arithmetic for a minute. In simple momentum, you measure how fast you are going, let's say $1 per day. If today the price is $15 and five days ago it was $10, the momentum value is 15/10, or 1.5. Now add another day's worth of price data at the constant speed of $1/day. The simple momentum indicator yields 16/11, or $1.45. This is terrible — the momentum indicator is falling and yet the security is still rising at the same $1 per day.

Worse, how can you judge the momentum number of $1.45?

But in the price rate-of-change method, your first reading is (15/10 = 1.5 divided by 15 = 0.10 times 100 = 10. The next day, assuming the same $1 rise, you get (16/11 = 1.45 divided by 16 = 0.0909 times 100 = 9.09%. The numbers are different but the conclusion is the same — the price may be rising, but it's not accelerating. In fact, it's decelerating, and by making the indicator a percentage change, we are measuring the rate of deceleration. Yesterday, when the price was at $15, momentum was 10 percent and now it's 9.09 percent. Ah, momentum is falling by about 1 percent. This is a more useful number than $1.45.

The momentum indicator can move up or down only if the price is accelerating or decelerating. The momentum indicator can flat-line while the price is still moving if the *relative* pace of change is the same.

The percentage rate of change delivers a frame of reference that allows you to judge whether a move is a huge change over a short period or a minor event hardly worth considering. Simple momentum and price rate-of-change look almost identical on a chart, but having those percentage numbers on the vertical axis allow you to measure the move. If the price is higher today than ten days before, the indicator delivers a positive number. If the price is lower today than ten days before, it will be a negative number — but now you know by what amount in percentage terms.

Let's say you see a 30 percent move over ten days. It's up to you to decide how to judge it. If it's abnormally high for your security, which typically doesn't reach a speed of more than 30 percent in any ten-day period before pausing or retracing, you can use momentum as a leading indicator. When you see the indicator reach the 30 percent mark, you expect traders to do what they have done in the past: Cause a price pullback by taking profit. You can exit early, join them at the same time, or wait it out, depending on the other conditions on the chart and your trading plan.

By observing momentum over time, you can discover the maximum speed that your security is likely to reach in a specific period of time, like ten days. You may, of course, choose three days, or five days, or any other number of days. Most charting software allows you to backtest historical data to find the optimum number of days that would have generated the most profit when using rate of change as a buy/sell indicator.

Pondering the Trickier Aspects of Momentum

When you see a momentum indicator on a chart, your eye automatically tries to line it up with the price move. Usually the most noticeable thing about a price series is its direction, so you may think you see a correlation between the indicator and the price. Often this observation is true and useful, but

sometimes it's an illusion and may lead you astray. To help you avoid mistakes, I describe some of the trickier aspects of momentum in this section.

The momentum calculation displays speed. When your momentum indicator line is horizontal, you may think that momentum has stopped. This isn't so. *Acceleration* has stopped.

Smoothing price changes

When you look at Figure 13-1 earlier in this chapter, you probably notice that the momentum indicator looks a lot like the price series, only smoother, and with the indicator's highest highs and lowest lows a day or two off the price's highest highs and highest lows.

Momentum sometimes mirrors the price move. This reflection is because, like a moving average (see Chapter 12), the momentum indicator is tracking the close relative to the close a certain number of days back. The more days you put in your lookback period, the smoother the momentum line. Unlike the moving average, momentum doesn't include all the days' closes in between, and by omitting that extraneous information, you get a smoother line.

However, if you have a one-day price spike, you may see a jump in momentum, but ten days later you're going to see a sudden drop in the momentum indicator, too, as that spike (see Chapter 7) leaves the data series. This type of situation is when it pays to look at the price bars and not just the indicator. If the spike was a one-day anomaly, the information you think you're getting from momentum can be misleading.

Momentum isn't a trend indicator like a moving average, and yet it seems to track the trend. How can this be? The answer lies in the nature of price moves, which are caused by human beings and all their emotions (see Chapter 2). When a price starts to rise, traders jump on the bandwagon and cause the price to move to higher prices at a faster pace. So it's not surprising that the slope of the price move often steepens at the same time as the slope of the momentum indicator. When traders stop adding to positions, closes may still be higher, but by less than they were at the beginning of the move.

The trend remains in place and is still delivering profits to you, but at a slower pace.

Filtering momentum

A smooth line is visually more helpful, but you may want momentum to be more responsive to price changes. Therefore, you could shorten the number of days in the comparison from ten to (say) three. A three-day momentum indicator is more sensitive, but it also crosses the zero/100 line repeatedly when the price isn't trending, or is trending only slightly, generating small whipsaw losses. You can also get whipsaw losses when the price is only putting in a small pullback and not reversing at all.

The standard solution to whipsaws is to filter the signal. Instead of making the zero/100 line the buy/sell rule, you can dictate that the indicator has to rise (say) 2 percent over the zero/100 line for a buy and fall 2 percent under it for a sell. You can also delay accepting the buy/sell signal for one or more days. You can backtest both kinds of filters by using historical data.

Depending on the security, upmoves and downmoves aren't ordinarily symmetrical in size, duration, or speed. Sometimes your security has upmoves that accelerate strongly but decelerate in a sloppy, slow manner. Remember, every security has it owns habits.

For instance, if a security usually delivers a momentum reading of plus 130 to minus 130, this reading means that the price tends to speed up or slow down by not more than 30 percent over the course of any ten-day period. Some securities are like old Chevy pickups — their momentum lumbers from plus 120 to minus 120 over many months, while other securities are sprightly Aston Martins that zip between plus 150 and minus 150 in a few weeks.

Many commentators speak of a *momentum cycle* as though it were a scientific fact of life. It's not, but you must make up your own mind on whether price cycles are real, and if they *are* real, whether they're useful to your trading. Sometimes you can see an eerie regularity in the momentum indicator, especially in longer time frames (like weekly and monthly data).

Applying Momentum

The momentum trading rule is simple: Buy when the indicator crosses above the zero line and sell when it crosses below the zero line. The *zero line* is the level at which the current price is equal to the price *x* number of days ago. When the momentum indicator crosses above zero, the price trend is upward, and the indicator is signaling you to buy. When it crosses below zero, the trend is downward, and the indicator is signaling you to sell. Notice that the zero-line trading rule is consistent with the observation that traders remember previous price levels — see the "historic" high and low in Chapter 2 and also the pivot point section in Chapter 11 .

However, because momentum measures the rate of change and not the price itself, it has some peculiar properties, which I discuss in the following sections.

Discovering divergence

Momentum can be a confusing indicator, because your eye is accustomed to interpreting a line that is pointing upward as having to do with the dollar value. But in this case, this upward line refers only to the speed of the price change. The distinction is driven home when you have a price that is rising while momentum is falling.

Divergence refers to momentum that moves in the direction opposite to the direction of the price trend. Divergence also refers to momentum higher or lower, but less high or low than a previous peak or trough, while the price trend is making a new higher high or lower low. Technically, they're both going in the same direction, so it's a misnomer to call it a divergence, but when momentum falls proportionately short of the price move, you can think of it as a failure to confirm. See Figure 13-2 for how divergence looks.
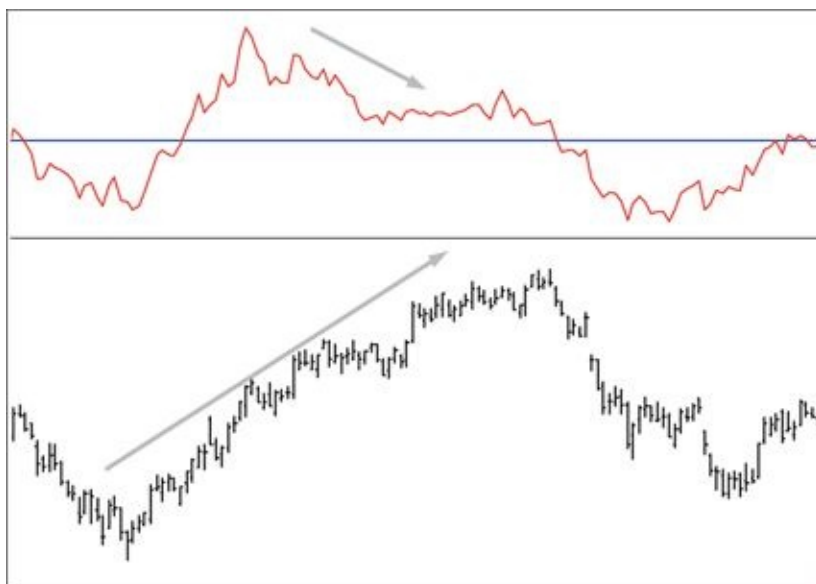
Figure 13-2: Momentum and price divergence.

In Figure 13-2 , the price is making a series of new highs, but about midway through the rise, momentum stops making new highs and starts going in the other direction. Then it flattens, meaning that the new price gains aren't as robust as the older price gains. Notice that momentum crosses the buy/sell midline on the very next day after the highest price high. Here we have an ideal case for using momentum as a buy/sell indicator in its own right. To sell when momentum crosses the buy/sell line, you exit near the peak.

Volume can be a useful adjunct to momentum-price divergence. As I note in Chapter 11 regarding breakouts, as a price trend is peaking, you usually see an abnormal rise in volume. A volume spike often foreshadows the end of a strong trend. If you have both spiking volume and momentum-price divergence, get ready to bail out — the end of the move is nigh.

Confirming trend indicators

A change in momentum is a reliable guide to a change in price trend. A new uptrend is almost always preceded by rising momentum. Most of the time, momentum peaks ahead of the price peak, generating divergence in the direction of momentum and price — a valuable

warning that the trader should be getting ready to exit.

Momentum indicators are excellent confirming indicators, too. A confirmation rule requires that both indicators agree before you make a trade. Using momentum to confirm another indicator

✔ Raises the probability of a trade being profitable

✔ Reduces the total number of trades

✔ Reduces the proportion of whipsaw trades

Determining the Relative Strength Index (RSI)

You may wonder why you have to wait for the momentum indicator line to cross the zero line. Why not make the buy/sell decision when the momentum indicator changes direction — just after an indicator top or a bottom? After all, you expect a move to keep going in the same direction after it starts.

A technical trader named J. Welles Wilder, Jr. answered the question. He pointed out that you want to make the trading decision at the change of direction only by ensuring that the *average* upmove is greater than the *average* downmove over a certain number of days (or the other way around for a sell signal). In other words, the average momentum is relatively higher (or lower), hence the name relative strength. Be sure to differentiate between the *internal* relative strength I am talking about here and *comparative* relative strength between two securities.

The relative strength index (RSI) is much faster than momentum in signaling an impending price change, making RSI a good tool for timing profit-taking, especially if you are using a shorter-term version (say 5 days rather than the standard 14 days). However, the RSI falls short in the reliability department when it comes to buy/sell signals. For that reason, traders use RSI more often as a confirming indicator, while they use other indicators to obtain the buy/sell signal.

In the following sections, I outline how you can do the RSI math and

visualize it on a chart. Plus, you can also discover some of the nuances of using the RSI.

Calculating the RSI

The RSI measures the relative speed of price changes. The relative strength index uses averages over several days rather than single price points. However, it uses the ratio method, like momentum. To calculate RSI, you first calculate relative strength (RS) over a specific number of days. The calculation looks like this:

> RS = Average of Close − Previous Close on Up Days ÷ Average of Previous Close − Current Close on Down Days
>
> RSI = 100 − (100/(1+ RS)

Reversing the order of Close/Previous Close on Down Days eliminates negative numbers and delivers absolute values. This arithmetic process creates an *oscillator* that is limited to a range of zero to 100. When the indicator is at or near zero, it means that the security is fully oversold. When it is at 100, the security is overbought.

An oscillator is the result of converting the highest and lowest numerical values of an indicator to +100 for the highest and -100 (or zero) for the lowest, so that you can see when price changes are nearing extremes and this identify overbought or oversold conditions.

The relative strength index and indeed most oscillators rarely go all the way to zero or 100 percent, but rather vary between the 30 and 70 percent mark of the entire range. In some instances, you may find that the 20 to 80 percent mark is better, or even 10 to 90 percent.

The RSI, like most oscillators, is limited by one of its arithmetic components, the high-low range over *x* periods. You may have a 75-day uptrend, for example, that has five or six sell signals generated by an RSI that is using 14 days as the base range. They're false signals if you're a long-term trend-follower, but splendid opportunities to goose return if you're a swing trader.

Picturing RSI

In Figure 13-3 , the RSI is shown in the top window, with two momentum indicators in the second window (a raw momentum indicator and a smoothed one containing more days), and the price chart itself in the main window. The gray trendlines are hand drawn, just for orientation.
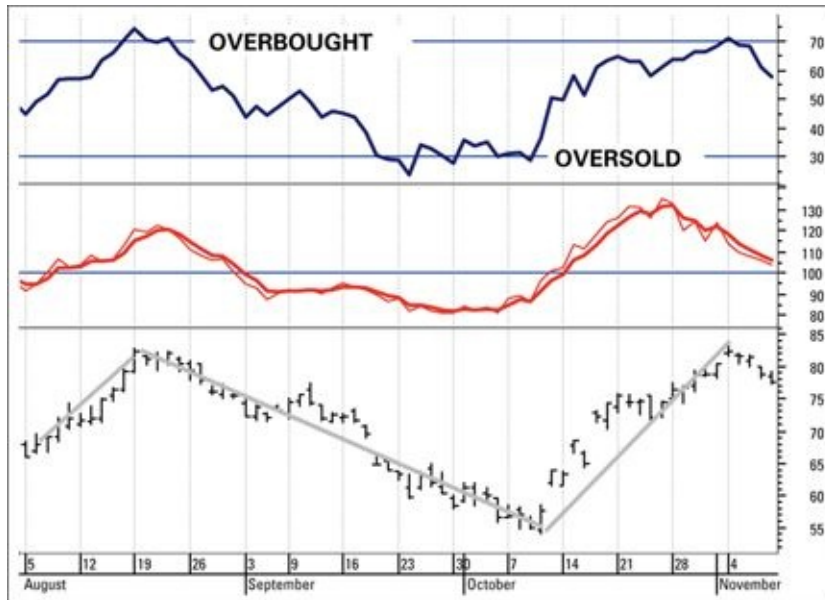
Figure 13-3: Relative strength index (RSI).

On the left of the chart, as the price is rising, the RSI and momentum rise, too. RSI, however, hits and surpasses the 70 percent limit and starts turning down the very next day after the highest close. Momentum also turns down, but doesn't cross the center sell line for another two weeks. The RSI then falls to the bottom of its range at an index reading of 30 percent.

Because you're using averages, the indicator has a normal range of between 30 and 70 percent of the maximum range, although touches of the maximum extremes do occur as follows:

✔ **Overbought:** When the RSI is at or over the 70 percent level, the security is considered overbought. As also described in Chapter 2 , an overbought condition is when the security has moved "too far" so traders want to take profit. You can automatically sell when the security becomes overbought (when it crosses the 70 percent line), or you can use the line as a confirming indicator with other indicators.

In Figure 13-3 , using the crossover of the 70 percent line as a sell signal

in its own right is the correct trading action.

✔ **Oversold:** When RSI hits the 30 percent level, the security is considered oversold. A security is oversold when everyone who was going to sell has already sold, and the security is now relatively cheap (inviting buyers back in).

But notice that the RSI in Figure 13-3 first hits the oversold level about two and half weeks before the price itself actually makes its lowest low. That's because the price was making new lows, but the 14-day *average* downmove was getting smaller each day — the downmove was decelerating. In *this* instance, the RSI was giving a premature signal and it would've been better to consider crossing the oversold line as a warning rather than a sell signal.

WARNING!

When trends are strong, securities can remain overbought or oversold for long periods. However, a divergence between the price and the indicator is a warning sign that the price move may be coming to an end. In Figure 13-3 , for example, the RSI serves as a sell signal at the overbought level, but doesn't provide an equally clear buy signal when it first meets the oversold level. Instead of reversing smartly, the RSI indicator meanders down around the oversold line for several weeks. So, on one occasion it's a buy/sell signal, and on the next occasion, it's a warning.

In the place on the chart in Figure 13-3 between the overbought and oversold areas, the indicator is going sideways near the 30 percent line and the price is still falling. By analyzing the *internal dynamics of the price* (the ratio of average up days to average down days), the RSI indicator tells you not to sell the security short at this point, even though the price is still falling, because it is about to reverse to an upmove. If you're a buy-only trader, hang on. Your chance is coming. Finally, you can see that an upmove starts again and hits the overbought level on the right-hand side of the chart in Figure 13-3 . Again, the RSI peaks on the same day as the price high. Notice that momentum peaks a week earlier, but has not crossed the buy/sell centerline before the chart ends.

Filtering RSI

Tushar Chande, author of *The New Technical Trader* and *Beyond Technical Analysis* (Wiley), has probably done more tinkering with momentum indicators than anyone else. The Chande momentum oscillator calculates the difference between the sum of all recent gains and the sum of all recent losses and then divides the result by the sum of all price movement over the period, with a default period of twenty days. The oscillation range is plus100 to minus100. The security is considered overbought when the indicator is above plus 50 and oversold when it's below minus 50. Most software packages apply a nine-day moving average to act as a buy/sell signal line.

The Chande momentum indicator differs from the RSI because it includes up and down days in both the numerator and denominator (hence the need for minus 100). By refining the strength of a move against all price movement over the period, a strong upmove appears earlier than in RSI and likewise, a strong downmove appears sooner, too. This may be only a day or two, but hey, a day or two can mean a lot.

Another Chande momentum indicator is named "Aroon," meaning "dawn" in Sanskrit. Aroon comes in two lines, one depicting how many periods since the most recent high (the up line) and one measuring how many periods since the most recent low (the down line), generally over 20 periods and both converted to an index basis. When Aroon Up is over 70 and staying there, the uptrend is okay. When Aroon Down is below 30, the downtrend is dominant. Aroon is meant to be a confirming indicator, but you could also use the crossover of the two lines to signal buy or sell.

Another momentum filtering technique was invented by Welles Wilder (see the average true range in Chapter 7) and is recommended by Larry Connors and Linda Raschke in *Street Smarts: High Probability Trading strategies for the Futures and Equity Markets* (M. Gordon Publishing Group). This filter is fairly complex, so hang on to your hat. You start with what Wilder named "average directional movement," defined as Plus Directional Movement (+DM) when the current high minus the prior high is greater than the prior low minus the current low. You get a Minus Directional Movement (−DM) when the prior low minus the current low is greater than the current high minus the prior high. Note that in both calculations, a negative number is considered a zero. ADX is really a trend filter rather than a momentum filter,

but it serves the same purpose — to filter out minor pullbacks.

Using the Rest of the Price Bar: The Stochastic Oscillator

So far, the momentum indicators all use the closing price. But a lot can be going on in other parts of the price bar, such as closes near the high versus closes near the low. When the close is near the high and each high is higher than the day before, you not only have an uptrend, but an uptrend that is accelerating. In a rally, you expect prices to close near the high of the daily high-low range. In a sell-off, you expect the price to close near the low of the daily high-low range.

Two relationships are particularly important: The high-low range over *x* number of days, and the relationship of the close to the high or the low over the same *x* number of days. (If you use the low, the resulting indicator is named the *stochastic oscillator*, and if you use the high, the indicator is named the *Williams %R*, after its inventor, Larry Williams.) In the following sections, I outline how to use the stochastic oscillator as an indicator.

No indicator name is worse than this one. The word *stochastic* refers to randomness, which of course is the exact opposite of what you're trying to achieve in applying technical concepts — finding order. It gets worse — the first component of the indicator is named the %*K*, because that was the letter of the alphabet assigned to the list of experimental formulas by its inventor, George Lane. The second component of the indicator is called %*D*, for the same reason. %K is called the "fast" stochastic and %D is called the "slow" stochastic, as you can discover in the next section. The good news: %K and %D appear only in the stochastic oscillator and aren't used anywhere else in technical analysis.

Step 1: Putting a number to the fast stochastic %K

The %K indicator takes the difference between today's close and the lowest low of the past five days and divides that by the widest high-low range of the

past five days. The ratio is then multiplied by 100 to make it an oscillator that ranges between 0 and 100, again with a normal spread between 30 and 70 percent or from 20 to 80 percent. Five days is the standard parameter used for the indicator, although you can use software to find a number of days that better fits your particular security.

The %K indicator shows you how much energy the price move has relative to the range. If today the closing price is higher than it was yesterday, it is farther away from the lowest low than it was yesterday, too. If neither day put in a new high or low, the high-low range usually remains the same. Arithmetically, therefore, today's %K is a higher number than yesterday's, and the line on the chart has to rise, as follows:

%K = (Current Close − Lowest Low) ÷ (Highest High − Lowest Low) × 100

But here's a brainteaser: What about the case in which the high-low range over the past five days is $5 to $12 and today's price is $12? If today's close is $12, the highest high, the top part (numerator) of the ratio is today's close ($12) minus the lowest low, $5, or $7, exactly the same as the five-day range, or the bottom part of the ratio (denominator). As you discovered in grade school doing fractions, $7 divided by $7 is 1, and if you multiply it by 100, your oscillator reading is 100. The indicator is telling you that the price is as high as it gets relative to the range.

And a lot of good that does you! You already know that the price made a new closing high today. When that happens, the %K gives a reading of 100 percent, which by definition is an *overbought condition* — even if the price is still trending upward! This is exactly what happens in the section of the chart in Figure 13-4 marked by an ellipse. You see that the price has moved smartly up, with several gaps to boot (see Chapter 7 for a discussion of gaps). When the %K indicator (the thin line) reaches 100 percent, it's telling you that the security is overbought. If you used the %K line alone as a buy/sell indicator, you might sell at this point — and miss out on another $10 rise in the security.
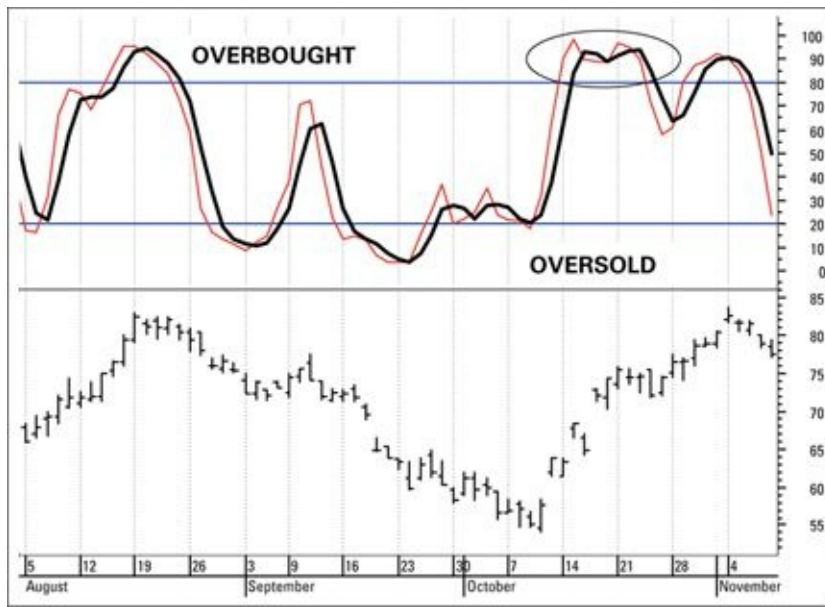
Figure 13-4: Stochastic oscillator.

The stochastic oscillator gives a false overbought or oversold reading at a new highest high or lowest low, because the highest high or lowest low is then used in both the numerator and denominator of the ratio. Therefore, the stochastic oscillator works best in a sideways price movement. This is also true of the Williams %R, which is essentially the same indicator, only upside down. If you trade the Japanese yen, the stochastic oscillator is wrong a great deal of the time.

Step 2: Refining %K with %D

So far you just have one line in the indicator. What you really want is the equivalent of the zero/100 line in momentum — some kind of crossover guideline to tell you whether to buy or sell, so you don't have to guess by eye. In the stochastic oscillator, the crossover line is named *%D* and is formed by a short-term simple moving average of %K (the higher line in Figure 13-4). A moving average always smoothes and slows down the price series so %D is sometimes called the *smoothed indicator* as well as the "slow" indicator. When you put the two indicator lines together, you get crossovers of the first indicator line by the smoothed shorter-term indicator line that give you exact buy/sell signals.

You can calculate %D with the following formula:

%D = Three-Day Simple Moving Average of %K

When %K crosses above %D, it's a buy signal, and the other way around for a sell signal. It's convenient when crossovers occur promptly at overbought or oversold levels but you will see plenty of crossovers that occur when the security is not overbought or oversold. Note that you can add numerous fancy modifications to the stochastic oscillator, including a "slowing" factor in %K. And as with any indicator, you can change the number of days in the lookback period.

Fiddling with the stochastic oscillator on the chart

You can sometimes see meaningful patterns on a chart of the stochastic oscillator. For example, see Figure 13-5 that shows some of the nuances of the stochastic oscillator. The stochastic oscillator shows a series of three higher highs in the indicator that have %D rising over %K in "right" crossovers (to the right-hand side of the peak), implying hidden power is in the upmove on the left-hand side of the chart that cannot be discerned from just looking at the prices themselves.
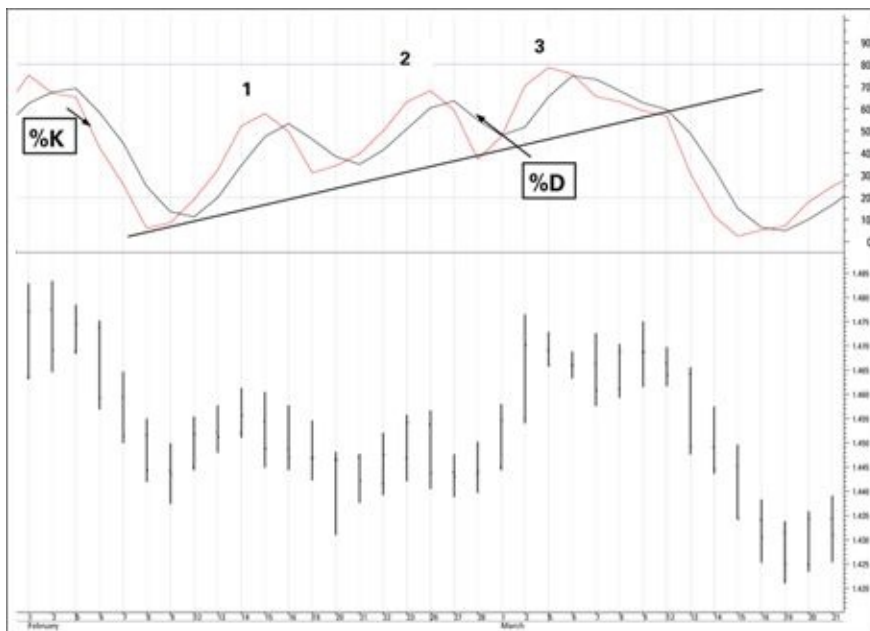
Figure 13-5: Bullish divergence.

But look again. Under the first bump up in the stochastic, only two days have lower closes (and one duplicate close). You could also draw a support line

under the lower closes or series of "knees," as Lane called them. As it happens, this time the final downside crossover beats the break of the support line by five days, but that is not always the case.

You can become obsessed with the stochastic oscillator. Aficionados study charts for divergences, like when the price hits a new low but the stochastic oscillator fails to confirm and in fact shows a higher low. This type of situation is what you can see in Figure 13-5 and is named a *bullish divergence*. Similarly, a *bearish divergence* is when the price is making a higher high but the stochastic forms a lower high. The point is that momentum isn't confirming the price action.

After looking for divergences, traders then move on to pinpointing the number associated with the divergence. Is it above or below the midpoint at 50 percent? A bullish divergence over the 50 percent line is favorable. In a very real sense, the stochastic oscillator is bar reading on steroids.

The stochastic oscillator became fabulously popular in the 1990s as technology permitted the spread of swing trading to the general public. "Trade like the professionals!" was the sales pitch, and an accurate one, too, in the sense that professionals are heartless about not holding a security that isn't performing. The fad for this indicator, however, resulted in some technical writers making exaggerated claims for it. The stochastic oscillator has some serious drawbacks, such as having almost no trend identification capability and often signaling a premature exit.

Do not use the stochastic oscillator in a strongly trending market. When your security exhibits an abnormally long period of trendedness, you can get jumpy wondering how long it will last. However, this type of situation is when the stochastic oscillator isn't useful and can be downright dangerous. See Figure 13-6 . The stochastic oscillator rises up from the oversold level in the oval and a little later the price rises over the hand-drawn resistance line. Surely this is a buy signal! But the price turns around after only a few days and puts in a lower low. If you're a very short-term trader, you may have been able to eke out a small gain from the buy signal, but not from this instance of the stochastic oscillator

alone.
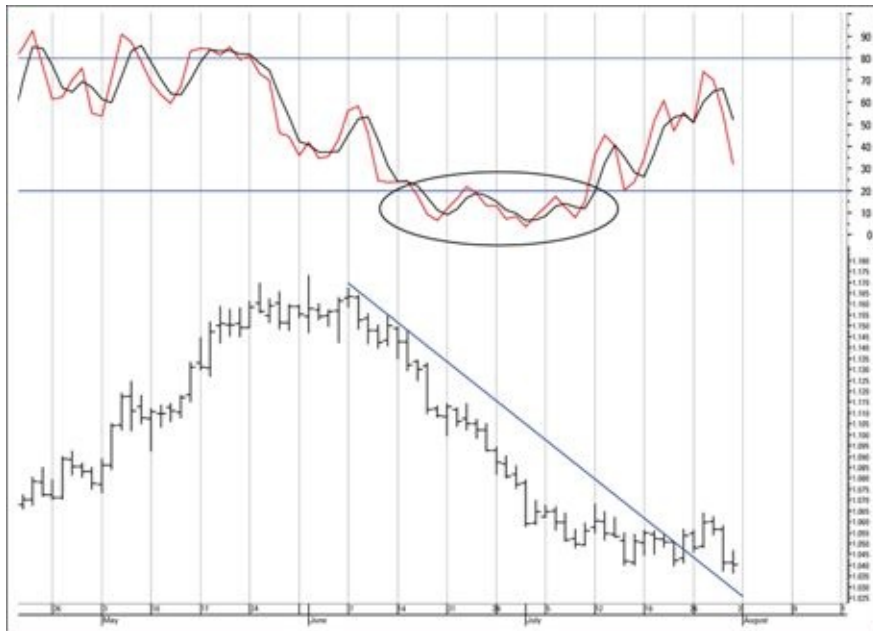
Figure 13-6: Stochastic oscillator in error.

Chapter 14

Estimating Volatility

In This Chapter

▶ Introducing volatility

▶ Doing some volatility calculations

▶ Getting the hang of Bollinger bands

▶ Focusing on volatility breakout as a trading tool

Volatility is a measure of price variation, either the total movement between low and high over some fixed period of time or a variation away from a central measure, like an average. Both concepts of volatility are valid and useful. The higher the volatility, the higher the risk — and the opportunity.

A change in volatility implies a change in the expected price range to come. A volatile security offers a wide range of possible outcomes. A nonvolatile security delivers a narrower and thus more predictable range of outcomes. The main reason to keep an eye on volatility is to adjust your profit targets and your stop-loss to reflect the changing probability of gain or loss.

In this chapter, I describe three ways you can measure volatility and discuss their virtues and drawbacks. Then I describe the most popular way traders incorporate consideration of volatility into their trading plans — the Bollinger band. I also introduce another kind of band — the average true range band.

Catching a Slippery Concept

Volatility is a concept that can easily slip through your fingers if you aren't careful. Just about everybody uses the word *volatility* incorrectly from a statistician's viewpoint — and even statisticians squabble over definitions. To the mathematically inclined trader, volatility usually refers to the standard deviation of price changes (see the "Considering the standard deviation " section). Standard deviation is not the only measure of volatility, but it suffices for most technical analysis purposes. In general usage, volatility

means variance, and that's how I use it in this chapter.

Variance is a statistical concept that measures the distance on each bar between the high and low from the mean (such as a moving average). You calculate variance by taking the difference between the high or low from the average, squaring each result (eliminating the minus signs), adding them up, and dividing by the number of data points. Squaring magnifies wildly aberrant prices, so the bigger the variation from the average and the more instances of such big variations in any one series, the higher the volatility.

Traders do not use variance as a stand-alone measure or indicator, and it's not offered in software charting packages. Why? Because variance isn't directly useful as a separate measure from the standard deviation, which is essentially the square root of variance.

Time frame is everything. How you perceive volatility depends entirely on the time frame you're looking at. Failure to specify a specific time frame is why you see so many conflicting generalizations about volatility. The period over which you measure volatility has a direct effect on how you think about volatility and, therefore, what kind of a trader you are. Your trading style isn't only a function of what indicators you like, but also of how you perceive risk. Two traders can use the same indicators but get different results because they manage the trade differently by looking at volatility differently (scaling in and out, choosing a stop-loss level, and so on).

In Figure 14-1 , your eye tells you that the low-variance prices on the left side of the chart are less volatile and therefore less risky to trade than the high-variance prices on the right side of the chart, even when the high-variance prices are in a trending mode. And that's the point about volatility — it describes the level of risk. In the following sections, I go into more detail about the nature of volatility, including both high and low levels.

How volatility arises

Think of volatility in terms of crowd sentiment. Volatility rises when traders get excited about a new move. They anticipate taking the price to new highs or lows, which arouses greed in bulls putting on new positions and fear in bears, who scramble to get out of the way in a cascade of stop losses. The

start of a new move is when you get higher highs (or lower lows). Volatility tends to be abnormally low just before a turning point and abnormally high just as the price is taking off in the first big thrust of a new trend. It is also, however, a sad fact of trading life that sometimes volatility is high or low for no price-related reason you can find.
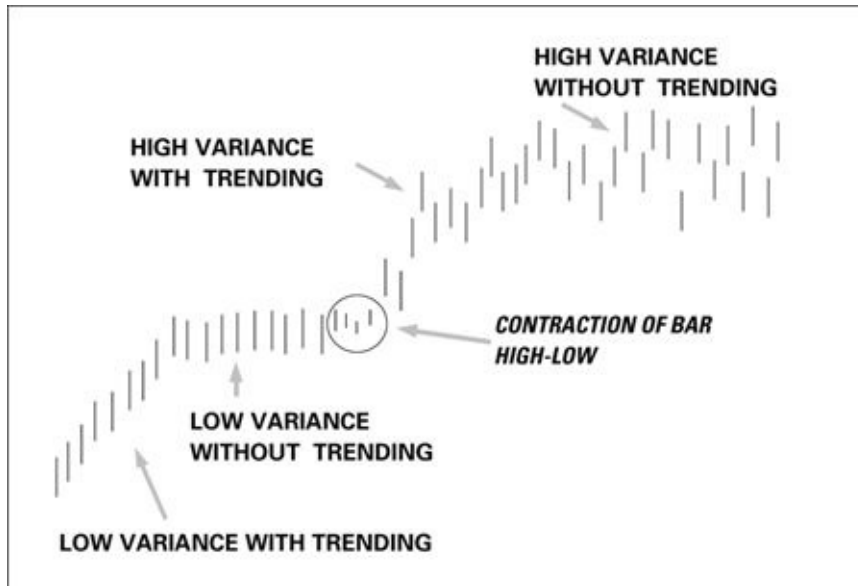
Figure 14-1: Degrees of volatility.

High volatility means trading is riskier but has more profit potential, while low volatility means less immediate risk.

Volatility isn't inherently good or bad. Stability of volatility is a good thing because it allows you to estimate maximum potential gains and losses with greater accuracy. Every security has its own volatility norm that changes over time as the fundamentals and trader population changes. Sometimes you can impute a "personality" to a security that is really a reflection of the collective risk appetite of its traders.

Low volatility with trending

Go to Figure 14-1 . As the price series begins, you instantly see that it's trending upward. Your ability to see the trend is due in part to the orderliness of the move. You see the trend, not variations away from it.

A trending security with low volatility offers the best trade, because it has a high probability of giving you a profit and low probability of delivering a loss. It is also easier on the nerves. Here's why low volatility means the best trade:

✔ You can project the price range of a low-volatility trending security into the future with more confidence than a high-volatility security.

✔ You generally hold a low-volatility trending security for a longer period of time, reducing trading costs such as brokerage commissions.

Low volatility without trending

A security that's range-trading sideways with little variation from one day to the next is simply untradeable in that time frame. You have no basis on which to form an expectation of a gain, and without an expectation of gain, you shouldn't trade it. You can reduce the time frame (from one day to one hour, for example) to make visible and tradeable the minor peaks and troughs. Note that options traders don't care about trendedness and see trading opportunities in both extra-low and extra-high volatility environments.

If a price is trading sideways without directional bias but the high-low range of the bars contracts or widens, now you're cooking with gas. Range contraction and expansion are powerful forecasting tools of an upcoming breakout. You can start planning the trade. In Figure 14-1 , every bar is the same height except the ones in the circle, which are narrowing. The drop in high-low range and therefore in volatility often precedes a breakout, although you don't know in advance in which direction unless you also have a reliable pattern (Chapter 9), including candlesticks (see Chapter 8).

High volatility with trending

You may think that the degree of volatility doesn't matter when your

security is trending, but an increase in volatility automatically increases the risk of loss. You may start fiddling with your indicators to adapt them to current conditions. Tinkering with the parameters of indicators when you have a live trade in progress is almost always a mistake. A better response to rising volatility is to recalculate potential gain against potential loss (Chapter 5).

High volatility without trending

When a security is range-trading, we call it "trader's nightmare." When it's range-trading with high volatility, it's a horrible nightmare. This is shown in the right section of the price series in Figure 14-1 . In this situation, the range is so wide you can't identify a breakout; you see spiky one-and two-day reversals as bulls and bears slug it out, making it hard to find entries or to set systematic stops.

The solution to high volatility in a nontrending case is to stop trading the security, or to narrow the time frame down to an intraday time frame. Often you can find tradeable swings within 15-minute or 60-minute bars that don't exist on the daily chart. (Another choice is spread trading in options.)

Measuring Volatility

Volatility is the degree of variation of a price series over time. You can measure volatility in plain or fancy ways. In financial analysis, volatility usually means one thing — the standard deviation, which I discuss in the "Considering the standard deviation " section later in the chapter. Before tackling that, look at other useful measures of volatility.

Tracking the maximum move

One way to measure volatility is to capture the *largest* price change over *x* number of days — the *maximum move,* also called *gross move.* You subtract the lowest low from the highest high over 10 days or 100 days or some other number of days. You use the resulting maximum

move to set a profit target (*maximum favorable excursion*) or worst-case stop loss (*maximum adverse excursion*). See Chapter 5 for information on setting stops.

In Figure 14-2 , the top window shows the highest high in a rolling 30-day period minus the lowest low in the same 30-day period — the maximum move. Notice that at the beginning and middle of the chart, you could make as much as $30 in a 30-day period in this security, but then the volatility of the price change tapers off to under $10 by the end of the chart. At that point, you're taking less risk of a catastrophic drop in the price over any 30-day period, but your profit potential has just been cut to one-third of its previous glory, too — the usual trade-off between risk and reward. Keep reading for more on the maximum and minimum moves in the following sections.
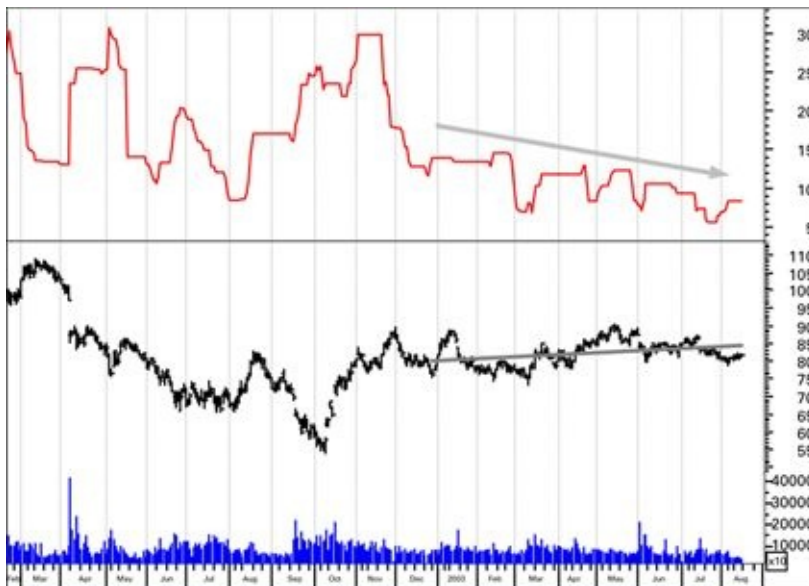
Figure 14-2: Thirty-day minimum and maximum of a stock.

Volatility changes. Projecting the volatility of the last 30 days to the next 30 days is to assume conditions will not change — but conditions always change.

Maximum move and trend

In Figure 14-2 , seeing the connection between the 30-day maximum move in the top window and the prices in the bottom window is hard. The straight line starting at the middle of the bottom window is the linear regression (see

Chapter 10). The line slopes upward, meaning that the price is in a slight uptrend — but at the same time, volatility is on a downtrend. This is a good combination for you — trendedness is delivering new profits at an ever-lower risk of a big one-period loss. But remember, low volatility precedes a breakout, so it may not be a good deal for long.

> The *price* trend can differ in size and slope from the *volatility* trend. Sometimes they're in sync, rising or falling together, or they can move in opposite directions. Knowing something about the trend in the maximum move doesn't necessarily tell you anything about the trend in prices, and vice versa. In other words, volatility is often independent of price trendedness.

Maximum move and holding period

In Figure 14-3 , the orderly price series has a net change from the lowest low to the highest high (A to B) of exactly the same amount as the disorderly price series below it. But obviously the disorderly series implies a greater risk of loss *if you have to exit before the period ends.* The trendedness of each security is the same, as shown by the identical linear regression slopes.
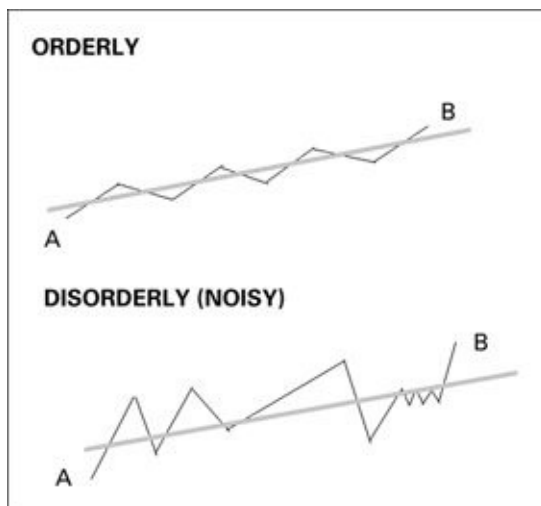
Figure 14-3: Orderly and disorderly price series.

> Figure 14-3 illustrates that measuring the maximum high-low range over a fixed period of time fails to capture the risk of holding a position

during the period, so don't write your expected holding period in stone.

Considering the standard deviation

Maximum move (see preceding section) measures the gross low-to-high move over a period, but the bottom chart in Figure 14-3 exhibits a different kind of volatility that isn't captured by the maximum move. The disorderly price series has the same degree of trendedness and the same low-to-high outcome over the period, but it's obviously a riskier trend. What is the right way to express that riskiness?

The answer is the standard deviation. The *standard deviation* is a measure of the dispersion of prices away from the average. The wider the spread, the higher the standard deviation. The concept is in the same statistical family as standard error, which I introduce in Chapter 11 . The standard deviation is measured from a moving average and measures the actual variance of each price away from the centerline.

I bet you were expecting a chart showing standard deviation right about here. Well, charting software does offer it, but it's not very useful as a stand-alone measure. Hardly anyone actually looks at the raw standard deviation on a chart, because we have better applications for it. See the section "Applying Volatility Measures: Bollinger Bands " later in the chapter.

Using the average true range indicator

Another way to view volatility is to look at the average high-low range over *x* number of days. The best version of the high-low range is the *average true range (ATR),* which incorporates gaps by substituting the close for the gapped high or low. See Chapter 7 for the calculation method and for illustrations of expanding and contracting ranges. To summarize here:

✔ **Range expansion:** The highs and lows are getting farther apart; volatility is rising. Range expansion provides a bigger profit opportunity and an equivalent increase in risk of gain or loss.

✔ **Range contraction:** The highs and lows are moving closer together, and you may think that risk is lower, too. But this is true only up to a point — the point of a breakout.

In Figure 14-4 , the ATR indicator in the top window starts falling after the

one-day big-bar rise that marks the beginning of the support line. You don't know whether you can draw the support line until afterwards, but you can see the ATR indicator failing to match that spiky high and continue to fall. The price is rising, but the indicator is falling. And as usual, a divergence between indicator and price is a warning sign. Sure enough, right after the highest high, you get a series of lower highs and can draw a resistance line (see Chapter 10). Pretty soon the price breaks under support.

Figure 14-4: Average true range indicator (ATR).

Applying Volatility Measures: Bollinger Bands

The most popular volatility measure is the Bollinger band, invented by John Bollinger. He charted a simple 20-day moving average of the closing price with a band on either side consisting of two standard deviations of the moving average, effectively capturing about 95 percent of the variation away from the average. See Figure 14-5 .

You use Bollinger bands to display the price in the context of a norm set at the 20-day moving average, which is the number of days that Bollinger's research showed is the most effective in detecting variance in U.S. equities. The bands display *relative* highs and *relative* lows in the context of the moving average — they're adaptive to the price by the amount of the standard

deviation. The bands are, so to speak, moving standard deviations.
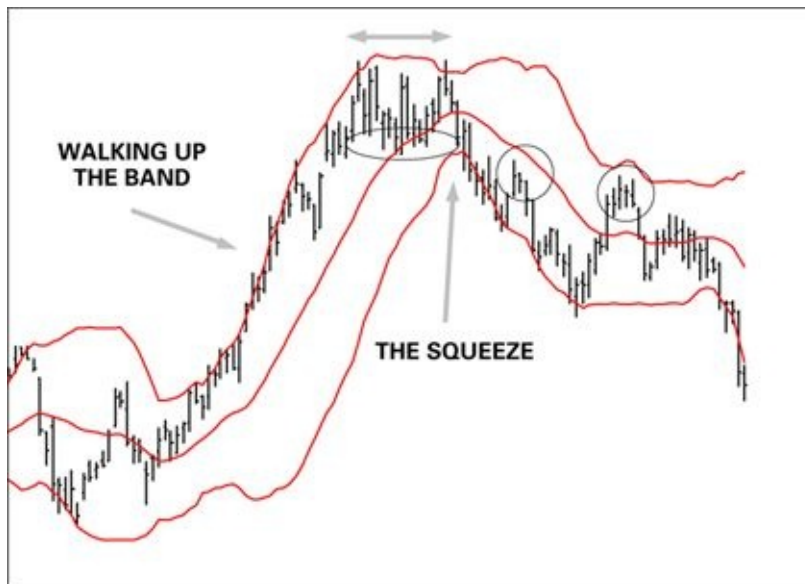
Figure 14-5: Bollinger bands.

The price touching or slightly breaking the top of the band is a continuation signal. Often the price continues to *walk up* or *walk down* the band, as shown in Figure 14-5 . A Bollinger band breakout is just like any other breakout — you expect the price to continue moving in the same direction as the breakout.

At some point, every price thrust exhausts itself. Bollinger bands display the end of the upmove in two ways:

- **The price bar stops hugging the top band in an upmove, and slides down to the center moving average (or farther).** In Figure 14-5 , the retreat to the moving average occurs at the ellipse. As a general rule, the failure to make a relative new high signals the end of the move, although this time, the bulls made a second effort to keep the rally going. In this case, the price was forming a double top (see Chapter 9).

- **The bands contract.** When the bands contract, the range is narrowing. Traders are having second thoughts. They aren't willing to test a new high, but they aren't willing to go short and generate new lows, either.

The narrowing of the trading range is named the *squeeze* and implies an impending breakout. Figure 14-5 displays a reversal, but a reversal isn't the inevitable outcome. Breakouts can occur in the same direction as the original move, too. In this case, the downside breakout of the bottom of the band occurred unusually quickly after an upside breakout of the top band.

A rapid break of the opposite band is sometimes a *head fake.* In the case of a downside move like the one in Figure 14-5 , traders could have been overly exuberant in taking profits after such a big run up to the high. See the upward pullback from the downmove in the two circles. Sometimes pullbacks keep going, and the price resumes the uptrend — although hardly ever after breaking the bottom band like this one. To detect head fakes, use Bollinger bands with other confirming indicators, especially momentum indicators like the relative strength index and MACD (Chapter 12).

Applying Stops with Average True Range Bands

Bollinger bands are not generally used to set stops. The bands are equidistant from the moving average, so an upside breakout has the same statistical strength as a downside breakout. When you have a strongly trending security, you can't make a reversal move face a tougher breakout test — but logically, you should. I call it a "prove it" test. Given that false breakouts are so common, this reason makes it necessary and sufficient for you to consider another type of band, as observed by system designer Steve Notis.

To use a band for a stop, you want the band to be asymmetrical, so that in an uptrend, a downmove has to be more severe than recent upmoves to trigger your stop. But you can't filter Bollinger bands. Instead of using the standard deviation to form the upper and lower

bands, you can use a version of the average true range (ATR). You can adjust the ATR as follows so that a breakout "proves" that it is statistically significant:

✔ **Uptrend:** Widen the distance of the lower band from the average.

✔ **Downtrend:** Widen the distance of the upper band from the average.

The greater width of one of the bands from the center moving average separates corrective moves from real reversals. This move can become labor intensive, not least because before you can widen either band, you must be sure of the trend direction. ATR doesn't give you a read on directional volatility like standard deviation.

In Figure 14-6 , the price makes a bottom on the left-hand side and starts an upmove. The centerline is a moving average of the *median price,* or the average of the high, low, and close. The bands are formed by taking a moving average of the ATR and adding and subtracting it from the moving average.
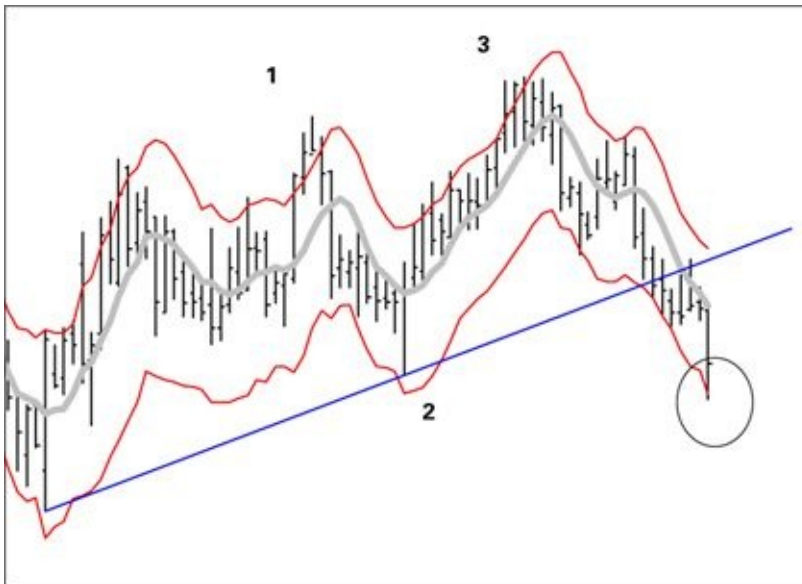
Figure 14-6: Average true range band.

This process creates an ATR test that a breakout has to pass to qualify as a true breakout. When the price starts a new uptrend, the price breaking the upper band confirms that you have identified the trend correctly.

A downside breakout has to pass a bigger test in an uptrend. Accordingly, you widen the lower band by adding a percentage of the ATR to it. On the

chart in Figure 14-6 , the lower band is 50 percent wider than the upper band (it is 150 percent of the ATR). The last bar on the chart breaks the band, just after the support line is broken. This is no mere retracement! You have a double breakout of the trend (support) plus a volatility breakout (ATR band).

As with Bollinger bands, a breakout above the upper band signals continuation, but because breakouts are a sign of abnormally high volatility, you can usually count on a pullback to the median. A longer-term position trader would buy at the left-hand low and hold the break of the support line. A swing trader, on the other hand, would sell at breakout "1" and go short the security to the touch of the support line at point "2." Now he becomes a buyer again to point "3," where high volatility again triggers a short position that he holds to the break of the support line or final ATR band breakout.

Few traders would use the ATR breakout alone as the sole deciding factor. On Figure 14-6 , I put only a support line, but in practice, you would be looking at other indicators. I didn't do the profit-and-loss arithmetic in this case, but it's pretty clear that a swing trader using volatility would have made a series of gains that collectively added up to a higher profit than the trend-following buy-and-hold trader.

Chapter 15

Ignoring Time: Point-and-Figure Charting

In This Chapter

▶ Figuring out point-and-figure charting

▶ Looking at patterns

▶ Taking a look at breakouts

▶ Looking at another way to ignore time — constant range bars

▶ Using time-less charts with other indicators

P oint-and-figure (P&F) was probably invented by floor traders in the 1870s as a pre-electronic way to record the relevant price moves instead of every tiny fractional change. Point-and-figure charting strips away time and displays only significant prices on the chart. *Significant* prices are those that exceed the high or low of a recent trading range by a specified amount. You ignore minor moves — literally. You don't even record them on your chart. The result is filtered price action. You don't see a price move in the opposite direction of the current trend until it meets your own definition of "meaningful," raising confidence in the accuracy of a reversal signal.

You can also easily identify patterns on point-and-figure charts, especially support and resistance, and therefore, breakouts of support and resistance. Point-and-figure charts look very different from standard bar charts, but after you get used to them, you may find their directness and simplicity addictive. Point-and-figure is the easiest of all the technical concepts and as Jeremy du Plessis points out in *The Definitive Guide to Point and Figure* (Harriman House), the only computational method that is unique to financial prices. Engineers and scientists use measures like standard deviation, but they never use point-and-figure. Also, point-and-figure is the only major technique to ignore volume altogether.

Another and less-well-known technique is constant range bars, first introduced by Danton Long, who also invented several other original

introduced by Danton Long, who also invented several other original indicators (including a stop). Each bar represents a block of trades having the same range, specified by you. In other words, each bar is exactly the same height and you get a bar only if the price has moved at least one tick from the previous bar, no matter how long that takes and regardless of volume. When a price is moving sideways in the same range, the result is a large expanse of empty spaces (that you can fill in with fake "phantom" bars so as not to lose the dates along the x-axis). Constant range bars, like point-and-figure charts, eliminate noise and show only meaningful price moves.

 P&F and constant range bars emphasize a shift in the price *range* as the basis of trading decisions, which is in keeping with the idea of measuring crowd behavior (see Chapter 3). The purpose of the display method is to filter out irrelevant prices to isolate the trends.

P&F analysis is suitable for trading that has a medium-to long-term holding period — weeks and months. The only way to know whether point-and-figure charting is for you is to try it out on your chosen securities and see what gains you would've made, how many trades it requires of you, and so on.

Visualizing What's Important

Technical indicators aim to identify trend tuning points and, if a trend exists, how strong it is. But all charts contain a lot of data that isn't meaningful — it's filler or noise. The standard bar chart has an entry for every day, even when nothing interesting happened. What if you could isolate just the juicy nuggets of price information and forgo the noise?

 Displaying the price only when it makes a significant move is the essence of point-and-figure charting. If nothing noteworthy happened on a particular day, you put nothing on the chart. Because chart events like a breakout or reversal often follow real-world events (breaking news, for example), you can consider the point-and-figure chart to be event-driven.

The point-and-figure method of displaying data takes time to get used to. Some people think that it looks weird, while others take to it like a duck to

Some people think that it looks weird, while others take to it like a duck to water. Stick with it, though, and you can easily get the hang of it.

Putting each move into a column

In point-and-figure charting, you put a price entry on the chart only if the price is higher than the previous high by a certain amount or lower than the previous low by a certain amount.

When a price is going sideways — not making a new high or low — nothing is happening in the security, and you enter nothing on the chart.

For a new high that is higher than the previous high, you enter an X. For a new low that is lower than the previous low, you enter an O. You place the Xs and Os in a column that represents a continuous move, either up or down. The point-and-figure chart contains alternating columns of Xs and Os, where each column is a move. A column of Xs is an upmove and a column of Os is a downmove. Each X column is reserved for rising prices and each O column is reserved for falling prices.

Say you're considering a security whose price has been rising. The high today is $9. You start a new chart and enter an X next to the $9 label on the vertical axis, as I've done in Figure 15-1 . The next day, the price high is $10, so you enter an X *in the same column* at the $10 level. When the high reaches $12 the next day, you add two Xs to denote the move from yesterday's $10 to today's $12. You keep adding Xs in the same column until the price climb ends. In the example in Figure 15-1 , the price stops climbing at $13. You see a column of Xs that represents the price rise from $9 to $13 in a single move.
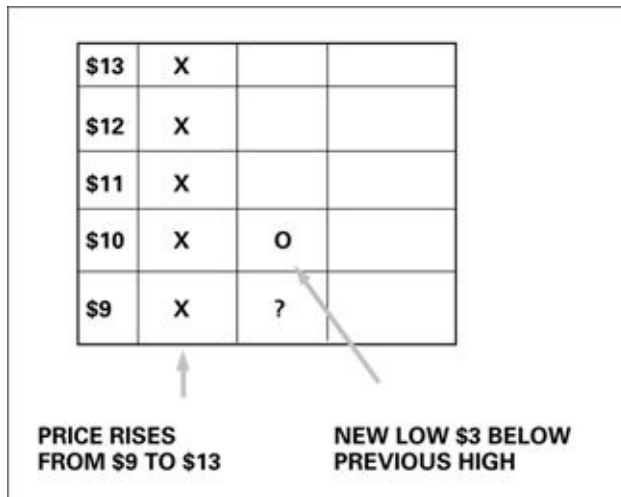
Figure 15-1: Point-and-figure chart format.

When the upmove is over and the price makes a new low below yesterday's low by a specific amount, you *must* start a new column, using an O and placing it at the dollar level of the new low. (I tell you more about this topic in a minute in the "Defining box size" section; for now, consider that the new low suffices to consider that the upmove is over.) Figure 15-1 tells you that the new low came at $10. You now expect the next entry to be another O where the question mark is placed on the chart. Whatever happens next, the formation of a new column alerts you to a change in the price dynamics.

REMEMBER Each column on the chart represents an upmove or a downmove, regardless of time. On a daily chart, a column can represent 2 days, 10 days, 100 days, or any other number of days. You start a new column only when the last directional move is over. On the chart in Figure 15-1 , you have an upmove from $9 to $13 and thus five Xs, but that doesn't mean it took five days. It may have taken 30 days, because on days showing no new high, you skipped over that price data and did not make a chart entry.

Most P&F software exhibits dates at the bottom of the chart along the horizontal axis. These dates aren't spaced evenly at regular intervals because they are in the usual chart format. In fact, the dates are there only for convenience — they don't actually measure time because in point-and-figure charting, the date is irrelevant and only price action matters.

Dealing with box size

Dealing with box size

The *box size* is the minimum amount that the security needs to move above the recent highest high (marked by the last X) or below the lowest low (marked by the last O) before another entry is made on the chart. The following sections discuss how to get the box size right in P&F charting.

Defining box size

The horizontal axis suppresses dates and compresses time, but the vertical axis is spaced in the conventional way. In the days when traders used actual graph paper, they filled in the little boxes of the grid with the Os and Xs set at some appropriate dollar amount, such as $.50 or $1. In futures markets, traders use the number of points corresponding to dollar amounts. The choice of spacing on the vertical axis is still called the *box size*, even if you're using a computer program and not actual graph paper.

When your security has a highest high of $10, for example, and it regularly varies by $.50 per day, you might set your box size at $1. If today's new high is $12, you acknowledge that this is a price extreme — four times the usual daily trading range — and deserves a new X in the X column. In fact, in this case, the new high is a full $2 over the last high, so you fill in two $1 boxes with the X notation. What happens if the price changes by $.98? Nothing. The new price is close to the box size of $1, but close doesn't count.

Choosing a box size

When you select a small box size, you're asking to see a lot of detail, including small retracements. By increasing the box size, you're filtering out filler data, just like when you make a rule that requires a price to cross a moving average by *x* percent (see Chapter 12 for a discussion of filtering).

The smaller the box, the more sensitive the chart is to price changes. The bigger the box, the less sensitive the chart is. If you're risk averse, you may prefer a small box size. If you want to see the big picture, you prefer a bigger box. Table 15-1 contains the standard box-size guidelines.

Table 15-1 Approximate Guidelines for Box Size

Security Price	Box Size

$5–20	$.50
$20–100	$1
$100–$200	$2
$200–300	$4
$300–400	$6

If you leave a charting programs in default mode, the program will adjust the box size to fit the screen. You could get a box size of $0.67 or some other arbitrary number. Box size is too important to leave to a program if only because other traders are using a standard round-number box, like $.50 or $1. Besides, software adjusts box size to accommodate the amount of data you select, so you get different point-and-figure charts (and hypothetical trading decisions), depending on how much data you display. The software uses the box size that fits the highest range in the data series in order to get everything on one chart. But the trading range of any single security changes over time, and you want to take note of that rather than let software obscure the changing range. If you use P&F charting software, fix the box size so you know whether the range is expanding or contracting.

Adding the reversal amount to the picture

The purpose of the box size is to note a significant change in price. But how do you know how far a price has to move below the X (upward) column to warrant starting an O (downward) column? For that, you establish a second criterion, the *reversal amount.* The traditional reversal amount is three boxes. If your box is $1 and you're now in a rising X column, you have to get a new low that is $3 lower than the low today to start a new O (downward) column.

You can backtest a variety of box sizes and reversal amounts to arrive at the best numbers to use for any particular security. As a general rule, though, point-and-figure chartists recommend sticking to the three-box rule for reversals and adopting different box sizes for chart entries, depending on the absolute level of the prices.

A box size of $4, the appropriate box for a security selling over $200, with a three-box reversal, works out to $12. If you have 100 shares, you would exit on a reversal of at least $1,200, which is a fairly hefty sum of money. If you use the three-box reversal as a stop level, you have to accept that big a loss when the price goes against you. If you judge that $1,200 is too big a loss to take on a single position, you can trade a smaller number of shares (an odd-lot) or switch to a cheaper security.

Drawing the daily chart

To draw the chart, every day you check the highest high and lowest low of the day. Is the price higher than the previous high by $1? If so, enter another X above the last X in the column. Is the low lower than today's low by $1? Enter nothing. By $2? Again, enter nothing. By $3? Aha! That's three boxes worth, the reversal amount, and you start a new column, entering the O at a level $3 below the last X. Because it's a reversal, now you expect the next entry to be one box lower. The next day, is the low price lower than yesterday by $1? If so, enter another O. If it's higher, it has to be higher than today's high by $3 to abandon the falling-price O column.

If you see a lot of reversal columns that contain only one entry, chances are your box size is too small — or your reversal amount is wrong.

What if you get a new high by one box and on the same day, also get a new low by the reversal amount — three boxes? This is an *outside* day (see Chapter 7). The new low trumps the new high, and you should start a new column of Os. After all, you're looking for a threat to the trend (and your pocketbook). A new low by the reversal amount constitutes a serious threat.

Applying Patterns

Patterns pop out on point-and-figure charts. Some of the most common

patterns include support and resistance, but also simple patterns like double and triple tops and bottoms appear. This section shows how to use them.

Support and resistance

Point-and-figure charting offers two versions of support and resistance: The horizontal historic-level version I describe in Chapter 6 and the conventional version that slopes along a series of highs or low, discussed in Chapter 10 . Here I talk about both types:

Horizontal support and resistance

In Chapter 6 , I talk about the historic high or low. Traders remember the highest high ever or the lowest low in the past three months as benchmarks when the price approaches the same level. In point-and-figure charting, the horizontal line that you draw to mark the top or bottom of columns becomes a kind of recent-history support or resistance. Therefore, you often get a series of columns that all end at a floor or a ceiling, regardless of whether they're Xs or Os. Floors and ceilings are very handy both for spotting a breakout and setting a stop.

In Figure 15-2 , the top-left chart shows a breakout X above the resistance line. Using conventional charting, you wouldn't have known that line was there unless you were on the lookout for historic highs and lows. But point-and-figure chartists draw them all the time to denote where supply becomes abundant or demand falls short, halting a price rise.
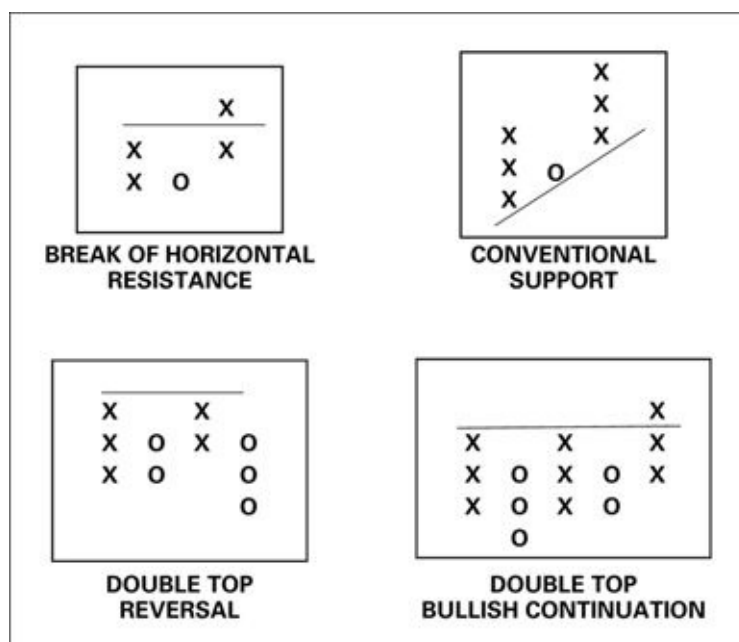
Figure 15-2: Patterns on point-and-figure charts.

Conventional support and resistance

On a standard bar chart, you draw a support line along a series of lows or a resistance line along a series of highs (see Chapter 10). These lines almost always have a slope that describes the trend and are hardly ever horizontal except in a consolidation. You can draw sloping support and resistance lines on point-and-figure charts, too.

> You trade point-and-figure support and resistance the same as you do when using conventional support and resistance — a breakout to the upside triggers a purchase and a breakout to the downside triggers a sale. As with conventional support and resistance lines, don't erase a support line after it's broken — it has a good chance of becoming the new resistance line. An old resistance line may become the new support line, too.

Because a point-and-figure chart filters out noisy prices and compresses time, your chart often displays authentic long-term support or resistance that you'd miss on a regular daily bar chart. You may also see *triangles,* which are support and resistance lines that converge. Chapter 9 covers triangles.

The top-right chart in Figure 15-2 shows a conventional support line. You

could have a conventional (sloping) resistance line, too. Notice that if your boxes are perfectly square, you can draw a 45-degree line and extend it out into the future by starting with just two columns when one of the columns is one box higher or lower than the other. The 45-degree technique allows you to start a support or resistance line more simply and sometimes earlier than in conventional bar charting. The upward-sloping 45-degree line is named a *bullish support line,* and a downward-sloping 45-degree line is a *bearish resistance line.*

Double and triple tops and bottoms

Double and triple tops are formed when demand falls off as the price nears a previous high. When bulls fail to get a breakout above the established high, it's a pretty good sign that sellers are happy to unload the security at that price. When you get more than one low at about the same level, it's a double or triple bottom, where buyers think it's a bargain, and the price is likely to rise. See Chapter 9 for a discussion of double and triple tops and bottoms.

A double or triple top or bottom can be either a reversal pattern or a continuation pattern in point-and-figure charting, depending on the behavior of the opposite-direction columns. In conventional time-based bar charting, you have to wait for confirmation of these patterns — chewing up time. Point-and-figure, therefore, can speed up the process of helping you decide whether you're getting a reversal or a continuation.

In regular bar charting, a confirmed double top has a high probability of resulting in a price drop. A qualified double bottom leads to a price rise. They're reversal patterns, which you can see in chart form in Figure 15-2 . In point-and-figure, however, chartists find that in an uptrend of Xs, if the intervening Os are on a rising line (the lowest low in the last O column isn't as low as the lowest low in the previous O column), a double top may turn into a triple top and then an *upside breakout* — in other words, a continuation pattern. This configuration is shown in the fourth pattern in Figure 15-2 . If the opposite-direction columns are

horizontal, though, the traditional reversal interpretation is probably correct.

Projecting Prices after a Breakout

Point-and-figure chartists forecast prices after a breakout by using the box count, either vertically or horizontally. However, vertical projections work more often than horizontal projections. The following sections discuss how to make your own forecasts based on point-and-figure chart breakouts.

In point-and-figure charting, you buy when the new price surpasses the highest X in the previous X column, and you sell when the new price surpasses the lowest low O in the previous O column. When the price surpasses a previous high or low, you have a breakout.

Using vertical price projection

Say that your security has just made a double or triple top breakout like the one shown in Figure 15-2 . You want to know how high the price will go. Or your security has fallen to a new low but is now rising up off it. You want to know the potential gain if the bottom is really in and the upmove continues. You know that the price will retrace to the downside over the course of the move, and you don't want to mistake a retracement for the end of the trend. If you have faith in the forecast, you decide to ride out the retracement.

Point-and-figure chartists create forecasts in each case with an ingenious version of momentum. Here's how you can do it:

1. **Find the bottom of the last X (upward) column if you have an upside breakout (or the bottom of the lowest X column if you suspect a reversal to the upside).**

2. **Count the number of boxes in the column (say four boxes).**

3. **Multiply the number of boxes by your reversal amount (see the reversal amount section earlier in the chapter), say the standard three.**

   $4 \times 3 = 12$

4. **Multiply that product by the box size, say the standard $1.**

   12 × $1 = $12

5. **Add the product to the lowest low in the starting column to get your new price target.**

   If the lowest low was $10, you add $12, and your price target is now $22.

   Figure 15-3 shows a sample vertical point-and-figure projection.
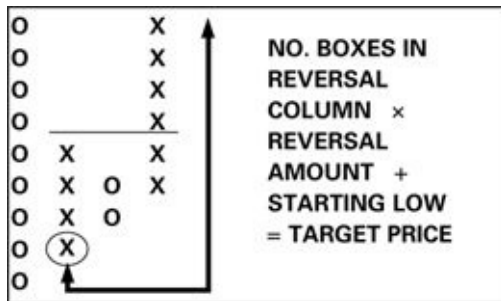
Figure 15-3: Vertical projection.

The price objective is only a guide. The actual new high may fall short of $22, or it may be a great deal more than $22. You don't automatically sell at $22 if the price is still making new highs. But you may want to evaluate the risk-reward ratio in terms of the price projection (the reward) and the lowest low in the starting column (where you may place your initial stop). As I discuss in Chapter 5 , you always want to manage the trade so that the expected gain from a trade is higher than the worst-case loss you allow.

To estimate how far a downmove may go, reverse the process. You start from the highest-high box before the downmove column begins, count the boxes, multiply by three, multiply again by the box size, and voilà! You have an estimate of where the drop may stop.

Applying horizontal projection

You use a horizontal count to project the ending price of a breakout after a period of consolidation. Say the price has been going mostly sideways for some period of time. Yes, it has alternating X and O columns, but your eye can detect a base, or bottom formation. (For a downside breakout, you need

to see a top formation.)

Figure 15-4 shows a base forming after a five-column downtrend ahead of an upside breakout. To calculate the projected price, follow these steps:

1. **Identify the number of columns in the base, which is the sideways period before the breakout. Exclude the breakout column.**

   In this example, say you identify five columns.

2. **Multiply by the number of columns in the base by the reversal amount you choose — say the standard three-box reversal.**

   5 × 3 = 15

3. **Add the product to the lowest low in the base to get a price target.**

   Say the lowest low is $10.

   Now you have a price target of $10 + $15 = $25.
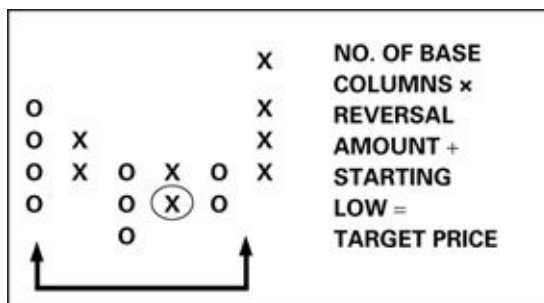
Figure 15-4: Horizontal projection.

Combining Point-and-Figure Techniques with Other Indicators

The innate simplicity of point-and-figure charting is appealing, but you can add value to decision making by speeding up the buy/sell signal or seeking confirmation or lack of confirmation from other indicators. Because other indicators are time based, how can this merger be done?

Here's how you can use point-and-figure charting along with other indicators:

- ✔ **Moving averages:** You use the price at the center of each column in calculating a moving average in P&F charts, instead of the usual method of averaging prices over a fixed number of periods. Thus you are using the average price per reversal. If the moving average shows that you had a downtrend and now you get a new column of Xs that rises over the moving average, you have more confidence that the Xs really do imply a rising trend and thus a safer buy signal.

- ✔ **Parabolic stop-and-reverse indicator:** The parabolic stop-and-reverse (SAR) indicator delivers a speedier reversal than waiting for a new column of Xs or Os. (See Chapter 5 .) The parabolic SAR has the advantage of tightening your stop as the momentum of a price move decelerates.

- ✔ **Bollinger bands:** Data displayed in the P&F format can't display momentum and thus overbought or oversold, a shortcoming that can be partly addressed by applying Bollinger bands (see Chapter 14). If your columns of Xs persist in pressing against the top of the band and sometimes breaking it, you have confirmation of the uptrend. When the next column of Os crosses the centerline (a simple moving average) to the downside, you expect a swing all the way to the bottom band.

  Finally, Bollinger bands are wide apart when volatility is high, and they "squeeze" narrower as volatility dissipates and prices become congested. In a congestion, P&F prices are in a series of short columns that you can't trust to deliver a reliable buy-or-sell signal. When you see the short columns together with the narrow Bollinger band, you can guess that the market is fickle — it's not trending, and you should go find something else to trade.

Constant Range Bars

Constant range bars are also named "momentum" bars because you get a bar only if the price has moved out of its last range. What you are looking for is a mini-breakout from one range to another. Making each bar the same height serves that purpose—the range of each bar is literally constant. Therefore, the open of every bar is either one tick above or below the previous bar, and the close of every bar is always the high or the low. Obviously you can't use

standard bar-reading techniques (see Chapter 6) on constant range bars. And because it's the bar range that is constant, each bar can cover any amount of time at all, from minutes to weeks. Constant range bars have you in the market only when there is a trading opportunity, regardless of the calendar. You can use all the indicators mentioned above for point-and-figure on constant range bars.

Constant range bars were introduced in April 2003 (despite some unverified claims of others having earlier invented them) and are not yet found in every charting software and website. It's interesting that foreign exchange traders, long the leaders in modern technical analysis, have constant range bars available in one of the top FX trading platforms. Stay tuned.

Chapter 16
Combining Techniques

In This Chapter

▶ Figuring out positive expectancy

▶ Discovering your trading style

▶ Looking at complexity

B efore you can combine a selection of the techniques presented in this book, you need to determine whether you want to be a trend-follower with a trading system or a once-in-a-while trader who grabs only the occasional setup.

System trading sounds appealing, but is labor-intensive. Its one lasting benefit is that you always know when embarking on a new trade what the likely outcome will be. *Expectancy* is the term used to define the probability of a trade. How do you get a grip on expectancy if you are just starting out? You can either backtest, or you can practice-trade.

In practice, many traders do not know their expectancies and do trade in what seems like a hit-and-miss way, but succeed in the long run. They do this by intense concentration on repetitive pattern identification.

If trading with one indicator is better than trading with none, combining two indicators works even better. You can add as many indicators to your charts as you can hold in your head or program into your computer.

This chapter surveys some combinations of techniques and offers guidance on the process of putting techniques together to forge a systematic approach to trading. Adding indicators multiplies the difficulty of the trading decision, but can pay off in terms of reducing uncertainty as well as increasing the gain/loss ratio.

Expecting a Positive Result

You should place a trade only when you can say to yourself, "This trade has a high probability of producing a gain." When you apply the rules of

expectancy, your trading style is named "system-trading," meaning that you follow every buy/sell/square rule to the letter on every trade and you take every trade the system dictates. System trading is usually trend-following and usually has you in the market almost all the time, subject to special rules like closing out all positions at the end of every day or other specific risk management adjustments.

Defining positive expectancy

You may think to have "positive expectancy," all you need is to identify a new trend in your security that you confidently expect to continue. You expect to make (say) 10 percent on a security rising from $5 to $5.50 over the next three months. You set your stop so that if it falls to $4.75 instead of rising, your loss will be half the gain you are expecting.

There's nothing really wrong with this picture except that it lacks a basis for setting the target and the stop — they are based on a guess. It may be an educated guess if you have observed this security through many ups and down, but a guess nonetheless. Because you are going to be making more than one trade, you need "positive expectancy" to apply to your entire trading scheme. Remember, indicators are sometimes wrong, and even the most carefully crafted multi-indicator trading system will not save you from some losses. Therefore, "positive expectancy" really is a function of gains minus losses over some minimum number of trades, such as 30 (the scientist's minimum for statistical validity). Here's the formula:

Expectancy = (Probability of Win × Average Win) − (Probability of Loss × Average Loss)

Where do you get these numbers? Well, if you build your own trading system and backtest it, the backtests will give you all the data in the formula. Another way of expressing positive expectancy is

Expectancy = Net Profit ÷ Total Number of Trades

But again, if you are just starting out, you don't have a net profit, let alone a total number of trades. Does this mean you are doomed to backtesting? Not everyone enjoys the process or has the computational skill. And yet, if you start placing trades without some idea of the likely outcomes, you are doomed to never really knowing whether you have positive expectancy — or a negative one. Even the best chart doesn't give it to you; only live, real-time

trading experience delivers the numbers you need to make the expectancy calculation.

The solution is practice trading, either on paper or in a brokerage account that offers practice trading. If you are rarin' to go, practice trading will be frustrating. Every time you make a paper gain, you will kick yourself that it coulda/woulda/shoulda been real money. Get over it. Do your minimum 30 practice trades and then apply the expectancy formula.

For example, let's say your win-loss ratio is only 50 percent, meaning half of your trades were losers. But your initial guess was right: When you did win, you earned the $5.00 expected, and when you lost, you lost only $2.50.

Now, for the 31st trade, this one with real money, you have the following expectancy:

Expectancy = (50% × $5) − (50% × $2.50) = $1.25.

Since your starting capital amount is $5, $1.25/$5 = 25 percent. Bottom line, your expectancy is that you will make 25 percent over time on multiple trades in this security using the technical techniques you have assembled. Note that you won't necessarily make it in the 31st trade, the first one with real money.

Tearing down expectancy

Expectancy sounds like the magic ingredient for cooking up a winning trading plan. And it is, but can be devilishly hard to calculate and apply in real-life trading. Drawbacks include:

- ✔ You have to take every trade your indicators deliver, whether you like it or not. Your chart reading or gut-feel may be screaming that a specific trade is going to fail, but in order to be consistent, you have to take every trade anyway. If you cherry-pick the trades to take only the seemingly most promising ones, you will almost certainly lose out on the big, fat winning trades that gave you the 50-50 win/loss ratio in the first place.

- ✔ Expectancy works only on the security you backtested or practice-traded. Math whizzes say that if a technique works 80 percent of the time on, say, Blue Widget over a gazillion trials, it should work the same (or nearly the same) on Pink Widget. In other words, the probability of the outcome is a statistical measure independent of the quality or character of the security. Even if you also backtested/practice-traded Pink Widget and got identical

results, you may feel in your bones that you should increase the margin of error judgmentally when trading Pink Widget. Don't dismiss instincts like this one. Maybe Pink Widget has lower liquidity or some other characteristic that didn't throw up a hairball in the backtest but is still vulnerable to doing it someday.

✔ Expectancy changes over time. The win-loss ratio changes with volatility and other market conditions. It's always a work in progress. In fact, 30 backtest data sets are not really enough in a disorderly market, and 30 may be too many in an orderly one. If you have a security that exhibits tremendous regularity (because of seasonality, for example — see Chapter 17), it's conceivable that ten trials will suffice. A super-jumpy security may need 50 or 100 trials.

✔ When you discover new techniques, you can't just add them to your analysis toolkit and assume the same expectancy that was developed on the original set of indicators. Strangely, this is one of the biggest obstacles to backtesting or practice trading. It's so time-consuming! And yet not to have expectancy is to be nonsystematic and to take unquantified risk.

Developing a positive expectancy of gain is not the same thing as having a "high probability trade." There is no such thing as a high-probability trade. Trades can go wrong because of events that you cannot foresee or control. The market could go into a prolonged range-trading period, or crash, or rally like a banshee. The only time you can use the high-probability label is when you fix the stop and target at trade entry, and the high probability applies to the stop as well as the target. You *will* get one or the other.

Enhancing positive expectancy by entering gradually and exiting at once

In practice, you can enhance profitability by scaling into the trade, or adding to your position as additional indicators confirm the trade and your gains start accumulating. Say you have $5,000 to place on your security and five indicators. You start by placing a portion of that capital ($2,000) when the first two indicators signal buy. Then you place additional lots of $1,000 as

each of the next three benchmarks is reached, until you have 100 percent of the capital allocated to the trade. One commonly applied idea is to scale in after the price tests support and bounces off it to the upside.

When you get your first indication that the trend is ending, you exit all at once. Scaling in but exiting all at once is a controversial money management technique, although many gurus claim it is the secret of their success. But before rushing out to use this idea, consider that the signals that affirm continuation are second-tier signals (or they would have come first). Often they aren't actually buy/sell signals in their own right, although you feel comfort that they provide confirmation. And don't forget that scaling in gradually and exiting all at once gives you an arithmetic problem in terms of nailing down the actual win-loss ratio and thus the new, ongoing expectancy.

Trading with Limited Expectancy: Semi-System, Set-up, and Guerilla Trading

If you are going to be a system trader, you need to know the expectancy of your system — and you need to trade the backtested securities all the time using the exact indicators that generated your gain/loss history. System trading is the pinnacle of high-end, disciplined trading found among some sophisticated individuals, small firms, and hedge funds. But not everyone has the resources, including patience, to engage in full-bore system trading.

Instead of an arithmetically precise expectancy, you may find that limited expectancy is good enough. You still have to sit down with a piece of paper or a spreadsheet and perform the expectancy calculation, even if you used indicators not in your usual toolkit on some trades or applied nontechnical judgments. Nontechnical judgments are called *discretionary* . Among professionals, discretionary managers outnumber system managers by a large amount. Discretionary managers cherry-pick trades, add or subtract technical indicators, consider nontechnical factors, and are vulnerable to emotion — the very thing you are trying to avoid. By definition, you cannot backtest discretionary trading systems. But you can determine expectancy with any trading history, even if it's not exact.

Discretionary trading can be successful and the limited expectancy you get from a discretionary trading history may be valid because *we learn* . Popular author Malcolm Gladwell (*The Tipping Point, Outliers* , and other best-sellers) writes that expertise arises from a minimum of 10,000 hours of practice at a specific task. This is why occasionally adding an extra indicator or overriding an indicator signal may be the right thing to do in terms of making a profit and avoiding a loss. After all, your goal is to make money, not to have a beautiful system.

In fact, at an extreme of nonsystematic trading, some successful traders use no indicators at all, at least not pre-determined indicators applied on a chart. By sheer force of having observed the prices of a single security all day, every day for many years, the trader gets a feel for the price action. What the intuitive trader is doing can be taken apart and expressed in technical analysis terms, although it would be a difficult and laborious process. The intuitive trader builds a subconscious system from the ground up, while the technical trader builds it consciously from the top down.

So, should you build a trading system? If you want reliable and consistent results over a long period of time, yes. But you must be prepared to invest a lot of time and computational capital performing backtests and determining your risk-reward preferences. We know more than one academic who backtests an ever-evolving system for decades to contain every possible contingency — but never actually places any trades.

To combine discretion with indicator-based trading, your options include semi-system trading, set-up trading, and guerrilla trading.

Semi-system "discretionary" trading

In semi-system trading, you have an indicator system that generates buy/sell signals and you know the associated expected gain/loss from the system, but you cherry-pick the trades and change the buy/sell signal using nonsystem indicator or factors from outside the system altogether (such as fundamentals). Generally, cherry-picking is used to avoid losses when a buy/sell signal is weak, or a big news event is pending that experience tells you means the average range will likely expand (and raise the risk of your stop getting hit). You enlarge your stop to be greater than usual to get past the event without having to exit on a normal-sized stop.

Logically, you might better have more indicators, or different indicators, than

to fiddle with the proper application of your system. But adding or changing indicators to get new win/loss stats is tremendously time-consuming. Besides, the right thing to do if you are fiddling with a system is just to get out — go square — until you feel higher confidence.

This brings up an important point about backtesting or practice-trading testing. To test properly, most software requires you to be in the market long or short on specific indicator readings. You have to work quite hard to embed squaring rules. The very nature of a buy/sell system is that it contains a bias to be in the market all the time. To be square is to be indecisive, and the very nature of a buy/sell system is to deliver a trading decision.

It's fairly easy to combine indicators to create a buy/sell system but devilishly hard to fold in squaring rules. Some systems are buy/sell only with no squaring rules for exactly this reason — it's so hard to build them. In the absence of squaring rules, though, you are at risk of overtrading — swinging at every ball that comes over the plate but hitting only a small percentage and counting on the occasional home run to generate your good win/loss stats.

The squaring problem has another pernicious aspect — reentering in the same direction after your stop has been hit. This is called the *continuation rule* problem. Should the rules for reentering in the same direction trade be the same or different from a first-time entry? Traders and statisticians alike quarrel about it. Allowing yourself discretion in this circumstance is a key reason system traders slip into discretionary trading in the first place. It's probably safe to say that most discretionary traders started out intending to be pure system traders but then encountered contingencies not really covered by the system, like the continuation problem. See Chapter 3 on contingencies. A surplus of contingencies is probably why academic system-builders can never finish their systems and start actually trading.

Solving the squaring problem — setups

Setup trading is a popular form of swing trading that many self-styled gurus are marketing today. You identify a specific bar configuration, trade it, and get out. Because you are in the market only to take advantage of the setup configuration, you no longer have to worry about being square — being square is your natural state of affairs, and you are square most of the time. Instead of having a buy/sell system, you have a strategy of trading only the setup.

A *setup* is a particular configuration of bars, usually with one or two other confirming conditions like a pattern or an indicator, that delivers an expected outcome in a high proportion of trades. Candlestick trading can be considered setup trading, too (see Chapter 8).

A simple but effective one-rule concept is to buy when the price moves above the range established in the first *x* number of minutes of trading. This idea was invented by fund manager Toby Crabel, the author of *Day Trading With Short Term Price Patterns and Opening Range Breakout (* out of print*).* Crabel calls this strategy the opening range breakout, and it's a volatility breakout setup. With the opening range breakout, you can improve the odds of getting a successful trade by adding one or more confirmation qualifiers, such as:

✔ The preceding bar was an inside day or doji (see Chapter 8).

✔ The x-minute opening range over the past three to ten days was narrowing (see Chapter 14).

✔ The opening is a gap from the day before (see Chapter 7).

Figuring out why setups work

Setups generally win by entering very early in a move, unlike systems based on indicators that await confirmation from always-lagging indicators. Setups usually have catchy names (like *pinball* and *coiled spring*). Do these setups work? If you identify the setup correctly, yes, the price does often behave in the predicted manner. Unfortunately, statistics on exactly what percentage of the time they do work don't exist, but experienced setup traders say that setups work often enough that early entry delivers the edge.

One benefit of setup trading is that you can be out of the market until you spot a setup situation. You take no risk when you're out of the market. Many setup trades are intraday, where you enter and exit the trade on the same day. Other setup trades are more long-lasting because they lead to authentic trends that you stick to until your exit rules or stop is hit. In the next section, I describe some aspects of trading setups.

Getting an efficient entry

A setup identifies the conditions that precede and accompany a price move, giving you a head start in entering a trade. When you correctly identify the

setup, the price goes in your direction immediately. And when a strong move begins, the first few minutes, hours or days can account for 25 percent or more of the total move. That's the thrust or impulse aspect of new moves.

The key to setup trading is early identification of a trading opportunity and thus early entry. As a general rule, your goal as a setup trader is to take a profit bite out of a move without necessarily having a position over the entire move, like a system trader.

Using ruthless exits

Efficient entries and ruthless exits are the hallmark of setup swing trading, but being quick on the trigger doesn't imply that the trader is a wild-eyed risk taker. Quite the opposite. Risk management is the key feature of setup swing trading and thus may be appropriate for beginners. You must

- *Never* give up profits by sitting out a retracement (as you often do when trend-following).

- Absolutely, positively use stops and keep them updated. All good traders use stops — if you can't bring yourself to obey stops, setup trading is not for you.

- If the setup succeeds, you keep moving your stop to secure each new level of gain. Generally you hold until the price moves against you by some specified amount, usually a dollar amount. Sometimes setups are so short-lived that an initial stop is all you need and you are not in the trade long enough to use a trailing stop. Setup trading can be hit and run.

Setup drawbacks

Setups may sound ideal for a newcomer to technical trading, especially the part about being out of the market a lot of the time, but setups have their own drawbacks. The top one is that setup trading requires intense concentration. In system trading, you can place your orders and walk away — your stop and profit-target orders will keep you safe. But setup trades must be watched.

- A setup that you like may not appear every day or even every month. With a small universe of securities, you'd have to memorize a dozen setups if you want to be in the market much of the time. If you like only

one or two setups, you have to monitor a large universe of securities.

- ✔ If you focus on setups to the exclusion of all the other technical concepts, you're at a loss for what to do when setups don't appear.

- ✔ To find your favorite setups, you have to scan a list of securities, and the best setups may appear in securities that you wouldn't touch with a bargepole on a fundamental or value basis.

- ✔ Setups require intense concentration and often the ability to trade actively during market hours. If you have a day job, this task can be impossible.

Guerrilla trading

Guerrilla trading is setup trading on adrenaline. Trades are very short-term, usually lasting only a few minutes and targeting only a few points of gain — but repeated over and over during the same session so that a few points per trade can add up to quite a lot over the course of the session. Because targets are tight to the entry, stops are even closer and often hit on pure randomness.

Guerrilla trading is often concentrated around earnings announcements, as in the case in Chapter 4 , or scheduled news releases where the trader pounces on the market response. The guerrilla trader cares nothing about what the fundamentals mean, or about cycles, trends or even indicators — the only indicator he needs is an initial price response that he can ride for a few minutes. In the normal course of every response to a news event, prices wax and wane, so the guerrilla trader can often do the same trade repeatedly on the same news. All that is needed is speed and an itchy trigger finger.

A sub-set of guerrilla trading is algorithmic (algo) trading, where it's a computer that identifies the first response to an event (sometimes just the opening), and the speed is measured in milliseconds, not minutes. It's debatable whether algorithmic trading is a form of technical analysis. We say it probably qualifies, on the grounds that the decision tools embedded in the computer program use positive expectancies to determine the trades. Algo trading is thus systematic and based on price moves predicting future prices moves.

Adding a New Indicator: Introducing Complexity

A single indicator (like a 55-day moving average) will improve your gain/loss ratio. But because even the best indicator fails sometimes, it's better to create a trading rule that uses a second indicator, filter, or pattern to provide confirmation.

But which two indicators should you choose? Or should you choose three, or four, or more? Because technical analysis has produced thousands of stand-alone indicators and patterns, the number of possible combinations and permutations is humungous. By the time you add time constraints, such as "Buy 30 minutes after the open (or high or low or close) if *x, y,* and *z* occur," the number of potential trading rules in the millions.

Adding a new indicator piles on complexity and can get tricky. When you combine indicators, they often contradict one another. One indicator says buy, while a different indicator says sell. This conflict is very common.

The price of your security, for example, crossed above its moving average and you bought it. The trend has been in place for a while. Now a momentum indicator like RSI or MACD is signaling that the security is overbought and will retrace. You don't know if the retracement will be minor or become a full-blown reversal. You know that the moving average lags the price action — no help there. Do you accept the sell signal from the swing indicator?

No single correct answer exists. Sometimes momentum indicators are wrong, and the retracement doesn't occur at all, leaving you with the problem of where to reenter your trend, which is running away without you. But even after the most exhaustive backtesting and observation, you still are wrong some of the time no matter which decision you make. The purpose of combining indicators is to improve the odds of being right about the next price move, but you will never be right 100 percent of the time.

The only way to know whether two or more indicators work well together is to backtest them together, with the trading rules meticulously stipulated. Testing a single indicator is easy. Testing multiple indicators and rules for various contingencies is hard work and often raises more

questions than it answers. And many people don't have the time or aptitude for backtesting. In that case, at the least take the time to observe the indicators on the chart and estimate how well they work together. After reading the following section and some practice, you should be able to see matching signals, divergences, support and resistance, and patterns. Expert traders say, "Trade what you see on the chart," and it's good advice.

Choosing a ruling concept

You have to choose a ruling concept. Making that choice establishes whether you are a trend-follower or a swing trader, or if you are a swing trader through and through, how fast and how frequently you want to trade.

Switching indicators, even in mid-trade, is okay if you see something compelling on the chart — as long as you appreciate that you're changing your trading plan. To override your ruling concept is like abandoning your date at the prom when you spot a prettier girl. You can't evaluate an indicator properly if you don't apply it consistently, and you can't evaluate your skills as a trader if you switch focus. But at the same time, your ultimate purpose in trading is to make money, not to prove that your indicators are valid. Just be aware that you may be taking more risk when you adopt a new technique that you have not used before or backtested. If set properly, your stop can save you if your embrace of a new indicator goes south.

For example, your security may be on a rising trend when suddenly you notice a candlestick, like a hanging man (see Chapter 8), that is a big warning and decide to exit early even though your indicators are not signaling a sell and your stop is still far away.

Figure 16-1 shows another example. In this case, you are using the Donchian 5/20-day moving average crossover (buy when the 50-day crosses above the 20-day and sell when it falls below the 20-day). You get a sell signal. A little later, the price bounces and you get a buy signal followed in a few weeks by another sell signal — a whipsaw. But before then, you can't avoid noticing the double top, even though pattern recognition is not one of the indicators in your toolkit. But it's the gorilla in the room on this chart, so you run right out

and research it. The rule in double-top analysis is that after the confirmation point is reached, the price often pulls back above it before resuming the downtrend, giving you a better opportunity to go short. This time you follow the double-top rule and avoid the moving average-generated whipsaw. Pattern recognition served you well.
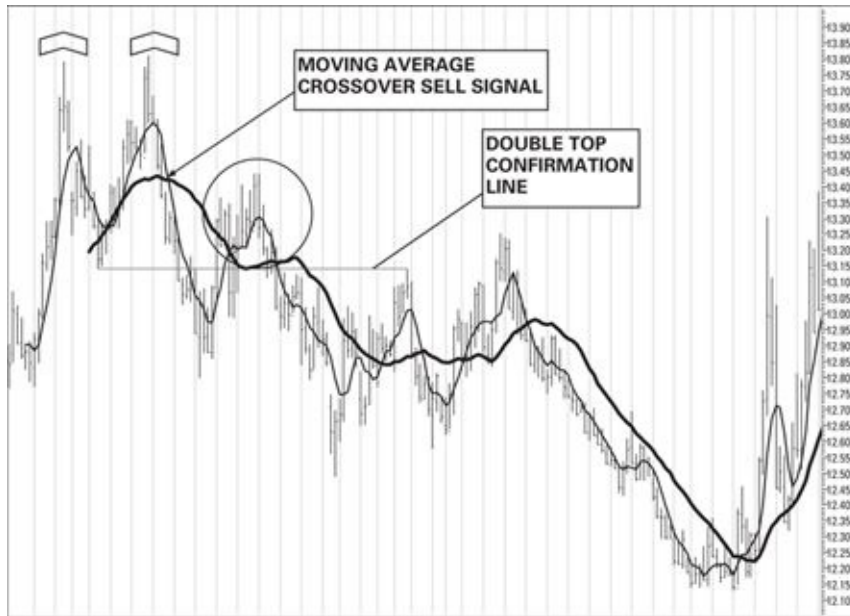
Figure 16-1: Trade what you see.

A wide knowledge of indicators can help make your trading more adaptive and flexible. But it's human nature that when you have a hammer, everything looks like a nail. Beware of imagining double tops on every chart after the successful trade exemplified in Figure 16-1 and beware of believing that every double top delivers this outcome. A series of successful trades on a single indicator doesn't make it a magic indicator that always works. I can't say it often enough — no indicator works all the time.

Studying a case in complexity

By studying the case I present here, you can see choosing your indicators can make all the difference. You start with a classic moving crossover but you know it entails late entries and lower profits, because moving averages are lagging. To improve the moving average system, you add two additional indicators:

✔ You want to enter earlier, so you add a momentum indicator.

✔ You want to exit closer to the high, so you also add an overbought indicator (a sentiment indicator).

In Figure 16-2 , the main window shows the primary trading concept, a moving average crossover. You buy when the 5-day moving average closes above the 20-day moving average (the thicker line) and sell when the price closes below the thinner 5-day moving average. To identify the entry sooner, you jazz it up by adding a momentum indicator at the bottom of the chart that tells you when momentum is on the rise, giving you an earlier entry than the moving average by three days. At the top is a different momentum indicator (relative strength) telling you when the price is coming down off an overbought level. This gives you an exit one day earlier.
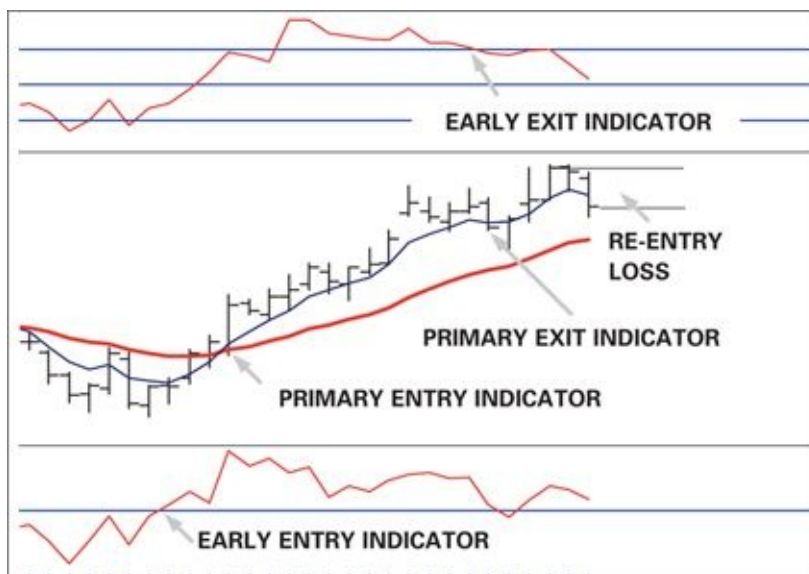
Figure 16-2: Confirming indicators.

Using the moving average alone makes you a profit of $2.51 in three weeks, but when you accelerate the entry and exit by using the additional indicators, you boost profitability by over 50 percent, as shown in Table 16-1 .

Table 16-1	Indicator Trading Results		
Indicator Trading Rule(s)	Buy	Sell	Profit
Moving Average Concept	$64.35	$66.86	$2.51
With Momentum and Relative Strength	$63.38	$67.32	$3.94

At a glance, the case in Figure 16-2 seems to be a successful integration of three indicators that accelerates entry and exit and makes you more money. But in reality, you may have opened a can of worms. The following are some examples of problems that can arise when you combine indicators.

Trading decisions multiply exponentially

Indicators add up arithmetically, but trading decision complexity multiplies exponentially. For example, what if the momentum indicator gives you a false reading? As I mention in Chapter 4 , indicators are wrong a lot. In the example in Figure 16-2 , the early entry worked, but plenty of times it doesn't. You need an exit strategy — a stand-alone, stop-loss rule — for that early entry when it's incorrect. The best rule for this type of situation may be to exit when you lose a specific dollar amount or percentage of capital at stake.

Concepts can mirror each other

The purpose of using multiple indicators is to get confirmation that a signal is likely to be correct. Obviously, if you're using a momentum indicator, you don't get independent confirmation from another momentum indicator, because they're both using the same conceptual principle.

In the case of Figure 16-2 , the confirming indicators look almost identical. And they are! Technical writer Tushar Chande studied the correlation among various momentum concepts. He found that momentum and the relative strength indicator shown on this chart (Mr. Chande's own version) are over 90 percent correlated, meaning they move in lockstep. (See Chapter 13 for a discussion of all the guises momentum can assume.)

Concepts sometimes clash

Two or more concepts don't always play well together. For example, see Figure 16-3 . The stochastic oscillator, momentum, and MACD are all used to improve the timing of entries and exits. On this chart, you have a sell signal from the moving average crossover. You use a trailing stop-loss based on the average true range (see Chapter 5). It gets hit. Should you exit? Dumb question! Of course you should exit. You should always follow your stops.

But after the exit, now what? Look at the stochastic oscillator. It says not only should you exit the short position, but you should buy. The two moving average crossover does not confirm, and momentum in the next window is wavering around the center buy/sell line and doesn't deliver a hard decision. MACD in the next window has a crossover to the upside but the entire

indicator remains under the bull/bear line. This situation suggests a trend change might be coming (or might not).
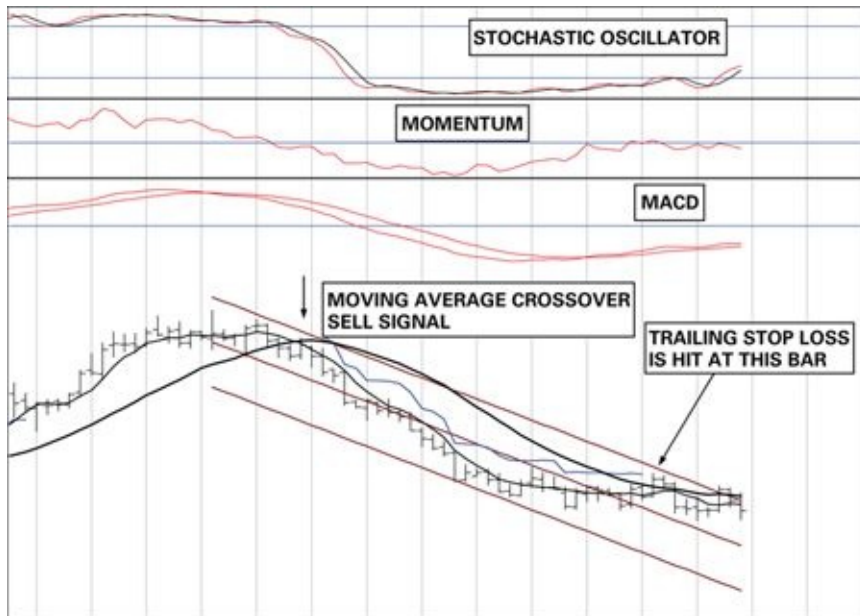
Figure 16-3: Conflicting signals.

Reconciling clashing indicators can be solved, at least in part, by either exiting and waiting, or adding another indicator, such as the linear regression channel, Bollinger band, or ATR band so see where the current price fits into the bigger scheme of things.

When looking at multiple indicators, add up the ones that say buy, the ones that say sell, and the ones that say "stay out" or are hard to read, and go with the course of action that has the *preponderance of evidence* on its side. You seldom have a trading decision that is proven beyond a reasonable doubt, and so preponderance of evidence is the reasonable course.

Oddball combinations are not that odd

In practice, no combination is oddball. Any combination that works on *your* securities in *your* time frame is acceptable. I know one trader whose setup consists of the divergence of support and on-balance volume in a very short time frame (minutes, in fact). It's 90 percent reliable — amazingly good.

Moving averages and momentum are basic indicators that many traders use,

and not "beginner's indicators" at all. But some traders use other indicators altogether, such as combining pivot point lines with candlestick interpretation to get viable trades, complete with stops. Other traders use Fibonacci counts to figure out where the price lies in the wave continuum. Even traders who know Fibonacci counts are unproven may use Fibonacci or Gann retracement levels to guess where to place a stop.

Use the KISS approach — keep it simple, stupid. Especially if you are a novice at technical analysis, don't add too many conditions and try to account for every contingency. And of course you are either backtesting or practice-trading first (right?), in order to obtain your expectancy reading.

Sailing into Outer Space

If you research trading system or regimes for sale, you will see some wild and crazy stuff. Here are two system designs that should entrance you.

The Conquistador

The "conquistador" was devised by one of the pioneers of technical analysis, Bruce Babcock, author of numerous books including *The Dow-Jones Guide to System Trading* , and later refined by another super-smart designer, Nelson Freeburg, publisher of *Formula Research* newsletter. The core concept is to buy a security — Conquistador was designed for currency futures but can be applied to other securities — when indicator conditions are met in three timeframes. In other words, you get confirmation not from a second indicator of a different statistical nature, but from the same indicator viewed from a different angle.

The system is simple: You buy when

- Today's close is over the ten-day moving average **and**
- Today's ten-day moving average is over the ten-day moving average ten days ago **and**
- Today's close is above the close 40 days ago.

Sell conditions are met when the closes and averages are below the benchmarks. Trailing stops are used using the average true range principle, like the Chandelier exit discussed in Chapter 5 .

The virtue of the three-timeframe confirmation is that you are out of the market in sideways range-trading conditions. Since you aren't looking at any of the momentum indicators, you can't be tricked into seeing trend strength emerging — you have to wait for it to be proved. I have used the three-timeframe idea since 1994, albeit using hours and not days, to achieve a tremendous reduction in whipsaw losses.

The virtue is also the drawback — you will be out of the market a lot of the time. In Chapter 1 , I say that experts disagree on how often securities are trended vs. untrended. If you use the three-timeframe method, you will be able to calculate the trendedness of your securities for yourself.

Everything but the kitchen sink — Ichimoku with a standard error channel

Ichimoku Kinko Hyo was described by Japanese writer Goichi Hosoda in 1969, from work done by traders in the 1930s, although the work was never published in English. Ichimoku translates roughly as "glance"; Hosada was seeking a one-look summary of trendedness that includes momentum and trading decision points built in.

Ichimoku starts with two moving averages, a 9-period and a 26-period, calculated on the mid-point (high *plus* low *divided* by two) rather than the close. This is starting to resemble a pivot idea, right? (See Chapter 11 .) When you subtract the shorter moving average from the longer one, you get one surface of the cloud, the senkou span A or top-leading edge (see Figure 16-4). To get the lower boundary of the cloud, you use the mid-point of the 52-day high-low range plotted 26 periods into the future. This is senkou span B. The cloud itself is named *kumo* . If you think about it for a minute, you can see that a fat cloud means a wider high-low range in recent price movements, or volatility. A fat cloud also implies stronger support or resistance, something we do not get from any other support/resistance indicator.

Stay with me — there's more. Finally, we add the chikou line, which is today's close plotted 26 days into the past. This is hard to understand but ichimoku traders swear it's the most important thing on the chart. As long as

the chikou is above the price bars, you are confident market sentiment is still bullish, but when it starts poking down into the bars, sentiment is turning negative. Think about downward poking for a minute — it means today's price is lower than prices over the past 26 days. The drop hasn't reached the moving averages yet and thus not the cloud, either, but you can see "at a glance" that sentiment is shifting.

In Figure 16-4 , you can see that at Point A, the price is breaking above the cloud, giving you a buy signal. The cloud breakout coincides with the price rising back inside the standard error channel, a confirming indicator. The price rises over the two moving averages at a steep slope — this is momentum.

Ichimoku gives clear signals when prices are clearly trending and a tangle of lines when prices are not trending for an instant read on trendedness. When prices are above the cloud, the top of the cloud is support, and when prices are below, the bottom of the cloud is resistance. Notice that on Figure 16-4 , the top of the cloud would serve as a faster stop than the channel line. But also notice that the chikou is higher than everything on the chart. In fact, it exceeds the channel top, which probably means the price was overbought. But now, the last three bars all have lower lows and lower closes. The very last close is at the chikou line (naturally, since it's the same number time-shifted backward). You can chose to draw a horizontal line as on Figure 16-4 to show a decision line after the three lower closes, a personal judgment. This forms a stop.
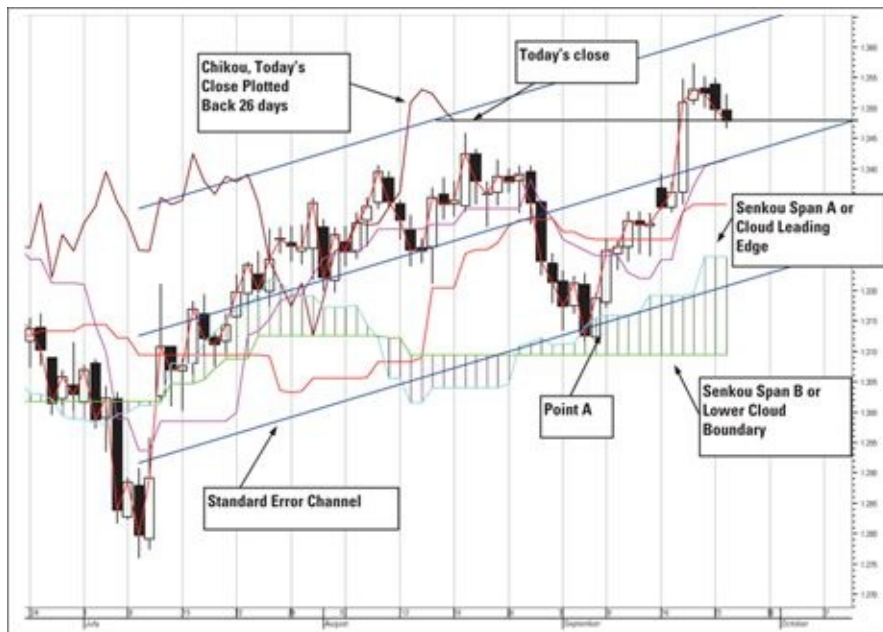
Figure 16-4: Ichimoku with the Standard Error Channel.

The trading rules for using ichimoku include the following:

✔ Buy when the 9-day crosses above the 26-day, and sell when it crosses below.

✔ Buy when the price rises above the cloud, and sell when it crosses below. In fact, you can consider the body of the cloud to be two forms of support or resistance.

✔ Buy when the chikou crosses above the close, and sell when it crosses below.

Ichimoku contains just about every technical concept in this book — trending, momentum, support and resistance, pivots, trend reversal, stops — everything but the kitchen sink.

Chapter 17

Cycles and Waves

In This Chapter

▶ Introducing business and financial cycles

▶ Assessing seasonality

▶ Conjuring magic numbers

W e know that economies exhibit cyclicality and so do financial systems, usually described roughly as *boom* and *bust* . Many academics, private organizations, and central banks do extensive research on cycles. Technical analysts want to understand boom-bust cycles to get a trading advantage, but are cycles regular and consistent enough to make the effort worthwhile? In this chapter, I do a quick review of business and financial cycles and explain why understanding cycles is useful for Big Picture perspective, but technical analysis is a whole lot easier for making trading decisions.

One aspect of cyclicality, though, is seasonality, and there the historical data and statistical analysis is on our side — there is consistency and regularity to add to our edge.

Looming over both cycles and seasonality is the issue of whether there is some giant mystical order in the universe that dictates financial price movements. I look into magic numbers with a skeptical eye.

Defining a Cycle

The economic cycle is the process by which an economy (and the businesses in it) expand, reach a peak, and then contract and go into recession. They do all this in a wavelike pattern around a growth trend, generally measured by the gross domestic product (GDP), which is the sum of all the goods and services produced in a country in a specific period of time. Economists have been trying to pin down the economic cycle for over two centuries. So far there have been a super-long cycle — the Kondratiev wave of 45 to 60 years; the infrastructure cycle of 15 to 25 years; the business cycle of 5 to 7 or 7

to10.5 years; and the inventory cycle (another business cycle) of 3 to 5 years.

There are also land/real estate and agricultural cycles. For U.S. land, there's been an average 18-year cycle between 1818 and 2006, but the average disguises a range of 6 years between peaks and 48 years between peaks. To an economist it's still a "cycle" but the practical application for a trader is lost when the peak-to-peak could be 6 years — or 48.

In agriculture, cycles are determined by export prices and by the cost of borrowing. Boom-bust cycles in U.S. agriculture are shaped by exports into a global economy with rising populations, so that rising domestic farm incomes lead to capital investment in land and equipment. To the extent farm expansion was fuelled by borrowed money, busts are correspondingly harsher, especially those experienced in the 1920s and 1980s.

Oh, dear. Now we are getting into a quagmire. If there is an underlying order to economic boom-bust cycles, evidently it can be disrupted by weather, war, demographics, government interference like subsidies, banking sector credit policies, and monetary policy, and not just in the home economy.

Financial cycles

The financial cycle follows the economic and business cycles but with the addition of something new — risk management. The financial cycle is much slower than the usual business cycle of 7 to 10.5 years and tends to have more prolonged booms and busts that last decades, especially in equities and housing. Central banks aim to equilibrate, at least to some degree, the financial cycle with the business and economics cycles. The important point to notice is that the financial cycle is not the same thing as the business cycle, and neither is the same thing as the economic cycle. You can say that the industrial production cycle in the United States, properly adjusted, is 10.5 years, and that's the right number to look at; however, a monetarist or central banker would say the economy consists of a lot more than industrial production, and you need to look at income distribution, credit availability and use of debt, and a dozen other factors to get a full picture.

 Put on your skeptic's hat when you encounter a trading guru who absolutely, positively knows the financial/business/economic cycle and

wants to teach you how to trade using that knowledge. The best brains at universities, economics advisory firms, and central banks can't do it, and the probability is pretty good that your guru can't do it, either.

Having said that, academic research shows that if you collect data on several hundred economic data points (inflation, industrial production, employment, and so on) and buy when the cumulative number is higher than 60 days ago and sell when it falls under the 60-day average, you will make a good return in an index like the S&P, more than what you would get with buy-and-hold.

Following the earth's axis: Seasonality and calendar effects

You shouldn't be surprised to hear that heating oil futures go up as winter heads for Chicago. The prices of agricultural commodities rise and fall with the seasons. *Seasonality* is the term used for the natural rise and fall of prices according to the time of year.

Oddly — very oddly — equities and financial futures exhibit a similar effect: They change according to the time of year. The changes are regular and consistent enough to warrant your attention.

Defining seasonality and calendar effects

Seasonality used to be a term applied to agricultural prices, and *calendar effects* was a term applied to equities. Today they're used interchangeably. You can discover the seasonality characteristics of any given stock by using *seasonality trackers* on various websites, including the best-known, Thomson Financial Seasonality Tracker. Go to the website (www.thomsonfn.com), type in your security's symbol, and select "Seasonality Tracker" from the menu. You get a chart of your stock with its associated average returns by month, starting in 1986. You can also see a table of the months in which the stock rose or fell over the years.

Another excellent site is www.timeandtiming.com , which covers all the top futures contracts (interest rates, currencies, metals, oil and gas, and agricultural commodities). In addition to vast amounts of historical comparisons, you can find trading ideas that worked in the past, complete with average gain, win-loss ratio, and so on. Here's a case: You hear a seasonality guru say (on September 20) that gold, while falling at the

moment, should go up into end-October on its usual seasonal pattern that has been holding for 15 years. Is this true?

You consult Timeandtiming.com and find that buying the December gold contract on September 20 and holding to end-October would have resulted in a loss of 5½ points.

 It's when you buy that counts. When you hear "It's when you sell that counts," it's because the buy-and-hold philosophy is being refuted. But if you are already past buy-and-hold as outdated and wealth-destroying, your new watchphrase is "It's when you buy that counts."

The most well-known calendar effects

In equities, you have probably heard the adage, "Sell in May and go away." This advice comes from work on calendar effects by Yale Hirsch **and his son Jeffrey** Hirsch, who tested the correlation of stock indices with the time of year **in their annual** *Stock Trader's Almanac.* The rule is called the *best six months rule.*

Hirsch discovered that nearly all the gains in the S&P 500 are made between November 1 and April 30. This rule isn't true without exception, but it's true for most years since 1950. When April 30 rolls around, you sell all your stocks and put the money in U.S. Treasury bills. Come November 1, you reenter the stock market. If you'd followed this rule every year since 1950 and also modified the exact timing a little by applying the moving average convergence-divergence indicator (check out MACD in Chapter 12), a starting capital stake of $10,000 in 1950 would have ballooned to $2,067,368 by April 2013. On average, you would've been invested only six and a half months each year — and remember, when you're not in the market, you're not taking market risk.

Other calendar effects include

- **January Barometer:** When the S&P 500 is up in January, it'll close the year higher than it opened. Since 1950, this rule has an accuracy reading of **90** percent.
- **President's Third Year:** Since 1939, the third year of a presidential term is always an up year for the Dow. In fact, the only big down year in the

third year of a presidential term was 1931.

✔ **Presidential Election Cycle:** Wars, recessions, and bear markets tend to start in the first two years, while prosperity and bull markets tend to happen in the second two years. Since 1833, the last two years of a president's term produced a cumulative net gain in the Dow of 718.5 percent, while the first two years produced **262.1 percent.**

Hirsch and others have discovered many other calendar effects. Hirsch's annual *Stock Traders Almanac* publishes the probability of any of the three major indices (Dow, S&P 500, and NASDAQ) rising or falling on any day of the year. The almanac bases this information on what has happened in those indexes on those dates since January 1953.

Using seasonality and calendar effects

Paying attention to calendar effects can help improve your market timing. When you're sitting down to make a trading or investment decision, you can avoid a costly mistake by consulting the calendar not only for the specific security, but also for the index to which it belongs. Calendar effects are certainly more than a curiosity, although a wild rally isn't going to stop solely because it's May 1. But because so many traders and money managers know about calendar effects, they are to some degree a self-fulfilling prophecy.

Big-Picture Crowd Theories

Some important ideas about the extent of retracements come from theories about the cyclical nature of history. This section deals with these ideas as a stand-alone section because they're pervasive — and controversial.

When you start gathering technical analysis material, you inevitably run into big-picture crowd theories, a school of thought that is very popular today. Some people swear that the ideas are obvious. But just as beauty is in the eye of the beholder, theories about the ebb and flow of history are just that — theories. No big-picture theory has been proved by statistical measures. To be fair, no theory has been disproved, either.

Technical analysis is a sufficiently crowded field already. Why make

things more complicated than they have to be? If you use the empirical evidence in front of you — clean and easy techniques like drawing support and resistance lines, for example — you can use technical analysis to make profits and avoid losses. Do you really need to know the secrets of the universe, too?

But you need to know that these ideas are scattered throughout the field of technical analysis and some smart and successful people in the field believe them. Those who don't are mostly too polite to ridicule the ideas. You'll also run into critics who mistakenly think that all technical analysis involves big-picture crowd ideas.

Some analysts subscribe to the idea that in the ebb and flow of human affairs, they can perceive cycles, including market cycles. Some of these ideas contain mystical overtones and unproven claims about how the world works, such as "the trading crowd is only the instrument of bigger forces at work." The core idea is that market trading is essentially an irrational process — you are trying to follow the irrational crowd and that makes you irrational — but the crowd is, unknowingly, following some hidden universal laws.

Because these ideas can never be verified, some critics unfairly color the whole field of technical analysis with the charge of supernatural voodoo. Empiricists cast doubt on these theories because they're not proven and by their nature, can't be proven. In particular, economics offers no theoretical basis for cycles that are fixed in size or duration. Economists do observe business cycles — several of them — but they overlap and don't appear regularly. It is undeniable, however, that retracements do occur sometimes near the levels forecasted by market cycle theorists such as J.M. Hurst, who has a large following. As a result, technical traders are reluctant to level the charge of crackpot against cycle theories.

The Gann 50 percent retracement

In the early 1900s, a trader named W.D. Gann discovered that retracements in the securities he was trading at the time tended to occur at one-half of the original move from the low to the high. To illustrate, say the price moved from $10 to $30. At $30, the crowd decided that the security was overbought

and started to sell. The ensuing price decline, the retracement, stops near 50 percent of the original $10 to $30 move, namely $20. Figure 17-1 shows the 50 percent retracement case.
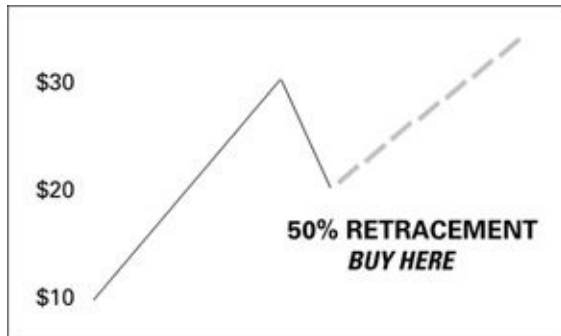

Figure 17-1: Gann 50 percent retracement rule.

In fact, Gann said that the most profitable retracement is a 50 percent retracement. The area around 50 percent is a danger zone, because the price can keep going and become a full-fledged reversal around there (in which case you lose all the gains). But it's the best place to reenter an existing trend (with an exit planned just below using a stop-loss order in case it doesn't work). If the trend resumes, Gann wrote that it will then exceed the previous high, which gives you an automatic minimum profit target. This observation may be the origin of the phrase, "Buy on the dip."

Gann also saw retracements occurring at the halfway point of a move, such as 25 percent (half of 50 percent), 12.5 percent (half of 25 percent), and so on. Statisticians can't offer proof that retracements occur at 12.5 percent, 25 percent, or 50 percent with more frequency than chance would allow. The absence of statistical proof in a field populated by mathematical sophisticates is puzzling at first.

But when you ask a statistician why he doesn't just run the numbers and test the hypothesis, he points out that defining the low-to-high original move and then defining the stopping point of a retracement is a computational nightmare. No matter what definitions he gives his software, another analyst is sure to want to refine them in some other way. You'll see studies, for example, showing that the actual percentage change of many retracements isn't precisely 50 percent, but rather in a range of 45 to 55 percent. Is that not good enough?

A critical point about the 50 percent retracement rule is that you may think you want to exit to protect your profit at the 50 percent level. If you bought the security at $10 and it rose to $30, but has now fallen to $20, shown in Figure 17-1 , you want to sell at $20 to hang on to the gain you have left. But if the 50 percent retracement rule works this time, you would be getting out exactly when you should be buying *more* (adding to your position), because a resumption of the trend at the $20 level almost certainly means that the price will now go higher than the highest high so far, $30.

A 100 percent retracement, a price that goes from $10 to $30 and back to $10, will often form a *double bottom,* a bullish formation. When the price peaks twice at the same level, you have a *double top,* a bearish formation. (See Chapter 9 for more details on these formations.)

Magic numbers: "The secret of the universe"

Another theory about how retracements should form is based on the Fibonacci sequence of numbers. This theory says that a retracement is most likely to stop at one of a series of numbers, with an emphasis on 38 percent or 62 percent of the original move. Where does this come from?

A 13th-century Italian mathematician named Fibonacci discovered a self-replicating sequence of numbers with curious properties. It starts with 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, and so on to infinity. After the first few numbers, the sum of two adjacent numbers in the sequence forms the next higher number in the sequence. Most important, the ratio of any two consecutive numbers approximates 1.618 or its inverse, 0.618. One to 1.618 is named the "golden ratio."

Nature offers many examples of these ratios: daisy petals, ferns, sunflowers, seashells, hurricanes, whirlpools, and atomic particles in a bubble chamber. And many of man's works purportedly embody the Fibonacci ratios as well: the pyramids in Egypt, the Parthenon in Greece, and Cézanne's choice of canvas shape, although some mathematicians dispute some or all of these. In fact, many of the named instances of the golden ratio in nature, anatomy, art, and architecture don't pass the test. A good example is the shell of the chambered nautilus, which supposedly obeys the golden ratio, but look it up

— nautilus shells' average growth ratios of 1.24 to 1.43, are quite far from 1.618.

Of course, critics point out that many other events in nature, architecture, and human behavior follow a sequence of 2, 4, 6, 8, and so on. The number 11 can be considered magic, not to mention *pi* (3.14159), used to calculate the circumference of a circle. Prime numbers, which are numbers divisible only by themselves and one (3, 5, 7, 11, 17, and so on), are important numbers. In fact, many other self-replicating number sequences exist. In short, scientists say that to attribute human behavior to any single number sequence is ludicrous, or at least not plausible.

Historically, the golden ratio initially arose from Euclid, who was fascinated by the pentagon, which has five sides — and yet five is not a magic number. Tony Plummer, a stunningly brilliant writer and the foremost author on magic numbers, most recently produced *The Law of Vibration* (Harriman House), which tries to dissect the influence on human behavior of the hidden laws of cosmic vibration — including the Law of Three, the Law of Seven, and inner-octave cycles. Only a few thinkers in all of history have been able to perceive these vibrations — including Gann.

A trader named Ralph Nelson Elliott believed that man's behavior, including his behavior when trading in the stock market, revealed similar characteristics as the Fibonacci sequence and could, therefore, be charted to predict future behavior. Elliott observed that securities prices appear in a wavelike form on charts, hence the name of his forecasting method, *Elliott Wave.* Elliott wrote that the Fibonacci sequence provides the mathematical underpinnings of the wave principle. Elliott Wave adherents expanded Elliott's use of the Fibonacci sequence and often use Fibonacci levels, with special attention to 38 percent and 62 percent (but also including 23.6 percent, 50 percent, and 100 percent of the high-low span), to predict the extent of retracements. Note that technically, 50 percent isn't a Fibonacci number. It's customary to include it, though, possibly because of Gann's influence.

To make life difficult, some traders who like the Fibonacci sequence aren't strict adherents of the Elliot Wave principle and some Elliot Wave traders don't necessarily believe that price moves will stick to Fibonacci numbers.

See the sidebar "[The Elliot Wave principle](#)" in this chapter for more about the Elliott Wave, which goes far beyond the subject of retracements.

Seeing too many retracements

Fans of the Fibonacci sequence assert that the 38 percent and 62 percent retracement levels occur more often than chance would allow, although I have never seen statistical proof. (Perhaps because any statistical studies would degenerate into squabbling over measurement criteria.)

Some traders embrace Gann's ideas, some embrace the Elliott Wave, some embrace Fibonacci numbers, and some embrace them all. If you were to put the main Gann retracement numbers (12.5, 25, 50, and 75 percent) and the main Fibonacci retracement numbers (23.5 percent, 38 percent, and 62 percent) on the same chart of a trend, you'd have so many lines that the next retracement would be bound to hit one of them or a level near one of them.

Some advisors who like all the ideas choose to display the retracements that did work while conveniently not mentioning all the others that could have been shown on the same chart. In other words, they're going to be right no matter how the retracement turns out. You may see advertisements and solicitations claiming that the seller has "objective" methods of forecasting securities prices, and these methods are often based on Gann or Fibonacci "scientific principles." Beware. By definition, all math is science. If you're going to follow an advisor, put your faith in a consistently winning track record rather than in claims of an inside track to universal truth.

Like all technical methods, applying Gann and Elliott Wave ideas is an art, and constant revision is necessary as prices evolve. Statisticians scoff at magic numbers, but in any particular market or security, if a majority of traders believe that a retracement will stop at 38 percent, 50 percent, or 62 percent after a peak, they can and do make it come about.

The sensible approach to Gann and Fibonacci retracement ideas is to be aware of their influence over some traders. You don't have to believe in cycles, the universal truth embedded in Fibonacci numbers, or that market prices follow a hidden system in order to take advantage of what the crowd is thinking.

Figure 17-2 shows a security with four waves and three corrections (69.2 percent, 35.7 percent, and 78 percent). Notice that none of the percentage retracements qualifies precisely as a Gann or Fibonacci number, although you might stretch the point and say that 68 percent isn't all that far from 62 percent (Fibonacci) and 78 percent is fairly close to 75 percent (Gann). Most traders acknowledge the wavelike movement of prices even if they don't try to count them according to the Elliott Wave principle.
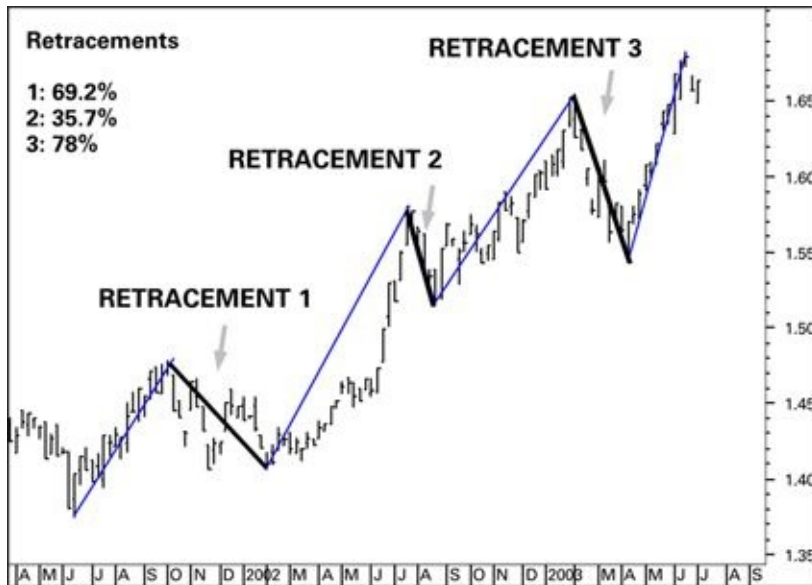

Figure 17-2: Wavelike appearance of a trend.

The Elliott Wave principle

The wave idea became popular in part because one of its proponents, Robert Prechter, called for a massive bull market in 1982 that did materialize — and then he called the top, just ahead of the 1987 Crash. That certainly got the market's attention! And prices do seem to move in waves on many charts.

The basic idea is that all price movements have two segments: impulse waves and corrective waves. The *impulse wave* is the way the crowd wants to take the price in a trend. Considering that the right way to look at price developments is through the lens of crowd psychology, impulse is an excellent choice of words. Each impulse wave has five parts: three waves that go in the trend direction, alternating with two that go in the opposite direction.

In a correction, each *corrective wave* has three parts: two that go against the main trend and one that goes with it. If a bull market reaches a new high in five waves instead of three and also goes down in five waves instead of three, you're witnessing the beginning of a major bear market.

You will often see three clear waves up, although sometimes a move has more upwaves than three, as in Figure 17-2 . The three-waves rule is only the model of how markets move, not a rigid orthodoxy.

Elliot Wave practitioners are the first to admit that calling corrective waves is tricky, much harder than seeing impulse waves. Experienced practitioners advise against straining to make a correction "fit" the Elliott Wave model. A correction often just keeps on going, too, whereupon it isn't a correction but a true reversal and thus a new trend in the opposite direction.

Counting waves can be an elaborate and time-consuming process, and miscounting as prices evolve can result in losses and having to start all over again. If the wave idea appeals to you, be prepared to devote a lot of time to it. If you choose not to count waves, you can still benefit from the observation that trends start with an impulse wave that then retraces in the opposite direction before the trend resumes. "Buy on the dip" isn't bad advice when you are sure that you have a trend.

Part VI

Part of Tens

 Visit www.dummies.com/extras/technicalanalysis for great Dummies content online.

In this part…

✔ Learn ten of the top secrets from traders who built trading plans that use technical tools to suit their personalities and appetites for risk, and how they follow those plans.

✔ Check out ten hot tips and tools you need to maximize the use of technical analysis indicators.

✔ Get solid resource information to further your knowledge of technical analysis and trading in today's market.

Chapter 18

Ten Secrets of the Top Technical Traders

In This Chapter

▶ Putting your faith in the chart rather than the "experts"

▶ Getting to know the virtues and drawbacks of technical indicators

T echnical trading can take any number of forms. The trader who waits for multiple timeframe confirmations can claim just as much technical validity as the guy with the itchy trigger finger who can't bear to hold for even an hour.

The technical trader is the retired rocket scientist (we have two — Kaufman and Fitchen), the self-taught housewife, the cubicle programmer and the college student. You can't tell from looking at them which is the best technical trader. (Hint: It's often the least conventionally well-educated person.) The technical trader may be sane and reasonable or an outright crackpot, but both types are technical traders. We also have poseurs who claim technical expertise but really only know one or two things, and while those one or two things may work for them, they probably won't work for you. As for the academics with huge libraries and systems perpetually in test mode but never actually traded — they may be technical analysts, but they are not traders.

Until you put cold, hard cash down on your technical trading ideas, you are not a trader. You may be the smartest guy in three counties, but if you can't make money trading, you're just a smart guy, not a trader. In fact, the ability to focus is far more important than brainpower in technical trading. Some very brainy people have made tremendous contributions to technical analysis for other people to use, but can't trade their way out of a paper bag.

Whatever their styles, successful technical traders all have one thing in common — they've each built a trading plan that uses the technical tools that suit their personality and appetite for risk, and they follow it. Notice that I

said trading *plan* , not trading *system* . You can have a systematic plan that doesn't involve back-testing 87 variables until you're blue in the face.

Learn Your Expectancy

Whether you build a full-blooded trading system or choose to trade setups or some combination of those two styles, you must keep track of your win-loss ratio and the other metrics of the expectancy formula in Chapter 16 . To trade without having a positive expectancy of a gain is to be gambling, not trading. You may have a slight edge from using a few indicators, but you do not really have control of your trading. Position sizing and other aspects of money management are useful, too, but if you do not have positive expectancy on every trade, in the long run you are a loser.

Your expectation of a positive gain should be behind every trading decision, not somebody else's guess. If your broker, trust fund manager, or Uncle Fred proposes that you sink some money into a security but the chart shows that the price is on a downward trajectory, just say no. You may be astonished at how many otherwise intelligent and sensible people yield to the supposed superior expertise of their money managers when even a 12-year-old kid can see that the security is tanking. "It'll come back," they say. The only acceptable reply is, "Okay, let's wait for it to prove it's coming back."

 Never take a tip without first consulting the chart. No excuses!

The Edge Lies in the Chart

The essence of technical analysis is to analyze the price action on a chart to arrive at buy/sell decisions. You determine whether the security offers a trading opportunity by looking at indicators on the chart, not on the fundamental characteristics of the security itself. This approach does *not* mean selecting securities without judgment. With thousands of securities to choose from, you are free to pick the ones you deem to be fundamentally sound, and time your trades from there.

After you select your personal universe of securities, every decision to initiate a trade is based on chart events and not on news developments, fundamental factors, or what some "expert" says. The chart contains all the information you need to make trading decisions. If information is truly important, the chart reflects it.

The Trend is Your Friend

The single best way to know what's happening and likely to happen is to follow price trends. If you buy when an uptrend is forming and sell when the uptrend peaks, you make money over the long run. Remember, your job is to define *trend* for yourself. A trend can be as small as six bars on a ten-minute chart or hundreds of bars on a weekly chart.

If you can't see a trend, sit back and wait for the trend to appear. Nobody is holding a gun to your head forcing you to trade. Staying out of the market when the security is not trending is okay — as is getting out of the trade temporarily when a pullback occurs. A security purchase isn't a life-long commitment. You're not being disloyal to your security if you sell it during a pullback.

Entries Count as Much as Exits

The buy-and-hold strategy has been discredited many, many times. Buy-and-hold is never the optimum methodology. Look back at the two big stock market crashes in recent history — the "tech wreck" that started in March 2000 and the financial crisis collapse that started in October 2007. It took 13 years for the S&P to recover and hold a level above the high of March 2000 — in other words, if you owned the entire 500 stocks in the S&P, you would have made no net gain for 13 years. Debunking buy-and-hold is why you often see "it's when you sell that counts." But, obviously, when you buy counts, too. You can have a so-so trend identification system, but if you get in at a relative low, you will thrive, whatever your holding period.

Use Stops

Stops are different from the embedded buy/sell signals in indicators. A moving average crossover doesn't know how much cash loss you will be taking as it lollygags its way to the sell signal. You have to decide ahead of time how much loss you can tolerate, either in cash or percentage terms, and just accept it when stops get hit (without remorse or anger). A good stop is not so tight that you forego any real chance of achieving the expected gain, nor so loose that you give back a big chunk of previously earned gain. You need to acquire skill at crafting stops that combine your security's behavior patterns with your risk appetite — a double set of conditions. You would not start a restaurant without buying fire insurance. Don't trade without stops.

There are no acceptable excuses for failing to use stops. None.

Treat Trading as a Business

You should make the trading decision on the empirical evidence on the chart and not on emotional impulse. It's human nature to bet a larger sum of money when you've just had a win. Likewise, you may become timid after a loss.

A good technical trader follows his trading plan and disregards the emotions created by the last trade or by the emotions that swell up from being in *trader mode* . Trader mode can inspire competitive aggression, analysis paralysis, and any number of other interferences with the rational application of your trading regime. You may not have a full-bore trading system, but you should trade what you do have systematically. A good trading regime uses rules that impart discipline in a conscious effort to overcome the emotions that accompany trading. Trading is a business, and business should be conducted in a non-emotional manner.

Don't Take It Personally

It's not an insult to you personally when prices fail to develop the way you wanted and you take a loss. Ask brokers or advisors for the single biggest character flaw of their customers; they all say the same thing, "The customer would rather be right than make money."

You can't control the market. The only thing you can hope to control is yourself. Some people have an unusually hard time facing losses, and because they can't take a small loss, they end up taking big ones, which only

reinforces the fear and loathing of loss. If you become unhinged by your losses, you haven't built the right trading plan. You need to start over with different securities, different indicators, and/or a different win/loss ratio in your expectancy calculation.

Eat Your Spinach

Don't let a winning trade turn into a losing trade. You can have a fine trading system with excellent indicators properly back-tested for the securities you're trading but still be a lousy trader if you don't have sensible trading rules. A good trader differentiates between indicators (which only indicate; see Chapter 4) and trading and money-management rules (which manage the risk; see Chapter 5).

Winning trades can turn into losing trades in a number of ways, including tricking yourself that the market "owes" you the highest price it already attained. Your indicators tell you that the price is not likely to go back to the old high, but that's the amount of money you want to make. You're trying to tell the market what to do, which never works. This is how you start to see what you want to see on the chart rather than what's there — in other words, wishful thinking.

If you can't follow your trading plan and find yourself second-guessing it — adding new (untested) indicators, moving stops to avoid taking a loss — you need a different trading plan. Quantify the amount of gain and loss you can expect before you place the trade, and stick with it. This is the single top principle of trader discipline, and if you don't have it, you will not succeed.

Diversify

Diversification reduces risk. The proof of the concept in financial math won its proponents the Nobel Prize, but the old adage has been around for centuries: "Don't put all your eggs in one basket." In technical trading, diversification applies in two places:

- **Your choice of indicators:** You improve the probability of a buy/sell signal being correct when you use a second, noncorrelated indicator to confirm it. You don't get confirmation of a buy/sell signal when you

consult a second indicator that works on the same principle as the first indicator. Momentum (see Chapter 13) doesn't confirm relative strength because it adds no new information. Widen your horizon beyond a few indicators, and seek different concept indicators instead of torturing old indicators to come up with better parameters.

- **Your choice of securities:** You reduce risk when you trade two securities whose prices move independently from one another. If you trade a technology stock, you achieve no diversification at all by adding another technology stock. You'll get a better balance of risk by adding a stock from a different sector. If you trade metals futures, add something from agriculture or finance to get diversification. You can estimate degree of correlation scientifically with a spreadsheet or informally by eye (charting both securities in the same space).

Learn Some Math

Designing a set of indicators that mesh together to produce a positive expectancy is a fine thing. But don't stop there. A good system may return (say) 25 percent per annum (p.a.), but tweaks to your money management rules can multiply that two or more times. Money management can be tricky and difficult, and it needs to be in a feedback loop with your indicator system. For example, you may be willing to accept more losing trades than winning trades as long as the gain-loss ratio is higher than 1:1 — but not if you plan to cherry-pick trades or otherwise alter the trading regime. You need to decide how to size positions — a messy problem. Fixed or fractional? Scaling in or not? The mathematics of money management is not for the faint of heart.

This is why buying someone else's trading system usually ends in tears. No one else on the planet has exactly, to the fourth decimal place, your risk preferences. If you are a beginner, you don't even know what your risk preferences are. Are you a bushwhacking cowboy or a prim and trim librarian? You may think you know, but trust me, you don't. In order to find out, at least initially, you need to experiment with different money management rules. You can have a so-so system but magnify it into a splendid system with clever money management alone. Two points: Your risk preferences will evolve over time as you gain experience or just get older. And be prepared for some dissatisfaction with any trading plan you buy from someone else — no matter how brilliantly designed, it will never match you

someone else — no matter how brilliantly designed, it will never match you. You know who it matches? The designer. You need to accept that, if you want buying somebody else's system to be a good experience.

Ten Rules for Working with Indicators

In This Chapter

▶ Identifying market sentiment

▶ Using indicators as a guide — not as a crystal ball

I ndicators measure market sentiment — bullish, bearish, and blah. Indicators are only patterns on a chart or arithmetic calculations whose value depends entirely on how *you* use them. You use indicators for many trading-related decisions, including identifying a trend, knowing when to stay out of a security that isn't trending, and knowing where to place a stop-loss, to name just a few. This chapter offers a few tips and tools you need to maximize your use of technical analysis indicators.

Don't Jump the Gun

To use fancy indicators before you understand bars is to rush the learning process. Following price bars and figuring out what they mean is the first step — don't shirk it. Besides, indicators are only the result of manipulating the price bar data into a different format. Think of the bar as a miniature indicator. Many setup traders never look at indicators; they just look at bars.

Every bar tells a story about crowd behavior. Exceptional bars tell you more than ordinary bars, but try to listen to all bars. Floor traders complain that electronic trading lacks something valuable that being on the exchange floor offers — the noise of the crowd. As an individual trader, you can't hear the crowd, either, but as you look at bars, imagine the noise each bar must be sending out — shouts, hisses, groans. (See Chapter 6 for more on bar basics.)

Defeat Your Math Gremlins

You don't need to be good at math to use math-based indicators. You may not

You don't need to be good at math to use math-based indicators. You may not understand how your microwave works, but you can still use it to re-heat the soup. To gain an understanding of indicators that are not immediately obvious, spend some time observing the indicators and the subsequent price behavior.

If you put in the effort and still don't get it, don't worry — move on. The world is full of great indicators. You just need to find the ones that make sense to you. Don't use an indicator because some self-styled expert says that it has a great track record. If you don't understand it, it won't work for you.

Embrace Patterns

Patterns are indicators, too. Prices never move in a straight line, at least not for long, and patterns can help you identify the next price move. When you see a double bottom, you can feel confident that the right trade is to buy — and this principle is true well over half the time and normally returns a gain of 40 percent. Some patterns are easy to identify and exploit, whereas others may elude you. As always, if you can't see it, don't trade it. Finally, you don't have to believe in elaborate theories about cycles or Fibonacci numbers to use a Fibonacci retracement pattern. Many experienced traders eschew math-based indicators and use only patterns, and for this reason alone, it pays to find out how to see patterns.

Use Support and Resistance

Support and resistance (see Chapter 10) are central concepts in all technical trading regimes. You can pinpoint support and resistance by using any number of techniques, including hand-drawn straight lines or bands and channels created out of statistical measures. Momentum and relative strength indicators can help estimate support and resistance, too. To preserve capital, always know the support level of your security and get out of Dodge when it's broken.

Follow the Breakout Principle

The breakout concept (which I cover in Chapters 10 through 12) is universally recognized and respected. A *breakout* tells you that the crowd is

feeling a burst of energy. Whether you're entering a new trade or exiting an existing one, trading in the direction of the breakout usually pays. You will still get zapped by false breakouts — everyone does. The reason to study real vs. false breakouts is to minimize those whipsaw losses.

Watch for Convergence and Divergence

When your indicator diverges from the price, look out. Something's happening. You may or may not be able to find out why, but divergence often spells trouble. Convergence is usually, but not always, comforting. (This rule refers to convergence and divergence of indicators versus price, not the internal dynamics of indicators like the moving average convergence/divergence, or MACD.) For more on convergence and divergence, check out Chapter 12 .

If your security is trending upward and the momentum indicator is pointing downward, you have a discrepancy. The uptrend is at risk of pausing, retracing, or even reversing. If you're risk averse, exit. Look for divergence between price and volume, too. Logically, a rising price needs rising volume to be sustained. The most useful divergence is a paradoxical one, where the price is falling but by less than abnormally high volume would suggest. This divergence may mark the end of a major downtrend and is more reliable than the percentage retracement or round numbers touted by market "experts."

Back-test or Practice-Trade Honestly

You're free to use the standard indicator parameters in software packages and on web sites. Experience shows that the standard parameters are useful over large amounts of data and large numbers of securities — that's why their inventors chose them. For this reason, some traders never feel the need to perform their own back-tests. They accept the standard parameters and put their effort into something else, like bar or pattern reading.

But if you *are* going to back-test indicators to refine parameters, do it right. Use a large amount of price history when testing an indicator — and don't make the indicator fit history so perfectly that the minute you add fresh data,

the indicator becomes worthless (*curve-fitting*). Observing price behavior and estimating the range of sensible and reasonable parameters is better than finding the perfect number. The perfect number for the future doesn't exist.

Accept That Your Indicators Will Fail

Indicators are only an approximation of market sentiment. Sentiment can turn on a dime, or the approximation can be just plain wrong. In fact, indicators are often wrong. Support lines break for only a day or two instead of signaling a new trend as a breakout is supposed to. Textbook-perfect confirmed double bottoms fail the very next day instead of delivering that delicious 40 percent profit. And moving averages generate whipsaw losses even after you've added every clever and refined filter known to man.

It's a fact of life — your indicator will fail, and you will take losses in technical trading. Don't take it personally. Indicators are only arithmetic, not magic. Console yourself with knowing that indicators reduce losses, and reducing losses helps you meet a primary goal — to preserve capital.

Get Over the Idea of Secret Indicators

Technical traders have devised thousands of patterns and math-based indicators. They can be combined in an infinite variety of ways over an infinite number of time frames with an infinite number of qualifying conditions. So the idea that somebody has discovered a superior combination of indicators is possible. But none of the indicators is a secret, and no indicator combo is going to be right all the time.

The secret of successful trading doesn't lie in indicators. Shut your ears to the guy trying to sell you an indicator that "never fails!" Of course it fails. If it never fails, why would he sell it to you? And why should you have to pay for an indicator in the first place? You don't. Every indicator ever invented is easily available in books, magazines, and on the Internet.

Open Your Mind

Indicators are addictive. You read about a new indicator that seems so logical and appropriate that it becomes your new darling. Suddenly you can apply it

everywhere. It's good to be adaptive and flexible, but remember that the purpose of using indicators is to make money trading, not to get a new vision of how the world works. Always check that your new indicator plays well with your old indicators. You picked your favorite indicators for a good reason — they help you make profitable trading decisions. Keep discovering new indicators, but don't fall in love unless the new indicator meshes well with the old ones. A top reason to stay up to date on indicators is that their popularity waxes and wanes. For a while, MACD was the most popular kid on the block; then it was the stochastic oscillator. Always take a new indicator out for a spin, if only to get a feel for what other traders are looking at. Remember, traders form a crowd and crowds move in conjoined ways.

Appendix

Additional Resources

Don't let yourself be overwhelmed and intimidated by the masses of information and advice about technical analysis in books and on the internet. To be charitable, a lot of the information is incomplete and much of it has a bias toward a particular world-view that is wrong or crackpot.

Relax. You don't need *all* this stuff — you just need enough to get started, and getting started really means knowing what topics to type into the search box of your browser. I believe that just about every key word in technical analysis appears in this book. Don't neglect YouTube; many technical analysts post short lessons on techniques.

You are welcome to find one technical trick and just use it over and over again, like Toby Crabel's opening gap tactic (see Chapter 16). In fact, the Crabel technique is one of the ones available on YouTube. Plenty of technical traders use a single technique to achieve their financial goals. I know one trader who made his first million after reading a single book (Edwards and Magee — see the "Additional Reading " section later in the chapter). Others try all the ideas and methods, and don't want to miss a trick.

You should spend time and money on research because you never know when you may come across an idea that strikes a resounding chord in you — the *Eureka!* moment when you say to yourself: I can do this.

The Bare Minimum

You can use price quotes from the newspaper and graph paper, but realistically, you need charting software and data, nowadays available free from brokers when you open an account.

Online resources

Become familiar with charting conventions you can find on Web sites such as www.stockcharts.com , www.stockchartwizard.com ,

www.finance.yahoo.com , www.chartadvisor.com , and other free sites. A dandy site that offers a lot of lessons, many free, is www.candlestickforum.com . In foreign exchange, we hear that www.forexlive.com and www.fxstreet.com are useful.

In no time at all you can find many excellent newsletters and blogs, but in the beginning, resist the temptation to start following them because you really should do some charting work yourself in order to be qualified to evaluate the newsletter or blogger. At the least, you should evaluate the advisor by keeping your own track record of the trades recommended to make sure the advisor is keeping an honest tally.

Not surprisingly, Twitter is an ideal medium for hot stock tips, with the same dangers as when stock tips were whispered on the exchange floor. You find a good source more or less by trial and error, picking names out of stories in the internet financial press (Yahoo!, MSN Finance). First you "follow" the person who has issued advice, and then from the profile you can find who they are following and recommending. Twitter is not really faster than the traditional news outlets, just more efficient and laser-directed to the exact information you are seeking. The potential problem, of course, is that someone may tweet a rumor as hard information or try to puff up a security to sell at a better price himself.

Charting software

Every major broker offers charting software today, including TradeStation (www.tradestation.com) and G-Force Trading (www.gforcetrading.com). If you prefer to get your own software and data instead of using what the broker offer, here are some ideas. Disclosure: I have been using Metastock by Equis (www.equis.com) since the early 1980s and so to me it is the most user-friendly. It comes with preset indicators, user guide, and starter data.

Worden (www.worden.com) is another good product and website. Worden offers the ability to scan the equities universe on *fundamental* criteria, and then apply key indicators. Worden offers first-class free seminars, too.

Other charting software packages are

- EnsignSoftware (www.ensignsoftware.com)
- NeoTicker (www.tickquest-inc.software.informer.com)

☑ NinjaTrader (www.ninjatraderpro.com)

What should you require of your software? At the least, your charting software should allow you to switch time frames (from three minutes to monthly) and show bars in regular OHLC format, candlestick format, and point-and-figure. It should allow you to draw an unlimited number of lines at any slope and contain at least ten standard parameter indicators, including moving averages, moving average convergence/divergence (MACD), stochastic oscillator, Bollinger bands, and linear regression and linear regression channel. You also want it to be capable of writing your own formulas and modifying the ones included in the charting package.

Future s magazine (www.futuresmag.com) and *Technical Analysis of Stocks and Commodities* magazine (www.traders.com) both offer annual reviews of all the charting software, all the system vendors, all the brokers, and so on. *Active Trader* magazine (www.activetradermag.com) offers articles on trading system design.

Additional reading

I like books. Books are the medium through which other traders deliver new ideas and offer guidance on avoiding mistakes. I begin this section with a list of my favorites.

My favorites

☑ *How I Made $2,000,000 in the Stock Market,* by Nicholas Darvas (Lyle Stuart)

☑ *How I Made $1,000,000 Trading Commodities Last Year,* by Larry Williams (Windsor Books)

☑ *Long-Term Secrets to Short-Term Trading,* by Larry Williams (Wiley)

☑ *Trader Vic — Methods of a Wall Street Master,* by Victor Sperandeo (Wiley)

☑ *Evidence-Based Technical Analysis,* by David Aronson (Wiley)

☑ *Candlestick and Pivot Point Trading Triggers,* by John Person (Wiley)

- *Profitable Candlestick Trading,* by Stephen Bigalow (Wiley)
- *Building Reliable Trading Systems,* by Keith Fitschen (Wiley)
- *Market Wizards: Interviews with Top Traders,* by Jack Schwager (HarperBusiness)

Encyclopedias

- *Trading Systems and Methods,* by Perry Kaufman (Wiley)
- *Encyclopedia of Chart Patterns,* by Thomas Bulkowski (Wiley)
- *Encyclopedia of Candlestick Charts,* by Thomas Bulkowski (Wiley)
- *Encyclopedia of Technical Market Indicators,* 2nd Edition, by Robert Colby (McGraw-Hill)
- *Technical Traders Guide to Computer Analysis of the Futures Market,* by Charles LeBeau and David Lucas (McGraw-Hill)

Classics

- *Technical Analysis of Stock Trends,* by Robert Edwards and John Magee (Saint Lucie Press)
- *Reminiscences of a Stock Operator,* by Edwin Lefevre (Wiley)
- *Extraordinary Popular Delusions and the Madness of Crowds,* by Charles Mackay (Harmony Books)

Special areas

- *The Definitive Guide to Point and Figure,* by Jeremy du Plessis (Harriman House)
- *New Thinking in Technical Analysis: Trading Models from the Masters* by Rick Bensignor (Bloomberg Press)
- *Bollinger on Bollinger Bands,* by John Bollinger (McGraw-Hill)
- *Beyond Technical Analysis,* by Tushar Chande (Wiley)
- *Street Smarts,* by Laurence A. Connors and Linda Bradford Raschke (M. Gordon Publishing Group)

- *PPS Trading Sytem,* by Curtis Arnold (Irwin)
- *The New Science of Technical Analysis,* by Thomas DeMark (Wiley)
- *The Master Swing Trader,* by Alan S. Farley (McGraw-Hill)
- *Elliott Wave Principle,* by Robert Prechter and Alfred Frost (New Classics Library)
- *Martin Pring on Market Momentum,* by Martin Pring (McGraw-Hill)
- *Maximum Adverse Excursion,* by John Sweeney (Wiley)

Money management

- *When Supertraders Meet Kryptonite,* by Art Collins (Traders Press)
- *Trading for a Living,* by Alexander Elder (Wiley)
- *How To Take a Chance,* by Darrell Huff and Irving Geis (W. W. Norton & Company)
- *Van Tharp's Definitive Guide to Position Sizing,* by Van Tharp (International Institute of Trading Mastery)
- *The Mathematics of Money Management,* by Ralph Vince (Wiley)

About the Author

Barbara Rockefeller is a writer specializing in international economics and finance, with a focus on foreign exchange. She also trades in the foreign exchange market. She is the publisher of a daily newsletter on the foreign exchange market, "The Strategic Currency Briefing." Her newsletter combines technical and fundamental observations. Additionally, she publishes separate daily "Trader's Advice" reports for spot and futures foreign exchange traders. Newsletter subscribers include central banks, investment bands, hedge funds, multinational corporations, investment managers, and individuals. Miss Rockefeller also prepares custom charts on a consulting basis for individuals and institutions.

Before starting the newsletter business, Barbara was in the credit, foreign exchange, and risk-management departments at several U.S. banks, including Citibank and Brown Brothers Harriman. Conventional economics theory failed to generate valid currency forecast at Brown Brothers, which led her to spearhead a technical analysis system at Citibank. This decision was in 1980, long before technical analysis went mainstream and at a time when it was considered at least a little crackpot.

Barbara has a B.A. in Economics from Brown College in Portland, Oregon, and an M.A. in International Affairs from Columbia University. While at Citibank, she traveled the world, training staff and clients on the fundamentals of foreign exchange, international economics, and risk management. Favorite country? Turkey. Smartest traders? Hong Kong.

Barbara is the author of *How to Invest Internationally*, published in Japanese in 1999 (Franklin Covey), *CNBC 24/7, Trading Around the Clock, Around the World*, published in 2000 (John Wiley and Sons), and *The Global Trader*, published in 2001 (John Wiley and Sons). With co-author Vicki Schmelzer, she wrote *The FX Matrix* (Harriman House, 2013). She also writes a monthly column for *Currency Trader Magazine*.

Dedication

This book is dedicated to Robert James Deadman, founder of Technical Systems Analysis Group, who taught as much of the "the scientific way of

thinking" as it's possible to cram into a "social science" mind, and with endless patience.

I also dedicate the book to Alfred A. "Chip" Olbrycht, who forces me to question the easy way and to look at everything a second time, and a third time, too. And the Best Client of All Time, Hendarsin Lukito, who went from zero to 60 in under a year and took me along for the ride.

Author's Acknowledgments

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