

Wiley Trading Series

The

# COMPLETE BOOK

of

# OPTION SPREADS AND COMBINATIONS

+ website

*Strategies for Income Generation,  
Directional Moves, and Risk Reduction*

**SCOTT NATIONS**

WILEY





# THE COMPLETE BOOK OF OPTION SPREADS AND COMBINATIONS

Strategies for Income Generation, Directional  
Moves, and Risk Reduction

**Scott Nations**

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Published by John Wiley & Sons, Inc., Hoboken, New Jersey.  
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***Library of Congress Cataloging-in-Publication Data:***

Nations, Scott.

The complete book of option spreads and combinations : strategies for income generation, directional moves, and risk reduction / Scott Nations.

pages cm. – (Wiley trading)

Includes index.

ISBN 978-1-118-80545-9 (paperback); ISBN 978-1-118-80639-5 (ebk); ISBN 978-1-118-80620-3 (ebk)

1. Options (Finance) 2. Options (Finance)—Mathematics. 3. Investment analysis. I. Title.

HG6024.A3N347 2014

332.64'53—dc23

2014016781

Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1

*For my mother, who always made the time to answer a question  
from a curious kid.*



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## CONTENTS

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	Foreword	vii	
	Preface	ix	
<b>CHAPTER 1</b>	<b>Not Just More or Less but Different</b>	<b>1</b>	<b>v</b>
<b>CHAPTER 2</b>	<b>Just a Little Math</b>	<b>15</b>	
<b>CHAPTER 3</b>	<b>Vertical Spreads</b>	<b>29</b>	
<b>CHAPTER 4</b>	<b>Covered Calls</b>	<b>55</b>	
<b>CHAPTER 5</b>	<b>Covered Puts</b>	<b>75</b>	
<b>CHAPTER 6</b>	<b>Calendar Spreads</b>	<b>93</b>	
<b>CHAPTER 7</b>	<b>Straddles</b>	<b>109</b>	
<b>CHAPTER 8</b>	<b>Strangles</b>	<b>125</b>	
<b>CHAPTER 9</b>	<b>Collars</b>	<b>139</b>	
<b>CHAPTER 10</b>	<b>Risk Reversal</b>	<b>155</b>	
<b>CHAPTER 11</b>	<b>Butterflies</b>	<b>169</b>	
<b>CHAPTER 12</b>	<b>Condors and Iron Condors</b>	<b>191</b>	
<b>CHAPTER 13</b>	<b>Conversion/Reversal</b>	<b>209</b>	

<b>CHAPTER 14 Ratio Spreads and Back Spreads</b>	<b>217</b>
<b>CHAPTER 15 Other Spreads and Combinations</b>	<b>235</b>
About the Website	247
About the Author	248
Index	249



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## FOREWORD

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In this book, *Options Spreads and Combinations*, Scott takes the subject of options and option spreads and shows investors how they can be easy to understand through interesting, real world examples. Just as he does every week on CNBC's *Options Action* and in his first book, *Options Math for Traders*, Scott takes what many have viewed as intimidating concepts and breaks down the barrier of entry for the self-directed investor. Scott has a wonderful ability to use his years of experience and vast knowledge of markets and rather than use industry jargon or high-level mathematics, he breaks things down to a level that is interesting and easy to grasp for all levels of investor—from the novice to the seasoned. This ability to relate to and write for people of all knowledge levels, without arrogance or condescension is impressive when you review his track record which includes being the brains behind the “Nations VolDex®” implied volatility index.

This book encourages you to dig deeper, through poignant examples and real-life situations that can help your decision-making process when you face similar situations. Most importantly, as Scott has done this for a living and has the “battle scars” to show for it, he helps you set realistic expectations. He is not here to give a fly-by-night or get-rich-quick scheme. He is helping you become educated in the theory and reality of options trading so you can put together a realistic game plan and give yourself the opportunity for options trading success.

A prominent and important part of this book is to address some of the most common mistakes that retail traders make. All too often, when folks are starting out in the world of options trading, they only buy or sell single options in directional trades. This can be a successful strategy for some people but over time it is probably not a strategy with which

the average person can have long-term success. This book encourages you to consider spreading your trades, which spreads out your risk and the cost of your trades. As you read along, you will quickly grasp that this type of trading allows you to use less capital and define your risk right up front on your trades. You will have the opportunity in this book to learn about every type of spread trade that is realistic and imaginable.

Chapter 1 addresses the differences in risk and return and the fundamental difference in options payoffs, which sets the pace for the rest of this book and the difference in thinking about options as compared to just buying or selling stock. As Scott emphasizes, the ability for one to manage risk and exposure to the market is much easier if you understand these spreads. This concept of risk differentiates this book from others and is one to keep in mind as you read. Scott gives insight in to how a professional looks at trading. That is, the first thing he looks at is how much risk or how much exposure do I have, then he looks at potential return. This concept is so important and helps to mitigate one of the primary mistakes that many newer options traders have. By defining risk right up front, which most spreads do, it keeps the investor away from a situation where they are in over their head or have risked too much capital, while at the same time setting out a worst-case scenario right up front. You can see this clearly illustrated in Chapter 3 on vertical spreads, no matter if you are buying or selling the spread, you should view the money you can lose and the potential return on the trade. This is not to be minimized and should be heeded in every example. Read this to better understand risk and, more importantly, understand how to define the appropriate risk for you, and it can help you on your road to success.

Scott also does a great job of addressing the size of your trades and keeping risk appropriate. This helps to address another mistake that traders of all levels make; that is, they trade more contracts on a trade than they are ready to. Spreads help to mitigate this situation, but equally as important is the reminder to do what is right for you and what you are ready for in any market situation. This is an important step in achieving success in a way that does not have you up all night worrying.

As someone that talks to retail traders on a regular basis, I find it so refreshing to see someone teaching in a sensible, risk-defined manner to help the average person have a greater chance of success in the market. I commend Scott's thoughtful work delivered in fun and logical lessons in this book. I consider him one of the best options teachers. One of the great benefits of this book is that it is not going to be read and put away; this book can serve as a reference guide for the rest of your trading career. As you step up in knowledge or want to take different types of risk, you can reread the chapters on different spreads as you change your strategies based on market conditions. These lessons are timeless. I hope you enjoy this book as much as I did as you get the chance to learn from a great teacher and a great friend.

—JJ Kinahan

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## PREFACE

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The goal of option trading is to make money. The vital element of making money over the long run is to define risk when you can and reduce the cost of your trade when you should. An option spread (essentially buying one option and selling a similar option) or an option combination (usually using two options in tandem such as buying both a put and a call or using an option in tandem with something else such as ownership of the underlying stock) is usually the best way to define risk and/or reduce the cost of your trade. Not every option spread or combination limits your risk but most do and they do it sensibly, without paying a huge penalty that destroys the mathematical advantage your option strategy might generate. In fact, certain option spreads generate even more mathematical advantage than outright option positions can. The purpose of this book is to help you understand these strategies and apply them intelligently because, again, the goal is to make money. We can and should enjoy both learning about options and trading them effectively, but both are a lot more fun when we're making money.

No trader is right every time, but you should make money more often than you lose money and your profitable trades should make more than your losing trades lose. The easiest way to do all these things is to use option spreads and combinations and to do so in a disciplined manner. That discipline includes taking your loss when your option spread trade isn't working. You will probably have lost a lot less money than if you had traded the stock or an outright option (rather than an option spread or combination) but using a lower-cost, lower-risk spread or combination doesn't mean we can ignore first principles and not take our loss when we should. A spread or combination is also a great tool when doing the hardest thing to accomplish when trading—adding to a winner well.

As we've mentioned, some spreads and combinations have a built-in advantage. For example, we'll discuss one built-in advantage when we discuss risk reversals. Covered calls are another combination with a different built-in advantage—over time, the call option you sell will generate more in premium received than the option is ultimately worth. Some spreads and combinations have a built-in disadvantage. Collars are a great way to define risk if you own appreciated stock but you're swimming against the tide a bit. That's okay as long as you don't use collars constantly and understand why that is.

*The Complete Book of Option Spreads and Combinations* isn't intended for someone who's a complete newcomer to options. We discuss outright options, that is, options that aren't part of a spread or combination, but outright options are rarely the right strategy, particularly if you're a speculative seller of options, so we'll focus on spreads and combinations and while they're not necessarily complicated, if you're still stuck on the difference between a put option and a call option then read this book but reread the first couple of chapters before diving into the strategies which begin with Chapter 3.

## ■ The Spreads and Combinations

We'll take a detailed look at nearly every common option spread or combination and we'll look at some rare, quirky spreads that even a professional option trader may never actually execute. I've been a professional option trader for a long time including decades in the option pits of Chicago and I've traded some odd combinations, sometimes including as many as eight legs but I don't believe I've ever actually traded a "guts" spread. But each strategy has something to recommend it and many show symmetry or similarity to another strategy. Once you start to recognize these similarities you can start to construct the best, cheapest-to-execute strategy given your market point of view. Once you can recognize these symmetries, you're also on your way to really understanding options, which means you're able to create return profiles that aren't just about more or less return but rather are fundamentally superior to the risk/return profiles that are possible if you're just trading stock. These fundamentally different return profiles are the real power of option spreads and combinations.

# Not Just More or Less but Different

Options are about choice and the freedom to do something, exercise your option, or not do that something and let your option expire. An option is the right but not the obligation to do something; in our context, it's the right to buy or sell stock at a predetermined price before the option's expiration date. For this reason, options are obviously very different than ownership of the underlying stock. While it's true that if you own stock you always have the freedom, the "option," of selling your stock, that's a pretty drastic choice; there's no middle ground. It's the choice inherent in ownership of an option, or the premium collected in selling an option, and the ability to enjoy the shades of gray between owning the underlying stock and not owning the underlying stock that make options such a useful tool. The owner of the option gets to make this choice but pays money for the privilege. The seller of the option doesn't get to make the choice, he's at the mercy of the option owner but he is paid for being at the mercy of the option buyer and he's often paid very handsomely.

This choice also means that options, when combined with other options in spreads and combinations and when combined with stock, result in risk/reward payoffs that are very different than stock alone or options alone can generate. If standard asset allocation between stocks, bonds, commodities, precious metals, and so on is diversification, then it's diversification in two dimensions. Allocation using different asset classes and option spreads or combinations is diversification in three dimensions.

“As we see it, the principal function of options is to provide a significant expansion of the patterns of portfolio returns available to investors. Such expansions make investors better off . . .”

*Myron Scholes and Robert Merton*

If you buy a share of stock and the price goes up by \$1, then you’ve made \$1. If the price goes down by \$1, then you’ve lost \$1. Pretty straightforward but not very nuanced either. By using options, particularly in a spread or combination, it’s possible to create a trade structure that will make money if the stock goes up; it’s possible to create a trade structure that will make money if the stock goes down; it’s possible to create a trade structure that will make money if the stock doesn’t move. It’s possible to create trade structures that lose money if the stock moves a little but make money if the stock moves a lot. It’s not just about more or less, with options the pattern of returns are fundamentally different.

But merely adding alternative structures isn’t what really matters. What matters is that one of those payoff scenarios is likely to coincide with your outlook for the price action, or lack of price action, in the underlying stock. It’s this ability to make money if the stock does what you believe it’s going to do, regardless of what that belief is, even if it’s the belief that the stock isn’t going to go anywhere, that make spreads and combinations so useful.

While every investor or student of finance has heard of options, we’ll focus on listed options on stocks, indexes and exchange-traded funds (ETFs). We won’t discuss options to buy the real estate next door, nor will we discuss employee stock options, the sort of options given to employees as part of their compensation or as an incentive and that allow the employee to buy stock at a discount. Rather, we’ll focus on the options nearly every investor can and probably should be using—listed options.

## ■ The “Flavors”: Calls and Puts

Listed stock options come in two “flavors”—the right to buy stock (a call option, often referred to simply as a *call*) and the right to sell stock (a put option, often referred to simply as a *put*). It’s useful to remember the terms by thinking of the option to buy stock as the right to call it away from the existing owner. The right to sell stock is the right to put the stock back into the market.

The owner of a call option gets to choose, that is, he has the option, whether to exercise his right and buy the underlying stock at the exercise price before the option expires. The seller of the call option has to sell the stock at the exercise price if the owner of the option elects to exercise it. In that case, the seller of the call option is required to sell the stock at the exercise price regardless of how far above the exercise price the stock is currently trading. In exchange for being willing to do so,

he will collect an option premium in the form of cash when he sells the option. This cash is his to keep no matter what.

The owner of a put option gets to choose whether to exercise his right and sell the underlying stock at the exercise price before the option expires. The seller of the put option has to buy the stock at the exercise price if the owner of the put option elects to exercise it. In that case, the seller of the put option is required to buy the stock at the exercise price regardless of how far below the exercise price the stock is currently trading. In exchange for being willing to do so, he will collect an option premium in the form of cash when he sells the options. This cash is his to keep no matter what.

One note: no one keeps track of whom you actually bought your option from or whom you sold it to. Rather, all options that share the underlying stock, expiration date, strike price, and type (call or put) are identical, regardless of which exchange they were executed on or which brokerage executed them, so when it's time for you to exercise your call option, the Options Clearing Corporation, the clearinghouse for option trades, will more or less randomly pick someone who is short one of those options to satisfy the duty to you.

## ■ The Expiration Date

For exchange-listed options, there are a number of expiration dates, usually by calendar month, to satisfy the hedging and speculation needs of all sorts of market participants, but for standard options, the expiration is fixed within the expiration month. The last trading day for these standard options is the third Friday of the month, and while the options technically expire the next day, the Saturday following that third Friday, for all intents and purposes the last day that matters is that last trading day. You can trade these options right up until the closing bell on that Friday and make the all-important decision about whether to exercise your option and buy (in the case of owning a call option) or sell (in the case of owning a put option) the underlying stock. We'll discuss this decision to exercise your option in greater detail when we define moneyness.

There are a few nonstandard expiration date regimes, and they can be useful. Many underlying stocks now have options with weekly expirations trading. Instead of expiring on the third Friday of the month, these will expire on the next Friday, or there might be two or more weekly expirations listed, each expiring on subsequent Fridays. The goal is to allow traders to take advantage of market events and catalysts such as earnings announcements; market-moving government announcements, such as unemployment and jobs data; or major corporate events, like a new product announcement or a Food and Drug Administration decision for a pharmaceutical company and to isolate that event or catalyst.

Some stocks, ETFs, and indexes also have quarterly expirations. These options expire on the last day of the calendar quarter and are intended for institutions that are judged by quarterly results.

**TABLE 1.1 MSFT Option Expirations**

Expiration Month/Year	Last Trading Date	Option Expiration Date
May	May 17, 2013	May 18, 2013
May Weekly	May 23, 2013	May 24, 2013
June	June 21, 2013	May 22, 2013
July	July 19, 2013	July 20, 2013
August	August 16, 2013	August 17, 2013
October	October 18, 2013	October 19, 2013
January '14	January 17, 2014	January 18, 2014
January '15	January 16, 2015	January 17, 2015

As an example, Table 1.1 shows expiration dates for options that were recently trading on Microsoft Corporation (MSFT).

This sort of range of expiration dates is about normal for a major stock like Microsoft. While some other stocks will have slightly different expiration cycles, most will have options expiring in the current month, if the third Friday hasn't passed, or the next month and the following month. After those first couple of expirations, the expiration months will usually fall into a more or less quarterly pattern. For example, options on McDonald's Corporation (MCD) follow a September/December cycle rather than the August/October cycle that MSFT did. For longer-term options, most stocks will have listed options expiring next January and one or two Januarys after that. Note that the last trading day is the third Friday of each month, while the option expiration is the next day, a Saturday. You can trade each option until the close of trading on that Friday, but in reality you'll have to make your decision about exercising any options you're long within a few hours of that market close. Your broker will have specific guidelines on when you must enter any instructions to exercise the options you own, but note that nearly every option you own that is in-the-money at the close of trading on that Friday will be automatically exercised. We'll define in-the-money in the money-ness section of this chapter.

There's not a lot of rhyme or reason to the expiration cycles, so don't get too involved in trying to figure out what expirations exist or why they're set up the way they are. There will be plenty of expiration alternatives for you to use.

## ■ The Strike Price

If an option allows the option owner to buy a stock at a predetermined price (in the case of a call option) or sell a stock at a predetermined price (in the case of a put option), what is that predetermined price? That is the price the option owner would



pay or receive if they chose to exercise their option. Hence, it's called the *exercise strike*. Some call it the strike price. The two terms are interchangeable, but we'll use the term *strike price*.

While the increments between strike prices used to be consistent and logical, it's a little more ad hoc now. For stocks below \$50 with actively traded options, the increment between strike prices is usually \$1. If the stock and options are less actively traded, meaning there's less demand for narrower strike price increments, then the increment is usually \$2.50. The increment will increase as the stock price increases. With stock prices above \$100, the strike price increment is usually \$5, after all, with IBM trading above \$200, a \$5 strike price increment is only 2.5 percent of the stock price, while with MSFT just over \$30, a \$1 strike price increment is just over 3 percent of the stock price.

For these IBM options, we'd say they are "struck" every \$5, and that's about as wide as the increment will get. Even with Google close to \$1,200 a share, the options are still struck at \$5 increments.

Remember that strike price increments are subject to market demand. If option exchanges hear from their customers that they'd like to see narrower strike price increments in XYZ stock, then the options exchanges are likely to offer narrower strike price increments for XYZ. Expanding bandwidth for exchange data feeds has made it easier for option exchanges to offer more strike prices, so they do, even if it ends up being a little confusing to the new option trader. Don't look for hard-and-fast rules for what strike prices will be listed; they're subject to this market demand for strike prices. In addition, as a stock moves around, it will near the top or bottom of the band of listed strike prices. It may seem that traders are "running out of" strike prices. Soon, the exchanges will list new strike prices for trading, but until that happens the strikes and their increments will seem odd. Don't be confused. The listed strike prices will almost certainly satisfy any trading or hedging need you might have.

## ■ An Option Corresponds to 100 Shares of Stock

Each regular option gives the right to buy, in the case of a call option, 100 shares of the underlying stock or to sell, in the case of a put option, 100 shares of stock—each option corresponds to 100 shares of stock. If you've sold one put option and the owner of the put option chooses to exercise it, then you're going to have to buy 100 shares of stock at the exercise price.

Just as stock is priced per share, regardless of how many shares you intend to buy, options are priced per share even though each option corresponds to 100 shares. If the option you buy is trading at 1.25, then your total outlay, assuming you buy a single option is \$125.00 ( $1.25 \times 100$  shares).

## ■ Defining an Option

So we know what the underlying stock or ETF for our option is. We see the expiration and know that for regular options the third Friday of the month is the last trading day. For other options, like weekly or quarterly options, the expiration date is given explicitly. The strike price is understood. The type of option is easy—call or put. We know that each option corresponds to 100 shares of stock. With those pieces of information, we can precisely define any option so that every market participant, even a new option trader, understands exactly what the terms of the option are and how much any outlay will be for buying it and how much will be collected for selling it.

If we were to discuss the SPY June 150 put, then everyone would be in agreement about which option we're referencing. The underlying ETF is ticker symbol SPY, the S&P 500 ETF. The expiration date is the third Friday in June. If the third Friday in June for the current year has already passed, then we're discussing an option that will expire on the third Friday of June of the next year. If the third Friday hasn't already passed, then we're talking about an option that will expire the third Friday of June of this year. The exercise price or strike price (the two terms are synonymous) is 150. The buyer of this put gets the right but not the obligation; they get the freedom to sell 100 shares of SPY at \$150 a share at or before expiration. If the quoted price of this option is 1.35, then the total outlay will be \$135.00, ignoring commissions.

Let's jump in and look at some options listed on GM. We see these in Figure 1.1.

That June 37 strike call that is highlighted? We know that if we buy that call option, we assume the right but not the obligation to buy 100 shares at GM at 37.00. We have until the end of the day on the third Friday in June to exercise our option. The current market price of the option is close to 1.36, so we'll pay close to that for this option. The option market may demand a little more from us if we want to buy this option than they'll give us if we want to sell this option. The market may "ask" 1.37 of us if we want to buy this option, while the market may "bid" 1.35 if we want to sell this option. We'll discuss this "bid/ask" spread and how it can impact your option trading and the

Strike Price	March Expiration		June Expiration		September Expiration	
	Call	Put	Call	Put	Call	Put
30	5.23	0.11	5.53	0.61	5.85	1.15
31	4.28	0.18	4.75	0.82	5.10	1.48
32	3.38	0.29	3.95	1.10	4.43	1.84
33	2.51	0.48	3.30	1.46	3.83	2.25
34	1.83	0.79	2.67	1.89	3.25	2.72
35	1.22	1.23	2.18	2.39	2.77	3.20
36	0.76	1.81	1.74	2.96	2.34	3.80
37	0.46	2.52	1.36	3.60	1.95	4.43
38	0.25	3.35	1.05	4.30	1.62	5.10
39	0.14	4.25	0.81	5.10	1.34	5.83
40	0.08	5.18	0.60	5.95	1.10	6.60

**FIGURE 1.1** Some Options in GM

**TABLE 1.2 Profit or Loss for the GM Call Option We Bought**

GM Stock Price at Expiration	Profit or Loss
33.00	-1.36
34.00	-1.36
35.00	-1.36
36.00	-1.36
37.00	-1.36
38.00	-0.36
39.00	0.64
40.00	1.64
41.00	2.64

decisions you make throughout this book. For simplicity's sake we'll generally assume each option has a single price that is between the bid price and ask price. If we indeed pay 1.36 for one of these GM call options then our total outlay is \$136.00.

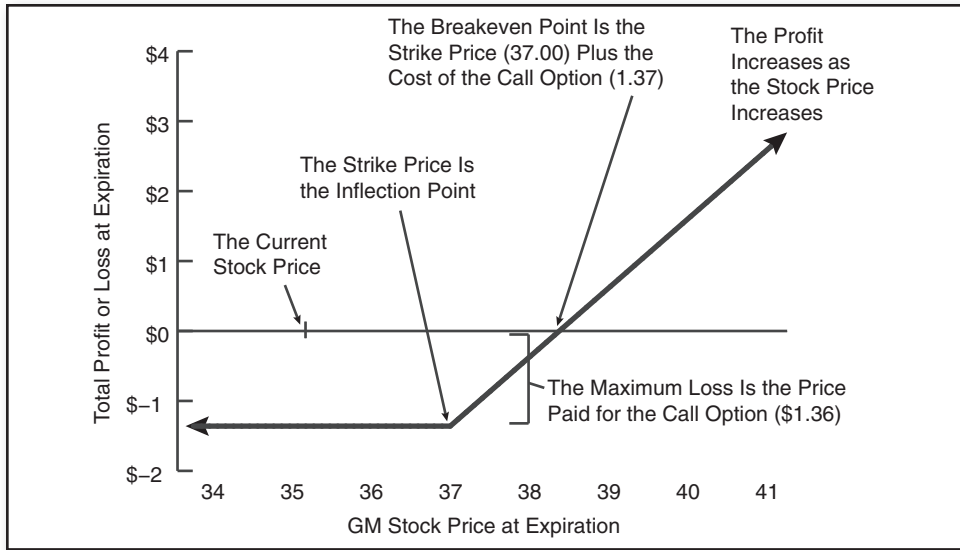
And if we sold that 37 strike call option at 1.36? We would collect \$136.00, which would be ours to keep no matter what. If the owner of the call option chose to exercise it at any time before it expired, we'd have to deliver 100 shares of GM stock. We would be paid 37.00 per share for the stock we delivered no matter where GM is trading at the time. If we don't already own 100 shares of GM stock, then we would have to go into the market, buy 100 shares at whatever price it is currently offered at, and deliver those 100 shares.

The important concept here is that all the specifics of the option and the potential outcome are explained if we know the underlying stock, the strike price, whether the option is a put or a call, and the expiration date.

Buying that call option on GM, in fact, buying any call is a defined risk, unlimited potential profit position that profits if the underlying stock rallies enough. Let's look at how buying this 37 strike call option in GM would fare for a variety of prices of GM stock at the call option's expiration. We see this in Table 1.2.

Notice that no matter how low GM stock drops in price, the most our trade can lose is the 1.36 we paid for our call option, while the potential profit is theoretically unlimited since GM stock could theoretically rally infinitely. Let's look at a chart of these outcomes in the sort of payoff chart that we'll look at for other trades. You can see this payoff in Figure 1.2.

What if we were to sell that 37 strike call option at 1.36? Selling a call option is a defined potential profit but unlimited potential loss strategy that collects and keeps the premium but would require the call option seller to deliver 100 shares of the underlying stock at the strike price, 37.00 in this case, regardless of where the underlying stock was trading at the time. Let's look at how selling this 37 strike call option in GM would fare for a variety of prices of GM stock at the call option's expiration. We see this in Table 1.3.



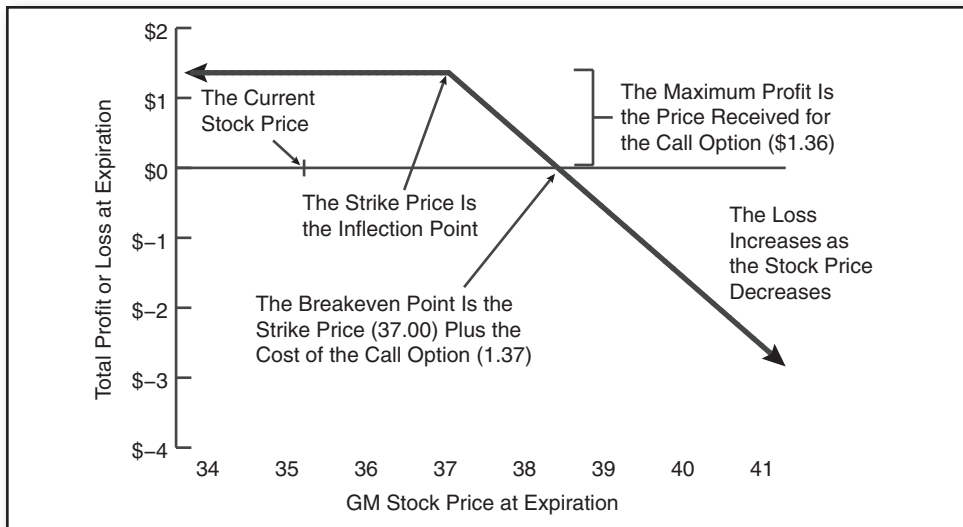
**FIGURE 1.2** Profit or Loss for Our Long 37 Strike Call In GM

Selling this call results in a profit of 1.36 if GM is at or below 37.00 at expiration but loses money if GM rallies far enough. In this case that breakeven point is 38.36 (the strike price of 37 plus the premium received of 1.36). Let's see how this payoff chart would look. You can see that in Figure 1.3.

Notice that the maximum potential profit is the 1.36 in premium received, and we'll keep that as long as GM is at or below 37.00 at June expiration. Above 37.00, our profit starts to erode until we reach breakeven at 38.36. Above there, we lose money having sold this call, and the amount of our loss keeps increasing as long as GM stock keeps rallying.

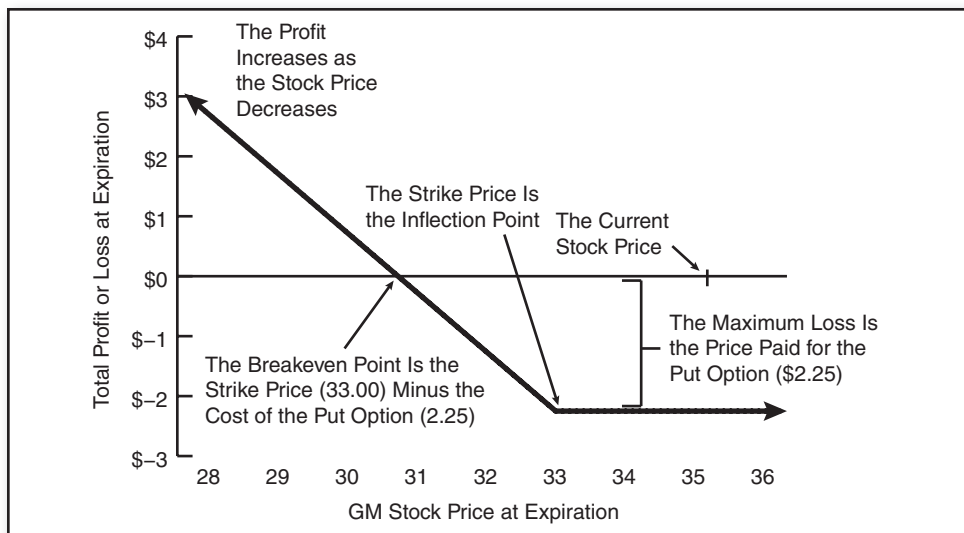
**TABLE 1.3** Profit or Loss for the GM Call Option We Sold

GM Stock Price at Expiration	Profit or Loss
33.00	1.36
34.00	1.36
35.00	1.36
36.00	1.36
37.00	1.36
38.00	0.36
39.00	-0.64
40.00	-1.64
41.00	-2.64

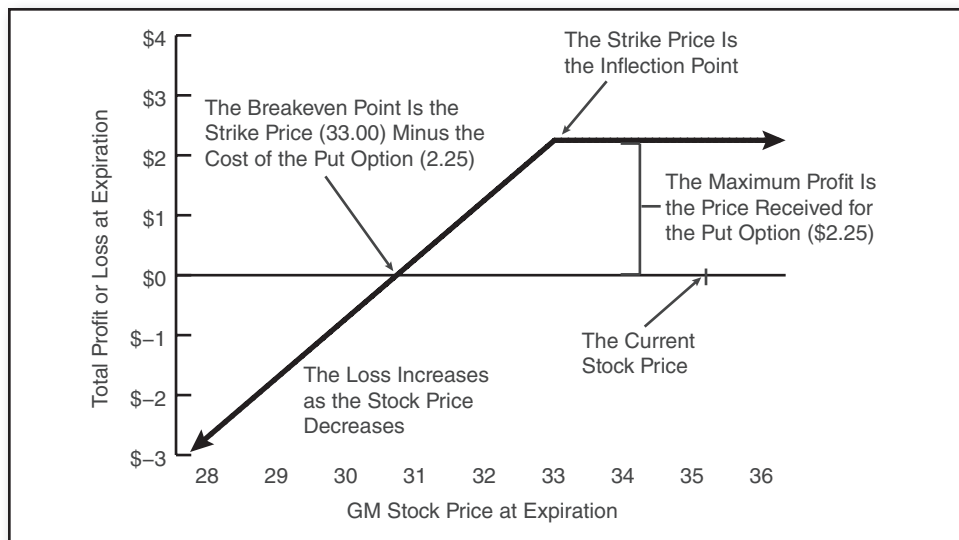


**FIGURE 1.3** Profit or Loss for Our Short 37 Strike Call in GM

What about those put options we saw in Figure 1.1? What if we were to purchase that September 33 put that is highlighted? We would pay about 2.25 for that put option. Buying a put option is a defined risk way to profit from a drop in the price of the underlying stock. Our potential profit is limited only because the price of GM stock can't drop below zero. Let's look at a payoff chart for buying this September 33 strike put at 2.25. You'll see that in Figure 1.4.



**FIGURE 1.4** Profit or Loss for Our Long 33 Strike Put in GM



**FIGURE 1.5** Profit or Loss for Our Short 33 Strike Put in GM

And if we were to sell that 33 strike put in GM at 2.25? We'd collect and keep the 2.25 but we'd be required to buy GM stock at 33.00 if the put owner chose to exercise his option, which he would do if GM were below 33.00 at that September expiration. We'd have to buy those shares regardless of how low GM stock was trading at the time. This means that selling a put, like selling a call, is a defined potential profit trade with huge potential losses. The only difference between selling a put and selling a call is that the stock is limited in how far it can fall only because it can't fall below zero. Let's look at the payoff chart for selling a put. We see that in Figure 1.5.

You'll notice that selling a call option is not the same as buying a put option. Similarly, selling a put option is not the same as buying a call option. The long call option needs the underlying stock price to increase. The short call option needs the underlying stock price to stay where it is, increase slightly while staying below the strike price, or fall. The long put option needs the underlying price to fall. The short put option needs the underlying price to stay where it is, decrease slightly while staying above the strike price, or rise.

## ■ Moneyness

If you're buying a put option to protect a long position in a stock that's currently trading at \$100 a share, then you might very well buy a put option with a strike price of \$100. You'd be protecting your position against any loss, although you'd be

paying for the option that would do so. You might very well buy a put option with a strike price of \$95. You'd be willing to accept a small loss, \$5 per share in this case, and the put option that provides that protection would cost quite a bit less than the 100 strike put, so you might think this is a reasonable risk and accept a small loss in exchange for a smaller outlay to buy the cheaper put. You probably wouldn't be willing to buy a put with a strike price of \$105, that is, a put option that would give you the right to sell your stock at \$105 per share. That's not really insurance and that 105 strike put option would likely be pretty expensive.

Each of these hypothetical put options are identical except for the strike prices and what really matters is not the absolute strike price but rather the relationship of the strike price to the current price of the underlying stock. The first put, the 100 strike put, had a strike price that was equal to the current stock price. This put would be pure protection—if the underlying stock drops at all, then this put buyer would be protected but would also enjoy any and all appreciation in the stock price. Such an option, either a put or call option, that has a strike price that is equal to the current stock price is said to be at-the-money.

The 95 strike put would have to have the market move before it would have any value at expiration. If the underlying stock weren't below \$95.00 at expiration, then this option would be worthless and the buyer of the option would let it expire worthless. Since this is a put, the underlying stock has to drop. This option is said to be out-of-the-money because a move in the price of the underlying stock is required for the option to have any value at expiration. In this case, the option is a put option so the underlying stock must drop. If the option were a call option and the strike price were 105, then that call option would similarly be out-of-the-money because the underlying would have to move; in this case, it would have to rally in order for the 105 strike call to have any value at expiration. And that 105 strike put? That option is in-the-money, as would a 90 strike call option be. Table 1.4 explains moneyness; that is out-of-the-money, at-the-money, and in-the-money for all puts and calls.

Let's look at Figure 1.6 for specific examples of moneyness.

**TABLE 1.4** Option Moneyness: The Relationship between the Strike Price and the Price of the Underlying Asset

	Call Options	Put Options
In-the-Money	The strike price is below the price of the underlying.	The strike price is above the price of the underlying.
At-the-Money	The strike price is equal to, or very near to, the price of the underlying.	The strike price is equal to, or very near to, the price of the underlying.
Out-of-the-Money	The strike price is above the price of the underlying.	The strike price is below the price of the underlying.

Strike Price		Call	Put
20	These calls are "in-the-money" since their strike prices are below the current underlying price	4.92	These puts are "out-of-the-money" since their strike prices are below the current underlying price
21		3.95	
22		3.02	
23		2.19	
24		1.49	
Underlying Price is 24.90			
25	These calls are "out-of-the-money" since their strike prices are above the current underlying price	0.94	These puts are "in-the-money" since their strike prices are above the current underlying price
26		0.55	
27		0.30	
28		0.15	
29		0.07	
30		0.03	

**FIGURE 1.6** Moneyness Examples

## ■ What We Mean by Spread and Combination

We'll focus on option spreads and combinations rather than the outright option positions we examined earlier in this chapter. We'll focus on option spreads and combinations because they allow us to use options in tandem with an existing position in the underlying stock, resulting in a superior position that might provide protection or generate income in the form of option premium collected, or in tandem with other options to generate premium while limiting risk or using the math of option trading such as differential erosion of option values to our advantage or to make money if there's a big move in the underlying stock regardless of the direction of that move. Outright options have their place, but option spreads and combinations are so much more versatile, which raises the question: what do we mean by an option spread, and what do we mean by an option combination, and what's the difference between the two?

Generally, an option spread is constructed when we buy one option and sell a similar option. The similar option may differ only in the exercise price (a vertical spread) or in the expiration date (a calendar spread) or in both (a diagonal spread).

An option combination is generally constructed when we combine options with a position in the underlying stock such as owning the underlying stock and selling a call option against it (a covered call) or when we combine options in a way that doesn't really qualify as a spread. For example, if we thought there was going to be a big move in the underlying stock but didn't know the direction, we might buy an at-the-money call and an at-the-money put (since both options are likely to have the same strike price, this would be a straddle).



## ■ A Final Thought

The objective of option trading is to make money or to make the same amount of money with less risk. It's usually the case that using options in concert with each other or in concert with the underlying stock—that is, as a spread or combination—is the easiest way to do so. And it's also a great way to reduce risk in your trading. For example, selling a naked call option generates an infinite amount of risk since, theoretically, the price of the stock could increase infinitely. That's a pretty remote likelihood, but the point is that selling a call vertical spread defines the risk—it's now knowable. But reducing your risk in an option trade is good only if, over time, your trading makes money. Trading can be fun, but it's a whole lot more fun when it's profitable, so focus on the making money part and not necessarily on the trading part. That means don't trade just to trade. Trade when you have some insight. And use the best possible trade structure. That will often be a spread or combination.



# Just a Little Math

Understanding just a little of the math inherent in option trading will make you a vastly better trader. You'll understand that certain strategies are fundamentally superior to other strategies, but most importantly, you'll understand why that is the case. Once you understand the "why," you can start to weave this knowledge into your decision making, both when selecting an initial option strategy and when closing or spreading out of an existing trade.

In this chapter we'll focus on the price of an option versus the value of that option, how option prices erode over time and what this means for both option buyers and option sellers, and, finally, how changes in the inputs to an option price—inputs such as time to expiration, volatility, movement in the underlying stock, and a couple of others—will impact the price of an option. We'll also discuss the website that accompanies this book, [www.OptionMath.com](http://www.OptionMath.com). We'll explain how to use the site and how the tools there can help you make better trading decisions.

## ■ The Option Price

The price of an option is determined solely by market demand and supply. Willing buyers and sellers come together, usually electronically, and trade at mutually agreeable prices. But don't think for a moment that this price is equal to the value of the option. While a number of sophisticated formulas exist to determine the value of an option, ultimately the value is unknowable until expiration. Option market participants all have their thoughts on what the value will ultimately be, and those estimates of future value are what drive the price that's seen today, but today's option price isn't necessarily today's option value. The current price for an option may turn out to be a fantastic bargain or insanely high, but it is the best estimate now of