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The Covered-Write

CONCEPT REVIEW

Intrinsic value: The amount by which an option is "in-the-money."

Extrinsic value: The portion of an option price that cannot be attributed to intrinsic value.

Implied volatility: The volatility component of an option's theoretical pricing model determined by using current prices along with other known variables. It may be viewed as the market's forecast of what the average volatility of the underlying instrument might be during the time remaining before its expiration.

Delta: The sensitivity (rate of change) of an option's theoretical value (assessed value) to a $1 move of the underlying instrument.

Gamma: The sensitivity (rate of change) of an option's delta with respect to a $1 change in the price of the underlying instrument.

Theta: The sensitivity (rate of change) of theoretical option prices to the passage of small periods of time. Theta measures the rate of decay in the time value of options. Theta may be expressed as the amount of erosion of an option's theoretical value over one day in time.

Vega: The sensitivity (rate of change) of an option's theoretical value to a change in implied volatility. Vega may be expressed as the number of points of theoretical value gained or lost from a 1-percent rise or fall in implied volatility.

Synthetic: Two or more trading vehicles (for example, call, put, and underlying) packaged together to emulate another trading vehicle or spread. Some examples:

(long call = long put + long underlying) (short call = short put + short underlying)

(long put = long call + short underlying) (short put = short call + long underlying)

(long underlying = long call + short put) (short underlying = short call + long put)

Conversion: A position that consists of a long underlying, a short call, and a long put with the same strike price, which is considered a market neutral position.

Vertical spread: The simultaneous purchase and sale of options of the same class and with the same expiration times but with different strike prices. Depending on which strike is bought and which strike is sold, vertical spreads can be either bullish or bearish. For example, with XYZ July 100/105 call vertical spread, a bullish trader would buy the 100 call and sell the 105 call, whereas a bearish trader would buy the 105 call and sell the 100 call.

STRATEGY OVERVIEW

A *covered-write* is a strategy that combines a long stock position and a short call (**Figure 1.1**). In options parlance a *written* option is an option that is sold, in this case a call, and a short call is *covered* by a long stock
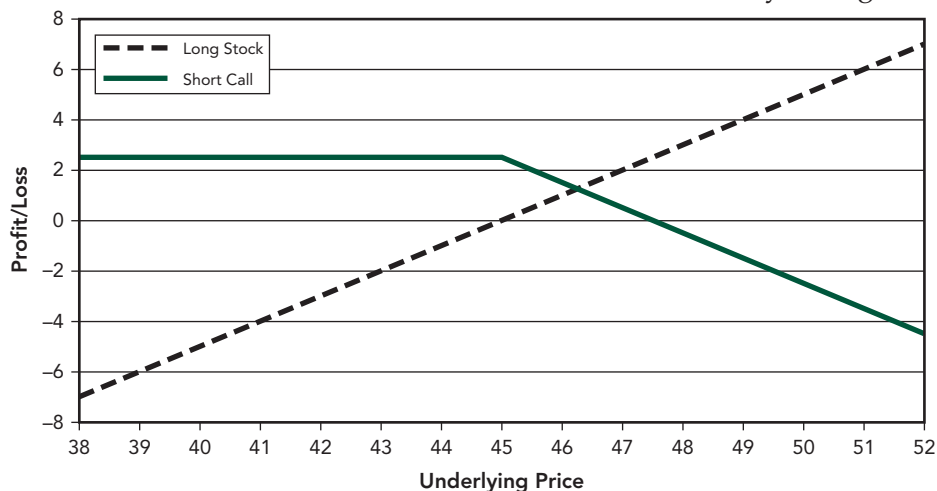

Figure 1.1 Components of a Covered-Write P&L Diagram

position, hence the name *covered-write*. The calls are sold in equal amounts against the long underlying shares. In the United States, the contract size of a stock option is usually 100 shares; therefore, one call would be sold against 100 shares, five calls against 500 shares, and so on. The strike price and expiration date of the call(s) chosen can vary depending on the investment objective, market view, and risk appetite of the investor, as well as the pricing of the calls themselves.

STRATEGY COMPOSITION

Components:	Sell one 45 call at $2.25 Purchase 100 shares of XYZ stock at $45.00
Maximum Profit:	Limited to the premium received for the sale of the call, plus any increase in value of the underlying up to the strike price of the short call ($2.25)
Maximum Loss:	Substantial loss on the downside for the long underlying position (limited by zero), less the premium received for the sale of the call
Breakeven:	Price paid for the underlying minus the premium received for the sale of the call ($42.75)

The writing of a call against a long stock position serves two purposes: It generates potential income and provides some downside protection. However, in return, the investor gives away any upside price appreciation in the stock above the strike price.

• Income Generation

The price of an option has two components, intrinsic value and extrinsic value. Intrinsic value is the amount, if any, that the option is "in the money." A call option is in-the-money if the stock price is higher than the strike price. Any remaining value is extrinsic value. Extrinsic value is the additional premium carried by an option based on many factors including, but not limited to, interest rate levels, dividend flows, time to expiration, and implied volatility levels. The extrinsic value of an option declines as time passes, and upon expiration it is gone entirely. This phenomenon is known as *time decay* (see **Figure 1.2**). Sellers of options benefit from time decay (which is referred to as the Greek "theta") as the extrinsic value in an option declines over time. This provides income for the investor in a covered-write strategy, as over time the extrinsic value of the written (sold) call will decline.

• Downside Protection

Writing a call also offers some downside protection for the long stock position, as the premium(s) collected from selling the call can partially
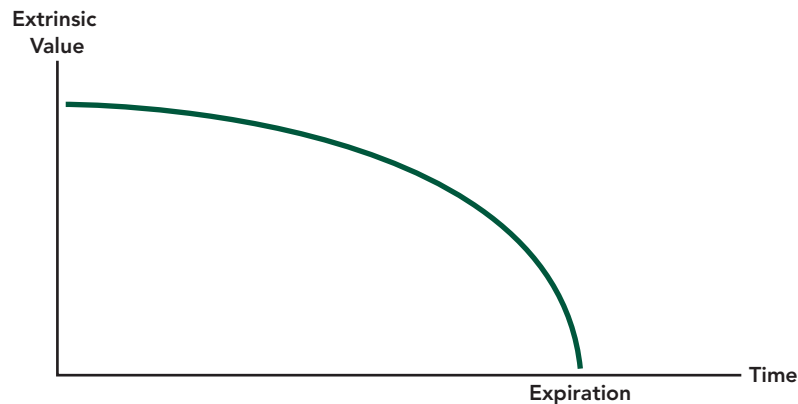
Figure 1.2 Extrinsic Value Diagram

offset a decline in the stock price. However, this protection is only equal to the amount of the premium collected when the call was written. Once the magnitude of the stock decline exceeds the premium collected, the protection ends.

- **Upside Limitations**

A covered-write is a neutral to mildly bullish strategy. The reason it is only a mildly bullish strategy is that the profit potential of the position to the upside is limited by the short call. If the stock price rises above the strike price, the short call becomes in-the-money and begins to accumulate intrinsic value as the stock price rises, eventually offsetting any gains in the stock with losses in the short call. Also, if the stock rises above the strike price and the investor takes no action, it is likely for the stock to be "called away" by the owner of the call. This may have unpleasant tax consequences that should be considered.

Modifications

In the event that the underlying stock falls too far, or rises too high, modifications to the position will have to be made to either limit risk, as in the case of the former, or extend the range of profitability, as in the case of the latter. We will discuss modifications later in the chapter. These modifications may increase execution costs, affecting profitability.

RISK MANAGEMENT: THE GREEKS OF THE COVERED-WRITE

The "Greeks" are metrics used to quantify the sensitivity of option prices to changes in underlying market conditions. They can be effective risk management tools and are especially helpful for understanding and managing the risk of positions. They can also be applied to positions that are combinations of options and underlying positions, such as a

covered-write. To evaluate the sensitivity of a position to changing market conditions, the Greeks of the various components of the position are simply summed, giving an aggregate exposure for the position. It must be understood, however, that as market conditions change, the Greeks themselves also change, so the Greeks of any position are in a constant state of flux.

Basic pricing models calculate the theoretical price of an option based on six inputs used to describe market conditions:

- Underlying price

- Strike price

- Time to expiration

- Interest rates

- Dividends (if any)

- Implied volatility

Since a covered-write position is part option and part stock, it is the Greeks of the option component of the position that will change; the Greeks of the stock component of the position will remain constant. A brief review of the basic Greeks follows, to help the reader understand how a covered-write position behaves as market conditions change.

THE GREEKS

Delta

Delta describes the sensitivity (rate of change) of an option's price with respect to changes in the underlying price. Expressed as a percentage, it represents an equivalent amount of the underlying at a given moment in time. Calls are assigned a positive delta (call option prices are positively correlated with the underlying price); puts are assigned a negative delta (put option prices are negatively correlated with the underlying price). The delta of a call option can range between 0.00 (0 percent) and 1.00 (100 percent), while the delta of a put option can range between 0.00 (0 percent) and −1.00 (−100 percent). (See **Figures 1.3** and **1.4**.) A short position in any of the above call or put options reverses the delta; for example, a short call will have a negative delta and a short put will have a positive delta.

Examples

By what amount can one expect the price of a call with a delta of 0.50 (50 percent) to change if the stock price rises by 1.00?
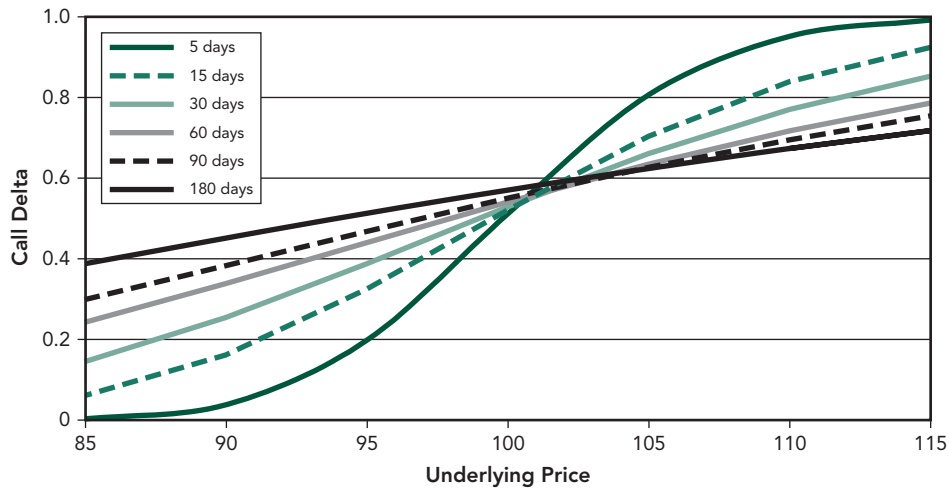
$$1.00 \times 0.50 = 0.50$$

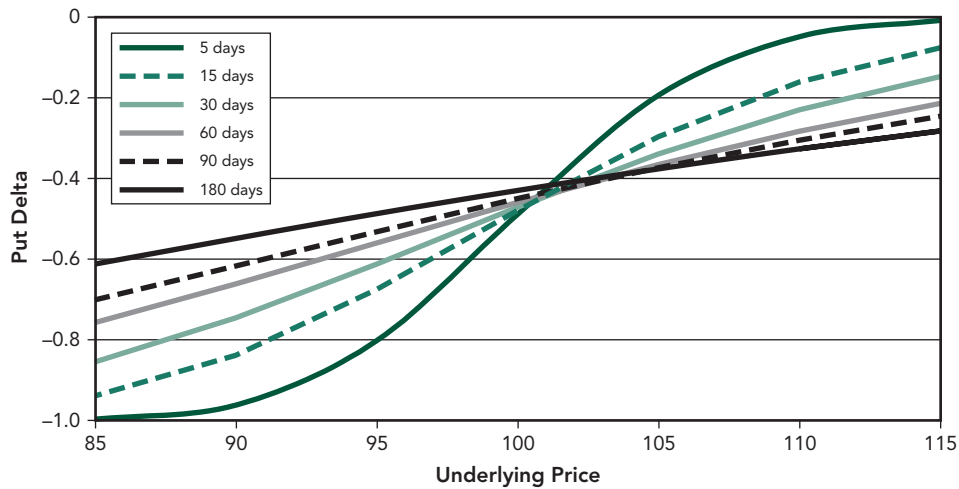**Figure 1.3** 100 Call Delta vs. Underlying Price

Figure 1.4 100 Put Delta vs. Underlying Price

A long call with a delta of 0.50 (50 percent) represents what equivalent amount of the underlying stock?

$$+100 \times 0.50 = +50 \text{ shares}$$

The delta of an underlying position is constant, and is represented by the actual amount and position in the shares; for example, long 100 shares is a delta of $+100$, and short 100 shares is a delta of -100.

- ## • Delta of a Covered-Write

The delta of a covered-write position is simply the sum of the deltas of the components.

Example

What is the delta of a covered-write consisting of 100 shares of long stock and short 1 call with a .50 delta?

$$100 + (100 \times -.50) = 100 + (-50) = 50 \text{ shares}$$

Note that the delta of the call is reversed because it is a short call.

Gamma

The delta of an option does not remain constant because it is sensitive to changes in market conditions, one of these being changes in underlying price. Gamma describes the sensitivity (rate of change) of an option's delta with respect to changes in the underlying price. The convention is to express gamma in terms of the change in delta produced by a one-point move in the underlying. For example, if the delta of a 100 call changed from 0.50 to 0.60 as the underlying moved from 100.00 to 101.00, the call would be said to have a gamma of .10 because the delta changed by .10 as the underlying price rose. If the underlying price declined from 100.00 to 99.00, the delta of the call would fall from 0.50 to 0.40. This would have an impact on the delta of a covered-write position because as the underlying price changed, the delta of the short call would change, affecting the delta of the overall position.

Example

An investor has a covered-write position consisting of 100 shares of long stock and short one .50 delta call. The call has a gamma of .10. What is the delta of the overall position if:

The stock rises 1.00 . . .

$$+100 + (100 \times -(0.50 + 0.10)) = +40 \text{ shares}$$

The stock falls 1.00 . . .

$$+100 + (100 \times -(0.50 - 0.10)) = +60 \text{ shares}$$

Note that the gamma simply increases or decreases the delta of the option as the underlying price changes; it does not change whether the delta is positive or negative.

The gamma of an option is not linear and is also sensitive to market conditions. It is highly dependent on the location of the strike price relative to the underlying price (sometimes called *moneyness*) and the time left until expiration. **Figure 1.5** shows the relationship between the gamma of an option, moneyness, and time until expiration.
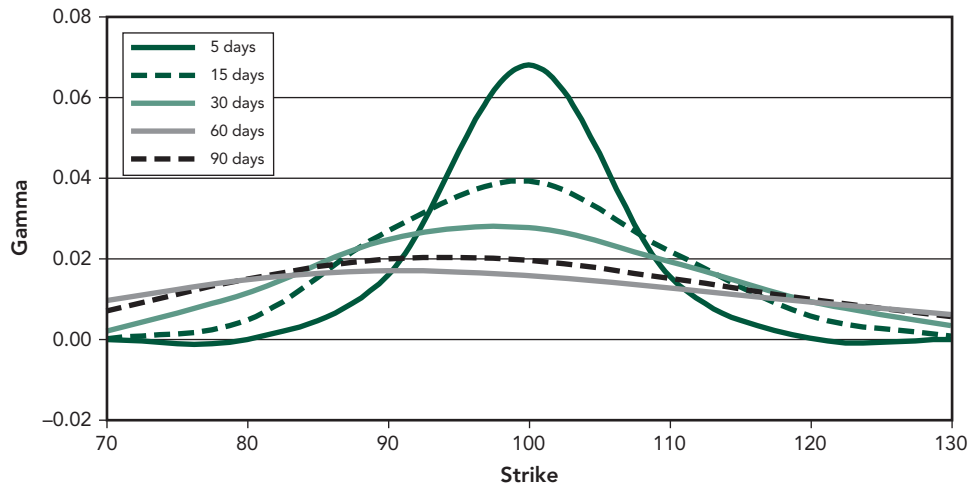
Figure 1.5 Gamma vs. Strike

Gamma is highest when an option is at-the-money, and the rate of change of gamma itself increases as expiration approaches. For the covered-write, this means that the delta of the position will change the most as the underlying crosses the strike of the short call, and that this effect will be greater as time to expiration decreases.

Vega

Vega describes the sensitivity of an option's theoretical value to a 1 percent change in implied volatility. It is usually expressed as the change in value that would be gained or lost from a 1 percent rise or fall in implied volatility. Long option positions have a positive vega, and short option positions have a negative vega. Because a covered-write has a short call as its option component, it will always have a negative vega.

Rising implied volatility causes the extrinsic value of options to rise, and falling implied volatility causes the extrinsic value of options to fall. Furthermore, longer-dated options are more sensitive to changes in implied volatility, since a rise or fall of implied volatility over a longer period is extrapolated to a much larger (in the case of rising volatility) or much smaller (in the case of falling volatility) universe of possible price outcomes at expiration. This is illustrated in **Figure 1.6**.

Because a covered-write has a negative vega, rising implied volatility will cause the value of the structure to fall as the short call component of the strategy rises in price. Conversely, falling implied volatility will cause the value of the covered-write to rise, as the short call component of the strategy falls in price. In addition, the value of a covered-write with a longer-dated short call component will be more sensitive to fluctuations in implied volatility than a covered-write with a shorter-dated short call component.
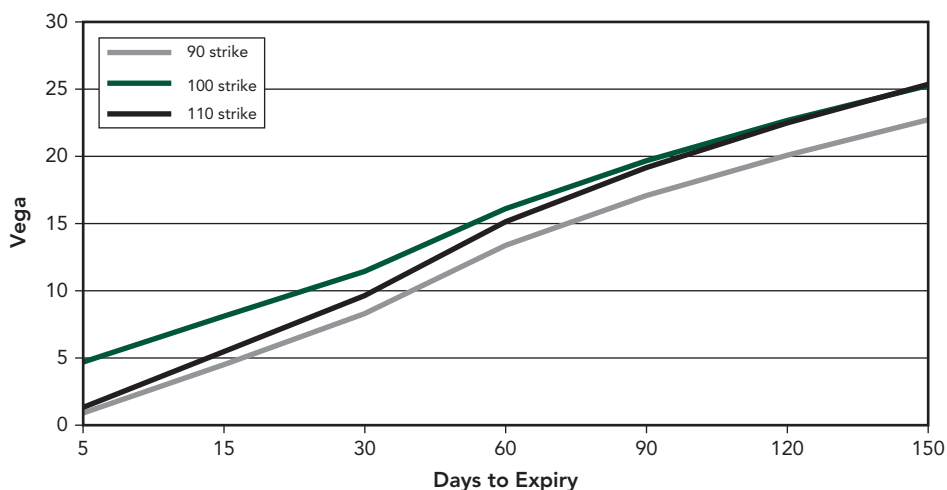
Figure 1.6 Vega vs. Time to Expiration

Example

An investor has a covered-write position consisting of 100 shares of long stock at $100.00 and short one 100 strike call at $5.00. The call has a vega of 0.10. With the stock unchanged, what is the change in value of the overall position if:

Implied volatility rises 5 percent . . .

The price of the call will change from $5.00 to $5.50 ($5.00 + 5 × 0.10), so the value of the position will change accordingly:

Initial Position Value		→	New Position Value	
Stock price	$100.00		Stock price	$100.00
− Call price	$5.00		− Call price	$5.50
Position value	$95.00		Position value	$94.50

Implied volatility falls 5 percent . . .

The price of the call will change from $5.00 to $4.50 ($5.00 − 5 × 0.10), so the value of the position will change accordingly:

Initial Position Value		→	New Position Value	
Stock price	$100.00		Stock price	$100.00
− Call price	$5.00		− Call price	$4.50
Position value	$95.00		Position value	$95.50

As these examples show, rising implied volatility works against a covered-write, while falling implied volatility works in favor of a covered-write.

Theta

Theta is used to describe the sensitivity of an option's theoretical value to the passage of time. It is usually expressed as the number of points that are lost from one day's time decay. Long option positions have a negative theta, and short option positions have a positive theta. Because a covered-write has a short call as its option component, it will always have a positive theta.

As mentioned above in "Strategy Overview," all options are composed of intrinsic value and extrinsic value, and as time passes, the extrinsic value begins to decay. At expiration, the extrinsic value is gone, and an option is either in-the-money and has intrinsic value, or it expires worthless. This means that, all else being equal, the theoretical value of an option should fall by some amount every day. However, this amount varies because the rate at which extrinsic value decays is not linear and is itself dependent on other market factors, especially time to expiration and moneyness, as can be seen in **Figure 1.7**:
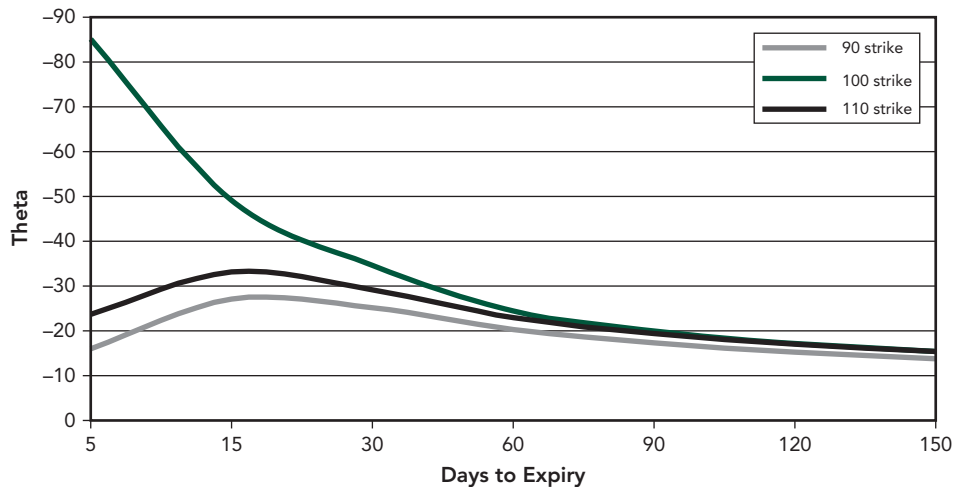

Figure 1.7 Theta vs. Time to Expiration

We can see in the figure that the theta of all long-dated options is low and is very similar for the 90, 100, and 110 strike calls. As time moves forward toward expiration, time decay begins to accelerate and the theta for all of the options begins to rise. Then, as expiration approaches, the in- and out-of-the-money calls (the 90 and 110 strike calls) lose their extrinsic value early, and their thetas begin to decline. Notice, however, that the theta of the 100 strike call, which is the at-the-money option, begins to accelerate. Heading into expiration, when the surrounding in- and out-of-the-money options no longer have extrinsic value to lose, the decay of the at-the-money option will continue to accelerate.

Example

An investor has a covered-write position consisting of 100 shares of long stock at $100.00 and short one 100 strike call at $5.00. The call has a theta of 0.02. With the stock unchanged and implied volatility unchanged, what is the change in value of the overall position if:

Five trading days pass . . .

The price of the call will change from $5.00 to $4.90 ($5.00 − 5 × 0.02), so the value of the position will change accordingly:

Initial Position Value	⟶	New Position Value	
Stock price	$100.00	Stock price	$100.00
− Call price	$5.00	− Call price	$4.90
Position value	$95.00	Position value	$95.10

As this example shows, time decay works in favor of a covered-write.

INVESTMENT OBJECTIVES

As mentioned earlier in "Strategy Overview," the covered-write strategy is a neutral to mildly bullish strategy. The main objectives of a covered-write are the generation of income and limited downside protection. Every covered-write is a mixture of both and, depending on how the investor structures the trade, that is, which strike price and expiration cycle are chosen, the trade will be more of one and less of the other. It is also *extremely* important to distinguish between the covered-write as a long-term, systematic strategy, and the covered-write as a short-term trade.

Covered-Write as a Long-Term Strategy

Investors who use the covered-write as a long-term strategy usually have a core portfolio of stocks that—up or down, better or worse—they will hold. They systematically write calls against the stocks in the portfolio to help generate income, and, over time, lower the cost basis of the portfolio. Even though the written calls provide some downside protection for the portfolio, these investors are not as sensitive to downside risk because they will be holding the portfolio regardless of whether the market rises or falls in the short-term.

Covered-Write as a Short-Term Trading Strategy

The investor who uses the covered-write as a short-term trading strategy usually purchases the stock specifically for the purpose of writing a call against it and creating a strategy. Many times this trade is executed as a spread on an exchange known as a *buy-write*. The stock is not part of a long-term core portfolio, and, therefore, the short-term covered-write investor is

usually much more sensitive to downside risk than the long-term covered-write investor is and requires a stronger, bullish market view.

Rates of Return

Regardless of whether one is a short-term or long-term covered writer, the best outcome is a slow rise that allows the stock to appreciate in price while the option slowly decays, and, hopefully, expires worthless. This allows the investor to capture both the price appreciation in the stock and the time decay in the option, generating a profit on the overall position. The exact amount of profit depends on how the covered-write was constructed, the stock price, the option price, and the strike price. Usually covered-write strategies are analyzed in terms of rates of return at various points:

- ### Return to Call

This is the rate of return generated on the position if the stock price is at the strike price or higher at expiration, a price at which the stock would be called away by the holder of the written call. The stock price at or higher than the strike price is the best-case scenario for a covered-write:

$$\text{Return to call} = \left(\frac{K}{(S_1 - C)} - 1 \right) \times 100\%$$

Where:
C = Call price
K = Strike price
S_1 = Beginning stock price

Example

An investor buys stock at a price of $100.00 and sells a 105 strike call against it for $5.00. There are thirty days until expiration. What would be the rate of return if the stock were called?

$$\left(\frac{105}{(100 - 5)} - 1 \right) \times 100\% = 10.53\%$$

- ### Return to Unchanged

This is the rate of return generated on the position if the stock is unchanged but is still lower than the strike price at expiration, meaning an out-of-the-money call was written. This is the rate of return if the written call expires worthless while the stock remains unchanged:

$$\text{Return to unchanged} = \left(\frac{S_2}{(S_1 - C)} - 1 \right) \times 100\%$$

Where:
C = Call price
S_1 = Beginning stock price
S_2 = Ending stock price

Example

An investor buys stock at a price of $100.00 and sells a 105 strike call against it for $5.00. There are thirty days until expiration. What would be the rate of return if the stock were unchanged at expiration?

$$\left(\frac{100}{(100-5)} - 1\right) \times 100\% = 5.26\%$$

Return to call and *Return to unchanged* are variations of the same formula with the numerator representing the selling price for the stock at the end of expiration. In the case of *Return to call,* the numerator is represented by the strike price, because that is the price an investor would receive for his stock if it were called. In *Return to unchanged* it is represented by the current stock price, because that is the price an investor would receive for his stock if he wished to sell it in the open market.

Break-Even Point

The break-even point is the point at which the decline in stock price equals the amount of premium collected on the written call. At this point all of the protection furnished by the written call is "used up" and the investor is exposed to losses if the stock continues lower:

$$\text{Break-even point} = S_1 - C$$

Where:
C = Call price
S_1 = Beginning stock price

Example

You buy stock at a price of $100.00 and sell a 105 strike call against it for $5.00. There are thirty days until expiration. What is the break-even point?

$$\textit{Break-even point} = \$100.00 - \$5.00 = \$95.00$$

STRATEGY COMPONENT SELECTION

So how does one structure a good covered-write strategy? The answer to this question depends on many of the variables we have discussed in previous sections:

- What is one's current market forecast?
  - Neutral
  - Mildly bullish
  - Moderately bullish

- What is one's risk appetite?
    - Is covered-writing part of a long-term strategy against a portfolio?
    - Is covered-writing part of a short-term trading strategy?
- What is the goal of one's covered-write?
    - Income generation?
    - Downside protection?
    - Some of each?
- What is the current state of implied volatility in the market?
    - High volatility?
    - Low volatility?
    - What are the potential rates of return?

What Is One's Current Market Forecast?

As we have mentioned several times, the covered-write is a neutral to moderately bullish strategy, so, first and foremost, it is mandatory to have a neutral to moderately bullish outlook on the stock or portfolio one is considering as a candidate for a covered-write program. An extremely bullish strategy is inappropriate because the upside is limited, and a bearish approach is also inappropriate because the long stock portion of the position will lose money, which is only partially offset by the premium received when writing the call. A sharp or sustained move lower in a stock or portfolio is disastrous for covered-writes.

Whatever methodology one chooses to use for forecasting market behavior—fundamental analysis, technical analysis, broker forecasts and research, or other methods—one should consider a covered-write strategy only if confident in a market forecast of neutral to moderately bullish. Where the forecast falls within that range will help determine strike selection. It is always desirable to have the stock price greater than or equal to the strike price at expiration, to achieve maximum returns, so the strike selected for writing should be where one expects the stock to be at expiration.

• Neutral to Bullish

With a neutral outlook one is likely forecasting little change in the underlying price through expiration. In this case, one would want to write a call that is at-the-money to potentially achieve maximum returns.

• Mildly Bullish

With a mildly bullish outlook, one is most likely forecasting a slight rise in the underlying price through expiration. In this case, one would want to write a call that is out-of-the-money in the expected target zone to potentially achieve maximum returns.

• Moderately Bullish

With a moderately bullish outlook, one is likely forecasting a more substantial rise in the underlying price through expiration. In this case, one would want to write a call that is further out-of-the-money in the expected target zone to attempt to achieve maximum returns.

What Is One's Risk Appetite?

The risk appetite of an investor interested in pursuing a covered-write strategy is usually determined by the category into which he falls in terms of time frame. Risk appetite determines strike selection and duration. The risk in a covered-write is determined by the premium received for the written call, which provides some downside protection for the stock position. This premium, in turn, is determined by the location of the strike price relative to the stock price (moneyness) and the time until expiration (duration).

• Long-Term (High Risk Appetite)

The long-term covered writer usually has a portfolio of stocks that he or she has selected to hold. These investors have purchased the stocks in their portfolios because they like their long-term prospects and because they intend to hold them no matter what the market chooses to do in the short-term. They are pursuing a covered-write strategy against the stocks in their portfolio in order to help generate income and lower the overall cost basis of the portfolio. They are not particularly interested in the downside protection aspect of the covered-write since they are going to hold their portfolio regardless of what the market might do; therefore, they are less sensitive to risk.

High Risk Appetite: Investors with high risk appetites can afford to collect less premium for downside protection; this allows them to write calls that are further out-of-the-money or of shorter duration. Writing calls that are further out-of-the-money creates a covered-write that has a stronger bullish stance, allowing for more potential appreciation in the stock price. Writing calls of shorter duration generates a larger time decay (theta) for faster income generation.

• Short-Term (Low Risk Appetite)

The short-term covered writer usually enters the position as a trade. In other words, he has no particular long-term view for the stock that he is buying; he is more interested in the potential return of the covered-write itself, and is attracted to situations where high volatility (higher call premiums) are throwing off high potential rates of return. Because, for these investors, the covered-write is a short-term strategy or trade, they are very sensitive to risk because a loss in the position cannot be recouped over time as it might be with a long-term covered-write. Indeed, because short-term covered writers tend to be more the "trader" type than the "investor" type,

they tend to keep their trades on a short leash, may only be in the trade a few days, and will exit at the first sign of trouble.

Low Risk Appetite: The investor with a low risk appetite needs to collect more premium for downside protection; this forces him to write calls that are at- or even in-the-money or of longer duration. Writing calls that are at- or in-the-money creates a covered-write that has a defensive stance of neutral to slightly bearish, and this removes any chance for upside appreciation in the stock price. Writing calls of longer duration will generate a smaller time decay (theta), slowing potential income generation.

What Is the Purpose of the Covered-Write?

• Income Generation

Time decay is the key to income generation, and, as we noted in the earlier discussion of theta in "Strategy Composition," shorter-dated options have a higher rate of time decay (a larger theta) than longer-dated options, and at-the-money options have a higher rate of time decay than in- or out-of-the-money options. This pushes the investor interested in income generation into the short-dated options. Of course, this has to be balanced with market view and risk appetite, which require some give and take, but, in general, covered writers interested in quick income generation need to be operating in the shorter-dated (forty-five days to expiry and less) options that are near-the-money. This produces maximum time decay.

• Downside Protection

The investor interested in protecting his portfolio needs to generate larger premiums when writing calls against his holdings. Calls that are in-the-money, or of longer duration, generally carry larger premiums. Writing calls that are in-the-money creates a covered-write that has more of a defensive stance, which offers greater downside protection. However, structuring a covered-write in this fashion eliminates most if not all of the potential for upside appreciation in the stock price. In addition, writing calls of longer duration will result in a smaller time decay (theta), thus slowing income generation and increasing the holding period for the trade.

What Is the Current State of Implied Volatility in the Market?

Implied volatility is determined by the current pricing of options in the marketplace. By using the current option price and an option pricing model, investors are able to solve for the volatility implied by the option price. An option calculator such as the one on the Chicago Board Options Exchange (CBOE) website can make this calculation easier (www.cboe.com).

Implied volatility reflects the consensus opinion of options market participants about what the expected volatility of the underlying will be through expiration. High implied volatility means that market participants are expecting high volatility in the price of the underlying through that

particular expiration cycle. Low implied volatility means that market participants are expecting low volatility in the price of the underlying through that particular expiration cycle. Implied volatility is in a constant state of flux as new information influences the market and alters the expectations of the participants. It is a "market" in and of itself.

As we discussed in "Strategy Composition," when we examined vega, rising implied volatility causes option prices to rise, while falling implied volatility causes option prices to fall. This has a direct impact on the covered-write because it is the premium generated by the sale of the call option(s) that determines the risk, reward, break-even point, and potential rate of return of the strategy.

• High Implied Volatility

As mentioned previously, high implied volatility means that market participants are expecting high volatility (that is, a lot of movement) in the price of the underlying through that particular expiration cycle. That means three things to the potential covered writer:

- Market participants see risk in the price of the underlying.

- Premiums may be elevated to reflect this risk.

- Rates of return may be higher than normal to reflect this risk.

Remember that the first and most important determining factor for a covered-write strategy is a neutral to moderately bullish forecast for the underlying price. High implied volatility is an indication that market participants have built in the possibility of greater than usual movement in the underlying price both to the upside and downside. In other words, they see risk and, because of that, option prices and rates of return on a covered-write are elevated to reflect this perceived risk. The investor who is confident of a neutral to bullish forecast for the stock and who has a view opposite the marketplace may be rewarded, if correct, by a higher than usual rate of return. But remember: It is the neutral to bullish price forecast that should be the first determining factor for a covered-write, never the rate of return! The rate of return is simply an indicator of the risk level perceived by market participants at that time. Using rate of return to determine covered-write strategies is a trap.

• Low Implied Volatility

Low implied volatility means that market participants are expecting low volatility (that is, a lack of movement) in the price of the underlying through that particular expiration cycle. That means three things to the potential covered writer:

- Market participants may see low risk in the price of the underlying.

- Premiums may be depressed to reflect this lack of risk.

- Rates of return may be lower than normal to reflect this lack of risk.

Once again remember that the first and most important determining factor for a covered-write strategy is a neutral to mildly bullish forecast for the underlying price. Low implied volatility is an indication that market participants may have built in the possibility of less than usual movement in the underlying price both to the upside and downside. In other words, they see potentially less risk, and because of that, option prices and rates of return on a covered-write are somewhat lower to reflect this perceived relatively reduced risk.

TRADE MANAGEMENT

Regardless of whether one falls into the short-term or long-term, high-risk or low-risk category, one thing is for sure: After the trade is selected and executed, it will have to be managed. As time passes and the underlying moves up or down, adjustments will have to be made. As we have mentioned time and again in the preceding pages, the covered-write is a neutral to moderately bullish strategy. If the behavior of the underlying deviates from that scenario, that is, moves too far to the upside or too far to the downside, action will need to be taken. When expiration approaches and the written call loses all of its extrinsic value, action will need to be taken, and, of course, if one's market view changes or if one wishes to lock in profits or reduce losses, action will need to be taken. The covered-write is not the "forget about it and watch the money roll in" strategy as seen on late-night television.

## Adjustments

• Situation 1: Change in Market View

Once again, the covered-write is a strategy to be applied in a neutral to moderately bullish environment. If one's market view suddenly shifts away from neutral to moderately bullish (that is, becomes bearish or rampantly bullish) then the covered-write is an inappropriate strategy and should be liquidated. There are actually two ways to exit a covered-write quickly. One is to liquidate the original position as:

Example 1: Liquidation of a Covered-Write Consisting of Long 100 Shares of XYZ and Short 1 XYZ June 100 Call
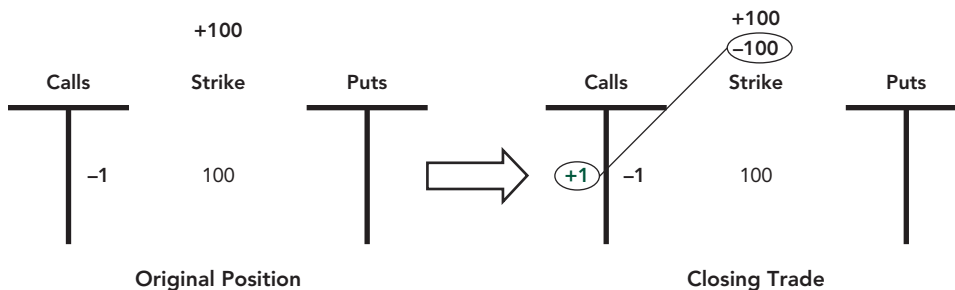
The second method is to utilize a synthetic relationship that exists between a covered-write position and the put of the same strike and expiration. A covered-write is actually the synthetic equivalent of a short put of the same strike and expiration of the short call component of the covered-write. This means that the covered-write behaves exactly as a short put in terms of the risk, reward, and break-even points of the position. So a quick way to cauterize a covered-write position is to purchase the put of the same strike and expiration cycle as the short call in the covered-write position.

Example 2: Liquidation of a Covered-Write Consisting of Long 100 Shares of XYZ and Short 1 XYZ June 100 Call Using the Synthetically Equivalent Position
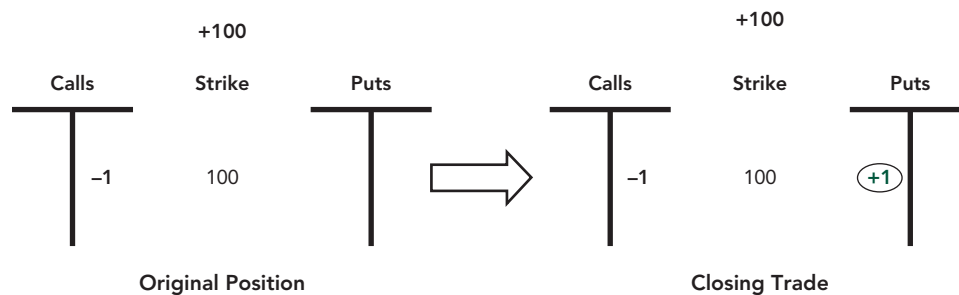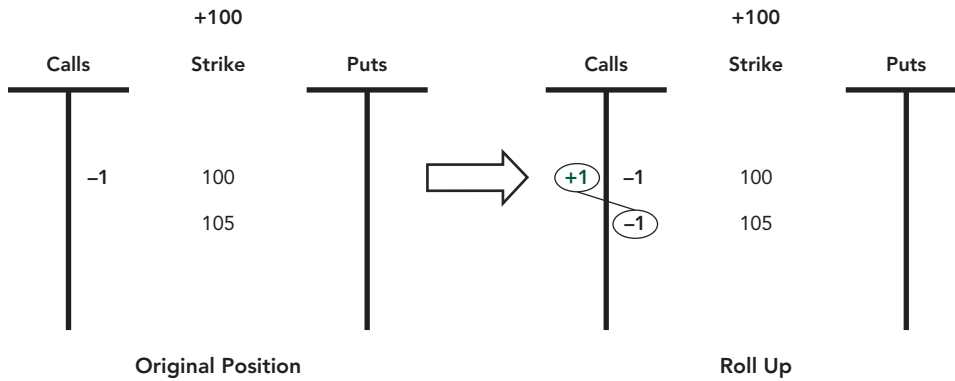

Using this technique leaves a residual arbitrage position known as a *conversion*. The conversion has very little risk but still may require some capital to hold, and it may or may not have to be managed at expiration regarding the exercise of the long put. This liquidation option is meant for an emergency situation in which one has to bail out of the position quickly.

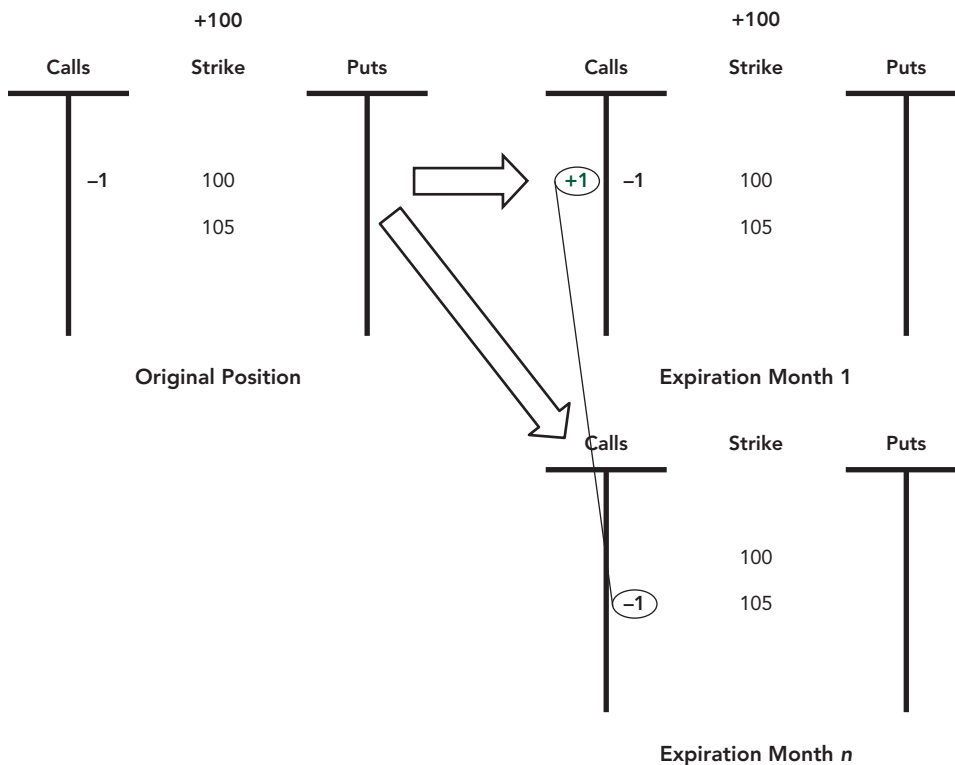### • Situation 2: Underlying Moves Up Through the Strike

Once the underlying stock or index moves up through the strike, the upside profit potential of the covered-write is capped. In order to give the position some more upside potential, the short call has to be "rolled up" to a higher strike. This can be accomplished by buying a vertical call spread, covering the short call, and selling a higher strike call in the same expiration month. Or it can be accomplished by executing a diagonal call spread known as an *up and out*—covering the short call and selling a higher strike call in a further deferred expiration month. Which method is chosen usually depends on the cost of the "roll." The purchase of a long call spread will cost the investor some money, thus adding to the cost basis of the position, whereas the up and out diagonal call spread will usually cost less, or depending on the time to expiration of the call to be sold, could even be executed for no cost or a credit. For this reason, many covered writers opt for the diagonal up and out adjustment.

Example 1: Rolling the Covered-Write Up Using a Long Call Spread

Calls	+100 Strike	Puts		Calls	+100 Strike	Puts
−1	100		⇒	+1 −1	100	
	105			−1	105	

Original Position   Roll Up

In the preceding example, the 100/105 call spread is purchased, closing out the short call position at the 100 strike and establishing a new short call position at the 105 strike. This gives the position 5.00 more points of "room to run" to the upside, but the cost of the strategy is increased by the cost of the call spread.

Example 2: Rolling the Covered-Write Up and Out with a Diagonal Call Spread

Calls	+100 Strike	Puts		Calls	+100 Strike	Puts
−1	100		⇒	+1 −1	100	
	105				105	

Original Position   Expiration Month 1

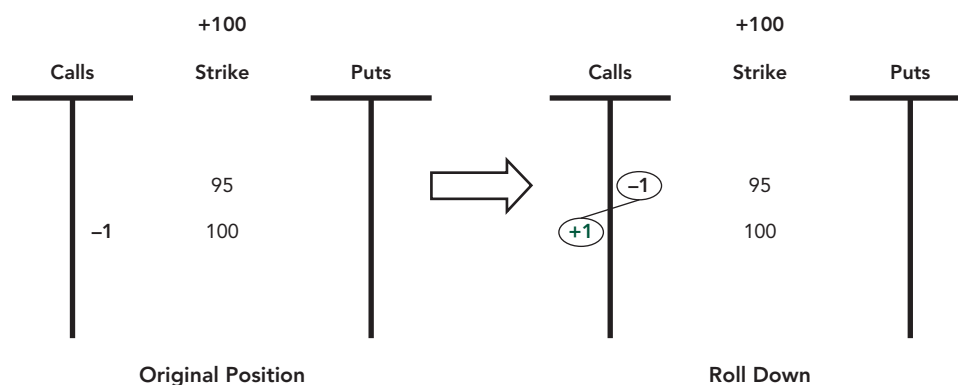| Calls	Strike	Puts
	100	
−1	105	

Expiration Month *n*

In the preceding example, the 100/105 diagonal call spread is purchased, closing out the short call position at 100 strike in the original expiration month and establishing a new short call position at the 105 strike in expiration month n. This gives the position 5.00 more points of "room to run" to the upside, and the cost of the strategy is increased or decreased by the debit or credit, respectively, of the diagonal call spread.

- ### Situation 3: The Underlying Weakens or Moves Lower; More Protection Is Desired

The covered-write does offer a modest amount of downside protection for long underlying positions. The amount of this protection is equal to the premium collected when the investor writes the call. If he wants additional protection, additional premiums must be collected. This can be accomplished by "rolling down" the short call to a lower strike by selling a vertical call spread in the same expiration month. Or, it can be accomplished by executing a diagonal call spread known as a *down and out*—covering the short call and selling a lower strike call in a deferred expiration. Both strategies should generate a credit that will provide further downside protection for the underlying position. Which method is chosen usually depends on the amount of protection wanted and the size of the credit that can be generated.

Example 1: Rolling the Covered-Write Down Using a Short Vertical Call Spread

In the preceding example, the 95/100 call spread is sold, closing out the short call position at 100 strike and establishing a new short call position at the 95 strike. Depending on the credit generated, this gives additional downside protection to the underlying position.

Example 2: Rolling the Covered-Write Using a Down and Out Diagonal Call Spread

Original Position

Expiration Month 1
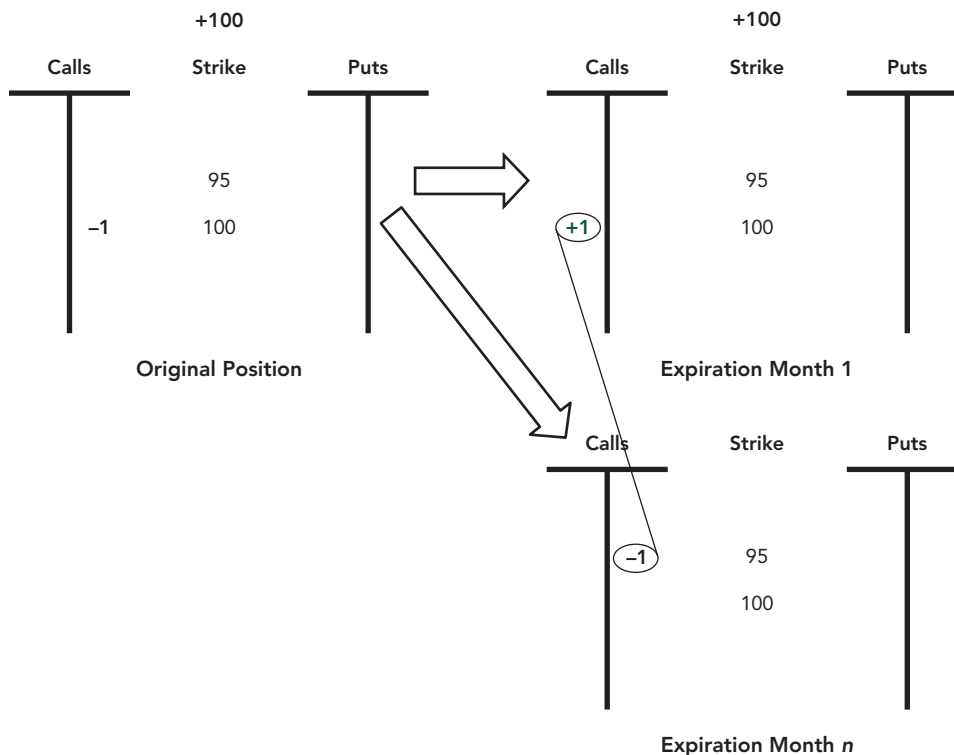
Expiration Month *n*

In the preceding example, the 100/95 diagonal call spread is sold, closing out the short call position at 100 strike in the original expiration month and establishing a new short call position at the 95 strike in expiration month n. Depending on the credit generated, this gives additional downside protection to the underlying position.

COVERED-WRITES are not "fire and forget" trades. They require attention, and multiple adjustments may have to be made to maintain one's risk profile as the market moves up, down, or sideways, and as the clock ticks.

The covered-write can be an excellent strategy for generating income against a portfolio of stocks that will be held for the long term. Covered-writes also offer modest (limited) downside protection for a portfolio, and they may be an excellent trading strategy for very specific market conditions discussed in this chapter: steady to rising underlying prices and/or steady to falling implied volatility levels.

A word of caution, however, covered-writes are not the "instant cash machines" or the "fire and forget" strategies as advertised on late night television and Internet sites. Covered-writes require hard work, discipline, and attention to detail. Underlying price and implied volatility levels need to be monitored closely for possible entry opportunities. After the position

has been entered, the analysis of both underlying price and implied volatility levels must continue. Adjustments to the position must be made as price swings, changes in implied volatility levels, and the passage of time shifts risk/reward ratios either for or against the trader.

It cannot be forgotten that covered-writes are risky positions, with a risk profile identical to that of a short put. This means there can be large risk to the downside with limited upside potential—not a great risk/reward profile except for very specific market conditions as discussed. The downside risk must be managed ruthlessly so that when the forecast of conditions benevolent to a covered-write position—steady to rising underlying price, steady to falling implied volatility—is proven wrong, the trader must exit or neutralize the position immediately.

CHAPTER 1 EXERCISE

1. A conversion consists of a long underlying position, a short call, and a long put. True or false?

2. An increase in volatility will have a negative effect on the covered-write position since an option with a higher volatility may have a better chance of ending up in-the-money. True or false?

3. A short call will always have a positive theta. True or false?

4. Will falling implied volatility cause the value of the covered-write to rise or fall?

5. A covered-write will always have a positive vega. True or false?

6. What is the synthetic equivalent of a covered-write?

7. To allow for increased upside potential for the covered-write, an investor could purchase a vertical call spread. True or false?

8. What is the delta of a covered-write consisting of 100 shares of long stock and short a delta call of 40?

9. Does time decay have a positive or a negative effect on the covered-write position?

10. If an investor's opinion is neutral to bullish and he expects little change in the underlying price through expiration, would the investor want to sell a call that is at-the-money or out-of-the-money?

Chapter 1 Exercise Answer Key

1. True
2. True
3. True

4. Rise
5. False
6. Short put having the same strike and same expiration as the short call
7. True
8. 60 [100 + (100 × −40) = 100 + (−40) = 60 shares]
9. Positive (time decay works for the position)
10. At-the-money

CHAPTER 1 QUIZ

1. The profit for a covered-write strategy is limited to the premium received for the sale of the call. True or false?

2. How is the break-even point of the covered-write strategy calculated?

3. With a covered-write strategy, is the gamma at the highest or the lowest when the option is at-the-money?

4. An investor purchases stock at $100.00 and sells a 100 strike call against it for $8.00. Calculate the rate of return for the covered-write at expiration if the stock remains unchanged (assume expiration is thirty days away).

5. If an investor purchases stock at $105.00 and sells a 100 call against it for $7.00, what is the break-even point? (Assume thirty days to expiration.)

6. If an investor is bullish, anticipating a substantial rise in the underlying, and is considering a covered-write strategy, would he want to write a call that is at-the-money or out-of-the-money?

7. Relative to longer-dated options, do shorter-dated options have a higher or a lower rate of time decay?

8. Once the underlying breaks through the strike of the covered-write, the profit on the upside is capped. True or false?

9. To allow a covered-write to have more upside potential, would an investor buy or sell a vertical call spread?

10. A covered-write behaves like as a short put in terms of risk, reward, and break-even points. True or false?

Chapter 1 Quiz Answer Key

1. False (plus any increase in value in the underlying)
2. Price paid for the underlying minus the premium received for the sale of the call
3. Highest

4. 8.69% {[100 ÷ (100 − 8)] − 1} × 100%
5. $98.00 ($105.00 − $7.00)
6. Out-of-the-money
7. Higher
8. True
9. Buy
10. True