# The Essentials of Trading

*From the Basics to Building a Winning Strategy*

**JOHN FORMAN**


John Wiley & Sons, Inc.

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# Contents

# Foreword

As a psychologist who has worked with many professional and casual traders, I have received numerous requests for reading material appropriate for those just beginning their journey through the trading world. With the publication of *The Essentials of Trading: From the Basics to Building a Winning Strategy*, John Forman has addressed this need most admirably. Intrepid souls considering the pursuit of the markets as a vocation or avocation will find in these pages a lucid, engaging, real-world account of what trading is all about.

John is the Content Editor for the popular Trade2Win web site, an online community of traders. His familiarity with trading and traders, born of this and his own direct market experience, is evident in his text. As an author myself, I know how difficult it can be to write an introductory work that avoids the twin perils of talking down to readers versus writing over their heads. John navigates this path effectively, taking readers first through the basics of placing trades and understanding how markets work and then progressing to the development of trading plans, the implementation of risk management, and the building of trading systems. His incorporation of exercises and use of examples brings topics to life, maintaining the interest of even the most hyperactive traders.

When I was writing my book *The Psychology of Trading*, I posed the questions: What is the core skill involved in trading? What separates successful traders from their many, less-successful counterparts? The answer I came up with—and that the intervening years of experience have validated for me—is that the essence of trading is *pattern recognition*. Experienced traders become keen observers of bids and offers, flows of volume, and price shifts that are the hallmarks of auction markets. Over time, they become sensitized to repetitions of these patterns and learn to identify these as they are occurring.

Research in psychology refers to this process of pattern acquisition as

*implicit learning*. It is how little children learn to speak grammatically even though they cannot enunciate the formal rules of grammar. Most successful traders cannot verbalize their expertise in a way that would allow another person to immediately duplicate their success, and yet it is clear that these traders do hold knowledge at an implicit level. *They know more than they know they know.* Though the end product of this knowledge seems like an intuitive hunch, it is actually a sophisticated form of understanding that results from a high level of immersion in a field of study.

Investigations across a variety of performance domains, from chess playing to athletics, suggest that years of structured, deliberative practice are needed to achieve expertise. This is why surgeons require years of study, why Olympic athletes prepare for events with years of daily practice, and why fighter pilots spend long hours on simulators before they take to the skies. Of course, not all of us who pursue trading will seek comparable levels of expertise. My experience, however, suggests that even more modest levels of trading success, such as annual profitability, require substantial investments of time and effort in implicit learning. You will need to see thousands of patterns—and their myriad variations—before they begin to feel so familiar that you can pick them out of the chaotic flow of price and volume changes.

Why bother? While trading might seem like an easy way to make a living—click a mouse, place a few trades, and watch the money roll in—the reality is far different. It is not easy to sustain concentration for hour after hour, removing ourselves from social interaction and the basic security that most jobs offer. Markets are forever changing in their trending qualities and their volatility; successful strategies during one set of years often perform abysmally thereafter. Periods of losing money are common, even for the best and the brightest traders, especially at such times of market shifts. With no fixed salary, no fringe benefits, no assurances of success, and very little social recognition, why endure the lengthy learning process demanded by trading?

The answer to this question is complex, and ultimately it is psychological. The majority of people work at jobs where the outcomes of their efforts are determined by teams of individuals and many groups of teams. While this adds a valuable social dimension to the work experience, it distances workers from the concrete success or failure of their labors. I may write software code for a video game or telephony application—and I can certainly take pride in my work—but whether the end product becomes a massive hit or bomb is largely out of my hands. It depends upon the collective efforts of many others, including management, sales, and design professionals.

Trading, like individual sports, strips the layers that normally separate people from outcomes. Every trade has a profit/loss number attached to it.

At the end of the day, traders know exactly how they performed. Average workers in a mediocre business can always reassure themselves that they are doing good work, even as others make a mess of things. There are few such reassurances in trading. You either performed or you didn't: The credit for success and the responsibility for failure will lie squarely on your shoulders.

Those with a passion for trading are attracted to this challenge. They recognize that trading is one of the few activities in which individuals can directly compete with the world's finest talent and take full ownership for success or failure. Traders may be employed by firms, but ultimately they work for themselves. They decide when they will buy, sell, or hold tight. They determine their economic fates. For the passionate ones, such a prospect is more than a vocation or avocation: It is a calling.

If you are one of the ones who feels called to trading, John Forman's text will be an excellent introduction and guide. After reading it, you will not be ready to trade successfully—that, after all, requires the immersion necessary for implicit learning. You will, however, be prepared to begin your training and ready yourself for the challenges that lie ahead. Look hard enough, and you will find qualified mentors and helpful, experienced colleagues at trading firms and in online communities such as Trade2Win. They will help you build upon the knowledge you gain from this book and accelerate your learning curve. You are about to embark upon a journey. May it be profitable—in all respects!

BRETT N. STEENBARGER, PH.D.
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*November 2005*
*Naperville, Illinois*

# Preface

This book started with the intention of providing university finance and economics students with a practical, real-world resource they could use to learn about trading the financial markets. While structuring the text, I had in mind the length and progression of a standard college semester-long course. In fact, even before I started putting it all into book format, the contents and presentation that follow were successfully applied in a series of university level graduate and undergraduate financial markets and managerial economics courses.

Anyone who has been through a finance curriculum knows that most modern financial coursework is biased toward application in an institutional environment. It does not provide much direct use to the individual in terms of personal investment, risk management, and/or speculative efforts. This text seeks to take a different approach, one that focuses more directly on the individual, but with institutional carryover application of use to those who are, or eventually will become, involved in decision making at that level.

That all said, this book was written for anyone and everyone. While a general knowledge of the financial markets is useful, it is not required. Most of the students with whom I have worked over the past several years had some knowledge of things like the stock market, but they were complete novices to actually trading. For that reason, this book starts at the very beginning, so that no reader—student or otherwise—is forced to play catch-up.

In the course of presenting the basic trading materials, the text touches on some topics that are likely to be new to the reader. I have, throughout, tried to address these concepts in a concise manner. There is not sufficient room here, however, to go into detail on every possible subject put forward, and I have no way of knowing for sure what subjects any given reader will need more information on and what they will not. For

that reason, the additional resource of this book's dedicated web site (www.andurilonline.com/book) has been developed to allow readers to research specific topics of interest to them in an up-to-date fashion, which cannot be accomplished by a printed work in these rapidly changing times. It also provides access to the support tools mentioned at various points in the text, as well as to the free companion workbook materials designed to complement this book.

The first portion of this text is Chapters 1 and 2 lays the basic groundwork. The Introduction discusses recent changes in the financial arena and the impact they have had on the individual and their ability to actively participate. The Getting Started section takes the reader through the process of opening a demo trading account for the use of practice (so-called "paper") trading via a hypothetical ("demo") account. The third section, Trading Mechanics, steps through the actual process of executing transactions—making, managing, and monitoring trades.

The second portion of the text is Chapter 3 in which the focus shifts to understanding the markets and how they move. In the lead is Influences on Price, the section in which the various market movers are discussed—answering the question "Why?" Following that, in Price Movement, is a look at the actual way prices move from a quantitative viewpoint, taking a more "How?" approach.

It is in the third section of the book that the heavy lifting gets done, starting with Chapter 4. The concept of the Trading Plan is introduced and defined. Within that overall structure, in Chapter 5, the reader is taken through a discussion of Risk Management and then in Chapter 6 an exploration of the types of Market Analysis. That is carried forward into the Trading System Development and Evaluation process.

The subject matter is finally wrapped up with an exploration of topics that may not be quantifiable in all cases, but nevertheless play an important role in the trading process, to include elements of trading psychology. There are also some recommendations proffered as to courses for further learning and education.

Throughout the book, there are exercises at each stage. They are specifically designed to lead the reader through practical application of the materials and intended to get the reader taking an active role in the learning process. If done in a contentious manner, these Homework assignments will help the reader develop comfort and familiarity with the materials presented.

The overall guiding element of this book is practical application. At the completion of the chapters that follow, the reader should feel quite at home executing trades and monitoring trading positions. In addition, they will have a firm understanding of the decision-making process in which the acts of trading are encapsulated. Finally, the reader should be well po-

sitioned to move ahead in the determination of the best trading arena in which to operate, how best to do so from a personal perspective, and how to develop strategies designed to generate profitable trading.

Please note, it is not the author's design to provide a specific method or set of methods to make money in the markets. Rather, it is the intent to provide a base of knowledge and understanding from which the reader may develop trading methods, systems, techniques, and so on best suited to themselves.

*The examples used in the pages that follow should not be taken in any way as trading recommendations or as endorsements of any particular trading strategy, method, system, or philosophy.*

For additional resources that support this text, refer to the web page set up for you at www.andurilonline.com/book.

# Acknowledgements

No significant project can be completed by one individual in a vacuum, this book included. My friends, family, and colleagues were an ever-present source of support and inspiration. The folks at Wiley deserve special thanks, as does Brett Steenbarger, who has been so supportive and helpful through the whole process of developing and publishing this book.

I would also like to most sincerely thank Dr. Gordon Dash for his many years of partnership, with further acknowledgments directed to those University of Rhode Island students who were part of the classes and discussions that motivated the creation of this text. Your questions, comments, and willingness to explore were of immense value to this project.

Heartfelt gratitude goes out to the staff of Trade2Win for their help and encouragement, especially Fran Oliver for his editorial assistance and Paul Gould for his understanding of the impact many, many hours in front of the screen were having on my productivity at the time.

Thanks to my coaching colleague, Diane Short. You may not always understand my motivations in taking on projects like this, but you are always willing to listen when I need to get things off my chest.

I also want to acknowledge the outstanding women of the Brown University volleyball team, past and present. It means more than you'll ever know that you have allowed me to be a part of your life experience. You are a constant source of inspiration and, of course, entertainment. And to all the families who support them, my thanks. You have raised fantastic daughters.

Last, but certainly not least, I would like to acknowledge all those traders out there making a go of it. This book is for you and about you. Keep chasing the dream!

# About the Author

John Forman holds a B.S. in Business Administration from the University of Rhode Island and an M.B.A. from the University of Maryland, both with concentrations in finance. He has nearly 20 years' experience trading and investing in a wide array of markets, and a background as a professional analyst covering the foreign exchange, fixed income, and energy markets.

John is currently Content Editor for Trade2Win (www.trade2win.com), a free community web site for active traders around the world. He is also a principal of Anduril Analytics (www.andurilonline.com), a group dedicated to financial markets education and research.

John is author of numerous articles on trading methods and analytic techniques, and has been quoted in major financial periodicals. He is active in financial education, regularly speaking with student groups and working on the development of educational programs and materials, especially at the university level.

Away from the financial markets, John coaches volleyball at the collegiate and youth level, among his other varied interests.

CHAPTER 1

# Introduction and Getting Started

In this chapter we define our topic, discuss recent developments in trading and what they mean for the individual, and get the reader ready for the practical work that comes in future chapters.

## INTRODUCTION

This portion of the text draws the reader into the realm of participation in the modern financial markets. There is a bit of history involved to set the stage, but this is hardly the place for an extended lesson on the development of markets and financial intermediation. That can be left for further study. Instead, the focus is on establishing the terminology and setting the parameters by which we operate through the remainder of the text. To that end, let us jump right in.

*Note:* Throughout this text there are a large number of terms used. Reader knowledge of some terms is assumed, while others are explained in greater or lesser detail. If there is a term used with which you are unfamiliar or for which you would just like more information, a great resource to utilize for definitions and in-depth explanations is the Trade2Win Traderpedia, which can be found at www.trade2win.com/traderpedia.

### Definitions

In order to explore trading, one first must define the term and explain the environment in which it occurs. At its core, trading is executing buy and sell transactions in the financial markets. This can be done through an individual account such as those with a stock brokerage firm, or through an institutional operation like that of a bank, investment house, or corporate treasury department. There are a great many financial instruments and markets through which transactions are exchanged on an ever increasingly global scale.

Actually, the aforementioned transactions are often not executed by those whose accounts they are to benefit, but rather through some kind of intermediary. An example is a floor trader at an exchange buying stock on behalf of an individual through a brokerage account. In Chapter 2, we discuss the actual transfer of financial instruments, and the mechanics by which that is accomplished. That is not, however, the intended overall focus of this book. Rather, for the purposes of this text we concentrate on the reasons for and consequences of those transactions.

The working definition of "trading" from which we operate herein is, in general terms, "the purchase and/or sale of financial vehicles for the purposes of pursuing speculative profits." This is not the sole purpose of trading, of course, but for the sake of what we are developing in this text, it provides a comprehensive point of reference for the diversity of trading that actually takes place in the modern markets.

Also, it should be noted that for the purposes of this book, the terms

"trading" and "investing" can be considered interchangeable. They are often given slightly different definitions in application, and one could go into a lengthy discourse defining the differences, but at their basic level they function in what amounts to virtually identical fashions. As a result, though we use the term "trading" throughout, the principles discussed are equally applicable to "investing."

If so desired, one can further narrow down the concept of trading. This is often done in terms of time. Day traders are in and out of positions strictly during the span of a trading session (as defined by the market in which they trade), with no overnight positions. So-called swing traders take positions that they expect to hold for one to three trading days. Other traders measure their holding periods in days to weeks, or weeks to months. There is also a group known as scalpers who measure their trades in minutes, looking to take quick, small profits. The time frame in question matters little, however. The same overriding objectives apply, and they are the subject of this text.

Traders also define themselves in other manners. Some do so by the type of analytic method they use. Others base their definition on the market or markets in which they operate. Still others classify themselves by the trading platform or transactional method used. One could, if so desired, have a rather lengthy description of them. For example, the author at times considers himself a "technical S&P futures swing trader," while at other times a "hybrid stock options position trader," and at others a "quantitative spot forex day trader." These varied categories become more clear as we progress.

**Financial Markets Readily Available to the Individual Trader**

- *Equities:* Stocks and shares representing ownership in companies.
- *Indices:* Composite market indicators that track the movement in a collection of assets or securities such as stocks (Dow, S&P, FTSE), commodities (CRB Index), foreign exchange (Dollar Index), and others.
- *Fixed Income:* Eurocurrency, government debt instruments, corporate bonds, mortgage-backed securities, and other related instruments.
- *Foreign exchange (forex):* Currency exchange rates.
- *Commodities:* Primarily (but not exclusively) tangible goods like metals, energy products, and agricultural goods.

The markets and instruments just mentioned can be traded in a number of fashions via exchanges, over-the-counter (OTC), electronically, or through interbank transactions, and either directly or through the use of derivatives.

There are also a number of growing nontraditional methods for speculating in the markets, such as spread and fixed odd betting.

## Modern Trading

Effectively trading the financial markets in some of the shorter-term time frames just mentioned once was quite difficult. The only way the individual trader could get real-time intraday price data was to be at the exchange or in a broker's office watching the ticker. Transaction costs were high, volumes were lower, and bid–offer spreads were wider. This meant that the individual trader had to be well capitalized in order for the cost of trading not to have significant impact on the performance of their portfolio or account. Traders were also limited as to the number of different markets they could play.

Things have changed significantly in that regard. The modern individual trader can access information from across the globe at a moment's notice. He can trade in several different markets simultaneously. She can operate from almost anywhere in the world, executing orders nearly instantly day or night. Transaction costs are a fraction of what they were, and spreads have narrowed sharply across the board. Today's trader has market access that just a few years ago was restricted to only the big institutions and hedge funds. Technology has changed the landscape.

The combination of widespread access and the rapid stock market climb of the late 1990s created a huge interest in trading in general and day trading specifically. The seemingly easy way one could make money in the market drew new traders by the boatload. One could hardly get through a week without hearing about someone who had quit their job to trade full-time. The stories were fantastic. There was money just waiting to be made!

## Market Changes

Then came 2000. After Y2K was ushered in, with far less drama than so many predicted, things started to change. The stock market continued to go higher in the early part of the year, but quickly rolled over and started a massive decline. The NASDAQ eventually would lose about 75 percent of its value. Suddenly, it was not so fun or easy to be a trader in stocks. Those who had developed a good, comprehensive strategy were able to survive. Some even thrived. Many, many more watched in shock as their portfolios plummeted in value. Their departure from the market can be seen in Figure 1.2.

Figure 1.2 is a monthly bar chart of the Standard & Poor's (S&P) 500 index futures. Notice how volume (the bottom bar display) actually peaked in 1998, two years before the market topped. See also how average true range (middle plot) peaked in 2001 and has been declining ever since. Average true range (ATR) is a measure of how much actual price movement is taking place (measured in points). Interestingly, the monthly

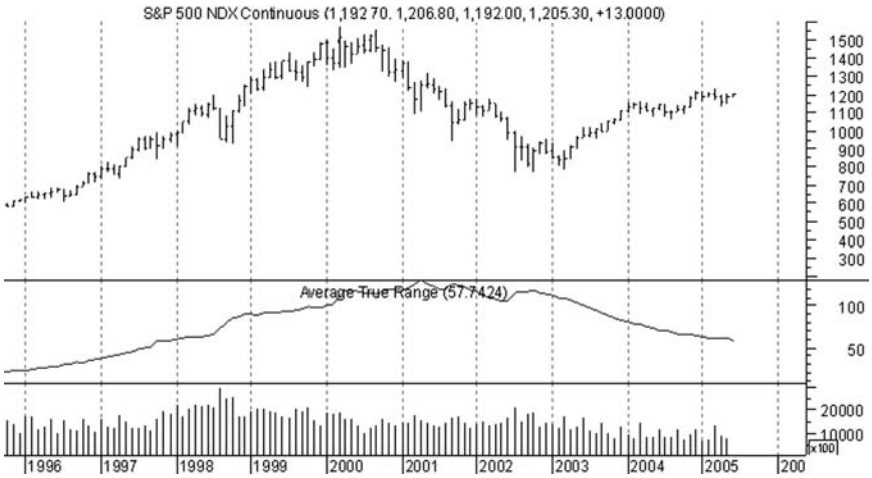



**FIGURE 1.2** S&P 500 Futures, 10 Years Continuous
*Source:* Metastock.

trading ranges (as measured by ATR) seen in late 2004 are very close to what they were in 1998 at the volume peak.

The withdrawal of the individual speculator is a big factor in both the relative decline in volume over the past several years and the narrowing of the ranges seen since the peak in 2001. This is a recurrence of a similar situation that took place in the 1980s and early 1990s. Refer to Figure 1.3.

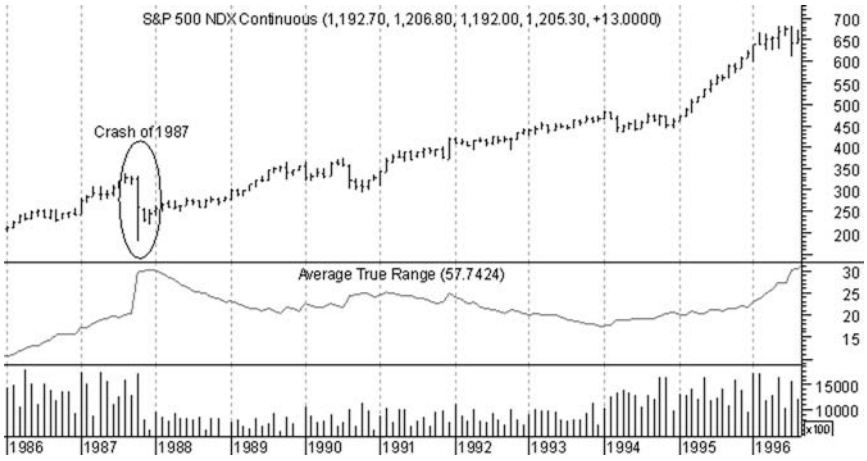



**FIGURE 1.3** S&P 500 Futures, 1986–1996
*Source:* Metastock.

Again we are looking at the S&P 500 index futures, but the time span has been shifted back about 10 years to show the Crash of 1987 and what happened in the subsequent years. Notice how both volume and ATR peaked out at around the time of the crash. Both then dropped significantly thereafter as the trading public withdrew from the markets. It took nearly a decade for volatility and volume to return, even though the market was steadily moving higher almost the whole time. Institutional trading such as that done by mutual funds and pension managers continued, but it took years before the public got over the trauma of the market's decline in 1987 and again became active. It would not be a reach at all to see the same sort of thing happen during the first decade of this millennium.

## New Developments

The stock market was the first one to become readily accessible to the average trader. Online trading proliferated quickly in the late 1990s as Internet-based platforms were launched by brokerages both new and old, and trading online contributed to the increased public presence in the stock market. Since then, the online trading universe has continued expanding rapidly. Not only has it become possible to trade stock options and bonds of all kinds through a broker's Internet site or online platform, the individual can now also trade futures and foreign exchange (forex) electronically. In fact, the forex market has probably seen the biggest growth, and has been at the cutting edge of the technology and risk management systems underlying the pricing and execution processes.

Figure 1.4 is comparable to the previous one of the S&P 500, covering about the past 10 years. It depicts the rate of exchange between the U.S. dollar and the Canadian dollar in terms of the number of Canadian dollars it takes to equal one U.S. dollar.

Notice in the graph how volatility, as measured by ATR, has tracked steadily higher in the past decade. There was a period of flatness in the middle of the graph, but at basically the same time stock market volatility was declining, it was on the rise in the foreign exchange. This is at least partly due to the market becoming much more easily accessible to the small trader, and increasingly popular in that market segment.

The forex market is the focus for much of the trading discussion throughout this text. By no means should that be taken to imply that trading in currency exchange rates is any better or worse than trading in any other market. It is merely a reflection of the fact that forex is the biggest (daily volume in the trillions of dollars), most liquid of the global financial markets. More importantly for our purposes, it is one that can readily be traded 24 hours per day. In the education of a trader, forex is quite handy. Unlike other markets that are exchange-based, and therefore have set

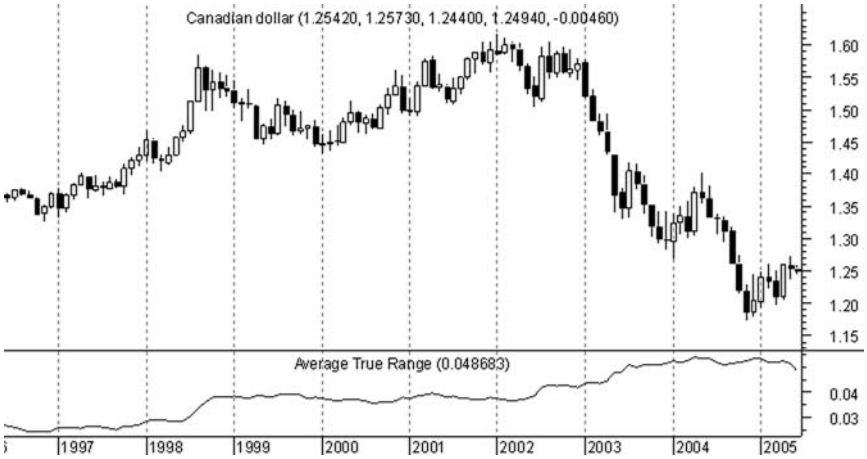



**FIGURE 1.4** Canadian Dollar, 1996–2005
*Source:* Metastock.

hours, forex allows one to practice at whatever time is most convenient. One can also trade long and short with equal ease.

"The market is inefficient. News is released inefficiently, volume is different across different sessions, and even forex still has the 'trading day' effect, whereby the mere fact that traders are primarily working from the early morning to the early afternoon will change the behavior of prices. Keep that in mind."—Posted on by Phantom_Photon on the Oanda FXMessage board (http://ww2.oanda.com/cgi-bin/msgboard/ultimatebb.cgi).

## Efficient and Random Markets

Before continuing, take time to consider the efficient market hypothesis (EMH) and random walk theory (RWT). The EMH posits the idea that at any point in time the price of a given financial instrument reflects all relevant historical or anticipated future information. For the EMH to be true, however, there must be perfect dissemination of information and rational reaction to new data by market participants.

The EMH can be rebutted on both fronts. Taking the information dissemination first, it is essentially impossible. Traders do not all have the same access to news and information. This is partly a function of structural elements (unequal distribution of technology), partly a function of

attention (traders are not all looking at the appropriate news vehicles at the same time), and partly a function of the timing of dissemination of news and information (information is not always released via all the necessary vehicles simultaneously). The result is a kind of wave result as traders get, then react to new information at differing times. Sometimes the wave is relatively short. At other times it is long and drawn out. (Using a recent class as an example, some knew that France had rejected the European constitution as soon as the vote results were announced, while others did not know for 24 hours, and still others did not know for 48 hours, all the while the euro was depreciating in reaction.)

As to the rational reaction to new information, one need look no further than to charts of actual trading to refute that idea. Figure 1.5 is a 5-second chart of the euro—U.S. dollar exchange rate (dollars per euro). What you see is the action that took place immediately following the release of important economic data. Notice the speed of the jump. In the span of about 25 seconds following the announcement (8:30), the rate moved from one relatively tight band up to start a new one.

Now you might be thinking that this would tend to support the EMH. The market, after all, is quickly assimilating new data and pricing those in. Take a look at Figure 1.6, though.

What you see in Figure 1.6 is what happened after the rapid market

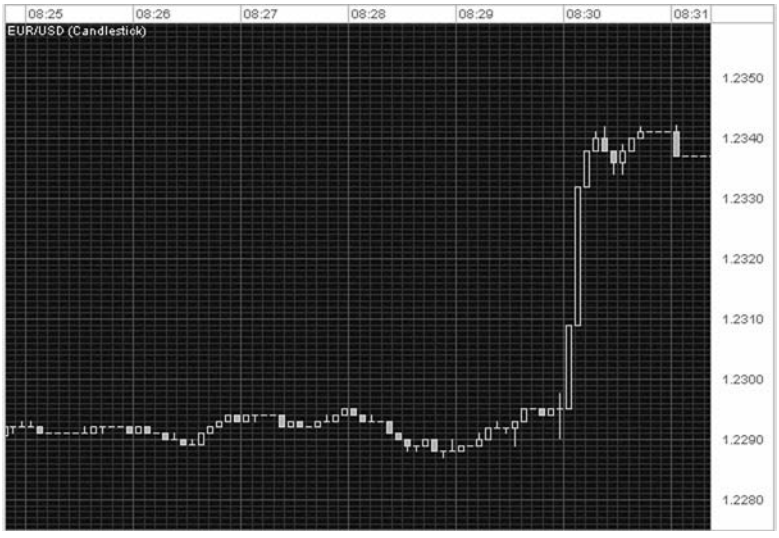



**FIGURE 1.5** EUR/USD 10-Second Chart 8:25–8:31
*Source:* Oanda.


**FIGURE 1.6** EUR/USD 10-Second Chart 8:30–8:40
*Source:* Oanda.

jump. In only a couple of minutes following the initial reaction, the market moved right back down to where it started, and in fact moved even lower.

What Figures 1.5 and 1.6 demonstrate is the human side of the markets—the sometimes emotional, irrational side. The data released were clearly not in line with expectations. Traders reacted swiftly, sending the market higher in a flurry of action. When cooler heads prevailed, however, things settled down and all of that excitement proved to be irrational.

Shifting to the RWT, the theory is that market movement depends upon news, and since news is unpredictable, so, too, are the actions of the markets. While we have seen in the preceding figures that news can be unpredictable, we can also see that price movement comes from more than just data. As will be seen later in the book, markets are influenced by multiple events and factors.

Although the RWT does not necessarily state this, many observers equate the appearance of randomness as meaning the markets are random. The argument goes something like this: If you plot some random action, such as the results of a coin toss, the chart that comes about looks a lot like the chart of a stock or other instrument. Random series often have patterns akin to those of market action. While that is so, it is a fallacy to say that just because a thing shares a common appearance to something

random that it is random itself. It does not work that way. One cannot prove randomness, as to do so would require proving the absolute lack of any nonrandom behavior.

### Moving Forward

So where does that leave us? Most market participants will generally accept that the markets are mostly efficient, especially the ones with large volume and high participation. At the same time, the best traders can often be heard to comment on how any given trade is subject to the whims of chance, a reflection that there is indeed a random element in the market. The premise of trading as we have defined it, however, is that an individual or institution can find opportunities in the markets providing better than 50/50 odds at success. By exploiting these situations consistently, traders can produce profits over time. The remainder of this text concentrates on the process by which traders attempt to do just that.

This book is not intended to be a "how to make a lot of money in the markets" manual. There will be no presentation of specific trading systems or techniques, except by way of example. Instead, the focus of this text is to first provide a base education on the process of trading the financial markets. The starting point in the next chapter will be execution.

## GETTING STARTED

There is a wide array of online trading platforms available to the individual these days. Throughout this text we show examples based on Oanda's FXTrade platform. Please see Figure 1.7. FXTrade is preferred for our purposes here for four important reasons:

1. *Foreign Exchange* FXTrade focuses on forex. We have already commented on how forex is a 24-hour market. That is optimal for the trading student as it allows for practice at any time of the day or night and is not restricted by exchange hours, as is true for many other markets.
2. *Unlimited Duration Demo Accounts* Most trading platforms provide free demo accounts, but they are normally only good for a fixed period of time (like 30 days). FXTrade's demo accounts (called "game" accounts) are open-ended. Once you sign up, it is yours for good, even if you eventually open a real account.
3. *Variable Trade Sizes* FXTrade's platform literally allows trades at any transaction size desired, within margin requirements, of course. That means one could trade 1 unit, or 10 units, or 12,132 units. This is a


**FIGURE 1.7** Oanda FXTrade Logo
*Source:* Oanda.

great feature when it comes to risk management. Other platforms have fixed transaction sizes with minimums of 10,000 units (some 100,000) with trade sizes multiples thereof.

4. *No Lower Limit to Real Account Sizes* Most trading platforms, when one sets up a real-money account, require minimum deposits that can range anywhere from $2,000 to $10,000 (or the equivalent in the account's base currency). FXTrade has no minimum. One can literally start with $1.

A lot of other goodies also go along with the platform, but we address those later. (*Note:* The author has used both demo and live versions of the Oanda FXTrade/FXGame platform for a number of years, and continues to do so, but has no beneficial relationship with Oanda.)

## Opening an Account

The reader's first assignment, and first step on the path of trading education, is to open an FXTrade game account. Start by going to the FXTrade web site at http://fxtrade.oanda.com. Look for the Open Demo Account link in the upper left-hand corner of the page. Click that to go to the sign-up page.

The form there is fairly straightforward. Follow the instructions as listed. The one section of the form you will need to decide upon is the Account Currency selection in the Account Details area. FXTrade allows for accounts denominated in U.S. dollars, Australian dollars, euros, British pounds, Japanese yen, and Canadian dollars. Generally, the best course of action is to select your home currency, making things easiest for your personal accounting of gains and losses. For the purposes of this text, we will use a U.S. dollar account.

*As tempting as it might be right now, opening a real-money account is not recommended. First, learn how to trade. Then you can take the leap into live trading. There is a whole discussion of that very topic later in this text.*

After the online form is completed, there will be a confirmation

process before the account becomes active. Just follow the instructions. Once that is done and your registration is complete, log in.

(*Note:* The FXTrade platform is based on a Java applet. You may have some system requirements to meet in order to use it. The FXTrade web site provides a very good support section that should help resolve any such technical issues.)

Now that you are ready to go, let's take a look the FXTrade platform. The screen you will see upon logging in for the first time will look something like what you see in Figure 1.8. If it's all a bit foreign, don't worry. (*Note:* The examples provided below and throughout the remainder of this text were valid at the time of its writing. Oanda could, of course, make modifications to the FXTrade platform at any time. They have made numerous improvements during the author's years trading via their service, and will no doubt continue to do so.)

The platform has four basic sections. Each is addressed specifically

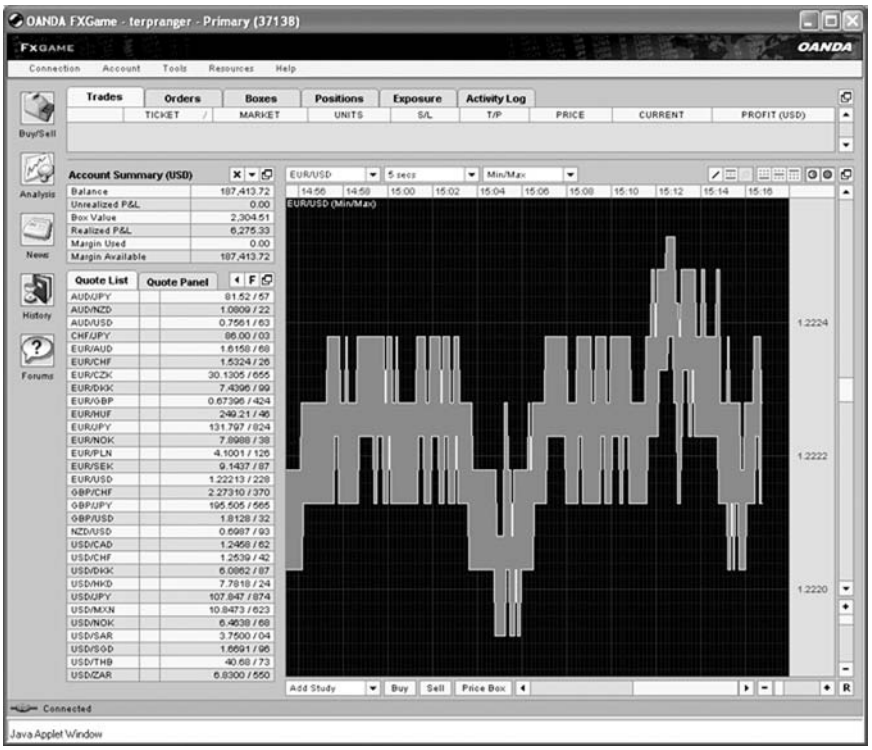



**FIGURE 1.8** Oanda FXTrade: Initial Screen
*Source:* Oanda.

either in this section as we go about preparing to trade, or in the next where we actually start working on making transactions.

Much of what you see on the platform is customizable to your taste and needs. What you see on initial launch is based on the FXTrade default settings. These are easy to change. Many of them can be adjusted through the Tools/User Preferences menu selection, which brings up the box in Figure 1.9.

These are all things that you can modify to your own preferences as you work with the system. Three items we recommend you change:

1. Click the Ignore Weekend Data check box, then the Hide Weekend Data box. For your Weekend Start you can safely use your local equivalent of Friday, 5 P.M. Eastern, and Sunday, 6 P.M. Eastern is a good Weekend End point. Those setting changes will make the graph more readable by eliminating the time when the market really is not trading.
2. Change the Profit Column Format (right-hand column) to Home Currency. Its default setting is PIPs. That means when you are monitoring

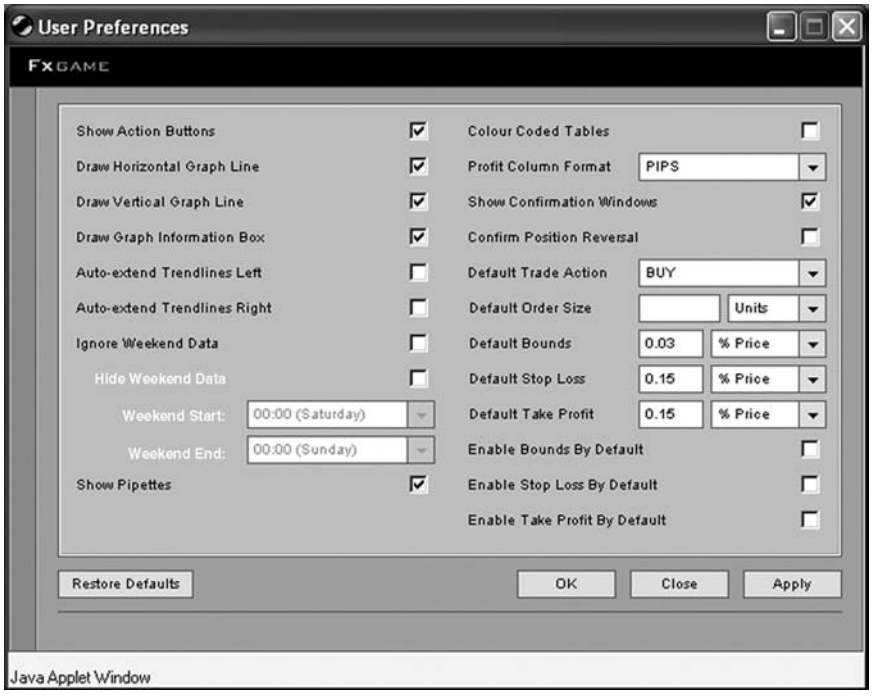



**FIGURE 1.9** Oanda FXTrade: User Preferences Screen
*Source:* Oanda.

an open position, you will see it in real terms rather than as points. That will let you better see your performance in actual account terms.

3. Click the Confirm Position Reversal box. This will give you a notice when a new order would reverse an existing position (long to short or vice versa).

What we end up with is Figure 1.10.

The remainder of the options can be changed later as you start to become more familiar with the platform and establish your trading patterns to suit your needs and/or preferences. For now, you can click OK and we will move onward.

If you would like to change the font size setting for the platform, that can be done through the Tools menu.

There are two other things you will want to consider changing.

4. The graph display. The default is a 5-second graph using the Min/Max format. You will see three drop-downs above the graph with which you can change the currency pair displayed, the time frame used, and

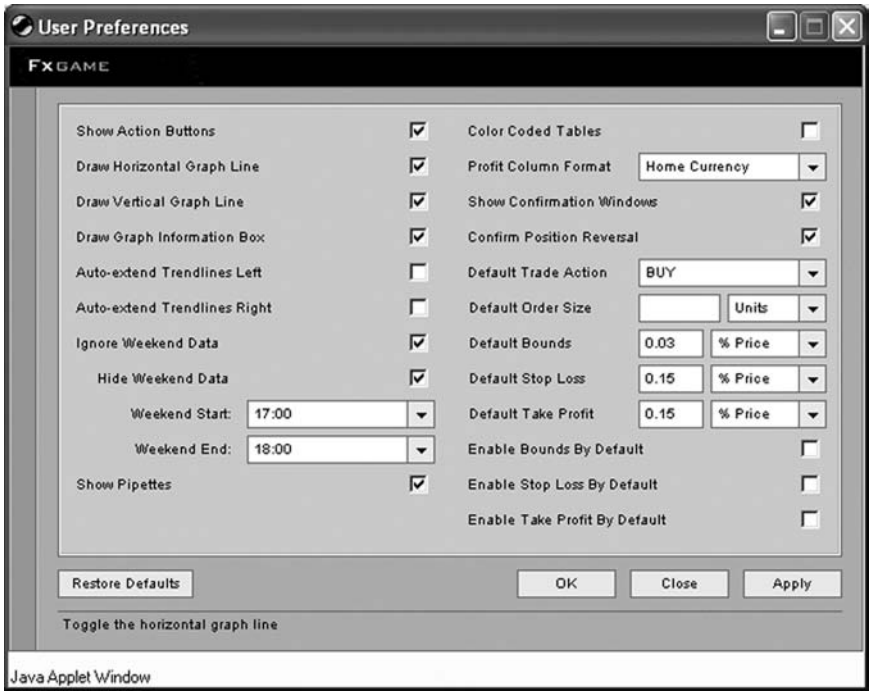



**FIGURE 1.10** Oanda FXTrade: User Preferences Screen
*Source:* Oanda.

graph type. Next to those are buttons to further refine your graph choice in terms of the specific data being displayed and/or to draw lines directly on the chart. On the right-hand side and below the graph to the right are some slider bars and +/– buttons that can be used to alter the scaling of the graph.

You will also notice a drop-down below the graph on the left, which is labeled Add Study. That is for overlaying one of a number of technical indicators on the chart. We address technical analysis and indicators at a later point. (You can open additional chart windows by clicking on the currency pair in the quote list. It will have the same format and settings as the main one.)

5. The currency list determines the currency pairs available in the drop-down above the chart and the ones appearing in the quote area on the left-hand side of the platform. To make your selections, go to the Tools menu again, and pick the Market Selector to get the dialog box shown in Figure 1.11.

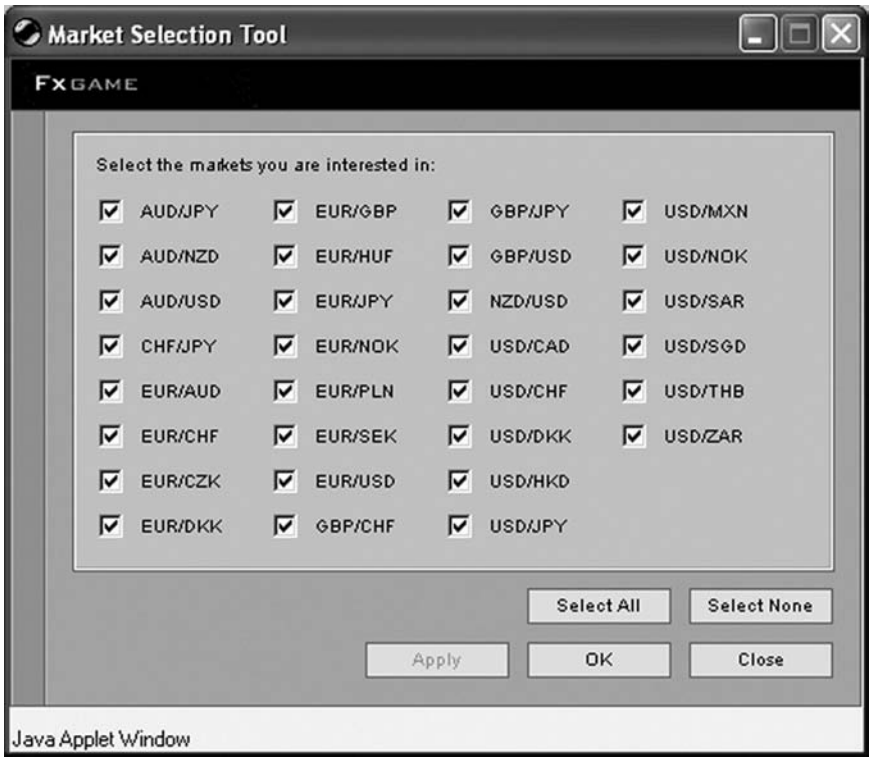



**FIGURE 1.11** Oanda FXTrade: Currency Selector Screen
*Source:* Oanda.

You want the currency pairs selected to be the ones you are going to trade. At a minimum, it is recommended you pick USD/JPY, EUR/USD, GBP/USD, USD/CHF, EUR/JPY, EUR/GBP, EUR/CHF, GBP/JPY, AUD/USD, and USD/CAD. These are the most active and liquid currency pairs. You can select others as well. Just remember that many are more regional in nature, and won't necessarily trade as actively, especially outside their primary time zone. (*Note:* Oanda, from time to time, adds new pairs to this list. In theory, pairs could be removed as well.)

**Forex Reference Nomenclature**

Each currency has a three letter code. These are the SWIFT or ISO Codes, which are combined in pairs to define the exchange rate between two currencies. The pairs are listed using the base/quote format, for example: EUR/USD. This is the exchange rate between the euro (EUR) and the U.S. dollar (USD) quoted as dollars (quote currency) per euro (base currency). The major currencies (those most heavily traded) are:

EUR: European euro

USD: U.S. dollar

GBP: British pound

CHF: Swiss franc

JPY: Japanese yen

AUD: Australian dollar

(*Note:* A currency pair not including USD (such as EUR/JPY) is generally referred to as a cross-rate or cross.) To find additional codes see: www.oanda.com/products/fxlookup.

Once you have your chart set up to your liking, and all your preferences sorted out, go again to the Tools menu. Then click the Save Current Layout selection. That will assure that the next time you log in you will have the same trading screen settings.

With those selections made, we are ready to more thoroughly explore the trading window.

Starting at the top of the FXTrade screen, you see the following tabs:

*Trades:* Orders that have been executed and remain open.

*Orders:* Open orders yet to be executed.

*Boxes:* Strictly for box option positions. We do not cover that topic at the moment. (Refer to Appendix A.)

*Positions:* Currently open long and/or short positions. (*Note:* the Trades tab may show multiple executed transactions in a single currency pair—for example; trades buying EUR/USD in sizes of 50,000 and 35,000—while the Positions tab would aggregate those open orders into one line item, in this case long 85,000 EUR/USD.)

*Exposure:* Currently open net positions in individual currencies, as opposed to pairs. If you had a 10,000 long position in USD/JPY from 125.00 and a 10,000 short position in USD/CAD at 1.2500 the Exposure tab would show a 1,250,000 short position in JPY and a 12,500 long position in CAD with no net position in USD (the two USD positions offset each other).

*Activity Log:* A history of trades, orders, and interest transactions.

Throughout the course of your trading you will make use of this information on a steady basis. Simply put, it is how you keep track of what is happening in your account. We go into further details on each of these tabs and what they show later on as we progress through the actual steps of trading.

For the time being, do not worry about the buttons on the left-hand side of the screen. Only the top one (Buy/Sell) is important. We deal with that extensively later. The other buttons are for content specific to the FXTrade system. Feel free to explore them as additional learning tools, though they do not directly relate to trade execution.

The next area of interest on your trading screen is the Account Summary table, as shown in Figure 1.12. Note the "(USD)" to the right of the table's title bar. That indicates the account is denominated in USD, and that the figures in the table are presented in dollar terms. As you noted in your initial registration, FXTrade offers accounts denominated in several other currencies.

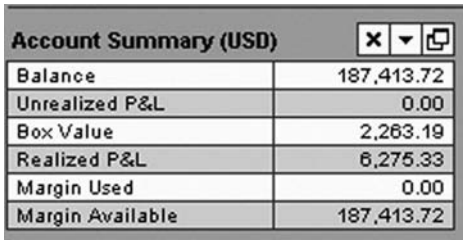



**FIGURE 1.12** Oanda FXTrade: Account Summary
*Source:* Oanda.

The Account Summary table shows several interesting and important items:

*Balance:* The amount of capital in the account, inclusive of the profits or losses on closed trades to date, plus or minus any interest earned or paid. This does not include the profit or loss on open trades.

*Unrealized P&L:* The net gain or loss on currently open positions.

*Box Value:* The current value of open box options positions.

*Realized P&L:* The net gain or loss on closed positions since the account's inception. (Balance = Deposits – Withdrawals + Realized P&L)

*Margin Used:* The amount of capital tied up for margin on active positions. Margin is discussed extensively in the next chapter.

*Margin Available:* Capital available for margin on future newly entered positions. This amount is based not on the Balance, but on your net position (Balance +/– Unrealized P&L).

Obviously, knowing this information is important in gauging the success of your trading methods and planning for future activity.

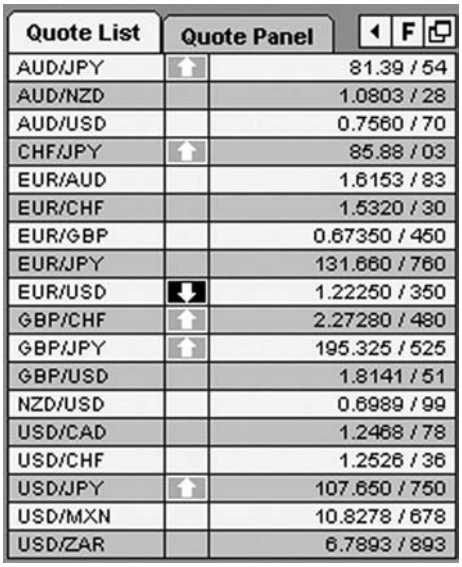
Below the Account Summary is the current rates table. These numbers are real-time in nature and tradable. As the rates change, those adjustments are reflected in the trading platform. FXTrade uses up and down arrows. You can monitor the activity of the various pairs relatively easily in this kind of table. How much the rates change depends on the activity level in the markets. Busy, high volume days will see more rate moves than slow, lackluster sessions. Further, there are times of the day when market activity is higher than at other times. Please see Figure 1.13.

Be aware that by clicking the arrow next to the *F* you can either display or hide the spread. The spread, as you can see, is the difference between the bid and offer. (*Note:* The screen shot in Figure 1.14 was taken late on a Friday afternoon, which is when weekend spreads take effect. Spreads during normal times are significantly narrower.)

Take note of the two pairs at the bottom—USD/MXN and USD/ZAR. They are the dollar rate of exchange against the Mexican peso and South African rand, respectively. These are regional currencies that do not trade as actively as the majors. That is reflected rather dramatically in the spreads.

If you click on the Quote Panel, you will get the screen shown in Figure 1.15 as an alternative display. Each of the currency pairs is shown with the bid price on top and the offer price below it.

The major currencies pairs (USD/JPY, EUR/USD, GBP/USD, EUR/JPY, EUR/GBP) trade 24 hours a day, across all of the global centers, while



| Quote List | Quote Panel | F |
|---|---|---|
| AUD/JPY | ↑ | 81.39 / 54 |
| AUD/NZD | | 1.0803 / 28 |
| AUD/USD | | 0.7560 / 70 |
| CHF/JPY | ↑ | 85.88 / 03 |
| EUR/AUD | | 1.6153 / 83 |
| EUR/CHF | | 1.5320 / 30 |
| EUR/GBP | | 0.67350 / 450 |
| EUR/JPY | | 131.660 / 760 |
| EUR/USD | ↓ | 1.22250 / 350 |
| GBP/CHF | ↑ | 2.27280 / 480 |
| GBP/JPY | ↑ | 195.325 / 525 |
| GBP/USD | | 1.8141 / 51 |
| NZD/USD | | 0.6989 / 99 |
| USD/CAD | | 1.2468 / 78 |
| USD/CHF | | 1.2526 / 36 |
| USD/JPY | ↑ | 107.650 / 750 |
| USD/MXN | | 10.8278 / 678 |
| USD/ZAR | | 6.7893 / 893 |

**FIGURE 1.13** Oanda FXTrade: Price Quotes
*Source:* Oanda.

| Quote List | Quote Panel | F | |
|---|---|---|---|
| AUD/JPY | | 81.40 / 55 | 15 |
| AUD/NZD | | 1.0803 / 28 | 25 |
| AUD/USD | | 0.7560 / 70 | 10 |
| CHF/JPY | | 85.87 / 02 | 15 |
| EUR/AUD | | 1.6151 / 81 | 30 |
| EUR/CHF | | 1.5321 / 31 | 10 |
| EUR/GBP | | 0.67340 / 440 | 10 |
| EUR/JPY | ↑ | 131.670 / 770 | 10 |
| EUR/USD | | 1.22240 / 340 | 10 |
| GBP/CHF | ↓ | 2.27310 / 510 | 20 |
| GBP/JPY | | 195.345 / 545 | 20 |
| GBP/USD | | 1.8141 / 51 | 10 |
| NZD/USD | | 0.6989 / 99 | 10 |
| USD/CAD | | 1.2468 / 78 | 10 |
| USD/CHF | ↓ | 1.2528 / 38 | 10 |
| USD/JPY | | 107.660 / 760 | 10 |
| USD/MXN | | 10.8283 / 683 | 400 |
| USD/ZAR | | 6.7893 / 893 | 1000 |

**FIGURE 1.14** Oanda FXTrade: Price Quotes
*Source:* Oanda.

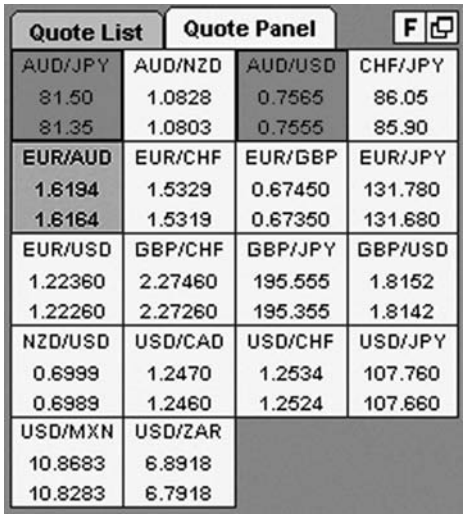



**FIGURE 1.15** Oanda FXTrade: Price Quotes
*Source:* Oanda.

more regional currencies will experience very inactive trading outside their primary time zone. For example, the SGD (Singapore dollar) is quiet most of the time in the U.S. afternoon.

As you watch the rates fluctuate, if you have an active trade on, you will also see real-time changes in your position, and by extension, your account value. More on that later.

Now that we have explored the vehicle through which you will be executing your transactions, we can move on to start learning how to use it.

CHAPTER 2

# Trading Mechanics

In this chapter we begin trading. All facets of the basic elements of trade execution and position management and monitoring are introduced and discussed.

## THE BASICS

Trading is incredibly easy these days. Click a few buttons on your computer and you can move huge amounts of money around. That is exactly why one must understand what actually happens when trades are executed. It is VERY easy to make a costly mistake. This section of the text lays the groundwork for the actual trade execution, which is discussed later.

### Price Quotes

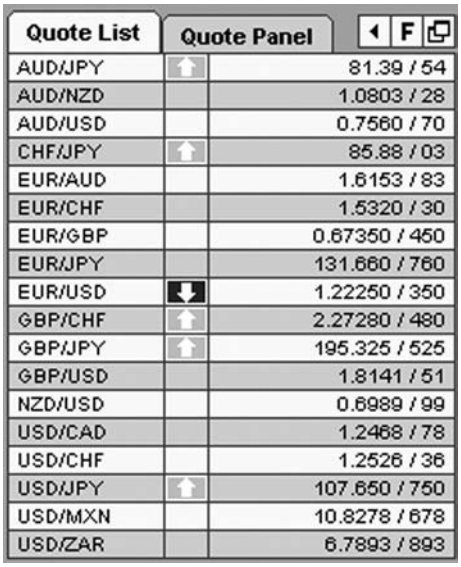
The first thing each trader needs to understand is how to read prices. There are two types. One is traded price. That is what can be found each day in the business section of a newspaper. The *close*, as listed, is the actual price where the last trade of the day was transacted. Likewise, the *high* and *low* are the highest and lowest prices at which trades were made during the course of the trading session, and the *open* is the very first trade of the day. (Most likely you will also see a volume figure, indicating how many units—shares, contracts, options, and so on—were transacted during the session.)

Prices appear to be quite straightforward when viewed in this fashion. When actually trading, however, one deals with indicative price quotes. An indicative quote is a combination of two prices, referred to as the bid–offer or bid–ask. The bid can be thought of as the highest price the market is willing to pay to buy. Think of it like a bid in an auction (which is exactly what it is). The offer or ask is the lowest price at which the market will sell. It can be thought of in terms of how much the market is asking one to pay.

Refer to the FXTrade quote screen shown in Figure 2.2. These are bid–offer rates. The first one in the table is AUD/JPY, the conversion rate between the Australian dollar and the Japanese yen quoted as yen per Aussie dollar.

The first part of the current market price quote is the bid. In this case it's 81.39. The second part, after the "/" is the offer price of 54. To save space, the first part of the quote was left off, so in this example, AUD/JPY is trading at 81.39 bid–81.54 offered.

Something else to take note of is the difference between the two prices. This is referred to as the bid–offer or bid–ask spread. Small, narrow spreads indicate liquid markets. Wide spreads indicate illiquid ones. Refer to the FXTrade quotes just mentioned and notice that AUD/JPY has a spread of 15. It trades pretty actively. If you look near the bottom of the table, though, you will see USD/MXN (U.S. dollar exchange rate against the Mexican peso) with its spread of 400, suggesting a much less actively traded market.



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| USD/MXN | | 10.8278 / 678 |
| USD/ZAR | | 6.7893 / 893 |

**FIGURE 2.2** Oanda FXTrade: Price Quotes
*Source:* Oanda.

## Traded versus Indicative Price

All markets trade bid–offer. This is the *indicative price* where trades can be made at the current time. *Traded price*, meanwhile, is where an actual transaction took place, which is generally how exchanges present data, as a collection of transactions.

It is important to recognize the difference. While in active markets there is little variance between the last traded price and the current indicative quote, the same is not true of thinly traded instruments. The options market is a prime example. Many options do not trade actively. As a result, the last traded price can be hugely different from the current bid–offer quote.

It should also be noted that traded prices can make a market seem to have moved without its actually doing so. For example, a stock is indicated at 100-102. If a sell order comes in, it would be executed at the bid of 100. If a buy order then came in, it would be filled at the offer of 102. In terms of traded price, it would look like the market moved from 100 to 102 when it did not actually move at all. This is a very important thing to keep in mind.

This brings up another point, one of terminology.

There are a couple of common terms in the market related to price. They are "pip" and "tick." In use the two terms are fairly interchangeable, though one or the other may be more used in a particular market. Both are essentially defined as the measure of a single price change unit. In the current equity market, stocks change price in cents, so one tick is equal to a penny. Other markets have other units of measure that equate to a tick or pip based on the specifics of the instruments involved. In forex, pip is used more than tick, and it can be one of two things. For exchange rates quoted with two decimal places (as AUD/JPY), a pip is $^1/_{100}$ of a point. In the case of those rates quoted with four decimal places (see EUR/USD in Figure 2.2) a pip is $^1/_{10,000}$ of a point.

It should be noted that the shrinking of the spreads in the markets has actually led to fractional pips, referred to as "pipettes" in forex. For example, the EUR/USD quote might be $^{1.36055}/_{070}$. That is a spread of 1.5 pips.

That covers price quotes. Let's move on.

## Order Types

The next thing a trader needs to understand is what kinds of orders there are. Here is a listing of the various types.

*Market Order:* An order to be executed immediately. A market order to buy 100 shares of IBM means buy the stock at whatever the current offer price is at the time the trade is executed.

*Limit Order:* An order executed at a specific price, or better. That means when buying it would be at the limit price or below, while the reverse is true for a sell order. For example, a limit order to sell S&P 500 futures contracts at 1200 means the trade will be executed at or above 1200.

*Stop Order (or Stop):* A delayed market order of sorts. A stop order is set at a point above (for a buy) or below (for a sell) the current price. It becomes an active market order (see above) when the current price reaches or goes through that level. For example, a sell stop at 205 would be triggered if the market price touches or falls below 205. It is very important to understand that a stop order does not guarantee a fill (trade execution) at that price. It all depends on how prices are acting at the time the order is triggered. In fast moving markets, stop orders can get filled well away from where the stop was set.

*Stop Limit Order:* A combination of the stop and limit orders. Unlike the simple stop order, which triggers a market order when a certain price is reached, the stop limit order triggers a limit order. As such,

the trader will get a fill at or better than the limit order price. This type of order is useful for getting into positions, but can be dangerous for exiting because you cannot guarantee the order gets executed.

These four orders are the most common and frequently used. There are a couple of others that can come in handy as well:

*Market-on-Close (MOC) Order:* A market order executed at the close of the day. With an order of this type, the trader essentially tells her broker that she wants to buy or sell at approximately the closing price for the day's session. The actual execution price may not be exactly the close, but it should be pretty close.

*One-Cancels-Other (OCO):* A combination of two orders in which the execution of one cancels out the other. Traders can utilize this sort of order to very good effect in a number of ways.

There are also two modifiers that are applied to an order related to its duration. They are day and good-until-cancelled (GTC). A day order is one that is good only for the current trading session. If it has not been executed when trading closes, the order is cancelled. A GTC order is one that will stay in the market until it's executed. It should be mentioned, however, that not all GTC orders are truly open-ended. Some brokers and trading platforms have fixed limits on how long an order can stay open.

In order to get a final order, the aforementioned order type is combined with one of the two qualifiers. The result is something like

*Limit Buy 100 shares of IBM at 102, GTC*

This translates to the following:

*I want to buy 100 shares of IBM at a price of 102 or better. Please keep my order open until it is filled.*

Market orders are day orders by nature.

## Leverage and Margin

*Leverage* is the use of borrowed money (generally from one's broker/dealer) to take on a position that is larger than one would have been able to do with strictly one's own capital. The money the trader is required to deposit as surety for those borrowed funds is referred to as *margin*.

Using a real-world example, think in terms of buying a house. Most home buyers do not pay 100 percent of the price in cash. In most cases the

buyer can pay a certain percentage, which is referred to as the down payment, but must borrow the remainder. This is the application of leverage and the down payment can be thought of as margin.

In the markets, leverage and margin are used in one of two fashions. One can put up margin and apply leverage to take control of a collection of assets larger than they would have been able to do otherwise, as in buying a house. Alternatively, the deposit's margin is applied as surety for the future fulfillment of an agreement to exchange assets (forward or futures contract).

An example of how this works in the market can be seen in stocks. One could purchase 100 shares of a $50 stock by putting down only $2,500 on deposit—50 percent margin. Margin requirements vary from market to market in terms of what percentage must be used. In the U.S. equities markets, the trader must put up at least half the money, 50 percent. In other markets it can be a much lower percentage.

In modern trading, the use of leverage is ubiquitous. For anyone entering positions in markets such as forex, and in the futures arena, trading practically requires leverage. Doing otherwise either makes it impossible for lack of funds or ineffective due to very small changes in price.

The use of leverage presents the trader with both opportunity and risk. Leverage allows for larger profits than would be possible otherwise. Using the aforementioned stock example, if the price of the shares rose to $55, a 10 percent increase, the trader would make a 20 percent profit using

**Margin: Initial versus Maintenance**

*Initial Margin* is the deposit the trader must put down when initiating a position. Once a position is opened, the trader must keep funds equal to the *maintenance margin* in the account to cover any losses. In many cases, the maintenance margin level is half the initial margin requirement. If the initial margin requirement is 50 percent, maintenance margin might be 25 percent. In the case of a $10,000 trade, for example, where $5000 was put up for initial margin, the trader would have to keep at least $2500 in the account to avoid a margin call. [A margin call is the demand for additional funds to be deposited or the position will be closed.] The requirement varies from market to market.

Keep in mind that margin interest is charged in some markets, but not in others. For example, stock brokers charge interest on margin loans, while futures brokers do not. This is something to be aware of as it can impact trading performance.

leverage ($500/$2,500, transaction cost and interest on the margin loan not included).

Leverage works the same on the downside, though. Were the shares to instead fall $5 per share, the trader would experience a loss of 20 percent. This is why leverage is referred to as a two-edged sword. It works equally well at accelerating gains as it does at hastening losses, so it must be used conscientiously.

With leverage and margin under our belts, we can move on to doing trades.

## TRADE EXECUTION

Now that the groundwork has been laid, we can move on to the actual process of executing trades using the FXTrade platform.

### The Order Screen

Oanda has conveniently provided several easy ways to place a trade. One can click the Buy/Sell button on the left-hand side of the screen, click either the buy or sell buttons below the graph, or click directly on the graph to use the menu. Any choice will bring up the order screen shown in Figure 2.3.

Order screens vary across platforms, but the basics are consistent. Note at the top that there are two tabs, one for the Market Order, the other for the Limit Order. The Market Order tab is currently the active one in this example. Let's examine what we see.

*Action:* This is where you indicate whether you are buying or selling.

*Currency:* The pair to be traded. Note that the first currency listed is the currency to which the Action is referring. In this example the order is to buy EUR/JPY. That means buying EUR and selling an equivalent amount of JPY.

*Units:* The amount you wish to trade, in whole amounts. Again, this relates to the lead currency in the pair. Our entry of 1,000,000 means we want to buy 1,000,000 EUR and sell the equivalent amount of JPY.

A quick interjection is required at this point. FXTrade allows the user to set the leverage for the account. The default level is 50:1, which means a 2 percent margin requirement for a trade. This can be changed via the menu bar by selecting Tools/Set Margin. The demo account options range

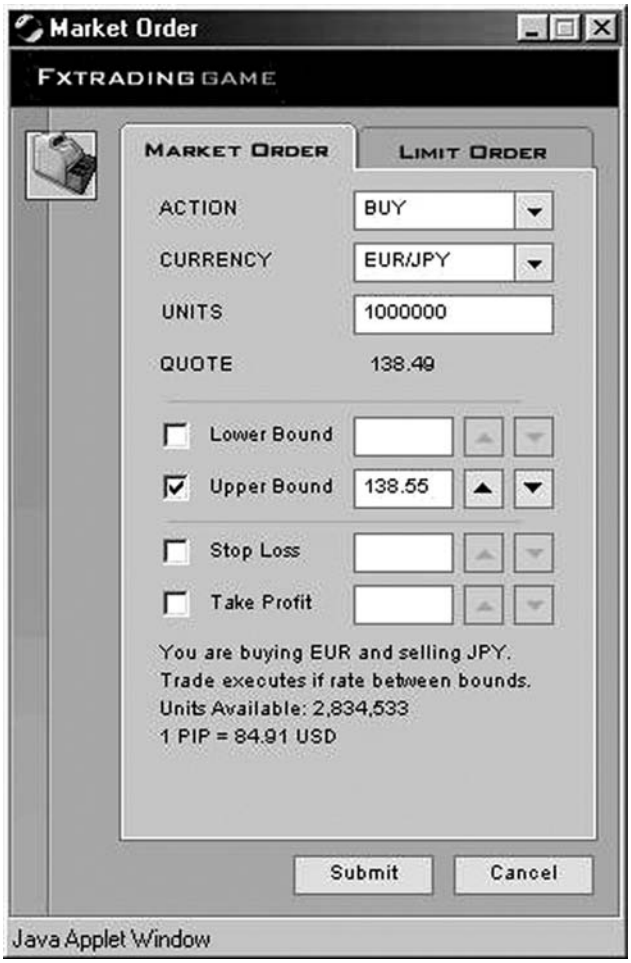



**FIGURE 2.3** Oanda FXTrade: Order Ticket
*Source:* Oanda.

from 10:1 up to 50:1. In a live account one could go up to 100:1. The lower portion of the order screen shows Units Available, which is how large a position can be entered.

Getting back to our trade entry as shown in Figure 2.3.

*Quote:* The current market rate (price) for the transaction you are entering. This will be the offer (or ask) if you are buying, and the bid if you are selling. Keep in mind that the market is active. If prices

change while we try to place an order, it will be reflected in the Quote. In other words, one cannot take their own sweet time entering an order and expect the price to stay the same.

*Upper/Lower Bound:* If entered, these are the high and low rate points beyond which you do not wish your transaction executed. In our example, we put in an Upper Bound of 138.55, meaning we do not want to buy EUR/JPY at a price higher than 138.55. This is something that can protect you from getting fills (executions) way beyond what you were expecting.

These all relate to the trade currently being entered. There are also a couple of other elements to the trade ticket.

*Stop Loss:* Here you may enter a stop order price for your trade.

*Take Profit:* Here you can enter the limit order price at which you would like to close the trade to exit with a gain.

Recall that stop and limit orders were discussed in the previous section of this chapter as were definitions of entry and exit points. For the time being you may ignore these entries on this screen. They will, however, come back into play.

You also note that at the bottom of the order screen, FXTrade actually tells you in words what the trade you are entering will do. You also are told how many units you may trade based on your available margin and the value of each pip based on the Quote and position size.

If we click on the Limit Order tab, we can see a couple of differences (see Figure 2.4).

Notice now that the Quote line allows for input. This lets you to set the price at which you wish to trade. Rather than just buying at the market, we want to buy 1,000,000 EUR/JPY when the offer hits 138.75 (remember that as buyers we buy at the offer or ask price). The trade will be executed automatically when the market reaches our predesignated point. No need for us to do anything further.

The other difference between the Market and Limit order tabs is down near the bottom. See the Duration? That allows you to dictate the time frame during which the trade will be made. In our case, we have said 12 hours. That means if EUR/JPY does not hit 138.75 within the next 12 hours, the order will be canceled. This is a reflection of the 24-hour nature of the forex market where it is difficult to define a "day trade."

(*Note:* FXTrade does not differentiate between stop and limit orders. The limit orders will operate exactly like stops or limits as we previously defined them.)

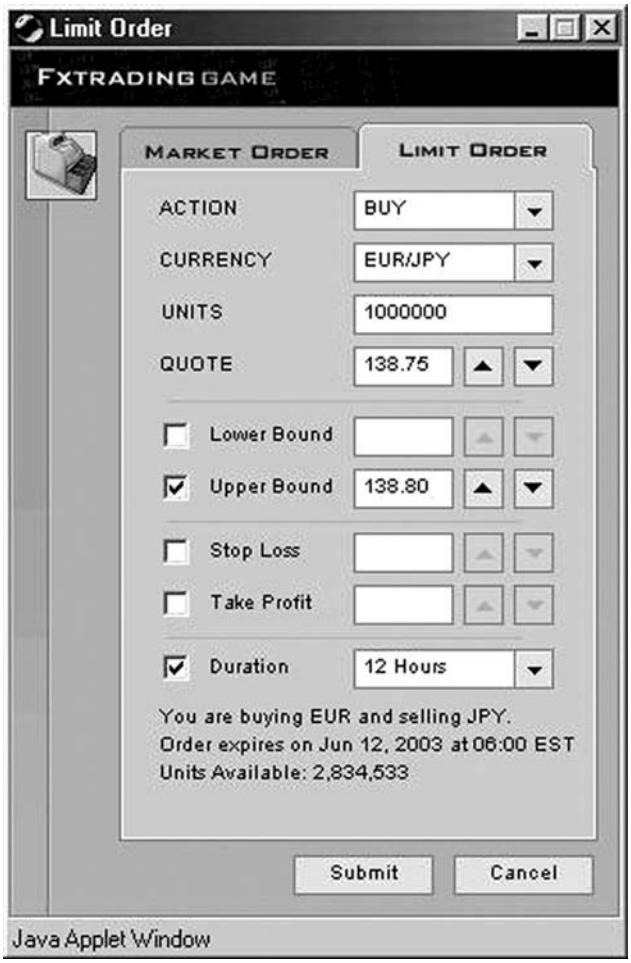



**FIGURE 2.4** Oanda FXTrade: Order Ticket
*Source:* Oanda.

## Trade Execution

Now that we know how to enter a trade, it is time to jump in and execute an actual foreign exchange trade. For this example we enter a market order to buy EUR/USD. Figure 2.5 shows our ticket from an actual trade done on an FXTrade game account.

Notice we are putting in an order to buy 1,000,000 EUR/USD. The current market quote is 1.1761 to buy.


**FIGURE 2.5** Oanda FXTrade: Order Ticket
*Source:* Oanda.

EUR/USD is a very active market, so we got a quick fill. Notice in Figure 2.6, our confirmation, that the order executed at 1.1761 and we used $58,805 in margin (5 percent).

We now have an open long position of 1,000,000 EUR/USD. We can now go through the tabs we only just touched on briefly in the last section. (In the next section we go over exactly what takes place in a foreign exchange trade.)

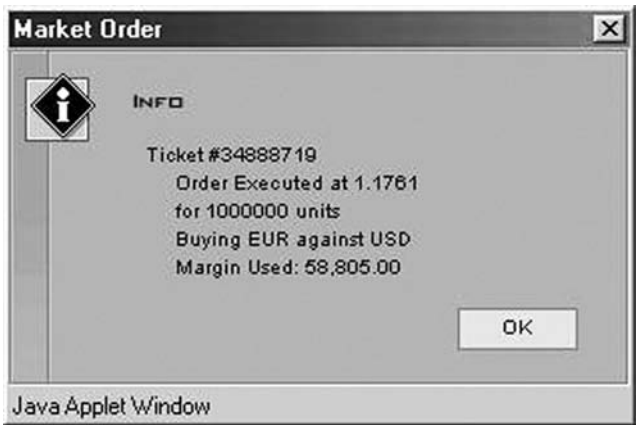



**FIGURE 2.6** Oanda FXTrade: Trade Confirmation
*Source:* Oanda.

*Trades:* Our purchase of EUR/USD (long, as noted at the far left of Figure 2.7) can be seen with the size (UNITS) and executed rate (PRICE) from our confirmation.

We can also see the current rate (MARKET), in this case the bid as we would sell to get out of the position. On the right is our gain/loss (PROFIT) based on the current market price. Had we entered Stop Loss (S/L) or Take Profit (T/P) rates when we completed our order, those would have appeared in the S/L and T/P columns, respectively. (This is demonstrated shortly.)

*Orders:* This tab remains empty, as we have no open orders (see Figure 2.8).

Skip *Boxes*.

*Positions:* Since we have only our one EUR/USD trade on, the information on this tab, as shown in Figure 2.9, is the same as what we see in the **Trades** tab. If we were to have multiple open trades in the

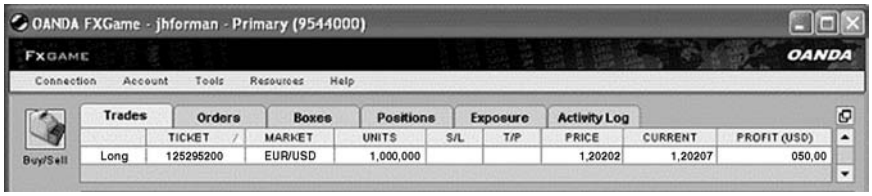



**FIGURE 2.7** Oanda FXTrade: Trades Tab
*Source:* Oanda.

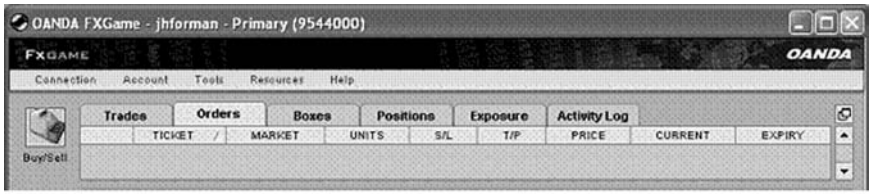



**FIGURE 2.8** Oanda FXTrade: Orders Tab
*Source:* Oanda.

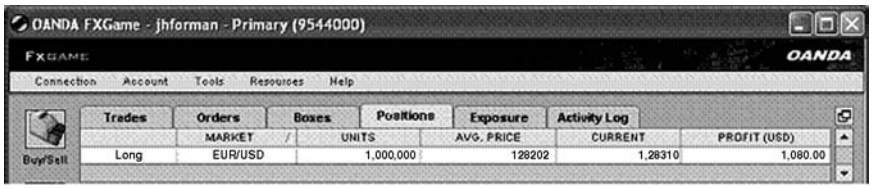



**FIGURE 2.9** Oanda FXTrade: Positions Tab
*Source:* Oanda.

same currency pair, they would be aggregated here and presented with an average entry price.

*Exposure:* Since we bought 1,000,000 EUR/USD we are long the EUR as seen in the Exposure tab (Figure 2.10). At our purchase rate of 1.1761, that is 1,176,100 USD. Again, this is an aggregate screen. It will display all currency exposures in total so that we can see exactly what our overall exposure to any given currency is at that moment.

*Activity Log:* You see the record of our trade with all its details listed, as depicted in Figure 2.11. (*Note:* When looking at the Margin Used line of the Account Summary you will notice that value does not necessarily match what is on the confirmation ticket. This is because the value of the position changes. The margin used is based on the current value of the open positions.)


**FIGURE 2.10** Oanda FXTrade: Exposure Tab
*Source:* Oanda.

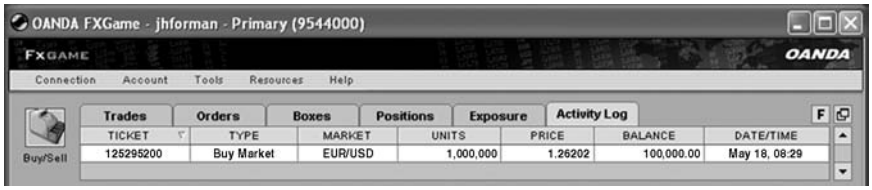



**FIGURE 2.11** Oanda FXTrade: Activity Log Tab
*Source:* Oanda.

### Homework

With an understanding of actual trade execution, it is time to get some hands-on experience. Using your FXTrade game account, open and close several positions. Get a feel for how to do it. Observe the price changes, if any, as you actually do the required things to put the trade in. Make sure you understand how the margin requirement is being determined and how the profit/loss calculations are working. It is very important that you are comfortable with all the elements of trading discussed in this section before you move on.

## BEHIND THE TRADE

Okay, so we've done a trade, but what does that mean? The financial markets bring together buyers and sellers. Some transactions are very straightforward, as in the stock market. The buyer pays the seller money and receives shares in return. Even when using leverage and margin, the basics of the transaction remain very simple. This is not always the case.

The stock market is what can be referred to as a cash market. That means the buyer gives the seller cash now to receive an asset immediately. It may take a period of time for the actual exchange of the assets to take place (three days in the U.S. stock market), which is referred to as settlement, but the buyer is considered to have taken ownership at the time of the trade.

The forward market is a kind of deferred cash market in that the traders agree to exchange assets at some future time, generally with a set of specific terms (price, date, transaction size, asset quality). An example could be a gold transaction. The agreement could be that Trader A commits to buy 100 ounces of certified gold bullion from Trader B at a price of $400/oz for delivery in three months. Note that when the agreement is made, no exchange of assets takes place. Trader A does not own the gold yet. That will not happen for three months when he gives Trader B $40,000 and takes delivery.

*Futures* are standardized forward contracts. They trade on exchanges (forward contracts are generally transacted in the over-the-counter market). Each contract has a set size and asset specification (in the case of deliverable assets). The contracts have a specific set of delivery date options. The only variable is the contract price, which is determined in the market through the trading process.

The buyer of stock is considered to be long because ownership generates benefits through price appreciation. When entering into a forward or futures trade, however, no asset changes hands until some future time. Even so, the party who agrees to be the buyer takes on a long position. In the previous example, Trader A will be the buyer. He is therefore considered to be long due to the fact that he will benefit from a rise in the price of gold. If gold were to rise to $410 by the time he has to buy those 100 ounces from Trader B, he could take possession and immediately turn around and sell for a $1,000 profit ($100 \times \$10$). Trader B, on the other hand, would be short. Were gold to fall in price to $380, she would benefit in that she could buy the gold in the market and turn right around to deliver it to Trader A under the contract terms and make $2,000 ($100 \times \$20$).

**Why Forwards and Futures?**

The forward market (and by extension the futures market) began as a way for producers and consumers to help hedge and/or preset their costs and revenues.

For example, a corn farmer wants to lock in a fair price for the upcoming crop. That can be done by entering a forward contract to sell the harvested corn. Meanwhile, a cereal producer wants to lock in a good price for the corn it needs to buy for production purposes. It could enter into a forward agreement to buy that corn at some future time.

Market makers and speculators provide liquidity to the markets.

In most cases (all for the individual trader) forward/futures agreements require margin. This is to protect the counterparty against default of the agreement (for futures the exchange is the counterparty).

The options market differs from the forward/futures market in one very meaningful way. Like a forward contract, an option is an agreement to exchange assets at some future time. The difference, however, is that in options one of the parties—the buyer of the option—does not have to fulfill the contract; hence the "option." The option market, however, is a cash market in its own right, though. Options are bought and sold in the same manner as stocks, with the buyer paying the seller for the right to

conclude a future transaction or force the seller into a future agreement (forward/futures, for example).

The spot forex market, which is what we are trading via the FXTrade platform, is at its core a forward market with a contract period of two days. In practical application, however, especially when using Oanda, it operates for the individual trader just like a cash market, but with a major wrinkle. When executing a forex trade, there are actually a series of transactions taking place. It is not as simple as trading one currency for another.

**Simple Spot Forex Trade**

Buy 100,000 EUR/USD.

*Borrow 121,000 USD.*

(Pay USD Overnight Rate.)

||

Convert USD to EUR at 1.2100.

||

*Deposit 100,000 EUR.*

(Earn EUR Overnight Rate.)

As the diagram shows, the forex transaction is complex. The trade is made in expectation that the rate will move in a positive fashion, causing the currency the trader owns (has on deposit) to appreciate against the one the trader is short (borrowed), producing a profit when the trade is closed by reversing the series of transactions.

In this example, let us look at what happens if the EUR/USD rate were to rise to 1.2200. The 100,000 EUR is converted back into USD at $1.22 per EUR. The result is $122,000. After repaying the $121,000 that was borrowed, the trader is left with $1,000 in profits. This does not, however, take into account the interest paid on the USD loan and the interest earned on the EUR deposit. This is what is referred to as the *carry* for the trade.

Carry can be either positive or negative depending on the differential between the two interest rates. We can check those rates in the FXTrade platform by choosing Resources/Interest Rates from the menu. That brings up the dialog box shown in Figure 2.12.

By selecting EUR and USD (Control-Click to select multiple currencies), we get the table depicted in Figure 2.13.

Remember, interest rates are like everything else in the markets. They work on the bid/ask principle. That means that as borrowers we pay the higher ask rate, and that as lenders/depositors we receive the lower bid rate.

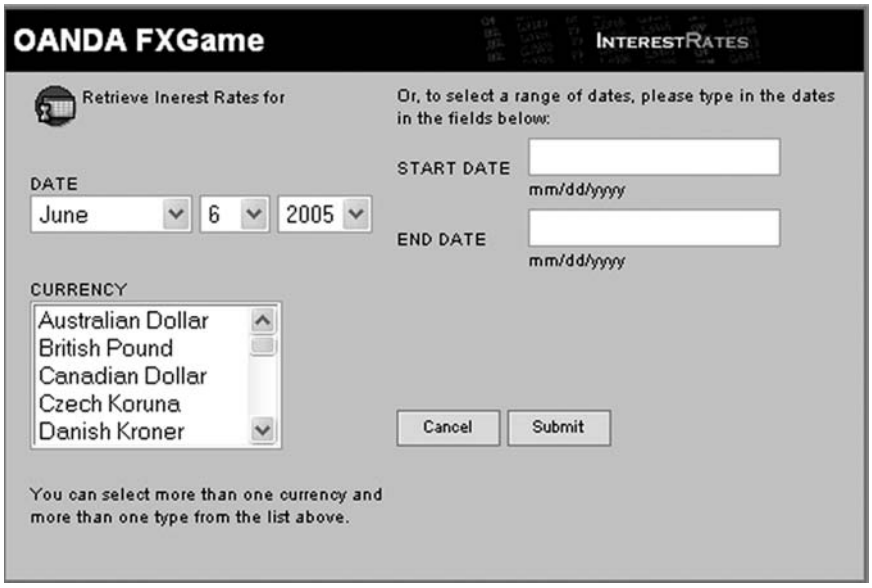



**FIGURE 2.12** Oanda FXTrade: Interest Rate Selection
*Source:* Oanda.

Getting back to our discussion of the transactions, we can flip things around if we are aiming to take a long position in the USD (short EUR). The basic structure of the trade does not change. In this case we are simply borrowing EUR and converting them into USD. If the USD appreciates against the EUR (EUR/USD declines), meaning it would take fewer USD to repay the EUR loan we took out, then we would have a profit.

Things get a bit more complicated, however, when one is trading the crosses. A cross-trade, because it does not include the account's base currency (USD), adds a layer of complexity to the equation. Everything remains

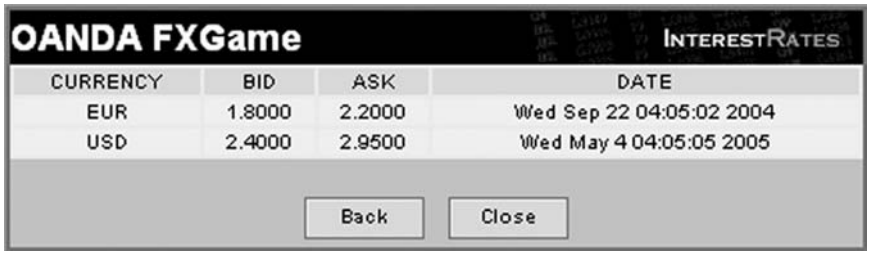



**FIGURE 2.13** Oanda FXTrade: Interest Rate Comparison
*Source:* Oanda.

essentially the same when we enter the trade. If, for example, we were buying 100,000 EUR/JPY at 131.00 we would borrow 13,100,000 JPY (100,000 × 131), exchange that into EUR, and deposit it. We would pay interest on the JPY loan and earn it on the EUR deposit.

**Cross Rates or Crosses**

Any currency pair that does not include the USD in it is most commonly referred to as a cross-rate, or cross. Cross trades are just as relevant as the straight ones. The major crosses are:

| | |
|---|---|
| EUR/JPY | EUR/GBP |
| EUR/CHF | GBP/JPY |
| GBP/CHF | AUD/JPY |

The complexity of a cross trade comes when unwinding the trade. Assume EUR/JPY rises to 132.00, and see how the long position unwind would look:

**Cross-Rate Trade**

Unwind 100,000 EUR/JPY long.

(Entered trade at 131.00.)

*100,000 EUR*

||

Convert EUR back to JPY at 132.00.

(100,000 × 132 = 13,200,000 JPY.)

||

*Repay 13,100,000 JPY.*

(13,200,000 – 13,100,000 = 100,000 JPY remains.)

Note that there are 100,000 JPY remaining after the original JPY loan is repaid. That is our profit, but it needs to be converted back into USD for our accounting purposes, since we have a USD account. That happens by exchanging the JPY for USD at the current USD/JPY rate. If that rate is 107.00, then we have a gain of $934.58 on the trade (100,000/107.00). Of course, we must also take into account the carry when determining our net profit.

It should be noted that the cross trade transaction structure applies in all cases where one is trading in nonbase currencies vis-à-vis one's account. For example, a trader whose account is denominated in EUR would treat any non-EUR inclusive pair (like USD/JPY) as a cross.

## Position Value and Profit/Loss

We have already gone through a brief discussion of profits and losses (often referred to as P/L or P&L), but it is worth taking a more thorough look at the topic and at position value in general. This is mostly a straightforward matter.

Using the stock market as the most easily understood example, the value of any position is Shares × Price. Profit for a given trade is determined by calculating the enter position value and comparing it to the position value when closed.

*Long position profit equals*

(Shares × Exit Price) – (Shares × Entry Price) – Transaction Costs

or

(Exit Price – Entry Price) × Shares – Transaction Costs

Buy 100 shares of IBM at 100 and sell at 110:

(110 – 100) × 100 – Transaction Costs = $1,000 – Transaction Costs

*Short position profit equals*

(Shares × Entry Price) – (Shares × Exit Price) – Transaction Costs

or

(Entry Price – Exit Price) × Shares – Transaction Costs

Short 100 shares of IBM at 100 and cover short at 90:

(100 – 90) × 100 – Transaction Costs = $1,000 – Transaction Costs

This is an easy formula and readily applied to just about any market. We simply replace Shares with the unit of measure for that market. That could be ounces of gold, barrels of oil, bushels of corn, the face value of a fixed income contract, or the multiplier of an index.

Even in forex, which can be considered a bit more complex than most others, the essence of trading boils down to starting value and ending value (as set by the market):

**Non-USD Base (i.e., EUR/USD)**

Long: (Units × R2) – (Units × R1) or Units × (R2 – R1)
Short: (Units × R1) – (Units × R2)) or Units × (R1 – R2)

where R1 is the starting rate and R2 is the ending one.
Buy 100,000 EUR/USD at 1.3000 and sell at 1.3100:

(100,000 × 1.31 = $131,000) – (100,000 × 1.30 = $130,000) = $1,000

**USD Base (i.e., USD/JPY)**

Long: ((R2/R1) – 1)) × Units
Short: ((R1/R2) – 1)) × Units

Buy 100,000 USD/JPY at 110.00 and sell at 111.00:

((111.00 / 110.00) – 1)) × $100,000 = $909.09

Short 100,000 USD/JPY at 110.00 and cover at 109.00:

((110.00 / 109.00) – 1) × $100,000 = $917.43

As we know from the EUR/JPY example, cross trades require an additional step. The same calculation can be used as previously (the non-USD base is probably the easier, though either could be used), but the Profit/Loss figure would then have to be converted using one of the currencies involved to get it back to the account currency as demonstrated earlier.

You will note that we did not list a transaction cost in the forex calculation just mentioned. For the most part, spot forex trades do not have commissions or any other fees for execution. Recall, however, that there is carry based on the interest rate differentials. This carry can be either positive or negative. It is credited or debited on a daily basis (one can see those transactions in the FXTrade Activity Log), including weekends.

**Discrete versus Continuous Carry Interest**

Oanda calculates interest on a continuous basis for open forex trades. That means the trader pays or earns carry interest the whole time a position is open, regardless of trade length. Most other forex platforms handle carry only for overnight positions by doing end-of-day calculations on all open trades at some specific time (usually 4 or 5 P.M. Eastern).

The FXTrade platform comes with a handy profit/loss calculator the trader can use in advance of entering a trade to determine potential gains or losses. It is reached by selecting Tools, then PIP/Profit Calculator from the menu. That brings up a small window.

The PIP/Profit Calculator, as shown in Figure 2.14, (and similar tools on other platforms) allows one to easily make calculations. By simply changing the inputs one can simulate long or short trades in any currency with the entry (OPEN) and exit (CLOSE) points of one's choosing. The profit or loss figure (P&L) will appear at the bottom of the window.

Be aware, however, that as great a tool as the PIP/Profit Calculator is in the planning process, it has its limitations. The calculations will be spot


**FIGURE 2.14** Oanda FXTrade: PIP/Profit Calculator
*Source:* Oanda.

on for noncross rates. They will be only estimates based on current rates for crosses, though.

## MANAGING THE TRADE

There is more to trading than just executing trades. We are not yet ready to get into the decision-making process that drives entry and exit moves, but at this stage it is important to bring up the elements of trade management, specifically as it relates to ancillary order entry.

We addressed stop and limit orders earlier in this chapter, along with variations on their basic idea. While they can be used to enter trades at specific prices, it is more common for them to be used to define open positions. For example, a trader with a long position on can have a sell stop to exit the trade if the market were to go against the position and a sell limit to exit the trade at a profit.

As demonstrated earlier, entering a stop or limit order (no difference in FXTrade) is very similar to putting in any other type of trade. Let's walk through the process of setting a stop loss and a take profit.

First, we start with a fresh new trade—buying 1,000,000 EUR/USD. You can see from a look at the Trades tab in Figure 2.15 that the long trade was executed at 1.22774.

So we have an open long position in EUR/USD, which we want to protect against an adverse move (a decline). We can do that by placing a stop below the current market rate.

In this particular case we will take a 5-pip risk. That means putting our stop at 1.22724. Remember that since we are long, and will thus exit by selling, our order will get executed at the bid price. This is something to keep in mind when setting stops and limits.

So our order ticket is as shown in Figure 2.16.

We have an order to Sell at 1.22724. Note that the Duration box has been clicked and 1 month selected. This order will be good for 30 days, which is as long as FXTrade does. This is something that varies among the different trading platforms and systems.

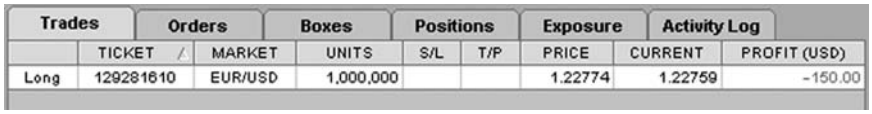



**FIGURE 2.15** Oanda FXTrade: Trades Tab
*Source:* Oanda.

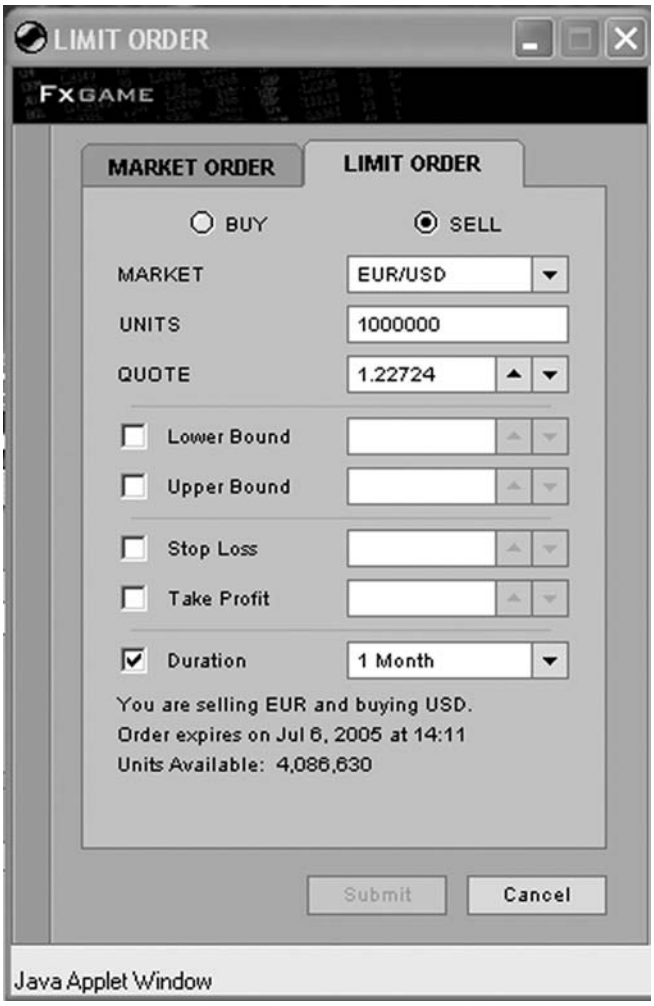



**FIGURE 2.16** Oanda FXTrade: Order Ticket
*Source:* Oanda.

At the same time we will set a take profit at 5 pips above our entry price. That means a limit order to sell at 1.22824. Figure 2.17 shows that trade ticket.

These two orders bracket our position for 5 pips on either side. We are in a 1:1 risk/reward situation for this particular trade (something that comes up again later in the book). That means we will make or lose the same amount, in this case $500.

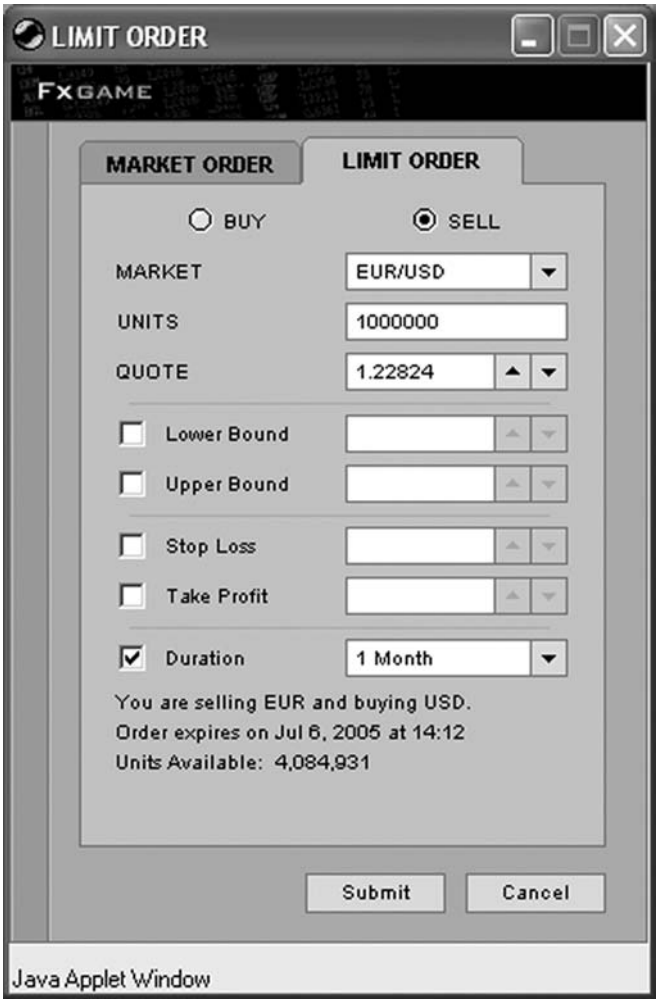
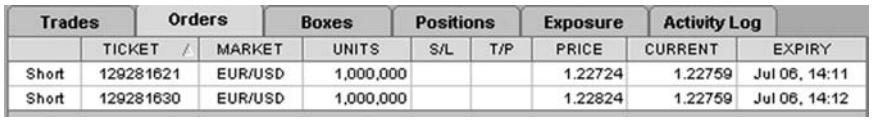



**FIGURE 2.17** Oanda FXTrade: Order Ticket
*Source:* Oanda.

Please note that just because we chose 5 pips for the stop and take profit on this trade, does not mean that it is a recommendation of any kind. We address the process of defining stop and take profit in future chapters.

If we flip over to the Orders tab in our FXTrade platform we can see that the stop and limit orders we just entered are shown, as outlined in Figure 2.18.



| Trades | Orders | Boxes | Positions | Exposure | Activity Log | | | |
|---|---|---|---|---|---|---|---|---|
| | TICKET / | MARKET | UNITS | S/L | T/P | PRICE | CURRENT | EXPIRY |
| Short | 129281621 | EUR/USD | 1,000,000 | | | 1.22724 | 1.22759 | Jul 06, 14:11 |
| Short | 129281630 | EUR/USD | 1,000,000 | | | 1.22824 | 1.22759 | Jul 06, 14:12 |

**FIGURE 2.18** Oanda FXTrade: Orders Tab
*Source:* Oanda.

With our stop loss and take profit orders in place, we can rest easy. If we walk away from the screen and something happens, the trade will close out with either a $500 profit or a $500 loss (not counting the interest carry).

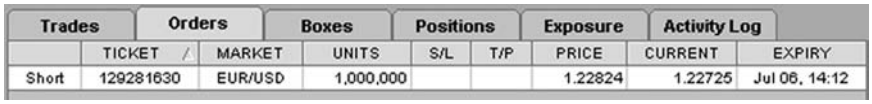
In this particular instance, the market went against our position. The 1.22724 stop was hit, so we lost $500, plus $0.29 in negative interest rate carry. That shows up in our Activity Log, along with a complete record of all the orders we entered and trades executed in the cycle (see Figure 2.19).

So we are now out of our long position. There's a catch, however. If we flip over to check the Orders tab (Figure 2.20), we can see that our take profit limit order remains.

This can be problematic. If the market were to rally up to 1.22824, that order would be executed and we would find ourselves short 1,000,000 EUR/USD. If that is our intention, then fine. Most of the time, however, that is not what we are after. We would like that order cancelled. If we are in front of the screen when the stop is hit, we can certainly cancel manu-

| Trades | Orders | Boxes | Positions | Exposure | Activity Log | F |
|---|---|---|---|---|---|---|
| TICKET | TYPE | MARKET | UNITS | PRICE | BALANCE | DATE/TIME |
| 129281759 | Interest Payment | EUR/USD | 1 | -0.2910 | 189,076.51 | Jun 06, 14:22 |
| 129281759 | Sell Order Filled | EUR/USD | 1,000,000 | 1.22724 | 189,076.80 | Jun 06, 14:22 |
| 129281630 | Sell Order | EUR/USD | 1,000,000 | 1.22824 | 189,576.80 | Jun 06, 14:12 |
| 129281621 | Sell Order | EUR/USD | 1,000,000 | 1.22724 | 189,576.80 | Jun 06, 14:11 |
| 129281610 | Buy Market | EUR/USD | 1,000,000 | 1.22774 | 189,576.80 | Jun 06, 14:11 |

**FIGURE 2.19** Oanda FXTrade: Activity Log Tab
*Source:* Oanda.



| Trades | Orders | Boxes | Positions | Exposure | Activity Log | | | |
|---|---|---|---|---|---|---|---|---|
| | TICKET / | MARKET | UNITS | S/L | T/P | PRICE | CURRENT | EXPIRY |
| Short | 129281630 | EUR/USD | 1,000,000 | | | 1.22824 | 1.22725 | Jul 06, 14:12 |

**FIGURE 2.20** Oanda FXTrade: Orders Tab
*Source:* Oanda.

ally (in FXTrade, click on the order to bring up the screen shown in Figure 2.21, make sure CANCEL is selected, and click the Submit button). If not, however, we are left with a hanging order that could lead to an unintended position. Unintended positions can be quite damaging, especially with no stop loss.

Imagine, for example, that EUR/USD starts rallying. It moves up to 1.22824, our take profit point. The limit sell order, which is still active, gets

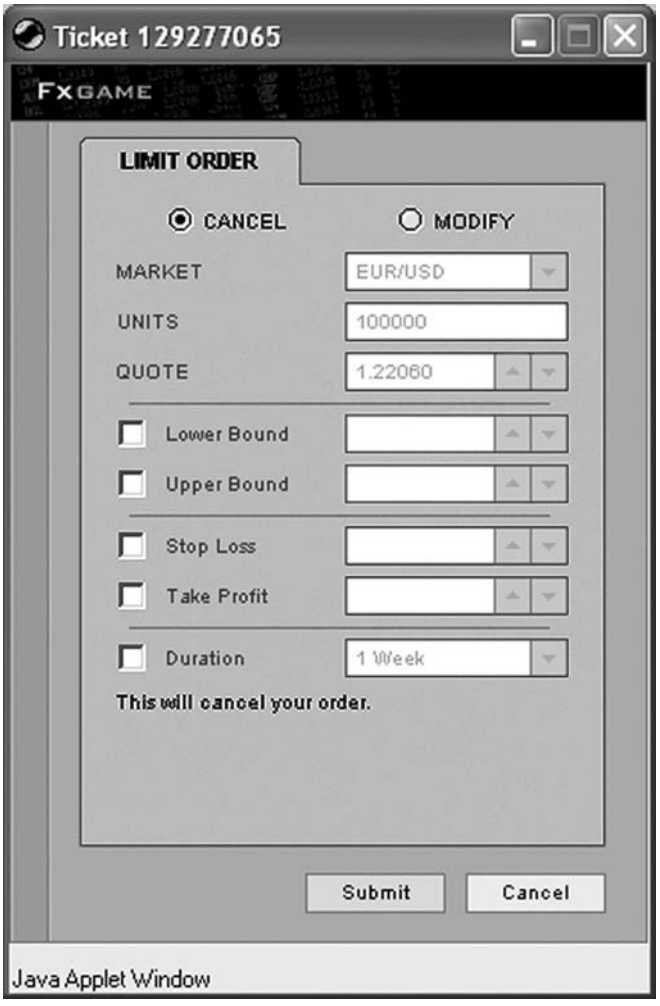



**FIGURE 2.21** Oanda FXTrade: Order Ticket
*Source:* Oanda.

triggered. Suddenly we are short 1,000,000 EUR/USD. If the market immediately turns around, great! What if it keeps going higher, though? What if some news item is causing a price rally? That could be dire indeed. We could come back to the computer and find ourselves deep in the hole. A 100-pip rally—not out of the question—would cost $10,000.

So how do we avoid this sort of situation?

If you recall, earlier in the chapter we mentioned a one-cancels-other type of order (OCO). That would be very handy in this situation. If either the stop loss or the take profit order is executed, the other order is cancelled. That is a great safety feature.

Unfortunately, the OCO order setup is not available in all markets or on all platforms. That includes FXTrade. There is another solution, however. Oanda has provided a way to handle this type of situation, which many (if not most) online trading platforms have as well. The solution is to enter stop loss and take profits that are tied with a specific position.

Let's initiate another position, this time in EUR/JPY. We will buy 1,000,000 units at the market. Our order ticket is shown in Figure 2.22.

Note that in this instance we have entered Stop Loss and Take Profit levels on the order screen, which we did not do before. This is a wonderful little feature that simultaneously creates two additional orders when we make our trade. As soon as this market order is executed, we will have an active stop loss order at 131.102 and an active take profit limit order at 131.202. They are created by the trading platform based on the figures we enter in this order ticket and put in the system as soon as the order executes.

Based on our buy order, the Trades tab would be as depicted in Figure 2.23.

The trade has gone in as usual. Previously, however, there were no entries in the S/L and T/P columns (stop loss and take profit, respectively). Those are now showing the levels we put in when placing the order. If we flip to the Orders tab (Figure 2.24), we can see that they match two new orders that have been entered.

There are a couple of differences between these orders and the ones we placed in the previous trade example. Take a close look at Figure 2.24.

Starting on the left, notice that where before we had Short in the leftmost column, reflective of a sell order, we now have SL and TP, indicating that these orders are matched to an existing position. The S/L and T/P columns are now "n/a." Very importantly, the EXPIRY column now shows GTC. These orders will stay active until the underlying position (our long in EUR/JPY) is closed.

Using the Stop Loss and Take Profit when placing our orders also provides us with another nice little feature. As shown in Figure 2.25, the two

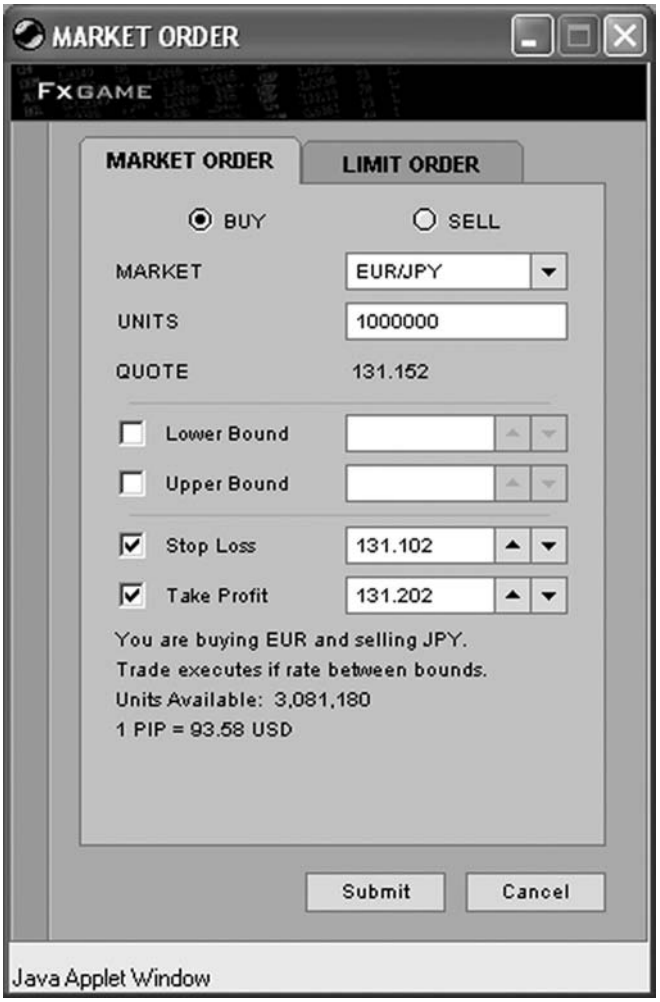



**FIGURE 2.22** Oanda FXTrade: Order Ticket
*Source:* Oanda.

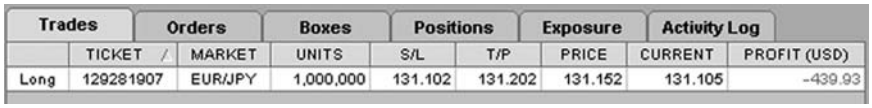



**FIGURE 2.23** Oanda FXTrade: Trades Tab
*Source:* Oanda.

Trades | Orders | Boxes | Positions | Exposure | Activity Log

| | TICKET / | MARKET | UNITS | S/L | T/P | PRICE | CURRENT | EXPIRY |
|---|---|---|---|---|---|---|---|---|
| SL | 129281907 | EUR/JPY | 1,000,000 | n/a | n/a | 131.102 | 131.125 | GTC |
| TP | 129281907 | EUR/JPY | 1,000,000 | n/a | n/a | 131.202 | 131.125 | GTC |

**FIGURE 2.24** Oanda FXTrade: Orders Tab
*Source:* Oanda.

values are plotted on the chart. The lower line (normally red) is the stop loss. The upper one (normally green) is the take profit.

When using normal stop and limit orders to act as stop losses and/or take profits, the FXTrade system just puts in little boxes indicating the existence of a standing order at a certain price, entered at a certain time. Arrows are placed on the chart when trades are executed—like the upward pointing one on the chart in Figure 2.25. (*Note:* These lines and trade/order indicators can be turned on or off using the two circular buttons on the top left portion of the chart area. See Figure 2.26.)

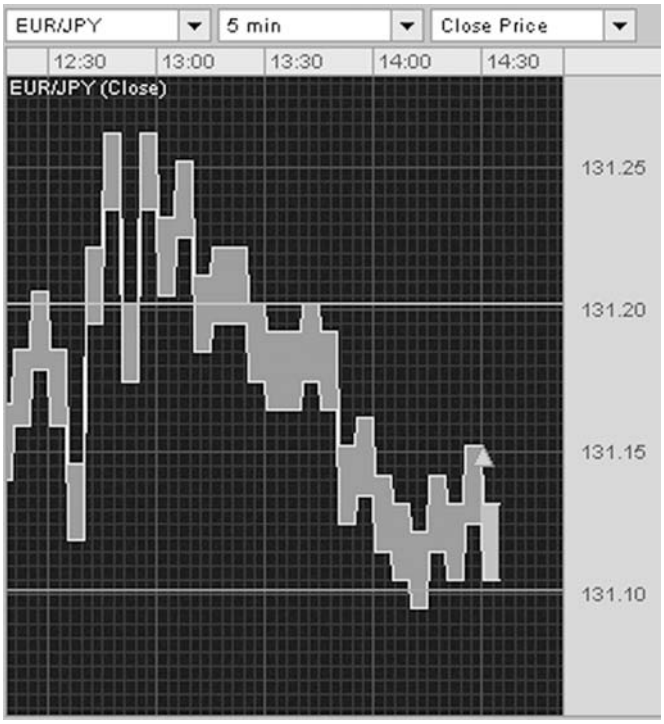



**FIGURE 2.25** EUR/JPY Chart with Target and Stop
*Source:* Oanda.

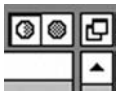


**FIGURE 2.26** Show/Hide Trades Toggle
*Source:* Oanda.

Again, the market went against us on this trade and we were stopped out. (We're not doing very well on these trades!)

In Figure 2.27 you can see from the Activity Log that our stop loss was triggered. Recall from the earlier example (Figure 2.19) that our exit trade looked like a regular sell. It came through as "Sell Order Filled." We also saw both the stop loss and take profit orders we had entered. When using the Stop Loss and Take Profit entry feature of the order screen, we do not see the ancillary orders in the Activity Log. All we see is that we opened a new position (Buy Market), it was stopped out (Stop Loss) for a $468.01 loss, and that we earned a positive carry (Interest Earned) of $0.02. Nice and clean. Even better, we have no lingering order, as Figure 2.28 shows.

By now you should see how valuable being able to enter your stop and target levels at the time of trade entry can be. What's more, you do not even have to do it up front. You can add a Stop Loss and/or Take Profit to any open trade, or go in and modify existing ones. To do so, click on an open order in the Trades tab. Click the Modify radio button to activate the edit feature. When done, click Submit and you are finished. You will see the changes reflected in the trade, on the Orders tab, and on the Activity Log.

Trades | Orders | Boxes | Positions | Exposure | Activity Log | F

| TICKET | TYPE | MARKET | UNITS | PRICE | BALANCE | DATE/TIME |
|---|---|---|---|---|---|---|
| 129281928 | Interest Earned | EUR/JPY | 1 | 0.0227 | 188,608.53 | Jun 06, 14:30 |
| 129281928 | Stop Loss | EUR/JPY | 1,000,000 | 131.102 | 188,608.50 | Jun 06, 14:30 |
| 129281907 | Buy Market | EUR/JPY | 1,000,000 | 131.152 | 189,076.51 | Jun 06, 14:30 |

**FIGURE 2.27** Oanda FXTrade: Activity Log Tab
*Source:* Oanda.

Trades | Orders | Boxes | Positions | Exposure | Activity Log

| TICKET | MARKET | UNITS | S/L | T/P | PRICE | CURRENT | EXPIRY |
|---|---|---|---|---|---|---|---|

**FIGURE 2.28** Oanda FXTrade: Orders Tab
*Source:* Oanda.


**FIGURE 2.29** Oanda FXTrade: Modify Order
*Source:* Oanda.

*Note:* By clicking the order, leaving the Close radio button active and clicking the Submit button closes out the trade, so be careful when working with this box. (See Figure 2.29)

At this stage you should have a pretty clear understanding of how to deal with one trade at a time. It may be that is all you ever have to handle. We would be remiss in our discussion of trading management, however, if we did not broach the subject of multiple simultaneous positions and their impact on the overall trading account profile. With that, let us take a look at market exposure.

We start with a long position of 100,000 EUR/JPY initiated at 131.172 (Figure 2.30). Our exposure is clear. We are long 100,000 EUR and short 13,118,200 JPY (Figure 2.31). Now let's add another trade. We are going to buy 100,000 USD/JPY at 106.921 (Figure 2.32). Notice how dramatically this changes our overall situation (Figure 2.33). We have nearly doubled

Trades | Orders | Boxes | Positions | Exposure | Activity Log

| | TICKET / | MARKET | UNITS | S/L | T/P | PRICE | CURRENT | PROFIT (USD) |
|---|---|---|---|---|---|---|---|---|
| Long | 129282442 | EUR/JPY | 100,000 | | | 131.182 | 131.195 | 12.16 |

**FIGURE 2.30** Oanda FXTrade: Trades Tab
*Source:* Oanda.


**FIGURE 2.31** Oanda FXTrade: Exposure Tab
*Source:* Oanda.


**FIGURE 2.32** Oanda FXTrade: Trades Tab
*Source:* Oanda.


**FIGURE 2.33** Oanda FXTrade: Exposure Tab
*Source:* Oanda.

our short exposure to JPY, while adding a long risk for USD. This is something very easy to do if one is not paying attention. It is also a potential problem outside forex. Any pair of trades which are subject to a matched risk profile—corn and wheat, gold and silver, stocks and bonds, to name a few—can create portfolios out of balance in risk terms.

There are also situations where additional positions can radically change one's overall exposure. To demonstrate, we start with a long position in EUR/USD—100,000 initiated at 1.22734. Our starting exposure is then as shown in Figure 2.34.

Now, we are going to buy 100,000 USD/JPY, executed at 106.861. Notice in Figure 2.35 what happens when adding the next position to our


**FIGURE 2.34** Oanda FXTrade: Exposure Tab
*Source:* Oanda.


**FIGURE 2.35** Oanda FXTrade: Exposure Tab
*Source:* Oanda.

portfolio. Notice that our short position in USD is much reduced. It is still there, but we have essentially created a synthetic long EUR/JPY trade with a small long EUR/USD position on the side. Instead of having a position in which we expect to benefit from EUR/USD rising and USD/JPY rising, our account performance is now dominated by the movement of the EUR/JPY cross.

In forex, this sort of shifting exposure is easy to see and track. It's right there on the screen in front of us, after all. In other markets where the drivers of account performance are not always quite so clear and quantifiable, it can be harder to always be aware of how shifts in trading positions can impact the overall risk profile. Value-at-risk (VAR) is one of the tools used in financial circles to understand the various exposures inherent in holding positions in multiple instruments and markets.

We address this whole topic in much greater detail in future chapters.

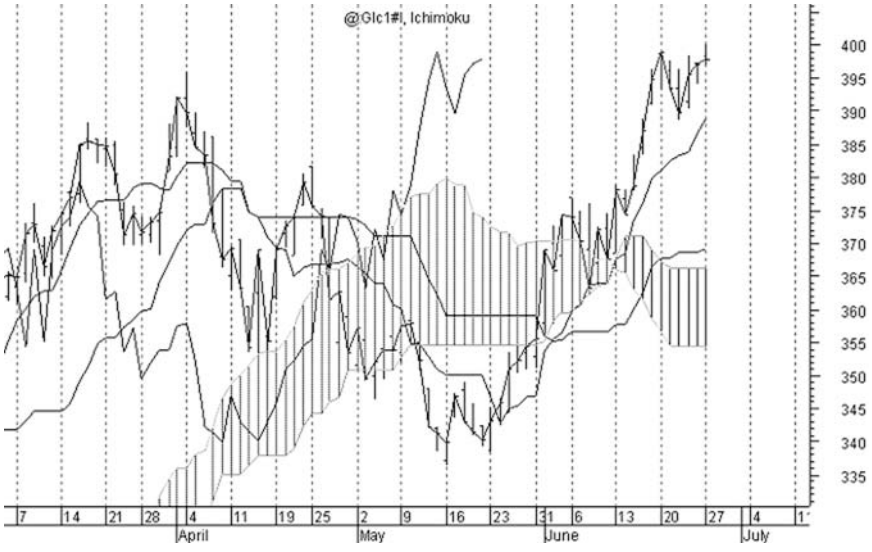
## Homework

Continue executing trades. Do so with and without the stop and limit orders. Also do so in combination to see how the exposure changes.

CHAPTER 6

# Market Analysis

At the heart of every trading system, from the simplest to the most complex, is market analysis. It is the basis for the decision-making process. This chapter outlines the primary methods employed.



## ANALYZING THE MARKETS

When one is considering trading as a speculative profit seeking venture (as opposed to a business activity, in some cases), there must be some mechanism by which one determines what actions to take, or indeed to take none. This process is market analysis. Every trading system incorporates it in some way.

In this chapter we explore the three primary methods used by traders and market participants—fundamental analysis, technical analysis, and quantitative analysis. The first two are often considered polar opposites, and their exponents can be often heard to sing their praises while damning the other in turn. Many fail to include the third, quantitative analysis, in the discussion. The well-known market commentator Ralph Acampora, however, in a presentation to students and faculty at the University of Rhode Island, described market analysis in terms of a triangle. The three may be employed differently, but they are nevertheless linked together, as shown in Figure 6.2.

Do not read anything into the position of any of the three in either absolute or relative terms. No implication is made in the design of the triangle.

This chapter spends considerable time specifically covering the analysis types individually, and in some cases jointly. Before getting to that point, though, it is important to take some time to discuss exactly what are the implications of market analysis.

### Representation Bias

The map is not the terrain. Perhaps you have heard that expression. It basically means that no matter how detailed the map, it still is nothing more than a representation of something. It is not the actual thing

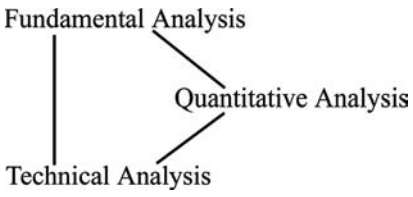



**FIGURE 6.2** Analysis Triangle

itself. To think otherwise is to fall victim to what is considered *representation bias*.

Traders have to keep in mind that no matter what data, charts, or other kind of information they use in their analysis, it is not the market. It is only a representation of what could be only a single element of the market. Price, for example, is merely an indication where one or more parties are willing to transact or have transacted, no more than that. Moreover, since the market is in constant flux, any such representation is by definition a snapshot in time. It is history. A price chart is no more than a map of where transactions were or could have been made (traded versus indicative quotes) over some time period.

The simple fact of the matter is that no one can know everything. The financial markets are highly complex and amorphous. One could say with some validity that everyone on the planet is involved in them, directly or indirectly contributing to the supply/demand situation that underlies the markets. This is a very important thing to remember as one goes through this chapter.

One other quick thing should be mentioned before going forward. Market analysis is commonly thought of in one of two fashions: top-down and bottom-up. The former is when one looks at the broad view, then uses it to take positions in specific instruments. An example would be to determine an overall positive or negative outlook for the U.S. dollar, then pick a specific currency pair to trade (like EUR/USD). The bottom-up approach is one whereby the trader focuses on specific instruments (like stocks) and does not spend too much time looking at the wider view (the indices or overall economy, for example). Both approaches can be effective. It is a question of preference.

## FUNDAMENTAL ANALYSIS

Fundamental analysis is most often associated with the stock market. In that regard it is the effort by which one attempts to determine the value of a company, and thereby its per share price. That is merely one application, however. Fundamental analysis is applied in essentially every market in one fashion or another. This is often seen as economic analysis, though other elements come in as well, depending on the market in question.

We start the discussion of fundamental analysis at what could be considered the top level, and then progress down to more minute elements that impact specific instruments. In a sense, we will be taking a top-down look at how fundamental analysis is applied.

## The Business Cycle

Also referred to as the economic cycle, the business cycle is the pattern of economic growth and contraction that takes place over time. The use of the word "cycle" can be a bit misleading, as the pattern is not one of regular and consistent recurrence. Rather, these cycles tend to vary in overall length, as well as in the duration and amplitude of each phase. The basic idea that an economy goes through periods of expansion followed by periods of stagnation or decline is what is important to keep in mind, though.

### Gross Domestic Product (GDP)

GDP is the total value of all goods and services produced by a country (or territory) over the course of a specific time period. Nominal GDP is the actual figure, while real GDP attempts to adjust the base figure for the impact of inflation on prices.

In basic terms, there are two primary phases of the business cycle. One is growth, which is the expansion of the gross domestic product (GDP). It is in this phase that unemployment declines, there is a rise in consumer and business, company profits grow, and all those generally good things associated with prosperity happen.

### Recession and Depression

A recession is defined as two or three (depending on to whom you speak) consecutive quarters of negative GDP growth. Recessions are considered normal events in the course of the business cycle.

There is no agreed upon definition of depression, but it can be thought of as a sustained recession that also features depreciation in assets, goods, and services (negative inflation).

On the flip side is contraction, negative GDP growth. That is when unemployment rates rise, bankruptcies increase, profits decline, individuals and companies have less to spend, and generally things are not pleasant. Depending on the severity and/or duration of the contraction, this period can be termed a recession, or perhaps even a depression.

There are, of course, degrees for each cycle. Some growth phases are faster than others, and in fact growth rates tend to start slowly, increase to some peak, then fall off. The same is true in the contraction phase. Some are more severe, and others less. Of course, there are the transition periods. Economies do not go instantly from growth to contraction or vice versa, after all.

Many factors influence business cycles, in terms of both the length of the phases and transition periods and the magnitude of growth and contraction rates. They include (1) interest rates, (2) monetary and fiscal policy, (3) inflation, (4) currency exchange rates, (5) commodity prices, (6) government regulation, (7) currency exchange rates, and (8) foreign trade, among others. At the same time, each of these elements is impacted by the business cycle and has a high degree of interaction and influence with and among one another. This section of the chapter discusses those items individually, and in relation to one another, and eventually brings it all down to the level of the individual company.

## General Economic Analysis

You will recall from Chapter 3 that the list of influences on price movement features a heavy dose of economic data. It is a fact of life that overall economic activity influences everything in the financial markets. If, for example, the economy is in the contraction phase of the business cycle, interest rates will probably move lower, exchange rates will likely be negatively impacted, demand for goods and services can be expected to decline, inflation will generally be lower, and companies will see earnings come under pressure, which means lower stock prices. In most cases, the opposite is true during economic expansion, and transition phases can see mixtures of the two. For this reason, it is important for the trader to understand where the economy is in the business cycle, and what the future may bring in that regard. Because of this, a great deal of effort and energy is put forth monitoring and forecasting economic conditions.

Quarterly GDP data are readily available for the purposes of business cycle analysis. The problem, however, is that GDP data are not very timely. The final figures for any given quarter are often not released until nearly a whole next quarter has passed. Therefore, those seeking to know the current health of the economy have to find ways to measure GDP growth with less time lag. This is done through monitoring, on an ongoing basis, the components of GDP.

The components of GDP are (1) private consumption, (2) business investment, (3) government spending, and (4) net exports. An array of government and private sector reports and information can be used to measure these components. The trade figures, for example, are watched very closely. One need look no further than any publicly available monthly economic data release calendar to see how many of these data items are reported. You can be sure that they are all finding their way into any number of models used to forecast GDP.

In terms of taking a forward look to see where GDP growth is likely to be in the future, there is also a collection of items that are collectively

referred to as leading indicators. They are measures considered guides to the future growth of the economy. With them, one can have a useful (if not always accurate) crystal ball for developing GDP growth expectations. The Conference Board (www.conference-board.org) has collected several of them together into a leading index for the United States (and other countries). This index includes:

- Average weekly claims for unemployment insurance (taken inverted).
- Building permits (for new construction).
- Average weekly manufacturing hours.
- Manufactures' new orders for nondefense capital goods.
- Manufactures' new orders for consumer goods and materials.
- Index of Consumer Expectations.
- Real money supply.
- Interest rate spread (yield curve).
- Stock prices (measured by one or more indices).
- Vendor performance.

As you read through this list, you can no doubt see how many of the items clearly indicate the potential for future economic production. For example, Building permits indicates the pending need for materials and labor in the construction arena. That makes them very significant figures for one attempting to predict future GDP growth.

Traders and market analysts will take one of two approaches in regard to GDP growth figures (assuming they use fundamental analysis in their work). One will be to specifically include it in their specific analysis of whatever market they are looking at. By that we mean models. For example, GDP growth rates can be an input in corporate revenue growth models. Other traders will use the economic outlook more as a guideline or bias setter.

## Interest Rates

While closely related to and integrated with economic growth, interest rates move independently from the economic cycle. They fluctuate freely via trade in the fixed income markets. As such we have here both a component of fundamental analysis (interest rates being a contributory element in the analysis of several markets), and a market in its own right. What that creates is a highly dynamic element for the fundamental analyst as interest rates move continuously and are influenced by other market elements.

Most specifically, interest rates (a component factor of fixed income security prices) are highly sensitive to inflation. Consider a bond that pays out annual interest of 10 percent on a fixed principal amount (par value). The

real value of those interest payments will depend on the level of inflation. The higher the inflation rate, the lower the real interest rate, and vice versa.

**Nominal versus Real Rates**

The nominal rate of return is the actual payment, for example a $1,000 bond paying $100 in annual interest has a nominal rate of 10 percent. The real interest rate is the inflation adjusted rate of interest. In the preceding example, if inflation was 3 percent, the real rate of return on the bond would be 7 percent.

In order to keep their real rate of return at a steady level, fixed income investors will demand higher nominal rates from their fixed income securities. For example, at a 3 percent rate of inflation, a 7 percent yield for a bond might be fine, but if inflation was 5 percent, the required yield may be 9 percent, keeping the investor's real rate of return at 4 percent. As bond prices and yields are inversely related, bond prices fall as inflation rises so as to provide the higher yields demanded by investors.

Since inflation is so important to the interest rate market, it should be no surprise that traders using fundamental analysis spend considerable time looking at those things that measure inflation such as Consumer Price Index (CPI). The CPI is a basket of goods and services designed to reflect the expenses of the average person. Changes in the CPI outline how much more (or less) expensive those goods and services have become. Since inflation is the rate of change in price over time, the CPI provides us a reading on just that. The Producer Price Index (PPI) does essentially the same thing on the business side. There are other measures of inflation that may be better or worse than the CPI at measuring inflation, but we do not get into a discussion of them here. Suffice it to say that there are ways to estimate inflation over a given time frame.

However, it is not current (or rather near past) inflation the markets concern themselves with. The fixed income market is worried about the rate of future inflation. Therefore, fundamental analysis for the fixed income market focuses on those things that can give a reading on inflation rates down the road.

So from where does inflation come? Well, what makes prices increase? We have had this discussion in market terms already. It's a supply and demand situation. If there is a preponderance of demand, prices will tend to rise as the competition to purchase drives buyers to pay more. Where there is an excess supply, prices drop as the sellers cut their demands to unload their inventory. When demand increases in the face of supply shortages, prices move rapidly higher. If supply surges, but demand decreases, the rate of price decline is more rapid.

Since copper, oil, grains, and other commodities are the inputs to the products purchased by consumers and businesses, they are watched closely as potential indicators of inflation. After all, as we have seen, if oil prices are rising we are likely to see higher gasoline prices at the pump. We can also see an impact on competitive products. Sticking with our example, when oil prices rise, there can be a similar move higher in natural gas. This is the result of increased demand in that market as people shift away from oil.

Labor is another input to the cost of producing goods and services, so traders watch the employment data for signs of pressure on that market. Labor operates like any other market. When demand increases, wage demands increase. That is why economists and fixed income traders become nervous when the unemployment rates get very low. It suggests the potential for wage rate increases.

That said, however, higher input costs do not always translate into higher prices for the consumer or business. Modern technology has led to serious gains in efficiency. As a result, businesses have been able to cut costs in other areas to keep their own total expenses from rising. At the same time, we come back to supply and demand. If businesses are in a highly competitive situation with others, one where there is an excess supply (in some manner of speaking) or demand is pressured, prices will be held down. As such, one cannot just assume that higher input prices mean higher output prices and rises in the measures such as the CPI. It does not always work that way.

There is another supply/demand element involved in inflation. That is money supply. Some have legitimately defined inflation (in its negative, excessive sense) as too much money chasing too few goods. We have already addressed the goods (and inputs) side of that definition. The other side is the money. Just like anything else, too much money means a decrease in the value of it. So if the supply of money is rising while the supply of goods and/or services is falling and demand for them rising, devastating inflation can occur. (Germany between World War I and World War II is a very dramatic example.)

The money supply issue brings one directly into the realm of the central banks, the keepers of the money and the dominant forces in interest rates. As much as the fixed income markets, which determine rates, trade freely, they are heavily influenced by the actions and statements of the central banks.

*Federal funds rate:* The overnight interest rate at which banks lend or borrow reserve balances among each other.

*Discount rate:* The overnight interest rate the Federal Reserve charges banks to borrow reserve funds directly from the Fed.

The most overt form of central bank influence on interest rates is the raising or lowering of specific government interest rates. In the United States these are the federal funds and discount rates, which are used by banks to determine things like the prime rate, the rate banks use as the benchmark for determining their lending rates. Other countries have similar benchmarks.

The Fed also does what is known as open market operations in which they buy and sell Treasury securities to increase or decrease, respectively, the money supply. In other countries there are different systems in place, but the operations and intentions are the same among the central banks.

In many cases, the primary focus of the central bank is to guard against excess inflation. Some are more aggressive than others, and some also have mandates related to economic growth and the strength of the country's currency, but inflationary concerns dominate. Central banks use interest rates to control inflation. They tend to raise rates when they feel inflationary risks are starting to show, and allowing rates to drop when they recede. This is where economic growth comes back into the picture. And you thought GDP growth had been left behind. Not so!

**Open Market Operations**

By executing transactions in the fixed income market, a central bank can influence the money supply and thus move interest rates.

If the central bank (i.e., the Fed) is a buyer of government securities (such as T-bills), they are expanding the money supply. This is because they are putting money into the market by paying the sellers. At the same time, the purchases will tend to increase the price of the fixed income securities in question, lowering their yields.

When selling, the central is taking money out of the system by receiving payment for the securities they are selling. The selling will tend to put pressure on the price of those fixed income instruments, raising the yield.

From where does demand come? In the case of consumers and businesses, it comes from increased income and money to spend. This is generally a function of economic growth. As such, central bankers are always on the lookout during good times for signs that the economy is "overheating." Inflation does not tend to crop up when there is steady economic growth. It is when growth starts to accelerate beyond normal rates that inflation can creep in. At least that is the idea, anyway. There are many who would contest this view. We do not take sides in that particular argument.

The point being made here is that if central bankers think that rapid economic growth might lead to increased inflation, they will increase interest rates in order to put on the brakes and slow things down.

As a result of the central banker's ability to manipulate interest rates, a whole branch of fundamental analysis has evolved. In the United States it is referred to as Fed watching, indicative of how its proponents spend much time monitoring all the goings on with those who are members of the Federal Reserve Board, and of course the chairman of the Federal Reserve. These individuals make public statements (as noted in Chapter 3) that analysts attempt to decipher for their meaning vis-à-vis interest rate and money supply policy.

It must be noted, however, that as powerful as central banks are, they do not have complete control of interest rates, particularly at the longer maturities. The central banks do their operations in the short-term instruments, which leaves the longer-term ones to move around fairly freely. That means one can see times when traders and the central bank do not seem to be in agreement, such as when rates are increased but 10-year yields, for example, stay level or even fall.

This brings up the yield curve, as depicted in Figure 6.3.

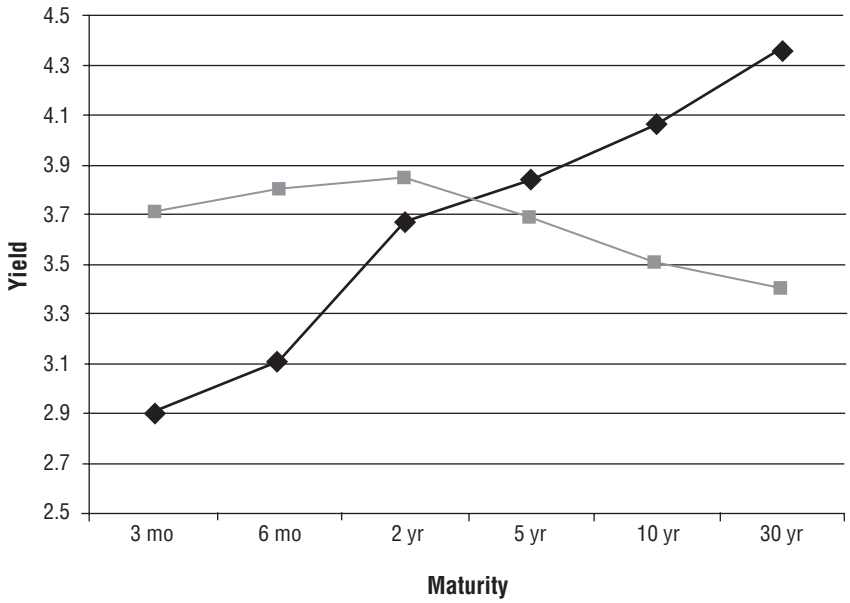



**FIGURE 6.3** U.S. Yield Curve

The yield curve is a visual depiction of interest rates through the series of maturities. Through it one can see the spread between any two specific maturities. In Figure 6.3 there are two plots. The dark one is a normal yield curve with an upward slope from left to right. The light line is of the type referred to as an inverted curve because short-term rates are higher than long-term ones.

Recall that the yield curve (interest rate spread) is one of the leading indicators used to anticipate changes in GDP growth. It is so because an inverted, negatively sloping yield curve is oftentimes an indication of an economic downturn to come. Why? Because the higher short-term rates mean there is no incentive to make longer-term investments. Since business investment is a component of GDP, one that will be negatively impacted, an inverted yield curve can mean a decline in GDP, if not offset by one or more of the other components. So again we see the economic growth/interest rate linkage.

## Foreign Exchange Rates

Like interest rates, foreign exchange rates (forex) are both a market unto themselves and a potential consideration in fundamental analysis. Forex rates are at the same time a reflection of economic strength or weakness (capital tends to flow toward strong currencies and away from weak ones) and an influence upon that condition. Recall that trade is a component of GDP, and forex rates are both the result of and an influence on trade flows. At the same time, interest rates both impact and are impacted by forex rates as capital moves in search of yield. It is a truly mind-spinning situation.

We are not spending a great deal of time here. As noted, forex shares common influences with all other markets. The same type of considerations as we have already mentioned so far apply, with a few added ones related to trade and capital flows. What we want to focus on instead is how forex impacts on the analysis of other markets.

On the macro level, foreign exchange rates come into play at several points. As already noted, they include GDP and interest rates through the functioning of trade and capital flows. The exchange rate between two currencies influences the relative cost of goods in trade, which can then lead to changes in the direction and/or scope of trade between two partners. That ties in with the export balance part of the GDP equation.

On the capital flow side forex is about investment. A strong or strengthening currency will attract investment. The additional supply of investment funds will tend to move interest rate lower (there's that supply and demand again!). This has long been the case in the United States where the relatively strong dollar has encouraged foreign investment. On the flip side, a weak currency can lead to higher interest rates. Consider concerns that foreign

investors would begin pulling out of the U.S. market when the dollar suffered its sharp weakening against the euro. Had they in fact done so, there would have been sharp upward pressure in the U.S. interest rates arena.

On a more micro level, forex rates can directly influence company profitability. Many companies these days have an exposure to forex in some fashion or another, be it directly in terms of overseas operations or the purchase or sale of goods and services on the global trade market, or indirectly through the purchase of goods and services from other companies who have direct exposure. As such, the fundamental analyst often must take forex into consideration when evaluating a company's stock.

## Commodities

We mentioned earlier the role of commodity prices in the inflation equation. They are obviously a tradable market unto themselves. Additionally, they are direct or indirect contributors to the profitability of companies. In fact, some stock prices are heavily dominated by a particular commodity, like gold mining shares or oil stocks.

So what does fundamental analysis mean for commodities? Well, start with supply and demand. One needs to evaluate those things that impact the two sides of that balance. What increases or decreases supply? What impacts demand?

The commodity market is diverse. There are agricultural goods. There are energy products. There are metals. Each has its own set of influences. For example, weather can factor quite heavily in the supply of corn or other crops, or in the demand for heating oil or natural gas. Labor strife and political unrest can impact the mining of metals and/or their transport to potential buyers. Changes in the demographics of a population alter the demand of things, in some cases specifically, in others across the board.

Additionally, as we have already noted, there are linkages between commodities that can impact supply and demand. The example we brought up before involved heating oil and natural gas, whereby increases in the price of the former can lead to increased demand for the latter. Corn could fall because wheat prices are falling, cutting into the demand for corn. It these relationships that often see general sectors (energy, grains, etc.) rise or fall in unison.

## Stocks

We started off saying that it was in the stock market where fundamental analysis is most widely and overtly applied. After much discussion of things macro, we can now focus on how fundamentals are approached in regard to companies and their share prices. With that big-picture view of the external elements, we are ready to take a micro view of the company

and the types of methods utilized to determine the value of a company's stock and/or project a path in prices for the future.

The process of determining a stock's value, or relative value, almost always involves some kind of forecast as to future earnings. Forecasts are arrived at through a process of projected financial statements. These projections combine expectations of the macroeconomic factors mentioned earlier in this section and company business plans to arrive at revenue growth figures. They then address the cost side through the forecast of expected input prices (also discussed earlier) to get a net profitability determination. It is often the case that five-year forecasts are used in this regard.

With those earnings and/or financial statement forecasts in hand, the analyst can then take one of two primary approaches.

**Market Wisdom**

"Discounted cash flow is only able to put a net present value on expected income flows discounted back to the present and cannot take into account the vagaries of alteration in price behavior due to fluctuations in imbalances between supply and demand functions. Therefore DCF can only show whether as rights to an income, the acquisition of those rights, in comparison to whatever else is available, when a yardstick for this is established, is expensive or cheap in comparison to this yardstick, which could be the income from a fixed interest instrument."

Posted at Trade2Win by SOCRATES

www.trade2win.com/boards/showthread.php?t=15679

**Actual Value Analysis** The application of actual value analysis takes two approaches, which can be combined in some circumstances. This first is determining the net present value (NPV) of the stock by discounting back the annual earnings. Here is where interest rates factor into the stock price. That gives one the value of the stock in terms of its future income.

The other path is in determining the option value of the company. This is something that would be done in the case, for example, of an oil drilling company where the value of the company will be very different depending on whether it strikes oil. Another example would be a company involved in a court battle, the outcome of which could have major implications to future earnings. As such, the fundamental analyst would determine the value of the company under any and all possible future scenarios, then combine them through option pricing methods to arrive at a stock value.

Regardless of how value is reached, its application is the same. If that value is higher than the current stock price, one would want to buy the undervalued shares. This is the classical financial model for evaluating stocks.

**Comparative Analysis** This is the process by which one company's stock is compared to that of one or more others (such as a group or sector). Because companies often are not directly comparable on a straight up basis due to things such as differences in earnings per share, they must be compared on the basis of ratios. Among the most frequently used of these ratios are:

- Price to earnings (P/E): This is calculated as stock price divided by annual earnings per share (as measured on a trailing or historical basis, or in a projected forward fashion). Often referred to as the *multiple*, the P/E ratio can be used to judge a stock as compared to its peer group, or to the stock's own historical standard. For example, if a stock that normally has a P/E in the 10–15 range is currently trading such that is has a 20 P/E, one could take the view that on a relative basis, all else being approximately equal, the stock could be overvalued. (*Note:* Market analysts often calculate multiples for the market in general, usually based on one of the many indices, using them to get an overview of the relative value of the broad collection of stocks.)
- Book value: This is the company's net assets divided by the number of shares outstanding. It tells the analyst is if the company was to be liquidated, what each shareholder would receive. This can be a very complicated ratio to calculate, however, as the value of assets and liabilities on a company's balance sheet does not necessarily reflect its actual market value based on things such as depreciation. The analyst looking to make the book value a practical tool must be able to fairly accurately determine the value of the companies' various assets and liabilities. Otherwise, book value can be quite misleading.
- Dividend yield: This is calculated as annual dividends per share paid divided by stock price. In some market sectors—utility companies, for example—this can be a useful comparative measure. Unfortunately, there are a great many companies that do not even pay dividends (or at least meaningful ones), which limits the usefulness of this particular ratio.

**P/E Ratios in Relation to Earnings Growth**

Anyone observing the market will likely note that stocks of companies that are considered "growth" have higher P/E ratios. The reason for this is demonstrated quite clearly by Table 6.1.

This table compares the P/E ratios (at right) of a company with $5/share current (t0) earnings at three different growth rates. Given the same discount rate used to in all cases (4 percent) the NPV of stock is higher for higher earnings growth rates (leftmost column). That NPV, in theory, is the value of the stock and the price at which it should be trading. As such, progressively higher NPVs mean higher P/E ratios. Thus, higher earnings growth rates mean higher P/E ratios.

**TABLE 6.1** Comparing P/E Ratios for Different Rates of Growth

| Earnings Growth Rate (x) | Earnings per Share at Future Times Given Growth Rate x | | | | | | NPV at 4% Discount Rate | P/E Ratio (at t0) |
|---|---|---|---|---|---|---|---|---|
| | t0 | t1 | t2 | t3 | t4 | t5 | | |
| 5% | $5.00 | $5.25 | $5.51 | $5.79 | $ 6.08 | $ 6.38 | $25.73 | 5.15 |
| 10% | $5.00 | $5.50 | $6.05 | $6.66 | $ 7.32 | $ 8.05 | $29.67 | 5.93 |
| 20% | $5.00 | $6.00 | $7.20 | $8.64 | $10.37 | $12.44 | $39.20 | 7.84 |

There are other accounting ratios such as profit margins, debt-equity, inventory turnover, and cash flow measures that also can be used by the fundamental equity analyst. These can be applied either individually in the analysis of a single company, or as part of a multistock comparison. Some will be important or valuable in their application in certain industries, but not in others, depending on the business in question. The fact of the matter is that one can go into as much detail as one likes in evaluating a company.

**Market Wisdom**

"PE ratios, dividend yields, cover, etc. . . . are the starting point when it comes to stock selection. The disparity that tends to exist between similar stocks can be down to any number of reasons—customer loyalty, brand recognition, growth prospects, management, product pipeline, geographic location etc. The companies in a sector cannot be exactly the same and the market will price them differently. Some shares will be chased aggressively and thus have higher PE ratios while others might not be the flavor of the month. The fundamental trader/investor is looking to exploit these inefficiencies."

Posted at Trade2Win by Lion63

www.trade2win.com/boards/showthread.php?t=15679

Before jumping forward, it is worth taking a more in-depth look at P/E, as the topic of low P/E stocks is a common one among market participants. First, a low P/E stock is generally one that is trading at a single digit multiple, but in reality could easily be defined as one that has a multiple significantly lower than that of some benchmark such as a market index or industry sector. Regardless, one must approach low P/E stocks cautiously. There are reasons for the depressed multiple. Some of the bigger ones are:

- Poor earnings growth prospects.
- Boring industry or business (e.g., funeral homes, garbage removal).
- Low institutional coverage (few analysts writing about it).
- Fear over a negative development.

As demonstrated earlier, P/E ratios and growth rates are linked. A stock with slow growth prospects will generally not see expansion of its multiple. Stocks in the middle two categories in the preceding list (boring, lack of coverage), however, can see multiple expansion. It can be

very slow in coming, however, as it requires an upgrade in the company's market awareness and profile. In short, the stock needs to become more popular.

**Multiple Expansion**

Multiple expansion is when a stock price rises faster than the rate of earnings growth would indicate. For example, consider a $10 stock with $1/share earnings. That is a P/E of 10. If earnings were to rise to $1.50 and the stock move up to $18, the P/E would expand to 12. When the opposite occurs, it is multiple contraction.

The last category is the potentially most interesting one. As noted previously in this book, psychology can play a major role in the markets. Stocks can sometimes become victim to an overly pessimistic scenario and end up with low P/Es. In such a case, the fundamental trader can do quite well with a multiple expansion trade.

The problem, however, is in determining whether the selling that caused the low P/E was excessive, or if there is a very good reason for the P/E to be that low. Remember, a low P/E may not look so low when new earnings figures are applied. If a stock's earnings per share figures are halved, the P/E doubles. That is why one should not automatically assume a low P/E means a cheap stock ready to roar higher. Just as is the case when one goes shopping, low prices can mean lower quality. Sad is the trader who buys the stock because of the low P/E, then watches the P/E rise as the stock price falls.

## Final Thoughts

Fundamental analysis can be applied in any market, though some are a bit more challenging than others. In fact, the top-down stock market analyst, if being very thorough, can incorporate analysis of several other markets into their assessment of a particular company's shares. Fundamentals are excellent for developing an overall picture of the markets, a long-term view, if you will, of where prices are heading.

There is a limitation to fundamental analysis, though. Even the supporters and active users of fundamentals will admit that it is nearly useless in terms of short-term trading. While fundamental influences will tend to win out over time (if a company's earnings are rising the stock price *will* tend to rise), in the near-term there are a great many other forces at play in the movement of prices. Back in Chapter 3 we docu-

mented some of those things. As such, one needs to consider trading time frame when determining whether fundamental analysis will be part of one's trade decision-making process. In the longer time frames, fundamentals can be quite useful.

There is a great deal of written material available for those interested in learning more. Check out this book's support web site for an updated list: www.andurilonline.com/book.

## TECHNICAL ANALYSIS

On the surface, one could define technical analysis as the use of historical information (certainly price, in many cases volume, and some other data as well) to forecast the future. As such, thanks to the efficient market hypothesis (recall the weak form of EMH, which states that all historical information is already priced in), many in the markets, and even more in academia, have considered practitioners of technical analysis quacks. This point of view is changing rapidly, however. A big part of the reason is a revision in the definition of technical analysis.

### Behavioral Finance

Behavioral finance combines psychology with financial theory. This is done by applying scientific research on individual and social cognitive and emotional biases to help understand economic decisions and how they affect market prices, with a focus on the rationality (or lack thereof) of market participants.

Technical analysis is now defined more in terms of measuring and predicting human behavior. This has led to a kinder view in academic circles, though the term Behavioral finance is more often the one used. Regardless, it is still historical information that is being applied, with the goal of attempting to predict the behavior of the markets (inasmuch as they are a collection of individuals) in the future. Even the Federal Reserve is interested in technical analysis, as can be read in some of its own research: www.ny.frb.org/research/epr/00v06n2/0007osle.html.

To be quite blunt, technical analysis does not care a bit about all the fundamental information and analysis presented in the previous section. It takes the view that it is all accounted for in price and/or the movement of price over time. The technician instead focuses on price as the market determined measure of value, since any given transaction is an agreement between buyer and seller as to value at a given point in time. To take it all

a step further, the technical analyst is concerned with price movement, or the lack thereof. A technician, through the application of one or more methods, attempts to determine future direction. In this section we explore some of those methods.

## Charting

The foundations of technical analysis are in price charts and the interpretation of them. Charts, of course, are simply price plotted over time. The so-called "chartist" believes that patterns can be identified in the price action depicted by the charts, which repeat with a measure of predictability. As such, they provide the opportunity for profit, and, of course, that is the name of the game.

**Japanese Candlestick Charts**

Candlesticks charts (originated in Japan) are akin to bar charts in that they use Open, High, Low, and Close prices to plot a period. The difference is that the area between the open and close is widened out to more clearly show the movement of price during the time period depicted. When Close > Open, this "body" is empty like the right image in Figure 6.4; else it is filled. See www.andurilonline.com/book for more on candlestick charting.

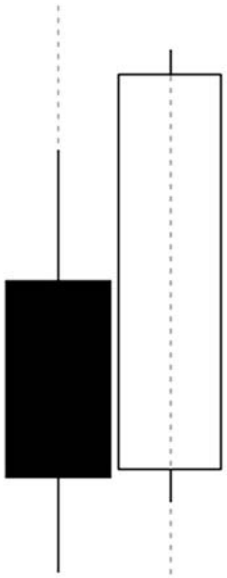


**FIGURE 6.4** Sample Candlesticks

These price charts come in many varieties from the very simple line charts in which price is plotted at given intervals, usually from the end of one period (the close) to the end of the next, to bar charts, to Japanese candlesticks, and others. Each technician has his or her own preference, and some styles of charting, such as candlesticks, actually come with their own set of terminology and analytic rules. The charting packages of most trading platforms these days offer a variety of chart types from which to choose.

**Market Profile**

Market Profile (a registered trademark of the Chicago Board of Trade) is a charting method with which many market participants are unfamiliar because it was developed for use in the commodity futures arena. Its use has expanded, but it is still primarily a futures tool. The Market Profile chart is essentially a compressed bar chart as one can see in Table 6.2.

The vertical single-letter plots are 30 minute "bars." They depict a half hour of action just like a high/low bar would, except that they are plotted with letters rather than lines. Each letter represents a time period. To get the Market Profile plot at left each "bar" is kind of squashed together. Notice, for example, that at 102.10 in the Market Profile there is "ejk." This indicates that price reached that level during periods e, j, and k. If we look lower, at say 101.30, we can see more letters plotted, indicating more action at that price point.

The idea behind Market Profile is that price action builds distributions and that one can trade based on the development of these distributions.

See www.andurilonline.com/book for more on Market Profile.

*Chart patterns* are the starting point of analysis for the chartist. This is where the idea of technical analysis as an attempt to observe and anticipate behavior begins. We humans tend to fall into patterns of behavior, especially when considered in the group context (mass behavior). Charts show how the collection of market participants have acted in the past. The chartist looks for the kinds of price patterns this creates and attempts to profit by identifying the direction those patterns suggest for future market action.

There is not the space for an exhaustive study of chart patterns here. We will, however, cover a few key points, concepts that even the nontechnician can come across as part of normal involvement in the markets. The biggest of these ideas is that of *support* and *resistance*. In short, it is be-

**TABLE 6.2** Sample Market Profile Plot

| Market Profile Plot | Hour Bars | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 102.10 ejk | | | | | e | | | | | j | k | | | | |
| 102.00 ejk | | | | | e | | | | | j | k | | | | |
| 101.90 dejk | | | | d | e | | | | | j | k | | | | |
| 101.80 adefijk | a | | | d | e | f | | | i | j | k | | | | |
| 101.70 adefijk | a | | | d | e | f | | | i | j | k | | | | |
| 101.60 abcdfik | a | b | c | d | | f | | | i | | k | | | | |
| 101.50 abcdfikln | a | b | c | d | | f | | | i | | k | l | | n | |
| 101.40 abcdfikln | a | b | c | d | | f | | | i | | k | l | | n | |
| 101.30 abcfhikln | a | b | c | | | f | | h | i | | k | l | | n | |
| 101.20 abcfhiln | a | b | c | | | f | | h | i | | | l | | n | |
| 101.10 abfhilmn | a | b | | | | f | | h | i | | | l | m | n | |
| 101.00 abfhlmn | a | b | | | | f | | h | | | | l | m | n | |
| 100.90 bfghlmn | | b | | | | f | g | h | | | | l | m | n | |
| 100.80 bfghlmn | | b | | | | f | g | h | | | | l | m | n | |
| 100.70 bfghlm | | b | | | | f | g | h | | | | l | m | | |
| 100.60 bfghlm | | b | | | | f | g | h | | | | l | m | | |
| 100.50 ghlm | | | | | | | g | h | | | | l | m | | |
| 100.40 ghlm | | | | | | | g | h | | | | l | m | | |
| 100.30 gm | | | | | | | g | | | | | | m | | |
| 100.20 g | | | | | | | g | | | | | | | | |

lieved that specific prices or price regions can be barriers to future price movement. Support is a point below the current level at which it is expected price will cease to decline. Resistance is a point above the current price where an advance is expected to stall. Refer to the GBP/USD chart in Figure 6.5.

Consider the decline on the left side of the chart which eventually bottomed at 1.85–1.86. The market then rallied up to 1.93–1.94. When GBP/USD turned over again in March it found *support* near where the previous low was set. It then rebounded, but ran into *resistance* at the peak near 1.93. In this case, the support and resistance was not a single price point, but rather an area of congestion where prices had stalled out and traded for a period of time. This is often how support and resistance levels come into existence. The explanation proffered by the technical analyst is that there must be some underlying reason why so much trade took place at a given point. For this reason, it is often the case that support once broken becomes resistance, and vice versa.

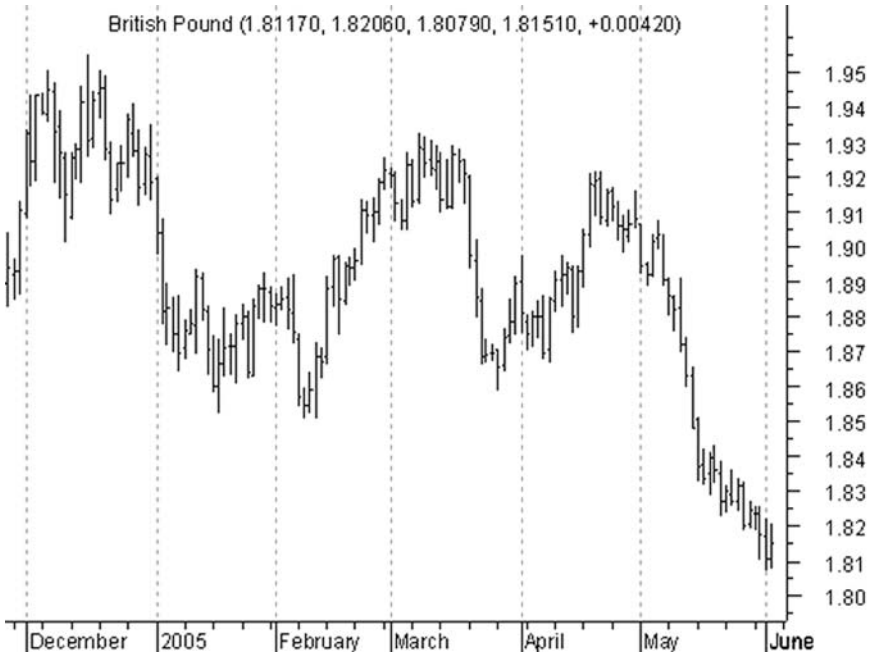



**FIGURE 6.5** Daily GDP/USD Bar Chart
*Source:* Metastock.

**Option Strike Prices as Support and Resistance**

It is well understood in the market that option strike prices can turn into major support or resistance points. This is a function of the hedging action of option sellers—delta hedges. Specifically, this activity tends to create a kind of attraction to a nearby strike price, especially as option expiration approaches. It also keeps price from moving far away from the strike on the other side.

Although not the case in the GBP/USD example presented, support and resistance can also be a single price point if it holds some significance. An example could be a recent low or high, or a psychological number such at 1.00 in EUR/USD (parity between the euro and U.S. dollar).

The breach of a support or resistance point is considered significant. In general terms, two things increase the significance of a given support or resistance level or area. One is the time frame. A weekly resistance point is thought to be more significant than a daily one, for example. The second is touches. The more a level has been tested (approached, but not

broken) the stronger it is thought to be. The more important the support or resistance level (time frame and touches), the more significant the break when it happens. As can be seen in the GBP/USD chart, when the 1.85–1.86 level was broken (an area twice touched) the market proceeded lower without pause or hesitation.

There are two ways traders use support and resistance levels in their methods. One is the range trade, in which one sells as the market approaches resistance or buys as price reaches support expecting a turnaround. Users of these methods take the view that the markets spend more time moving in ranges than they do in trends; thus it makes sense to trade with the expectation of range persistence.

The opposite is a breakout trader, which is a go-with approach where trades are taken in the direction of a break through important support or resistance. As we noted before, breaks are considered significant. The breakout trader, then, is making the play for the development of a trend in the direction of the break. (See Figure 6.6.)

Since much support and resistance is based on consolidation, it is worth touching on that notion quickly. A consolidation is a period of rela-

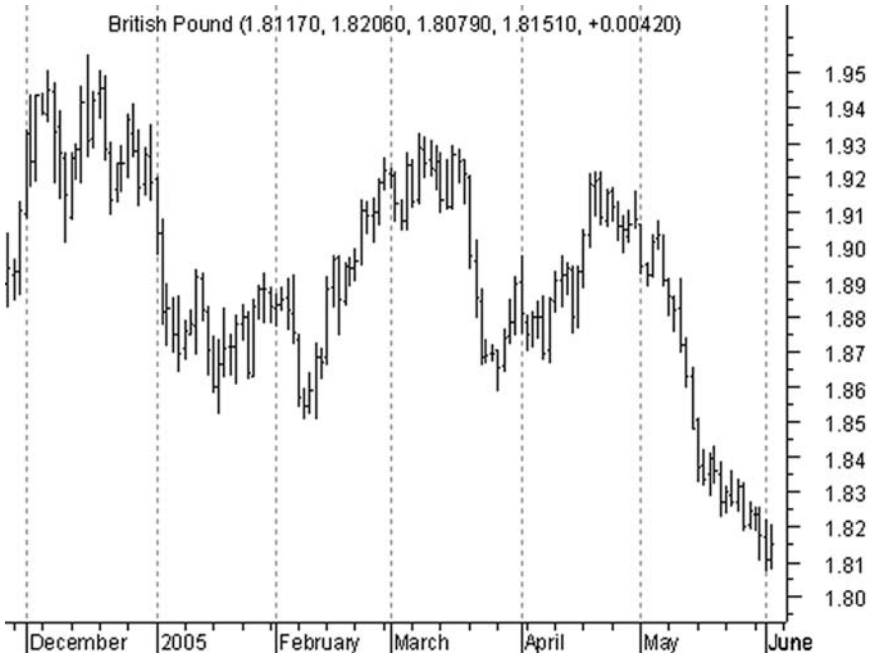



**FIGURE 6.6** Daily GBP/USD Bar Chart
*Source:* Metastock.

tively narrow price action following a directional trend. On our GBP/USD chart, we can see a couple of consolidations. After the February rally from near 1.85–1.93, the market moved sideways in about a 2-point range. That is a consolidation.

In the GBP/USD example, the consolidation was the end of a move. The market rallied, then stalled out. This is not always the case, though, as one can see in the USD/CAD chart shown in Figure 6.7.

In Figure 6.7 (featuring candlestick charting) we can see that USD/CAD was in a long, fairly significant decline. This is about as close to a one-way market as can be seen. Even still, at several stages the market stopped falling and moved in a primarily sideways direction for a spell. It then continued lower again. This is an example of consolidations as breaks in a sustained trend rather than turning points as in the GBP/USD example.

Along with support and resistance, and in conjunction with the idea of consolidation, is the *continuation pattern*. As its name suggests, a continuation pattern is one in which it is expected that the market will recommence a given move. Continuation patterns are visible formations that


**FIGURE 6.7** Daily USD/CAD Candlestick Chart
*Source:* Metastock.

appear on the charts. They have names like flag and pennant—basic descriptions of their appearance.

At the same time there are *reversal patterns*. As you can easily guess, a reversal pattern is a visual formation on a chart that indicates that one trend has ended and another started. They have names like head-and-shoulders. Both continuation and reversal patterns are far from exact things. History rarely repeats exactly, so no two chart patterns are going to look identical. This is why chart analysis is often considered fairly subjective, more art than science.

Getting away from patterns, but keeping in the charting theme, we come to the *trend line*. A trend line is an attempt to describe a directional move (a trend). Down trend lines follow a set of declining peaks, as in our USD/CAD example (see Figure 6.8). Up trend lines follow rising peaks. There can be quite specific rules as to how they get drawn, but the final analysis is the same. The trend line is intended to give the analyst an indication of direction. If a trend line is broken it suggests a change in the market, either to consolidation or to a slower (less steep) trend. As such, trend lines are not dissimilar to the idea of support and resistance.

Before leaving the idea of charting to move on to other technical analysis methods, we have to first address the important topic of volume.


**FIGURE 6.8** Daily USD/CAD Candlestick Chart with Trend Line
*Source:* Metastock.

Volume is how trading activity is measured. For an exchange traded instrument this is presented in terms of shares (for stocks) or contracts (futures and options) traded during a given time frame. In nonexchange markets like forex, there is no real volume measure because there is no centralized point. Analysts will sometimes use the number of changes in the bid–offer rate as a proxy.

The chart of the December 2005 Eurodollar contract in Figure 6.9 shows how volume is most often presented.

The vertical bars at the bottom indicate the number of contracts traded on a given day. Notice how the amount rises and falls from day to day. Also notice how high volume often matches up with high volatility. The rightmost volume bar is an example. *Note:* Volume for the last trading day—the small range bar following the larger bar—is not plotted in this instance. Technical analysts consider volume an important supportive measure. For example, if a market rises and there is high volume, it is considered a good thing. Were the volume low, such a move might be considered suspect.

A topic related in some ways to volume is *open interest*. Open interest is a reading provided in the futures and options markets that indicates


**FIGURE 6.9** Weekly Eurodollar Futures with Volume
*Source:* Metastock.

how many active (open) contracts there are at a given time. Like volume, it is a figure published (normally daily) by the exchanges.

To explain further, imagine that you take a long position in a gold futures contract. You have initiated a new open position. That adds to the open interest. If you were to offset that long position by shorting the same gold contract, you would no longer have an open position and would reduce the total open interest by one. It must be noted that this does not apply only to long positions. Open interest measures how many longs there are with opposing shorts. Remember that in futures and options (unlike stocks), for each open long there must be an open short somewhere. The same applies to spot forex, but because there is no exchange, no open interest figures are available.

## Indicators

**Moving Average**

A moving average is an n-period calculation based on the last n trading periods, usually using the close. It is called moving because at each new period it is recalculated.

A simple moving average (SMA) is a standard mean: (P0 + P − 1 + ⋯ + P − n − 1)/n.

Other kinds of moving averages are the exponential (EMA) and weighted (WMA) versions.

An indicator is a tool employed by the technical analyst to make certain kinds of market assessments. Indicators come in a wide range of varieties from very simple to very complex. They run the gamut of intentions from trying to measure volatility, to determining trend, to getting a read on how powerfully the market is moving in a given direction.

An indicator is derived from price and/or volume, calculated on a running basis, and plotted along with price on a chart. Some indicators, such as moving averages, are plotted in an overlay fashion right on top of price. Others have their own scales, and thus require a separate plot, generally positioned below the main price section. The daily 10-year note futures chart in Figure 6.10 shows examples of both kinds.

We have several different things going on. First, the price chart is in candlestick format. Second, there is an overlay plot on the price chart. This is the Bollinger band study, which measures price volatility. The central line is a 20-day moving average. The two wider lines (the upper and lower bands) are plotted two standard deviations away from the average (using the same 20-day look-back of daily closes as the moving average). The lower plot is the Relative Strength Index (RSI). RSI uses

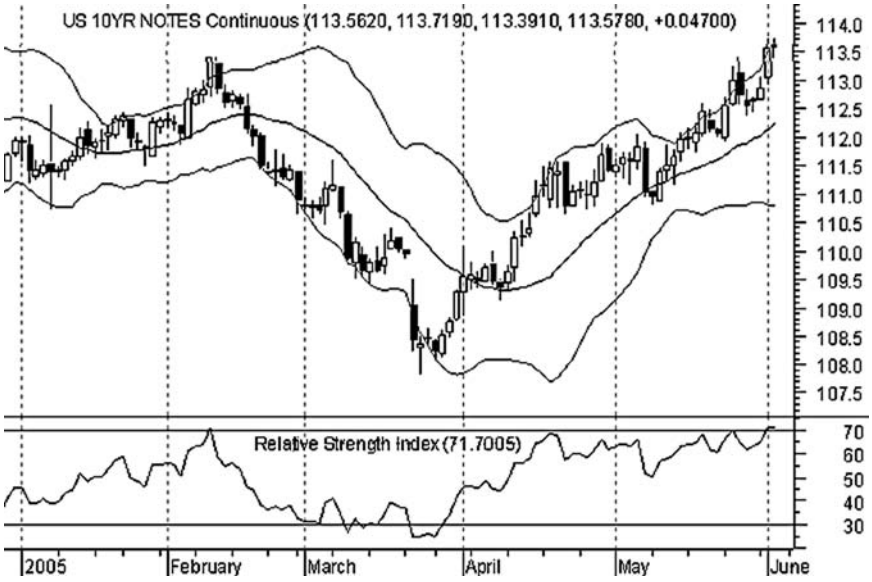



**FIGURE 6.10** Daily 10-Year Note Futures with Bollinger Bands and RSI
*Source:* Metastock.

a price-based calculation to create an oscillator type of plot with a 0–100 scale.

That brings us to an important technical concept—*overbought/oversold*. In short, overbought means the market has rallied too much or too rapidly in a given period of time. As such, it requires some time to settle down. This could either mean retracing (pulling back part of the rally) or consolidating. Oversold means the market has moved lower too far and/or too fast. The aforementioned RSI indicator is one of a number of so-called overbought/oversold indicators that are intended to point out such conditions.

**Oscillators**

Many technical indicators are forced into a fixed scale (often 0–100). Their readings fluctuate between the upper and lower bounds, in what can be considered an oscillating fashion. Thus, the name. For the most part, they have little to do with oscillation as would be defined scientifically.

Oscillators are most often associated with overbought/oversold indicators.

Bollinger bands fall into the category of volatility-based indicators. The more volatile a market has been during the measurement period, the further apart the bands will be. Markets move from periods of relative calm to those of intense activity. Indicators that focus on that are intended to either point out likely changes in volatility or to use it as a way to make directional interpretation (i.e., trend or consolidation continuation).

We noted that part of the Bollinger band plot in Figure 6.10 was the 20-day moving average. Moving averages are not used by analysts to forecast, but rather fall into the category of trend indicators. This group tries to identify the current trend so that the trader can take the proper directional positions. In the case of a moving average, the trend is considered to be up when price is above the average and down when it is below. There are also momentum indicators. This group is designed to measure how strongly the market is moving. The idea there is that markets with high momentum will tend to continue in their current direction, while those with lower momentum are more likely to change course.

A very simple momentum indicator is rate of change (ROC). An n-period ROC is calculated by taking the most recent period close and subtracting the close from n-periods ago. For example, a 5-day ROC would be calculated as $C_0 - C_{-5}$ where C is the daily closing price. Obviously, a high positive ROC means the market has been moving aggressively higher, just as a high negative one indicates a market moving sharply lower. The ROC is about as simple as it gets. Other momentum indicators are significantly more complex, with some incorporating volume as well as price.

The collection of technical indicators is enormous. We can hardly even scratch the surface here. The reader is encouraged to do their own exploration if the interest is there.

**Contrarian**

A contrarian is one who seeks to profit by trading against what is considered to be the dominant trend or market bias. This is done either by identifying times when the market has moved too aggressively in one direction (overbought/oversold), or when the trend has run its course (reversal patterns).

Before moving on, however, it is worth mentioning sentiment indicators. This is a collection of measures that are used in assessing the overall market tone and/or bias. In most cases, this analysis is done in a contrary way. This is done by *fading* (going against) a strong bias. If the market is very bullish, the technician using a sentiment indicator might start looking for opportunities to get out of long positions and/or sell short. Were the market to get very bearish, he or she would look for buying opportunities.

This speaks directly to our earlier discussion of technical analysis as a method for evaluating and anticipating collective behavior.

Unlike most other indicators, which in some way involve a price measure, sentiment indicators use other data available in the markets. Volume is often utilized, but not in the fashion we discussed earlier. This can be demonstrated by looking at one of the better known in the collection called the put/call ratio.

The put/call ratio is calculated by dividing the total volume of put option trades by the total volume of call option trades for a given market over a certain time frame. The idea is that put buying is an indication of bearishness If put volume exceeds call volume, especially if it does so by a large margin, it suggests the market has become perhaps overly bearish and could change course.

There are sentiment indicators based on several other bits of available information. The recommendation patterns of trading newsletter authors is one. The volume of odd-lot sales in the stock market is another. (An odd lot in the stock market is a trade of less than 100 shares. Odd-lot trades are done by small investors lacking the funds to make larger trades). The pattern of headlines and/or stories in certain business publications is another.

The point behind all this measurement, though, is to find out if things have just gone too far. If everyone is bullish, there comes a point at which all the buying has been done. Since buying is what drives price higher, no buying means there is only one direction the market can go. Alternatively, the indicators are used to show the bias of what is considered the uneducated public, who is thought to always be wrong at important points.

This brings up a very important point in the discussion of indicators—the idea of *leading versus lagging* indicators. Any indicator that uses historical data, by definition has a lagging element to it. The further the indicator looks back in its calculation, the greater the lag. One could get into a mathematical discussion of how to compute lag, but suffice it to say that a 10-day moving average has more lag than does a 5-day moving average, and a 14-day RSI has more lag than a 9-day RSI. This lag means the trader basing decision making on such indicators will always be late.

This lag effect can most readily be seen in trend indicators such as moving averages. Because they require the market to actually start moving in a certain direction for some period of time to establish that a trend is in place, they will always be late jumping on board. Likewise, they will always be late exiting the trend at the end when the market has stopped moving in that direction. The chart of crude oil in Figure 6.11 provides an example.

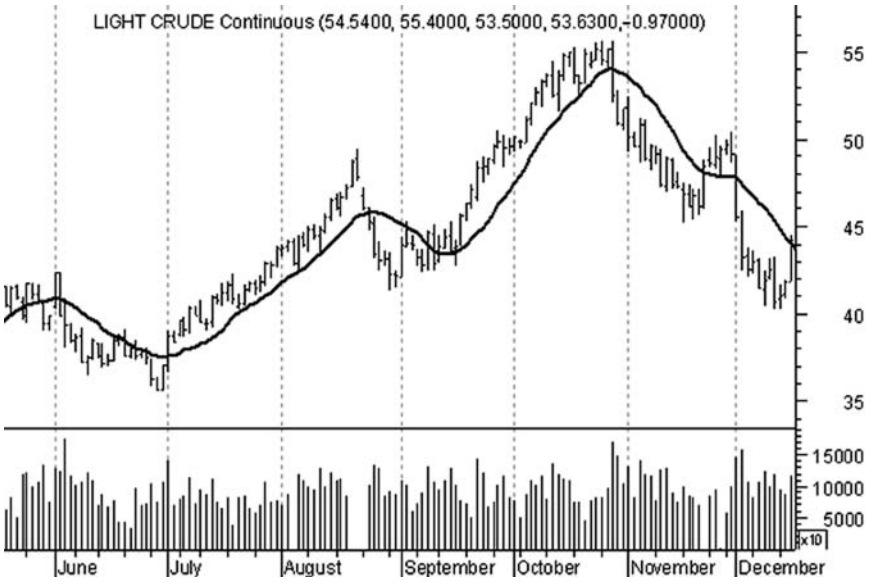



**FIGURE 6.11** Daily Crude Oil with Moving Average and Volume
*Source:* Metastock.

The smooth line on the chart is a 14-day simple moving average (SMA) based on the daily closing price. Notice how nicely it outlines the trends in the price of oil during this time span. On the face it looks quite good. Take a look, however, at the middle of the chart in August when price crossed below the moving average. The up trend ended at a bit below 50, but the moving average did not tell us until the market was nearly 5 points lower that the trend was over.

The solution, one might be thinking, is to use a shorter time frame for the SMA. That could work, but it opens the door to what are commonly referred to as whipsaws. A whipsaw is when the market makes quick contrary moves that have the trader flipping positions long to short and vice versa, generally with losses incurred. One can be seen on the right side of the chart. Prices had been declining from the peak near 55. They rallied in late November, and moved up above the moving average—indicating an up trend. The trader who bought that move, however, would have lost money when the market turned back around only a few sessions later, and returned to a downward trend.

Late entries and exits, and whipsaws are the price for using lagging indicators. Those who use the overbought/oversold type of indicators and the sentiment measures will claim them to not be lagging, but rather

leading indicators. As we commented just a few moments ago, any calculated indicator using historical information is by definition lagging. The argument for these so-called leading indicators, however, is that they are anticipatory in nature. As such, the lag is not of any concern, as long as it is not too large.

The problem with this point of view, however, is that overbought and oversold conditions and extremes in sentiment can persist. The trader who takes a black-and-white approach to such indicators (overbought—sell, oversold—buy) may do well for periods, but eventually will get hurt badly.

We can return to the crude oil example to demonstrate. In Figure 6.12 we have replaced volume with the stochastic oscillator, a popular overbought/oversold indicator. When the reading exceeds 80 (the upper horizontal line on the plot), the market is overbought. When below 20 (lower horizontal line), the market is oversold.

Refer to the triangles placed on both the price and indicator plots in September. You will note that crude started a strong trend. At the same time the stochastic oscillator read overbought. The rally continued for nearly 10 points from that date. Nearly the whole time the indicator was in overbought territory. That is a clear example of what we just mentioned,

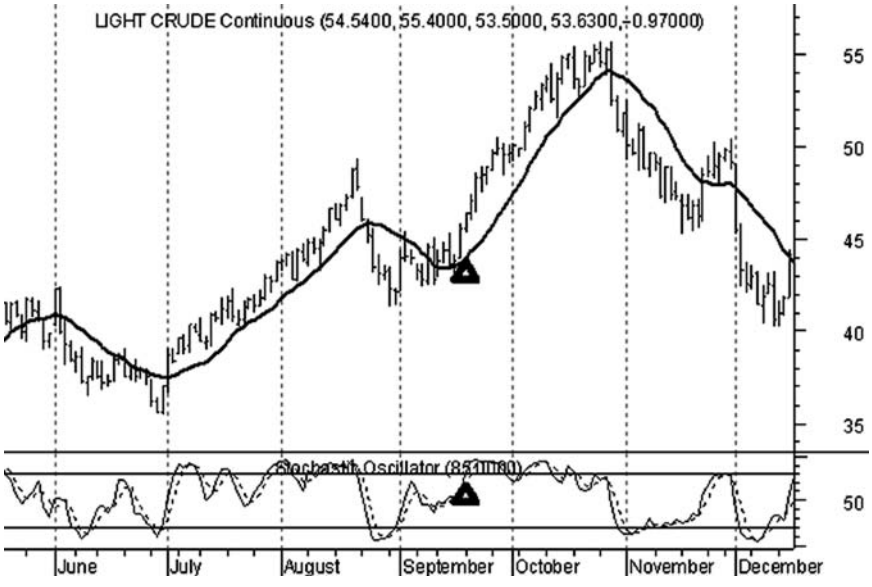



**FIGURE 6.12** Daily Crude Oil with Moving Average and Stochastics
*Source:* Metastock.

the fact that these so-called overbought/oversold indicators have their limitations.

The argument those who use indicators like stochastics will make is that although they have obvious drawbacks in strong directional trending markets, they can be quite effective in choppier markets. As an example, look at Figure 6.13, again using crude oil, but from a later time period.

In this case the oscillator looks quite good. The indicator and the market both seem to be moving in sync. Stochastics do indeed seem to be effectively picking out the tops and bottoms. This is a bit of an illusion, though. If we take a closer look, we can see that not all is as neat as we might like.

We have dropped a vertical line on the chart. It shows where the indicator crossed into overbought territory in late April. Unfortunately, the market was still a couple of points away from peaking (a bit hard to see on the chart). So we still have the problems of timing our entry. The indicator was right that the market was going to turn; it just did not give us a good fix on exactly when that was going to happen.

It should be noted that overbought/oversold indicators hardly are alone in suffering the kind of idealized reading that can occur. The human eye will tend to find patterns and make associations, especially if one is

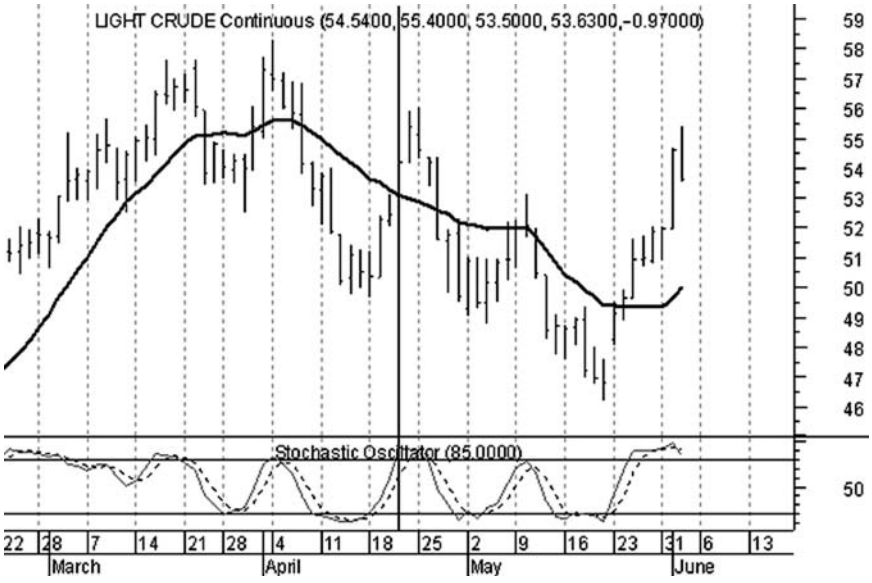



**FIGURE 6.13** Daily Crude Oil with Moving Average and Stochastics
*Source:* Metastock.

looking for them. That is why the user of indicators must be careful not to rely solely on the visual.

## Cycle Analysis

In reviewing Figure 6.13, one might take note of the cyclical appearance of the up and down action (one of those patterns the eye will pick up). There is a whole school of technical analysis that focuses on the use of market cycles for the sake of forecasting. The underlying assumption is that markets move in a wave type pattern, rising and falling in somewhat predictable fashion. Cycle analysts attempt to identify these patterns and use them to forecast future market movement. Their methods run from simple "wave" counting methods to highly complex signal filtering techniques brought over from other scientific and mathematic disciplines. There is a wealth of writing on the subject.

## Other Technical Methods

While chart reading and the use of indicators are the two biggest focal points in technical analysis, they are not the only forms used. There are techniques that can be said to be variations and/or combinations of the primary, two. Examples include

- *Elliott wave Theory:* This is a method of chart analysis that is founded on the belief that markets move in certain very specific and definable waves. These waves are not the same as the ones defined by cycle analysis, though there are some parallels.
- *Gann theory:* Another charting technique, this particular method uses certain types of lines and angles to predict market turning points.
- *Inter-Market analysis:* This is a sort of composite method whereby the analysis of one market is applied to another market. For example, one could use the analysis of bonds to contribute to the analysis of the stock market. It is based on the interrelations between markets.

## The Time Consideration

The strong advantage of technical analysis when used to trade and/or analyze the financial markets is that it can be applied in any time frame. It was noted in the section on fundamental analysis that the results thereof are not readily applicable in short-term trading. The

same is not true of technical analysis. This is referred to as a fractal observation.

Regardless of whether one is operating in a time frame measured in minutes or months, the same tools and techniques can be applied. It all comes back to patterns of behavior. They are not time frame dependent.

Refer to the two USD/JPY charts, which are shown in Figures 6.14 and 6.15. One cannot tell just by glancing that one of them is a daily chart and the other a weekly graph.

Markets can become overbought or oversold just as easily in the course of an hour as they can in a week. They can develop trends and trading ranges in minutes just as readily as in months. It is just a matter of scope. As such, one can use the charts and indicators in all time frames and across all markets (with the obvious exception of indicators, which have specialized requirements available only in certain markets or time frames). This is one of the big reasons so many traders, especially those with a short-term time frame, have flocked to technical analysis in recent years.


**FIGURE 6.14** Daily USD/JPY
*Source:* Metastock.

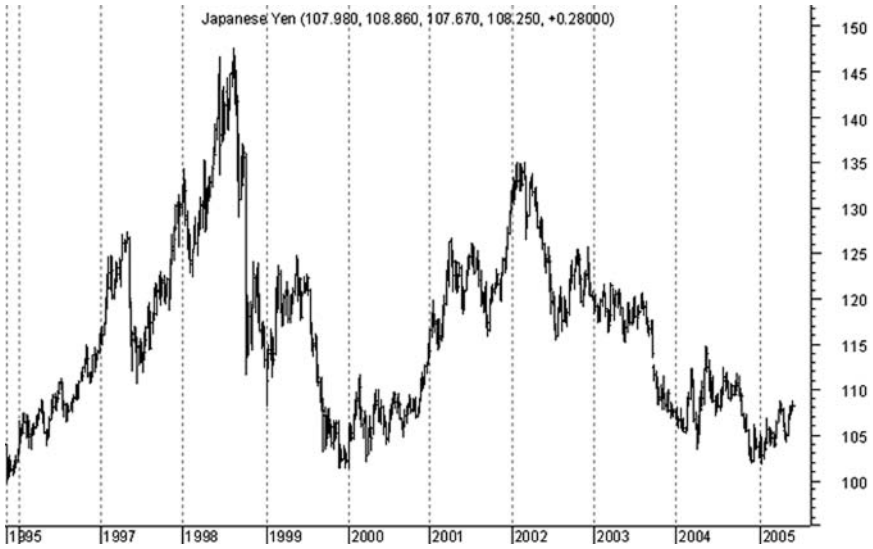



**FIGURE 6.15** Weekly USD/JPY
*Source:* Metastock.

## Criticisms of Technical Analysis

Those who oppose technical analysis point to several problems with the application of its methods.

- *Subjectivity:* Certain elements of technical analysis, like chart reading, do not necessarily have objective interpretation. This is often where technical analysis is referred to as more art than science. It is also where individual trader biases can come into play. This is certainly true in some regards, but there are plenty of objective technical methods.
- *Self-Fulfilling:* Technical analysis is said to be self-fulfilling in that the more people applying its methods, the more likely the expectation of the analysis is to come to pass. While it would be true that if everyone used the same or similar techniques such a thing could occur (and it has been known to happen in short time spans in the absence of other influences), the subjectivity of some methods, the diversity of techniques used (nontechnical included), and the fact that traders operate in different time frames mean a lack of unified approach.
- *Unreliable:* Since the past (upon which technical methods are based) does not often repeat exactly, meaning sometimes the product of the

analysis turns out not to be correct, the methods can be considered inconsistent. The question that must be asked, however, is whether that matters if the trader is able to make money.

A very legitimate additional criticism of technical analysis is the ease with which it can be applied. Because technical methods are so readily used in any time frame with seemingly little effort, new traders often gravitate to them as the easy solution. After all, most trading platforms these days come replete with numerous technical tools.

In some ways, however, this is a bit like giving a loaded gun to a child. The kid can certainly fire the weapon, but is at least as likely to hurt himself or herself, or someone else, as to hit the target. That isn't to say technical analysis cannot be effectively and safely employed, though. Like any other risk-taking venture, it requires a thorough understanding of both the application of the methods and the risks involved. Just as there are many who have lost money using technical analysis, there are many who have made money doing so.

### Conclusion

Like fundamental analysis, technical analysis can also be applied to any market and in any time frame. Despite the critics, including a great many academics, traders can and do make money with technical analysis. That is a given. Like anything else, though, it is done by selecting the right tool for the job. That means matching the technical method to both the knowledgeable user and to the task at hand.

There is a massive amount of written material available for those interested in learning more. Check out this book's support web site for an updated list:

www.andurilonline.com/book

## QUANTITATIVE ANALYSIS

Technical analysis and fundamental analysis can be viewed as separate and distinct ways at looking at the markets. They are. Quantitative analysis, the third leg of the triangle, often operates in conjunction with one or both of the other two. One can apply quantitative methods to fundamental data, and one can apply them to technical data.

Quantitative analysis, as we define it, is the application of mathematical

and/or statistical methods to market data. This is primarily done for one of two reasons:

- To compare two or more markets or securities.
- To develop a probabilistic construct of market behavior.

In this section, we go through some of the methods employed by the quantitative analyst and see how they can be applied to trading.

## Comparison

The first area of exploration is market and/or instrument comparison. The easiest way to describe this approach is to use an example. *Investor's Business Daily* (IBD), the financial newspaper that competes with the *Wall Street Journal* in the United States, publishes two figures in its stock tables (among other things). They are the rankings for earnings per share (EPS) and relative strength (RS—not related to RSI, the Relative Strength Index mentioned in the technical analysis section). Even if you have never seen an issue of IBD, or heard of the paper, you could still be familiar with EPS and RS, as many stock broker screening systems include variations of them.

In brief, the EPS rank is a top to bottom assessment of all companies in terms of their rate of earnings per share growth over a given time frame (3–5 years normally). The companies are arranged in order of their growth rates and ranked. In the IBD version the ranking is done on a percentile basis, such that the top 1 percent of all companies would get a 99 (99th percentile), while the worst 1 percent would be 1 (1st percentile). Companies can thus be compared on an equal basis, without regard to size, industry, or anything else. This is an example of using quantitative methods in conjunction with fundamental data.

The RS ranking takes more of a technical analysis view. It ranks, in the same manner as EPS, how well a stock has performed in comparison to all other stocks. The evaluation is based on price appreciation/depreciation over a given time period, so a stock that rose 10 percent would outrank one that rose 9 percent. Likewise, a stock that fell 5 percent would rate higher than one which fell 7 percent.

The EPS and RS rankings are very obvious and intentional comparison statistics. They are not overly complex in their calculation, but they serve the purpose of taking a given set of data and applying them in a useful fashion. As noted, they allow a kind of normalized comparison that takes all other considerations out of play. That is good in that it lets the trader accomplish a specific analysis. At the same time, the trader needs

to realize that it is only one part of the whole, and that basing one's decision on a single narrow figure has its shortcomings.

## Market Behavior Constructs

Recall the charts and tables presented in Chapter 3 during the discussion of price movement. Those were very simple statistical studies of market behavior. There was no implied analysis in those particular results, as there is in the comparative studies just mentioned, but they have a usefulness nonetheless. They allow us to understand how the market tends to operate. Take note of the use of the word "tend." The form of quantitative analysis we are discussing now is about probabilistic behavior—defining or approximating odds and likelihoods.

As an example, we bring back Table 3.4, the one that outlines the frequency of the market going in the same direction from one day to the next. You will remember that the table shows the percentage of time for a given trading day. The market traded in the same direction that day as it had the previous trading day (up/up or down/down). Now see Table 6.3.

The data that underlies Table 6.3 was fairly simple to compile. It was a basic day-to-day comparison done in a spreadsheet with no heavy math. Even still, it provides us with worthwhile information. In this case we find out that the market does not generally have a tendency one way or another in regard to day-to-day directional continuation, though there are a few potential days and currency pairs worth reviewing further.

Even if every number were to be spot on 50 percent, meaning that the market is equally likely to go in the same direction as to go the opposite, that can still be worth knowing. If nothing else, it allows one to eliminate certain factors from one's eventual market understanding and/or allows one to avoid certain paths of inquiry. Beyond that, the knowledge that there is no bias in the figures, and the random behavior it implies, can become part of a larger model.

**TABLE 6.3** Directional Movement of Prices

| | **Percent of time market continued in same direction day-to-day** | | | | |
|---|---|---|---|---|---|
| | **Mon.** | **Tue.** | **Wed.** | **Thu.** | **Fri.** |
| **AUD/USD** | 52% | 44% | 52% | 44% | 47% |
| **EUR/USD** | 49% | 45% | 48% | 42% | 44% |
| **GBP/USD** | 50% | 48% | 46% | 47% | 47% |
| **USD/CAD** | 50% | **38%** | 43% | 50% | 53% |
| **USD/CHF** | 45% | 46% | 48% | 45% | 45% |
| **USD/JPY** | 51% | 47% | 49% | 46% | 50% |

In this case, however, there is at least one figure that points toward the potential for further research. On Tuesdays USD/CAD tends to move in the opposite direction as it had done on Monday (since the 38 percent represents moving in the same direction, it would be 62 percent for going in the opposite direction). This would seem like tradable information. If we fade Monday's price move (go against it) on Tuesday, we are going to be right 62 percent of the time.

On the surface, that seems like a workable system. The problem is while we know one thing—the tendency in absolute price behavior from one day to the next—we do not know any more than that. For example, we do not know how much price movement takes place. That is an important piece of information. If one does not make sufficient profits on the winning trades to more than offset the losses suffered on losing trades, then it matters not one bit how often the winners happen. (This topic is discussed in detail in the next chapter.)

The point is that statistics such as the ones we have just shown are very useful, but the quantitative analyst must understand the limits. Every statistical determination is done so with certain constraints. In the previous example, all that was considered was absolute direction, not amplitude of the moves. Constraints mean limitations; that is why such a study as we have just shown is generally just the first cut—a lead on to more comprehensive studies.

## Types of Quantitative Analysis

The comparative and market price behavior analysis we have just discussed can be accomplished in a variety of ways. Some are very simple. Others are highly complex. They tend to fall into one of the following categories:

**Observation Counting** The table in the previous section was generated through observation counting, which is nothing more than seeing how often something occurs. With a large enough data set one can use the results to get an idea of the tendencies of a market. Examples of some of the types of things one can learn are:

- How often do 1 percent or greater moves occur?
- Does the market tend to move in one direction on a given day?
- Are high volatility periods clustered or randomly scattered?
- How long do trends and/or trading ranges persist?

Think of a question. Observation counting can probably answer it.

**Beta**

Beta is a measure of a stock price's relative volatility in comparison to the overall market (as defined by some index). It is used both to judge a portfolio risk and to compare stocks.

A positive beta means the stock tends to move in the same direction as the overall market. A negative one implies an inverse relationship between the stock and the market.

Thinking in absolute value terms, a beta of 1.0 (+ or –) indicates that the stock will experience similar volatility to the market. A lower number suggests less relative volatility, while a higher one more.

Because beta figures are historical in nature, however, they are not necessarily reliable, especially over shorter time frames.

**Statistical Evaluation** This category of market exploration includes things like regression analysis and other measures right out of most statistics textbooks. The most prevalent example of this kind of work is the well-known beta figure, which is based on the regression model. There are also commonly applied measures such as covariance that come into play in portfolio composition assessments.

**Artificial Intelligence** The cutting edge of quantitative analysis is in this area, which encompasses such things at neural nets and genetic algorithms. These are powerful tools for modeling and forecasting. Their use in the markets has been talked about for quite some time. Until recently, however, they were slow and unwieldy, making their application in actual trading difficult. Of late, however, performance improvements have begun to make them a more legitimate possibility for future use.

## Words of Warning

Quantitative analysis can be a powerful tool, providing an array of avenues for research and market assessment. One thing must be kept in mind, however. The application of quantitative analysis to fundamental or technical data imparts the same limitations as seen in those methods. Using fundamental information means timing questions and lack of short-term applicability. Should technical studies be involved, lags can become a problem, among other things.

The bottom line is, as always, to know your tools, what exactly they are saying, and how best to apply them.

## FINAL THOUGHTS

The starting point of every trading system is determining future market direction. This can be done in value terms through fundamental analysis. It can be done via technical analysis in the application of chart patterns. Quantitative methods can be used to determine tendencies under given scenarios. Regardless of the specific method, however, the trader is still trying to figure out where prices are headed so as to profit.

In deciding which type or types of analysis to use, the trader must keep in mind both the strengths and weaknesses of each method:

*Fundamental analysis:* Very powerful in terms of determining long-term direction, but lacks short-term applicability.

*Technical analysis:* Can be applied to any market and in any time frame fairly simply, but the tools use historical information and patterns that do not always repeat the same way, hindering consistency.

*Quantitative analysis:* Excellent for gaining the understanding of specific elements of market behavior and movement, but has limitations in terms of immediate applicability for buy/sell signals.

Because each of these methods has its own strengths and weaknesses, some of which can offset those of another, may traders seek to combine methods. The idea there is one of synergy, whereby using two or more methods together is more powerful than they could have been alone. It is up to each individual trader to make his or her own determination as to which of the three, or which combination of them, is best.

This chapter has hardly been a comprehensive study of the three analytic techniques. Its intent was not such, since there are vast numbers of books on the subjects. Rather the objective here has been to present the basic ideas and concepts to create the foundation for further exploration by the reader.

For the new trader, learning the ins and outs of all three methods is an unreasonable expectation. The better route to take is to start with the one that most relates to one's strengths and/or interests. Those with strong accounting backgrounds would find fundamental analysis of the stock market quite easy to do, since there is so much reading of financial statements and whatnot. Those who are very visually oriented might find the charting techniques of technical analysis appealing. Engineers and those with strong math and/or quantitative backgrounds would no doubt be very comfortable exploring that particular form of market analysis. There is something for everyone.

## Homework

Decide on the analytic method(s) you will use going forward. Be sure to enter in your system research journal a record of your explorations as you make the decision, as well as what you finally choose and why. Remember, this is a critical part of building your trading system. The next chapter gets into the real meat of putting together and performance testing specific trading systems, so you need to know from what base (fundamental, technical, quantitative, or a combination) you will base the buy/sell decisions that drive the system.