

- » Knowing what certain words mean
- » Accepting the idea that the trend is your friend
- » Figuring out what can go wrong

Chapter **1**

Introducing Technical Analysis

Technical analysis is the study of price behavior in financial markets in order to forecast the next price movement and to trade on that forecast with cold, hard cash. Focusing on price behavior gives you a window into the mind of the market — what the majority of key players are thinking — and helps you make better trading decisions. Technical analysis seeks to identify and measure market sentiment, described as optimistic (bullish), pessimistic (bearish), or uncertain about future prices (sideways range-trading).

To become a technical analyst, you need to figure out how to draw lines on your security price chart and work up the courage to place the buy and sell order with your broker. Each type of line is named an indicator, and I cover every major type of indicator in this book. You need to figure out whether the line/indicator embodies a bullish or bearish outlook (price rising or falling). Many lines/indicators contain a handy built-in buy-and-sell signal, but following those probably won't match your risk appetite given the amount of capital you have. In practice, you'll use a computer program to draw the lines (and to do whatever math underlies the lines). You'll also have many books and websites to guide you in deciding which lines to draw.

Knowing how to draw lines is relatively easy. Placing the trades is hard. This is because your technical-based buy/sell decisions don't come packaged with how much to trade, how long to hold, how much risk to take, or even how much risk is involved.

FINDING THE ORIGINS OF TECHNICAL ANALYSIS

Technical analysis isn't some newfangled flash in the pan. Observing prices and shutting out other noise has been in development for more than a century. Charles Dow, one of the founders of *The Wall Street Journal*, observed around the turn of the 20th century that the price of a security neatly cuts through all the clutter of words and is the one piece of hard information you can trust, no matter what the other facts about a security and what people are saying about it.

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 are part of what is called *Dow theory*, although Charles Dow himself never called it that and many ideas are called Dow theory that would surprise Dow. An Internet search of the phrase *Dow theory* yields 23 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 gimmicky fad that will have a short shelf life.

Building on Dow theory were Robert D. Edwards and John Magee, whose *Technical Analysis of Stock Trends* (St. Lucie Press) was the first major book to use the term “technical analysis” in the title. It was published in 1948 and has been in print ever since. Edwards and Magee expanded on Dow's observations, covering many of the core concepts of technical analysis such as support and resistance, breakouts, retracements, many patterns, and more. Edwards and Magee noted the universal pattern of a primary upmove followed by a shallower secondary pullback and then another upmove. You'll see this configuration repeatedly as you explore technical analysis. Edwards and Magee were the first to introduce the tools still in use today to evaluate the pattern and to trade it profitably.

What's different from Dow's day and Edwards and Magee's day is the advent of computers that take drawing lines and calculating indicators away from paper and colored pencils to a screen and cursors. Something else that differs from Dow's day is the continuous incursion of the scientific method into everyday life. At the turn of the last century, the scientific method was confined to scientists. Regular people would take a homemade folk remedy for a malady because their grandmother swore by it. Today the average person wants to know if that remedy was scientifically tested in double-blind tests and the results peer-reviewed. The comparable development in technical analysis is to take an observation about market prices and volume and to test what percentage of the time the observation results in a correct deduction.

To help you start, this chapter provides an overview to this book and what you can expect. Consider it your jumping board into this book and the world of technical analysis.

Stepping Up to Science

It may be hard to consider drawing lines on a chart as “scientific” in any sense of the word, but it’s through the scientific method that scientists can forecast outcomes in the physical world and through the scientific method that you can forecast price outcomes in financial markets. Technical analysis of securities prices follows the scientific method in that it entails systematic observation of the subject with standard measurement methods to form a hypothesis and then testing the hypothesis many, many times to validate the theory. But there’s a problem. In a hard science like fluid dynamics, the thing being observed and measured is an object — in this case, water. In technical analysis, the thing being measured isn’t hard — it’s market sentiment generated by human beings, who have far more variability than physical objects. Even given human variability, market sentiment tends to move in repetitive and predictable ways. Technical analysis gives you the tools to identify which sentiment the market has on display at any one time.

Today’s technical analysis has a wider understanding and appreciation of statistics and probability, and thus the value and pitfalls of forecasting. The theory of probability originated in the 16th and 17th centuries, but dealt mostly with the outcome of games and thus the best way to bet on games. Not until the 1920s and 1930s did statistics and probability enter the general public mainstream. Today even ordinary people routinely ask health questions of their doctors in probability terms, such as what percentage of small children without the measles vaccination does it take for the rest of the school class to risk a measles outbreak?

Throughout this book I use words like “highly likely” and “forecast.” I say, for example, technical analysts use lines and indicators to identify price moves that provide a fairly reliable forecast of upcoming future price moves. The word “forecast” makes everybody squeamish because everyone knows stories of catastrophically bad ones. History is full of them, like a top economist saying in 1929 that the stock market was in fine fettle — just before the crash.

But don’t be misled. Although the word is riddled with negative implications, everyone makes forecasts all the time. They just don’t think of them as forecasts. In fact, you make forecasts many times every day. You take this travel route over some other route because you forecast it will save time or aggravation. On a larger scale, when you move to a new city, take a new job, get married, have children, or buy a house, you’re making a forecast about the outcome. Every life decision you make is a forecast — a bet — almost always made on incomplete or hidden information. Technical analysis entails forecasting, but don’t let that scare you. You’ll have plenty of data in dozens of formats to help you, and I describe nearly all of them in this book.

Unpacking Lingo

To get you started, most of the vocabulary associated with technical analysis that you need to know you learned in grade school. Here is a list of some of the important lingo to know:

- » **Chart:** The workspace of technical analysis is a *chart*. Much of the time the chart will show time along the horizontal axis and price along the vertical axis, but not always. (Some charts are formed differently, as I discuss in Chapter 15).
- » **Bar:** The price information on the chart is presented in several different formats, but usually you’ll see each period’s price as a standard *bar* showing the price open, high, low, and close. (Refer to Chapter 6 for more about bars.) Bars, or a series of bars, can be used alone to detect patterns that reveal how participants in that market feel about the security and therefore what might happen next to the price. (Chapters 7, 8, and 9 discuss how technical analysts use bars to forecast prices.)
- » **Candlesticks:** Another method of showing the same information that the bar does is the *candlestick bar* (see Chapter 8).
- » **Lines:** Drawing *lines* on the chart helps forecast future prices. For example, you may draw a line connecting a series of price lows and name it “support,” meaning you expect the traders in this security will see the next low as a buying opportunity, raising the price again. (Chapters 10 and 11 provide more detail.)

» **Indicators:** You want to enhance the information in the price data by arithmetic manipulation, creating *indicators*. Indicators comes in all shapes and sizes. For example, you see a price chart where the price jumps all over the place. You have no idea whether to buy it or at what price. Now take an average of the closing price over the past 20 days to smooth out the price jumps. Does that line of averages point up or down? Aha! You may have identified a tradeable trend. I describe a wide range of indicators in Chapters 12, 13, and 14.

Buy-and-Hold Is Bunk

You may think that active trading is too much work and too uncertain to spend the time on. Why not just 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'll rise more or less in sync with the overall economy so that avoiding turnover saves you transactions costs and taxes. Besides, who are you to suggest a security is over or undervalued?

One reason to distrust buy-and-hold is that over really long periods, returns aren't very good at all. Stocks from 1950 to 2018 returned 11.1 percent annually. Bonds returned 5.8 percent. If you had a 50/50 stock and bond portfolio, you averaged 8.8 percent. The average return on the S&P 500 over the past 30 years is only about 8 percent. In order to get higher returns, you had to pick one of the periods when market was in a bull market phase. In the United States, from 1927 to 2018, the Standard & Poor's equity index has been in 25 bull market phases, meaning it rose more than 20 percent. Each one averaged about three years, and the average return of each of the bull markets was 127.36 percent. But the S&P also fell 20 percent or more, defined as a bear market, 25 times over that same period. Timing counts.

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 more than 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 14 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'd now need to make a gain equivalent to 100 percent of your remaining capital to get your money back. Ask yourself how often anyone makes a 100 percent return on investment.

- » During the Crash of 2018, the S&P fell 6.2 percent and the Dow 5.6 percent, the worst performance in a decade — during a year that saw the highest economic growth in a decade.

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, you shouldn't get bubbles and crashes, and yet undeniably they happen. 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.

Can you beat the market using timing over buy-and-hold? Yes. *Timer Digest* has tracked dozens of timers in gold, bonds, and equities who publish newsletters over the past 35 years (www.timerdigest.com). In 2018 alone, the S&P ex-dividends fell 6.24 percent. The top ten timers had gains ranging from 12.86 percent to 40.32 percent. Over the past ten years, the S&P rose a cumulative 177 percent. The top timer had a return of 249 percent. The timers aren't getting one-time lucky. You see the same names over and over again.



REMEMBER

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.

Before diving into technical analysis, first you have to appreciate that it's the chart that determines the trading decision, not the underlying fundamentals of the security. You don't have to follow earnings, management style, new inventions and designs, or any other qualitative aspect of an equity security. In commodities, that might be the weather in Brazil or Chinese demand for rare metals. In foreign exchange, you can ignore inflation, GDP, and central bank forward guidance.

You can still use fundamentals if you want to. Although technical analysis is the central factor in the trading decision, it doesn't have to be the *only* factor. Many technical analysts use programs to winnow out the best candidates in a list of securities based on fundamentals like earnings, dominance in its sector, sales

forecasts, dividends, and so on, and then apply technical analysis to the select few that remain.

Fundamental analysis and technical analysis aren't enemies. They can be combined to complement one another.

Recognizing Who Uses Technical Analysis

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.



REMEMBER

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 use technical analysis to 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.

Remembering the Trend Is Your Friend

You can look at most charts and see that securities prices tend to move in trends, and trends often persist for long periods of time. Opinion varies as to how long any specific security remains in trending mode. It may be 20 percent or it may be 80 percent. A *trend* is a discernible directional bias in the price — upwards, downwards, or sideways. Many people don't 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 time frame to include more time, you often see that a sideways move is a transition phase from one direction to the other, often on a sudden breakout. You gain an edge when you can forecast a change in direction, even if you don't know yet which way. The secret to successful trading is to buy at a low price and sell at a higher price. The chart displays lows and highs, and your charting work should indicate where you can next buy low and sell high.

In these sections, I show a model for identifying trendedness and how technical analysts use the model to make money.

Charting your path

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

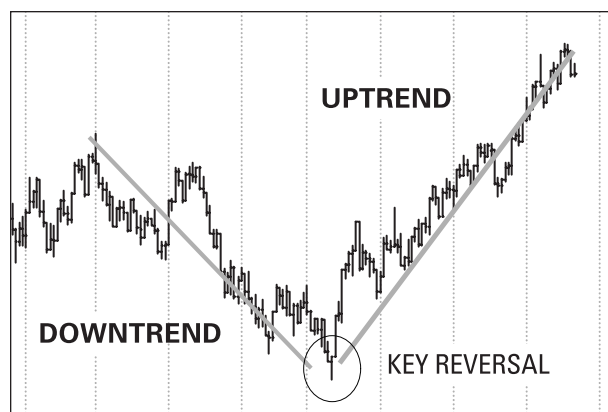


FIGURE 1-1:
Uptrend and
downtrend.

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REMEMBER

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'll spend most of your time. Unfortunately, most charts aren't as clear-cut as to the correct trading decision as this one.

Trendiness versus trendedness

To say that something is on a trend is to say that it's moving in a specific direction and exhibits evidence of a tendency to continue in that same direction. The use of social media like Twitter and Facebook is a trend. What's the difference between trendiness and trendedness?

- » *Trendiness* implies a fashion or fad that may wither and blow away, like skinny jeans.
- » *Trendedness* refers to a measurable directional bias. It's a more serious word reflecting a more serious and enduring phenomenon.

Skinny jeans may be out of fashion 30 years from now, but social media will probably still be around and securities charts will still be exhibiting price trendedness.

BECOMING A QUANT

You don't need to know any math at all in order to use technical analysis. If the word "algorithm" makes you feel faint, fear not. It's enough to know the difference between big and small, up and down, black and white.

Math is a shorthand method of expressing what nonmath types (me included) put into words. For example, I may say, "The price is moving upward at a faster pace than before." The math person measures the exact extent of the upmove in arithmetic terms such as momentum. He takes today's price and divides it by the price times number of days ago. He does this for five days in a row and gets a momentum indicator that is a higher number every day. Just because the math person has a number doesn't make his trading decision any better than yours without the number — the observation of the price event is equally valid however you express it.

You can use indicators that you put on the chart yourself from your charting program, broker platform, or website that lets you fool around with their indicators — without knowing or caring about the math behind the indicator. Your job as a student of technical analysis is not to know exactly how an indicator is calculated arithmetically. It's to know what the indicator is indicating and what decision the indicator is suggesting to you.

Don't worry about finding a user-friendly program to do the math work for you. Twenty years ago, both the data and the software were very expensive — now they're a given. Do a web search of "free charting software" and you get more than four million hits, including reviews of the programs.

Picking a time frame

You don't have to select a time frame 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 properly executed. 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've retired or are temporarily out of work. I know of one auto company president (yes, president) who got through a rough patch (meaning unemployed) by day trading.



REMEMBER

Complicating your decision about what time frame to trade is the weird and wonderful aspect of market prices named their fractal property. *Fractal* refers to the odd fact that a price chart of a security on a one-hour time frame basis can't be told apart from the price chart on a four-hour time frame or daily time frame or even weekly. If the chart isn't labeled along the bottom horizontal x-axis to disclose its period, you can analyze it using any indicator and get the same outcome as you would get on any other time frame.

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. All technical analysis methods fall under the broad term *quantitative analysis* to set it apart from fundamental analysis.



TIP

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 3 and 4. *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 5) 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 this term 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 4 and 5 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 isn't 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 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.

Algorithmic trading

Algorithmic trading, also referred to as *algo trading*, uses a specific set of conditions, including technical analysis indicators, to trigger a trade. After the computer identifies that all conditions are met, it automatically sends the trading order to the broker. Computer programs are faster than human brains or fingers, so ordering a trade as quickly as possible is one of the benefits of algo trading. Some algo trading companies pay for data collection sites a few seconds closer to the physical location of exchange data. Conditions can include time of day, volume, and other parameters as well as nuts-and-bolts technical analysis indicators. Algo trading, like technical analysis, removes emotion from the trading decision.

If you're a beginner in technical analysis, you won't much care about algo trading, but you should have at least an outline of what it is in order to know the lingo and be able to judge commentary and promotions.

Understanding how algo trading works

Here is algo trading in a nutshell: A modeler designs a set of indicators, all expressed mathematically, and devises a buy/sell program to execute the trades automatically with no human participation after the original design. As in all technical analysis, the design relies upon present price behavior repeating past price behavior. The modeler is using the very same indicators you'll be using after you get started in technical analysis.

Algo trading gone berserk has been blamed for a rise in volatility, especially in the U.S. stock markets, and for at least two flash crashes (a *flash crash* is an abrupt, unexpected, extreme drop in prices in minutes):

- » In 2010, the Dow fell 998.5 points in 36 minutes before recovering.
- » In June 2016, algo trading was blamed for the collapse of sterling after the Brexit vote. Sterling has yet to recover.
- » In 2018, the Dow fell 800 points in ten minutes before recovering.

Algo models often use a strategy of systematically placing *slices* of the total order at specific time intervals to conceal the trader's position from the rest of the market, such as 20 percent of the capital stake at ten-minute intervals as long as the price is moving favorably. When the model identifies the end of the price move, the algo system will dump all the slices, all at once.

Noting the benefits of algo trading

The primary benefits of algo trading are as follows:

- » It takes human decision-making out of the immediate trading decision.
- » It's much faster. The computer can do in nanoseconds what takes the normal person at least a minute or two.

Much algo trading is high frequency trading (HFT), meaning in and out again in seconds. This is “trading without emotion” in spades!

The predecessor of algo trading was HFT, which is now a feature of algo trading, too. HFT is based on the high speed of computerized trading. The value comes from being able to get in and out of a trade very, very fast, and generally with a large number of trades and small gains or losses per trade. You wouldn't buy and sell a stock for a one penny profit, but if you're doing it with \$1 million and doing it dozens of times per day, if you get it right, you'll make hundreds of thousands.

Rocketing to the moon

What is the difference between algo trading and a robot? None. A robot performs the same functions — to find a defined set of conditions expected to deliver a gain and to place the orders with the broker without human action. Many brokers offer the capability of designing your own algo system, although transaction fees can be high. What they offer is special algo-building software and a trading platform that allows automated trades. Automation is the key to the speed, but you can also find programs that require manual approval before the trade is placed. You don't have to be a programmer to engage in algo trading; you can buy algo formulas online.

Or you can buy a *black box* algo trading systems from many different vendors, including brokers. They're named black box because the indicators dictating the trades are, usually, a secret. The trading rule for an entry may be something as simple as “buy if the open is higher than the close the day before.” Some are undoubtedly far more complicated.

ALGO TRADING BECOMES AI

When an algo trading system gets the ability to think, otherwise known as *machine learning*, it becomes *AI* or *artificial intelligences*. The essence lies in the computer program being able to modify some aspects of its performance using feedback. Say you have a system that always buys a security when its price has fallen by x percent, based on the observation that an x percent drop is the most probable norm for a bottom over many instances in the price history. But now market volatility is higher — prices change direction faster and after lesser moves. The program records these lesser moves and, without human judgment, alters the buy rule to (say) 15 percent. At the minimum, AI makes a technical trading system more adaptive and does it far more quickly than a human can do.

The fancier AI story would be when the machine can observe dozens of nonprice factors, such as the overall index to which the security belongs, economic data, or news events like central bank policy changes, and can simulate the price change in this one security in a flurry of mock trials — in nanoseconds. It calculates the probability of each of those events and all combination of those events as a price influencer. As the actual information becomes available, like an economic data release, the program starts all over again with the new information and its now-known effect. This effect becomes an input in the next round of mock trials. And as I keep saying, the rules of probability hold that the more trials you can run, the more reliable your forecast.

This form of AI is growing by leaps and bounds in medical diagnosis and treatment as well as other fields, including the rapidly improving hurricane forecasting. There is now facial recognition, self-driving cars, Apple's Siri and Google's Alexa, and thermostats that track your habits to adjust the temperature in your house.

This form of AI will someday become the true pinnacle of technical analysis. It's possible that some fund managers are already there, or close to it. More than one big-shot fund manager has designed algo systems to mirror his own thinking in a way that is mathematically expressible and thus programmable, but going beyond technical analysis. In the U.S. equity market, JP Morgan estimated in early 2019 that various quant strategies manage at least \$1.5 trillion. Another scary idea from JP Morgan is that traditional nonquant investors account for only about 10 percent of U.S. equity trading.

But note that somebody — a human — has to design the feedback protocol in the first place. A researcher can discover that a central bank rate decision affects a stock, bond, or currency price on x percent of the occasions and generates a y percent move. But if you get an y percent price change in the absence of the trigger event, the computer program is at a loss as to where to look for the cause in order to include it in the next iteration. The program can always go hunting for some data event that seems

correlated and possibly causative, but the program won't know whether the data event makes sense. You could end up with the price of oranges in Marrakech as a determining factor in a buy signal for IBM. A computer program can beat a human at chess, but it can't invent chess in the first place. The point is that while employing technical analysis qualifies you as a quant, not all quants are technical analysts.

Why Technical Analysis Works and What Can Go Wrong

Technical analysis works because humans behave in repetitive ways in response to the same stimulus. Everyone jumps back and yells “ouch” when their hand touches too-hot water. People did that in 1000 BC, and they do it today.

In measuring market sentiment, history repeats. The traders facing the 1989 stock market crash and the 2018 crash reacted exactly the same way as the traders in the 1929 stock market crash; in all cases, market players exhibited both flight and fight, the classic response to a fearful event. Granted, technical analysis uses scientific measurement to measure an unscientific object, the market. Human behavior repeats, but not in as precise a known range as actual hard objects like metal or water.

Many indicators contain an implicit instruction as what to do — buy or sell the security — but no indicator will tell you how much money to place in this single trade or what to do if your indicator and therefore your forecast is wrong. Yes, indicators have a high probability of being right, but high isn't 100 percent certainty. That means there is some *risk* of loss when indicators are wrong. And indicators will be wrong some percentage of the time and you need to have a trading strategy to guide you through whatever pitfalls emerge.



REMEMBER

The ultimate tactic is to set a sell price that incorporates the worst loss you're willing to take. Some technical analysts have good indicators but fail to manage risk properly, meaning in line with the amount of capital they have and how much loss they can tolerate psychologically and financially. All securities trading entails taking losses, and technical analysis is no exception. One of the main contributions of technical analysis to the finance industry is forcing you to face head-on the potential gain and loss of every trade, that is, to quantify gain and loss in an unemotional, rational way.

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'll 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. You can also choose your exit based on dollar amounts, either the hard number (\$200 and not penny more) or as percentage of capital stake per trade. Or you can mix methods, always exiting a position if the loss is \$200, but letting gains accumulate until an indicator tells you the party is over.

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.

In early 2019, Warren Buffett reported a \$3 billion quarterly loss in one of his supposedly “high value” brand companies, Kraft Heinz, whose price fell from \$96.65 in February 2017 to \$34.95 by February 2019, losing nearly two-thirds. Maybe the stock will recover and maybe it won't, but no technical analyst would accept so large a loss and would have exited before it got so big, using the money from the sale to trade/invest in something that was going up instead of down.

Controlling losses to protect gains

Preventing and controlling losses is more important than outright profit seeking to practically every technical trader you meet. The technical analysis approach is inherently 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.



TIP

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 you also manage the risk of the trade over the lifetime of your ownership of the security. You never buy it and forget it. The technical analysis mindset is constantly aware that the gain needed to recover a loss rises in the most awful way, as Table 1-1 demonstrates. How can you know that a specific trade may result in a loss of (say) 20 percent? Although you can't know the outcome of any trade with 100 percent certainty, you *can* know with 100 percent certainty how much you could lose. That's because you'll set a worst-case loss limit at the same time you order the purchase. The worst-case exit price is usually set by your own dollar amount, say x percent of the capital stake in the trade. You may or may not set a profit-target at the same time. Knowing the expected gain and loss ahead of time is the central feature of the technical mindset, which is referred to as managing the trade (check out Chapter 5).

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%
75%	300.0%

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.



TIP

Even though the term “breakout” is powerful, it isn’t always correct. You’ll run into situations where a breakout isn’t respected, and the price resumes the direction it was headed in the first place. In short, some breakouts are false — they lead you to the wrong deduction.

The biggest mistake that beginning technical traders make is attributing too much reliability and accuracy to technical methods. I talk about this issue in Chapter 3. 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’ll 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 isn’t worthwhile when techniques aren’t 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.



REMEMBER

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. Consider 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.



REMEMBER

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 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 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 time frame 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. The following are a few examples:

- » In May 2010 the Dow fell 1,000 points, attributed to high-frequency algorithmic traders.
- » Exchanges (in Tokyo, London, Frankfurt, and New York) experienced data problems during which data was delayed or missing, or the exchange was closed. A subset of data problems is new rules, usually temporary, forbidding the shorting of certain stocks, such as banks.
- » The Shanghai stock index fell 5 percent in a single day in July 2019 and set off declines in equity indices worldwide.
- » The Associated Press Twitter feed was hacked in April 2013 with the message that the White House was bombed. The Dow fell 100 points.

- » By February 2018, the S&P was down 10 percent from January 1 and by December, the losses were the most in more than a decade, even though the economy had the best growth in more a decade.

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 — forecast — human behavior. Most people can do it only imperfectly, but you and I can both do it.



REMEMBER

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 discards an idea — it just finds more efficient ways to capture price moves. After the PC 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.

What do analysts know for certain?

- » 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 sun-beam? . . . 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 or website 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 websites 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'll 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.



WARNING

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

