

A MARKETPLACE BOOK

McMillan on Options

Second Edition

Lawrence G. McMillan



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Preface

When people learn that I have written another book, they usually ask one of two questions: “Is this an update of your other book?” or “What’s the difference between this one and your other one?” First of all, this is most assuredly *not* an update of *Options as a Strategic Investment* (OSI). This is a completely different, stand-alone book that relates option trading in actual examples. Second, there is a substantial difference between this book and OSI. This book is not intended to be a comprehensive definition of strategies—that is better derived from OSI, which is a reference work. This is a book in which the application of options to actual trading situations is discussed. There are plenty of actual trading examples, many of them derived from my own trading experience. In addition, there are a number of stories—some humorous, some more on the tragic side—that illustrate the rewards and pitfalls of trading, especially trading options. In addition, the *content* of this book covers ground that one does not normally find in books on options; that content will be discussed shortly.

There is a continuous discussion of futures trading, as well as stock and index trading, herein. The futures markets offer many interesting situations for option trading and strategies. To that end, the basic definitions of futures options—and how they compare to, and differ from, stock options—are included in Chapter 1.

While the book is not really meant for beginners, it contains all the necessary definitions. Thus, serious traders will have no trouble at all in getting up to speed. In fact, many of the techniques described in this book do not require familiarity with option strategies at all. The more

elementary option strategy definitions are not expanded upon at great length here, however, as my objective is to describe practical applications. For example, it is not my intention to detail the explicit calculations of break-even points and explain follow-up actions for these basic strategies. Readers who feel a need to better understand the basics should refer to the aforementioned work, OSI, which describes virtually all conceivable strategies in a rather large amount of detail.

As for content, the book is basically divided into five major sections, spread out over seven rather lengthy chapters. The first part—Chapters 1 and 2—lays out the basic definitions and reviews option strategies, so that the framework is in place to understand and utilize the material in succeeding chapters. Even seasoned option professionals should enjoy reading these introductory chapters, for the trading tales that accompany many of the strategies are sure to elicit some nodding of heads. Graphs and charts are liberally used. Since things are more easily seen in graphs than in tables, over 120 such graphs and charts are included in this book.

The next three chapters—3 through 5—are intensive discussions of some very important trading tactics, based on options. However, they are more of a basic nature and don't require a theoretical approach to option trading. In fact, a stock or futures trader should be able to absorb this information rather quickly, even if he doesn't have a clue as to what the delta of an option is. Don't get me wrong—I encourage every option trader to use a model via a computer program in order to evaluate an option before he actually buys or sells it. However, these chapters don't require anything more theoretical than that.

Chapter 3 contains material that is extremely important to all traders—particularly stock traders, although futures

traders will certainly benefit as well. I like to think of the information in this chapter as demonstrating how versatile options can be—they don't have to be merely a speculative vehicle. A basic understanding of the concepts involving using options to construct positions that are equivalent to owning stock or futures contracts is shown to be necessary for many applications. For example, it allows a futures trader to extract himself from a position, even though the futures may be locked limit against him.

Later in the same chapter, there is an extremely detailed discussion of how the expiration of options and futures affect the stock market. Several trading systems are laid out that have good track records, and that can be used month after month. Finally, the use of options or futures to protect a portfolio of stocks is also discussed in some detail. If we ever go into another bear market, these strategies will certainly become very popular.

Chapter 4 is my favorite—"The Predictive Power of Options." Since options offer leverage, they are a popular trading vehicle for all manner of speculators. By observing both option prices and option volume, you can draw many important conclusions regarding the forthcoming direction of stocks and futures. A large part of the chapter describes how to use option volume to buy stock (or sometimes sell it) in advance of major corporate news items, such as takeovers or earnings surprises. However, another lengthy discussion involves the put-call ratio—a contrary indicator—as it applies to a wide variety of indices and futures. The work on futures' put-call ratios is, I believe, unique in the annals of technical analysis in that the techniques are applied to and rated on a vast array of futures markets.

Several trading systems—from day-trading to seasonal patterns—with profitable track records are described in Chapter 5. Many traders, even those who are technically

inclined, often overlook the power of seasonality. Moreover, the use of options in intermarket spreads is explained. Options give intermarket spreaders an additional chance to make money, if applied in the ways shown.

For those with a theoretical bent, Chapter 6 may be your favorite. The use of neutral option strategies is discussed, especially with respect to predicting and trading volatility. One of my pet peeves is that the term “neutral” is thrown around with such ease and, as a result, is often applied to positions that have considerable risk. The intent of Chapter 6 is to not only set the record straight, but to demonstrate that—while neutral trading can certainly be profitable—it is not the easy-money, no-work technique that some proponents seem to be extolling. I am often asked how I base my decisions on taking a position, rolling, and so forth, so the backspread example in Chapter 6 is intended to be almost a diary of what I was thinking and how I traded the position over the course of six months.

The book winds up with a discussion of money management, trading philosophy, and some trading guidelines—all in Chapter 7. Some of my favorite trading stories and sayings are related in this chapter. I hope you enjoy them as well.

My hope is that this book will bring more traders into the option markets, as they realize that options can be used in many ways. Options don't merely have to be treated as a speculative vehicle. In fact, you might be strictly a stock or futures trader but find that options can give you valuable buy and sell signals. Those with a more theoretical bent will find that volatility trading can be lucrative as well.

SECOND EDITION

After seven years, I felt a second edition was necessary because there had been sufficient changes in the derivatives industry to justify a rewrite with deletions and additions. For example, Chapter 1, which is mostly definitions, now includes Exchange Traded Funds, Electronic Trading, Single Stock Futures, and Volatility Futures. The main purpose of the second edition is to weed out material that no longer is viable—either because products had become delisted or illiquid or because strategies had become exploited—and to include new tactics and strategies that I apply in my own trading and analysis.

Chapter 3, which discusses various option special applications, now includes a discussion describing how a stock can be “pinned” to a striking price at expiration—what causes it, why it happens, and when to expect it. Furthermore, as options have become more popular as a hedging vehicle for stock owners—particularly professional stock owners—new strategies have developed. They are included in this new edition. One is the use of the newly listed volatility futures, and another is an expanded use of the “collar” strategy with listed options. New examples are included to describe both applications.

In the revised Chapter 4, one major addition is the inclusion of put-call ratio charts and theory on individual stocks. In the first edition, I had felt that there was too much insider trading in stock options and that such activity would distort the usefulness of put-call ratios on individual stocks. But, as time passed, I came to feel that large, well-capitalized stocks were less susceptible to manipulation and insider trading and that their put-call ratios could indeed provide another good sentiment-based indicator for traders. Another major aspect of put-call ratios included in this edition is *weighted* put-call ratios. This method, which incorporates the *price* of the option as well as its trading volume, is a highly effective improvement on the basic

theory of using put-call ratios as indicators. On another related topic—using the volatility indices as a market predictor—we have done a good deal of research over the years, and much of that is now included in Chapter 4. This research not only includes the analysis of peaks and valleys in the VIX chart itself, but also shows how the comparison of implied and historical volatilities is an important indicator.

Chapter 5 still covers trading systems and strategies. One major change that has taken place in the markets in recent years is the loss of effectiveness of the New York Stock Exchange (NYSE) advance- decline figures. This is due to decimalization for the most part. As a result, we have adapted another method of looking at breadth—the “stocks only” approach. This adaptation is applied to some of our systems, and the improvement is significant. The section on intermarket spreads has been updated as well. For some spreads, this is nothing more than bringing charts up to date. But for others—notably, the January effect spreads—significant changes in the *pattern* of the spread have taken place; and, thus, changes in strategy for trading the spread are necessary as well. This also includes the way that intermarket spreads are implemented. There is less reliance on futures and more reliance on Exchange Traded Funds (ETFs), which are much more popular now than they were when the first edition was published. Finally, the seasonal trading systems are updated, and one more has been added—the late-January seasonal buy point. The systems presented in this chapter remain some of my favorite speculative trading vehicles; and with this new, up-to-date information, they should prove to be useful for all readers.

A more advanced approach to option trading is once again presented in Chapter 6. A significant amount of new information is included, most in the area of statistics and probability, that is, applying statistics to trading decisions. The concept of *expected return* is explained and illustrated,

as is the concept of the Monte Carlo probability simulation. These concepts and tools allow the theoretically based trader to be more disciplined in his approach to the markets. He can concentrate on situations where options are mispriced (volatility skews, for example), solid in the knowledge that a consistent investment in positions with above-average expected returns should eventually produce above-average results.

Much of the data and tools necessary for the modern option trader can be found on the Internet, and there is some discussion of where to find data and tools in Chapter 7. I would, of course, be pleased to see readers visit our web site, www.optionstrategist.com, where a great deal of free information is presented. We also have a subscriber area, The Strategy Zone, on that web site, where more in-depth reports and data are available, along with a daily market commentary.

There is no doubt that options and other derivatives now hold a major place in the investment landscape, but it is disconcerting to see how many people still don't seem to understand options. In fact, they are quick to place blame on derivatives when things go wrong. Only by dissemination of the kind of information in this book can we hope to overcome such negative and uneducated attitudes. When we have another bear market, option traders will probably do very well—whether they use options as a protective device or as a speculative one. Some have even gone so far as to predict that angry investors, who do not understand derivatives, will attempt to blame that bear market and its concomitant losses on options and other derivatives. That would be ludicrous, of course, but if we can convince more and more people of the viability of option trading, then affixing any future blame will be a moot point.

I've been in this business so long now that there are literally hundreds of people I could thank for helping me get to this point. However, in the interest of space and time, I will limit my kudos to those who specifically helped with this book and with the concepts behind it: Shelley Kaufman, who did all the graphics work in this book and who is an invaluable confidant on all matters; Peter Bricken, who first came up with the idea of monitoring option volume as a precursor of corporate news events; Van Hemphill, Mike Gallagher, and Jeff Kaufman, who provided information on expiration activity that is nonpareil and who have helped me to clarify my thinking on strategies regarding expiration; Chris Myers, who convinced me to write this book; Peter Kopple, off whom I can constantly bounce ideas; and Art Kaufman, who convinced me that I could go into business for myself. Finally, a special thanks to my wife, Janet, who puts up with my crazy hours, and to my children, Karen and Glenn.

LAWRENCE G. MCMILLAN

*Randolph, New Jersey
August 2004*

1

Option History, Definitions, and Terms

There are many types of listed options trading today: stock options, index options, and futures options are the major ones. The object of this book is to explore some of the many ways in which options can be used and to give practical demonstrations that will help the reader make money.

Options are useful in a wide array of applications. They can be used to establish self-contained strategies, they can be used as substitutes for other instruments, or they can be used to enhance or protect one's position in the underlying instrument, whether that is stock, index, or futures. In the course of this book, the reader may discover that there are more useful applications of options than he ever imagined. As stated in the Preface, this book is not really meant for novices but contains all definitions to serve as a platform for the larger discussion.

UNDERLYING INSTRUMENTS

Let's begin with the definitions of the simplest terms, as a means of establishing the basic building blocks. Before even getting into what an option *is*, we should have some idea of the kinds of things that have options. That is, what are the underlying instruments that provide the groundwork for the various listed derivative securities (options, warrants, etc.)? The simplest underlying instrument is common stock.

Options that give the investor the right to buy or sell common stock are called *stock options* or *equity options*.

Another very popular type of underlying instrument is an *index*. An index is created when prices of a group of financial instruments—stocks, for example—are grouped together and “averaged” in some manner so that the resulting number is an index that supposedly is representative of how that particular group of financial instruments is performing. The best-known index is the Dow Jones Industrial Average, but there are indices of many other groups of stocks; indices with a large number of stocks in them are the Standard & Poor’s (S&P) 500 and the Value Line Index, for example. There are also many stock indices that track various groups of stocks that are in the same industry: Utility Index, Oil Index, Gold and Silver Index, for example. There are even indices on foreign stock markets, but they have options listed in the United States; these include the Japan Index, Hong Kong Index, and Mexico Index, as well as several others. Indices are not restricted to stocks, however. There are indices of commodities, such as the Commodity Research Bureau Index. Moreover, there are indices of bonds and rates; these include such things as the Short-Term Rate Index, the Muni Bond Index, and the 30-Year Bond Rate Index. Options on these indices are called *index options*. Appendix A contains a list of available index options.

Finally, the third broad category of underlying instrument is *futures*. This is probably the least-understood type of underlying instrument, but as you will see when we get into strategies, futures options are extremely useful and very important. Some people mistakenly think options and futures are nearly the same thing. Nothing could be further from the truth. The “dry” definition is *a futures contract is a standardized contract calling for the delivery of a specified quantity of a certain commodity, or delivery of cash, at*

some future time. In reality, owning a futures contract is very much like owning stock, except that the futures' price is related to the cash price of the underlying commodity, and the futures contract has a fixed expiration date. Thus, futures contracts can climb in price infinitely, just as stocks can, and they could theoretically trade all the way down to zero, just as stocks can. Moreover, futures can generally be traded on very small percentages of margin, so that the risk of owning futures is quite large, as are the potential rewards. We discuss futures contracts in more detail later, but this brief description should suffice to lay the groundwork for the following discussion of options terms. As might be suspected, options on futures contracts are called *futures options*.

OPTION TERMS

An *option* is the right to buy or sell a particular underlying security at a specific price, and that right is only good for a certain period of time. The specific items in that definition of an option are as follows:

- **Type.** Type describes whether we are talking about a call option or a put option. If we are talking about stock options, then a call option gives its owner the right to *buy* stock, while a put option gives him the right to *sell* stock. While it is possible to use options in many ways, if we are merely talking about buying options, then a call option purchase is bullish—we want the underlying stock to increase in price—and a put option purchase is bearish—we want the stock to decline.
- **Underlying Security.** Underlying security is what *specifically* can be bought or sold by the option holder.

In the case of stock options, it's the actual stock that can be bought or sold (IBM, for example).

- **Strike Price.** The strike price is the price at which the underlying security can be bought (call option) or sold (put option). Listed options have some standardization as far as striking prices are concerned. For example, stock and index options have striking prices spaced 5 points apart. Moreover stock options also have strikes spaced $2\frac{1}{2}$ points apart if the strike is below 25. Futures option striking prices are more complex, because of the differing natures of the underlying futures, but they are still standardized for each commodity (1 point apart for bonds, for example, or 10 points apart for a more volatile commodity, like corn).
- **Expiration Date.** The expiration date is the date by which the option must either be liquidated (i.e., sold in the open market) or exercised (i.e., converted into the physical instrument that underlies the option contract—stock, index, or futures). Again, expiration dates were standardized with the listing of options on exchanges. For stock options and most index options, this date is the Saturday following the third Friday of the expiration month (which, by default, makes the third Friday of the month the last trading day). However, for futures options, these dates vary widely. More about that later. The most heavily traded listed options usually have less than nine months of life remaining, but there are longer-term options—called LEAPS options when one is referring to stock options or index options—that can extend out to two years or more.

These four terms combine to uniquely describe any option contract. It is common to describe the option by stating these terms in this order: underlying, expiration date, strike,

and type. For example, an option described as an *IBM July 50 call* completely describes the fact that this option gives you the right to buy IBM at a price of 50, up until the expiration date in July. Similarly, a futures option described as the *U.S. Bond Dec 98 put* gives you the right to sell the underlying 30-year U.S. Government Bond futures contract at a price of 98, up until the expiration of the December options.

THE COST OF AN OPTION

The cost of an option is, of course, called the *price*, but it is also referred to as the *premium*. You may notice that we have not yet described *how much* of the underlying instrument can be bought or sold via the option contract. Listed options generally standardize this quantity. For example, stock options give the owner the right to buy (call) or sell (put) 100 shares of the underlying stock. If the stock splits or declares a stock dividend, then that quantity is adjusted to reflect the split. But, in general, stock options are spoken of as being options on 100 shares of stock. Index options, too, are generally for 100 “shares” of the underlying index; but since the index is not usually a physical entity (i.e., it does not really have *shares*), index options often convert into cash. We will describe that process shortly. Finally, futures options are exercisable into *one* futures contract, regardless of how many bushels, pounds, bales, or bonds that futures contract represents in terms of the actual commodity.

Only by knowing this quantity can you tell how many actual dollars an option contract will cost, since option prices are quoted in units. For example, if someone tells you that the IBM July 50 call is trading at 3 (and we know that the option is for 100 shares of IBM), then the actual cost of

the option is \$300. Thus, one option trading at 3 costs \$300 and “controls” 100 shares of IBM until the expiration date.

It is a fairly common mistake for a beginner to say “I want to buy 100 options” when what he really means is he wants to buy one option (this mistake derives from the fact that if a stock investor wants to control 100 shares of IBM, then he tells his broker to buy 100 IBM common stock). This can result in some big errors for customers and/or their brokerage firms, or possibly even worse. You can see that if you told your broker to buy 500 of the above IBM options, you would have to pay \$150,000 for those options ($500 \times \$300$); but if you really meant to buy 5 options (to “control” 500 shares of IBM), you thought you were making a \$1,500 investment ($5 \times \300). Quite a difference.

Of course, these sorts of things tend to balloon out of control at the worst times (Murphy’s Law is what they call it). When the market crashed 190 points on one Friday in October 1990 as the UAL deal fell apart, people were genuinely concerned. On Monday morning, a rather large stockholder had been reading about buying puts as protection for his stocks, so he put in a market order to buy something like 1,500 puts at the market. His broker was a little taken aback, but since this was a large stockholder, he put the order in. Of course, that morning, the puts were extremely expensive as people were fearful of another 1987-style crash. Even though the options had been quoted at a price of 5 on Friday night, the order was filled on Monday morning at the extremely high price of 12 because of fear that prices would crash further. Two days later, the customer received his confirm, requesting payment of \$1.8 million. The customer called his

broker and said that he had meant to buy puts on 1,500 shares, not 1,500 puts—a difference of roughly \$1,782,000! Of course, by this time, the market had rallied and the puts were trading at only a dollar or two (one or two points, that is). I'm not sure how the lawsuit turned out.

The cost—in U.S. dollars—of any particular futures option depends, of course, on how much of the commodity the futures control. We have already said that a futures option “controls” one futures contract. But each futures contract is somewhat different. For example, soybean futures and options are worth \$50 per point. So if someone says that a soybean July 600 put is selling for 12, then it would cost \$600 ($12 \times \50) to buy that option. However, Eurodollar futures and options are worth \$2,500 per point. So if a Eurodollar Dec 98 call is selling for 0.70, then you have to pay \$1,750 ($0.70 \times \$2,500$) to buy it. We specify the terms for most of the larger futures contracts in Appendix B.

THE HISTORY OF LISTED OPTIONS

On April 26, 1973, the Chicago Board Options Exchange (CBOE) opened its doors and began trading listed call options on 16 stocks. From that humble beginning, option trading has evolved to today's broad and active markets. We thought it might be interesting to review how option trading got to where it is today (*nostalgic* might be a better word for “old-timers” who have been around since the beginning). In addition, a review of the history of listed option trading might provide some insight for newer traders as to how and why the markets have developed the way they have.

The Over-the-Counter Market

Prior to listed option trading, puts and calls traded over the counter. In this form, there were several dealers of options who found both a buyer and a seller (writer) of a contract, got them to agree on terms, and executed a trade between them. The term *writer* arose from the fact that an actual contract was being “written” and the issuing party was the seller of the option. The dealer generally took a commission out of the middle of this trade: for example, the buyer might have paid $3\frac{1}{4}$ and the seller received 3. The remaining $\frac{1}{4}$ point was kept by the dealer as payment for lining up the trade.

Options of this type were generally struck at the current stock price; thus if the stock was selling at $46\frac{3}{8}$ when the contract was agreed upon, then that would be the striking price of the calls (or puts). This made for some very awkward calculations. Moreover, these over-the-counter options normally had expiration dates that were fixed time periods when they were issued: the choices were time periods of 6 months + 10 days, 95 days, 65 days, or 35 days. One other term that was unusual: dividends went to the holder of the call upon exercise. Thus, upon exercise, the striking price would actually be adjusted for the dividends paid over the life of the option.

Besides the relatively arduous task of finding two parties who wanted to take opposite sides of a particular trade, the greatest hindrance to development of the over-the-counter market was that there was virtually no secondary market at all. Suppose you bought a call on a stock with these terms: strike price $46\frac{3}{8}$, expiration date 35 days from trade date. Later, if the stock went up a couple of points quickly, you might theoretically have wanted to sell your over-the-counter call. However, who were you going to sell it to? The

dealer might try to find another buyer, but the terms would be the same as the original call. Thus, if the stock had risen to $48\frac{3}{4}$ after 10 calendar days had passed, the dealer would be trying to find someone to buy a call that was $2\frac{3}{8}$ points in-the-money that had 25 days of life remaining. Needless to say, it would be virtually impossible for a buyer to be found. Thus, option holders were often forced to hold on until expiration or to trade stock against their option in order to lock in some profit. Since this was in the days of fixed commission rates, it was a relatively expensive matter to be trading stock against an option holding. Altogether, this was a small option market, trading less than 1,000 contracts daily in total.

The CBOE Beginning

This over-the-counter arrangement was onerous for all parties. So it was decided to put into practice the idea of standardizing things by having fixed striking prices and fixed expiration dates, and having all trades clear through a central clearing corporation. These solutions all came from the Chicago Board of Trade (CBOT), since standardization of futures contracts had proven to be workable there. The first president of the CBOE was Joe Sullivan, who had headed the research project for the CBOT.

However, since over-the-counter option trading was “the way it had always been,” the idea of standardizing things was met with heavy skepticism. The extent of this skepticism was most evident in one interesting story: the major over-the-counter dealers were offered seats on the fledgling CBOE for the nominal cost of \$10,000 apiece. A seat today is worth over \$450,000. Few of them took the opportunity to buy those seats for what turned out to be a paltry amount; many were convinced that the new