A Marketplace Book

PROFIT WITH OPTIONS

Essential Methods for Investing Success

LAWRENCE G. McMILLAN

JOHN WILEY & SONS, INC.

PROFIT WITH OPTIONS

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PREFACE

Over the years, I've written two thick books on options trading that have a combined page count over 1,500. I write a weekly advisory newsletter, as well as a daily fax service. So what, you may wonder, do I have left to write about on the topic of options trading?

With this book, my goal is not necessarily to cover a lot of innovative new ground, but to present material in a new way that will enhance the ability of traders to master a variety of option trading techniques and become more successful at incorporating them into their overall trading program. My first book, *Options as a Strategic Investment* is, at 998 pages, a complete reference text that covers nearly every aspect of options trading in depth. *McMillan on Options* is more focused on how to apply various options strategies, including the ones I personally prefer and use frequently. What has been missing—based on feedback received from my readers, seminar attendees, and subscribers—is a book that covers each phase of the options trading process step-by-step, reinforces individual concepts, and thus allows you to hone and refine skills—in essence, a workbook or study guide.

In *Profit with Options* I have attempted to provide an overview of the options trading process in a more concise, hands-on way. Each chapter covers a specific concept and ends

with a set of review questions and answers that will assist you in absorbing and implementing the material covered.

While the introduction does address basic terms and the building blocks of option trading concepts, the book as a whole is written for someone with some degree of investment and trading experience. The first chapter also moves right into the components of option price, using historical and implied volatility to formulate your option trading strategy, and understanding the advantages an option model can provide. Plus, LEAPS, futures, and trading technology are each treated in detail.

Chapters 2 and 3 explain how to use options as both direct and contrary indicators, with examples showing how each can predict market direction and help you decide which options to buy under both scenarios.

Chapter 4 teaches you how to incorporate system trading into an overall options game plan and illustrates the value of taking the system approach. A variety of systems types are outlined that are applicable for both short-term and long-term investors.

Chapter 5 presents powerful methods for using options as "insurance" and portfolio protection, which is one of their key strengths.

Chapters 6 and 7 conclude with various strategies for profiting from trading volatility. I start by viewing volatility as a strategic indicator, and then move into both forward and reverse "skew" and spreading strategies. I then provide a more in-depth look at volatility analysis, the reasons behind volatility changes, and highlight my own favorite strategy plus personal criteria for buying straddles, "follow-up" action, and selling naked options.

Each chapter of the workbook can stand on its own, but taken together, they form the basis of a well-rounded options trading program. With the end-of-chapter questions provided, you can test your knowledge of the concepts, techniques, and systems featured in *Profit with Options* before you need to put

them into action in the real trading world. And this learn-by-example workbook should prepare you for making the right moves at the right time, while reacting swiftly to opportunities that arise in the fast-paced options arena.

It is my hope that this hands-on guide will complement my previous two works. You can now access a comprehensive resource on options, a product devoted primarily to strategies in action, and a manual that helps to reinforce tactics and refine option trading skills.

I have devoted much of my career to educating investors on the fundamentals and the benefits of trading options. I think they provide enormous wealth-building potential for anyone who has mastered a proficiency in trading options. And I hope, after completing this handbook, that you will have a better working knowledge of how to use options to diversify and enhance a portfolio.

Lawrence G. McMillan

April 2002

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1

INTRODUCTION

Learning Objectives

The material in this chapter will help you to:

- Become familiar with the terms and concepts of option trading.
- Analyze the components of option price.
- Use historical and implied volatility to formulate your option trading strategy.
- Understand the benefits an option model can provide.
- Understand the advantages and disadvantages of trading futures.

A call option gives you the right to purchase something at a specified price, and that option is normally "good" for only a predetermined length of time. There are options in many facets of life—real estate, executive stock options, and the focus of this book: listed options. The "something" that you may purchase is called the **underlying instrument** (the **underlying**). It could be a stock, it could be an index, or it could be a futures contract.

The specified price at which that underlying instrument can be bought is called the **strike price.** Finally, the date by which the option must be used is called the **expiration date.** These three terms completely define the option. For example, an IBM July 120 call is an option to buy IBM (the underlying instrument) at a price of 120 (the strike price) at any time through July (the expiration date).

For stock and index options, the last trading day is the third Friday of the month, so the expiration date is that day. (Actually, for legal reasons, it's technically the next day—but that's a Saturday, so for all intents and purposes, Friday is considered to be the expiration date.) For futures options, expiration dates vary within the expiration month. We'll talk more about them later. The material in this chapter lays the groundwork for your development as an option strategist.

IMPORTANT TERMS AND CONCEPTS

An important concept is that of a **put option.** A put option allows the holder to *sell* the underlying security at the strike price up until the expiration date. Thus, call options increase in price when the price of the underlying security *rises,* and put options increase in price when the price of the underlying security *falls.*

Options were traded over-the-counter for years, but in 1973 the Chicago Board Options Exchange (CBOE) was formed and the innovations that they brought to the marketplace have resulted in the huge market we now have for listed options.

The biggest innovation was the introduction of a liquid market in options. Options can be bought and sold at any time, just as shares of stock can be bought and sold. It is not necessary to

Table 1.1 Derivative Types

Equity options	(e.g., LEAPS)
Index and sector options	(e.g., S&P 500, OEX; oil and gas, gold)
Listed warrants	(similar to option but behaves more like stock)
Futures options/serial options	
Over-the-counter options	(e.g., Swaps—interest-rate trades)

hold the option until its expiration date. Therefore, if you were to buy that IBM July 120 call, and then IBM stock price rose shortly thereafter—perhaps rising well above the strike price 120—most likely the call would gain some value. You could just phone your broker and sell the call to take your profit. You would not have to worry about whether or not IBM was above the strike price of 120 at expiration.

Options are a **derivative security.** That is, their price movements are taken from the movements in another security (the underlying stock, for example). Over the years, since listed options began trading on the Chicago Board Options Exchange (CBOE), there have been many different types of listed securities. **Index and sector options** are merely options on an index or a sector index (for example, the S&P 500 Index or the Semiconductor Index). **Warrants** have been listed on the New York Stock Exchange (NYSE) for years, but the current type of warrants being traded—particularly on the American Stock Exchange (AMEX)—generally play either currencies or the market as an option security. With warrants, you can own the market without much risk. **Over-the-counter options** are options that are traded directly, generally by big firms such as Morgan Stanley or institutions such as mutual funds. See Table 1.1 for a summary of derivative types.

Here are a few other terms that may be of interest:

- **In-the-money/out-of-the-money.** When the underlying is trading *higher than* the strike price of a call

option, the call option is said to be in-the-money. If the underlying is *below* the strike price, the call is said to be out-of-the-money. Conversely, a put option is in-the-money when the underlying instrument is trading at a price *lower than* the strike price and out-of-the-money when the underlying is trading *above* the strike price.

- **Exercise the option.** Converting the option *into* the underlying instrument is exercising the option. A person who exercises one IBM July 120 call would get 100 shares of IBM in his or her account, and those shares would cost $120 apiece—a total transaction cost of $12,000, plus commissions. Exercising a futures option yields one contract of the underlying instrument.
- **In-the-money-amount.** The amount by which the underlying exceeds the strike price of a call option is called the in-the-money amount; for put options, the in-the-money amount is the distance by which the underlying instrument is *below* the strike price.
- **Intrinsic value/time value.** An option's complete price is composed of two things: intrinsic value (which is the in-the-money amount or zero for an out-of-the money option) and time value. The **time value** of an option decreases as time passes until, at expiration, the option's price is either equal to the in-the-money amount or zero (if it's out-of-the-money at expiration). Out-of-the-money options are composed *entirely* of time value premium, while a deeply in-the-money option is composed almost entirely of intrinsic value with very little time value premium. An option buyer must be careful not to continually buy too much time value premium and too little intrinsic value. Such a strategy may lead to ruin because the probability of an out-of-the-money expiring worthless is greater than 50%.

OPTION PRICE

Six components of the price of an option are:

1. Underlying price.
2. Time remaining until expiration.
3. Dividends (not applicable to futures options).
4. Strike price.
5. Short-term interest rate.
6. Volatility.

Of these, volatility is the only one that is not a predetermined, fixed quantity. That is, you know what all the others are at any one point in time, but volatility is *not* known. Hence, fluctuations in the market's perception of volatility will affect the price of the option.

Volatility

There are two kinds of volatility: (1) **historical volatility,** a measure of how fast the underlying instrument *has been* moving around in the past and (2) **implied volatility,** the volatility component built into an option's price. Implied volatility is really an attempt to determine how volatile the underlying *will be* during the life of the option. As implied volatility increases, so does time value premium, so that an option with a very high implied volatility will be a very costly option, and it will have a great deal of time value premium—perhaps even if it is an in-the-money option.

The word *volatility* is used with great frequency in this book. It is the most important thing that an option trader needs to think about. Rather than say an option is "overpriced" (which is a somewhat subjective term), it is better to say it is trading with a high "implied volatility."

Historical volatility can be calculated by a specific statistical formula—it is nothing more than the standard deviation of the movements of the underlying instrument. Implied volatility, however, can only be determined by the use of an **option model**—a mathematical formula used to give some accurate estimates of an option's price, based on its components.

Option Pricing Models

Option models are important for option traders, and everyone should have some sort of model available. There is a free one at the CBOE's Web site, www.cboe.com. There are some models that are a little fancier and have a modest cost, and then there are some that are part of full-blown portfolio management software systems and are quite expensive. More will be said about these later in this book.

Black-Scholes Model

The most famous option model is the Black-Scholes model, invented by professors Fisher Black and Myron Scholes. At the time, they were working in fairly close concert with another professor, Robert Merton. After a difference of opinion over the basics of the model, Merton went on to do his own research, while Black and Scholes attached their names to the now famous model.

The Nobel Prize for Economics was awarded in 1998 for this model. Fisher Black had passed away, and Nobel Prizes are not awarded posthumously, but Scholes and Merton shared the award.

Do *not* think, however, that option models can remove all the guesswork from option pricing. They can give you a good estimate

of the option's price, *if you can accurately describe what is going to happen to the underlying price.* Of course, the latter is an impossible task. Still, the models are useful in providing an estimate of an option's cost and in helping to determine if you are buying an "overpriced" option.

Some users found small problems with the Black-Scholes model and so other models, such as the binomial model, have found some supporters. Generally, these models will not give substantially different estimates of an option's value, thus it doesn't matter much which one you use—*as long as you use some model.* Trading options without the benefit of an option model is foolhardy and will put you at an extreme disadvantage to the best and smartest option traders—a disadvantage that will eventually cost you some serious money.

Delta

One of the benefits of a model is that it can give an estimate of what-if situations. One of the simplest is the **delta** of an option. That is the amount by which the option will move if the underlying instrument moves one point. A call's delta ranges between values of 0.00 and 1.00. So if the underlying moves up a point, and the call increases in price by half a point, then the call's delta is 0.50. Put deltas range from 0.00 down to –1.00, to reflect the fact that puts move in the opposite direction from the underlying.

In-the-money options have large absolute deltas—reflecting the fact that their movements fairly closely mirror those of the underlying instrument. Out-of-the-money options, on the other hand, have small deltas—indicating that it will take a *big* move by the underlying to cause the out-of-the-money option to gain much value. In some sense, the delta can be viewed as the *probability* that the option will be in-the-money at expiration. Table 1.2 gives some examples with comments.

Table 1.2 Stock Price: 120 on April 1, 1999

Option	Price	Delta	Comment
April 110 call	10.125	0.99	Behaves just like stock.
April 130 call	0.0625	0.01	Not much chance of making a move.
July 120 call	8	0.55	Moves about half as fast as the common.
July 140 call	3	0.25	Smaller moves than the July 120 call.
January ('00) 120 call	14	0.60	Longer-term options have lower deltas at the extremes because they have more time value premium.

Note that a change in one variable will cause a change in some of the others. For example, a sharp increase in implied volatility will change the delta of an option. We discuss this in more detail later in this book.

Profit Graph; Pricing Curve

The graphs shown in Figure 1.1 are **profit graphs** depicting the potential profits and losses from a position. Such graphs can be drawn by many of the option software programs for sale today and by Internet application sites as well. When positions become complex—perhaps involving numerous options as well as a position in the underlying stock—a profit graph may be the only way to discern what your position will do when the underlying begins to change in price, or when time passes. Most of the software applications will also let you observe how a change in implied volatility will affect your position as time passes.

A **pricing curve,** on the other hand, is the picture of a single option's value—depicted over a range of stock prices. One

Profit Table

At Expiration

Stock Price	Result
40	–$300
45	–$300
50	–$300
55	+$200
60	+$700
65	+$1,200

Put Purchase
XYZ = 40 July 40 PUT = 2

At Expiration

Stock Price	Result
45	–$200
40	–$200
35	+$300
30	+$800
25	+$1,300

Example: XYZ = 50,
Buy XYZ July 50 Call for 3

Profit Graph

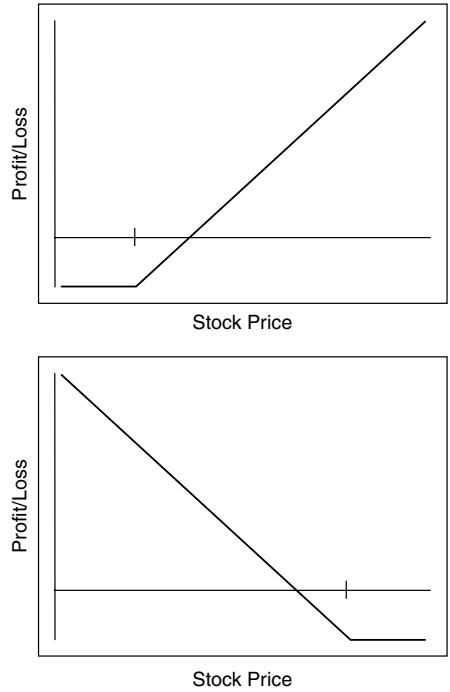

Figure 1.1 Derivative types.

particular graph might contain several pricing curves, usually graphing several options with similar terms (same underlying and same striking price, but perhaps different expiration dates). The graph in Figure 1.2 is such a pricing curve. Four options are shown: a three-month option, a six-month, a one-year, and a two-year. Each one has a strike price of 100. You can see that the curves are similar, but the more time remaining in the option, the higher the curve resides on the graph. Thus, it is easy to see the time value—and the *effect* of time value—with this pricing curve.

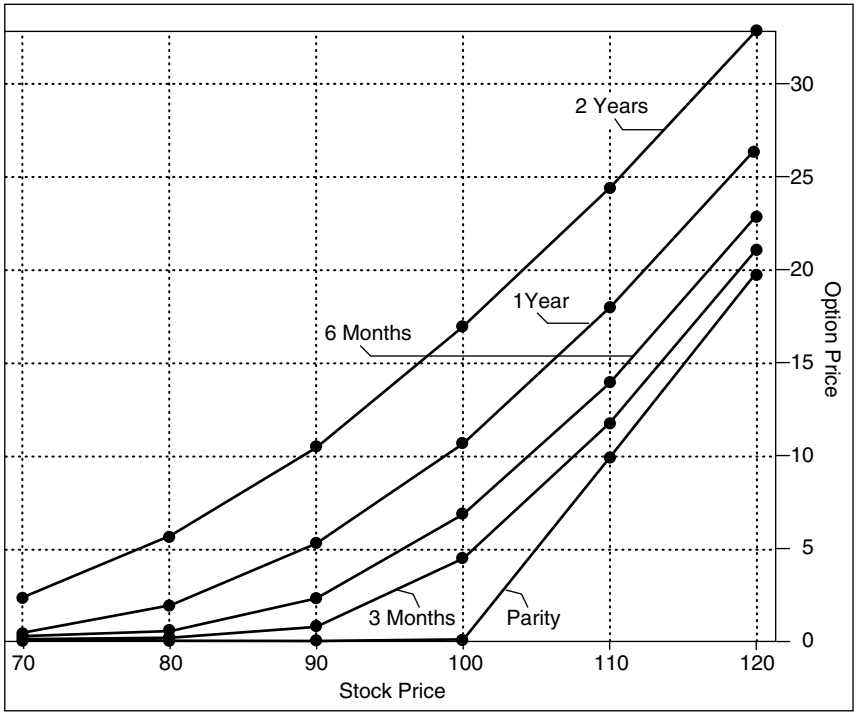

Figure 1.2 LEAPS call pricing curve.

OPTION DESCRIPTORS

LEAPS

When equity options were first listed by the CBOE (and subsequently, the other option exchanges), the longest time in the life of an option was nine months. As the years went by, institutions demanded a longer term option. Thus, LEAPS were created. **LEAPS** is an acronym for some lengthy name, but in reality it is nothing more than a name for an option that has more than nine months of life remaining. When LEAPS are first issued, they have expiration dates of between two and three years. Eventually that time dwindles down to nine months or so, and

they become a "regular" option at that point. Not *every* underlying stock has LEAPS, but if you own a stock and want to trade a LEAPS option on it, just tell your broker to request it. The appropriate exchange can decide, pretty much on the spot, to list a LEAPS option based on a customer's request.

LEAPS is just a fancy name for a stock option that has at least one year of life remaining.

Option Symbols

To quote any security electronically, it is assigned a *symbol*. For example, the symbol for General Motors common stock is, quite logically, GM. Unfortunately, *logic* doesn't play a great part in most symbols. To quote options, a more complex symbology is required. A stock or index option symbol consists of three parts:

Equity option symbol = Base symbol + Expiration code + Strike price code

Expiration codes are standardized. The expiration codes for *call options* are:

A = January	E = May	I = September
B = February	F = June	J = October
C = March	G = July	K = November
D = April	H = August	L = December

The expiration codes for *put options* are:

M = January	Q = May	U = September
N = February	R = June	V = October
O = March	S = July	W = November
P = April	T = August	X = December

Strike price codes are *somewhat* standardized, but there are some very strange exceptions to the rules. All of the letters, A through Z, are used for standardized codes. But in the case of some "odd" strikes, caused perhaps by noninteger splits (3-for-2 or 5-for-4, for example), minor stock dividends and the like, the letters can sometimes mean something else. The only way to know for sure is to use a quote system that has the table built in, so it can translate the strike price codes into striking prices. Your broker should have such a system, but Internet quoting services have it too. The "standard" strike price codes are:

A = 5	F = 30	K = 55	P = 80
B = 10	G = 35	L = 60	Q = 85
C = 15	H = 40	M = 65	R = 90
D = 20	I = 45	N = 70	S = 95
E = 25	J = 50	O = 75	T = 100

If the underlying is trading at levels greater than 100, the strike prices codes refer to the last two digits of the strike price. For example, IBM might be trading near 150. Then J would stand for 150, L for 160, and so forth. Or the $OEX Index might be trading near 650, so in that case J would stand for 650, L for 660, and so on.

Originally, all stocks and indices had strike prices 5 points apart. Now, many stocks have strike prices that are 2½ points apart, so another sort of semistandardized convention has been used, involving the remaining letters of the alphabet:

U = 7.5	or	37.5	or	67.5
V = 12.5	or	42.5	or	72.5
W = 17.5	or	47.5	or	77.5
X = 22.5	or	52.5	or	82.5
Y = 27.5	or	57.5	or	87.5
Z = 32.5	or	62.5	or	92.5

These semistandardized codes quickly become confusing. That's why it is best if you need to find the option's symbol to go to your broker, or perhaps to use the "delayed quotes" page at the CBOE's Web site, www.cboe.com.

LEAPS Symbols

To make matters even more complicated, note that the expiration codes used earlier *do not specify a year.* That is, "January" is assumed to be the *next* January on the calendar. It cannot also represent the following January. Since LEAPS options expire a couple years in the future, *complete new base symbols are used for LEAPS options.* Thus, for IBM, the symbol *VIB* is used to designate IBM options expiring in the year 2003 with *LIB* for IBM options expiring in the year 2004. So, the IBM Jan 2003 LEAPS with a strike price of 160 would have the symbol VIBAL.

Every stock that has LEAPS options has additional symbols associated with it that designate the later year options. This is particularly cumbersome. Once again, your broker or the CBOE site should be able to supply any symbol you want. On a sophisticated option quoting system, if you type in "IBM," the quote system should give you back *all* of the IBM options, including the LEAPS, so that all of the symbols can be found in one place.

FUTURES

Futures Contracts

First, futures *contracts* will be described. Then, futures *options* will be discussed. For those not familiar with futures contracts, it is easiest to think of them just like shares of stock. They can drop to zero (in theory, but not really in practice), and they can rise to great heights. The main differences between futures and

stocks are that (1) futures require far less margin, and therefore have far greater leverage; and (2) futures have an expiration date.

Most of the "older" commodity contracts have a real commodity underlying them—corn, wheat, soybeans, orange juice, and so on. By the expiration date, the *actual physical* product changes hands in accordance with the terms of the contract as specified by the exchange where the futures are traded. For example, one contract of corn involves 5,000 *bushels* of corn.

The newer "financial" contracts may have a *cash* settlement, in some cases. That is, the futures contract is marked to market each day (i.e., your profit or loss is totaled by your brokerage firm), and on the last day the contract just disappears from your account, leaving you with only the cash profit or loss from having owned it.

Futures Option Symbols

A futures option symbol consists of two parts:

Futures option symbol = Futures base symbol
+ Expiration code

Futures base symbols are quite logical (usually). For example, LC = Live Cattle, SP = S&P 500 Index, SM = Soybean Meal, and so on. Both futures contracts and futures *option* contracts need to have expiration codes.

Expiration codes are somewhat different for futures and their options:

F = January	K = May	U = September
G = February	M = June	V = October
H = March	N = July	X = November
J = April	Q = August	Z = December

Also, since futures contracts can span several years, a single digit is used to describe the expiration date. Therefore, the symbols "H3" would indicate March of the year 2003. So the futures option symbol for S&P futures expiring in March 2003 would be SPH3.

Futures Options Terms

This section provides a brief review of some terms related to futures options. All futures contracts have an expiration date. *Physical commodities* (such as corn, gold, sugar, etc.) have a **first notice day** as well, that is, the first day that the holder of a long futures contract can be made to take delivery of the physical commodity. Thus, speculators usually exit the market by that date. Options expire *before* the first notice day so that all exercising and assignment of options is out of the way before physical delivery begins in the commodity. The expiration dates of the options are thus different for each commodity each

Table 1.3 Futures Options Terms

Exercise	For futures or cash.
First notice day	Earliest date holder can be made to accept delivery of the commodity.
Option expiration	Before FND.
Delivery	At seller's option.
Option expiration date sources	Futures magazine. Chart books. Broker's notice.
Commissions	Round turn. Per side. Flat rate.
Settlement price	Middle of the closing range at the end of the day.

month, and it would be very useful for the trader to get a calendar of expiration dates.

Both futures and futures options have a **settlement price**—a price that the market makers post as the "middle" of the closing range at the end of the day. Nothing actually trades at that price, but it gives an idea of where the market makers think the options would be trading.

Table 1.3 presents a brief summary of futures options terms.

Futures Options Symbols

Symbols for futures options are a lot easier to master than stock options. In fact, there is hope that some day *all* symbols—futures, stock, and index—will be handled in this manner:

$$\begin{aligned}\text{Futures option symbol} &= \text{Futures symbol} + \text{Strike price } \textit{as a number} + \text{Designator} \\ &= \text{Base symbol} + \text{Expiration code} + \text{Strike price } \textit{as a number} + \text{Designator}\end{aligned}$$

A call with strike price 1350 on the March 2003 S&P futures contract would have the symbol: SPH3 1350c. Note that the strike price is a number and the letter designation "c" is used for call; "p" would be used for a put.

These symbols are much more logical and straightforward than the convoluted method used for stock and index options.

Serial Options

Another concept that sometimes arises in futures options is that of the **serial option,** an option on a futures contract that has an expiration month different from that of any of the futures contracts. This is an attempt by the exchanges to have