

CHAPTER 1

An Introduction to Options

MARKET BASICS

This section is written specifically for the stock market novice. It is aimed at those who have never bought a stock before or those who have very little understanding of the most basic functions of stock and option markets.

What Is the Stock Market?

From the perspective of a private investor, the *stock market* provides a venue for the buying and selling of stock of publicly listed companies. If you want to buy fruit, you go to the fruit market. If you want to buy stocks, you buy them through the stock market—it is as simple as that. Other common terms for the stock market include:

- Share market
- Equity market
- Simply “the market”

From the perspective of a company, listing on the stock market provides access to a large amount of investment capital that would not otherwise be available to an unlisted company. The market provides companies with the ability to seek investment funds from retail investors as well as institutional investors (fund managers, banks, etc.) who invest on behalf of others. Access to this public market capital enables a listed company to significantly extend its potential funding base upon which it can expand and grow its business in the future.

What Is a Share?

A *share* represents a portion of ownership of a company. Public companies are very large and, in most instances, are not owned by just one person or entity. Many thousands of different people or entities own stock in large listed public companies.

A share literally entitles its owner to a portion of a company's earnings (as dividends) and a claim on the company's assets in the event of bankruptcy (priority given to creditors). Through the election of company directors, stockowners are also entitled to participate in deciding the future direction of the company.

Most adults are already stockowners. Some of these stockowners are active investors who buy and sell stocks based on their own research or on the advice of their peers or professional advisers such as a stockbroker. Other stockowners gain exposure to the stock market through mutual funds where money is pooled and invested by a professional fund manager.

How Are Stocks Bought and Sold on the Stock Market?

Think of the stock market like a fruit market. Let's assume you want to buy 10 bananas. You need to go to the fruit market and see who is selling bananas and at what price. Store owners are entitled to sell their bananas at whatever price they see fit. Obviously they don't want to make the price too high or their fruit won't sell, or too low because then they are not making as much money as they could.

You find three different stores selling bananas:

Asking Price, 10 Bananas

Store 1	\$1.40
Store 2	\$1.47
Store 3	\$1.60

You obviously want to buy your bananas as cheaply as possible. If you think \$1.40 is reasonable, you might simply buy them from store 1 at that price. If you are only prepared to pay \$1.35, then you might "bid" to buy them at \$1.35. The manager at store 1 may agree to this price as it's not far away from his asking price. If you both agree on a price, the bananas will sell.

Buying stocks on the stock market works exactly the same way! Let's assume you want to buy 100 shares of General Electric (GE). You look up the price at the stock market by calling your stockbroker (or going to your broker's online site). You are presented with the market for GE stock. It looks Table 1.1.

TABLE 1.1 The Market for GE Stock

Buyers (Bid)		Sellers (Ask)	
Number of Shares	Bid Price	Ask Price	Number of Shares
2,000	\$25.00	\$25.20	5,000
5,000	\$24.80	\$25.40	400
400	\$24.20	\$26.00	1,000

If you want to buy 100 shares, you need to buy them by reaching an agreement on price from someone who wants to sell them. The sellers put into the market how many shares they want to sell and at what price (the “ask” price). You obviously want to buy the stock as cheaply as possible, so the seller asking the lowest price is always at the top of the list. He or she is offering 5,000 shares for sale at a price of \$25.20.

You now have two options:

1. If you think \$25.20 is a reasonable price, you can simply put in a bid to buy 100 shares of GE at \$25.20 and your order will be filled.
2. If you think \$25.20 is not a reasonable price, you can put in a bid for less.

Let’s assume you think \$25.10 is a reasonable price. You enter this bid price into the market and the market will then look like Table 1.2. Your bid is now at the top of the column because you are the current highest bidder. If the seller at \$25.20 (or any other seller) thinks that \$25.10 is a reasonable price, he or she may change the order to \$25.10 and the stock will trade. Or a new seller might come into the market enticed by your bid of \$25.10 and your stock may trade.

What Is a Stock Code or Symbol?

All stocks that trade on public markets are represented by an individual *stock code* or *symbol*. No two stocks have the same stock code.

TABLE 1.2 Entering a Bid into the Market

Buyers (Bid)		Sellers (Ask)	
Number of Shares	Bid Price	Ask Price	Number of Shares
100	\$25.10	\$25.20	5,000
2,000	\$25.00	\$25.40	400
5,000	\$24.80	\$26.00	1,000
400	\$24.20		

While these terms can be used interchangeably, in the United States, the term *symbol* is used. U.S. stock symbols consist of one letter to five letters. For example, Citigroup is represented by the symbol C, Wal-Mart is represented by the symbol WMT, and Shire Pharmaceuticals is represented by the symbol SHPGY.

Option contracts in the United States are also represented by symbols/tickers, which are generally five letters long. As with stocks, no two option contracts have the same symbol.

What Makes Stock Prices Go Up and Down?

Many factors influence the price at which a company's stock trades, the most important factor being a company's future earnings. Various *fundamental* factors combine to influence a company's future earnings. You will become very familiar with fundamental factors as they are of particular interest to financial analysts and also gain significant exposure in the financial press. Common fundamental factors that affect the future earnings potential of a company include:

- Company-related issues such as increases or decreases in sales, increases or decreases in the cost of doing business, and changes in asset position, management team, business model, or perceived business risk.
- Industry-related issues such as the financial performance of competitors or introduction of significant legislation.
- Economic-related issues such as the economic growth rate of economies in which the business operates, currency fluctuations, and interest rate or inflation rate changes.

If a fundamental factor changes and causes the market to think that a company's future earnings will be higher (lower) than previously expected, the stock price will adjust upward (downward) accordingly.

Other influences on stock prices that you should be aware of are *technical* factors. Technical analysis is the study of stock price charts through time. There are many investors and traders in the financial markets who make buy and sell decisions based solely on technical analysis because they believe that all fundamental factors are represented in the price charts they analyze.

We discuss both fundamental and technical factors in more depth later in this book.

What Is a Stockbroker?

Stockbrokers provide access to the stock market by entering buy and sell orders into the market on behalf of investors. Stockbrokers also hold accounts on behalf of investors where electronic records of stocks, options, and cash held are kept.

A brokerage account is just like a bank account except it holds stocks and options as well as cash. To set up a brokerage account, contact a broker (via phone or online), fill out the paperwork, and deposit money into your account. For the type of investing you are going to be doing, it is best to use a discount broker with the lowest possible transaction costs and fast executions.

Do not use a boutique broker (one who provides advice), even if you currently use one. They are expensive and, from this point on, you will not need their advice. You will make your own decisions and the returns you will generate may be many times what the best broker can do for you in the best year!

The brokerage industry is constantly evolving with new online players entering the market and existing brokerage houses regularly making changes to trading platforms and commission structures. The current industry best brokers for using the covered call technique can be found at www.compoundstockearnings.com/brokers. We strongly advise you to use one of these recommended brokers because trading platforms and transaction costs have a very dramatic effect on profitability.

What Are the Dow Jones Industrial Average, S&P 500, and NASDAQ?

The Dow Jones Industrial Average (the Dow), S&P 500, and NASDAQ are stock market *indexes*. A stock market index is used to represent the performance of a group of stocks rather than just a single stock. Apart from some exceptions (such as the Dow), indexes are generally constructed on a market value weighted basis. Consequently, the movements of larger companies have a greater impact on the performance of the index than do movements of smaller companies.

Some of the world’s most significant stock market indexes are listed in Table 1.3.

TABLE 1.3 Major Stock Market Indexes

Index Name	Market	Composition
Dow Jones Industrial (Dow)	U.S.—NYSE	30 stocks on New York Stock Exchange (NYSE)
NASDAQ Composite	U.S.—NASDAQ	All NASDAQ stocks; heavy in technology
S&P/ASX 200	Australia	200 largest and most liquid companies
Financial Times Stock Exchange (FTSE)	London	100 largest companies; often called “Footsie”
DAX	Germany	30 major companies
Hang Seng	Hong Kong	33 largest companies
Nikkei	Tokyo	225 largest companies

OPTIONS BASICS

What Are Options and How Do They Trade?

An *option* is a financial instrument and contract. An option gives the holder the right, but not the obligation, to buy or sell a financial asset at a certain price up to a certain date. An important distinction is “the right, but not the obligation.” The holder of the option does not have to exercise the right under the contract if it is not in his or her favor to do so.

Options (like futures) are known as *derivative securities* simply because their value is *derived* from the value of other more basic variables. For example, an IBM stock option is a derivative security because its value depends on the price of IBM stock. The derivative asset is also referred to as the *underlying* asset. In this case, the underlying asset is IBM stock.

Options are available on many financial assets including stocks, futures, and commodities. Most options are exchange traded, meaning they are traded on public markets, just like stocks are traded on stock exchanges.

There are two basic types of stock options:

1. A *call option* gives the holder the right, but not the obligation, to *buy* a stock at a certain price up to a certain date. Call options are used by speculators who expect an *increase* in the price of the underlying asset.
2. A *put option* gives the holder the right, but not the obligation, to *sell* a stock at a certain price up to a certain date. Put options are used by speculators who expect a *decrease* in the price of the underlying asset.

The covered call technique involves the use of call options *only*.

Options trade exactly the same way that stocks do. There are investors who want to buy options and there are investors who want to sell, or write, options. When these two investors reach an agreement on price, the contract trades. This trade happens in exactly the same way as previously described in the section on “how stocks are bought and sold on the stock market.”

All exchange-traded options have certain standard characteristics. Take this description of a contract as an example:

General Electric September 2005 \$30.00 Call Option

Company name	All exchange-traded options relate to a specific publicly listed company (or financial asset). In this case the contract relates to stock in <i>General Electric</i> (GE).
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Expiration date	All options have an expiration date. In this case the option expires in <i>September 2005</i> .
Strike or exercise price	All options have a specific <i>strike</i> or <i>exercise</i> price. These two terms are used interchangeably. If you own this contract you have the right to buy GE stock at a price of <i>\$30.00</i> .
Type	All options are either a call option or a put option. A call option provides the right to buy the stock. A put option provides the right to sell the stock. This contract is a <i>call option</i> .

If you owned the GE September 2005 \$30.00 call option, you would have the right, but not the obligation, to buy GE stock at \$30.00 per share up to the expiration date of September 2005.

Unlike stocks, options are referred to as *contracts*. In the United States, a standard contract relates to 100 shares in the underlying stock—this number changes depending on which country the option is listed in. Thus, if you buy four GE September 2005 \$30 calls, you own four *contracts*. Each contract relates to 100 shares, so in this instance, you own the right to buy 400 shares.

What Basic Options Terminology Do You Need to Know?

Long and Short Positions An investor who has an overall buy position in a stock or option contract is said to be *long*. If you currently do not own GE stock and you purchase 500 GE shares, you are *long* 500 GE shares. If you purchase four GE September 2005 \$30 calls and have no existing position in that contract, you are *long* four GE September 2005 \$30 calls.

Conversely, an investor who has an overall sell position in an option contract is said to be *short*. If you currently do not own GE stock and you sell 400 GE shares, you are *short* 400 shares. If you sell three GE September 2005 \$30 calls and have no existing position in that contract, you are said to be *short* three September 2005 \$30 calls.

Table 1.4 shows each position classified as either long or short. It assumes that the investor has no existing position in any stock or option contract.

Opening and Closing Transactions An *opening transaction* is one where an option buyer or seller establishes a new position or increases an existing position as either a buyer or a seller. For example, if John buys one

TABLE 1.4 Comparison of Long and Short Positions

Position	Long	Short
Buy 300 GE shares	X	
Sell 12 WMT calls		X
Buy 4 HD calls	X	
Buy 8 JPM calls	X	
Sell 1 CD call		X

GE September 2005 \$30 call, he is said to be “buying to open”—he has opened a new position. John may also elect to sell one GE September 2005 \$30 call. In this case he would be “selling to open” if he was not already long in the identical contract. The effect of an opening transaction is that the number of contracts the investor is exposed to is increased.

A *closing transaction* is one where an option buyer makes an offsetting sale of an identical option or an option seller makes an offsetting purchase of an identical option. For example, if John is long one GE September 2005 \$30 call and then sells one GE September 2005 \$30 call, he would be “selling to close” because he has now closed out his position in that option contract and has no further rights or obligations under the contract. The effect of a closing transaction is that the number of contracts the investor is exposed to is decreased.

Alternatively, if John holds a short position of one GE September 2005 \$30 call and then buys one GE September 2005 \$30 call, he would likewise be “buying to close” because he has now closed out his position in that option contract and has no further rights or obligations under the contract. Again, the effect of a closing transaction is that the number of contracts the investor is exposed to is decreased.

Table 1.5 shows transactions categorized as either an opening or closing.

The important concept to understand is that an option buyer or seller can, at any time, close an open position by performing an equal and opposite transaction with the identical contract. Whether the transaction is closed for a profit or loss depends on the option’s price at the time that the closing transaction is executed. This action is very similar to closing a traditional stock investment—the investor can sell the stock and close the position at any time, but whether the stock can be sold for a profit or loss depends on the current market price at the time.

TABLE 1.5 Classification of Transactions

Current Position	Next Transaction	Buy to Open	Buy to Close	Sell to Open	Sell to Close
Long 100 GE shares	Buy 100 GE shares	X			
Long 100 GE shares	Sell 100 GE shares				X
Long 300 GE shares	Buy 100 GE shares	X			
Short 200 GE shares	Buy 200 GE shares		X		
No position	Buy 2 GE calls	X			
No position	Sell 2 GE calls			X	
Short 2 GE calls	Buy 2 GE calls		X		
Long 2 GE calls	Sell 2 GE calls				X

In the Money, Out of the Money, and At the Money Option market participants have coined the phrases in, out, and at the money to describe an option’s strike price in relation to the stock price.

An *in-the-money* option is one that has intrinsic value, where the owner of the option stands to profit by exercising his or her right under the contract. For a call option to be in the money, the stock price must be higher than the strike price. For example, a \$15.00 call option is in the money when the stock price is greater than \$15.00.

An *out-of-the-money* option is one that has no intrinsic value, where the owner of the option does not stand to profit by exercising his or her right under the contract. For a call option to be out of the money, the stock price must be lower than the strike price. For example, a \$15.00 call option is out of the money when the stock price is below \$15.00.

An *at-the-money* option is one where the stock price is trading at or very close to the exercise price. For example, a \$15.00 call option would be considered at the money if the stock price was \$15.00. In practical terms, market participants also describe an option as at the money when the stock price is close to the exercise price of the option. So, if an option’s strike price was \$15.00 and the stock price was \$14.80 to \$15.20, it would be deemed as being at the money.

Table 1.6 shows options classified as being either in, at, or out of the money.

Physical Settlement Versus Cash Settlement There are two types of settlement styles for exchange-traded options: physical settlement and cash settlement. *Physical-settlement* options give the owner the right to receive physical delivery of the underlying asset when the option is exercised.

TABLE 1.6 Classification as In, At, or Out of the Money

Contract	Stock Price	In	At	Out
GE Jan 07 \$35 Call	\$35.75	X		
WMT Sep 05 \$45 Call	\$48.20	X		
C Jan 06 \$50 Call	\$50.02		X	
JPM Aug 05 \$30 Call	\$24.10			X
HON Jan 07 \$50 Call	\$40.45			X
ABT Sep 05 \$45 Call	\$44.90		X	

Cash-settlement options give the owner the right to receive a cash payment based on the difference between the underlying asset price at the time of the option's exercise and the exercise price of the option. The majority of stock options are physically settled while index options are cash settled.

American Versus European Expiration An American-style option may be exercised at any time prior to its expiration. A European-style option may be exercised only on its expiration date. The majority of stock options traded on U.S. and international options exchanges are American-style options. Our covered call technique involves the use of American-style options only.

Option Expiration Dates In the U.S. market, virtually all standardized option contracts expire on the third Friday of each month; they *do not* expire on the last day of the month. For example, if you hold a November option contract, this contract will expire on the third Friday of November, not at the end of November.

The Options Clearing Corporation The Options Clearing Corporation (OCC) guarantees that all market participants fulfill their obligations under the terms of options contracts. This is a very important function of an options market, particularly in terms of guaranteeing that options writers are capable of fulfilling their potentially large exposures.

Apart from keeping a record of all short and long positions, the OCC ensures that when purchasing an option the buyer must pay for it in full and the writer of an option must maintain an adequately funded margin account to cover his or her exposure at all times.

The clearinghouse allows the options market to function. Without it, the risk of counterparties defaulting on their obligations under an option contract would stifle the market.

Standardized Options and Option Chain Exchange-traded options are almost always *standardized*. Standardized options have set parameters

in terms of the amount of an underlying asset a contract relates to, the expiration date, the exercise price, the multiplier, and the option style. Investors cannot alter the standardized characteristics of an exchange-traded option to suit their own needs—they must work within the standardized parameters provided by the options exchange. The most important function of standardization is to assist in the formation of liquid secondary markets where buyers of options can close out positions by selling an identical contract and sellers/writers can close out positions by buying an identical contract.

An option chain is a list of all standardized options available for a particular stock or index. Table 1.7 shows an option chain for the U.S.-listed banking group JP Morgan. Take a moment to study it and note the different strike prices and expiration dates available.

If you wanted to buy or sell a call option on JP Morgan, you would have to select an option contract from this option chain. You are not able to select contract specifications that do not appear in the standardized option chain. Note that for simplicity only call options appear on this option chain; the same option chain is also available for put options.

How Do Speculators Use Options to Trade the Market?

While we don't use options to speculate on the future direction of a stock or market, many investors do use options for this purpose. It is essential that you understand how a speculative trade works in order for you to understand options markets.

Example of Using a Call Option to Speculate GE stock is currently trading at \$30.00. John thinks GE stock is going to go up in the next three months. It's now June, so John decides to buy a September \$30.00 call option (note that he does not have to choose a strike price equal to the current stock price). John now has the right, but not the obligation, to buy GE stock at a price of \$30.00 up to September. For this right John pays the *premium* of \$1.00 per share. The *premium* is the price the option buyer pays to the option seller.

So let's assume John's hunch is right. It's now July and GE stock is \$35.00. John has the right to buy GE stock for only \$30.00. He can *exercise* this right, buy the stock at \$30.00, and immediately sell it in the market for \$35.00 (the current stock price). John has paid a premium of \$1.00 per share for this right. His profit appears as follows:

$$\begin{array}{rccccccccc} \text{Share sell price} & - & \text{Share buy price} & - & \text{Option price} & = & \text{Profit per share} \\ \$35.00 & - & \$30.00 & - & \$1.00 & = & \$4.00 \end{array}$$

TABLE 1.7 JP Morgan Option Chain Example—Stock Price, \$39.38

Strike	Symbol	Bid Price	Ask Price	Delta	Strike	Symbol	Bid Price	Ask Price	Delta
September					Mar-05				
27.50	JPMIY	11.80	12.00	1.00	27.50	JPMCY	11.90	12.10	0.98
30.00	JPMIF	9.30	9.50	1.00	30.00	JPMCF	9.50	9.70	0.97
32.50	JPMIZ	6.80	7.00	1.00	32.50	JPMCZ	7.20	7.40	0.92
35.00	JPMIG	4.40	4.50	1.00	35.00	JPMCG	5.20	5.30	0.81
37.50	JPMIU	1.95	2.05	0.91	37.50	JPMCU	3.30	3.50	0.63
40.00	JPMIH	0.30	0.35	0.33	40.00	JPMCH	1.90	2.05	0.44
42.50	JPMIV	0.00	0.05	—	42.50	JPMCV	0.90	1.05	0.26
45.00	JPMII	0.00	0.05	—	45.00	JPMCI	0.35	0.45	0.14
47.50	JPMIW	0.00	0.05	—	47.50	JPMCW	0.10	0.20	0.06
50.00	JPMIJ	0.00	0.05	—	50.00	JPMCJ	0.00	0.10	—
October					Jan-06				
27.50	JPMJY	11.90	12.00	1.00	20.00	WJPAD	19.30	19.50	0.95
30.00	JPMJF	9.40	9.50	1.00	25.00	WJP AE	14.40	14.60	0.94
32.50	JPMJZ	6.90	7.00	1.00	30.00	WJP AF	10.10	10.20	0.87
35.00	JPMJG	4.40	4.60	0.97	35.00	WJP AG	6.30	6.50	0.68
37.50	JPMJU	2.20	2.25	0.79	37.50	WJP AU	4.80	4.90	0.56
40.00	JPMJH	0.55	0.65	0.39	40.00	WJP AH	3.40	3.60	0.44
42.50	JPMJV	0.05	0.10	0.10	42.50	WJP AV	2.40	2.55	0.33
45.00	JPMJI	0.00	0.05	—	45.00	WJP AI	1.55	1.70	0.23
47.50	JPMJW	0.00	0.05	—	47.50	WJP AW	1.00	1.10	0.16
50.00	JPMJJ	0.00	0.05	—	50.00	WJP AJ	0.60	0.70	0.11
December					Jan-07				
30.00	JPMLF	9.40	9.60	0.99	25.00	VJP AE	14.40	14.90	0.88
32.50	JPMLZ	7.00	7.20	0.97	30.00	VJP AF	10.60	10.80	0.78
35.00	JPMLG	4.80	4.90	0.89	35.00	VJP AG	7.20	7.30	0.61
37.50	JPMLU	2.80	2.95	0.69	40.00	VJP AH	4.60	4.80	0.43
40.00	JPMLH	1.30	1.40	0.42	45.00	VJP AI	2.70	2.90	0.27
42.50	JPMLV	0.50	0.55	0.20	50.00	VJP AJ	1.50	1.60	0.16
45.00	JPMLI	0.10	0.15	0.07					
47.50	JPMLW	0.00	0.10	—					
Jan-05									
25.00	JPMAE	14.30	14.50	0.99					
30.00	JPMAF	9.40	9.60	0.98					
32.50	JPMAZ	7.10	7.30	0.95					
35.00	JPMAG	4.90	5.10	0.85					
37.50	JPMAU	3.00	3.20	0.66					
40.00	JPMAH	1.55	1.65	0.43					
42.50	JPMAV	0.60	0.70	0.23					
45.00	JPMAI	0.15	0.25	0.10					
47.50	JPMAW	0.05	0.10	0.04					
50.00	JPMAJ	0.00	0.05	—					

So what would have happened if John's hunch were wrong and GE stock actually fell? John has the right, but not the obligation, to buy GE stock at \$30.00. If the stock is less than \$30.00, he would not exercise this right and would just let the option expire. If this were the case, he would lose the \$1.00 premium he paid for the contract. It is important to realize that this \$1.00 is the most John could possibly lose on this trade.

The maximum loss of an option buyer is the premium paid (the cost of the option).

Premium: The price of an option; the amount of money the buyer pays for the rights and the seller receives for the obligations granted by the contract. Expressed on a per share basis.

Example of Using a Put Option to Speculate A put option works very similarly to a call option; however, investors buy a put option when they think the price of a stock is going to *fall*. Let's look at an example.

It's now September and GE is trading at \$35.00. John thinks that the price of GE stock is going to fall. So he decides to buy a December \$35.00 put option. He now has the right, but not the obligation, to *sell* GE stock at a price of \$35.00 up to December. For this right John pays, for example, \$1.00 per share.

The price of GE stock then falls to \$30.00 per share. John has the right to sell GE stock at \$35.00. He would, therefore, go into the market and buy GE stock for \$30.00 and then exercise his right to sell GE stock at \$35.00. His profit would look like this:

$$\begin{array}{rccccccc} \text{Share sell price} & - & \text{Share buy price} & - & \text{Option price} & = & \text{Profit per share} \\ \$35.00 & & \$30.00 & & \$1.00 & & = \$4.00 \end{array}$$

So what would have happened if John's hunch were wrong and GE stock actually rose? John has the right, but not the obligation, to sell GE stock at \$35.00. If the stock is more than \$35.00, he would not take up this right to sell and would just let the option expire. If this were the case, he would lose the \$1.00 he paid for the contract. It is important to realize that this \$1.00 is the most John could possibly lose on this trade.

Again, the maximum loss of an option buyer is the premium paid (the cost of the option).

Options Trading in the Real World Now you understand the rationale and logic behind an options trade, but trading in the real world is a little different!

In the real world, speculators very rarely exercise their option contracts in order to take profits from a trade. Take the first example where John has the right to buy GE stock at \$30.00 and the stock is trading at

\$35.00. If John wants to realize a profit on this trade, it is highly unlikely that he would exercise this option. It is more profitable for John to just *sell* his call option to someone else in the market (sell to close).

Remember, John paid \$1.00 per share for the right to buy GE stock at \$30.00. If GE stock quickly jumped up to \$35.00, he would actually be able to sell his call option for around \$6.00. This \$6.00 market value comprises \$5.00 exercisable value and \$1.00 of remaining time value. Both exercisable (intrinsic) value and time value are discussed in detail later in “How Are Option Prices Determined?”

John’s profit would look like this:

$$\begin{array}{rclclcl} \text{Option sell price} & - & \text{Option buy price} & = & \text{Profit per share} \\ \$6.00 & - & \$1.00 & = & \$5.00 \end{array}$$

So John would make \$5.00 per share by *selling* the call option, compared to only \$4.00 per share if he *exercised* the call option, because exercising options results in a *loss of time value* (discussed in “How Are Option Prices Determined?”). By exercising the option, John will realize the \$5.00 exercisable value in the contract (\$35.00 stock price minus \$30.00 strike price), but will forgo the remaining time value in the contract (\$1.00).

Time Value: The portion of an option’s price that exceeds the exercisable value.

Due to this loss of time value, option traders very rarely exercise options in order to take profits from a trade! Options are traded just like stocks, and profits and losses are made, for the most part, by buying and selling the option itself, not by exercising it. So, it is important to remember:

Option traders very rarely exercise their options more than two weeks before expiration. In practicality, the vast, vast majority of option contracts are exercised on the third Friday of expiration. Exercising options early results in a loss of time value to the option buyer. Instead, option traders simply buy and sell the option contract just like buying and selling stocks.

Why Speculate with an Option Instead of a Stock?

Why speculate with an option instead of a stock? The simple answer is *leverage*. Options provide a much greater return potential than investing in the stock itself (albeit with higher risk). If a stock moves up 5 percent, an

TABLE 1.8 Comparison of Investing in Stocks Versus Options

Scenario	Type of Investment	Stock Price	Total Invested	Price	Number of Units	Sell Price	Profit
A	Shares	\$30.00	\$10,000	\$30.00	333	\$32.00	\$667 or 7%
B	Options	\$30.00	\$10,000	\$ 1.00	100	\$ 1.80	\$8,000 or 80%

investor will make more money if he has \$10,000 invested in call options rather than if he has \$10,000 invested in stock itself.

Here’s an example. John thinks GE stock is going to rise by \$2.00 and wishes to invest \$10,000 on his hunch. He has two alternatives:

- 1. Buy GE stock.
- 2. Buy call options on GE stock.

Let’s look at the two scenarios.

Scenario 1 GE stock is currently trading at \$30.00. With his \$10,000 John can buy 333 shares (\$10,000/\$30.00 per share). If GE goes up to \$32.00 as he expects, John will make \$2.00 per share profit, or a total of \$666 on his \$10,000 investment. This is a return of 6.7 percent. Not bad.

Scenario 2 GE stock is currently trading at \$30.00. With his \$10,000 John decides to buy GE call options. He buys the \$30.00 call option for \$1.00 per share. In the United States, each contract relates to 100 shares so he can buy 100 contracts [$\$10,000/(\$1.00 \text{ per share} \times 100 \text{ shares per contract})$]. If GE stock increases by \$2.00, his call option contract is likely to be worth around \$1.80 per share. John will make $\$0.80 \text{ per share} \times 100 \text{ shares per contract} \times 100 \text{ contracts} = \$8,000$. This is a return of 80 percent.

Table 1.8 gives a comparison of the two scenarios.

The preceding example shows that with the same dollar investment in the same company and the same move in the stock price, John made an extra 73 percent return on his investment and an extra \$7,333 by buying GE options rather than GE stock. This extra bang for your buck, known as *leverage*, attracts speculators to the use of option contracts. Options are leveraged instruments. But beware! The leverage works both ways. John could have lost most, if not all, of his money if the stock price went down \$2.00 rather than up!

Leverage is why options are regarded by the vast majority as risky. Options are, without doubt, very risky when used to speculate. After all, can

John, or you, or I see into the future and know which way a stock is going to go? The answer is obviously no. GE could just as easily have gone down and John could have lost most, if not all, of his \$10,000 investment. We never use an option for speculative purposes. Covered call writers *sell* options, rather than *buy* them.

How Are Option Prices Determined?

As with determining the price at which a stock sells in the market, it is supply and demand that influence the price at which an option trades. An investor attempting to buy an option must do so from an investor wanting to sell/write an option contract. Option market participants do, however, assess distinct and constantly changing variables in order to determine the price at which an option trades—its market value.

The liquidity of the options market is a significant contributor to the consistency of bid and ask prices representing fair market value. In less liquid markets—those with fewer participants, fewer market makers, and a lower volume of options trades—it is more likely that bid and ask spreads will be larger and that investors need to take more caution in assessing bid and ask prices for fair market value. Your covered call activity will likely be conducted in the options market of the United States, which is the world's largest and most liquid options market. As such, the bid and ask prices or the market for contracts you trade will generally represent a reasonable approximation of fair market value.

Liquidity: Market liquidity refers to the ability to quickly buy or sell a stock or option without causing a significant movement in the price.

Mathematical formulas such as the Black-Scholes and binomial pricing models have been developed to calculate an option's theoretical value. The shortcomings of these models in terms of encompassing the scope of variables and uncertain outcomes of financial markets and their resulting detachment from market reality have been well documented. Stock options' market prices will inconsistently resemble the theoretical value as determined by models such as the Black-Scholes. As such, option traders and investors generally do not spend time calculating academic values for contracts—the market is the primary driver of value determination.

What it all boils down to is this: If you're investing in the U.S. market (or a developed overseas market), it is highly likely that the prices at the bid and ask are reasonable approximations of fair value.

That being said, six independent factors are very important when determining the value of a stock option. It is essential for you to understand these factors and how they interact and influence the price of an option

contract. This knowledge will allow you to understand how the price of the contract will change with changes in the underlying stock price, with lapses in time, and so on. These six important factors are:

- 1. The current stock price.
- 2. The exercise price of the contract.
- 3. The time to expiration.
- 4. The volatility of the stock price.
- 5. Risk-free rate (interest rates).
- 6. Dividends expected on the stock during the life of the option.

To be successful in the business of writing covered calls, you need to have a good understanding of factors 1, 2, and 3 and to a lesser extent, factor 4. Be aware of points 5 and 6; however, an in-depth understanding of these factors is very academic and not essential to your success as an option writer.

Factor 1: The Current Stock Price As discussed previously, an investor who purchases a call option is speculating that the price of the underlying stock is going to increase. The payoff to this investor will be the difference between the exercise price and the stock price. This difference is known as *intrinsic value*, which is simply what the option owner can make if he or she exercises the option and sells the stock in the market. That is, if he or she has the right to buy the stock at \$35.00, and the stock price is \$40.00, the intrinsic value is \$5.00. If the stock price moves up again to \$45.00, the intrinsic value is \$10.00. It makes sense that an option contract with \$10.00 of intrinsic value should be worth more than a contract with only \$5.00 of intrinsic value.

Thus, call option prices increase as the stock price increases and more intrinsic value is added to the contract. Put options are the opposite, so put option prices increase as the stock price decreases. Table 1.9 shows the relationship between option price and intrinsic value.

TABLE 1.9 Intrinsic Value			
Call Strike \$35.00			
Stock price	\$35.00	\$40.00	\$45.00
Call value	\$ 1.00	\$ 5.60	\$10.20
Put Strike \$35.00			
Stock price	\$25.00	\$30.00	\$35.00
Put value	\$10.20	\$ 5.40	\$ 1.10

Factor 2: The Exercise Price of the Contract The exercise price of the contract has an influence on intrinsic value similar to changes in the stock price. Let's assume an investor has a \$35.00 call option and the stock price is currently \$40.00. We now know that this contract has \$5.00 worth of intrinsic value. Let's assume the same investor also has a \$30.00 call option on the same stock. The \$30.00 call option has \$10.00 of intrinsic value and obviously, then, it has to be worth more!

Thus, call options increase in price the lower the exercise price is. Put options are the opposite, so they increase in price the higher the exercise price is. Table 1.10 shows the relationship between option price and exercise price.

Factor 3: The Time to Expiration Up to this point, we have discussed only intrinsic value. Hopefully, you have been looking at the pricing examples provided for factors 1 and 2 and wondering why the option price is greater than the intrinsic value. The option price is greater because the other portion of value in an option contract is *time value*.

$$\text{Intrinsic value} + \text{Time value} = \text{Option value}$$

The longer an option has to expiration, the greater its time value. John thinks GE stock is going to rise from the current price of \$35.00. He decides to buy a \$35.00 strike call. Remember, John wants GE to increase in price so that the *intrinsic value* of his contract will increase. If John has six months until his contract expires, that gives him a lot of time for GE stock to increase. However, if John purchases a contract with only one month to expiration, he does not have much time for GE stock to move in his favor.

Thus, the more time a contract has to expiration, the more it is worth. Each day that goes by, the price/value of each and every option contract decreases because there is less time to expiration. Options are, therefore, known as *decaying assets*.

TABLE 1.10 Exercise Price

Stock Price \$35.00

Call strike price	\$35.00	\$30.00	\$25.00
Call value	\$ 1.10	\$ 6.00	\$10.40

Stock Price \$35.00

Put strike price	\$35.00	\$40.00	\$45.00
Put value	\$ 1.00	\$ 5.70	\$10.60

TABLE 1.11 How Time Value Affects Options Price

Strike \$35.00

Expiration date	June	July	Sep	Dec
Option price	\$0.50	\$1.00	\$1.30	\$1.50

Table 1.11 shows how time affects an option’s price (assume it is early June).

A very important point to understand in options pricing is that time decay is not linear! (See Figure 1.1.) Contracts that expire in one or two months have a significantly higher level of time decay than contracts that expire in one or two years. *The majority of an option’s time value is lost in the weeks leading up to expiration.*

The covered-call method of investing actually utilizes the decay in time value to your advantage. You will make money from the decay in the speculators’ assets.

Factor 4: The Volatility of the Stock Price Option contracts are worth more on a stock that is volatile than on a stock that is less volatile. *Volatility* is technically defined in terms of standard deviation; however, for our purposes volatility can be thought of simply as a measure of how uncertain we are about a stock’s future price movements. As volatility increases, the chance that a stock will make a significant move upward or downward increases.

If you were the owner of stock in a company, these two extreme outcomes tend to offset one another. However, if you are the owner of a call or a put, while your potential loss is limited to the amount invested, your potential profit can be many times over your original investment from significant price swings in the appropriate direction.

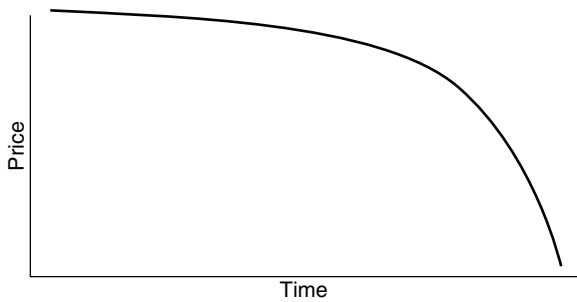


FIGURE 1.1 Example of the rapid decay of time value toward the end of an option’s life.

TABLE 1.12 Effect of Volatility on Price

	Stock Price	Call Strike	Expiration	Option Price
Stable stock	\$30.00	\$30.00	Mar-06	\$1.00
Volatile stock	\$30.00	\$30.00	Mar-06	\$1.30

So, all else being equal, a more volatile stock will have higher option prices (see Table 1.12). Additionally, options prices will adjust upward or downward to significant changes in a stock’s volatility levels.

Factor 5: Risk-Free Rate (Interest Rates) The effect of interest rates on option prices is very academic and perhaps only meaningfully noticeable over the longer term where significant interest rate changes occur. Therefore, this brief discussion of that effect is included for completeness rather than necessity. Understanding this effect will not have any significant influence on your success as an option writer.

As interest rates increase, (1) the present value of future cash flows received by the holder of the option decreases and (2) the expected growth rate of stock prices tend to increase. In the case of calls, effect (1) tends to decrease option prices and effect (2) tends to increase prices. In the case of puts, both (1) and (2) have negative effects on prices.

Factor 6: Dividends Expected on the Stock During the Life of the Option Dividends have the effect of reducing the stock price on the ex-dividend date (the date the dividend on a stock is paid). The price reduction, in turn, decreases the value of call options and increases the value of put options. A high proportion of companies you are likely to invest in will pay dividends. Worrying about insignificant pricing influences such as dividends creates headaches, not better returns. So forget about them, and leave the squabbling to the academics.