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Lawrence G. McMillan

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Preface

When the listed option market originated in April 1973, a new world of investment strategies was opened to the investing public. The standardization of option terms and the formation of a liquid secondary market created new investment vehicles that, adapted properly, can enhance almost every investment philosophy, from the conservative to the speculative. This book is about those option strategies—which ones work in which situations and why they work.

Some of these strategies are traditionally considered to be complex, but with the proper knowledge of their underlying principles, most investors can understand them. While this book contains all the basic definitions concerning options, little time or space is spent on the most elementary definitions. For example, the reader should be familiar with what a call option is, what the CBOE is, and how to find and read option quotes. In essence, everything is contained here for the novice to build on, but the bulk of the discussion is above the beginner level. The reader should also be somewhat familiar with technical analysis, understanding at least the terms *support* and *resistance*.

Certain strategies can be, and have been, the topic of whole books—call buying, for example. While some of the strategies discussed in this book receive a more thorough treatment than others, this is by no means a book about only one or two strategies. Current literature on stock options generally does not treat covered call writing in a great deal of detail. But because it is one of the most widely used option strategies by the investing public, call writing is the subject of one of the most in-depth discussions presented here. The material presented herein on call and put buying is not particularly lengthy, although much of it is of an advanced nature—especially the parts regarding buying volatility—and should be useful even to sophisticated traders. In discussing each strategy, particular emphasis is placed on showing why one would want to implement the strategy in the first place and on demonstrating under which market scenarios the strategy works and under which ones it does not. The full details of each strategy are presented, including many

graphical and tabular layouts of the profit and loss potentials, margin requirements, and criteria for the selection of a position. A great deal of attention is also given to follow-up action. It is often easier to decide to establish a position than it is to take action to limit loss or take profits. Therefore, in the cases in which follow-up action applies, many of the reasonable alternatives are spelled out in detail, with examples. Comparisons are also made among similar strategies. An investor who is bullish, for example, may want to implement a variety of strategies. A comparison of the benefits and deficiencies of similar strategies helps the investor decide which one is right for his or her particular case. Pitfalls that should be avoided are also pointed out. I have used the fictional stock XYZ to illustrate the examples, rather than naming actual stocks. Many of the examples are drawn from actual prices that existed. It is, however, rather pointless to give an example starting Bally at 60 when it might easily be 20 or 200 (or nonexistent) by the time the reader peruses the example. The purpose of examples is to illustrate concepts, not record history. XYZ fits this purpose best, since it is very versatile: It can, as the need arises, be low-priced or high-priced, volatile or nonvolatile; and it changes price at will in order to illustrate follow-up strategies.

Call option strategies are presented in the first part of the book, and put option strategies follow. While this order of presentation may interrupt the purely strategic flow a bit—for example, bear spreads are discussed using call options in the first part of the book and then are discussed again later, using put options—this format is designed to aid the novice and intermediate option investors in that they are more familiar with calls than puts. For the majority of option investors, the development of the strategies in the more familiar environment of calls should make them more understandable. Then, the application of the concepts to put options is easier. Put option strategies are not slighted, however. Their applications are necessary for strategists to have a full range of possibilities at their command, and such strategies therefore occupy a sizable amount of text. Certain special subjects are treated as well, such as computer models and their applications, how to use options in arbitraging, and how the actions of market-makers and arbitrageurs affect the public option investor.

SECOND EDITION

The bulk of the material added to the second edition concerned index options and futures. The same concepts used to describe equity option strategies are used to describe strategies for these vehicles as well. The approach is necessarily slightly different in some cases. The general concepts surrounding these options are introduced, and then many examples are given. In these examples, the details of many of the more popular futures and options contracts are presented.

Many of the same strategies available to the equity option trader are applicable to index options. These strategies are explained in the first thirty chapters of the book, using equity options. In most cases, one need only substitute terms. For example, when *underlying stock* is referred to, merely substitute *underlying instrument*. Such an instrument could be a future, a bond, a currency, or an index.

A great deal of attention is given to hedging portfolios of stocks with index futures and options. The techniques presented herein are applicable for any investor owning stocks, from the individual to the large institution. Variations on the basic hedging strategies are presented as well. These variations are strategies unto themselves, allowing strategists to profit from pricing discrepancies in futures or options. In addition, strategies wherein one attempts to take advantage of the movement of a certain group of stocks in the marketplace are described. Spreads between various stock indices are also discussed in detail.

The chapter on taxes was revised to reflect the changes in the tax laws. These changes have made tax preparation more difficult, especially for the covered call writer. Several tax strategies are no longer applicable, especially those in which gains could be rolled from one year to the next. In addition, the changing of the holding period to qualify for long-term gains has changed some of the tax aspects of options. Non-equity options are subject to a different tax rate than equity options. This difference in rates is discussed as well.

Certain additions and modifications were made to the original 28 chapters. One of the largest expansions was in the discussion of risk arbitrage. This subject has been the object of much attention in recent years, due to the well-advertised profits made by risk arbitrageurs. The new material emphasizes the use of options to reduce the risk in risk arbitrage situations. Another section that was expanded is the one discussing equivalence arbitrage—reversals, conversions, and boxes. More of the concepts involving these popular forms of arbitrage were described. In addition, the risks of these strategies are delineated more fully.

Modifications were made to other chapters. Position limits changed, for example. There is also a greater emphasis on using the method of equivalent stock position (ESP) to analyze a neutral position for follow-up action. This method is applicable to most ratio writing strategies, straddle writes, and combinations. Both chapters on calendar spreads—puts and calls—were expanded to discuss more fully the ratio calendar spread, a neutral strategy that has limited risk if established with in-the-money options. A detailed example of a Black–Scholes model calculation was added to the chapter on mathematics. This was in response to the many questions received over the years regarding computations involving the model. Finally, more suggestions are made for using the computer as a tool in follow-up action, including an example printout of an advanced follow-up analysis.

THIRD EDITION

There were originally six new chapters in the third edition. There were new chapters on LEAPS, CAPS, and PERCS, since they were new option or option-related products at that time.

LEAPS are merely long-term options. However, as such, they require a little different viewpoint than regular short-term options. For example, short-term interest rates have a much more profound influence on a longer-term option than on a short-term one. Strategies are presented for using LEAPS as a substitute for stock ownership, as well as for using LEAPS in standard strategies.

PERCS are actually a type of preferred stock, with a redemption feature built in. They also pay significantly larger dividends than the ordinary common stock. The redemption feature makes a PERCS exactly like a covered call option write. As such, several strategies apply to PERCS that would also apply to covered writers. Moreover, suggestions are given for hedging PERCS. Subsequently, the PERCS chapter was enveloped into a larger chapter in the fourth edition.

The chapters on futures and other non-equity options that were written for the second edition were deleted and replaced by two entirely new chapters on futures options. Strategists should familiarize themselves with futures options, for many profit opportunities exist in this area. Thus, even though futures trading may be unfamiliar to many customers and brokers who are equity traders, it behooves the serious strategist to acquire a knowledge of futures options. A chapter on futures concentrates on definitions, pricing, and strategies that are unique to futures options; another chapter centers on the use of futures options in spreading strategies. These spreading strategies are different from the ones described in the first part of the book, although the calendar spread looks similar, but is really not. Futures traders and strategists spend a great deal of time looking at futures spreads, and the option strategies presented in this chapter are designed to help make that type of trading more profitable.

A new chapter dealing with advanced mathematical concepts was added near the end of the book. As option trading matured and the computer became more of an integral way of life in monitoring and evaluating positions, more advanced techniques were used to monitor risk. This chapter describes the six major measures of risk of an options position or portfolio. The application of these measures to initialize positions that are doubly or triply neutral is discussed. Moreover, the use of the computer to predict the results and "shape" of a position at points in the future is described.

There were substantial revisions to the chapters on index options as well. Part of the revisions are due to the fact that these were relatively new products at the time of the writing of the second edition; as a result, many changes were made to the products—delisting

of some index options and introduction of others. Also, after the crash of 1987, the use of index products changed somewhat (with introduction of circuit breakers, for example).

FOURTH EDITION

Once again, in the ever-changing world of options and derivatives, some important products had been introduced and some new concepts in trading had come to the forefront. Meanwhile, others were delisted or fell out of favor. There were five new chapters in the fourth edition, four of which dealt with the most important approach to option trading today—volatility trading.

The chapter on CAPS was deleted, since CAPS were delisted by the option exchanges. Moreover, the chapter on PERCS was incorporated into a much larger and more comprehensive chapter on another relatively new trading vehicle—structured products. Structured products encompass a fairly wide range of securities—many of which are listed on the major stock exchanges. These versatile products allow for many attractive, derivative-based applications—including index funds that have limited downside risk, for example. Many astute investors buy structured products for their retirements accounts.

Volatility trading has become one of the most sophisticated approaches to option trading. The four new chapters actually comprise a new Part 6—Measuring And Trading Volatility. This new part of the book goes in-depth into why one should trade volatility (it's easier to predict volatility than it is to predict stock prices), how volatility affects common option strategies—sometimes in ways that are not initially obvious to the average option trader, how stock prices are distributed (which is one of the reasons why volatility trading "works"), and how to construct and monitor a volatility trade. A number of relatively new techniques regarding measuring and predicting volatility are presented in these chapters. Personally, I think that volatility buying of stock options is the most useful strategy, in general, for traders of all levels—from beginners through experts. If constructed properly, the strategy not only has a high probability of success, but it also requires only a modest amount of work to monitor the position after it has been established. This means that a volatility buyer can have a "life" outside of watching a screen with dancing numbers on it all day.

Moreover, most of the previous chapters were expanded to include the latest techniques and developments. For example, in Chapter 1 (Definitions), the entire area of option symbology has been expanded, because of the wild movements of stocks in the past few years. Also, the margin rules were changed in 2000, and those changes are noted throughout the book.

Those chapters dealing with the sale of options—particularly naked options—were expanded to include more discussion of the way that stocks behave and how that presents problems and opportunities for the option writer. For example, in the chapter on Reverse

Spreads, the reverse calendar spread is described in detail because—in a high-volatility environment—the strategy becomes much more viable.

Another strategy that receives expanded treatment is the "collar"—the purchase of a put and simultaneous sale of a call against an underlying instrument. In fact, a similar strategy can be used—with a slight adjustment—by the outright buyer of an option (see the chapter on Spreads Combining Puts and Calls).

FIFTH EDITION

The largest addition to the book in the fifth edition is the lengthy chapter on Volatility Derivatives. This new asset class—volatility—is going to be one of the largest innovations in listed derivatives trading. It is still in its infancy, but there is no denying that the ability to trade and hedge volatility is an extremely important component to any portfolio manager, as well as to any speculator.

At the current time, there are listed futures, options, and ETNs on primarily one major volatility index—the CBOE's Volatility Index (VIX). However, steps are already being taken to introduce volatility derivatives on many stocks, futures, and indices. In the future, it will mostly likely be the case that most entities with listed options will trade puts, calls, and volatility options (not to mention volatility futures as well). The CBOE has already described VIX options as the single most successful product launch in its history.

The new content spends a good deal of time explaining volatility futures, for they are effectively the underlying instrument for cash-based volatility options. Hence, it is important that traders understand the volatility futures—even if they are not planning to trade them—if they are planning to trade volatility options. Various strategies involving this new asset class are explained, much in the same manner as stock option strategies were explained. The use of this new asset class as portfolio protection is fully explained as well.

Another major change in this edition involves the Option Symbology Initiative (OSI), completed in 2010, which necessitated a welcome change to the way option symbols are displayed. This affects many of the examples and definitions. The examples have also been updated for currently lower commission rates and for decimalization. One particular outgrowth of the OSI is that LEAPS options are now merely long-term options, identified by their expiration date. However, the options industry is still using the term LEAPS, so it continues in use in this text as well. The reader should understand, though, that a LEAPS option is not really anything different from any other listed option.

Other changes include an expansion of the section on how option activity at expiration and at other times may affect the stock market. This involves not only "circuit breakers" but the actual effect of arbitrage on expiration day. Separately, Portfolio Margin is

described in Chapter 4, when margin is first discussed, and a new Appendix F has been added with the current portfolio margin rules. However, the vast majority of examples in the book continue to be from the viewpoint of a trader using customer margin, not portfolio margin.

The application of certain strategies has been expanded, often because of the nuances available from the generally more volatile markets that have existed in the past decade. These include enhancements to the covered writing strategy (the partial extraction), the collar strategy, naked put writing, put ratio spreads, dual calendar spreads, and an expansion of the discussion of butterfly-style strategies—specifically condor and iron condor spreads. The section on ETFs has been expanded to include futures-based ETFs.

The chapter on mathematical applications has an addition as well: the way that I compute and identify a volatility skew in any entity's options. This is useful to volatility traders, of course, for many volatility strategies are based on identifying and exploiting either a horizontal or vertical skew (or both—diagonal).

A deletion involves the section on PERCS, the discussion of which has been removed from the book. While there continue to be structured products being offered over the counter, primarily from the major brokerage firms to preferred customers, there are not nearly as many listed structured products any longer. Some discussion of structured products remains in this text, but those wanting a full strategy analysis of PERCS are directed to read the fourth edition of this book. I suspect there are not many who are interested currently.

I am certain that many readers of this book expect to learn what the "best" option strategy is. While there is a chapter discussing this subject, there is no definitively "best" strategy. The optimum strategy for one investor may not be best for another. Option professionals who have the time to monitor positions closely may be able to utilize an array of strategies that could not possibly be operated diligently by a public customer employed in another full-time occupation. Moreover, one's particular investment philosophy must play an important part in determining which strategy is best for him. Those willing to accept little or no risk other than that of owning stock may prefer covered call writing. More speculative strategists may feel that low-cost, high-profit-potential situations suit them best.

Every investor must read the Options Clearing Corporation Prospectus before trading in listed options. Options may not be suitable for every investor. There are risks involved in any investment, and certain option strategies may involve large risks. The reader must determine whether his or her financial situation and investment objectives are compatible with the strategies described. The only way an investor can reasonably make a decision on his or her own to trade options is to attempt to acquire a knowledge of the subject.

Several years ago, I wrote that "the option market shows every sign of becoming a

stronger force in the investment world. Those who understand it will be able to benefit the most." Nothing has happened in the interim to change the truth of that statement, and in fact, it could probably be even more forcefully stated today. For example, the Federal Reserve Board now often makes decisions with an eye to how derivatives will affect the markets. That shows just how important derivatives have become. The purpose of this book is to provide the reader with that understanding of options.

I would like to express my appreciation to several people who helped make this book possible: to Ron Dilks and Howard Whitman, who brought me into the brokerage business; to the late Art Kaufman, whose broad experience in options helped to crystallize many of these strategies; to Peter Kopple for his help in reviewing the chapter on arbitrage; to Shelley Kaufman for his help on the last three editions in designing the graphs and in the massive task of proofreading and editing; to Ben Russell (who titled the book) and Fred Dahl for their suggestions on format and layout of the initial book; and to Jim Dalton (then president of the CBOE) for recommending a little-known option strategist when the New York Institute of Finance asked him, in 1977, if he had any suggestions for an author for a new book on options. Special thanks go to Bruce Nemirow for his invaluable assistance, especially for reading and critiquing the original manuscript. I would also like to thank the Options Industry Council for presenting me with the Joseph W. Sullivan Award in 2011—an honor that I was humbled and very proud to receive. Most of all, I am grateful to my wife, Janet, who typed the original manuscript, and to Karen and Glenn, our children, all of whom graciously withstood the countless hours of interrupted family life that were necessary in order to complete this work.

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PART I

Basic Properties of Stock Options

INTRODUCTION

Each chapter in this book presents information in a logically sequential fashion. Many chapters build on the information presented in preceding chapters. One should therefore be able to proceed from beginning to end without constantly referring to the glossary or index. However, the reader who is using the text as a reference—perhaps scanning one of the later chapters—many find that terms are being encountered that have been defined in an earlier chapter. In this case, the extensive glossary at the back of the book should prove useful. The index may provide aid as well, since some subjects are described, in varying levels of complexity, in more than one place in the book. For example, call buying is discussed initially in Chapter 3; and mathematical applications, as they apply to call purchases, are described in Chapter 28. The latter chapters address more complex topics than do the early chapters.

CHAPTER 1

Definitions

The successful implementation of various investment strategies necessitates a sound working knowledge of the fundamentals of options and option trading. The option strategist must be familiar with a wide range of the basic aspects of stock options—how the price of an option behaves under certain conditions or how the markets function. A thorough understanding of the rudiments and of the strategies helps the investor who is not familiar with options to decide not only whether a strategy seems desirable, but also—and more important—*whether it is suitable.* Determining suitability is nothing new to stock market investors, for stocks themselves are not suitable for every investor. For example, if the investor's primary objectives are income and safety of principal, then bonds, rather than stocks, would be more suitable. The need to assess the suitability of options is especially important: Option buyers can lose their entire investment in a short time, and uncovered option writers may be subjected to large financial risks. Despite follow-up methods designed to limit risk, the individual investor must decide whether option trading is suitable for his or her financial situation and investment objective.

ELEMENTARY DEFINITIONS

A stock option is the right to buy or sell a particular stock at a certain price for a limited period of time. The stock in question is called the underlying security. A call option gives the owner (or holder) the right to buy the underlying security, while a put option gives the holder the right to sell the underlying security. The price at which the stock may be bought or sold is the exercise price, also called the striking price. (In the listed options market, "exercise price" and "striking price" are synonymous.) A stock option affords this right to buy or sell for only a limited period of time; thus, each option has an expiration date. Throughout the book, the term "options" is always understood to mean listed options, that

is, options traded on national option exchanges where a secondary market exists. Unless specifically mentioned, over-the-counter options are not included in any discussion.

DESCRIBING OPTIONS

Four specifications uniquely describe any option contract:

1. the type (put or call),
2. the underlying stock name,
3. the expiration date, and
4. the striking price.

As an example, an option referred to as an "XYZ July 50 call" is an option to buy (a call) 100 shares (normally) of the underlying XYZ stock for $50 per share. The option expires in July. The price of a listed option is quoted on a per-share basis, regardless of how many shares of stock can be bought with the option. Thus, if the price of the XYZ July 50 call is quoted at $5, buying the option would ordinarily cost $500 ($5 × 100 shares), plus commissions.

THE VALUE OF OPTIONS

An option is a "wasting" asset; that is, it has only an initial value that declines (or "wastes" away) as time passes. It may even expire worthless, or the holder may have to exercise it in order to recover some value before expiration. Of course, the holder may sell the option in the listed option market before expiration.

An option is also a security by itself, but it is a derivative security. The option is irrevocably linked to the underlying stock; its price fluctuates as the price of the underlying stock rises or falls. Splits, stock dividends, and special cash dividends affect the terms of listed options, although cash dividends do not. The holder of a call does not receive any cash dividends paid by the underlying stock.

STANDARDIZATION

The listed option exchanges have standardized the terms of option contracts. The terms of an option constitute the collective name that includes all of the four descriptive specifications. While the type (put or call) and the underlying stock are self-evident and essentially standardized, the striking price and expiration date require more explanation.

Striking Price. Striking prices are spaced at different intervals for stocks, ETFs, and indices, depending on the underlying price and the liquidity of the option contracts. With rare exceptions, striking prices are 5 points apart at most, even for high-priced stocks like GOOG and AAPL or indices like SPX (the S&P 500 Index). For lower-priced stocks, strikes are often just 1 point apart, provided that the options on that stock are relatively heavily traded. There are occasionally 2.5-point strikes as well, centered between 5-point striking price intervals. The simplest way to tell what strikes are available on the stock you wish to trade is to look at a quote montage (a free one is available online at www.cboe.com, for example).

Expiration Dates. Options have expiration dates in one of three fixed cycles:

1. the January/April/July/October cycle,
2. the February/May/August/November cycle, or
3. the March/June/September/December cycle.

In addition, the two nearest months have listed options as well. However, at any given time, the longest-term expiration dates are normally no farther away than 9 months. Longer-term options, also called LEAPS (which stands for Long-term Equity Anticipation Securities), are available on some stocks (see Chapter 25). Hence, in any cycle, options may expire in 3 of the 4 major months (series) plus the near-term months. For example, on February 1 of any year, XYZ options may expire in February, March, April, July, and October—not in January. The February option (the closest series) is the *short-* or *near-term* option; and the October, the *far-* or *long-term* option. If there were LEAPS options on this stock, they would expire in January of the following year and in January of the year after that.

The exact date of expiration is fixed within each month. The last trading day for an option is the third Friday in the expiration month. Although the option actually does not expire until the following day (the Saturday following), a public customer must invoke the right to buy or sell stock by notifying his broker by 5:30 p.m., New York time, on the last day of trading.

The above expiration date—the Saturday after the third Friday—is considered the "regular" option expiration date in any given month. But in recent years, options have been introduced that expire at other times. There are *quarterly* options that expire on the last trading day of March, June, September, and December. There are only a few of these—mostly likely on large indices.

There are also *weekly* options. These are generally listed on a Thursday and expire

on the Friday that occurs eight calendar days later. (*Note:* These weeklys *do* expire on Friday, not the Saturday following.) An ever-growing number of stocks and indices have weekly listed options, and it is likely that the option exchanges will seek to add even more, since these are popular with the public.

The Price of an Option. Options trade in one-penny increments in many cases. Otherwise, prices are quoted in 5-cent increments. For stock options, the trading increment is one penny up until the price of the option reaches $3.00. After that, the trading increment is 5 cents. However, for liquid Exchange Traded Funds (ETFs) and indices, options can trade in pennies at any price.

THE OPTION ITSELF: OTHER DEFINITIONS

Classes and Series. A class of options refers to all put and call contracts on the same underlying security. For instance, all IBM options—all the puts and calls at various strikes and expiration months—form one class. A series, a subset of a class, consists of all contracts of the same class (IBM, for example) having the same expiration date and striking price.

Opening and Closing Transactions. An *opening transaction* is the initial transaction, either a buy or a sell. For example, an opening buy transaction creates or increases a long position in the customer's account. A *closing transaction* reduces the customer's position. Opening buys are often followed by closing sales; correspondingly, opening sells often precede closing buy trades.

Open Interest. The option exchanges keep track of the number of opening and closing transactions in each option series. This is called the open interest. Each opening transaction adds to the open interest and each closing transaction decreases the open interest. The open interest is expressed in a number of option contracts, so that one order to buy 5 calls opening would increase the open interest by 5. Note that the open interest does not differentiate between buyers and sellers—there is no way to tell if there is a preponderance of either one. While the magnitude of the open interest is not an extremely important piece of data for the investor, it is useful in determining the liquidity of the option in question. If there is a large open interest, then there should be little problem in making fairly large trades. However, if the open interest is small—only a few hundred contracts outstanding—then there might not be a reasonable secondary market in that option series.

The Holder and Writer. Anyone who buys an option as the initial transaction—that is, buys opening—is called the holder. On the other hand, the investor who sells an option as the initial transaction—an opening sale—is called the writer of the option. Commonly,

the writer (or seller) of an option is referred to as being short the option contract. The term "writer" dates back to the over-the-counter days, when a direct link existed between buyers and sellers of options; at that time, the seller was the writer of a new contract to buy stock. In the listed option market, however, the issuer of all options is the Options Clearing Corporation, and contracts are standardized. This important difference makes it possible to break the direct link between the buyer and seller, paving the way for the formation of the secondary markets that now exist.

Exercise and Assignment. An option owner (or holder) who invokes the right to buy or sell is said to exercise the option. Call option holders exercise to buy stock; put holders exercise to sell. The holder of most stock options may exercise the option at any time after taking possession of it, up until 8:00 p.m. on the last trading day; the holder does not have to wait until the expiration date itself before exercising. (*Note:* Some options, called "European" exercise options, can be exercised only *on* their expiration date and not before—but they are generally not stock options.) These exercise notices are irrevocable; once generated, they cannot be recalled. In practical terms, they are processed only once a day, after the market closes. Whenever a holder exercises an option, somewhere a writer is assigned the obligation to fulfill the terms of the option contract: Thus, if a call holder exercises the right to buy, a call writer is assigned the obligation to sell; conversely, if a put holder exercises the right to sell, a put writer is assigned the obligation to buy. A more detailed description of the exercise and assignment of call options follows later in this chapter; put option exercise and assignment are discussed later in the book.

RELATIONSHIP OF THE OPTION PRICE AND STOCK PRICE

In- and Out-of-the-Money. Certain terms describe the relationship between the stock price and the option's striking price. A call option is said to be out-of-the-money if the stock is selling below the striking price of the option. A call option is in-the-money if the stock price is above the striking price of the option. (Put options work in a converse manner, which is described later.)

Example: XYZ stock is trading at $47 per share. The XYZ July 50 call option is out-of-the-money, just like the XYZ October 50 call and the XYZ July 60 call. However, the XYZ July 45 call, XYZ October 40, and XYZ January 35 are in-the-money.

The *intrinsic value* of an in-the-money call is the amount by which the stock price exceeds the striking price. If the call is out-of-the-money, its intrinsic value is zero. The price that an option sells for is commonly referred to as the premium. The premium is distinctly different from the time value premium (called time premium, for short), which

is the amount by which the option premium itself exceeds its intrinsic value. The time value premium is quickly computed by the following formula for an in-the-money call option:

Call time value premium = Call option price + Striking price − Stock price

Example: XYZ is trading at 48, and XYZ July 45 call is at 4. The premium—the total price—of the option is 4. With XYZ at 48 and the striking price of the option at 45, the in-the-money amount (or intrinsic value) is 3 points (48–45), and the time value is 1 (4–3).

If the call is out-of-the-money, then the premium and the time value premium are the same.

Example: With XYZ at 48 and an XYZ July 50 call selling at 2, both the premium and the time value premium of the call are 2 points. The call has no intrinsic value by itself with the stock price below the striking price.

An option normally has the largest amount of time value premium when the stock price is equal to the striking price. As an option becomes deeply in- or out-of-the-money, the time value premium shrinks substantially. Table 1-1 illustrates this effect. Note that

TABLE 1-1.
Changes in time value premium.

XYZ Stock Price	XYZ Jul 50 Call Price	Intrinsic Value	Time Value Premium
40	½	0	½
43	1	0	1
35	2	0	2
47	3	0	3
→50	**5**	**0**	**5**
53	7	3	4
55	8	5	3
57	9	7	2
60	10.50	10	.50
70	19.50	20	−.50*

*Simplistically, a deeply in-the-money call may actually trade at a discount from intrinsic value, because call buyers are more interested in less expensive calls that might return better percentage profits on an upward move in the stock. This phenomenon is discussed in more detail when arbitrage techniques are examined.

TABLE 1-2.
Comparison of XYZ stock and call prices.

Striking Price	+	XYZ July 45 Call Price	–	XYZ Stock Price	=	Over Parity
(45	+	1	–	45.50)	=	.50
(45	+	2.50	–	47)	=	.50
(45	+	5.50	–	50)	=	.50
(45	+	15.50	–	60)	=	.50

the time value premium increases as the stock nears the striking price (50) and then decreases as it draws away from 50. The term "time value premium" implies that this part of an option's premium is completely due to the time remaining. In fact, that isn't really true. The *volatility* of the underlying stock has a great deal to do with how much "time premium" is in the option. So, really, "time premium" is something of a misnomer, but it's the standard term.

Parity. An option is said to be trading *at parity* with the underlying security if it is trading for its intrinsic value. Thus, if XYZ is 48 and the XYZ July 45 call is selling for 3, the call is *at parity*. A common practice of particular interest to option writers (as shall be seen later) is to refer to the price of an option by relating how close it is to parity with the common stock. Thus, the XYZ July 45 call is said to be a half-point over parity in any of the cases shown in Table 1-2.

FACTORS INFLUENCING THE PRICE OF AN OPTION

An option's price is the result of properties of both the underlying stock and the terms of the option. The major quantifiable factors influencing the price of an option are the:

1. price of the underlying stock,
2. striking price of the option itself,
3. time remaining until expiration of the option,
4. volatility of the underlying stock,
5. current risk-free interest rate (such as for 90-day Treasury bills), and
6. dividend rate of the underlying stock.

The first four items are the major determinants of an option's price, while the latter two are generally less important, although the dividend rate can be influential in the case of high-yield stock.

THE FOUR MAJOR DETERMINANTS

Probably the most important influence on the option's price is the stock price, because if the stock price is far above or far below the striking price, the other factors have little influence. Its dominance is obvious on the day that an option expires. On that day, only the stock price and the striking price of the option determine the option's value; the other four factors have no bearing at all. At this time, an option is worth only its intrinsic value.

Example: On the expiration day in July, with no time remaining, an XYZ July 50 call has the value shown in Table 1-3; each value depends on the stock price at the time.

The Call Option Price Curve. The call option price curve is a curve that plots the prices of an option against various stock prices. Figure 1-1 shows the axes needed to graph such a curve. The vertical axis is called Option Price. The horizontal axis is for Stock Price. This figure is a graph of the intrinsic value. When the option is either out-of-the-money or equal to the stock price, the intrinsic value is zero. Once the stock price passes the striking price, it reflects the increase of intrinsic value as the stock price goes up. Since a call is usually worth at least its intrinsic value at any time, the graph thus represents the minimum price that a call may be worth.

When a call has time remaining to its expiration date, its total price consists of its

TABLE 1-3.
XYZ option's values on the expiration day.

XYZ Stock Price	XYZ July 50 Call (Intrinsic) Value at Expiration
40	0
45	0
48	0
50	0
52	2
55	5
60	10

FIGURE 1-1.
The value of an option at expiration, its intrinsic value.

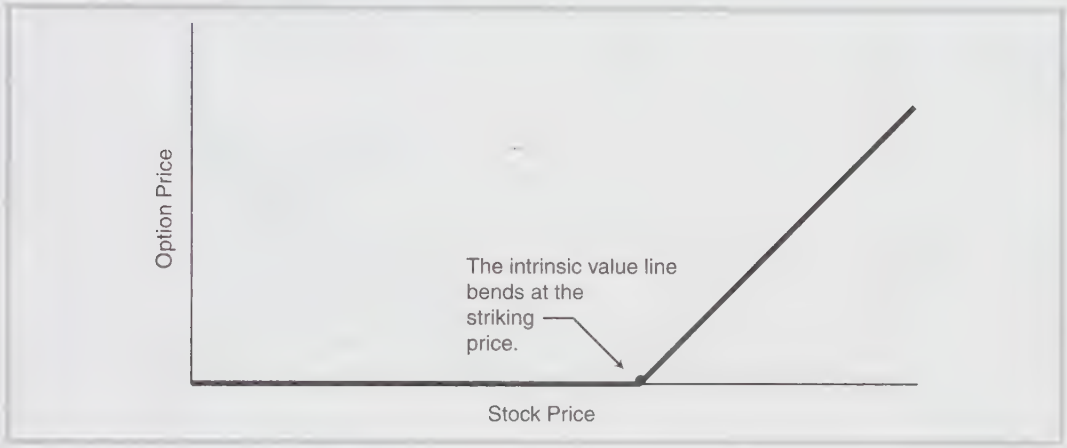


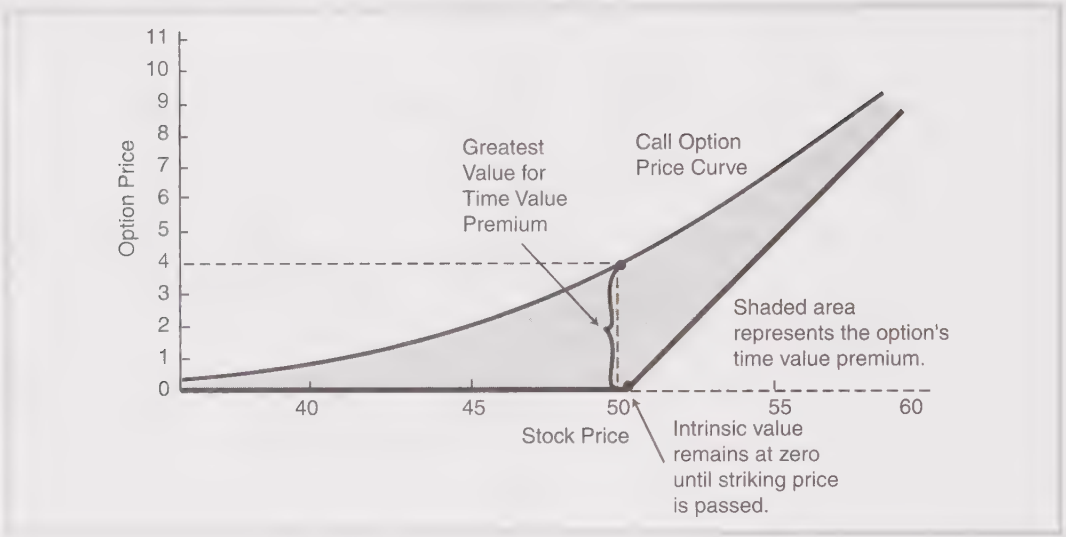
TABLE 1-4.
The prices of a hypothetical July 50 call with 6 months of time remaining, plotted in Figure 1-2.

XYZ Stock Price (Horizontal Axis)	XYZ July 50 Call Price (Vertical Axis)	Intrinsic Value	Time Value Premium (Shading)
40	1	0	1
45	2	0	2
48	3	0	3
→50	**4**	**0**	**4**
52	5	2	3
55	6.50	5	1.50
60	11	10	1

intrinsic value plus its time value premium. The resultant call option price curve takes the form of an inverted arch that stretches along the stock price axis. If one plots the data from Table 1-4 on the grid supplied in Figure 1-2, the curve assumes two characteristics:

1. The time value premium (the shaded area) is greatest when the stock price and the striking price are the same.

FIGURE 1-2.
Six-month July call option (see Table 1-4).



2. When the stock price is far above or far below the striking price (near the ends of the curve), the option sells for nearly its intrinsic value. As a result, the curve nearly touches the intrinsic value line at either end. [Figure 1-2 thus shows both the intrinsic value and the option price curve.]

This curve, however, shows only how one might expect the XYZ July 50 call prices to behave with 6 months remaining until expiration. As the time to expiration grows shorter, the arched line drops lower and lower, until, on the final day in the life of the option, it merges completely with the intrinsic value line. In other words, the call is worth only its intrinsic value at expiration. Examine Figure 1-3, which depicts three separate XYZ calls. At any given stock price (a fixed point on the stock price scale), the longest-term call sells for the highest price and the nearest-term call sells for the lowest price. At the striking price, the actual differences in the three option prices are the greatest. Near either end of the scale, the three curves are much closer together, indicating that the actual price differences from one option to another are small. For a given stock price, therefore, option prices decrease as the expiration date approaches.

Example: On January 1st, XYZ is selling at 48. An XYZ July 50 call will sell for more than an April 50 call, which in turn will sell for more than a January 50 call.

This statement is true no matter what the stock price is. The only reservation is that with the stock deeply in- or out-of-the-money, the actual difference between the

FIGURE 1-3.
Price Curves for the 3-, 6-, and 9-month call options.

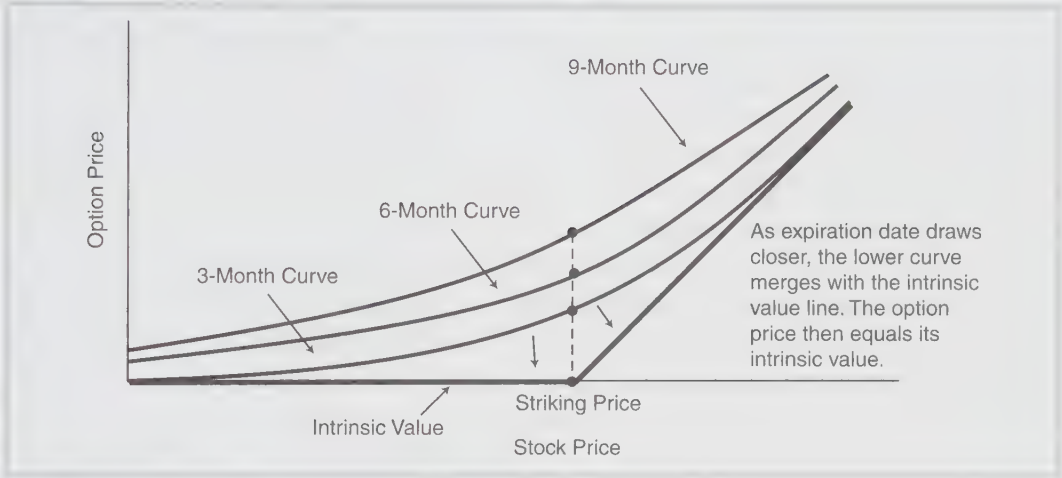
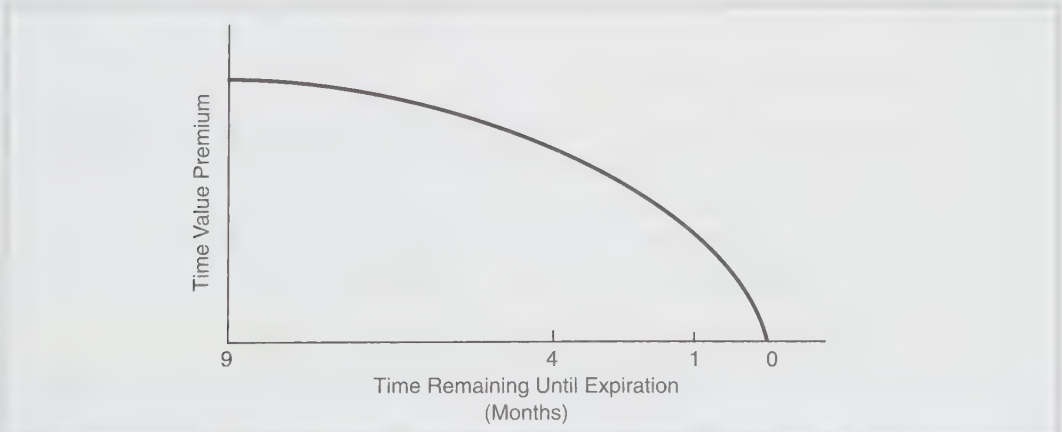


FIGURE 1-4.
Time value premium decay, assuming the stock price remains constant.



January, April, and July calls will be smaller than with XYZ stock selling at the striking price of 50.

Time Value Premium Decay. In Figure 1-3, notice that the price of the 9-month call is not three times that of the 3-month call. Note next that the curve in Figure 1-4 for the decay of time value premium is not straight; that is, *the rate of decay of an option is not linear.* An option's time value premium decays much more rapidly in the last few

weeks of its life (that is, in the weeks immediately preceding expiration) than it does in the first few weeks of its existence. The rate of decay is actually related to the square root of the time remaining. Thus, a 3-month option decays (loses time value premium) at twice the rate of a 9-month option, since the square root of 9 is 3. Similarly, a 2-month option decays at twice the rate of a 4-month option ($\sqrt{4} = 2$).

This graphic simplification should not lead one to believe that a 9-month option necessarily sells for twice the price of a 3-month option, because the other factors also influence the actual price relationship between the two calls. Of those other factors, the *volatility* of the underlying stock is particularly influential. *More volatile underlying stocks have higher option prices.* This relationship is logical, because if a stock has the ability to move a relatively large distance upward, buyers of the calls are willing to pay higher prices for the calls—and sellers demand them as well. For example, if AT&T and Xerox sell for the same price (as they have been known to do), the Xerox calls would be more highly priced than the AT&T calls because Xerox is a more volatile stock than AT&T.

The interplay of the four major variables—stock price, striking price, time, and volatility—can be quite complex. While a rising stock price (for example) is directing the price of a call upward, decreasing time may be simultaneously driving the price in the opposite direction. Thus, the purchaser of an out-of-the-money call may wind up with a loss even after a rise in price by the underlying stock, because time has eroded the call value.

THE TWO MINOR DETERMINANTS

The Risk-Free Interest Rate. This rate is generally construed as the current rate of 90-day Treasury bills. Higher interest rates imply slightly higher option premiums, while lower rates imply lower premiums. Although members of the financial community disagree as to the extent that interest rates actually affect option price, they remain a factor in most mathematical models used for pricing options. (These models are covered much later in this book.)

The Cash Dividend Rate of the Underlying Stock. Though not classified as a major determinant in option prices, this rate can be especially important to the writer (seller) of an option. If the underlying stock pays no dividends at all, then a call option's worth is strictly a function of the other five items. *Dividends, however, tend to lower call option premiums: The larger the dividend of the underlying common stock, the lower the price of its call options.* One of the most influential factors in keeping option premiums low on high-yielding stock is the yield itself.

Example: XYZ is a relatively low-priced stock with low volatility selling for $25 per share. It pays a large annual dividend of $2 per share in four quarterly payments of $.50 each. What is a fair price of an XYZ call with striking price 25?

A prospective buyer of XYZ options is determined to figure out a fair price. In six months XYZ will pay $1 per share in dividends, and the stock price will thus be reduced by $1 per share when it goes ex-dividend over that time period. In that case, if XYZ's price remains unchanged except for the ex-dividend reductions, it will then be $24. Moreover, since XYZ is a nonvolatile stock, it may not readily climb back to 25 after the ex-dividend reductions. Therefore, the call buyer makes a low bid — even for a 6-month call—because the underlying stock's price will be reduced by the ex-dividend reduction, and the call holder does not receive the cash dividends.

This particular call buyer calculated the value of the XYZ July 25 call in terms of what it was worth with the stock discounted to 24—not at 25. He knew for certain that the stock was going to lose 1 point of value over the next 6 months, provided the dividend rate of XYZ stock did not change. In actual practice, option buyers tend to discount the upcoming dividends of the stock when they bid for the calls. However, not all dividends are discounted fully; usually the nearest dividend is discounted more heavily than are dividends to be paid at a later date. The less-volatile stocks with the higher dividend payout rates have lower call prices than volatile stocks with low payouts. In fact, in certain cases, an impending large dividend payment can substantially increase the probability of an exercise of the call in advance of expiration. (This phenomenon is discussed more fully in the following section.) In any case, to one degree or another, dividends exert an important influence on the price of some calls.

OTHER INFLUENCES

These six factors, major and minor, are only the quantifiable influences on the price of an option. In practice, nonquantitative market dynamics—investor sentiment—can play various roles as well. In a bullish market, call premiums often expand because of increased demand. In bearish markets, call premiums may shrink due to increased supply or diminished demand. These influences, however, are normally short-lived and generally come into play only in dynamic market periods when emotions are running high.

EXERCISE AND ASSIGNMENT: THE MECHANICS

The holder of an option can exercise his right at any time during the life of an option: Call option holders exercise to buy stock, while put option holders exercise to sell stock. In the event that an option is exercised, the writer of an option with the same terms is *assigned an obligation* to fulfill the terms of the option contract.

EXERCISING THE OPTION

The actual mechanics of exercise and assignment are fairly simple, due to the role of the Options Clearing Corporation (OCC). As the issuer of all listed option contracts, it controls all listed option exercises and assignments. Its activities are best explained by an example.

Example: The holder of an XYZ January 45 call option wishes to exercise his right to buy XYZ stock at $45 per share. He instructs his broker to do so. The broker then notifies the administrative section of the brokerage firm that handles such matters. The firm then notifies the OCC that they wish to exercise one contract of the XYZ January 45 call series.

Now the OCC takes over the handling. OCC records indicate which member (brokerage) firms are short or which have written and not yet covered XYZ Jan 45 calls. The OCC selects, at random, a member firm that is short at least one XYZ Jan 45 call, and it notifies the short firm that it has been assigned. That firm must then deliver 100 shares of XYZ at $45 per share to the firm that exercised the option. The assigned firm, in turn, selects one of its customers who is short the XYZ January 45 call. This selection for the assignment may be either:

1. at random,
2. on a first-in/first-out basis, or
3. on any other basis that is fair, equitable, and approved by the appropriate exchange.

The selection of the customer who is short the XYZ January 45 completes the exercise/assignment process. (If one is an option writer, he should obviously determine exactly how his brokerage firm assigns its option contracts.)

HONORING THE ASSIGNMENT

The assigned customer *must* deliver the stock—he has no other choice. It is too late to try buying the option back in the option market. He must, without fail, deliver 100 shares of XYZ stock at $45 per share. The assigned writer does, however, have a choice as to how to fulfill the assignment. If he happens to be already long 100 shares of XYZ in his account, he merely delivers that 100 shares as fulfillment of the assignment notice. Alternatively, he can go into the stock market and buy XYZ at the current market price—presumably something higher than $45—and then deliver the newly purchased stock as fulfillment. A third alternative is merely to notify his brokerage firm that he wishes to go short XYZ stock and to ask them to deliver the 100 shares of XYZ at 45 out of his short account. At times, borrowing stock to go short may not be possible, so this third alternative is not always available on every stock.

Margin Requirements. If the assigned writer purchases stock to fulfill a contract, reduced margin requirements generally apply to the transaction, so that he would not have to fully margin the purchased stock merely for the purpose of delivery. Generally, the customer only has to pay a day-trade margin of the difference between the current price of XYZ and the delivery price of $45 per share. If he goes short to honor the assignment, then he has to fully margin the short sale at the current rate for stock sold short on a margin basis.

AFTER EXERCISING THE OPTION

The OCC and the customer exercising the option are not concerned with the actual method in which the delivery is handled by the assigned customer. They want only to ensure that the 100 shares of XYZ at 45 are, in fact, delivered. The holder who exercised the call can keep the stock in his account if he wants to, but he has to margin it fully or pay cash in a cash account. On the other hand, he may want to sell the stock immediately in the open market, presumably at a higher price than 45. If he has an established margin account, he may sell right away without putting out any money. If he exercises in a cash account, however, the stock must be paid for in full—even if it is subsequently sold on the same day. Alternatively, he may use the delivered stock to cover a short sale in his own account if he happens to be short XYZ stock.

COMMISSIONS

Both the buyer of the stock via the exercise and the seller of the stock via the assignment are charged a full stock commission on 100 shares, unless a special agreement exists between the customer and the brokerage firm. Generally, option holders incur higher commission costs through assignment than they do selling the option in the secondary market. *So the public customer who holds an option is better off selling the option in the secondary market than exercising the call.*

Of course, sometimes a customer wants to own the underlying stock, perhaps because it is attractive to him or because he wants to cover a short sale. In these cases, the exercise of the call would be desirable.

ANTICIPATING ASSIGNMENT

The writer of a call often prefers to buy the option back in the secondary market, rather than fulfill the obligation via a stock transaction. It should be stressed again that once the writer receives an assignment notice, it is too late to attempt to buy back (cover) the call. The writer must buy *before* assignment, or live up to the terms upon assignment. The writer who is aware of the circumstances that generally cause the holders to exercise can

anticipate assignment with a fair amount of certainty. In anticipation of the assignment, the writer can then close the contract in the secondary market. As long as the writer covers the position at any time during a trading day, he cannot be assigned on that option. Assignment notices are determined on open positions as of the *close* of trading each day. The crucial question then becomes, "How can the writer anticipate assignment?" Several circumstances signal assignments:

1. a call that is in-the-money at expiration,
2. an option trading at a discount prior to expiration, or
3. the underlying stock paying a large dividend and about to go ex-dividend.

Automatic Exercise. Assignment is all but certain if the option is in-the-money at expiration. Should the stock close even a penny above the striking price on the last day of trading, the holder will normally exercise. In fact, even if the call trades in-the-money at any time during the last trading day, it might be exercised if a market-maker has taken an offsetting position and issued an exercise notice. Even if an option holder forgets that he owns an option and fails to exercise, the OCC automatically exercises any option that is one penny in the money at expiration, unless the customer—through his brokerage firm—gives specific instructions not to exercise. This *automatic exercise* mechanism ensures that no investor throws money away through carelessness.

Example: XYZ closes at 50 on the third Friday of January, the last trading day for the January option series. Since options don't expire until Saturday, the next day, the OCC and all the brokerage firms have the opportunity to review their records to see if any options should have been profitably exercised but were not. If a customer owned a January 45 call, but failed to either sell or exercise it (perhaps due to illness or an inability to get to a phone or computer while traveling), it is automatically exercised. Since it is worth $500 per contract, less the commissions for buying the stock, the customer stands to receive a substantial amount of money back. However, he is now long the stock, so that must be sold to realize the gain.

In the above example, note that the exercise creates a stock purchase in the account. If there is not sufficient cash in the account to make this purchase, a margin call may result. This is why some brokerage firms do not allow option buying in retirement accounts (IRAs, for example), because one cannot just routinely add money into an IRA to fulfill the requirements of an automatic exercise.

Any writer who wishes to avoid an assignment notice should always buy back (or cover) the option if it appears that the stock will be above the strike at expiration. The probability of being assigned is virtually 100% if the option expires in the money, even by a penny.

Early Exercise Due to Discount. When options are exercised *prior to expiration*, this is called *early*, or *premature, exercise*. The writer can usually expect an early exercise when the call is trading at or below parity. A parity or discount situation in advance of expiration may mean that an early exercise is forthcoming, even if the discount is slight. A writer who does not want to deliver stock should buy back the option prior to expiration if the option is apparently going to trade at a discount to parity. The reason is that arbitrageurs (floor traders or member firm traders who pay only minimal commissions) can take advantage of discount situations. (Arbitrage is discussed in more detail later in the text; it is mentioned here to show why early exercise often occurs in a discount situation.)

Example: XYZ is bid at $50 per share, and an XYZ January 40 call option is offered at a discount price of 9.80. The call is actually "worth" 10 points. The arbitrageur can take advantage of this situation through the following actions, all on the same day:

1. Buy the January 40 call at 9.80.
2. Sell short XYZ common stock at 50.
3. Exercise the call to buy XYZ at 40.

The arbitrageur makes 10 points from the short sale of XYZ (steps 2 and 3), from which he deducts the 9.80 points he paid for the call. Thus, his total gain is 20 cents—the amount of the discount. Since he pays only a minimal commission, this transaction results in a net profit.

Also, if the writer can expect assignment when the option has no time value premium left in it, then conversely the option will usually not be called if time premium is left in it.

Example: Prior to the expiration date, XYZ is trading at 50½, and the January 50 call is trading at 1. The call is not necessarily in imminent danger of being called, since it still has half a point of time premium left.

Time value premium	=	Call price	+	Striking price	−	Stock price
	=	1	+	50	−	50.50
	=	.50				

Early Exercise Due to Dividends on the Underlying Stock. Sometimes the market conditions create a discount situation, and sometimes a large dividend gives rise to a discount. Since the stock price is almost invariably reduced by the amount of the dividend, the option price is also most likely reduced after the ex-dividend. Since the holder

of a listed option does not receive the dividend, he may decide to sell the option in the secondary market before the ex-date in anticipation of the drop in price. If enough calls are sold because of the impending ex-dividend reduction, the option may come to parity or even to a discount. Once again, the arbitrageurs may move in to take advantage of the situation by buying these calls and exercising them.

If assigned prior to the ex-date, the writer does not receive the dividend for he no longer owns the stock on the ex-date. Furthermore, if he receives an assignment notice on the ex-date, he must deliver the stock with the dividend. It is therefore very important for the writer to watch for discount situations on the day prior to the ex-date.

A word of caution: Do not conclude from this discussion that a call will be exercised for the dividend if the dividend is larger than the remaining time premium. It won't. An example will show why.

Example: XYZ stock, at 50, is going to pay its regular $1 dividend with the ex-date set for the next day. An XYZ January 40 call is selling at 10.25; it has twenty-five cents of time premium. (TVP = 10.25 + 40 – 50 = .25.) The same type of arbitrage will not work. Suppose that the arbitrageur buys the call at 10.25 and exercises it: He now owns the stock for the ex-date, and he plans to sell the stock immediately at the opening on the ex-date, the next day. On the ex-date, XYZ opens at 49, because it goes ex-dividend by $1. The arbitrageur's transactions thus consist of:

1. Buy the XYZ January 40 call at 10.25.
2. Exercise the call the same day to buy XYZ at 40.
3. On the ex-date, sell XYZ at 49 and collect the $1 dividend.

He makes 9 points on the stock (steps 2 and 3), and he receives a 1-point dividend, for a total cash inflow of 10 points. However, he loses 10.25 points paying for the call. The overall transaction is a loser and the arbitrageur would thus not attempt it.

A dividend payment that exceeds the time premium in the call, therefore, does not imply that the writer will be assigned.

More of a possibility, but a much less certain one, is that the arbitrageur may attempt a "risk arbitrage" in such a situation. *Risk arbitrage* is arbitrage in which the arbitrageur runs the risk of a loss in order to try for a profit. The arbitrageur may suspect that the stock will not be discounted the full ex-dividend amount or that the call's time premium will increase after the ex-date. In either case (or both), he might make a profit: If the stock opens down only 60 cents or if the option premium expands by 40 cents, the arbitrageur could profit on the opening. In general, however, arbitrageurs do not like to take risks and therefore avoid

this type of situation. So the probability of assignment as the result of a dividend payment on the underlying stock is small, unless the call trades at parity or at a discount.

Of course, the anticipation of an early exercise assumes rational behavior on the part of the call holder. If time premium is left in the call, the holder is always better off financially to sell that call in the secondary market rather than to exercise it. However, the terms of the call contract give a call holder the right to go ahead and exercise it anyway—even if exercise is not the profitable thing to do. In such a case, a writer would receive an assignment notice quite unexpectedly. Financially unsound early exercises do happen, though not often, and an option writer must realize that, in a very small percentage of cases, he could be assigned under very illogical circumstances.

THE OPTION MARKETS

The trader of stocks does not have to become very familiar with the details of the way the stock market works in order to make money. Stocks don't expire, nor can an investor be pulled out of his investment unexpectedly. However, the option trader is required to do more homework regarding the operation of the option markets. In fact, the option strategist who does not know the details of the working of the option markets will likely find that he or she eventually loses some money due to ignorance.

MARKET-MAKERS

In at least one respect, stock and listed option markets are similar. Stock markets use specialists to do two things: First, they are required to make a market in a stock by buying and selling from their own inventory, when public orders to buy or sell the stock are absent. Second, they keep the public book of orders, consisting of limit orders to buy and sell, as well as stop orders placed by the public. When listed option trading began, the Chicago Board Options Exchange (CBOE) introduced a similar method of trading, the market-maker and the board broker system. The CBOE assigns several market-makers to each optionable stock to provide bids and offers to buy and sell options in the absence of public orders. Market-makers cannot handle public orders; they buy and sell for their own accounts only. A separate person, the board broker, keeps the book of limit orders. The board broker, who cannot do any trading, opens the book for traders to see how many orders to buy and sell are placed nearest to the current market (consisting of the highest bid and lowest offer). (The specialist on the stock exchange keeps a more closed book; he is not required to formally disclose the sizes and prices of the public orders.)

In theory, the CBOE system is more efficient than the stock exchange system. With several market-makers competing to create the market in a particular security, the market

should be a more efficient one than a single specialist can provide. Also, the somewhat open book of public orders should provide a more orderly market. In practice, whether the CBOE has a more efficient market is usually a subject for heated discussion. The strategist need not be concerned with the question.

The American Stock Exchange uses specialists for its option trading, but it also has floor traders who function similarly to market-makers. The regional option exchanges use combinations of the two systems; some use market-makers, while others use specialists.

OPTION SYMBOLOGY

From the time that options were listed in 1973 until a complete overhaul of the symbology in 2010, option symbols were a rather arcane combination of letters (to represent strike and expiration month) and 3-character base symbols (even for stocks with four characters in their own symbol, like AAPL). But as more and more stocks, ETFs, and other entities came to have listed options, and these options extended farther out in time (more than one year), the old symbology system became unworkable. It lasted far longer than it should have, mostly due to certain large brokerage firms' and quote vendors' reluctance to change. But eventually, the Options Clearing Corporation enlisted the aid of several industry representatives to create the Options Symbol Initiative (OSI), whose purpose it was to create new option codes. The implementation of the OSI took place in 2010, and the industry is far better for it.

If you want a historic look at option symbology, find a copy of the fourth edition of this book and read the section in the first chapter. It is now a rather amusing look at history, but while it was happening, it took an army of clerks at various firms around the world to keep the option databases updated daily with all of the changes that took place, which included, but were not limited to, splits, special dividends, spinoffs, long-term options (LEAPS), weekly and monthly option expirations, and a myriad of strikes caused by highly volatile movement by the underlying stock, etc.

Today, the situation is simpler, although it is no longer standardized. The OSI suggested how option symbols should be created, but each firm, vendor, and exchange is free to format them how it sees fit. However, the individual customer really doesn't have to worry about this too much, for most of the time brokerage and vendor software displays an option as something like:

IBM Jan (21) 2011 45 call

Where IBM is the stock symbol, Jan is the expiration month, 21 is the expiration day, 2011 is the expiration year, 45 is the striking price, and "call" is the type of option (as opposed to "put").

Some vendors don't show the expiration day if it is the "regular" Saturday following the third Friday. But the day must be shown for weekly or quarterly options. Some vendors only show the last two digits of the expiration year. Some still use the old letter codes for the expiration month ("A" = January call; "B" = February call; . . . "L" = December call; "M" = January put; "N" = February put; . . . "X" = December put).

But in any case, it's a lot more logical now than it used to be, because *numbers* are used for strikes and expiration dates rather than the letters that were used before. And because of the use of numbers for these items, only one stock symbol is necessary for *all* of the options on a particular stock.

DETAILS OF OPTION TRADING

The facts that the strategist should be concerned with are included in this section. They are not presented in any particular order of importance, and this list is not necessarily complete. Many more details are given in the discussion of specific strategies throughout this text.

1. *Option trading can be frenetic near the end of the day.* Listed stock options trade from 9:30 a.m. to 4 p.m. Eastern time. Some index options trade until 4:15 p.m. Eastern time. Waiting too long to place an order at the end of the trading day is not advisable. In the crush of orders that might occur, even a market order could conceivably not be filled. Also, one should be mindful of trading at the end of the last trading day of an option's life (the third Friday for "regular" expiration cycle options, or any Friday for weekly options). Again, it is advisable to place orders with plenty of time to spare, rather than waiting for the "crush" of trading that comes at the end of the option's life.
2. *Option trades have a one-day settlement cycle.* The trade settles on the next business day after the trade. Purchases must be paid for in full, and the credits from sales "hit" the account on the settlement day. Some brokerage firms require settlement on the same day as the trade, when the trade occurs on the last trading day of an expiration series.
3. *Options are opened for trading in rotation.* When the underlying stock opens for trading on any exchange, regional or national, the options on that stock then go into opening rotation on the corresponding option exchange. The rotation system also applies if the underlying stock halts trading and then reopens during a trading day; options on that stock reopen via a rotation.

   In the rotation itself, interested parties make bids and offers for each particular option series one at a time—the XYZ January 45 call, the XYZ January 50 call, and so on—until all the puts and calls at various expiration dates and striking prices have been opened. Trades do not necessarily have to take place in each series, just bids

and offers. Orders such as spreads, which involve more than one option, are not executed during a rotation.

While the rotation is taking place, it is possible that the underlying stock could make a substantial move. This can result in option prices that seem unrealistic when viewed from the perspective of each option's opening. Consequently, the *opening* price of an option can be a somewhat suspicious statistic, since none of them open at exactly the same time.

Also, it should be noted that most option traders do *not* trade during rotation, so a market order may receive a very poor price. Hence, if one is considering trading during rotation, a *limit order* should be used. (Order entry is discussed in more detail in a later section of this chapter.)

4. *When the underlying stock splits or pays a stock dividend, or pays a special cash dividend of greater than 12.5 cents, or pays a regular dividend in an amount greater than 10% of the stock price, then the terms of its options are adjusted.* Such an adjustment may result in fractional striking prices and in options for other than 100 shares per contract. No adjustments in terms are made for cash dividends that are regularly declared and paid on a quaterly or other basis. The actual details of splits, stock dividends, and rights offerings, along with their effects on the option terms, are always published by the option exchange that trades those options. Notices are sent to all member firms, who then make that information available to their brokers for distribution to clients. In actual practice, the option strategist should ascertain from the broker the specific terms of the new option series, in case the broker has overlooked the information sent.

Example 1: XYZ is a $50 stock with option striking prices of 45, 50, and 60 for the January, April, and July series. It declares a 2-for-1 stock split. Usually, in a 2-for-1 split situation, the number of outstanding option contracts is doubled and the striking prices are halved. The owner of 5 XYZ January 60 calls becomes the owner of 10 XYZ January 30 calls. Each call is still for 100 shares of the underlying stock.

After the split, XYZ has options with strikes of 22½, 25, and 30. In some cases, the option exchange officials may introduce another strike if they feel such a strike is necessary; in this example, they might introduce a striking price of 20.

Example 2: UVW is trading at 40 with strikes of 35, 40, and 45 for the January, April, and July series. UVW declares a 5% stock dividend. The contractually standardized 100 shares per contract is adjusted up to 105, and the striking prices are reduced by dividing each by 1.05, rounded to the nearest penny. Hence the new strikes are 33.33, 38.10, and

42.86, respectively. In addition, there will be a new base symbol assigned to these "non-100 share" contracts: UVW1 (or UVW2, if UVW1 is already in use).

After the split, the exchange usually opens for trading new strikes of 35, 40, and 45—each for 100 shares of the underlying stock. For a while, there are six striking prices for UVW options. As time passes, the fractional strikes are eliminated as they expire. Since they are not reintroduced, they eventually disappear as long as UVW does not issue further stock dividends.

Example 3: WWW Corp. (symbol WWW) is trading at $120 per share, with strike prices of 110, 115, 120, 125, and 130. WWW declares a 3-for-1 split. In this case, the strike prices would be divided by 3 (and rounded to the nearest penny, becoming 36.67, 38.33, 40, 41.67, and 43.33); the number of contracts in every account would be tripled; and each option would still be an option on 100 shares of WWW stock. The general rule of thumb is that when a split results in round lots (2-for-1, 3-for-1, 4-for-1, etc.), the number of option contracts is increased and the strike price is decreased, and each option still represents 100 shares of the underlying stock.

Example 4: When a split does not result in a round lot, a different adjustment must be used for the options. Suppose that AAA Corp. (symbol: AAA) is trading at $60 per share and declares a 3-for-2 split. In this case, each option's strike will be multiplied by two-thirds (to reflect the 3-for-2 split), *but the number of contracts held in an account will remain the same and each option will be an option on 150 shares of AAA stock.*

Suppose that there were strikes of 55, 60, and 65 preceding this split. After the split, AAA common itself would be trading at $40 per share, reflecting the post-split 3-for-2 adjustment from its previous price of 60. There would be new options with strikes of 36.625, 40, and 43.375 (these had been the pre-split strikes of 55, 60, and 65).

Since each of these options would be for 150 shares of the underlying stock, the exchange creates a *new option base symbol* for these options, because they no longer represent 100 shares of AAA common. Suppose the exchange says that the post-split, 150-share option contracts will henceforth use the option symbol AAA1.

After the split, the exchange will then list "normal" 100-share options on AAA, perhaps with strike prices of 35, 40, and 45. This creates a situation that can sometimes be confusing for traders and can lead to problems. There will actually be two options with striking prices of 40—one for 100 shares and the other for 150 shares. Suppose the July contract is being considered. The option with symbol AAA is a July 40 option on 100 shares of AAA Corp., while the option with symbol AAA1 is a July 40 option on 150 shares of AAA Corp. Since option prices are quoted on a per-share basis, *they will have nearly*

identical price quotes on any quote system (see item 5). If one is not careful, you might trade the wrong one, thereby incurring a risk that you did not intend to take.

For example, suppose that you sell, as an opening transaction, the AAA1 July 40 call at a price of 3. Furthermore, suppose that you did not realize that you were selling the 150-share option; this was a mistake, but you don't yet realize it. A couple of days later, you see that this option is now selling at 13—a loss of 10 points. You might think that you had just lost $1,000, but upon examining your brokerage statement (or confirms, or day trading sheet), you suddenly see that the loss is $1,500 on that contract! Quite a difference, especially if multiple contracts are involved. This could come as a shock if you thought you were hedged (perhaps you bought 100 shares of AAA common when you sold this call), only to find out later that you didn't have a correctly hedged position in place after all.

Even more severe problems can arise if this stock splits *again* during the life of this option. Sometimes the options will be adjusted so that they represent a non-standard number of shares, such as the 150-share options involved here; and after multiple splits, the exchange may even apply a multiplier to the option, rather than adjusting its strike price repeatedly. This type of thing wouldn't happen on the first stock split, but it might occur on subsequent stock splits, spaced closely together over the life of an option. In such a case, the dollar value of the option moves *much* faster than one would expect from looking at a quote of the contract.

So you must be sure that you are trading the exact contract you intend to, and not relying on the fact that the striking price is correct and the option price quote seems to be in line. One must verify that the option being bought or sold is exactly the one intended. In general, it is a good idea, after a split or similar adjustment, to establish opening positions solely with the standard contracts and to leave the split-adjusted contracts alone.

5. *All options are quoted on a per-share basis*, regardless of how many shares of stock the option involves. Normally the quote assumes 100 shares of the underlying stock. Suppose UVW had paid a 5% stock dividend, so that the options are for 105 shares each. If the UVW April 38.10 is offered at a price of $3.00, it actually costs $315 ($3.00 × 105).
6. *Changes in the price of the underlying stock can bring about new striking prices.* As a stock, index, or ETF moves up and down, it can eventually outdistance the existing striking prices. In that case, the exchange will list new ones. This can even be done at the request of customers, at times. The idea is to have plenty of strikes to choose from at all times. Sometimes, a stock will gap up or down so much that it is suddenly trading in an area where *no* strikes exist at all. Often, the exchange will attempt to get new strikes listed immediately, but occasionally it takes until the next day.

POSITION LIMIT AND EXERCISE LIMIT

7. *An investor or a group of investors cannot be long or short more than a set limit of contracts in one stock on the same side of the market.* The actual limit varies according to the trading activity in the underlying stock. The most heavily traded stocks with a large number of shares outstanding have position limits of 250,000 contracts. Smaller stocks have position limits ranging from as low as 5,000 contracts to 200,000 contracts, depending on liquidity. These limits can be expected to increase over time, if stocks' capitalizations continue to increase. The exchange on which the option is listed makes available a list of the position limits on each of its optionable stocks. So, if one were long the limit of XYZ call options, he cannot at the same time be short any XYZ put options. Long calls and short puts are on the same side of the market; that is, both are bullish positions. Similarly, long puts and short calls are both on the bearish side of the market. While these position limits generally exceed by far any position that an individual investor normally attains, the limits apply to "related" accounts. For instance, a money manager or investment advisor who is managing many accounts cannot exceed the limit when all the accounts' positions are combined.
8. *The number of contracts that can be exercised in a particular period of time (usually 5 business days) is also limited to the same amount as the position limit.* This exercise limit prevents an investor or group from "cornering" a stock by repeatedly buying calls one day and exercising them the next, day after day. *Option exchanges set exact limits, which are subject to change.*

ORDER ENTRY

ORDER INFORMATION

Of the various types of orders, each specifies:

1. whether the transaction is a buy or sell,
2. the option to be bought or sold,
3. whether the trade is opening or closing a position,
4. whether the transaction is a spread (discussed later), and
5. the desired price.

TYPES OF ORDERS

Many types of orders are acceptable for trading options, but not all are acceptable on all exchanges that trade options. Since regulations change, information regarding which order is valid for a given exchange is best supplied by the broker to the customer. The following orders are acceptable on all option exchanges, but certain electronic trading platforms will not take all types of orders:

Market Order. This is a simple order to buy or sell the option at the best possible price as soon as the order gets to the exchange.

Market Not Held Order. This type of order can only be used in situations where pit trading still exists—where a physical broker is handling the order in a crowd; it is not apropos to electronic trading. The customer who uses this type of order is giving the floor broker discretion in executing the order. The floor broker is not held responsible for the final outcome. For example, if a floor broker has a "market not held" order to buy, and he feels that the stock will "downtick" (decline in price) or that there is a surplus of sellers in the crowd, he may often hold off on the execution of the buy order, figuring that the price will decline shortly and that the order can then be executed at a more favorable price. In essence, the customer is giving the floor broker the right to use some judgment regarding the execution of the order. If the floor broker has an opinion and that opinion is correct, the customer will probably receive a better price than if he had used a regular market order. If the broker's opinion is wrong, however, the price of the execution may be worse than a regular market order.

Limit Order. The limit order is an order to buy or to sell at a specified price—the limit. It may be executed at a better price than the limit—a lower one for buyers and a higher one for sellers. However, if the limit is never reached, the order may never be executed.

In pit trading situations where a physical floor broker is handling the order sometimes a limit order may specify a discretionary margin for the floor broker. In other words, the order may read "Buy at 5 with dime discretion." This instruction enables the floor broker to execute the order at 5.10 if he feels that the market will never reach 5. Under no circumstances, however, can the order be executed at a price higher than 5.10.

Stop Order. This order is not always valid on all option exchanges. A stop order becomes a market order when the security trades at or through the price specified on the order. Buy stop orders are placed above the current market price, and sell stop orders are entered below the current market price. Such orders are used to either limit loss or protect a profit. For example, if a holder's option is selling for 3, a sell stop order for 2 is activated if the

market drops down below the 2 level, whereupon the floor broker would execute the order as soon as possible. The customer, however, is not guaranteed that the trade will be exactly at 2. It should be noted that some exchanges will consider a stop order for an option to be elected (i.e., made live) if the bid price of the option falls to the limit—not necessarily the last sale of the option. This might mean that stop orders get elected in illiquid markets when the customer didn't really intend for it to. In general, one should be cautious about using stop orders with illiquid options.

Stop-Limit Order. This order becomes a limit order when the specified price is reached. Whereas the stop order has to be executed as soon as the stop price is reached, the stop-limit may or may not be filled, depending on market behavior. For example, suppose the option is currently trading at 3, and one has a stop-limit order to sell at 2. The market starts to drop, and trades at 2. Your stop-limit order becomes a limit order to sell at 2. However, if the option never trades at 2, but continues on down—1.90, 1.85, 1.80 and so forth—you will not sell your option. It cannot be sold at a price less than 2.

Good-Until-Canceled Order. A limit, stop, or stop-limit order may be designated "good until canceled." If the conditions for the order execution do not occur, the order remains valid for 6 months without renewal by the customer.

Customers using an on-line broker will not be able to enter "market not held" orders, and may not be able to use stop orders or good-until-canceled orders either, depending on the brokerage firm.

PROFITS AND PROFIT GRAPHS

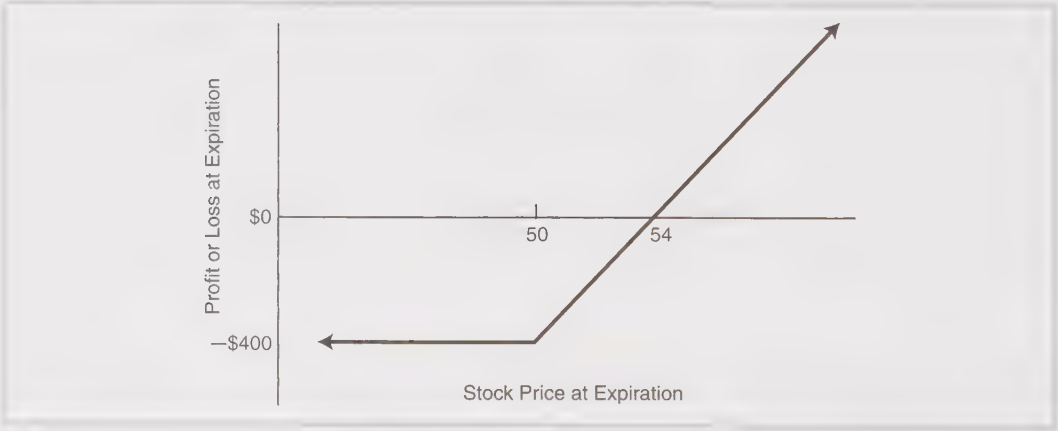
A visual presentation of the profit potential of any position is important to the over-all understanding and evaluation of it. In option trading, the many multi-security positions especially warrant strict analysis: stock versus options (as in covered or ratio writing) or options versus options (as in spreads). Some strategists prefer a table listing the outcomes of a particular strategy for the stock at various prices; others think the strategy is more clearly demonstrated by a graph. In the rest of the text, both a table and a graph will be presented for each new strategy discussed.

Example: A customer wishes to evaluate the purchase of a call option. The potential profits or losses of a purchase of an XYZ July 50 call at 4 can be arrayed in either a table or a graph of outcomes at expiration. Both Table 1-5 and Figure 1-5 depict the same information; the graph is merely the line representing the column marked "Profit or Loss" in the table. The

TABLE 1-5.
Potential profits and losses for an XYZ call purchase.

XYZ Price at Expiration	Call Price at Expiration	Profit or Loss
40	$ 0	– $ 400
45	0	– 400
50	0	– 400
55	5	+ 100
60	10	+ 600
70	20	+ 1,600

FIGURE 1-5.
Graph of potential profits for an XYZ call purchase.



vertical axis represents dollars of profit or loss, and the horizontal axis shows the stock price at expiration. In this case, the dollars of profit and the stock price are at the expiration date. Often, the strategist wants to determine what the potential profits and losses will be before expiration, rather than at the expiration date itself. Tables and graphs lend themselves well to the necessary analysis, as will be seen in detail in various places later on.

In practice, such an example is too simple to require a table or a graph—certainly not both—to evaluate the potential profits and losses of a simple call purchase held to expiration. However, as more complex strategies are discussed, these tools become ever more useful for quickly determining such things as when a position makes money and when it loses, or how fast one's risk increases at certain stock prices.

PART II

Call Option Strategies

INTRODUCTION

The average person dealing in option trading utilizes primarily one of two option strategies—call buying or covered call writing. These strategies are, at face value, simple, and they are therefore the ones most often tried. There are many more strategies involving the use of call options, many of which will be described later in this Part. However, Chapters 2 and 3 deal with the fundamental call option strategies.

Both covered call writing and call buying are relatively simple strategies, but, like any investment, they can be employed with differing levels of skill and complexity. The discussions to follow begin by describing the basics of each strategy and then discuss each in depth.

CHAPTER 2

Covered Call Writing

Covered call writing is the name given to the strategy by which one sells a call option while simultaneously owning the obligated number of shares of underlying stock. The writer should be mildly bullish, or at least neutral, toward the underlying stock. By writing a call option against stock, one always decreases the risk of owning the stock. It may even be possible to profit from a covered write if the stock declines somewhat. However, the covered call writer does limit his profit potential and therefore may not fully participate in a strong upward move in the price of the underlying stock. Use of this strategy is becoming so common that the strategist must understand it thoroughly. It is therefore discussed at length.

THE IMPORTANCE OF COVERED CALL WRITING

COVERED CALL WRITING FOR DOWNSIDE PROTECTION

Example: An investor owns 100 shares of XYZ common stock, which is currently selling at $48 per share. If this investor sells an XYZ July 50 call option while still holding his stock, he establishes a covered write. Suppose the investor receives $300 from the sale of the July 50 call. If XYZ is below 50 at July expiration, the call option that was sold expires worthless and the investor earns the $300 that he originally received for writing the call. Thus, he receives $300, or 3 points, of downside protection. That is, he can afford to have the XYZ stock drop by 3 points and still break even on the total transaction. At that time he can write another call option if he so desires.

Note that if the underlying stock should fall by more than 3 points, there will be a loss on the overall position. *Thus, the risk in the covered writing strategy materializes if the stock falls by a distance greater than the call option premium that was originally taken in.*

THE BENEFITS OF AN INCREASE IN STOCK PRICE

If XYZ increases in price moderately, the trader may be able to have the best of both worlds.

Example: If XYZ is at or just below 50 at July expiration, the call still expires worthless, and the investor makes the $300 from the option in addition to having a small profit from his stock purchase. Again, he still owns the stock.

Should XYZ increase in price by expiration to levels above 50, the covered writer has a choice of alternatives. As one alternative, he could do nothing, in which case the option would be assigned and his stock would be called away at the striking price of 50. In that case, his profits would be equal to the $300 received from selling the call plus the profit on the increase of his stock from the purchase price of 48 to the sale price of 50. In this case, however, he would no longer own the stock. If as another alternative he desires to retain his stock ownership, he can elect to buy back (or cover) the written call in the open market. This decision might involve taking a loss on the option part of the covered writing transaction, but he would have a correspondingly larger profit, albeit unrealized, from his stock purchase. Using some specific numbers, one can see how this second alternative works out.

Example: XYZ rises to a price of 60 by July expiration. The call option then sells near its intrinsic value of 10. If the investor covers the call at 10, he loses $700 on the option portion of his covered write. (Recall that he originally received $300 from the sale of the option, and now he is buying it back for $1,000.) However, he relieves the obligation to sell his stock at 50 (the striking price) by buying back the call, so he has an unrealized gain of 12 points in the stock, which was purchased at 48. His total profit, including both realized and unrealized gains, is $500.

This profit is exactly the same as he would have made if he had let his stock be called from him. If called, he would keep the $300 from the sale of the call, and he would make 2 points ($200) from buying the stock at 48 and selling it, via exercise, at 50. This profit, again, is a total of $500. The major difference between the two cases is that the investor no longer owns his stock after letting it be called away, whereas he retains stock ownership if he buys back the written call. Which of the two alternatives is the better one in a given situation is not always clear.

No matter how high the stock climbs in price, the profit from a covered write is limited because the writer has obligated himself to sell stock at the striking price. The covered writer still profits when the stock climbs, but possibly not by as much as he might have had he not written the call. On the other hand, he is receiving $300 of immediate

cash inflow, because the writer may take the premium immediately and do with it as he pleases. That income can represent a substantial increase in the income currently provided by the dividends on the underlying stock, or it can act to offset part of the loss in case the stock declines.

For readers who prefer formulae, the profit potential and break-even point of a covered write can be summarized as follows:

Maximum profit potential = Strike price – Stock price + Call price
Downside break-even point = Stock price – Call price

QUANTIFICATION OF THE COVERED WRITE

Table 2-1 and Figure 2-1 depict the *profit graph* for the example involving the XYZ covered write of the July 50 call. The table makes the assumption that the call is bought back at parity. If the stock is called away, the same total profit of $500 results; but the price involved on the stock sale is always 50, and the option profit is always $300.

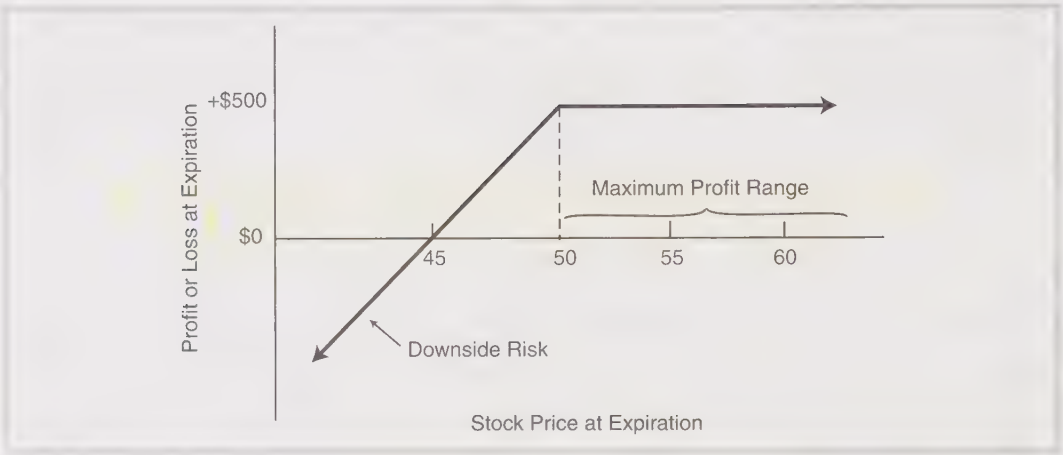
Several conclusions can be drawn. The break-even point is 45 (zero total profit) with risk below 45; the maximum profit attainable is $500 if the position is held until expiration; and the profit if the stock price is unchanged is $300, that is, the covered writer makes $300 even if his stock goes absolutely nowhere.

The profit graph for a covered write always has the shape shown in Figure 2-1. Note that the maximum profit always occurs at all stock prices equal to or greater than the striking price, if the position is held until expiration. However, there is downside risk. If the stock declines in price by too great an amount, the option premium cannot possibly compensate for the entire loss. Downside protective strategies, which are discussed later, attempt to deal with the limitation of this downside risk.

TABLE 2-1.
The XYZ July 50 call.

XYZ Price at Expiration	Stock Profit	July 50 Call at Expiration	Call Profit	Total Profit
40	–$ 800	0	+$300	–$500
45	– 300	0	+ 300	0
48	– 0	0	+ 300	+ 300
50	+ 200	0	+ 300	+ 500
55	+ 700	5	– 200	+ 500
60	+ 1,200	10	– 700	+ 500

FIGURE 2-1.
XYZ covered write.



COVERED WRITING PHILOSOPHY

The primary objective of covered writing, for most investors, is increased income through stock ownership. An ever-increasing number of private and institutional investors are writing call options against the stocks that they own. The facts that the option premium acts as a partial compensation for a decline in price by the underlying stock, and that the premium represents an increase in income to the stockholder, are evident. *The strategy of owning the stock and writing the call will outperform outright stock ownership if the stock falls, remains the same, or even rises slightly.* In fact, the only time that the outright owner of the stock will outperform a covered writer is if the stock increases in price by a relatively substantial amount during the life of the call. Moreover, if one consistently writes call options against his stock, *his portfolio will show less variability of results from quarter to quarter.* The total position—long stock and short option—has less volatility than the stock alone, so on a quarter-by-quarter basis, results will be closer to average than they would be with normal stock ownership. This is an attractive feature, especially for portfolio managers.

However, one should not assume that covered writing will outperform stock ownership. Stocks sometimes tend to make most of their gains in large spurts. A covered writer will not participate in moves such as that. The long-term gains that are quoted for holding stocks include periods of large gains and sometimes periods of large losses as well. The covered writer will not participate in the largest of those gains, since his profit potential is limited.

PHYSICAL LOCATION OF THE STOCK

Before getting more involved in the details of covered writing strategy, it may be useful to review exactly what stock holdings may be written against. Recall that this discussion applies to listed options. If one has deposited stock with his broker in either a cash or a margin account, he may write an option for each 100 shares that he owns without any additional requirement. However, it is possible to write covered options without actually depositing stock with a brokerage firm. There are several ways in which to do this, all involving the deposit of stock with a bank.

Once the stock is deposited with the bank, the investor may have the bank issue an escrow receipt or letter of guarantee to the brokerage firm at which the investor does his option business. The bank must be an "approved" bank in order for the brokerage firm to accept a *letter of guarantee*, and not all firms accept letters of guarantee. These items cost money, and as a new receipt or letter is required for each new option written, the costs may become prohibitive to the customer if only 100 or 200 shares of stock are involved.

There is another alternative open to the customer who wishes to write options without depositing his stock at the brokerage firm. He may deposit his stock with a bank that is a member of the *Depository Trust Corporation* (DTC). The DTC guarantees the Options Clearing Corporation that it will, in fact, deliver stock should an assignment notice be given to the call writer. This is the most convenient method for the investor to use, and is the one used by most of the institutional covered writing investors. There is usually no additional charge for this service by the bank to institutional accounts. However, since only a limited number of banks are members of DTC, and these banks are generally the larger banks located in metropolitan centers, it may be somewhat difficult for many individual investors to take advantage of the DTC opportunity.

TYPES OF COVERED WRITES

While all covered writes involve selling a call against stock that is owned, different terms are used to describe various categories of covered writing. The two broadest terms, under which all covered writes can be classified, are the *out-of-the-money covered write* and the *in-the-money covered write*. These refer, obviously, to whether the option itself was in-the-money or out-of-the-money when the write was first established. Sometimes one may see covered writes classified by the nature of the stock involved (low-priced covered write, high-yield covered write, etc.), but these are only subcases of the two broad categories.

In general, out-of-the-money covered writes offer higher potential rewards but have less risk protection than do in-the-money covered writes. One can establish an aggressive or defensive covered writing position, depending on how far the call option is in- or

out-of-the-money when the write is established. In-the-money writes are more defensive covered writing positions.

Some examples may help to illustrate how one covered write can be considerably more conservative, from a strategy viewpoint, than another.

Example: XYZ common stock is selling at 45 and two options are being considered for writing: an XYZ July 40 selling for 8, and an XYZ July 50 selling for 1. Table 2-2 depicts the profitability of utilizing the July 40 or the July 50 for the covered writing. The in-the-money covered write of the July 40 affords 8 points, or nearly 18% protection down to price of 37 (the break-even point) at expiration. The out-of-the-money covered write of the July 50 offers only 1 point of downside protection at expiration. Hence, the *in-the-money covered write offers greater downside protection than does the out-of-the-money covered write.* This statement is true in general—not merely for this example.

In the balance of the financial world, it is normally true that investment positions offering less risk also have lower reward potential. The covered writing example just given is no exception. The in-the-money covered write of the July 40 has a maximum potential profit of $300 at any point above 40 at the time of expiration. However, the out-of-the-money covered write of the July 50 has a maximum potential profit of $600 at any point above 50 at expiration. *The maximum potential profit of an out-of-the-money covered write is generally greater than that of an in-the-money write.*

To make a true comparison between the two covered writes, one must look at what happens with the stock between 40 and 50 at expiration. The in-the-money write attains

TABLE 2-2.
Profit or loss of the July 40 and July 50 calls.

In-the-Money Write of July 40		Out-of-the-Money Write of July 50	
Stock at Expiration	Total Profit	Stock at Expiration	Total Profit
35	–$200	35	–$900
37	0	40	– 400
40	+ 300	44	0
45	+ 300	45	+ 100
50	+ 300	50	+ 600
60	+ 300	60	+ 600

its maximum profit anywhere within that range. Even a 5-point decline by the underlying stock at expiration would still leave the in-the-money writer with his maximum profit. However, *realizing the maximum profit potential with an out-of-the-money covered write always requires a rise in price by the underlying stock.* This further illustrates the more conservative nature of the in-the-money write. It should be noted that in-the-money writes, although having a smaller profit potential, can still be attractive on a percentage return basis, especially if the write is done in a margin account.

One can construct a more aggressive position by writing an out-of-the-money call. One's outlook for the underlying stock should be bullish in that case. If one is neutral or moderately bearish on the stock, an in-the-money covered write is more appropriate. If one is truly bearish on a stock he owns, he should sell the stock instead of establishing a covered write.

THE TOTAL RETURN CONCEPT OF COVERED WRITING

When one writes an out-of-the-money option, the overall position tends to reflect more of the result of the stock price movement and less of the benefits of writing the call. Since the premium on an out-of-the-money call is relatively small, the total position will be quite susceptible to loss if the stock declines. If the stock rises, the position will make money regardless of the result in the option at expiration. On the other hand, an in-the-money write is more of a "total" position—taking advantage of the benefit of the relatively large option premium. If the stock declines, the position can still make a profit; in fact, it can even make the maximum profit. Of course, an in-the-money write will also make money if the stock rises in price, but the profit is not generally as great in percentage terms as is that of an out-of-the-money write.

Those who believe in the *total return concept of covered writing* consider both downside protection and maximum potential return as important factors and are willing to have the stock called away, if necessary, to meet their objectives. When premiums are moderate or small, only in-the-money writes satisfy the total return philosophy.

Some covered writers prefer never to lose their stock through exercise, and as a result will often write options quite far out-of-the-money to minimize the chances of being called by expiration. These writers receive little downside protection and, to make money, must depend almost entirely on the results of the stock itself. Such a philosophy is more like being a stockholder and trading options against one's stock position than actually operating a covered writing strategy. In fact, some covered writers will attempt to buy back written options for quick profits if such profits materialize during the life of the covered write. This, too, is a stock ownership philosophy, not a covered writing strategy.

The total return concept represents the true strategy in covered writing, whereby one views the entire position as a single entity and is not predominantly concerned with the results of his stock ownership.

THE CONSERVATIVE COVERED WRITE

Covered writing is generally accepted to be a conservative strategy. This is because the covered writer always has less risk than a stockholder, provided that he holds the covered write until expiration of the written call. If the underlying stock declines, the covered writer will always offset part of his loss by the amount of the option premium received, no matter how small.

As was demonstrated in previous sections, however, some covered writes are clearly more conservative than others. Not all option writers agree on what is meant by a conservative covered write. Some believe that it involves writing an option (probably out-of-the-money) on a conservative stock, generally one with high yield and low volatility. It is true that the stock itself in such a position is conservative, but the position is more aptly termed a *covered write on a conservative stock*. This is distinctly different from a conservative covered write.

A true *conservative covered write* is one in which the total position is conservative—offering reduced risk and a good probability of making a profit. An in-the-money write, even on a stock that itself is not conservative, can become a conservative total position when the option itself is properly chosen. Clearly, an investor cannot write calls that are too deeply in-the-money. If he did, he would get large amounts of downside protection, but his returns would be severely limited. If all that one desired was maximum protection of his money at a nominal rate of profit, he could leave the money in a bank. Instead, the conservative covered writer strives to make a potentially acceptable return while still receiving an above-average amount of protection.

Example: Again assume XYZ common stock is selling at 45 and an XYZ July 40 call is selling at 8. A covered write of the XYZ July 40 would require, in a cash account, an investment of $3,700—$4,500 to purchase 100 shares of XYZ, less the $800 received in option premiums. The write has a maximum profit potential of $300. The potential return from this position is therefore $300/$3,700, just over 8% for the period during which the write must be held. Since it is most likely that the option has 9 months of life or less, this return would be well in excess of 10% on a per annum basis. If the write were done in a margin account, the return would be considerably higher.

Note that we have ignored dividends paid by the underlying stock and commission charges, factors that are discussed in detail in the next section. Also, one should be aware that if he is looking at an *annualized return* from a covered write, there is no guarantee

that such a return could actually be obtained. All that is certain is that the writer could make 8% in 9 months. There is no guarantee that 9 months from now, when the call expires, there will be an equivalent position to establish that will extend the same return for the remainder of the annualization period. Annual returns should be used only for comparative purposes between covered writes.

The writer has a position that has an annualized return (for comparative purposes) of over 10% and 8 points of downside protection. Thus, the *total position* is an investment that will not lose money unless XYZ common stock falls by more than 8 points, or about 18%; and is an investment that could return the equivalent of 10% annually should XYZ common stock rise, remain the same, or fall by 5 points (to 40). This is a conservative position. Even if XYZ itself is not a conservative stock, the action of writing this option has made the *total position* a conservative one. The only factor that might detract from the conservative nature of the total position would be if XYZ were so volatile that it could easily fall more than 8 points in 9 months.

In a strategic sense, the total position described above is better and more conservative than one in which a writer buys a conservative stock—yielding perhaps 6 or 7%—and writes an out-of-the-money call for a minimal premium. If this conservative stock were to fall in price, the writer would be in danger of being in a loss situation, because here the option is not providing anything more than the most minimal downside protection. As was described earlier, a high-yielding, low-volatility stock will not have much time premium in its in-the-money options, so that one cannot effectively establish an in-the-money write on such a "conservative" stock.

COMPUTING RETURN ON INVESTMENT

Now that the reader has some general feeling for covered call writing, it is time to discuss the specifics of computing return on investment. One should always know exactly what his potential returns are, including all costs, when he establishes a covered writing position. Commission rates are highly variable, depending on whether one uses a discount, electronic broker or not. In the examples that follow, it will be arbitrarily assumed that commissions are 3 cents per share for stock and $5 for an option contract. Individuals should use their own commission rates when actually calculating returns. Once the procedure for computing returns is clear, one can more logically decide which covered writes are the most attractive.

There are three basic elements of a covered write that should be computed before entering into the position. The first is the *return if exercised*. This is the return on investment that one would achieve if the stock were called away. For an out-of-the-money covered write, it is necessary for the stock to rise in price in order for the return if exercised

to be achieved. However, for an in-the-money covered write, the return if exercised would be attained even if the stock were unchanged in price at option expiration. Thus, it is often advantageous to compute the *return if unchanged*—that is, the return that would be realized if the underlying stock were unchanged when the option expired. One can more fairly compare out-of-the-money and in-the-money covered writes by using the return if unchanged, since no assumption is made concerning stock price movement. The third important statistic that the covered writer should consider is the exact *downside break-even point* after all costs are included. Once this downside break-even point is known, one can readily compute the percentage of *downside protection* that he would receive from selling the call.

Example 1: An investor is considering the following covered write of a 6-month call: Buy 500 XYZ common at 43, sell 5 XYZ July 45 calls at 3. One must first compute the net investment required (Table 2-3). In a cash account, this investment consists of paying for the stock in full, less the net proceeds from the sale of the options. Note that this net investment figure includes all commissions necessary to establish the position. (The commissions used here are approximations, as they vary from firm to firm.) Of course, if the investor withdraws the option premium, as he is free to do, his net investment will consist of the stock cost plus commissions. Once the necessary investment is known, the writer can compute the return if exercised. Table 2-4 illustrates the computation. One first computes the profit if exercised and then divides that quantity by the net investment to obtain the return if exercised. Note that dividends are included in this computation; it is assumed that XYZ stock will pay $500 in dividends on the 500 shares during the life of the call. Moreover, all commissions are included as well—the net investment includes the original stock purchase and option sale commissions, and the stock sale commission is explicitly listed.

For the return computed here to be realized, XYZ stock would have to rise in price from its current price of 43 to any price above 45 by expiration. As noted earlier, it may be more useful to know what return could be made by the writer if the stock did not move anywhere at all. Table 2-5 illustrates the method of computing the *return if unchanged*—also called the *static return* and sometimes *incorrectly* referred to as the "expected return." Again, one first calculates the profit and then calculates the return by dividing the profit by the net investment. An important point should be made here: There is no stock sale commission included in Table 2-5. This is the most common way of calculating the return if unchanged; it is done this way because in a majority of cases, one would continue to hold the stock if it were unchanged and would write another call option against the same stock. Recall again, though, that *if the written call is in-the-money, the return if unchanged is the same as the return if exercised.* Stock sale commissions must therefore be included in that case.

TABLE 2-3.
Net investment required—cash account.

Stock cost (500 shares at 43)		$21,500
Plus stock purchase commissions	+	15
Less option premiums received	–	1,500
Plus option sale commissions	+	25
Net cash investment		$20,040

TABLE 2-4.
Return if exercised—cash account.

Stock sale proceeds (500 shares at 45)		$22,500
Less stock sale commissions	–	15
Plus dividends earned until expiration	+	500
Less net investment	–	20,040
Net profit if exercised		$ 2,945

$$\text{Return if exercised} = \frac{\$2,945}{\$20,040} = 14.7\%$$

TABLE 2-5.
Return if unchanged—cash account.

Unchanged stock value (500 shares at 43)		$21,500
Plus dividends	+	500
Less net investment	–	20,040
Profit if unchanged		$ 1,960

$$\text{Return if unchanged} = \frac{\$1,960}{\$20,040} = 9.8\%$$

Once the necessary returns have been computed and the writer has a feeling for how much money he could make in the covered write, he next computes the exact *downside break-even point* to determine what kind of *downside protection* the written call provides (Table 2-6). The total return concept of covered writing necessitates viewing both potential income *and* downside protection as important criteria for selecting a writing position. If the stock were held to expiration and the $500 in dividends received, the writer would break even at a price of 39.08. Again, a stock sale commission is not generally included in the break-even point computation, because the written call would expire totally worthless

TABLE 2-6.
Downside break-even point—cash account.

Net investment	$20,040
Less dividends	– 500
Total stock cost to expiration	$19,540
Divide by shares held	÷ 500
Break-even price	39.08

and the writer might then write another call on the same stock. Later, we discuss the subject of continuing to write against stocks already owned. It will be seen that in many cases, it is advantageous to continue to hold a stock and write against it again, rather than to sell it and establish a covered write in a new stock.

Next, we translate the break-even price into *percent downside protection* (Table 2-7), which is a convenient way of comparing the levels of downside protection among variously priced stocks. We will see later that it is actually better to compare the downside protection with the *volatility* of the underlying stock. It makes no sense to quote percent protection without knowing the volatility of the underlying stock. For example, 10% protection on AT&T is quite a bit more protection than the same percentage on a much more volatile stock, like Google, say, because Google is much more volatile than AT&T. The formula for computing protection in terms of volatility is in Chapter 28 (Mathematical Applications).

Before moving on to discuss what kinds of returns one should attempt to strive for in which situations, the same example will be worked through again for a covered write in a margin account. The use of margin will provide higher potential returns, since the net investment will be smaller. However, the margin interest charge incurred on the debit balance (the amount of money borrowed from the brokerage firm) will cause the break-even point to be higher, thus slightly reducing the amount of downside protection available from writing the call. Again, all commissions to establish the position are included in the net investment computation.

TABLE 2-7
Percent downside protection—cash account.

Initial stock price	43
Less break-even price	– 39.08
Points of protection	3.92
Divide by original stock price	÷ 43
Equals percent downside protection	9.1%

Example 2: Recall that the net investment for the cash write was $20,040. A margin covered write requires less than half of the investment of a cash write when the margin rate (set by the Federal Reserve) is 50%. In a margin account, if one desires to remove the premium from the account, he may do so immediately provided that he has enough reserve equity in the account to cover the purchase of the stock. If he does so, his net investment would be equal to the debit balance calculation shown on the right in Table 2-8.

TABLE 2-8.
Net investment required—margin account.

Stock cost	$21,500		
Plus stock commissions	+ 15	Debit balance calculation:	
Net stock cost	$21,515	Net stock cost	$21,515
Times margin rate	× 50%	Less equity	− 10,758
Equity required	$10,758	Debit balance	$10,757
Less premiums received	− 1,500	(at 50% margin)	
Plus option commissions	+ 25		
Net margin investment	$ 9,283		

Tables 2-9 to 2-12 illustrate the computation of returns from writing on margin. If one has already computed the cash returns, he can use method 2 most easily. Method 1 involves no prior profit calculations.

TABLE 2-9.
Return if exercised—margin account.

Method 1		Method 2	
Stock sale proceeds	$22,500	Net profit if exercised—cash	$2,945
Less stock commission	− 15	Less margin interest charges	− 538
Plus dividends	+ 500	Net profit if exercised—margin	$2,407
Less margin interest charges (10% on $10,758 for 6 months)	− 538		
Less debit balance	− 10,757		
Less net margin investment	− 9,283		
Net profit—margin	$ 2,407		

$$\text{Return if exercised} = \frac{\$2,407}{\$9,283} = 25.9\%$$

TABLE 2-10.
Return if unchanged—margin account.

Method 1		Method 2	
Unchanged stock value (500 shares at 43)	$21,500	Profit if unchanged—cash	$1,960
Plus dividends	+ 500	Less margin interest charges	− 538
Less margin interest charges (10% on $10,910 debit for 6 months)	− 538	Net profit if unchanged—margin	$1,422
Less debit balance	− 10,757		
Less net investment (margin)	− 9,283		
Net profit if unchanged—margin	$ 1,422		

$$\text{Return if unchanged} = \frac{\$1,422}{\$9,283} = 15.3\%$$

TABLE 2-11.
Break-even point—margin write.

Net margin investment	$ 9,283
Plus debit balance	+ 10,757
Less dividends	− 500
Plus margin interest charges	+ 538
Total stock cost to expiration	$20,078
Divide by shares held	÷ 500
Break-even point—margin	40.16

The return if exercised is 25.6% for the covered write using margin. In Example 1 the return if exercised for a cash write was computed as 14.7%. Thus, the return if exercised from a margin write is considerably higher. In fact, unless a fairly deep in-the-money write is being considered, the return on margin will always be higher than the return from cash. The farther out-of-the-money that the written call is, the bigger the discrepancy between cash and margin returns will be when the return if exercised is computed.

TABLE 2-12.
Percent downside protection—margin write.1

Initial stock price	43
Less break-even price—margin	− 40.16
Points of protection	2.84
Divide by original stock price	÷ 43
Equals percent downside protection—margin	6.6%

As with the computation for return if exercised for a write on margin, the return if unchanged calculation is similar for cash and margin also. The only difference is the subtraction of the margin interest charges from the profit. The return if unchanged is also higher for a margin write, provided that there is enough option premium to compensate for the margin interest charges. The return if unchanged in the cash example was 9.8% versus 15.3% for the margin write. In general, the father from the strike in either direction—out-of-the-money or in-the-money—the less the return if unchanged on margin will exceed the cash return if unchanged. In fact, for deeply out-of-the-money or deeply in-the-money calls, the return if unchanged will be higher on cash than on margin. Table 2-11 shows that the break-even point on margin, 40.16, is higher than the break-even point from a cash write, 39.08, because of the margin interest charges. Again, the percent downside protection can be computed as shown in Table 2-12. Obviously, since the break-even point on margin is higher than that on cash, there is less percent downside protection in a margin covered write.

One other point should be made regarding a covered write on margin: The brokerage firm will loan you only *half of the strike price amount* as a maximum. Thus, it is *not* possible, for example, to buy a stock at 20, sell a deeply in-the-money call struck at 10 points, and trade for free. In that case, the brokerage firm would loan you only 5—half the amount of the strike.

Even so, it is still possible to create a covered call write on margin that has little or even *zero* margin requirement. For example, suppose a stock is selling at 38 and that a long-term LEAPS option struck at 40 is selling for 19. Then the margin requirement is zero! This does not mean you're getting something for free, however. True, your investment is zero, but your *risk* is still 19 points. Also, your broker would ask for some sort of minimum margin to begin with and would of course ask for maintenance margin if the underlying stock should fall in price. Moreover, you would be paying margin interest all during the life of this long-term LEAPS option position. Leverage can be a good thing or a bad thing, and this strategy has a great deal of leverage. So be careful if you utilize it.

COMPOUND INTEREST

The astute reader will have noticed that our computations of margin interest have been overly simplistic; the compounding effect of interest rates has been ignored. That is, since interest charges are normally applied to an account monthly, the investor will be paying interest in the later stages of a covered writing position not only on the original debit, but on all previous monthly interest charges. This effect is described in detail in a later chapter on arbitrage techniques. Briefly stated, rather than computing the interest charge as the debit times the interest rate multiplied by the time to expiration, one should technically use:

$$\text{Margin interest charges} = \text{Debit } [(1 + r)^t - 1]$$

where r is the interest rate per month and t the number of months to expiration. (It would be incorrect to use days to expiration, since brokerage firms compute interest monthly, not daily.)

In Example 2 of the preceding section, the debit was $10,757, the time was 6 months, and the annual interest rate was 10%. Using this more complex formula, the margin interest charges would be $549, as opposed to the $538 charge computed with the simpler formula. Thus, the difference is usually small, in terms of percentage, and *it is therefore common practice to use the simpler method.*

SIZE OF THE POSITION

If one is trading at a firm that does not have a minimum fixed commission cost (i.e., where the per-share cost is the same, no matter how few shares are bought), then the number of shares in the covered write is irrelevant to the returns. However, most brokers charge a minimum commission, even the deep-discount electronic ones. Furthermore a full service broker often charges a lower per-share commission rate for larger trades (and, by inference, a higher per-share commission rate for smaller trades).

The covered writer should keep this in mind, for a lower per-share commission cost results in higher returns, of course. Even traders using deep discount brokers should make certain that they are establishing the covered write with enough shares so that the broker's minimum commission charge is exceeded. Buying too few shares for covered writing purposes can lower returns considerably, if the minimum commission charge comes into play.

WHAT A DIFFERENCE A DIME MAKES

Another aspect of covered writing that can be important as far as potential returns are concerned is, of course, the prices of the stock and option involved in the write. It may

seem insignificant that one has to pay an extra few cents for the stock or possibly receives a dime or 20 cents less for the call, but even a relatively small fraction can alter the potential returns by a surprising amount. This is especially true for in-the-money writes, although any write will be affected. Let us use the previous 500-share covered writing example, again including all costs.

As before, the results are more dramatic for the margin write than for the cash write. In neither case does the break-even point change by much. However, the potential returns are altered significantly. Notice that if one pays an extra dime for the stock and receives a dime less for the call—the far right-hand column in Table 2.13—he may greatly negate the effect of writing against a large number of shares. From Table 2.13, one can see that writting against 300 shares at those prices (43 for the stock and 3 for the call) is approximately the same return as writing against *500 shares* if the stock costs 43.10 and the option brings in 2.90.

Table 2.13 should clearly demonstrate that entering a covered writing order *at the market* may not be a prudent thing to do, especially if one's calculations for the potential returns are based on last sales or on closing prices in the newspaper. In the next section, we discuss in depth the proper procedure for entering a covered writing order.

TABLE 2.13.
Effect of stock and option prices on writing returns.

	Buy Stock at 43 Sell Call at 3	Buy Stock at 43.10 Sell Call at 3	Buy Stock at 43.10 Sell Call at 2.90
Return if exercised	14.7% cash	14.4% cash	14.1% cash
	25.9% margin	25.3% margin	24.6% margin
Return if unchanged	9.8% cash	9.8% cash	9.5% cash
	15.3% margin	15.3% margin	14.7% margin
Break-even point	39.08 cash	39.18 cash	39.28 cash
	40.16 margin	40.26 margin	40.36 margin

EXECUTION OF THE COVERED WRITE ORDER

When establishing a covered writing position, the question often arises: Which should be done first—buy the stock or sell the option? The correct answer is that neither should be done first! In fact, *a simultaneous transaction of buying the stock and selling the option is the only way of assuring that both sides of the covered write are established at desired price levels.*

If one "legs" into the position—that is, buys the stock first and then attempts to sell the option, or vice versa—he is subjecting himself to a risk.

Example: An investor wants to buy XYZ at 43 and sell the July 45 call at 3. If he first sells the option at 3 and then tries to buy the stock, he may find that he has to pay more than 43 for the stock. On the other hand, if he tries to buy the stock first and *then* sell the option, he may find that the option price has moved down. In either case the writer will be accepting a lower return on his covered write. Table 2.13 demonstrated how one's returns might be affected if he has to give up a dime by "legging" into the position.

ESTABLISHING A NET POSITION

What the covered writer really wants to do is ensure that his net price is obtained. If he wants to buy stock at 43 and sell an option at 3, he is attempting to establish the position at 40 *net*. He normally would not mind paying 43.10 for the stock if he can sell the call at 3.10, thereby still obtaining 40 net.

A *"net" covered writing order* must be placed either directly with a brokerage firm's option desk or through the "spread order entry," if dealing with an online broker. If you are planning on doing a lot of covered writing, make sure your brokerage firm offers the placement of "net" orders—either online or directly through an order desk. This is also referred to as a contingent order. Most major brokerage firms offer this service to their clients, although some place a minimum number of shares on the order. That is, one must write against at least 500 or 1,000 shares in order to avail himself of the service. There are, however, brokerage firms that will take net orders even for 100-share covered writes. Since the chances of giving away a dime are relatively great if one attempts to execute his own order by placing separate orders on two exchanges—stock and option—he should avail himself of the broker's service. Moreover, if his orders are for a small number of shares, he should deal with a broker who will take net orders for small positions.

The reader must understand that *there is no guarantee that a net order will be filled.* The net order is always a "not held" order, meaning that the customer is not guaranteed an execution even if it appears that the order could be filled at prevailing market bids and offers. Of course, the broker will attempt to fill the order if it can reasonably be accomplished, since that is his livelihood.

If one buys stock at 43 and sells the call at 3, is the return really the same as buying the stock at 43.10 and selling the call at 3.10? The answer is, yes, the returns are very similar when the prices differ by small amounts. This can be seen without the use of a table. If one pays a dime more for the stock, his investment increases by $10 per 100 shares, or $50 total on a 500-share transaction. However, the fact that he has received an extra dime for the call means that the investment is reduced by $50. Thus, there is no effect on the net investment except for commissions. The commission on 500 shares at 43.10 may be slightly higher than the commission for 500 shares at 43. Similarly, the commission on 5 calls at 3.10 may be slightly higher than that on 5 calls at 3. Even so, the

increase in commissions would be so small that it would not affect the return by more than one-tenth of 1%.

To carry this concept to extremes may prove somewhat misleading. If one were to buy stock at 40.50 and sell the call at .50, he would still be receiving 40 net, but several aspects would have changed considerably. The return if exercised remains amazingly constant, but the return if unchanged and the percentage downside protection are reduced dramatically. If one were to buy stock at 48 and sell the call at 8—again for 40 net—he would improve the return if unchanged and the percentage downside protection. In reality, when one places a "net" order with a brokerage firm, he normally gets an execution with prices quite close to the ones at the time the order was first entered. It would be a rare case, indeed, when either upside or downside extremes such as those mentioned here would occur in the same trading day.

SELECTING A COVERED WRITING POSITION

The preceding sections, in describing types of covered writes and how to compute returns and break-even points, have laid the groundwork for the ultimate decision that every covered writer must make: choosing which stock to buy and which option to write. This is not necessarily an easy task, because there are large numbers of stocks, striking prices, and expiration dates to choose from.

Since the primary objective of covered writing for most investors is increased income through stock ownership, the return on investment is an important consideration in determining which write to choose. However, the decision must not be made on the basis of return alone. More volatile stocks will offer higher returns, but they may also involve more risk because of their ability to fall in price quickly. Thus, the amount of downside protection is the other important objective of covered writing. Finally, the quality and technical or fundamental outlook of the underlying stock itself are of importance as well. The following section will help to quantify how these factors should be viewed by the covered writer.

PROJECTED RETURNS

The return that one strives for is somewhat a matter of personal preference. In general, *the annualized return if unchanged should be used as the comparative measure between various covered writes.* In using this return as the measuring criterion, one does not make any assumptions about the stock moving up in price in order to attain the potential return. A general rule used in deciding what is a minimally acceptable return is to consider a covered writing position only when the return if unchanged is at least 1% per month. That is, a 3-month write would have to offer a return of at least 3% and a 6-month

write would have to have a return if unchanged of at least 6%. During periods of expanded option premiums, there may be so many writes that satisfy this criterion that one would want to raise his sights somewhat, say to 1½% or 2% per month. Also, one must feel personally comfortable that his minimum return criterion—whether it be 1% per month or 2% per month—is large enough to compensate for the risks he is taking. That is, the downside risk of owning stock, should it fall far enough to outdistance the premium received, should be adequately compensated for by the potential return. It should be pointed out that 1% per month is not a return to be taken lightly, especially if there is a reasonable assurance that it can be attained. However, if less risky investments, such as bonds, were yielding 12% annually, the covered writer must set his sights higher.

Normally, the returns from various covered writing situations are compared by annualizing the returns. One should not, however, be deluded into believing that he can always attain the projected annual return. A 6-month write that offers a 6% return annualizes to 12%. But if one establishes such a position, all that he can achieve is 6% in 6 months. One does not really know for sure that 6 months from now there will be another position available that will provide 6% over the next 6 months.

The deeper that the written option is in-the-money, the higher the probability that the return if unchanged will actually be attained. In an in-the-money situation, recall that the return if unchanged is the same as the return if exercised. Both would be attained unless the stock fell below the striking price by expiration. Thus, for an in-the-money write, the projected return is attained if the stock rises, remains unchanged, or even falls slightly by the time the option expires. Higher potential returns are available for out-of-the-money writes if the stock rises. However, should the stock remain the same or decline in price, the out-of-the-money write will generally underperform the in-the-money write. This is why the return if unchanged is a good comparison.

DOWNSIDE PROTECTION

Downside protection is more difficult to quantify than projected returns are. As mentioned earlier, the percentage of downside protection is often used as a measure. This is somewhat misleading, however, since the more volatile stocks will always offer a large percentage of downside protection (their premiums are higher). The difficulty arises in trying to decide if 10% protection on a volatile stock is better than or worse than, say, 6% protection on a less volatile stock. There are mathematical ways to quantify this, but because of the relatively advanced nature of the computations involved, they are not discussed until later in the text, in Chapter 28 on mathematical applications.

Rather than go into involved mathematical calculations, many covered writers use the percentage of downside protection and will only consider writes that offer a certain minimum level of protection, say 10%. Although this is not exact, it does strive to ensure

that one has minimal downside protection in a covered write, as well as an acceptable return. A standard figure that is often used is the 10% level of protection. Alternatively, one may also require that the write be a certain percent in-the-money, say 5%. This is just another way of arriving at the same concept.

THE IMPORTANCE OF STRATEGY

In a conservative option writing strategy, one should be looking for minimum returns if unchanged of 1% per month, with downside protection of at least 10%, as general guidelines. Employing such criteria automatically forces one to write in-the-money options in line with the total return concept. The overall position constructed by using such guidelines as these will be a relatively conservative position—regardless of the volatility of the underlying stock—since the levels of protection will be large but a reasonable return can still be attained. There is a danger, however, in using fixed guidelines, because market conditions change. In the early days of listed options, premiums were so large that virtually every at- or in-the-money covered write satisfied the foregoing criteria. However, now one should work with a ranked list of covered writing positions, or perhaps two lists. A daily computer ranking of either or both of the following categories would help establish the most attractive types of conservative covered writes. One list would rank, by annualized return, the writes that afford, as a minimum, the desired downside protection level, say 10%. The other list would rank, by percentage downside protection, all the writes that meet at least the minimum acceptable return if unchanged, say 12%. If premium levels shrink and the lists become quite small on a daily basis, one might consider expanding the criteria to view more potential situations. On the other hand, if premiums expand dramatically, one might consider using more restrictive criteria, to reduce the number of potential writing candidates.

A different group of covered writers may favor a more aggressive strategy of out-of-the-money writes. *There is some mathematical basis to believe, in the long run, that moderately out-of-the-money covered writes will perform better than in-the-money writes.* In falling or static markets, any covered writer, even the more aggressive one, will outperform the stockowner who does not write calls. The out-of-the-money covered writer has more risk in such a market than the in-the-money writer does. But in a rising market, the out-of-the-money covered writer will not limit his returns as much as the in-the-money writer will. As stated earlier, the out-of-the-money writer's performance will more closely follow the performance of the underlying stock; that is, it will be more volatile on a quarter-by-quarter basis.

There is merit in either philosophy. The in-the-money writes appeal to those investors looking to earn a relatively consistent, moderate rate of return. This is the *total return concept*. These investors are generally concerned with preservation of capital, thus striving

for the greater levels of downside protection available from in-the-money writes. On the other hand, some investors prefer to strive for higher potential returns through writing out-of-the-money calls. These more aggressive investors are willing to accept more downside risk in their covered writing positions in exchange for the possibility of higher returns should the underlying stock rise in price. These investors often rely on a bullish research opinion on a stock in order to select out-of-the-money writes.

Although the type of covered writing strategy pursued is a matter of personal philosophy, it would seem that the benefits of in-the-money strategy—more consistent returns and lessened risk than stock ownership will normally provide—would lead the portfolio manager or less aggressive investor toward this strategy. If the investor is interested in achieving higher returns, some of the strategies to be presented later in the book may be able to provide higher returns with less risk than can out-of-the-money covered writing.

The final important consideration in selecting a covered write is the underlying stock itself. One does not necessarily have to be bullish on the underlying stock to take a covered writing position. As long as one does not foresee a potential decline in the underlying stock, he can feel free to establish the covered writing position. It is generally best if one is neutral or slightly bullish on the underlying stock. *If one is bearish, he should not take a covered writing position on that stock*, regardless of the levels of protection that can be obtained. An even broader statement is that one should not establish a covered write on a stock that he does not want to own. Some individual investors may have qualms about buying stock they feel is too volatile for them. Impartially, if the return and protection are adequate, the characteristics of the total position are different from those of the underlying stock. However, it is still true that one should not invest in positions that he considers too risky for his portfolio, nor should one establish a covered write just because he likes a particular stock. If the potential return is unchanged or levels of downside protection do not meet one's criteria, the write should not be established.

The covered writing *strategist* strives for a balance between acceptable returns and downside protection. He rejects situations that do not meet his criteria in either category and rejects stocks on which he is bearish. The resulting situations will probably fulfill the objectives of a conservative covered writing program: increased income, protection, and less variability of results on a less volatile investment portfolio.

WRITING AGAINST STOCK ALREADY OWNED

Establishing covered writing positions against stock that has previously been purchased involves other factors. It is often the case that an investor owns stock that has listed options trading, but feels that the returns from writing are too low in comparison to other covered writes that simultaneously exist in the marketplace. This opinion may be valid,

but often arises from the fact that the investor has seen a computer-generated list showing returns on his stock as being low in comparison to similarly priced stocks. One should note that such lists generally assume that stock is bought in order to establish the covered write; the returns are usually not computed and published for writing against stock already held. It may be the case that the commission costs for selling one stock and investing in another may alter the returns so substantially that one would be better off to write against the shares of stock initially held.

Example: An investor owns XYZ stock and is comparing it against AAA stock for writing purposes. If AAA is more volatile than XYZ, the current prices might appear as follows:

Stock	Oct 50 Call
XYZ: 50	4
AAA: 50	6

Without going into as much detail, the other significant aspects of these two writes are:

	XYZ	AAA
Return if exercised—margin	9.7%	13.4%
Downside break-even point—cash	45.58	44.08
Downside break-even point—margin	46.83	45.33

Seeing these calculations, the XYZ stockholder may feel that it is not advisable to write against his stock, or he may even be tempted to sell XYZ and buy AAA in order to establish a covered write. Either of these actions could be a mistake.

When commission costs were higher, in the early years of listed option trading, one would be reluctant to switch out of a stock that he already owned to achieve larger returns in a stock that he didn't own, for there would be rather onerous stock commissions on both the buy and the sell. In fact, if the reader is paying a rather large commission rate, then he should carefully assess the returns from the two writes. He should calculate returns on the XYZ stock as if no commission were paid upon entry and compare *those* with the returns on AAA stock. For most investors, though, commissions are rather low today, so there isn't much of an impediment to switch from XYZ to AAA in that regard.

However, commissions are not the only consideration. Each investor must decide for himself whether it is worth the increase in return to switch to AAA, because he would be switching to a more volatile stock that doesn't pay a dividend. Yes, the covered writing static returns might justify it, but a volatility-based calculation of the risk would be necessary to make the final decision.

This same logic might apply in situations where an investor has been doing covered writing. If he owns stock on which an option has expired, he will have to decide whether to write against the same stock again or to sell the stock and buy a new stock. In the high-commission days, he might have decided to write against the same stock, even if the returns weren't nearly as attractive going forward, merely because of the large commission costs of selling one stock and buying another. But in the modern era of low commission rates, this really shouldn't be a concern. The writer should pursue the best overall total return covered write. In fact, it can be a lethargic mistake to get lured into just writing against the same stock, month after month, or quarter after quarter, even if the returns have diminished.

A WORD OF CAUTION

The stockholder who owns stock from a previous purchase and later contemplates writing calls against that stock must be aware of his situation. He must realize and accept the fact that he might lose his stock via assignment. If he is determined to retain ownership of the stock, he may have to buy back the written option at a loss should the underlying stock increase in price. In essence, he is limiting the stock's upside potential. If a stockholder is going to be frustrated and disappointed when he is not fully participating during a rally in his stock, he should not write a call in the first place. Perhaps he could utilize the incremental return concept of covered writing, a topic covered later in this chapter.

As stressed earlier, a covered writing strategy involves viewing the stock and option as a *total* position. *It is not a strategy wherein the investor is a stockholder who also trades options against his stock position.* If the stockholder is selling the calls because he thinks the stock is going to decline in price and the call trade itself will be profitable, he may be putting himself in a tenuous position. Thinking this way, he will probably be satisfied only if he makes a profit on the call trade, regardless of the unrealized result in the underlying stock. This sort of philosophy is contrary to a covered writing strategy philosophy. Such an investor—he is really becoming a trader—should carefully review his motives for writing the call and anticipate his reaction if the stock rises substantially in price after the call has been written.

In essence, *writing calls against stock that you have no intention of selling is tantamount to writing naked calls!* If one is going to be extremely frustrated, perhaps even experiencing sleepless nights, if his stock rises above the strike price of the call that he has written, then he is experiencing trials and tribulations much as the writer of a naked

call would if the same stock move occurred. This is an unacceptable level of emotional worry for a true covered writing strategist.

Think about it. If you have some very low-cost-basis stock that you don't really want to sell, and then you sell covered calls against that stock, what do you wish will happen? Most certainly you wish that the options will expire worthless (i.e., that the stock won't get called away)—exactly what a naked writer wishes for.

The problems can be compounded if the stock rises, and one then decides to roll these calls. Rather than spend a small debit to close out a losing position, an investor may attempt to roll to more distant expiration months and higher strike prices in order to keep bringing in credits. Eventually, he runs out of room as the lower strikes disappear, and he has to either sell some stock or pay a *big* debit to buy back the written calls. So, if the underlying stock continues to run higher, the writer suffers emotional devastation as he attempts to "fight the market." There have been some classic cases of Murphy's law whereby people have covered the calls at a big debit rather than let their "untouchable" stock be called away, just before the stock itself or the stock market collapsed.

One should be very cautious about writing covered calls against stocks that he doesn't intend to sell. If one feels that he cannot sell his stock, for whatever reason—tax considerations, emotional ties, etc.—he really should *not* sell covered calls against it. Perhaps buying a protective put (discussed in a later chapter) would be a better strategy for such a stockholder.

DIVERSIFYING RETURN AND PROTECTION IN A COVERED WRITE

FUNDAMENTAL DIVERSIFICATION TECHNIQUES

Quite clearly, the covered writing strategist would like to have as much of a combination of high potential returns and adequate downside protection as he can obtain. Writing an out-of-the-money call will offer higher returns if exercised, but it usually affords only a modest amount of downside protection. On the other hand, writing an in-the-money call will provide more downside cushion but offers a lower return if exercised. For some strategists, this diversification is realized in practice by writing out-of-the-money calls on some stocks and in-the-moneys on other stocks. There is no guarantee that writing in this manner on a list of diversified stocks will produce superior results. One is still forced to pick the stocks that he expects will perform better (for out-of-the-money writing), and that is difficult to do. Moreover, the individual investor may not have enough funds available to diversify into many such situations. There is, however, another alternative to obtaining diversification of both returns and downside protection in a covered writing situation.

The writer may often do best by writing half of his position against in-the-moneys and half against out-of-the-moneys on the same stock. This is especially attractive for a stock whose out-of-the-money calls do not appear to provide enough downside protection, and at the same time, whose in-the-money calls do not provide quite enough return. By writing both options, the writer may be able to acquire the return and protection diversification that he is seeking.

Example: The following prices exist for 6-month calls:

XYZ common stock, 42;
XYZ April 40 call, 4; and
XYZ April 45 call, 2.

The writer wishing to establish a covered write against XYZ common stock may like the protection afforded by the April 40 call, but may not find the return particularly attractive. He may be able to improve his return by writing April 45's against part of his position. Assume the writer is considering buying 1,000 shares of XYZ. Table 2.14 compares the attributes of writing the out-of-the-money (April 45) only, or of writing only the in-the-money (April 40), or of writing 5 of each. The table is based on a cash covered write, but returns and protection would be similar for a margin write. Commissions are included in the figures.

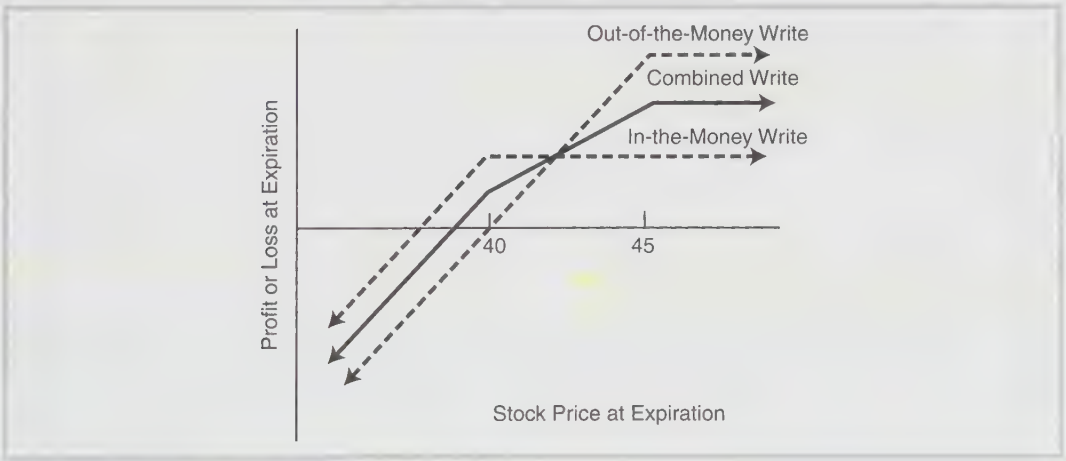
It is easily seen that the *"combined" write*—half of the position against the April 40's and the other half against the April 45's—offers the best balance of return and protection. The in-the-money call, by itself, provides over 11% downside protection, but the 7.6% return if exercised is just a bit more than 1% per month. Thus, one might not want to write April 40's against his entire position, because the potential return is small. At the same time, the April 45's, if written against the entire stock position, would provide for an attractive return if exercised (over 2% per month) but offer only 7% downside protection. The combined write, which has the better features of both options, offers over 11% return if exercised (nearly 1.5% per month) and affords over 8% downside protection. By writing both calls, the writer has potentially solved the problems inherent in writing entirely out-of-the-moneys or entirely in-the-moneys. The "combined" write frees the covered writer from having to initially take a bearish (in-the-money write) or bullish (out-of-the-money write) posture on the stock if he does not want to. This is often necessary on a low-volatility stock trading between striking prices.

For those who prefer a graphic representation, the profit graph shown in Figure 2-2 compares the combined write of both calls with either the in-the-money write or the out-of-the-money write (dashed lines). It can be observed that all three choices are equal if XYZ is near 42 at expiration; all three lines intersect there.

TABLE 2.14
Attributes of various writes.

	In-the-Money Write	Out-of-the-Money Write	Write Both Calls
Buy 1,000 XYZ and sell	10 April 40's	10 April 45's	5 April 40's and 5 April 45's
Return if exercised	7.6%	14.7%	11.2%
Return if unchanged	7.6%	7.3%	7.4%
Percent protection	11.7%	7.0%	9.3%

FIGURE 2-2.
Comparison: combined write vs. in-the-money write and out-of-the-money write.



This technique can be useful in providing diversification between protection and return, not only for an individual position but for a large part of a portfolio. In the modern era, with commissions on a per-share basis, the pertinent returns can be computed essentially by averaging the returns on the individual writes. For example, the return if exercised for the April 40s was 7.6%; the return if exercised for the April 45s is 14.7%. So the return for a write that utilizes half of each is the average, 11.2%.

OTHER DIVERSIFICATION TECHNIQUES

Holders of large positions in a particular stock may want even more diversification than can be provided by writing against two different striking prices. Institutions, pension

funds, and large individual stockholders may fall into this category. It is often advisable for such large stockholders to *diversify* their writing *over time* as well as over at least two striking prices. By diversifying over time—for example, writing one-third of the position against near-term calls, one-third against middle-term calls, and the remaining third against long-term calls—one can gain several benefits. First, all of one's positions need not be adjusted at the same time. This includes either having the stock called away or buying back one written call and selling another. Moreover, one is not subject only to the level of option premiums that exist at the time one series of calls expires. For example, if one writes only 9-month calls and then rolls them over when they expire, he may unnecessarily be subjecting himself to the potential of lower returns. If option premium levels happen to be low when it is time for this 9-month call writer to sell more calls, he will be establishing a less-than-optimum write for up to 9 months. By spreading his writing out over time, he would, at worst, be subjecting only one-third of his holding to the low-premium write. Hopefully, premiums would expand before the next expiration 3 months later, and he would then be getting a relatively better premium on the next third of his portfolio. There is an important aside here: The individual or relatively small investor who owns only enough stock to write one series of options should generally not write the longest-term calls for this very reason. He may not be obtaining a particularly attractive level of premiums, but may feel he is forced to retain the position until expiration. Thus, he could be in a relatively poor write for as long as 9 months. Finally, this type of diversification may also lead to having calls at various striking prices as the market fluctuates cyclically. All of one's stock is not necessarily committed at one price if this diversification technique is employed.

This concludes the discussion of how to establish a covered writing position against stock. Covered writes against other types of securities are described later.

FOLLOW-UP ACTION

Establishing a covered write, or any option position for that matter, is only part of the strategist's job. Once the position has been taken, it must be monitored closely so that adjustments may be made should the stock drop too far in price. Moreover, even if the stock remains relatively unchanged, adjustments will need to be made as the written call approaches expiration.

Some writers take no follow-up action at all, preferring to let a stock be called away if it rises above the striking price at the expiration of the option, or preferring to let the original expire worthless if the stock is below the strike. These are not always optimum actions; there may be much more decision making involved.

Follow-up action can be divided into three general categories:

1. protective action to take if the stock drops,
2. aggressive action to take when the stock rises, or
3. action to avoid assignment if the time premium disappears from an in-the-money call.

There may be times when one decides to close the entire position before expiration or to let the stock be called away. These cases are discussed as well.

PROTECTIVE ACTION IF THE UNDERLYING STOCK DECLINES IN PRICE

The covered writer who does not take protective action in the face of a relatively substantial drop in price by the underlying stock may be risking the possibility of large losses. Since covered writing is a strategy with limited profit potential, one should also take care to limit losses. Otherwise, one losing position can negate several winning positions. The simplest form of follow-up action in a decline is to merely close out the position. This might be done if the stock declines by a certain percentage, or if the stock falls below a technical support level. Unfortunately, this method of defensive action may prove to be an inferior one. The investor will often do better to continue to sell more time value in the form of additional option premiums.

Follow-up action is generally taken by buying back the call that was originally written and then writing another call, with a different striking price and/or expiration date, in its place. Any adjustment of this sort is referred to as a *rolling action*. When the underlying stock drops in price, one generally buys back the original call—presumably at a profit since the underlying stock has declined—and then sells a call with a lower striking price. This is known as *rolling down*, since the new option has a lower striking price.

Example: The covered writing position described as "buy XYZ at 51, sell the XYZ January 50 call at 6" would have a maximum profit potential at expiration of 5 points. Downside protection is 6 points down to a stock price of 45 at expiration. These figures do not include commissions, but for the purposes of an elementary example, the commissions will be ignored.

If the stock begins to decline in price, taking perhaps two months to fall to 45, the following option prices might exist:

XYZ common, 45;
XYZ January 50 call, 1; and
XYZ January 45 call, 4.

The covered writer of the January 50 would, at this time, have a small unrealized loss of one point in his overall position: His loss on the common stock is 6 points, but he has a 5-point gain in the January 50 call. (This demonstrates that *prior to expiration,* a loss occurs at the "break-even" point.) If the stock should continue to fall from these levels, he could have a larger loss at expiration. The call, selling for one point, only affords one more point of downside protection. If a further stock price drop is anticipated, *additional downside protection can be obtained by rolling down.* In this example, if one were to buy back the January 50 call at 1 and sell the January 45 at 4, he would be rolling down. This would increase his protection by another three points—the credit generated by buying the 50 call at 1 and selling the 45 call at 4. Hence, his downside break-even point would be 42 after rolling down.

Moreover, if the stock were to remain unchanged—that is, if XYZ were exactly 45 at January expiration—the writer would make an *additional* $300. If he had not rolled down, the most *additional* income that he could make, if XYZ remained unchanged, would be the remaining $100 from the January 50 call. So *rolling down gives more downside protection against a further drop in stock price and may also produce additional income if the stock price stabilizes.*

In order to more exactly evaluate the overall effect that was obtained by rolling down in this example, one can either compute a profit table (Table 2-15) or draw a net profit graph (Figure 2-3) that compares the original covered write with the rolled-down position.

Note that the rolled-down position has a smaller maximum profit potential than the original position did. This is because, by rolling down to a January 45 call, the writer limits his profits anywhere above 45 at expiration. He has committed himself to sell stock 5 points lower than the original position, which utilized a January 50 call and thus had limited profits above 50. *Rolling down generally reduces the maximum profit potential of the covered write.* Limiting the maximum profit may be a secondary consideration, however, when a stock is breaking downward. Additional downside protection is often a more pressing criterion in that case.

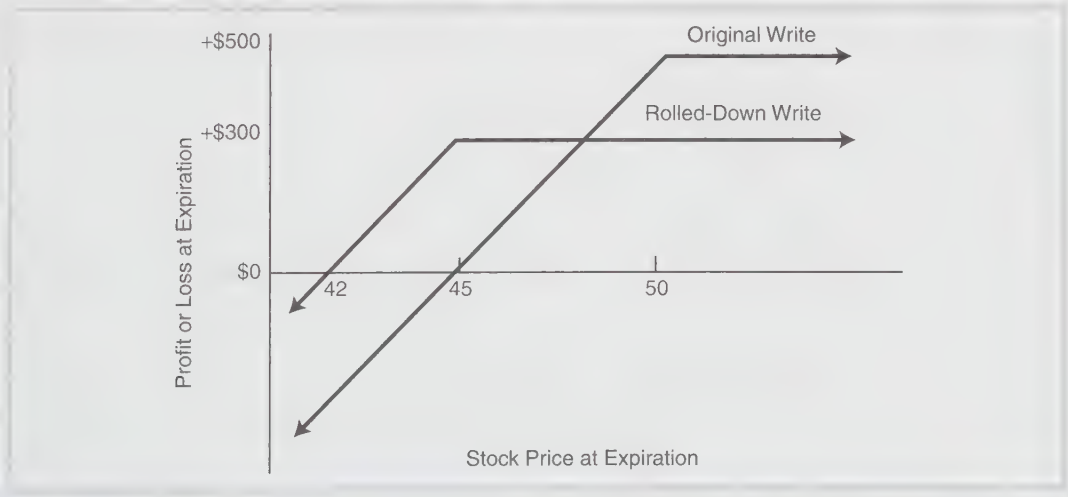
Anywhere below 45 at expiration, the rolled-down position does $300 better than the original position, because of the $300 credit generated from rolling down. In fact, the rolled-down position will outperform the original position even if the stock rallies back to, but not above, a price of 48. At 48 at expiration, the two positions are equal, both producing a $300 profit. If the stock should reverse direction and rally back above 48 by expiration, the writer would have been better off not to have rolled down. All these facts are clear from Table 2.15 and Figure 2-3.

Consequently, the only case in which it does not pay to roll down is the one in which the stock experiences a reversal—a rise in price after the initial drop. The selection of where to roll down is important, because rolling down too early or at an inappropriate

TABLE 2.15.
Profit table.

XYZ Price at Expiration	Profit from January 50 Write	Profit from Rolled Position
40	– $500	– 200
42	– 300	0
45	0	+ 300
48	+ 300	+ 300
50	+ 500	+ 300
60	+ 500	+ 300

FIGURE 2-3.
Comparison: original covered write vs. rolled-down write.



price could limit the returns. Technical support levels of the stock are often useful in selecting prices at which to roll down. If one rolls down after technical support has been broken, the chances of being caught in a stock-price-reversal situation would normally be reduced.

The above example is rather simplistic; in actual practice, more complicated situations may arise, such as a sudden and fairly steep decline in price by the underlying stock. This may present the writer with what is called a *locked-in loss*. This means, simply, that there is no option to which the writer can roll down that will provide him with enough

premium to realize any profit if the stock were then called away at expiration. These situations arise more commonly on lower-priced stocks, where the striking prices are relatively far apart in percentage terms. Out-of-the-money writes are more susceptible to this problem than are in-the-money writes. Although it is not emotionally satisfying to be in an investment position that cannot produce a profit—at least for a limited period of time—it may still be beneficial to roll down to protect as much of the stock price decline as possible.

Example: For the covered write described as "buy XYZ at 20, sell the January 20 call at 2," the stock unexpectedly drops very quickly to 16, and the following prices exist:

XYZ common, 16;
XYZ January 20 call, .50; and
XYZ January 15 call, 2.50.

The covered writer is faced with a difficult choice. He currently has an unrealized loss of 2.50 points—a 4-point loss on the stock which is partially offset by a 1.50-point gain on the January 20 call. This represents a fairly substantial percentage loss on his investment in a short period of time. He could do nothing, hoping for the stock to recover its loss. Unfortunately, this may prove to be wishful thinking.

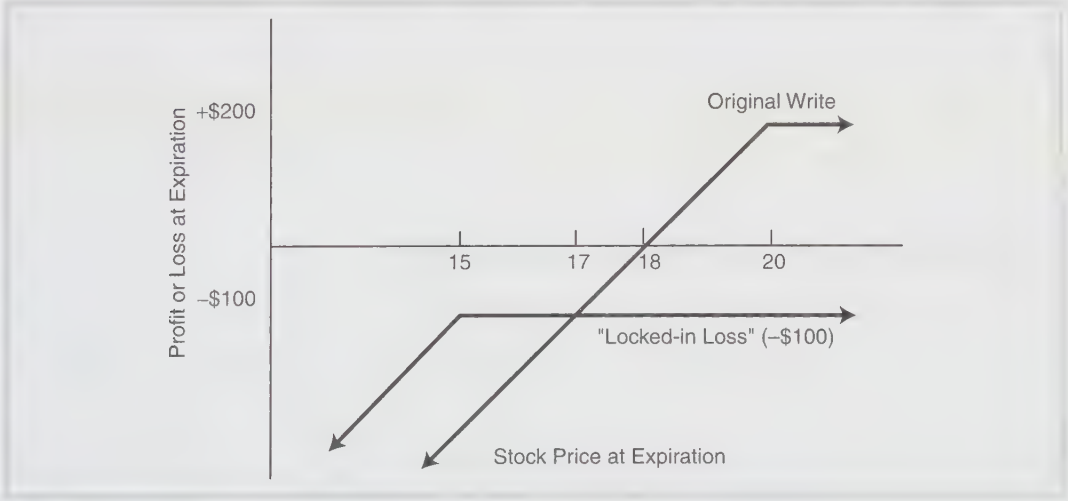
If he considers rolling down, he will not be excited by what he sees. Suppose that the writer wants to roll down from the January 20 to the January 15. He would thus buy the January 20 at .50 and sell the January 15 at 2.50, for a net credit of 2 points. By rolling down, he is obligating himself to sell his stock at 15, the striking price of the January 15 call. Suppose XYZ were above 15 in January and were called away. How would the writer do? He would lose 5 points on his stock, since he originally bought it at 20 and is selling it at 15. This 5-point loss is substantially offset by his option profits, which amount to 4 points: 1.50 points of profit on the January 20, sold at 2 and bought back at .50, plus the 2.50 points received from the sale of the January 15. However, his net result is a 1-point loss, since he lost 5 points on the stock and made only 4 points on the options. Moreover, this 1-point loss is the best that he can hope for! This is true because, as has been demonstrated several times, a covered writing position makes its maximum profit anywhere above the striking price. Thus, by rolling down to the 15 strike, he has limited the position severely, to the extent of "locking in a loss."

Even considering what has been shown about this loss, *it is still correct for this writer to roll down to the January 15.* Once the stock has fallen to 16, there is nothing anybody can do about the unrealized losses. However, if the writer rolls down, he can prevent the losses from accumulating at a faster rate. In fact, he will do better by rolling down if the stock drops further, remains unchanged, or even rises slightly. Table 2.16 and Figure 2-4

TABLE 2.16.
Profits of original write and rolled position.

Stock Price at Expiration	Profit from January 20 Write	Profit from Rolled Position
10	– $800	– $600
15	– 300	– 100
18	0	– 100
20	+ 200	– 100
25	+ 200	– 100

FIGURE 2-4.
Comparison: original write vs. "locked-in loss."



compare the original write with the rolled-down position. It is clear from the figure that the rolled-down position is locked into a loss. However, the rolled-down position still outperforms the original position unless the stock rallies back above 17 by expiration. Thus, if the stock continues to fall, if it remains unchanged, or even if it rallies less than 1 point, the rolled-down position actually outperforms the original write. It is for this reason that the writer is taking the most logical action by rolling down, even though to do so locks in a loss.

Technical analysis may be able to provide a little help for the writer faced with the dilemma of rolling down to lock in a loss or else holding onto a position that has no further downside protection. If XYZ has broken a support level or important trend line, it is added evidence for rolling down. In our example, it is difficult to imagine the case in which a $20

stock suddenly drops to become a $16 stock without substantial harm to its technical picture. Nevertheless, if the charts should show that there is support at 15.50 or 16, it may be worth the writer's while to wait and see if that support level can hold before rolling down.

Perhaps the best way to avoid having to lock in losses would be to establish positions that are less likely to become such a problem. In-the-money covered writes on higher-priced stocks that have a moderate amount of volatility will rarely force the writer to lock in a loss by rolling down. Of course, any stock, should it fall far enough and fast enough, could force the writer to lock in a loss if he has to roll down two or three times in a fairly short time span. However, the higher-priced stock has striking prices that are much closer together (in percentages); it thus presents the writer with the opportunity to utilize a new option with a lower striking price much sooner in the decline of the stock. Also, higher volatility should help in generating large enough premiums that substantial portions of the stock's decline can be hedged by rolling down. Conversely, low-priced stocks, especially nonvolatile ones, often present the most severe problems for the covered writer when they decline in price.

A related point concerning order entry can be inserted here. When one simultaneously buys one call and sells another, he is executing a spread. Spreads in general are discussed at length later. However, the covered writer should be aware that whenever he rolls his position, the order can be placed as a spread order. This will normally help the writer to obtain a better price execution.

AN ALTERNATIVE METHOD OF ROLLING DOWN

There is another alternative that the covered writer can use to attempt to gain some additional downside protection without necessarily having to lock in a loss. Basically, the writer rolls down only part of his covered writing position.

Example: One thousand shares of XYZ were bought at 20 and 10 January 20 calls were sold at 2 points each. As before, the stock falls to 16, with the following prices: XYZ January 20 call, .50; and XYZ January 15 call, 2.50. As was demonstrated in the last section, if the writer were to roll all 10 calls down from the January 20 to the January 15, he would be locking in a loss. Although there may be some justification for this action, the writer would naturally rather not have to place himself in such a position.

One can attempt to achieve some balance between added downside protection and upward profit potential by rolling down only part of the calls. In this example, the writer would buy back only 5 of the January 20's and sell 5 January 15 calls. He would then have this position:

long 1,000 XYZ at 20;
short 5 XYZ January 20's at 2;

short 5 XYZ January 15's at 2.50; and
realized gain, $750 from 5 January 20's.

This strategy is generally referred to a *partial roll-down*, in which only a portion of the original calls is rolled, as opposed to the more conventional complete roll-down. Analyzing the partially rolled position makes it clear that the writer no longer locks in a loss.

If XYZ rallies back above 20, the writer would, at expiration, sell 500 XYZ at 20 (breaking even) and 500 at 15 (losing $2,500 on this portion). He would make $1,000 from the five January 20's held until expiration, plus $1,250 from the five January 15's, plus the $750 of realized gain from the January 20's that were rolled down. This amounts to $3,000 worth of option profits and $2,500 worth of stock losses, or an overall net gain of $500, less commissions. Thus, the partial roll-down offers the writer a chance to make some profit if the stock rebounds. Obviously, the partial roll-down will not provide as much downside protection as the complete roll-down does, but it does give more protection than not rolling down at all. To see this, compare the results given in Table 2-17 if XYZ is at 15 at expiration.

TABLE 2-17.
Stock at 15 at expiration.

Strategy	Stock Loss	Option Profit	Total Loss
Original position	– $5,000	+ $2,000	– $3,000
Partial roll-down	– 5,000	+ 3,000	– 2,000
Complete roll-down	– 5,000	+ 4,000	– 1,000

In summary, the covered writer who would like to roll down, but who does not want to lock in a loss or who feels the stock may rebound somewhat before expiration, should consider rolling down only part of his position. If the stock should continue to drop, making it evident that there is little hope of a strong rebound back to the original strike, the rest of the position can then be rolled down as well.

UTILIZING DIFFERENT EXPIRATION SERIES WHEN ROLLING DOWN

In the examples thus far, the same expiration month has been used whenever rolling-down action was taken. In actual practice, the writer may often want to use a more distant expiration month when rolling down and, in some cases, he may even want to use a nearer expiration month.

The advantage of rolling down into a more distant expiration series is that more actual points of protection are received. This is a common action to take when the underlying stock

has become somewhat worrisome on a technical or fundamental basis. However, since rolling down reduces the maximum profit potential—a fact that has been demonstrated several times—every roll-down should not be made to a more distant expiration series. By utilizing a longer-term call when rolling down, one is reducing his maximum profit potential for a longer period of time. Thus, the longer-term call should be used only if the writer has grown concerned over the stock's capability to hold current price levels. The partial roll-down strategy is particularly amenable to rolling down to a longer-term call since, by rolling down only part of the position, one has already left the door open for profits if the stock should rebound. Therefore, he can feel free to avail himself of the maximum protection possible in the part of his position that is rolled down.

The writer who must roll down to lock in a loss, possibly because of circumstances beyond his control, such as a sudden fall in the price of the underlying stock, may actually want to roll down to a near-term option. This allows him to make back the available time premium in the short-term call in the least time possible.

Example: A writer buys XYZ at 19 and sells a 6-month call for 2 points. Shortly thereafter, however, bad news appears concerning the common stock and XYZ falls quickly to 14. At that time, the following prices exist for the calls with the striking price 15:

XYZ common, 14;
near-term call, 1;
middle-term call, 1.50; and
far-term call, 2.

If the writer rolls down into any of these three calls, he will be locking in a loss. Therefore, the best strategy may be to roll down into the near-term call, planning to capture one point of time premium in 3 months. In this way, he will be beginning to work himself out of the loss situation by availing himself of the most potential time premium decay in the shortest period of time. When the near-term call expires 3 months from now, he can reassess the situation to decide if he wants to write another near-term call to continue taking in short-term premiums, or perhaps write a long-term call at that time.

When rolling down into the near-term call, one is attempting to return to a potentially profitable situation in the shortest period of time. By writing short-term calls one or two times, the writer will eventually be able to reduce his stock cost nearer to 15 in the shortest time period. Once his stock cost approaches 15, he can then write a long-term call with striking price 15 and return again to a potentially profitable situation. He will no longer be locked into a loss.

ACTION TO TAKE IF THE STOCK RISES

A more pleasant situation for the covered writer to encounter is the one in which the underlying stock rises in price after the covered writing position has been established. There are generally several choices available if this happens. The writer may decide to do nothing and to let his stock be called away, thereby making the return that he had hoped for when he established the position. On the other hand, if the underlying stock rises fairly quickly and the written call comes to parity, the writer may either close the position early or roll the call up. Each case is discussed.

Example: Someone establishes a covered writing position by buying a stock at 50 and selling a 6-month call for 6 points. His maximum profit potential is 6 points anywhere above 50 at expiration, and his downside break-even point is 44. Furthermore, suppose that the stock experiences a substantial rally and that it climbs to a price of 60 in a short period of time. With the stock at 60, the July 50 might be selling for 11 points and a July 60 might sell for as much as 7 points. Thus, the writer may consider buying back the call that was originally written and rolling up to the call with a higher striking price. Table 2-18 summarizes the situation.

TABLE 2-18
Comparison of original and current prices.

Original Position	Current Prices	
Buy XYZ at 50	XYZ common	60
Sell XYZ July 50 call at 6	XYZ July 50	11
	XYZ July 60	7

If the writer were to *roll-up*—that is, buy back the July 50 and sell the July 60—he would be increasing his profit potential. If XYZ were above 60 in July and were called away, he would make his option credits—6 points from the July 50 plus 7 points from the July 60—less the 11 points he paid to buy back the July 50. Thus, his option profits would amount to 2 points, which, added to the stock profit of 10 points, increases his maximum profit potential to 12 points anywhere above 60 at July expiration.

To increase his profit potential by such a large amount, the covered writer has given up some of his downside protection. *The downside break-even point is always raised by the amount of the debit required to roll up.* The debit required to roll up in this example is 4 points—buy the July 50 at 11 and sell the July 60 at 7. Thus, the break-even point is increased from the original 44 level to 48 after rolling up. There is another method of

calculating the new profit potential and break-even point. In essence, the writer has raised his net stock cost to 55 by taking the realized 5-point loss on the July 50 call. Hence, he is essentially in a covered write whereby he has bought stock at 55 and has sold a July 60 call for 7. When expressed in this manner, it may be easier to see that the break-even point is 48 and the maximum profit potential, above 60, is 12 points.

Note that *when one rolls up, there is a debit incurred.* That is, the investor must deposit additional cash into the covered writing position. This was not the case in rolling down, because credits were generated. Debits are considered by many investors to be a seriously negative aspect of rolling up, and they therefore prefer never to roll up for debits. Although the debit required to roll up may not be a negative aspect to every investor, it does translate directly into the fact that the break-even point is raised and the writer is subjecting himself to a potential loss if the stock should pull back. It is often advantageous to roll to a more distant expiration when rolling up. This will reduce the debit required.

The rolled-up position has a break-even point of 48. Thus, if XYZ falls back to 48, the writer who rolled up will be left with no profit. However, if he had not rolled up, he would have made 4 points with XYZ at 48 at expiration in the original position. A further comparison can be made between the original position and the rolled-up position. The two are equal at July expiration at a stock price of 54; both have a profit of 6 points with XYZ at 54 at July expiration. Thus, although it may appear attractive to roll up, one should determine the point at which the rolled-up position and the original position will be equal at expiration. If the writer believes XYZ could be subject to a 10% correction by expiration from 60 to 54—certainly not out of the question for any stock—he should stay with his original position.

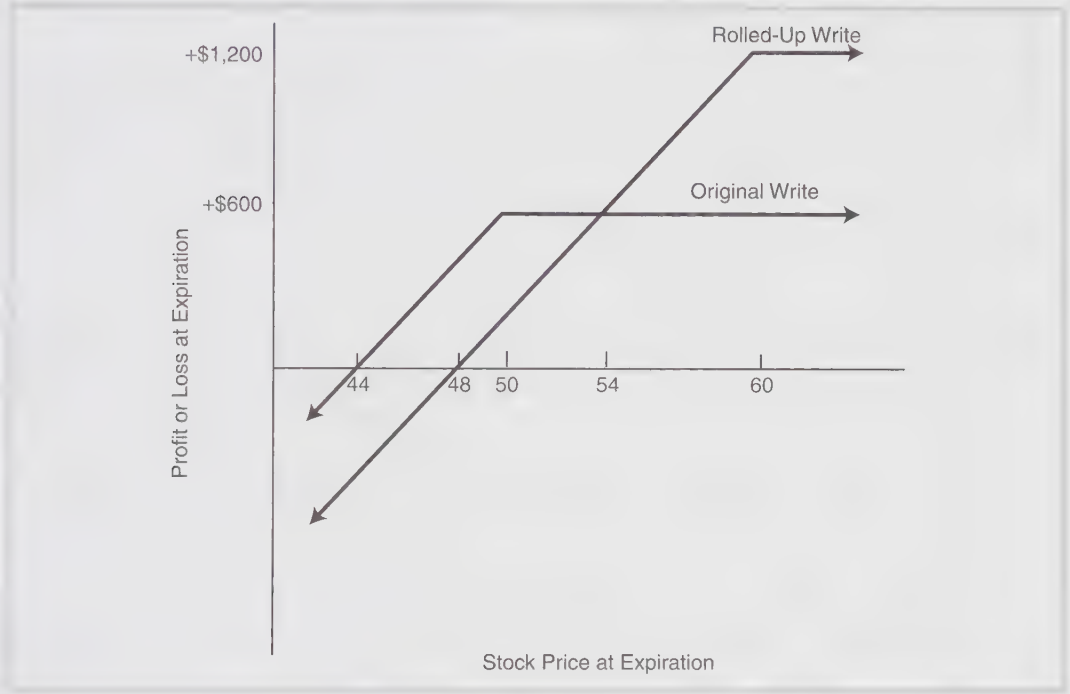
Figure 2-5 compares the original position with the rolled-up position. Note that the break-even point has moved up from 44 to 48; the maximum profit potential has increased from 6 points to 12 points; and at expiration the two writes are equal, at 54.

In summary, it can be said that rolling up increases one's profit potential but also exposes one to risk of loss if a stock price reversal should occur. Therefore, an element of risk is introduced as well as the possibility of increased rewards. Generally, it is not advisable to roll up if at least a 10% correction in the stock price cannot be withstood. One's initial goals for the covered write were set when the position was established. If the stock advances and these goals are being met, the writer should be very cautious about risking that profit.

A SERIOUS BUT ALL-TOO-COMMON MISTAKE

When an investor is overly intent on keeping his stock from being called away (perhaps he is writing calls against stock that he really has no intention of selling), then he will normally roll up and/or forward to a more distant expiration month whenever the stock rises to the strike of the written call. Most of these rolls incur a debit. If the stock is particularly strong,

FIGURE 2-5.
Comparison: original write vs. rolled-up position.



or if there is a strong bull market, these rolls for debits begin to weigh heavily on the psychology of the covered writer. Eventually, he wears down emotionally and makes a mistake. He typically takes one of two roads: (1) He buys back all of the calls for a (large) debit, leaving the entire stock holding exposed to downside movements after it has risen dramatically in price and after he has amassed a fairly large series of debits from previous rolls; or (2) he begins to sell some out-of-the-money naked puts to bring in credits to reduce the cost of continually rolling the calls up for debits. This latter action is even worse, because the entire position is now leveraged tremendously, and a sharp drop in the stock price may cause horrendous losses—perhaps enough to wipe out the entire account. As fate would have it, these mistakes are usually made when the stock is near a top in price. Any price decline after such a dramatic rise is usually a sharp and painful one.

The best way to avoid this type of potentially serious mistake is to allow the stock to be called away at some point. Then, using the funds that are released, either establish a new position in another stock or perhaps even utilize another strategy for a while. If that is not feasible, at least avoid making a radical change in strategy *after* the stock has had a particularly strong rise. Leveraging the position through naked put sales on top of rolling the calls up for debits should expressly be avoided.

The discussion to this point has been directed at rolling up *before* expiration. At or near expiration, when the time value premium has disappeared from the written call, one may have no choice but to write the next-higher striking price if he wants to retain his stock. This is discussed when we analyze action to take at or near expiration.

If the underlying stock rises, one's choices are not necessarily limited to rolling up or doing nothing. As the stock increases in price, the written call will lose its time premium and may begin to trade near parity. The writer may decide to close the position himself—perhaps well in advance of expiration—by buying back the written call and selling the stock out, hopefully near parity.

Example: A customer originally bought XYZ at 25 and sold the 6-month July 25 for 3 points—a net of 22. Now, three months later, XYZ has risen to 33 and the call is trading at 8 (parity) because it is so deeply in-the-money. At this point, the writer may want to sell the stock at 33 and buy back the call at 8, thereby realizing an effective net of 25 for the covered write, which is his maximum profit potential. This is certainly preferable to remaining in the position for three more months with no more profit potential available. The advantage of closing a parity covered write early is that one is realizing the maximum return in a shorter period than anticipated. He is thereby increasing his annualized return on the position. Although it is generally to the cash writer's advantage (margin writers read on) to take such action, there are a few additional costs involved that he would not experience if he held the position until the call expired. First, the commission for the option purchase (buy-back) is an additional expense. Second, he will be selling his stock at a higher price than the striking price, so he may pay a slightly higher commission on that trade as well. If there is a dividend left until expiration, he will not be receiving that dividend if he closes the write early. Of course, if the trade was done in a margin account, the writer will be reducing the margin interest that he had planned to pay in the position, because the debit will be erased earlier. In most cases, the increased commissions are very small and the lost dividend is not significant compared to the increase in annualized return that one can achieve by closing the position early. However, this is not always true, and one should be aware of exactly what his costs are for closing the position early.

Obviously, getting out of a covered writing position can be as difficult as establishing it. Therefore, one should place the order to close the position with his brokerage firm's option desk, to be executed as a "net" order. The same traders who facilitate establishing covered writing positions at net prices will also facilitate getting out of the positions. One would normally place the order by saying that he wanted to sell his stock and buy the option "at parity" or, in the example, at "25 net." Just as it is often necessary to be in contact with both the option and stock exchanges to *establish* a position, so is it necessary to maintain the same contacts to *remove* a position at parity.

THE PARTIAL EXTRACTION STRATEGY

This is a strategy that applies if the stock has advanced and is in danger of being called away. If the writer *wants* to be assigned, then so be it. But in many cases, the writer would like an alternative to merely buying back the call and rolling up. In this strategy, a *portion* of the underlying stock is sold, releasing proceeds that are then used to buy back the written calls. A new call option, with a higher strike, can then be written if so desired.

Example: At some time in the past, an investor wrote February 45 calls against his XYZ stock. This stock has a very low cost basis because it was purchased long ago (perhaps it was inherited). So the writer would not like to be assigned, for that would create a large tax burden. On the other hand, he is not particularly happy to pay a large debit to buy the calls back. Suppose that this is his position:

Long 3000 XYZ, currently trading at 50
Short 30 February 45 calls, currently trading at 5.00

Since the time value premium is gone from the calls, he realizes that assignment could be imminent. This lack of time value premium could be due to a large dividend payment or perhaps impending expiration—it doesn't really matter. Suppose he does the following:

Buy back 30 February 45 calls at 5.00 Cost: $15,000
Sell 300 shares of XYZ at 50 Proceeds: $15,000

Hence his net cost for this unwind of part of the covered write is zero. He is then left with 2700 shares that are "unencumbered," and he can decide if he wants to sell calls against those or not.

The advantage of this strategy is that one retains a large portion of his position, while getting out from under what he might feel is a bad situation of a call that is about to be assigned against stock that he doesn't really want to sell.

What are the tax ramifications here? First, he probably has a short-term loss on the option trade. Second, he has a long-term gain on the stock, which might be as large as most of the $15,000. But the loss on the option trade can be applied against the stock gain, so there might not be that much of a net tax exposure after all.

Moreover, this is a sort of backhanded way of selling high. After all, the stock has been rising rapidly, and it might be a good time to dispose of some shares.

Hence the practical extraction strategy has several useful features, but the major one is that it allows one to extract oneself from an in-the-money covered write with a small

stock sale. It should be used before the written call gets too deeply in the money. If one waits until the option gets very deeply in-the-money before applying the technique, then a much larger number of shares will have to be sold in order to extract the stock from the covered write.

ACTION TO TAKE AT OR NEAR EXPIRATION

As expiration nears and the time value premium disappears from a written call, the covered writer may often want to *roll forward*, that is, buy back the currently written call and sell a longer-term call with the same striking price. For an in-the-money call, the optimum time to roll forward is generally when the time value premium has completely disappeared from the call. For an out-of-the-money call, the correct time to move into the more distant option series is when the return offered by the near-term option is less than the return offered by the longer-term call.

The in-the-money case is quite simple to analyze. As long as there is time premium left in the call, there is little risk of assignment, and therefore the writer is earning time premium by remaining with the original call. However, when the option begins to trade at parity or a discount, there arises a significant probability of exercise by arbitrageurs. It is at this time that the writer should roll the in-the-money call forward. For example, if XYZ were offered at 51 and the July 50 call were bid at 1, the writer should be rolling forward into the October 50 or January 50 call.

The out-of-the-money case is a little more difficult to handle, but a relatively straightforward analysis can be applied to facilitate the writer's decision. One can compute the return per day remaining in the written call and compare it to the net return per day from the longer-term call. If the longer-term call has a higher return, one should roll forward.

Example: An investor previously entered a covered writing situation in which he wrote five January 30 calls against 500 XYZ common. The following prices exist currently, 1 month before expiration:

XYZ common, 29.50;
January 30 call, .50; and
April 30 call, 2.50.

The writer can only make 50 cents more of time premium on this covered write for the time remaining until expiration. It is possible that his money could be put to better use by rolling forward to the April 30 call. Commissions for rolling forward must be subtracted from the April 30's premium to present a true comparison.

By remaining in the January 30, the writer could make, at most, $250 for the 30 days remaining until January expiration. This is a return of $8.33 per day. The commissions for rolling forward would be approximately $100, including both the buy-back and the new sale. Since the current time premium in the April 30 call is $250 per option, this would mean that the writer would stand to make 5 times $250 less the $100 in commissions during the 120-day period until April expiration; $1,150 divided by 120 days is $9.58 per day. Thus, the per-day return is higher from the April 30 than from the January 30, after commissions are included. The writer should roll forward to the April 30 at this time.

Rolling forward, since it involves a positive cash flow (that is, it is a credit transaction) simultaneously increases the writer's maximum profit potential and lowers the break-even point. In the example above, the credit for rolling forward is 2 points, so the break-even point will be lowered by 2 points and the maximum profit potential is also increased by the 2-point credit.

A simple calculator can provide one with the return-per-day calculation necessary to make the decision concerning rolling forward. The preceding analysis is only directly applicable to rolling forward at the *same striking price.* Rolling-up or rolling-down decisions at expiration, since they involve different striking prices, cannot be based solely on the differential returns in time premium values offered by the options in question.

In the earlier discussion concerning rolling up, it was mentioned that at or near expiration, one may have no choice but to write the next higher striking price if he wants to retain his stock. This does not necessarily involve a debit transaction, however. If the stock is volatile enough, one might even be able to *roll up* for even money or a slight credit at expiration. Should this occur, it would be a desirable situation and should always be taken advantage of.

Example: The following prices exist at January expiration:

XYZ, 50;
XYZ January 45 call, 5; and
XYZ July 50 call, 7.

In this case, if one had originally written the January 45 call, he could now roll up to the July 50 at expiration for a *credit* of 2 points. This action is quite prudent, since the break-even point and the maximum profit potential are enhanced. The break-even point is lowered by the 2 points of credit received from rolling up. The maximum profit potential is increased substantially—by 7 points—since the striking price is raised by 5 points and an additional 2 points of credit are taken in from the roll up. Consequently, whenever one can roll up for a credit, a situation that would normally arise only on more volatile stocks, he should do so.

Another choice that may occur at or near expiration is that of *rolling down*. The case may arise whereby one has allowed a written call to expire worthless with the stock more than a small distance below the striking price. The writer is then faced with the decision of either writing a small-premium out-of-the-money call or a larger-premium in-the-money call. Again, an example may prove to be useful.

Example: Just after the January 25 call has expired worthless,

XYZ is at 22;
XYZ July 25 call at .75; and
XYZ July 20 call at 3.50.

If the investor were now to write the July 25 call, he would be receiving only .75 of a point of downside protection. However, his maximum profit potential would be quite large if XYZ could rally to 25 by expiration. On the other hand, the July 20 at 3.50 is an attractive write that affords substantial downside protection, and its 1.50 points of time value premium are twice that offered by the July 25 call. In a purely analytic sense, one should not base his decision on what his performance has been to date, but that is a difficult axiom to apply in practice. If this investor owns XYZ at a higher price, he will almost surely opt for the July 25 call. If, however, he owns XYZ at approximately the same price, he will have no qualms about writing the July 20 call. There is no absolute rule that can be applied to all such situations, but one is usually better off writing the call that provides the best balance between return and downside protection at all times. Only if one is bullish on the underlying stock should he write the July 25 call.

AVOIDING THE UNCOVERED POSITION

There is a margin rule that the covered writer must be aware of if he is considering taking any sort of follow-up action on the day that the written call ceases trading. If another call is sold on that day, even though the written call is obviously going to expire worthless, the writer will be considered uncovered for margin purposes over the weekend and will be obligated to put forth the collateral for an uncovered option. This is usually not what the writer intends to do; being aware of this rule will eliminate unwanted margin calls. Furthermore, uncovered options may be considered unsuitable for many covered writers.

Example: A customer owns XYZ and has January 20 calls outstanding on the last day of trading of the January series (the third Friday of January; the calls actually do not expire until the following day, Saturday). If XYZ is at 15 on the last day of trading, the January 20 call will almost certainly expire worthless. However, should the writer decide to sell a

longer-term call on that day without buying back the January 20, he will be considered uncovered over the weekend. Thus, *if one plans to wait for an option to expire totally worthless before writing another call, he must wait until the Monday after expiration before writing again, assuming that he wants to remain covered.* The writer should also realize that it is possible for some sort of news item to be announced between the end of trading in an option series and the actual expiration of the series. Thus, call holders might exercise because they believe the stock will jump sufficiently in price to make the exercise profitable. This has happened in the past, two of the most notable cases being IBM in January 1975 and Carrier Corp. in September 1978.

WHEN TO LET STOCK BE CALLED AWAY

Another alternative that is open to the writer as the written call approaches expiration is to let the stock be called away if it is above the striking price. In many cases, it is to the advantage of the writer to keep rolling options forward for credits, thereby retaining his stock ownership. However, in certain cases, it may be advisable to allow the stock to be called away. It should be emphasized that the writer often has a definite choice in this matter, since he can generally tell when the call is about to be exercised—when the time value premium disappears.

Example: A covered write is established by buying XYZ at 49 and selling an April 50 call for 3 points. The original break-even point was thus 46. Near expiration, suppose XYZ has risen to 56 and the April 50 is trading at 6. If the investor wants to roll forward, now is the time to do so, because the call is at parity. However, he notes that the choices are somewhat limited. Suppose the following prices exist with XYZ at 56: XYZ October 50 call, 7; and XYZ October 60 call, 2. It seems apparent that the premium levels have declined since the original writing position was established, but that is an occurrence beyond the control of the writer, who must work in the current market environment.

If the writer attempts to roll forward to the October 50, he could make at most I additional point of profit until October (the time premium in the call). This represents an extremely low rate of return, and the writer should reject this alternative since there are surely better returns available in covered writes on other securities.

On the other hand, if the writer tries to roll up and forward, it will cost 4 points to do so—6 points to buy back the April 50 less 2 points received for the October 60. This debit transaction means that his break-even point would move up from the original level of 46 to a new level of 50. If the common declines below 54, he would be eating into profits already at hand, since the October 60 provides only 2 points of protection from the current stock price of 56. If the writer is not confidently bullish on the outlook for XYZ, he should not roll up and forward.

At this point, the writer has exhausted his alternatives for rolling. His remaining choice is to let the stock be called away and to use the proceeds to establish a covered write in a new stock, one that offers a more attractive rate of return with reasonable downside protection. This choice of allowing the stock to be called away is generally the wisest strategy if both of the following criteria are met:

1. Rolling forward offers only a minimal return.
2. Rolling up and forward significantly raises the break-even point and leaves the position relatively unprotected should the stock drop in price.

SPECIAL WRITING SITUATIONS

Our discussions have pertained directly to writing against common stock. However, one may also write covered call options against convertible securities, warrants, or LEAPS. In addition, a different type of covered writing strategy—the incremental return concept—is described that has great appeal to large stockholders, both individuals and institutions.

COVERED WRITING AGAINST A CONVERTIBLE SECURITY

It may be more advantageous to buy a security that is convertible into common stock than to buy the stock itself, for covered call writing purposes. Convertible bonds and convertible preferred stocks are securities commonly used for this purpose. One advantage of using the convertible security is that it often has a higher yield than does the common stock itself.

Before describing the covered write, it may be beneficial to review the basics of convertible securities. Suppose XYZ common stock has an XYZ convertible Preferred A stock that is convertible into 1.5 shares of common. The number of shares of common that the convertible security converts into is an important piece of information that the writer must know. It can be found in a *Standard & Poor's Stock Guide* (or *Bond Guide*, in the case of convertible bonds).

The writer also needs to determine how many shares of the convertible security must be owned in order to equal 100 shares of the common stock. This is quickly determined by dividing 100 by the conversion ratio—1.5 in our XYZ example. Since 100 divided by 1.5 equals 66.666, one must own 67 shares of XYZ cv Pfd A to cover the sale of one XYZ option for 100 shares of common. Note that neither the market prices of XYZ common nor the convertible security are necessary for this computation.

When using a convertible bond, the conversion information is usually stated in a form such as, "converts into 50 shares at a price of 20." The price is irrelevant. What is

important is the number of shares that the bond converts into—50 in this case. Thus, if one were using these bonds for covered writing of one call, he would need two (2,000) bonds to own the equivalent of 100 shares of stock.

Once one knows how much of the convertible security must be purchased, he can use the actual prices of the securities, and their yields, to determine whether a covered write against the common or the convertible is more attractive.

Example: The following information is known:

XYZ common, 50;
XYZ cv Pfd A, 80;
XYZ July 50 call, 5;
XYZ dividend, 1.00 per share annually; and
XYZ cv Pfd A dividend, 5.00 per share annually.

Note that, in either case, the same call—the July 50—would be written. *The use of the convertible as the underlying security does not alter the choice of which option to use.* To make the comparison of returns easier, commissions are ignored in the calculations given in Table 2.19. In reality, the commissions for the stock purchase, either common or preferred, would be very similar. Thus, from a numerical point of view, it appears to be more advantageous to write against the convertible than against the common.

When writing against a convertible security, additional considerations should be looked at. The first is the *premium of the convertible security.* In the example, with XYZ

TABLE 2.19.
Comparison of common and convertible writes.

	Write against Common	Write against Convertible
Buy underlying security	$5,000(100 XYZ)	$5,360 (67 XYZ cv Pfd A)
Sell one July 50 call	– 500	– 500
Net cash investment	$4,500	$4,860
Premium collected	$ 500	$ 500
Dividends until July	50	250
Maximum profit potential	$ 550	$ 750
Return (profit divided by investment)	12.2%	15.4%

selling at 50, the XYZ cv Pfd A has a true value of 1.5 times 50, or $75 per share. However, it is selling at 80, which represents a premium of 5 points above its computed value of 75. *Normally, one would not want to buy a convertible security if the premium is too large.* In this example, the premium appears quite reasonable. Any convertible premium greater than 15% above computed value might be considered to be too large.

Another consideration when writing against convertible securities is the *handling of assignment*. If the writer is assigned, he may either (1) convert his preferred stock into common and deliver that, or (2) sell the preferred in the market and use the proceeds to buy 100 shares of common stock in the market for delivery against the assignment notice. The second choice is usually preferable if the convertible security has any premium at all, since converting the preferred into common causes the loss of any premium in the convertible, as well as the loss of accrued interest in the case of a convertible bond.

The writer should also be aware of whether or not the convertible is *callable* and, if so, what the exact terms are. Once the convertible has been called by the company, it will no longer trade in relation to the underlying stock, but will instead trade at the call price. Thus, if the stock should climb sharply, the writer could be incurring losses on his written option without any corresponding benefit from his convertible security. Consequently, if the convertible is called, the entire position should normally be closed immediately by selling the convertible and buying the option back.

Other aspects of covered writing, such as rolling down or forward, do not change even if the option is written against a convertible security. One would take action based on the relationship of the option price and the common stock price, as usual.

WRITING AGAINST WARRANTS

It is also possible to write covered call options against warrants. Again, one must own enough warrants to convert into 100 shares of the underlying stock; generally, this would be 100 warrants. The transaction must be a cash transaction, the warrants must be paid for in full, and they have no loan value. Technically, listed warrants may be marginable, but many brokerage houses still require payment in full. There may be *an additional investment requirement.* Warrants also have an exercise price. If the exercise price of the warrant is *higher* than the striking price of the call, the covered writer must also deposit the difference between the two as part of his investment.

The advantage of using warrants is that, if they are deeply in-the-money, they may provide the cash covered writer with a higher return, since less of an investment is involved.

Example: XYZ is at 50 and there are XYZ warrants to buy the common at 25. Since the warrant is so deeply in-the-money, it will be selling for approximately $25 per warrant. XYZ

pays no dividend. Thus, if the writer were considering a covered write of the XYZ July 50, he might choose to use the warrant instead of the common, since his investment, per 100 shares of common, would only be $2,500 instead of the $5,000 required to buy 100 XYZ. The potential profit would be the same in either case because no dividend is involved.

Even if the stock does pay a dividend (warrants themselves have no dividend), the writer may still be able to earn a higher return by writing against the warrant than against the common because of the smaller investment involved. This would depend, of course, on the exact size of the dividend and on how deeply the warrant is in-the-money.

Covered writing against warrants is not a frequent practice because of the small number of warrants on optionable stocks and the problems inherent in checking available returns. However, in certain circumstances, the writer may actually gain a decided advantage by writing against a deep in-the-money warrant. It is often not advisable to write against a warrant that is at- or out-of-the-money, since it can decline by a large percentage if the underlying stock drops in price, producing a high-risk position. Also, the writer's investment may increase in this case if he rolls down to an option with a striking price lower than the warrant's exercise price.

WRITING AGAINST LONG-TERM OPTIONS

A form of covered call writing can be constructed by buying LEAPS call options and selling shorter-term out-of-the-money calls against them. This strategy is much like writing calls against warrants. This strategy is discussed in more detail in Chapter 25, under the subject of diagonal spreads.

THE INCREMENTAL RETURN CONCEPT (ROLLING FOR CREDITS)

The incremental return concept of covered call writing is a way in which *the covered writer can earn the full value of stock appreciation between today's stock price and a target sale price, which may be substantially higher.* At the same time, the writer can earn an incremental, positive return from writing options.

Many institutional investors are somewhat apprehensive about covered call writing because of the upside limit that is placed on profit potential. If a call is written against a stock that subsequently declines in price, most institutional managers would *not* view this as an unfavorable situation, since they would be outperforming all managers who owned the stock and who did not write a call. However, if the stock rises substantially after the call is written, many institutional managers do not like having their profits limited by the written call. This strategy is not only for institutional money managers, although one should have a relatively substantial holding in an underlying stock to attempt the strategy—at least 500 shares and preferably 1,000 shares or more. *The incremental return concept can be*

used by anyone who is planning to hold his stock, even if it should temporarily decline in price, until it reaches a predetermined, higher price at which he is willing to sell the stock.

The basic strategy involves, as an initial step, selecting the target price at which the writer is willing to sell his stock.

Example: A customer owns, 1,000 shares of XYZ, which is currently at 60, and is willing to sell the stock at 80. In the meantime, he would like to realize a *positive cash flow* from writing options against his stock. This positive cash flow does not necessarily result in a realized option gain until the stock is called away. Most likely, with the stock at 60, there would not be options available with a striking price of 80, so one could not write 10 July 80's, for example. This would not be an optimum strategy even if the July 80's existed, for the investor would be receiving so little in option premiums—perhaps 10 cents per call—that writing might not be worthwhile. The incremental return strategy allows this investor to achieve his objectives regardless of the existence of options with a higher striking price.

The foundation of the incremental return strategy is to write against only a part of the entire stock holding initially, and to write these calls at the striking price nearest the current stock price. Then, should the stock move up to the next higher striking price, one rolls up for a *credit* by adding to the number of calls written. Rolling for a credit is mandatory and is the key to the strategy. Eventually, the stock reaches the target price and the stock is called away, the investor sells all his stock at the target price, and in addition earns the total credits from all the option transactions.

Example: XYZ is 60, the investor owns 1,000 shares, and his target price is 80. One might begin by selling three of the longest-term calls at 60 for 7 points apiece. Table 2-20 shows how a poor case—one in which the stock climbs directly to the target price—might work. As Table 2-20 shows, if XYZ rose to 70 in one month, the three original calls would be bought back and enough calls at 70 would be sold to produce a credit—5 XYZ October 70's. If the stock continued upward to 80 in another month, the 5 calls would be bought back and the entire position—10 calls—would be written against the target price.

If XYZ remains above 80, the stock will be called away and *all 1,000 shares will be sold at the target price of 80.* In addition, the investor will earn all the option credits generated along the way. These amount to $2,800. Thus, the writer obtained the full appreciation of his stock to the target price plus an incremental, positive return from option writing.

In a flat market, the strategy is relatively easy to monitor. If a written call loses its time value premium and therefore might be subject to assignment, the writer can roll forward to a more distant expiration series, keeping the quantity of written calls constant. This transaction would generate additional credits as well.

TABLE 2.20.
Two months of incremental return strategy.

Day 1: XYZ = 60	
Sell 3 XYZ October 60's at 7	+$ 2,100 credit
One month later: XYZ = 70	
Buy back the 3 XYZ Oct 60's at 11 and	–$ 3,300 debit
sell 5 XYZ Oct 70's at 7	+$3,500 credit
Two months later: XYZ = 80	
Buy back the 5 Oct 70's at 11 and	–$ 5,500 debit
sell 10 XYZ Oct 80's at 6	+$6,000 credit
	+$2,800 credit

If the target price is eventually reached, and the writer then decides that he wants to retain some of the stock, the "partial extraction strategy" described earlier can be used when the written calls begin to lose their time value premium. Once the position is "extracted," a new, higher target can be set and the whole process begun once again.

COVERED CALL WRITING SUMMARY

This concludes the chapter on covered call writing. The strategy will be referred to later, when compared with other strategies. Here is a brief summary of the more important points that were discussed.

Covered call writing is a viable strategy because it reduces the risk of stock ownership and will make one's portfolio less volatile to short-term market movements. It should be understood, however, that covered call writing may underperform stock ownership in general because of the fact that stocks can rise great distances, while a covered write has limited upside profit potential. The choice of which call to write can make for a more aggressive or more conservative write. Writing in-the-money calls is strategically more conservative than writing out-of-the-money calls, because of the larger amount of downside protection received. The total return concept of covered call writing attempts to achieve the maximum balance between income from all sources—option premiums, stock ownership, and dividend income—and downside protection. This balance is usually realized by writing calls when the stock is near the striking price, either slightly in- or slightly out-of-the-money.

The writer should compute various returns before entering into the position: the return if exercised, the return if the stock is unchanged at expiration, and the break-even point. To truly compare various writes, returns should be annualized, and all commissions and dividends should be included in the calculations. Returns will be increased by taking larger positions in the underlying stock—500 or 1,000 shares. Also, by utilizing a brokerage firm's capability to produce "net" executions, buying the stock and selling the call at a specified net price differential, one will receive better executions and realize higher returns in the long run.

The selection of which call to write should be made on a comparison of available returns and downside protection. One can sometimes write part of his position out-of-the-money and the other part in-the-money to force a balance between return and protection that might not otherwise exist. Finally, one should not write against an underlying stock if he is bearish on the stock. The writer should be slightly bullish, or at least neutral, on the underlying stock.

Follow-up action can be as important as the selection of the initial position itself. By rolling down if the underlying stock drops, the investor can add downside protection and current income. If one is unwilling to limit his upside potential too severely, he may consider rolling down only part of his call writing position. As the written call expires, the writer should roll forward into a more distant expiration month if the stock is relatively close to the original striking price. Higher consistent returns are achieved in this manner, because one is not spending additional stock commissions by letting the stock be called away. An aggressive follow-up action can also be taken when the underlying stock rises in price: The writer can roll up to a higher striking price. This action increases the maximum profit potential but also exposes the position to loss if the stock should subsequently decline. One would want to take no follow-up action and let his stock be called if it is above the striking price and if there are better returns available elsewhere in other securities.

Covered call writing can also be done against convertible securities—bonds or preferred stocks. These convertibles sometimes offer higher dividend yields and therefore increase the overall return from covered writing. Also, the use of warrants in place of the underlying stock may be advantageous in certain circumstances, because the net investment is lowered while the profit potential remains the same. Therefore, the overall return could be higher.

Finally, the larger individual stockholder or institutional investor who wants to achieve a certain price for his stock holdings should operate his covered writing strategy under the incremental return concept. This will allow him to realize the full profit potential of his underlying stock, up to the target sale price, and to earn additional positive income from option writing.

CHAPTER 3

Call Buying

The success of a call buying strategy depends primarily on one's ability to select stocks that will go up and to time the selection reasonably well. Thus, call buying is not a strategy in the same sense of the word as most of the other strategies discussed in this text. Most other strategies are designed to remove some of the exactness of stock picking, allowing one to be neutral or at least to have some room for error and still make a profit. Techniques of call buying are important, though, because it is necessary to understand the long side of calls in order to understand more complex strategies correctly.

Call buying is the simplest form of option investment, and therefore is the most frequently used option "strategy" by the public investor. The following section outlines the basic facts that one needs to know to implement an intelligent call buying program.

WHY BUY?

The main attraction in buying calls is that they provide the speculator with a great deal of leverage. One could potentially realize large percentage profits from only a modest rise in price by the underlying stock. Moreover, even though they may be large percentage-wise, the risks cannot exceed a fixed dollar amount—the price originally paid for the call. Calls must be paid for in full; they have no margin value and do not constitute equity for margin purposes. Note: The preceding statements regarding payment for an option in full do not necessarily apply to very long-term (LEAPS) options, which were declared marginable in 1999. The following simple example illustrates how a call purchase might work.

Example: Assume that XYZ is at 48 and the 6-month call, the July 50, is selling for 3. Thus, with an investment of $300, the call buyer may participate, for 6 months, in a move upward in the price of XYZ common. If XYZ should rise in price by 10 points (just over 20%), the July

50 call will be worth at least $800 and the call buyer would have a 167% profit on a move in the stock of just over 20%. This is the leverage that attracts speculators to call buying. At expiration, if XYZ is below 50, the buyer's loss is total, but is limited to his initial $300 investment, even if XYZ declines in price substantially. Although this risk is equal to 100% of his initial investment, it is still small dollarwise. *One should normally not invest more than 15% of his risk capital in call buying,* because of the relatively large percentage risks involved.

Some investors participate in call buying on a limited basis to add some upside potential to their portfolios while keeping the risk to a fixed amount. For example, if an investor normally only purchased low-volatility, conservative stocks because he wanted to limit his downside risk, he might consider putting a small percentage of his cash into calls on more volatile stocks. In this manner, he could "trade" higher-risk stocks than he might normally do. If these volatile stocks increase in price, the investor will profit handsomely. However, if they decline substantially—as well they might, being volatile—the investor has limited his dollar risk by owning the calls rather than the stock.

Another reason some investors buy calls is to be able to buy stock at a reasonable price without missing a market.

Example: With XYZ at 75, this investor might buy a call on XYZ at 80. He would like to own XYZ at 80 if it can prove itself capable of rallying and be in-the-money at expiration. He would exercise the call in that case. On the other hand, if XYZ declines in price instead, he has not tied up money in the stock and can lose only an amount equal to the call premium that he paid, an amount that is generally much less than the price of the stock itself.

Another approach to call buying is sometimes utilized, also by an investor who does not want to "miss the market." Suppose an investor knows that, in the near future, he will have an amount of money large enough to purchase a particular stock; perhaps he is closing the sale of his house or a certificate of deposit is maturing. However, he would like to buy the stock now, for he feels a rally is imminent. He might buy calls at the present time if he had a small amount of cash available. The call purchases would require an investment much smaller than the stock purchase. Then, when he receives the cash that he knew was forthcoming, he could exercise the calls and buy the stock. In this way, he might have participated in a rally by the stock before he actually had the money available to pay for the stock in full.

RISK AND REWARD FOR THE CALL BUYER

The most important fact for the call buyer to realize is that he will normally win only if the stock rises in price. All the worthwhile analysis in the world spent in selecting which call to buy will not produce profits if the underlying stock declines. However, this fact

should not dissuade one from making reasonable analyses in his call buying selections. Too often, the call buyer feels that a stock will move up, and is correct in that part of his projection, but still loses money on his call purchase because he failed to analyze the risk and rewards involved with the various calls available for purchase at the time. He bought the wrong call on the right stock.

Since the best ally that the call buyer has is upward movement in the underlying stock, the selection of the underlying stock is the most important choice the call buyer has to make. Since timing is so important when buying calls, the technical factors of stock selection probably outweigh the fundamentals; even if positive fundamentals do exist, one does not know how long it will take in order for them to be reflected in the price of the stock. One must be bullish on the underlying stock in order to consider buying calls on that stock. Once the stock selection has been made, only then can the call buyer begin to consider other factors, such as which striking price to use and which expiration to buy. The call buyer may have another ally, but not one that he can normally predict: If the stock on which he owns a call becomes more volatile, the call's price will rise to reflect that change.

The purchase of an out-of-the-money call generally offers both larger potential risk and larger potential reward than does the purchase of an in-the-money call. Many call buyers tend to select the out-of-the-money call merely because it is cheaper in price. *Absolute dollar price should in no way be a deciding factor for the call buyer.* If one's funds are so limited that he can only afford to buy the cheapest calls, he should not be speculating in this strategy. If the underlying stock increases in price substantially, the out-of-the-money call will naturally provide the largest rewards. However, if the stock advances only moderately in price, the in-the-money call may actually perform better.

Example: XYZ is at 65 and the July 60 sells for 7 while the July 70 sells for 3. If the stock moves up to 68 relatively slowly, the buyer of the July 70—the out-of-the-money call—may actually experience a loss, even if the call has not yet expired. However, the holder of the in-the-money July 60 will definitely have a profit because the call will sell for at least 8 points, its intrinsic value. The point is that, percentage-wise, *an in-the-money call will offer better rewards for a modest stock gain, and an out-of-the-money call is better for larger stock gains.*

When risk is considered, the in-the-money call clearly has less probability of risk. In the prior example, the in-the-money call buyer would not lose his entire investment unless XYZ fell by at least 5 points. However, the buyer of the out-of-the-money July 70 would lose all of his investment unless the stock advanced by more than 5 points by expiration. Obviously, the probability that the in-the-money call will expire worthless is much smaller than that for the out-of-the-money call.

The time remaining to expiration is also relevant to the call buyer. If the stock is fairly close to the striking price, the near-term call will most closely follow the price movement

of the underlying stock, so it has the greatest rewards and also the greatest risks. The far-term call, because it has a large amount of time remaining, offers the least risk and least percentage reward. *The intermediate-term call offers a moderate amount of each, and is therefore often the most attractive one to buy.* Many times an investor will buy the longer-term call because it only costs a point or a point and a half more than the intermediate-term call. He feels that the extra price is a bargain to pay for three extra months of time. This line of thought may prove somewhat misleading, however, because most call buyers don't hold calls for more than 60 or 90 days. Thus, even though it looks attractive to pay the extra point for the long-term call, it may prove to be an unnecessary expense if, as is usually the case, one will be selling the call in two or three months.

CERTAINTY OF TIMING

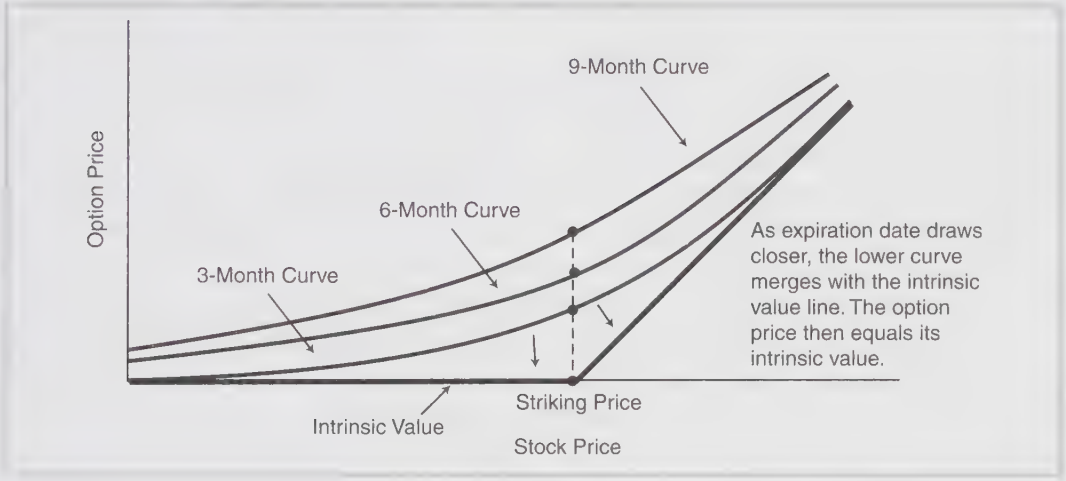
The certainty with which one expects the underlying stock to advance may also help to play a part in his selection of which call to buy. If one is fairly sure that the underlying stock is about to rise immediately, he should strive for more reward and not be as concerned about risk. This would mean buying short-term, slightly out-of-the-money calls. Of course, this is only a general rule; one would not normally buy an out-of-the-money call that has only one week remaining until expiration, in any case. At the opposite end of the spectrum, if one is very uncertain about his timing, he should buy the longest-term call, to moderate his risk in case his timing is wrong by a wide margin. This situation could easily result, for example, if one feels that a positive fundamental aspect concerning the company will assert itself and cause the stock to increase in price at an unknown time in the future. Since the buyer does not know whether this positive fundamental will come to light in the next month or six months from now, he should buy the longer-term call to allow room for error in timing.

In many cases, one is not intending to hold the purchased call for any significant period of time; he is just looking to capitalize on a quick, short-term movement by the underlying stock. In this case, he would want to buy a relatively short-term in-the-money call. Although such a call may be more expensive than an out-of-the-money call on the same underlying stock, it will most surely move up on any increase in price by the underlying stock. Thus, the short-term trader would profit.

THE DELTA

The reader should by now be familiar with basic facts concerning call options: The time premium is highest when the stock is at the striking price of the call; it is lowest deep in- or out-of-the-money; option prices do not decay at a linear rate—the time premium disappears more rapidly as the option approaches expiration. As a further means of review, the *option pricing curve* introduced in Chapter 1 is reprinted here. Notice that all the

FIGURE 3-1.
Option pricing curve; 3-, 6-, and 9-month calls.



facts listed above can be observed from Figure 3-1. The curves are much nearer the "intrinsic value" line at the ends than they are in the middle, implying that the time value premium is greatest when the stock is at the strike, and is least when the stock moves away from the strike either into- or out-of-the-money. Furthermore, the fact that the curve for the 3-month option lies only about halfway between the intrinsic value line and the curve of the 9-month option implies that the rate of decay of an at- or near-the-money option is not linear. The reader may also want to refer back to the graph of time value premium decay in Chapter 1 (Figure 1-4).

There is another property of call options that the buyer should be familiar with, the *delta* of the option (also called the *hedge ratio*). Simply stated, *the delta of an option is the amount by which the call will increase or decrease in price if the underlying stock moves by 1 point.*

Example: The delta of a call option is close to 1 when the underlying stock is well above the striking price of the call. If XYZ were 60 and the XYZ July 50 call were 10.10, the call would change in price by nearly 1 point if XYZ moved by 1 point, either up or down. A deeply out-of-the-money call has a delta of nearly zero. If XYZ were 40, the July 50 call might be selling at .25 of a point. The call would change very little in price if XYZ moved by one point, to either 41 or 39. When the stock is at the striking price, the delta is usually between .50 and .60. Thus, if XYZ were 50 and the XYZ July 50 call were 5, the call might increase to 5.50 if XYZ rose to 51 or decrease to 4.50 if XYZ dropped to 49. Very long-term calls may have even larger at-the-money deltas.

Actually, the delta changes each time the underlying stock changes even fractionally in price; it is an exact mathematical derivation that is presented in a later chapter. This is most easily seen by the fact that a deep in-the-money option has a delta of 1. However, if the stock should undergo a series of 1-point drops down to the striking price, the delta will be more like .50, certainly not 1 any longer. In reality, the delta changed instantaneously all during the price decline by the stock. For those who are geometrically inclined, the preceding option price curve is useful in determining a graphic representation of the delta. The delta is the slope of the tangent line to the price curve. Notice that a deeply in-the-money option lies to the upper right side of the curve, very nearly on the intrinsic value line, which has a slope of 1 above the strike. Similarly, a deeply out-of-the-money call lies to the left on the price curve, again near the intrinsic value line, which has a slope of zero below the strike.

Since it is more common to relate the option's price change to a full point change in the underlying stock (rather than to deal in "instantaneous" price changes), the concepts of *up delta* and *down delta* arise. That is, if the underlying stock moves up by 1 full point, a call with a delta of .50 might increase by .55. However, should the stock fall by one full point, the call might decrease by only .45. There is a different net price change in the call when the stock moves up by 1 full point as opposed to when it falls by a point. The up delta is observed to be .55 while the down delta is .45. In the true mathematical sense, there is only one delta and it measures "instantaneous" price change. The concepts of up delta and down delta are practical, rather than theoretical, concepts that merely illustrate the fact that the true delta changes whenever the stock price changes, even by as little as 1 point. In the following examples and in later chapters, only one delta is referred to.

The delta is an important piece of information for the call buyer because it can tell him how much of an increase or decrease he can expect for short-term moves by the underlying stock. This piece of information may help the buyer decide which call to buy.

Example: If XYZ is 47.50 and the call buyer expects a quick, but possibly limited, rise in price in the underlying stock, should he buy the 45 call or the 50 call? The delta may help him decide. He has the following information:

XYZ: 47.50	XYZ July 45 call:	price = 3.50,	delta = .65
	XYZ July 50 call:	price = 1.00,	delta = .25

It will make matters easier to make a slightly incorrect, but simplifying, assumption that the deltas remain constant over the short term. Which call is the better buy if the buyer expects the stock to quickly rise to 49? This would represent a 1.50-point increase in XYZ, which would translate into a 97-cent increase in the July 45 call price (1.50 times 0.65) or a 37-cent increase in the July 50 call (1.50 times 0.25). Consequently, the July 45 call, if it increased in price by 97 cents, would appreciate by 28%. The July 50 call, if it

increased by 37 cents, would appreciate by 37%. Thus, the July 50 appears to be the better buy in this simple example. Commissions should, of course, be included when making an analysis for actual investment.

The investor does not have to bother with computing deltas for himself. Any good call-buying data service will supply the information, and some brokerage houses provide this information free of charge.

More advanced applications of deltas are described in many of the succeeding chapters, as they apply to a variety of strategies.

WHICH OPTION TO BUY?

There are various trading strategies, some short-term, some long-term (even buy and hold). If one decides to use an option to implement a trading strategy, the *time horizon* of the strategy itself often dictates the general category of option that should be bought—in-the-money versus out-of-the-money, near-term versus long-term, etc. This statement is true whether one is referring to stock, index, or futures options. The general rule is this: *The shorter-term the strategy, the higher the delta should be of the instrument being used to trade the strategy.*

DAY TRADING

For example, day trading has become a popular endeavor. Statistics have been produced that indicate that most day traders lose money. In fact, there *are* profitable day traders; it simply requires more and harder work than many are willing to invest. Many day traders have attempted to use options in their strategies. These day traders apparently are attracted by the leverage available from options, but they often lose money via option trading as well.

What many of these option-oriented day traders fail to realize is that, for day-trading purposes, the instrument with the *highest* possible delta should be used. That instrument is the underlying, for it has a delta of 1.0. Day trading is hard enough without complicating it by trying to use options. So of you're day trading Microsoft (MSFT), trade the stock, not an option.

What makes options difficult in such a short-term situation is their relatively wide bid-asked spread, as compared to that of the underlying instrument itself. Also, a day trader is looking to capture only a small part of the underlying's daily move; an at-the-money or out-of-the-money option just won't respond well enough to those movements. That is, if the delta is too low, there just isn't enough room for the option day trader to make money.

If a day trader insists on using options, a short-term, in-the-money should be bought, for it has the largest delta available—preferably something approaching .90 or higher. This option will respond quickly to small movements by the underlying.

SHORT-TERM TRADING

Suppose one employs a strategy whereby he expects to hold the underlying for approximately a week or two. In this case, just as with day trading, a high delta is desirable. However, now that the holding period is more than a day, it may be appropriate to buy an option as opposed to merely trading the underlying, because the option lessens the risk of a surprisingly large downside move. Still, it is the short-term, in-the-money option that should be bought, for it has the largest delta, and will thus respond most closely to the movement in the underlying stock. Such an option has a very high delta, usually in excess of .80. Part of the reason that the high-delta options make sense in such situations is that one is fairly certain of the timing of day trading or very short-term trading systems. When the system being used for selection of which stock to trade has a high degree of timing accuracy, then the high-delta option is called for.

INTERMEDIATE-TERM TRADING

As the time horizon of one's trading strategy lengthens, it is appropriate to use an option with a lesser delta. This generally means that the timing of the selection process is less exact. One might be using a trading system based, for example, on sentiment, which is generally not an exact timing indicator, but rather one that indicates a general trend change at major turning points. The timing of the forthcoming move is not exact, because it often takes time for an extreme change in sentiment to reflect itself in a change of direction by the underlying.

Hence, for a strategy such as this, one would want to use an option with a smaller delta. The investor would limit his risk by using such an option, knowing that large moves are possible since the position is going to be held for several weeks or perhaps even a couple of months or more. Therefore, an at-the-money option can be used in such situations.

LONG-TERM TRADING

If one's strategy is even longer-term, an option with a lower delta can be considered. Such strategies would generally have only vague timing qualities, such as selecting a stock to buy based on the general fundamental outlook for the company. In the extreme, it would even apply to "buy and hold" strategies.

Generally, buying out-of-the-money options is not recommended; but for very long-term strategies, one might consider something *slightly* out-of-the-money, or at least a fairly long-term at-the-money option. In either case, that option will have a lower delta as compared to the options that have been recommended for the other strategies mentioned above. Alternatively, LEAPS options might be appropriate for stock strategies of this type.

ADVANCED SELECTION CRITERIA

The criteria presented previously represented elementary techniques for selecting which call to buy. In actual practice, one is not usually bullish on just one stock at a time. In fact, the investor would like to have a list of the "best" calls to buy at any given time. Then, using some method of stock selection, either technical or fundamental, he can select three or four calls that appear to offer the best rewards. This list should be ranked in order of the best potential rewards available, but the construction of the list itself is important.

Call option rankings for buying purposes must be based on the volatilities of the underlying stocks. This is not easy to do mathematically, and as a result many published rankings of calls are based strictly on percentage change in the underlying stock. Such a list is quite misleading and can lead one to the wrong conclusions.

Example: There are two stocks with listed calls: NVS, which is not volatile, and VVS, which is quite volatile. Since a call on the volatile stock will be higher-priced than a call on the nonvolatile stock, the following prices might exist:

NVS:	40	VVS:	40
NVS July 40 call:	2	VVS July 40 call:	4

If these two calls are ranked for buying purposes, based strictly on a percentage change in the underlying stock, the NVS call will appear to be the better buy. For example, one might see a list such as "best call buys if the underlying stock advances by 10%." In this example, if each stock advanced 10% by expiration, both NVS and VVS would be at 44. Thus, the NVS July 40 would be worth 4, having doubled in price, for a 100% potential profit. Meanwhile, the VVS July 40 would be worth 4 also, for a 0% profit to the call buyer. This analysis would lead one to believe that the NVS July 40 is the better buy. Such a conclusion may be wrong, because an incorrect assumption was made in the ranking of the potentials of the two stocks. It is not right to assume that both stocks have the same probability of moving 10% by expiration. Certainly, the volatile stock has a much better

chance of advancing by 10% (or more) than the nonvolatile stock does. *Any ranking based on equal percentage changes in the underlying stock, without regard for their volatilities, is useless and should be avoided.*

The correct method of comparing these two July 40 calls is to utilize the actual volatilities of the underlying stocks. Suppose that it is known that the volatile stock, VVS, could expect to move 15% in the time to July expiration. The nonvolatile stock, NVS, however, could only expect a move of 5% in the same period. Using this information, the call buyer can arrive at the conclusion that VVS July 40 is the better call to buy:

Stock Price in July	Call Price
VVS: 46 (up 15%)	VVS July 40: 6 (up 50%)
NVS: 42 (up 5%)	NVS July 40: 2 (unchanged)

By assuming that each stock can rise in accordance with its volatility, we can see that the VVS July 40 has the better reward potential, despite the fact that it was twice as expensive to begin with. This method of analysis is much more realistic.

One more refinement needs to be made in this ranking process. Since most call purchases are made for holding periods of from 30 to 90 days, it is not correct to assume that the calls will be held to expiration. That is, even if one buys a 6-month call, he will normally liquidate it, to take profits or cut losses, in 1 to 3 months. *The call buyer's list should thus be based on how the call will perform if held for a realistic time period, such as 90 days.*

Suppose the volatile stock in our example, VVS, has the potential to rise by 12% in 90 days, while the less volatile stock, NVS, has the potential of rising only 4% in 90 days. In 90 days, the July 40 calls will not be at parity, because there will be some time remaining until July expiration. Thus, it is necessary to attempt to predict what their prices will be at the end of the 90-day holding period. Assume that the following prices are accurate estimates of what the July 40 calls will be selling for in 90 days, if the underlying stocks advance in relation to their volatilities:

Stock Price in 90 Days	Call Price
VVS: 44.8 (up 12%)	VVS July 40: 6 (up 50%)
NVS: 41.6 (up 4%)	NVS July 40: 2.50 (up 25%)

With some time remaining in the calls, they would both have time value premium at the end of 90 days. The bigger time premium would be in the VVS call, since the underlying stock is more volatile. Under this method of analysis, the VVS call is still the better one to buy.

The correct method of ranking potential reward situations for call buyers is as follows:

1. Assume each underlying stock can advance in accordance with its volatility over a fixed period (30, 60, or 90 days).
2. Estimate the call prices after the advance.
3. Rank all potential call purchases by highest percentage reward opportunity for aggressive purchases.
4. Assume each stock can decline in accordance with its volatility.
5. Estimate the call prices after the decline.
6. Rank all purchases by reward/risk ratio (the percentage gain from item 2 divided by the percentage loss from item 5).

The list from item 3 will generate more aggressive purchases because it incorporates potential rewards only. The list from item 6 would be a less speculative one. This method of analysis automatically incorporates the criteria set forth earlier, such as buying short-term out-of-the-money calls for aggressive purchases and buying longer-term in-the-money calls for a more conservative purchase. The delta is also a function of the volatility and is essentially incorporated by steps 1 and 4.

It is virtually impossible to perform this sort of analysis without a computer. The call buyer can generally obtain such a list from a brokerage firm or from a data service. For those individuals who have access to a computer and would like to generate such an analysis for themselves, the details of computing a stock's volatility and predicting the call prices are provided in Chapter 28 on mathematical techniques.

OVERPRICED OR UNDERPRICED CALLS

Formulae exist that are capable of predicting what a call should be selling for, based on the relationship of the stock price and the striking price, the time remaining to expiration, and the volatility of the underlying stock. These are useful, for example, in performing the second step in the foregoing analysis, estimating the call price after an advance in the underlying stock. In reality, a call's actual price may deviate somewhat from the price computed by the formula. If the call is actually selling for more than the "fair" (computed) price, the call is said to be overvalued. An *undervalued* call is one that is actually trading at a price that is less than the "fair" price.

If the calls are truly overpriced, there may be a strategy that can help reduce their cost while still preserving upside profit potential. This strategy, however, requires the

addition of a put spread to the call purchase, so it is beyond the scope of the subject matter at the current time. It is described in Chapter 23 on spreads combining calls and puts.

Generally, the amount by which a call is overvalued or undervalued may be only a small fraction of a point, such as 10 or 20 cents. In theory, the call buyer who purchases an undervalued call has gained a slight advantage in that the call should return to its "fair" value. However, in practice, this information is most useful only to market-makers or firm traders who pay little or no commissions for trading options. The general public cannot benefit directly from the knowledge that such a small discrepancy exists, because of commission costs.

One should not base his call buying decisions merely on the fact that a call is underpriced. It is small solace to the call buyer to find that he bought a "cheap" call that subsequently declined in price. The method of ranking calls for purchase that has been described does, in fact, give some slight benefit to underpriced calls. However, under the recommended method of analysis, a call will not automatically appear as an attractive purchase just because it is slightly undervalued.

TIME VALUE PREMIUM IS A MISNOMER

This is a topic that will be mentioned several times throughout the book, most notably in conjunction with volatility trading. It is introduced here because even the inexperienced option trader must understand that the portion of an option's price that is *not* intrinsic value—the part that we routinely call "time value premium"—is really composed of much more than just time value. Yes, time will eventually wear away that portion of the option's price as expiration approaches. However, when an option has a considerable amount of time remaining until its expiration, the more important component of the option value is really volatility. If traders expect the underlying stock to be volatile, the option will be expensive; if they expect the opposite, the option will be cheap. This expensiveness and cheapness is reflected in the portion of the option that is not intrinsic value. For example, a six-month option will not decay much in one day's time, but a quick change in volatility expectations by option traders can heavily affect the price of the option, especially one with a good deal of time remaining. So an option buyer should carefully assess his purchases, not just view them as something that will waste away. With careful analysis, option buyers can do very well, if they consider what can happen *during* the life of the option, and not merely what will happen at expiration.

CALL BUYERS' FRUSTRATIONS

Despite one's best efforts, it may often seem that one does not make much money when a fairly volatile stock makes a quick move of 3 or 4 points. The reasons for this are somewhat

more complex than can be addressed at this time, although they relate strongly to delta, time decay, and the volatility of the underlying stock. They are discussed in Chapter 36, "The Basics of Volatility Trading." If one plans to conduct a serious call buying strategy, he should read that chapter before embarking on a program of extensive call buying.

FOLLOW-UP ACTION

The simplest follow-up action that the call buyer can implement when the underlying stock drops is to sell his call and cut his losses. There is often a natural tendency to hold out hope that the stock can rally back to or above the striking price. Most of the time, the buyer does best by cutting his losses in situations in which the stock is performing poorly. He might use a "mental" stop price or could actually place a sell stop order, depending on the rules of the exchange where the call is traded. In general, stop orders for options result in poor executions, so using a "mental" stop is better. That is, one should base his exit point on the technical pattern of the underlying stock itself. If it should break down below support, for example, then the option holder should place a market (not held) order to sell his call option.

If the stock should rise, the buyer should be willing to take profits as well. Most buyers will quite readily take a profit if, for example, a call that was bought for 5 points had advanced to be worth 10 points. However, the same investor is often reluctant to sell a call at 2 that he had previously bought for 1 point, because "I've only made a point." The similarity is clear—both cases resulted in approximately a 100% profit—and the investor should be as willing to accept the one as he is the other. This is not to imply that all calls that are bought at 1 should be sold when and if they get to 2, but the same factors that induce one to sell the 10-point call after doubling his money should apply to the 2-point call as well.

In fact, taking partial profits after a call holding has increased in value is often a wise plan. For example, if someone bought a number of calls at a price of 3, and they later were worth 5, it might behoove the call holder to sell one-third to one-half of his position at 5, thereby taking a partial profit. Having done that, it is often easier to let the profits run on the balance, and letting profits run is generally one of the keys to successful trading.

It is rarely to the call buyer's benefit to exercise the call if he has to pay commissions. When one exercises a call, he pays a stock commission to buy the stock at the striking price. Then when the stock is sold, a stock sale commission must also be paid. Since option commissions are much smaller, dollarwise, than stock commissions, the call holder will usually realize more net dollars by selling the call in the option market than by exercising it.

LOCKING IN PROFITS

When the call buyer is fortunate enough to see the underlying stock advance relatively quickly, he can implement a number of strategies to enhance his position. These strategies are often useful to the call buyer who has an unrealized profit but is torn between taking the profit or holding on in an attempt to generate more profits if the underlying stock should continue to rise.

Example: A call buyer bought an XYZ October 50 call for 3 points when the stock was at 48. Then the stock rises to 58. The buyer might consider selling his October 50 (which would probably be worth about 9 points) or possibly taking one of several actions, some of which might involve the October 60 call, which may be selling for 3 points. Table 3-1 summarizes the situation. At this point, the call buyer might take one of four basic actions:

1. Liquidate the position by selling the long call for a profit.
2. Sell the October 50 that he is currently long and use part of the proceeds to purchase October 60's.
3. Create a spread by selling the October 60 call against his long October 50.
4. Do nothing and remain long the October 50 call.

TABLE 3-1.
Present situation on XYZ October calls.

Original Trade	Current Prices
XYZ common: 48	XYZ Common: 58
Bought XYZ October 50 at 3	XYZ October 50: 9
	XYZ October 60: 3

Each of these actions would produce different levels of risk and reward from this point forward. If the holder sells the October 50 call, he makes a 6-point profit, less commissions, and terminates the position. He can realize no further appreciation from the call, nor can he lose any of his current profits; he has realized a 6-point gain. *This is the least aggressive tactic of the four.* If the underlying stock continues to advance and rises above 63, any of the other three strategies will outperform the complete liquidation of the call. However, if the underlying stock should instead decline below 50 by expiration, this action would have provided the most profit of the four strategies.

The other simple tactic, the fourth one listed, is to do nothing. If the call is then held

to expiration, *this tactic would be the riskiest of the four.* It is the only one that could produce a loss at expiration if XYZ fell back below 50. However, if the underlying stock continues to rise in price, more profits would accrue on the call. Every call buyer realizes the ramifications of these two tactics—liquidating or doing nothing—and is generally looking for an alternative that might allow him to reduce some of his risk without cutting off his profit potential completely. The remaining two tactics are geared to this purpose: limiting the total risk while providing the opportunity for further profits of an amount greater than those that could be realized by liquidating.

The strategy in which the holder sells the call that he is currently holding, the October 50, and uses part of the proceeds to buy the call at the next higher strike is called *rolling up.* In this example, he could sell the October 50 at 9, pocket his initial 3-point investment, and use the remaining proceeds to buy two October 60 calls at 3 points each. Thus, it is sometimes possible for the speculator to recoup his entire original investment and still increase the number of calls outstanding by rolling up. Once this has been done, the October 60 calls will represent pure profits, whatever their price. *The buyer who "rolls up" in this manner is essentially speculating with someone else's money.* He has put his own money back in his pocket and is using accrued profits to attempt to realize further gains. At expiration, this tactic would perform best if XYZ increased by a substantial amount. This tactic turns out to be the worst of the four at expiration if XYZ remains near its current price, staying above 53 but not rising above 63 in this example.

The other alternative, the third one listed, is to continue to hold the October 50 call but to sell the October 60 call against it. This would create what is known as a bull spread, and the tactic can be used only by traders who have a margin account and can meet their firm's minimum equity requirement for spreading (generally $2,000). This spread position has no risk, for the long side of the spread—the October 50—cost 3 points, and the short side of the spread—the October 60—brought in 3 points via its sale. Even if the underlying stock drops below 50 by expiration and all the calls expire worthless, the trader cannot lose anything except commissions. On the other hand, the maximum potential of this spread is 10 points, the difference between the striking prices of 50 and 60. This maximum potential would be realized if XYZ were anywhere above 60 at expiration, for at that time the October 50 call would be worth 10 points more than the October 60 call, regardless of how far above 60 the underlying stock had risen. *This strategy will be the best performer of the four if XYZ remains relatively unchanged*, above the lower strike but not much above the higher strike by expiration. It is interesting to note that this tactic is *never the worst performer of the four tactics*, no matter where the stock is at expiration. For example, if XYZ drops below 50, this strategy has no risk and is therefore better than the "do nothing" strategy. If XYZ rises substantially, this spread produces a profit of 10 points, which is better than the 6 points of profit offered by the "liquidate" strategy.

* * *

There is no definite answer as to which of the four tactics is the best one to apply in a given situation. However, if a call can be sold against the currently long call to produce a bull spread that has little or no risk, it may often be an attractive thing to do. It can never turn out to be the worst decision, and it would produce the largest profits if XYZ does not rise substantially or fall substantially from its current levels. Tables 3-2 and 3-3 summarize the four alternative tactics, when a call holder has an unrealized profit. The four tactics, again, are:

TABLE 3-2.
Comparison of the four alternative strategies.

If the underlying stock then . . .	The best tactic was . . .	And the worst tactic was . . .
continues to rise dramatically . . .	"roll up"	liquidate
rises moderately above the next strike . . .	do nothing	liquidate or "roll up"
remains relatively unchanged . . .	spread	"roll up"
falls back below the original strike . . .	liquidate	do nothing

TABLE 3-3.
Results at expiration.

XYZ Price at Expiration	"Roll-up" Profit	"Do Nothing" Profit	"Spread" Profit	Liquidating Profit
50 or below	$ 0	–$ 300(W)	$ 0	+$600 (B)
53	0(W)	0(W)	+ 300	+ 600 (B)
56	0(W)	+ 300	+ 600(B)	+ 600 (B)
60	0(W)	+ 700	+ 1,000(B)	+ 600
63	+ 600(W)	+ 1,000 (B)	+ 1,000(B)	+ 600(W)
67	+ 1,400 (B)	+ 1,400 (B)	+ 1,000	+ 600(W)
70	+ 2,000 (B)	+ 1,700	+ 1,000	+ 600(W)

1. "Do nothing"—continue to hold the currently long call.
2. "Liquidate"—sell the long call to take profits and do not reinvest.
3. "Roll up"—sell the long call, pocket the original investment, and use the remaining proceeds to purchase as many out-of-the-money calls as possible.

4. "Spread"—create a bull spread by selling the out-of-the-money call against the currently profitable long call, preferably taking in at least the original cost of the long call.

Note that each of the four tactics proves to be the best tactic in one case or another, but that the spread tactic is never the worst one. Tables 3-2 and 3-3 represent the results from holding until expiration. For those who prefer to see the actual numbers involved in making these comparisons between the four tactics, Table 3-3 summarizes the potential profits and losses of each of the four tactics using the prices from the example above. "W" indicates that the tactic is the worst one at that price, and "B" indicates that it is the best one.

There are, of course, modifications that an investor might make to any of these tactics. For example, he might decide to sell out half of his long call position, recovering a major part of his original cost, and continue to hold the remainder of the long calls. This still leaves room for further appreciation.

Selling a portion of the position and retaining the rest is known as "taking a partial profit." This tactic and all of the above ones—except "do nothing"—can be harmful to a position in which the underlying moves strongly in one's favor for an extended distance. Every time one takes partial profits, rolls up, or takes other measures, he is doing something bearish to his position. Those little bearish actions will be harmful if the underlying continues to perform favorably. There is a school of thought that says one is better off merely using a trailing stop—a stop placed at the 20-day moving average of the underlying, say—than to make bearish adjustments to a bullish position. Of course, in a choppy market that is swinging up and down, partial profits may prove to be preferable, but a call buyer's best way to maximize profits over time is to be lucky or good enough to be long in a strong trend. He should do everything he can to maximize the profits and ride that trend, which would be "do nothing" and use a stop that trails along behind the market.

DEFENSIVE ACTION

Two follow-up strategies are sometimes employed by the call buyer when the underlying stock declines in price. Both involve spread strategies; that is, being long and short two different calls on the same underlying stock simultaneously. Spreads are discussed in detail in later chapters. This discussion of spreads applies only to their use by the call buyer.

"Rolling Down." If an option holder owns an option at a currently unrealized loss, it may be possible to greatly increase the chances of making a limited profit on a relatively small rebound in the stock price. In certain cases, the investor may be able to implement such a strategy at little or no increase in risk.

Many call buyers have encountered a situation such as this: An XYZ October 35 call was originally bought for 3 points in hopes of a quick rise in the stock price. However, because of downward movements in the stock—to 32, say—the call is now at 1.50 with October expiration nearer. If the call buyer still expects a mild rally in the stock before expiration, he might either hold the call or possibly "average down" (buy more calls at 1.50). In either case he will need a rally to nearly 38 by expiration in order to break even. Since this would necessitate at least a 15% upward move by the stock before expiration, it cannot be considered very likely. Instead, the buyer should consider implementing the following strategy, which will be explained through the use of an example.

Example: The investor is long the October 35 call at this time:

XYZ, 32;
XYZ October 35 call, 1.50; and
XYZ October 30 call, 3.

One could sell two October 35's and, at the same time, buy one October 30 for no additional investment before commissions. That is, the sale of 2 October 35's at $150 each would bring in $300, exactly the cost, before commissions, of buying the October 30 call. *This is the key to implementing the roll-down strategy: that one be able to buy the lower strike call and sell two of the higher strike calls for nearly even money.*

Note that the investor is now short the call that he previously owned, the October 35. Where he previously owned one October 35, he has now sold two of them. He is also now long one October 30 call. Thus, his position is:

long 1 XYZ October 30 call,
short 1 XYZ October 35 call.

This is technically known as a *bull spread*, but the terminology is not important. Table 3-4 summarizes the transactions that the buyer has made to acquire this spread. The trader now "owns" the spread at a cost of $300, plus commissions. By making this trade, he has lowered his break-even point significantly without increasing his risk. However, the maximum profit potential has also been limited; he can no longer capitalize on a strong rebound by the underlying stock.

In order to see that the break-even point has been lowered, consider what the results are if XYZ is at 33 at October expiration. The October 30 call would be worth 3 points and the October 35 would expire worthless with XYZ at 33. Thus, the October 30 call could be sold to bring in $300 at that time, and there would not be any expense to buy

TABLE 3-4.
Transactions in bull spread.

	Trade	Cost before Commissions
Original trade	Buy 1 October 35 call at 3	$300 debit
Later trade	Sell 2 October 35 calls at 1.50	$300 credit
	Buy 1 October 30 call at 3	$300 debit
Net position	Long 1 October 30 call	$300 debit
	Short 1 October 35 call	

back the October 35. Consequently, the spread could be liquidated for $300, exactly the amount for which it was "bought." The spread then breaks even at 33 at expiration. If the call buyer had not rolled down, his break-even point would be 38 at expiration, for he paid 3 points for the original October 35 call and he would thus need XYZ to be at 38 in order to be able to liquidate the call for 3 points. Clearly, the stock has a better chance of recovering to 33 than to 38. *Thus, the call buyer significantly lowers his break-even point by utilizing this strategy.*

Lowering the break-even point is not the investor's only concern. He must also be aware of what has happened to his profit and loss opportunities. The risk remains essentially the same—the $300 in debits, plus commissions, that has been paid out. The risk has actually increased slightly, by the amount of the commissions spent in "rolling down." However, the stock price at which this maximum loss would be realized has been lowered. With the original long call, the October 35, the buyer would lose the entire $300 investment anywhere below 35 at October expiration. The spread strategy, however, would result in a total loss of $300 only if XYZ were below 30 at October expiration. With XYZ above 30 in October, the long side of the spread could be liquidated for some value, thereby avoiding a total loss. *The investor has reduced the chance of realizing the maximum loss*, since the stock price at which that loss would occur has been lowered by 5 points.

As with most investments, the improvement of risk exposure—lowering the break-even point and lowering the maximum loss price—necessitates that some potential reward be sacrificed. In the original long call position (the October 35), the maximum profit potential was unlimited. In the new position, the potential profit is limited to 2 points if XYZ should rally back to, *or anywhere above*, 35 by October expiration. To see this, assume XYZ is 35 at expiration. Then the long October 30 call would be worth 5 points, while the October 35 would expire worthless. Thus, the spread could be liquidated for 5

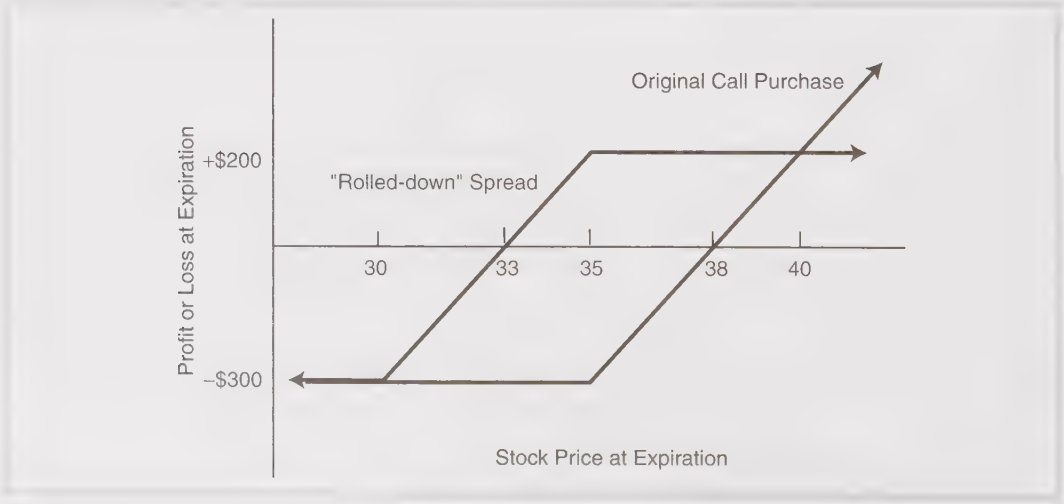
points, a 2-point profit over the 3 points paid for the spread. This is the limit of profit for the spread, however, since if XYZ is above 35 at expiration, any further profits in the long October 30 call would be offset by a corresponding loss on the short October 35 call. *Thus, if XYZ were to rally heavily by expiration, the "rolled down" position would not realize as large a profit as the original long call position would have realized.*

Table 3-5 and Figure 3-2 summarize the original and new positions. Note that the new position is better for stock prices between 30 and 40. Below 30, the two positions are

TABLE 3-5.
Original and spread positions compared.

Stock Price at Expiration	Long Call Result	Spread Result
25	–$300	–$300
30	– 300	– 300
33	– 300	0
35	– 300	+ 200
38	0	+ 200
40	+ 200	+ 200
45	+ 700	+ 200

FIGURE 3-2.
Companion: original call purchase vs. spread.



equal, except for the additional commissions spent. If the stock should rally back above 40, the original position would have worked out better. *The new position is an improvement, provided that XYZ does not rally back above 40 by expiration.* The chances that XYZ could rally 8 points, or 25%, from 32 to 40 would have to be considered relatively remote. Rolling the long call down into the spread would thus appear to be the correct thing to do in this case.

This example is particularly attractive, because no additional money was required to establish the spread. In many cases, however, one may find that the long call cannot be rolled into the spread at even money. Some debit may be required. This fact should not necessarily preclude making the change, since a small additional investment may still significantly increase the chance of breaking even or making a profit on a rebound.

Example: The following prices now exist, rather than the ones used earlier. Only the October 30 call price has been altered:

XYZ, 32;
XYZ October 35 call, 1.50; and
XYZ October 30 call, 4.

With these prices, a 1-point debit would be required to roll down. That is, selling 2 October 35 calls would bring in $300 ($150 each), but the cost of buying the October 30 call is $400. Thus, the transaction would have to be done at a cost of $100, plus commissions. With these prices, the break-even point after rolling down would be 34, still well below the original break-even price of 38. The risk has now been increased by the additional 1 point spent to roll down. If XYZ should drop below 30 at October expiration, the investor would have a total loss of 4 points plus commissions. The maximum loss with the original long October 35 call was limited to 3 points plus a smaller amount of commissions. Finally, the maximum amount of money that the spread could make is now $100, less commissions. The alternative in this example is not nearly as attractive as the previous one, but it might still be worthwhile for the call buyer to invoke such a spread if he feels that XYZ has limited rally potential up to October expiration.

One should not automatically discard the use of this strategy merely because a debit is required to convert the long call to a spread. Note that to "average down" by buying an additional October 35 call at 1.50 would require an additional investment of $150. This is more than the $100 required to convert into the spread position in the immediately preceding example. The break-even point on the position that was "averaged down" would be over 37 at expiration, whereas the break-even point on the spread is 34. Admittedly, the averaged-down

position has much more profit potential than the spread does, but the conversion to the spread is less expensive than "averaging down" and also provides a lower break-even price.

In summary, then, if the call buyer finds himself with an unrealized loss because the stock has declined, and yet is unwilling to sell, he may be able to improve his chances of breaking even by "rolling down" into a spread. That is, he would sell 2 of the calls that he is currently long—the one that he owns plus another one—and simultaneously buy one call at the next lower striking price. If this transaction of selling 2 calls and buying 1 call can be done for approximately even money, it could definitely be to the buyer's benefit to implement this strategy, because the break-even point would be lowered considerably and the buyer would have a much better chance of getting out even or making a small profit should the underlying stock have a small rebound.

Creating a Calendar Spread. A different type of defensive spread strategy is sometimes used by the call buyer who finds that the underlying stock has declined. In this strategy, the holder of an intermediate- or long-term call sells a near-term call, with the same striking price as the call he already owns. This creates what is known as a calendar spread. The idea behind doing this is that if the short-term call expires worthless, the overall cost of the long call will be reduced to the buyer. Then, if the stock should rally, the call buyer has a better chance of making a profit.

Example: Suppose that an investor bought an XYZ October 35 call for 3 points sometime in April. By June the stock has fallen to 32, and it appears that the stock might remain depressed for a while longer. The holder of the October 35 call might consider selling a July 35 call, perhaps for a price of 1 point. Should XYZ remain below 35 until *July* expiration, the short call would expire worthless, earning a small, 1-point profit. The investor would still own the October 35 call and would then hope for a rally by XYZ before October in order to make profits on that call. Even if XYZ does not rally by October, he has decreased his overall loss by the amount received for the sale of the July 35 call.

This strategy is not as attractive to use as the previous one. If XYZ should rally before July expiration, the investor might find himself with two losing positions. For example, suppose that XYZ rallied back to 36 in the next week. His short call that he sold for 1 point would be selling for something more than that, so he would have an unrealized loss on the short July 35. In addition, the October 35 would probably not have appreciated back to its original price of 3, and he would therefore have an unrealized loss on that side of the spread as well.

Consequently, this strategy should be used with great caution, for if the underlying stock rallies quickly before the near-term expiration, the spread could be at a loss on both

sides. Note that in the former spread strategy, this could not happen. Even if XYZ rallied quickly, some profit would be made on the rebound.

A FURTHER COMMENT ON SPREADS

Anyone not familiar with the margin requirements for spreads, under both the exchange margin rules and the rules of the brokerage firm he is dealing with, should not attempt to utilize a spread transaction. Later chapters on spreads outline the more common requirements for spread transactions. In general, one must have a margin account to establish a spread and must have a minimum amount of equity in the account. Thus, the call buyer who operates in a cash account cannot necessarily use these spread strategies. To do so might incur a margin call and possible restriction of one's trading account. Therefore, check on specific requirements before utilizing a spread strategy. Do not assume that a long call can automatically be "rolled" into any sort of spread.

CHAPTER 4

Other Call Buying Strategies

In this chapter, two additional strategies that utilize the purchase of call options are described. Both of these strategies involve buying calls against the short sale of the underlying stock. When listed puts are traded on the underlying stock, these strategies are often less effective than when they are implemented with the use of put options. However, the concept is important, and sometimes these strategies are more viable in markets where calls are very liquid but puts are not. These strategies are generally known as "synthetic" strategies.

THE PROTECTED SHORT SALE (OR SYNTHETIC PUT)

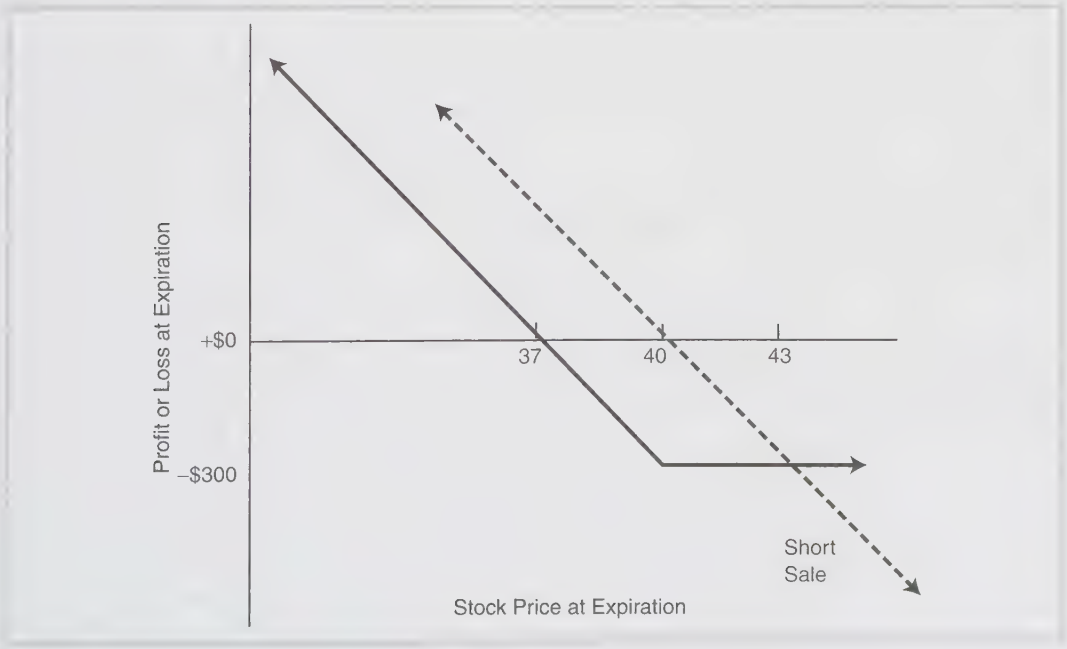
Purchasing a call at the same time that one is short the underlying stock is a means of limiting the risk of the short sale to a fixed amount. Since the risk is theoretically unlimited in a short sale, many investors are reluctant to use the strategy. Even for those investors who do sell stock short, it can be rather upsetting if the stock rises in price. One may be forced into an emotional—and perhaps incorrect—decision to cover the short sale in order to relieve the psychological pressure. By owning a call at the same time he is short, the investor limits the risk to a fixed and generally small amount.

Example: An investor sells XYZ short at 40 and simultaneously purchases an XYZ July 40 call for 3 points. If XYZ falls in price, the short seller will make his profit on the short sale, less the 3 points paid for the call, which will expire worthless. *Thus, by buying the call for protection, a small amount of profit potential is sacrificed.* However, the advantage of owning the call is demonstrated when the results are examined for a stock rise. If XYZ should rise to any price above 40 by July expiration, the short seller can cover his short by exercising the long call and buying stock at 40. Thus, the maximum risk that the short seller can incur in this example is the 3 points paid for the call. Table 4-1 and Figure 4-1 depict the results

TABLE 4-1.
Results at expiration—protected short sale.

XYZ Price at Expiration	Profit on XYZ	Call Price at Expiration	Profit on Call	Total Profit
20	+$2,000	0	–$ 300	+$1,700
30	+ 1,000	0	– 300	+ 700
37	+ 300	0	– 300	0
40	0	0	– 300	– 300
50	– 1,000	10	+ 700	– 300
60	– 2,000	20	+ 1,700	– 300

FIGURE 4-1.
Protected short sale.



at expiration from utilizing this strategy. Commissions are not included. Note that the break-even point is 37 in this example. That is, if the stock drops 3 points, the protected short sale position will break even because of the 3-point loss on the call. The short seller who did not spend the extra money for the long call would, of course, have a 3-point profit at 37. To the upside, however, the protected short sale outperforms a regular short sale if

the stock climbs anywhere above 43. At 43, both types of short sales have $300 losses. But above that level, the loss would continue to grow for a regular short sale, while it is fixed for the short seller who also bought a call. In either case, the short seller's risk is increased slightly by the fact that he is obligated to pay out the dividends on the underlying stock, if any are declared.

A simple formula is available for determining the maximum amount of risk when one protects a short sale by buying a call option:

Risk = Striking price of purchased call + Call price – Stock price

Depending on how much risk the short seller is willing to absorb, he might want to buy an out-of-the-money call as protection rather than an at-the-money call, as was shown in the example above. A smaller dollar amount is spent for the protection when one buys an out-of-the-money call, so that the short seller does not give away as much of his profit potential. However, his risk is larger because the call does not start its protective qualities until the stock goes above the striking price.

Example: With XYZ at 40, the short seller of XYZ buys the July 45 call at .50 for protection. His maximum possible loss, if XYZ is above 45 at July expiration, would be 5.50 points—the five points between the current stock price of 40 and the striking price of 45, plus the amount paid for the call. On the other hand, if XYZ declines, the protected short seller will make nearly as much as the short seller who did not protect, since he only spent .50 for the long call.

If one buys an *in-the-money* call as protection for the short sale, his risk will be quite minimal. However, his profit potential will be severely limited. As an example, with XYZ at 40, if one had purchased a July 35 call at 5.50, his risk would be limited to .50 anywhere above 35 at July expiration. Unfortunately, he would not realize any profit on the position until the stock went below 34.50, a drop of 5.50 points. This is too much protection, for it limits the profit so severely that there is only a small hope of making a profit.

Generally, it is best to buy a call that is at-the-money or only slightly out-of-the-money as the protection for the short sale. It is not of much use to buy a deeply out-of-the-money call as protection, since it does very little to moderate risk unless the stock climbs quite dramatically. Normally, one would cover a short sale before it went heavily against him. Thus, the money spent for such a deeply out-of-the-money call is wasted. However, if one wants to give a short sale plenty of room to "work" and feels very certain that his bearish view of the stock is the correct view, he might then buy a fairly deep out-of-the-money call just as disaster protection, in case the stock suddenly bolted upward in price (if it received a takeover bid, for example).

MARGIN REQUIREMENTS

The newest margin rules now allow one to receive favorable margin treatment when a short sale of stock is protected by a long call option. The margin required is the lower of (1) 10% of the call's striking price plus any out-of-the-money amount, or (2) 30% of the current short stock's market value. The position will be marked to market daily, and most brokers will require that the short sale be margined at "normal" rates if the stock is below the strike price.

Example: Suppose the following prices exist:

XYZ Common stock: 47
Oct 40 call: 8
Oct 50 call: 3
Oct 60 call: 1

Suppose that one is considering a short sale of 100 shares of XYZ at 47 and the purchase of one of the calls as protection. Here are the margin requirements for the various strike prices. (Note that the option price, per se, is not part of the margin requirement, but all options must be paid for in full, initially).

Position	10% strike + out-of-the-money	30% stock price
Short XYZ, long Oct 40 call	400 + 0 = 400*	1,410
Short XYZ, long Oct 50 call	500 + 300 = 800*	1,410
Short XYZ, long Oct 60 call	600 + 1,300 = 1,900	1,410*

*Since the margin requirement is the *lower* of the two figures, the items marked with an asterisk in this table are the margin requirements.

Again, remember that the long call would have to be paid for in full, and that most brokers impose a maintenance requirement of at least the value of the short sale itself as long as the stock is below the strike price of the long call, in addition to the above requirements.

PORTFOLIO MARGIN

This is the first time in this book that margin is being discussed, so this may be a good place to talk about portfolio margin. Portfolio margin is a way that certain, sophisticated option

trading accounts—with brokerage firm approval—can increase their leverage beyond Federal Reg T margin requirements. It applies to listed options only, not futures or FOREX.

Each brokerage firm may have different requirements for qualifying for portfolio margin treatment, but they are generally along these guidelines: account size of at least $100,000 (some brokers require as much as $500,000); answering a questionnaire or application that attests to your knowledge of options; and, at some firms, taking a brief options test. Also, see Appendix F for a further elaboration on portfolio margin.

In general, portfolio margin requirements are risk-based and are very difficult to calculate manually. The movements of the particularly underlying are estimated, based on volatility, and margin is assessed on those calculations, which obviously are done by a computer. Some brokerage firms have a calculator that portfolio margin customers can use to estimate portfolio margin requirements before a trade is established, but a large number of traders use the free calculator provided by the OCC, which is in charge of determining the essential data for portfolio margin. The OCC calculator can be found at https://cpm.theocc.com/tims_online.htm.

In the previous example, a volatility was not specified for XYZ stock, but the margin requirement for "Short XYZ, long Oct 40 Call" was $400. Under portfolio margin, if this was not a particularly volatile stock, the requirement would likely be closer to $100.

The CBOE also has a great deal of information on their website, including examples in the document at www.cboe.com/micro/margin/margin_req_examples.pdf. Also peruse the OCC website at www.optionsclearing.com/risk-management/cpm.

In the remainder of this book, margin examples will *not* assume portfolio margin treatment unless specifically stated.

FOLLOW-UP ACTION

There is little that the protected short seller needs to perform in the way of follow-up action in this strategy, other than closing out the position. If the underlying stock moves down quickly and it appears that it might rebound, the short sale could be covered without selling the long call. In this manner, one could potentially profit on the call side as well if the stock came back above the original striking price. If the underlying stock rises in price, a similar strategy of taking off only the profitable call side of the transaction is not recommended. That is, if XYZ climbed from 40 to 50 and the July 40 call also rose from 3 to 10, it is not advisable to take the 7-point profit in the call, hoping for a drop in the stock price. The reason for this is that one is entering into a highly risk-oriented situation by removing his protection when the call is in-the-money. Thus, when the stock drops, it is all right—perhaps even desirable—to take the profit, because there is little or no additional risk if the stock continues to drop. However, when the stock *rises*, it is *not*

an equivalent situation. In that case, if the short seller sells his call for a profit and the stock subsequently rises even further, large losses could result.

It may often be advisable to close the position if the call is at or near parity, in-the-money, by exercising the call. In most strategies, the option holder has no advantage in exercising the call because of the large dollar difference between stock commissions and option commissions. However, in the protected short sale strategy, the short seller is eventually going to have to cover the short stock in any case and incur the stock commission by so doing. It may be to his advantage to exercise the call and buy his stock at the striking price, thereby buying stock at a lower price and perhaps paying a slightly lower commission amount.

Example: XYZ rises to 50 from the original short sale price of 40, and the XYZ July 40 call is selling at 10 somewhere close to expiration. The position could be liquidated by either (1) buying the stock back at 50 and selling the call at 10, or (2) exercising the call to buy stock at 40. In the first case, one would pay a stock commission at a price of $50 per share plus an option commission on a $10 option. In the second case, the only commission would be a stock commission at the price of $40 per share. Since both actions accomplish the same end result—closing the position entirely for 40 points plus commissions—clearly the second choice is less costly and therefore more desirable. Of course, if the call has time value premium in it of an amount greater than the commission savings, the first alternative should be used.

SYNTHETIC STRADDLE (REVERSE HEDGE)

There is another strategy involving the purchase of long calls against the short sale of stock. In this strategy, one purchases calls on more shares than he has sold short. The strategist can profit if the underlying stock rises far enough or falls far enough during the life of the calls. This strategy is generally referred to as a *reverse hedge* or *synthetic straddle*. On stocks for which listed puts are traded, this strategy is outmoded; the same results can be better achieved by buying a straddle (a call and a put). Hence, the name "synthetic straddle" is applied to the reverse hedge strategy.

This strategy has limited loss potential, usually amounting to a moderate percentage of the initial investment, *and theoretically unlimited profit potential.* When properly selected (selection criteria are described in great detail in Chapter 36, which deals with volatility trading), the percentage of success can be quite high in straddle or synthetic straddle buying. These features make this an attractive strategy, especially when call premiums are low in comparison to the volatility of the underlying stock.

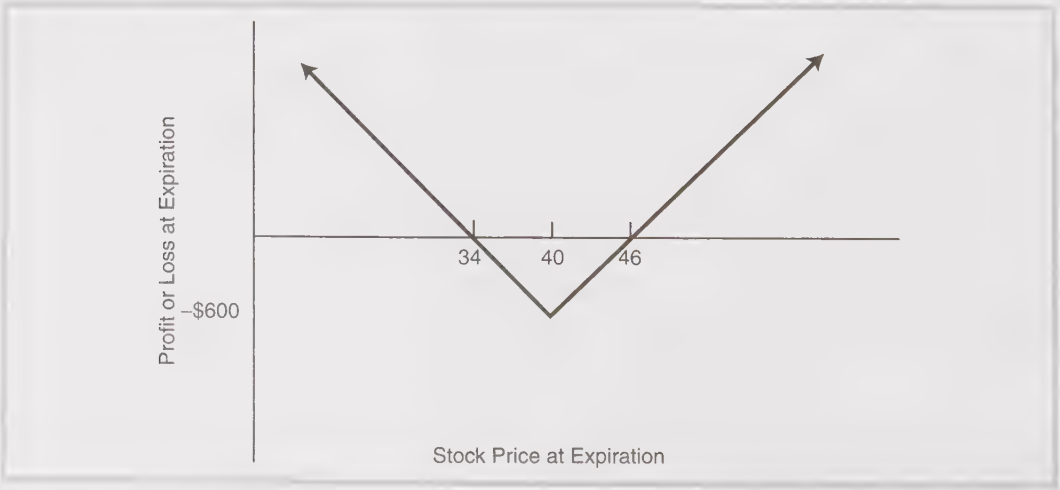
Example: XYZ is at 40 and an investor believes that the stock has the potential to move by a relatively large distance, but he is not sure of the direction the stock will take. This investor

could short XYZ at 40 and buy 2 XYZ July 40 calls at 3 each to set up a synthetic straddle. If XYZ moves up by a large distance, he will incur a loss on his short stock, but the fact that he owns two calls means that the call profits will outdistance the stock loss. If, on the other hand, XYZ drops far enough, the short sale profit will be larger than the loss on the calls, which is limited to 6 points. Table 4-2 and Figure 4-2 show the possible outcomes for various stock prices at July expiration. If XYZ falls, the stock profits on the short sale will accumu-

TABLE 4-2.
Synthetic straddle at July expiration.

XYZ Price at Expiration	Stock Profit	Profit on 2 Calls	Total Profit
20	+$2,000	–$ 600	+$1,400
25	+ 1,500	– 600	+ 900
30	+ 1,000	– 600	+ 400
34	+ 600	– 600	0
40	0	– 600	– 600
46	– 600	+ 600	0
50	– 1,000	+ 1,400	+ 400
55	– 1,500	+ 2,400	+ 900
60	– 2,000	+ 3,400	+ 1,400

FIGURE 4-2.
Synthetic straddle (reverse hedge).



late, but the loss on the two calls is limited to $600 (3 points each) so that, below 34, the synthetic straddle can make ever-increasing profits. To the upside, even though the short sale is incurring losses, the call profits grow faster because there are two long calls. For example, at 60 at expiration, there will be a 20-point ($2,000) loss on the short stock, but each XYZ July 40 call will be worth 20 points with the stock at 60. Thus, the two calls are worth $4,000, representing a profit of $3,400 over the initial cost of $600 for the calls.

Table 4-2 and Figure 4-2 illustrate another important point: *The maximum loss would occur if the stock were exactly at the striking price at expiration of the calls.* This maximum loss would occur if XYZ were at 40 at expiration and would amount to $600. In actual practice, since the short seller must pay out any dividends paid by the underlying stock, the risk in this strategy is increased by the amount of such dividends.

The net margin required for this strategy is 50% of the underlying stock plus the full purchase price of the calls. In the example above, this would be an initial investment of $2,000 (50% of the stock price) plus $600 for the calls, or $2,600 total plus commissions. The short sale is marked to market, so the collateral requirement would grow if the stock rose. Since the maximum risk, before commissions, is $600, this means that the net percentage risk in this transaction is $600/$2,600, about 23%. This is a relatively small percentage risk in a position that could have very large profits. There is also very little chance that the entire maximum loss would ever be realized since it occurs only at one specific stock price. One should not be deluded into thinking that this strategy is a sure money-maker. In general, stocks do not move very far in a 3- or 6-month period. With careful selection, though, one can often find situations in which the stock will be able to move far enough to reach the break-even points. Even when losses are taken, they are counterbalanced by the fact that significant gains can be realized when the stock moves by a great distance.

It is obvious from the information above that profits are made if the stock moves far enough in either direction. In fact, one can determine exactly the prices beyond which the stock would have to move by expiration in order for profits to result. These prices are 34 and 46 in the foregoing example. The downside break-even point is 34 and the upside break-even point is 46. These break-even points can easily be computed. First, the maximum risk is computed. Then the break-even points are determined.

$$\text{Maximum risk} = \text{Striking price} + 2 \times \text{Call price} - \text{Stock price}$$
$$\text{Upside break-even point} = \text{Striking price} + \text{Maximum risk}$$
$$\text{Downside break-even point} = \text{Striking price} - \text{Maximum risk}$$

In the preceding example, the striking price was 40, the stock price was also 40, and the call price was 3. Thus, the maximum risk = $40 + 2 \times 3 - 40 = 6$. This confirms that the maximum risk in the position is 6 points, or $600. The upside break-even point is then

40 + 6, or 46, and the downside break-even point is 40 – 6, or 34. These also agree with Table 4-2 and Figure 4-2.

Before expiration, profits can be made even closer to the striking price, because there will be some time value premium left in the purchased calls.

Example: If XYZ moved to 45 in one month, each call might be worth 6. If this happened, the investor would have a 5-point loss on the stock, but would also have a 3-point gain on each of the two options, for a net overall gain of 1 point, or $100. Before expiration, the break-even point is clearly somewhere below 46, because the position is at a profit at 45.

Ideally, one would like to find relatively underpriced calls on a fairly volatile stock in order to implement this strategy most effectively. These situations, while not prevalent, **can** be found. Normally, call premiums quite accurately reflect the volatility of the underlying stock. Still, this strategy can be quite viable, because nearly every stock, regardless of its volatility, occasionally experiences a straight-line, fairly large move. It is during these times that the investor can profit from this strategy.

Generally, the underlying stock selected for the synthetic straddle should be volatile. Even though option premiums are larger on these stocks, they can still be outdistanced by a straight-line move in a volatile situation. Another advantage of utilizing volatile stocks is that they generally pay little or no dividends. This is desirable for the synthetic straddle, because the short seller will not be required to pay out as much.

The technical pattern of the underlying stock can also be useful when selecting the position. One generally would like to have little or no technical support and resistance within the loss area. This pattern would facilitate the stock's ability to make a fairly quick move either up or down. It is sometimes possible to find a stock that is in a wide trading range, frequently swinging from one side of the range to the other. If a reverse hedge can be set up that has its loss area well within this trading range, the position may also be attractive.

Example: The XYZ stock in the previous example is trading in the range 30 to 50, perhaps swinging to one end and then the other rather frequently. Now the synthetic straddle example position, which would make profits above 46 or below 34, would appear more attractive.

FOLLOW-UP ACTION

Since the synthetic straddle has a built-in limited loss feature, it is not necessary to take any follow-up action to avoid losses. The investor could quite easily put the position on and take no action at all until expiration. This is often the best method of follow-up action in this strategy.

Another follow-up strategy can be applied, although it has some disadvantages associated with it. This follow-up strategy is sometimes known as *trading against the straddle.* When the stock moves far enough in either direction, the profit on that side can be taken. Then, if the stock swings back in the opposite direction, a profit can also be made on the other side. Two examples will show how this type of follow-up strategy works.

Example 1: The XYZ stock in the previous example quickly moves down to 32. At that time, an 8-point profit could be taken on the short sale. This would leave two long calls. Even if they expired worthless, a 6-point loss is all that would be incurred on the calls. Thus, the entire strategy would still have produced a profit of 2 points. However, if the stock should rally above 40, profits could be made on the calls as well. A slight variation would be to sell one of the calls at the same time the stock profit is taken. This would result in a slightly larger realized profit; but if the stock rallied back above 40, the resulting profits there would be smaller because the investor would be long only one call instead of two.

Example 2: XYZ has moved up to a price at which the calls are each worth 8 points. One of the calls could then be sold, realizing a 5-point profit. The resulting position would be short 100 shares of stock and long one call, a protected short sale. The protected short sale has a limited risk, above 40, of 3 points (the stock was sold short at 40 and the call was purchased for 3 points). Even if XYZ remains above 40 and the maximum 3-point loss has to be taken, the overall synthetic straddle would still have made a profit of 2 points because of the 5-point profit taken on the one call. Conversely, if XYZ drops below 40, the protected short sale position could add to the profits already taken on the call.

There is a variation of this upside protective action.

Example 3: Instead of selling the one call, one could instead short an additional 100 shares of stock at 48. If this was done, the overall position would be short 200 shares of stock (100 at 40 and the other 100 at 48) and long two calls—again a protected short sale. If XYZ remained above 40, there would again be an overall gain of 2 points. To see this, suppose that XYZ was above 40 at expiration and the two calls were exercised to buy 200 shares of stock at 40. This would result in an 8-point profit on the 100 shares sold short at 48, and no gain or loss on the 100 shares sold short at 40. The initial call cost of 6 points would be lost. Thus, the overall position would profit by 2 points. This means of follow-up action to the upside is more costly in commissions, but would provide bigger profits if XYZ fell back below 40, because there are 200 shares of XYZ short.

In theory, if any of the foregoing types of follow-up action were taken and the underlying stock did indeed reverse direction and cross back through the striking price, the

original position could again be established. Suppose that, after covering the short stock at 32, XYZ rallied back to 40. Then XYZ could be sold short again, reestablishing the original position. If the stock moved outside the break-even points again, further follow-up action could be taken. This process could theoretically be repeated a number of times. If the stock continued to whipsaw back and forth in a trading range, the repeated follow-up actions could produce potentially large profits on a small net change in the stock price. In actual practice, it is unlikely that one would be fortunate enough to find a stock that moved that far that quickly.

The disadvantage of applying these follow-up strategies is obvious: *One can never make a large profit if he continually cuts his profits off at a small, limited amount.* When XYZ falls to 32, the stock can be covered to ensure an overall profit of 2 points on the transaction. However, if XYZ continued to fall to 20, the investor who took no follow-up action would make 14 points while the one who did take follow-up action would make only 2 points. Recall that it was stated earlier that there is a high probability of realizing limited losses in the synthetic straddle strategy, but that this is balanced by the potentially large profits available in the remaining cases. If one takes follow-up action and cuts off these potentially large profits, he is operating at a distinct disadvantage unless he is an extremely adept trader.

Proponents of using the follow-up strategy often counter with the argument that it is frustrating to see the stock fall to 32 and then return back to nearly 40 again. If no follow-up action were taken, the unrealized profit would have dissolved into a loss when the stock rallied. This is true as far as it goes, but it is not an effective enough argument to counterbalance the negative effects of cutting off one's profits.

ALTERING THE RATIO OF LONG CALLS TO SHORT STOCK

Another aspect of this strategy should be discussed. One does not have to buy exactly two calls against 100 shares of short stock. More bullish positions could be constructed by buying three or four calls against 100 shares short. More bearish positions could be constructed by buying three calls and shorting 200 shares of stock. One might adopt a ratio other than 2:1, because he is more bullish or bearish. He also might use a different ratio if the stock is between two striking prices, but he still wants to create a position that has break-even points spaced equidistant from the current stock price. A few examples will illustrate these points.

Example: XYZ is at 40 and the investor is slightly bullish on the stock but still wants to employ the synthetic straddle strategy, because he feels there is a chance the stock could drop sharply. He might then short 100 shares of XYZ at 40 and buy 3 July 40 calls for 3 points apiece. Since he paid 9 points for the calls, his maximum risk is that 9 points if

XYZ were to be at 40 at expiration. This means his downside break-even price is 31, for at 31 he would have a 9-point profit on the short sale to offset the 9-point loss on the calls. To the upside, his break-even is now 44.50. If XYZ were at 44.50 and the calls at 4.50 each at expiration, he would lose 4.50 points on the short sale, but would make 1.50 on each of the three calls, for a total call profit of 4.50.

A more bearish investor might short 200 XYZ at 40 and buy 3 July 40 calls at 3. His break-even points would be 35.50 on the downside and 49 on the upside, and his maximum risk would be 9 points. There is a general formula that one can always apply to calculate the maximum risk and the break-even points, regardless of the ratios involved.

$$\text{Maximum risk} = (\text{Striking price} - \text{Stock price}) \times \text{Round lots shorted} + \text{Number of calls bought} \times \text{Call price}$$

$$\text{Upside break-even} = \text{Striking price} + \frac{\text{Maximum risk}}{(\text{Number of calls bought} - \text{Number of round lots short})}$$

$$\text{Downside break-even} = \text{Striking price} - \frac{\text{Maximum risk}}{\text{Number of round lots short}}$$

To verify this, use the numbers from the example in which 100 XYZ were shorted at 40 and three July 40 calls were purchased for 3 each.

$$\text{Maximum risk} = (40 - 40) - 1 + 3 \times 3 = 9$$
$$\text{Upside break-even} = 40 + 9/(3 - 1) = 40 + 4.50 = 44.50$$
$$\text{Downside break-even} = 40 - 9/1 = 31$$

It was stated earlier that *one might use an adjusted ratio in order to space the break-even points evenly around the current stock price.*

Example: Suppose XYZ is at 38 and the XYZ July 40 call is at 2. If one wanted to set up a synthetic straddle that would profit if XYZ moved either up or down by the same distance, he could not use the 2:1 ratio. The 2:1 ratio would have break-even points of 34 and 46. Thus, the stock would start out much closer to the downside break-even point—only 4 points away—than to the upside break-even point, which is 8 points away. By altering the ratio, the investor can set up a synthetic straddle that is more neutral on the underlying stock. Suppose that the investor shorted 100 shares of XYZ at 38 and bought *three* July 40 calls at 2 each. Then his break-even points would be 32 on the downside and 44 on the upside. This is a more neutral situation, with the downside break-even point being 6 points below the current stock price and the upside break-even point being 6 points away. The formulae above can be used

to verify that, in fact, the break-evens are 32 and 44. Note that the 3:1 ratio has a maximum risk of 8 points, while the 2:1 ratio only had 6 points maximum risk.

A final adjustment that can be applied to this strategy is to short the stock and buy two calls, but with the calls having *different striking prices*. If XYZ were at 37.50 to start with, one would have to use a ratio other than 2:1 to set up a position with break-even points spaced equidistant from the current stock price. When these higher ratios are used, the maximum risk is increased and the investor has to adopt a bullish or bearish stance. One may be able to create a position with equidistant break-even points and a smaller maximum risk by utilizing two different striking prices.

Example: The following prices exist:

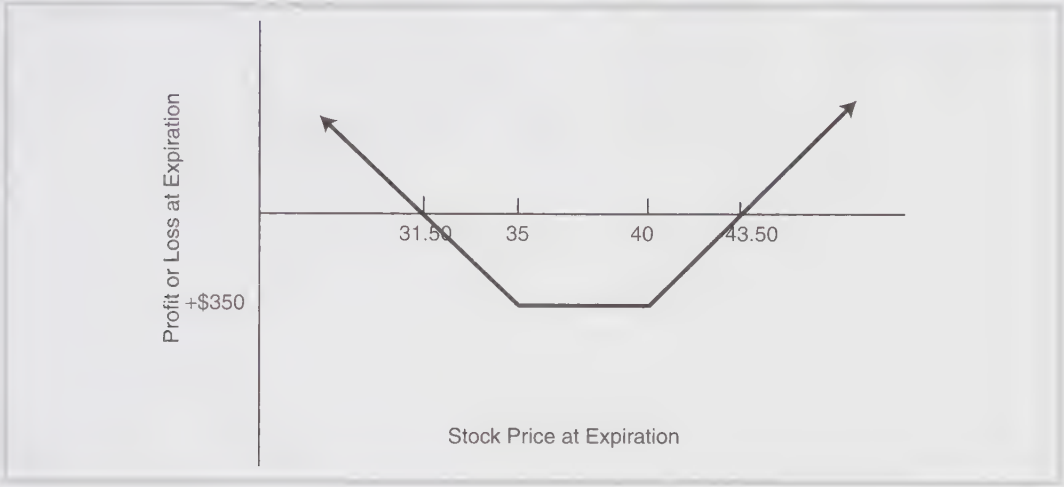
XYZ, 37.50;
XYZ July 40 call, 2; and
XYZ July 35 call, 4.

If one were to short 100 XYZ at 37.50 and to buy one July 40 call for 2 and one July 35 call for 4, he would have a position that is similar to a synthetic straddle except that *the maximum risk would be realized anywhere between 35 and 40 at expiration*. Although this risk is over a much wider range than in the normal synthetic straddle, it is now much smaller in dimension. Table 4-3 and Figure 4-3 show the results from this type of position at expiration. The maximum loss is 3.50 points ($350), which is a smaller amount than

TABLE 4-3.
Synthetic straddle using two strikes.

XYZ Price at Expiration	Stock Profit	July 40 Call Profit	July 35 Call Profit	Total Profit
25	+$1,250	–$200	–$ 400	+$ 650
30	+ 750	– 200	– 400	+ 150
31½	+ 600	– 200	– 400	0
35	+ 250	– 200	– 400	– 350
37½	0	– 200	– 150	– 350
40	– 250	– 200	+ 100	– 350
43½	– 600	+ 150	+ 450	0
45	– 750	+ 300	+ 600	+ 150
50	– 1,250	+ 800	+ 1,100	+ 650

FIGURE 4-3.
Synthetic straddle using two strikes (synthetic strangle).



could be realized using any ratio strictly with the July 35 or the July 40 call. However, this maximum loss is realizable over the entire range, 35 to 40. Again, large potential profits are available if the stock moves far enough either to the upside or to the downside.

This form of the strategy should only be used when the stock is nearly centered between two strikes and the strategist wants a neutral positioning of the break-even points. Similar types of follow-up action to those described earlier can be applied to this form of the synthetic straddle strategy as well. When this strategy involves two strikes, it is called a "synthetic strangle;" a normal strangle involves puts and calls with two different strikes.

SUMMARY

The strategies described in this chapter would not normally be used if the underlying stock has listed put options. However, if no puts exist, or the puts are very illiquid, and the strategist feels that a volatile stock could move a relatively large distance in either direction during the life of a call option, he should consider using one of the forms of the synthetic straddle strategy—shorting a quantity of stock and buying calls on more shares than he is short. If the desired movement does develop, potentially large profits could result. In any case, the loss is limited to a fixed amount, generally around 20 to 30% of the initial investment. Although it is possible to take follow-up action to lock in small profits and attempt to gain on a reversal by the stock, it is wiser to let the position run its course

to capitalize on those occasions when the profits become large. Normally a 2:1 ratio (long 2 calls, short 100 shares of stock) is used in this strategy, but this ratio can be adjusted if the investor wants to be more bullish or more bearish. If the stock is initially between two striking prices, a neutral profit range can be set up by shorting the stock and buying calls at both the next higher strike and the next lower strike.

CHAPTER 5

Naked Call Writing

The next two chapters will concentrate on various aspects of writing uncovered call options. These strategies have risk of loss if the underlying stock should rise in price, but they offer profits if the underlying stock declines in price. This chapter—on naked, or uncovered, call writing—demonstrates some of the risks and rewards inherent in this aggressive strategy. Novice option traders often think that selling naked options is the "best" way to make money, because of time decay. In addition, they often assume that market-makers and other professionals sell a lot of naked options. In reality, neither is true. Yes, options do eventually lose their premium if held all the way until expiration. However, when an option has a good deal of life remaining, its excess value above intrinsic value—what we call "time value premium"—is, in reality, heavily influenced by the volatility estimate of the stock. This is called implied volatility and is discussed at length later in the book. For now, though, it is sufficient to understand that a lot can go wrong when one writes a naked option, before it eventually expires. As to professionals selling a lot of naked options, the fact is that most market-makers and other full-time option traders attempt to reduce their exposure to large stock price movements if possible. Hence, they may sell *some* options naked, but they generally try to hedge them by buying other options or by buying the underlying stock.

Many novice option traders hold these misconceptions, probably because there is a general belief that most options expire worthless. Occasionally, one will even hear or see a statement to this effect in the mainstream media, but it is not true that most options expire worthless. In fact, studies conducted by McMillan Analysis Corp. in both bull and bear months indicate that about 65% to 70% of all options have some value (at least half a point) when they expire. This is not to say that all option buyers make money, either, but it does serve to show that many more options do *not* expire worthless than do.

THE UNCOVERED (NAKED) CALL OPTION

When one sells a call option without owning the underlying stock or any equivalent security (convertible stock or bond or another call option), he is considered to have written *an uncovered call option*. This strategy has limited profit potential and theoretically unlimited loss. For this reason, this strategy is unsuitable for some investors. This fact is not particularly attractive, but since there is no actual cash investment required to write a naked call (the position can be financed with collateral loan value of marginable securities), the strategy can be operated as an adjunct to many other investment strategies.

A simple example will outline the basic profit and loss potential from naked writing.

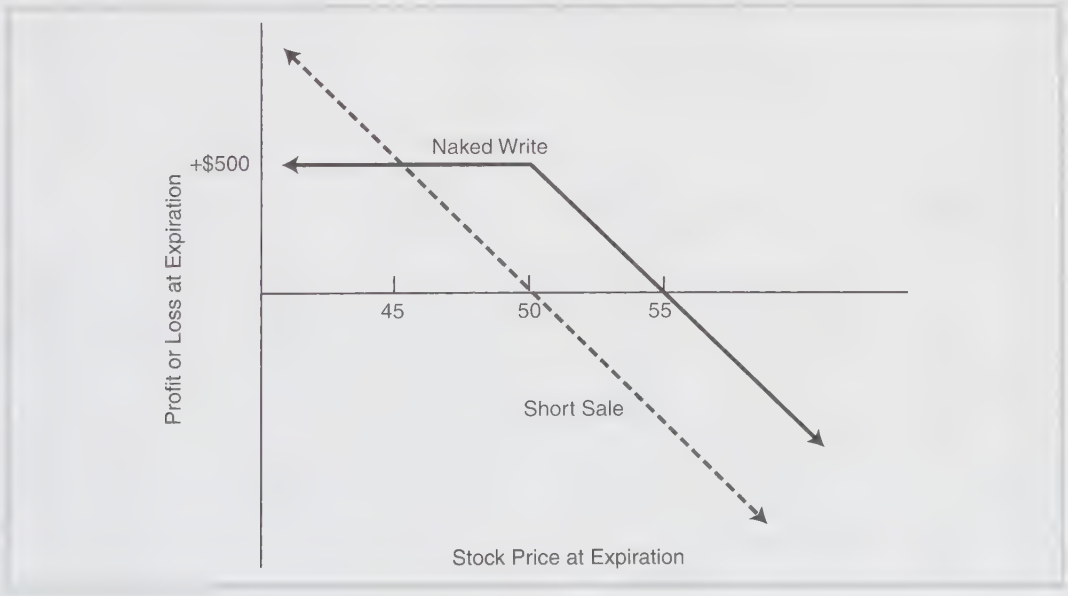
Example: XYZ is selling at 50 and a July 50 call is selling for 5. If one were to sell the July 50 call naked—that is, without owning XYZ stock, or any security convertible into XYZ, or another call option on XYZ—he could make, at most, 5 points of profit. This profit would accrue if XYZ were at or anywhere below 50 at July expiration, as the call would then expire worthless. If XYZ were to rise, however, the naked writer could potentially lose large sums of money. Should the stock climb to 100, say, the call would be at a price of 50. If the writer then covered (bought back) the call for a price of 50, he would have a loss of 45 points on the transaction. In theory, this loss is unlimited, although *in practice the loss is limited by time.* The stock cannot rise an infinite amount during the life of the call. Clearly, defensive strategies are important in this approach, as one would never want to let a loss run as far as the one here. Table 5-1 and Figure 5-1 (solid line) depict the results of this position at July expiration. Note that the break-even point in this example is 55. That is, if XYZ rose 10%, or 5 points, at expiration, the naked writer would break even. He could buy the call back at parity, 5 points, which is exactly what he sold it for. There is some room for error to the upside. *A naked write will not necessarily lose money if the stock moves up.* It will only lose if the stock advances by more than the amount of the time value premium that was in the call when it was originally written.

Naked call writing is not the same as a short sale of the underlying stock. While both strategies have large potential risk, the short sale has much higher reward potential, but the naked call write will do better if the underlying stock remains relatively unchanged. It is possible for the naked call writer to make money in situations when the short seller would have lost money. Using the example above, suppose one investor had written the July 50 call naked for 5 points while another investor sold the stock short at 50. If XYZ were at 52 at expiration, the naked call writer could buy the call back at parity, 2 points, for a 3-point profit. The short seller would have a 2-point *loss*. Moreover, the short seller pays out the dividends on the underlying stock, whereas the naked call writer does not. The naked call

TABLE 5-1.
Position at July expiration.

XYZ Price at Expiration	Call Price at Expiration	Profit on Naked Write
30	0	+ $ 500
40	0	+ 500
50	0	+ 500
55	5	0
60	10	– 500
70	20	– 1,500
80	30	– 2,500

FIGURE 5-1.
Uncovered (naked) call write.



will expire, of course, but the short sale does not. This is a situation in which the naked write outperforms the short sale. However, if XYZ were to fall sharply—to 20, say—the naked writer could only make 5 points while the short seller would make 30 points. The dashed line in Figure 5-1 shows how the short sale of XYZ at 50 would compare with the naked write of the July 50 call. Notice that the two strategies are equal at 45 at