4 The Bull Call Spread

This chapter assumes you are familiar with the basic concepts of options, as discussed in chapter 1. You may also wish to review the discussions of the delta in subsection 3.4.1.

4.1 Introduction to Spreads

A few new terms and a couple of new concepts will be introduced. Don't worry if you don't get them all at once. Once you see a few examples, you'll be fine.

Spreads are flexible creations and no simple definition can do them justice. In the simplest form of a **spread**, you have both a long and a short position on the same stock at the same time. You usually have an equal number of short and long options. The long and short positions are called the "legs", "arms" or "sides" of the spread. It's common to hear references such as "the long side" or "the long arm" used to refer to all the long options in the spread. The options can have different strikes, different expiration dates or both. They do not need to be the same type of option — you can mix calls and puts.

4.1.1 Classifications of Spreads

When you enter a spread, you get money from the short option you sell, and spend money on the long option you buy. When the option you sell pays you more than you need to buy the long option, it is called a **credit spread**. The opposite situation, where the short arm doesn't pay quite enough to subsidize the long arm, is a **debit spread**. Most brokers make it possible to buy both arms in one order, by specifying a net debit or net credit. If your broker has this feature, take advantage of it, since it saves on commissions and can result in better prices.

Spreads are also classified as **vertical** and **horizontal**. In a **vertical spread** both options have the same expiration date, but different strike prices. **Horizontal spreads** use options with the same strike price, but different expiration dates. There are also **diagonal spreads**, which have both different strike prices and different expiration dates. I found these terms impossible to remember, because they seemed so meaningless. But recently, I was told by an old-timer[1] that these terms terms date from the misty dawn of options. That was so long ago that investors actually used something called a "newspaper" to look up option premiums in listings that looked like the one in Table 4.1. As you can see, the option premiums are arranged vertically by expiration date, and horizontally by strike price. Since calls with the same expiration date but different strikes will always be

[1] Hi Nate.

	Calls			Puts		
Strike Price	May	Jun	Sep	May	Jun	Sep
50	6.20	6.70	8.00	0.10	0.25	1.05
55	1.60	2.05	3.30	0.80	1.50	1.60
60	0.10	0.30	1.25	4.20	4.80	5.20
65	0.05	0.05	0.40	7.10	8.10	8.80

Table 4.1: Example of a typical daily options listing from a newspaper.

in the same column, this came to be called a "vertical spread". Horizontal spreads will have the same strike, but different expiration dates. Diagonals have both, and so will move at an angle across the rows and columns. And this, according to the old timers, is where the names come from. I don't know if it's true, but it certainly makes them easier to remember.

4.1.2 How Spreads Work — The Bull Call Spread.

The reason for taking any position in stocks or options is because you believe the market has mispriced them. If you find a stock which is selling for $20 that should be selling for $25, you can buy it at $20 and sell it when it reaches $25. Of course, if the stock is mispriced, then the $20 call must also be mispriced. If the $20 call is selling for 3-points, you can buy it and then, when the stock reaches $25, sell it near expiration for 5-points, making a 2-point profit.

Let's assume for the moment that you are right about the stock — in fact, you are are so amazingly correct about the stock's value that the price will never go above $25. This means that the $25 calls on this stock are mispriced — they are too high. If the $25 call is selling for 1-point, you can sell it. At expiration, when the stock has reached $25, it will expire worthless. You have just made 1-point of profit.

The idea behind the bull call spread is simple: why not do both? You can buy the $20 call for 3-points, and also sell the $25 call for 1-point. At expiration, when the stock reaches $25, you would have a net gain of 3-points. This is illustrated in the much simplified diagram of what happens to the two call's premiums between the opening of the position and expiration shown in Figure 4.1.

The first thing to notice is that as the stock price increases towards expiration, the profit from the long call will go up and at the same time, the cost of repurchasing the short call goes down (recall that you are paid right away when you sell a short call). This is shown in the figure by the lines moving farther apart, or **widening**. A **widening** spread is a profitable one — may all your spreads widen.

But what happens to the spread if the stock price continues past $25? Perhaps surprisingly, you make the same amount. As illustrated in Figure 4.2, as the stock goes up, the long call increases in price. But once the stock reaches the strike price of the short call ($25, in this example), the short call's price increases dollar-for-dollar with the long call.

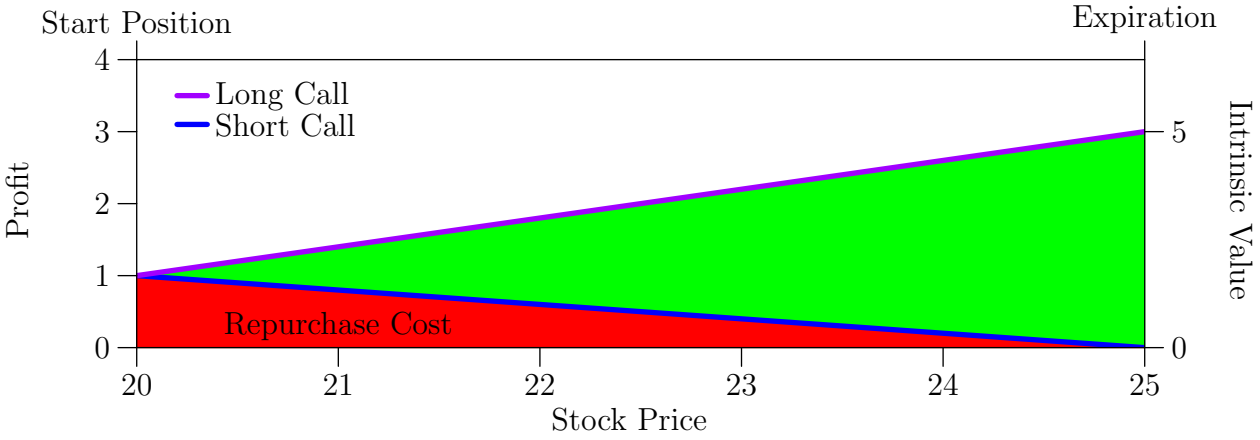

Figure 4.1: A widening bull call spread.

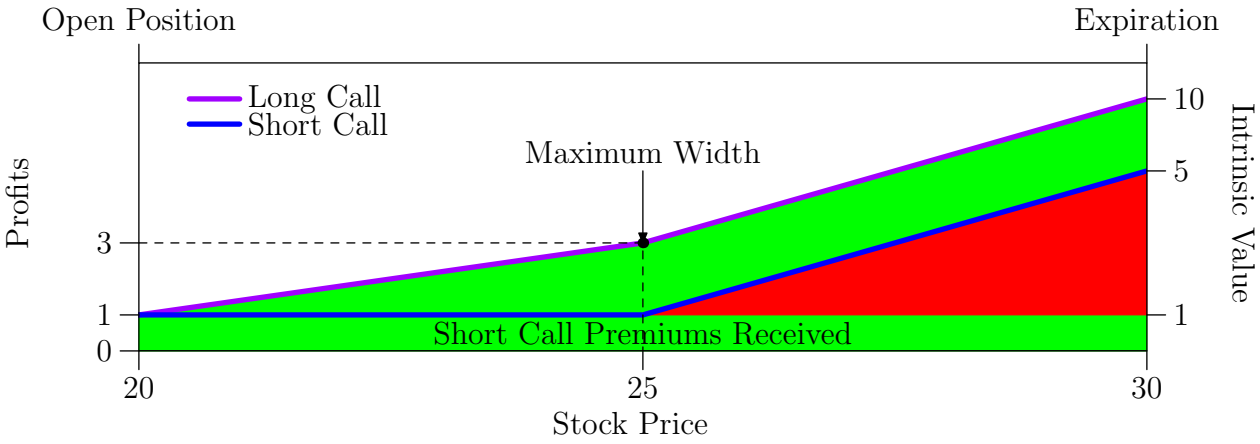

Figure 4.2: A widening bull call spread with large stock movement.

The red triangle in this diagram represents the amount you must pay to buy back the short call, which offsets the additional gains from the long call.

As we all know, it is not all roses and cottage cheese in the investing world. If the stock price should fall, the spread will **narrow** as shown in Figure 4.3. If held to expiration, both calls will expire worthless and you will lose some money. Your loss will be limited to your initial investment. May your spreads never narrow.

4.1.3 Why Use a Spread?

The advantage to a spread is that your risk is reduced. Your net investment costs in the long arm of the spread are offset by the premium received from the sale of the short arm when you open the position. You can think of a bull call spread as a hedged long call. This makes the bull call spread ideally suited for situations where you are mildly bullish

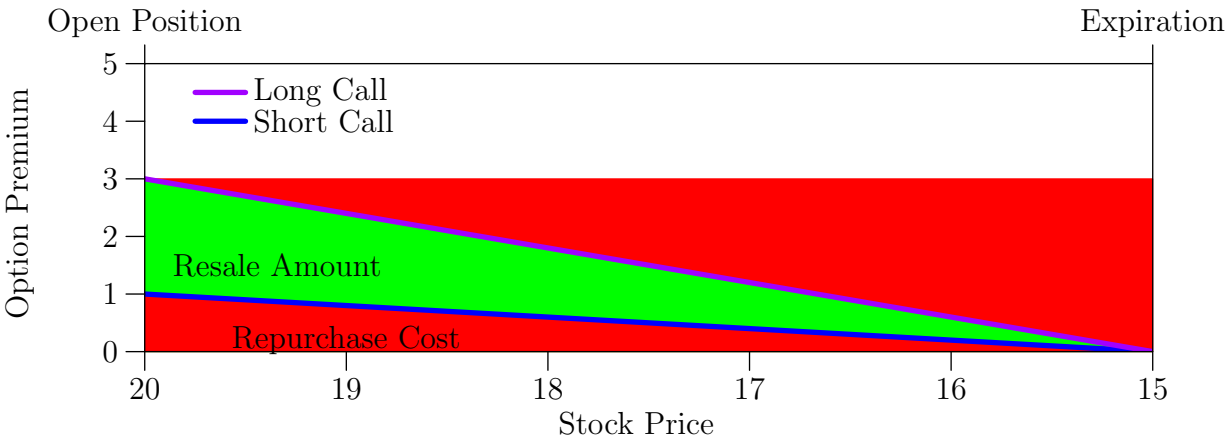

Figure 4.3: A narrowing spread held to expiration.

on the stock, and don't expect it to make an extreme movement to either side.

4.2 Characteristics of the Bull Call Spread

As I've said, to set up a bull call spread, you buy a long call and sell a short call with a higher strike price but the same expiration date. This makes it a vertical, debit spread. It's a vertical spread because the expiration dates are the same. And it's a debit spread, because the short call, being farther out-of-the-money than the long call, will always pay less than the long call will cost.

Example

You are mildly bullish on McKinnon's Instant Haggis (PUKE), whose stock is currently selling for $22. There is a March $20 call which sells for 3-points, and a March $25 call which sells for 1-point. You open a bull call spread with the following transactions:

Buy One March $20 Call	(3)
Sell One March $25 Call	1
Net Debit	(2)

Here's how the spread looks at expiration, for a variety of different share prices:

Stock Price	March $20 Profit	March $25 Profit	Total Profit
15	($300)	$100	($200)
20	(300)	100	(200)
25	(100)	100	0
30	200	100	300
35	700	(400)	300

The profit graph of the bull call spread is shown in Figure 4.4. All bull spreads have profit graphs with this shape. Notice that the maximum profit you can receive occurs if the

stock is anywhere above the higher strike price at expiration. There is also a break-even point, which will always be between the two strike prices. The maximum loss is equal to the amount of your initial investment, and occurs when the stock closes anywhere below the lower strike price.

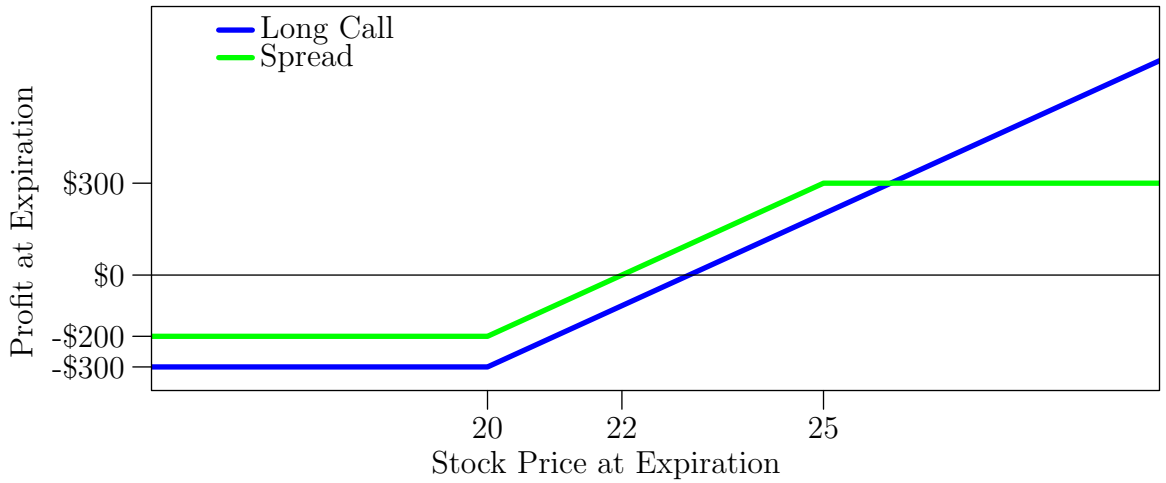

Figure 4.4: Profit graph of bull call spread (green). Also shows the profit graph of a long call, for comparison purposes.

These points are easy to calculate. Since it is always wise to include commissions, we calculate these first:

Commissions Per Share = Total Commissions/(Total Number of Contracts * 100)

Then the initial investment (same as the net debit):

Initial Investment = Long Call Premium - Short Call Premium + Commissions per Share

Then our points of interest:

Break-even = Lower Strike + Initial Investment

Maximum Profit = Higher Strike - Lower Strike - Initial Investment

For the example given (excluding commissions):

Net Investment = 3 - 1 = 2.

Break-even = \$20 + \$2 = \$22

Maximum Profit = 25 - 20 - 2 = 3.

4.2.1 Comparison of Spread vs. Call Purchase

Figure 4.4 compares the potential profits of the spread to the potential profits of just owning a long call. Note that the spread does better when the stock is anywhere below a stock price of $26, where the lines intersect. Above $26, given the long calls potential for unlimted profits, the long call does better. This should reinforce the earlier comments that bull call spreads should be used only when you are mildly bullish on the stock. If you are wildly bullish, you would be better off either buying calls or buying shares.

This is consistent with viewing the bull call as a *hedged long call*. You're mildly bullish, but have concerns about the downside. So you are willing to give up some potential profits to reduce your risk.

4.3 Selecting Strike Prices for the Spread

Selecting the proper strike prices is key to the success of the bull call spread. By placing the lower strike well out-of-the-money, impressive profits can result — on paper. This is a popular example in many books on options and also with brokerages that specialize in options trading, because it makes it look as though you can turn pennies into thousands. The well out-of-the-money spread costs almost nothing to establish, and if the stock cooperates, the profits are truly astonishing. The reality is that you are more likely to lose money in this position, since the underlying stock generally has a very remote chance of advancing far enough to turn your imaginary profits into reality. If you want to try this, use only a very small amount of your investible cash.

If you are interested in substantial returns, a more reasonable choice is to set the lower strike price relatively close to the current price of the shares. It can be either slightly in or slightly out-of-the-money. The higher strike should be set above this, in line with your expectations for the stock. Remember that the maximum amount the spread will pay is the difference between the strikes, but the stock must actually make it to the higher strike for this to happen. This is your low-cost spread, with good protection and substantial profits after commissions, when it works.

It is also possible to enter a spread where both calls are in the money. This has a much smaller maximum profit than the other possibilities, but you are much more likely to receive it. It gives the greatest amount of downside protection. It will be considerably more expensive to set-up, so the returns (including commissions) should be evaluated carefully. It's fairly rare to find this version in action.

4.4 Timing Considerations

Spreads are not a spectator sport. Watching water evaporate is more exciting than watching a spread widen. Spreads do best when the stock marches up as it moves slowly towards

expiration. If you are looking for quick profits or an adrenaline charged investing experience, do not use a spread.

Should the stock skyrocket shortly after you establish a spread, you will most likely be disappointed with how the spread responds. You may wonder if it even has a pulse. If a skyrocketing stock is a definite possibility, try setting the two strikes farther apart when you enter the spread. This gives more "room" for the spread to widen, although even so it won't reach its maximum profit immediately.

When placed in this situation, many investors try to figure out some method that will lock in their gains in case the stock drops back down, but still be able to hold on to the spread so they can get their maximum profit when it widens. Some truly bizarre constructions have been tried. The truth is there is no hedge that can accomplish both of these objectives. You can lock in the profits from a bull call spread in this situation, but you need to enter another spread, called a bear put spread, in order to do this. Bear put spreads are discussed in chapter 12.

I like a lot of time for my bull call spreads to mature, and I have used LEAPS of a year or more with very good success. If you pick the stock properly, it is quite possible to double your money or better on a small stock movement given that time frame.

4.5 A Few Comments on Selecting Bull Call Spreads

Using potential returns to sort a list of possible bull call spreads into potential investment candidates will place the most deeply out-of-the-money spreads at the top of the list. Since these are the most likely to *lose* you money, this is not a very good approach. It is best to rely on a good understanding of the underlying stocks fundamentals and economics. This becomes more important as the time-frame of your investment increases.

The volatility of the stock, especially for shorter term spreads, should be a consideration. Unfortunately, the mathematics for evaluating volatility are complex, and will not be given here. But recalling that volatility increases the time-value premium of an option suggests a possible approximation. A reasonable assumption to make is that the most a stock can move (in either direction) is equal to *twice the time value premium of an at-the-money option on that stock*. Then you can cross any spread whose maximum profit depends on a stock price higher than this off of your list. This is not the most refined or accurate method, but it has the virtues of speed and simplicity. And it allows you to at least incorporate some estimate of volatility into your evaluation. Since long-term options have more time value premium than short-term options, this method will also compensate for larger movements during the longer time frame.

Example

You are considering a spread on Dottie's Dainties. The shares are currently at $32. The $30 call is selling for $6. There is no $32 call, so we will choose the $30 call as the best one to use for our volatility estimate. The time value of the $30 call is 4-points. This gives us

an upper-limit for the stock price of $38. From this, it seems that buying a $30 call and selling the $35 call is a reasonably good candidate for a spread, while any spread involving a $40 call is unlikely to be be profitable.

4.6 Miscellaneous Considerations

Traders are often tempted by bull call spreads when option premiums become inflated. They might prefer a long call position, but the calls cost a lot. Since the long leg of a bull call spread is partially paid for by the short leg, it will help with the cost. It would be a mistake to use this only because you have to pay a lot to own the calls — you may be giving up a lot of upside for the sake of saving a few dollars.

It is possible to diagonalize a bull call spread, by using a shorter time to expiration for the short arm of the call, and this may be a better approach than the vertical bull call spread. If this sounds interesting, please see chapter 4, as well as the further discussion in subsection 13.9.1, where a LEAP is used for the long-arm of the spread.

4.7 I've Established a Bull Call Spread, Now What?

Truthfully, there is not much to do after you've established the spread but twiddle your thumbs. If the underlying stock advances substantially, you will want to keep your eye on the time value premium in the short call. Should the short call start trading at or below parity, you will want to close the position to avoid assignment. The stock may fall, in which case you can consider closing the spread to limit your losses. You can close the spread in the same way as you opened it, entering it as one order, to save on commissions and potentially get better pricing.

When you close the spread in this way, you will need to tell the broker how much you wish to receive when you close it, which of course is determined by the difference of the option's premiums. This is specified as a "net credit" in your order. Should you be in the unhappy position of exiting the position at a loss, you will need to tell the broker how little you are willing to lose (entered as a net debit, or as a negative number in the "net credit" entry in the brokers form).

It is wise to be realistic. The maximum you can receive from the bull call spread is the difference between the two strikes. Due to the differences in the option marketplace between the bids and the asks, even if your spread is at its maximum width, obtaining the full amount is not a realistic expectation. If you are expecting a net credit of 5 points, you might be able to get 4.90, but may have to be happy with 4.75. Most brokers do not charge for canceling orders, so you can try for your maximum price initially, and then cancel and enter a new sell order if it doesn't seem to be working out. It is best to avoid closing the spread via exercise, since that involves extra commission costs.

If the stock drops, the short arm will drop in price. If you think the stock is likely to rebound, you can consider buying the short call back to lock-in your profits on that arm. This will leave you with a long call position. If you can buy the short call back for around $0.10, you give up almost nothing to do it. It's probably not a good idea to buy it back if it has much more value than that, unless you are closing the entire spread.

If you are near expiration, and the share price has not increased enough to make your spread profitable, your choices are limited. If the long arm of the spread is in-the-money, you can exercise to get shares. If you are bullish on the stock, this may be better than opening a new spread.

When the stock increases, the long arm will increase in price. Avoid with all your might the temptation to take profits by selling the long call while still keeping the short call. You may gain additional profits if the stock goes back down, but the risk in this position (which is a now a naked call) is huge. If you sell the long side, also get rid of the short side.

4.8 Other Uses for Bull Call Spreads

The bull call spread is the ginsu knife of options trading, with a thousand and one uses. Two of them were already mentioned in chapter 3, where it was used to both limit losses on the downside and enhance profits on the upside of a call purchase. But that's not all.

4.8.1 Using a Bull Call Spread to Repair Stock Losses

You purchased 100 shares of a stock at the price of $28, which is now selling for $22. You need the stock to gain 6-points to break even. There is an April $20 call which is selling for 4-points, and an April $25 call which sells for 2-points. You make the following transactions:

Buy one April $20 call	(4)
Sell two April $25 calls	4
Net debit:	0

It may seem as though this involves you in a naked call position, but it doesn't. One of the short April $25 calls is covered by the long April $20, and the other one is covered by your 100 shares of stock. In other words, you have one bull call spread, and one covered call position.

Consider what happens now if your stock advances to $25 by expiration. If this happens, your two short calls will expire worthless. The long $20 call will be worth $5, so you have $500 in option profits. Since the stock is still 3-points below where you bought it, you have a $300 loss in the stock. But your net profit from this position is actually $200: $500 in option profits, less the $300 loss in the stock This is illustrated in Figure 4.5.

Notice that both positions are equal at $30, where the lines intersect. So from the current price ($22), the stock would have to move 8 points in order to simply equal the

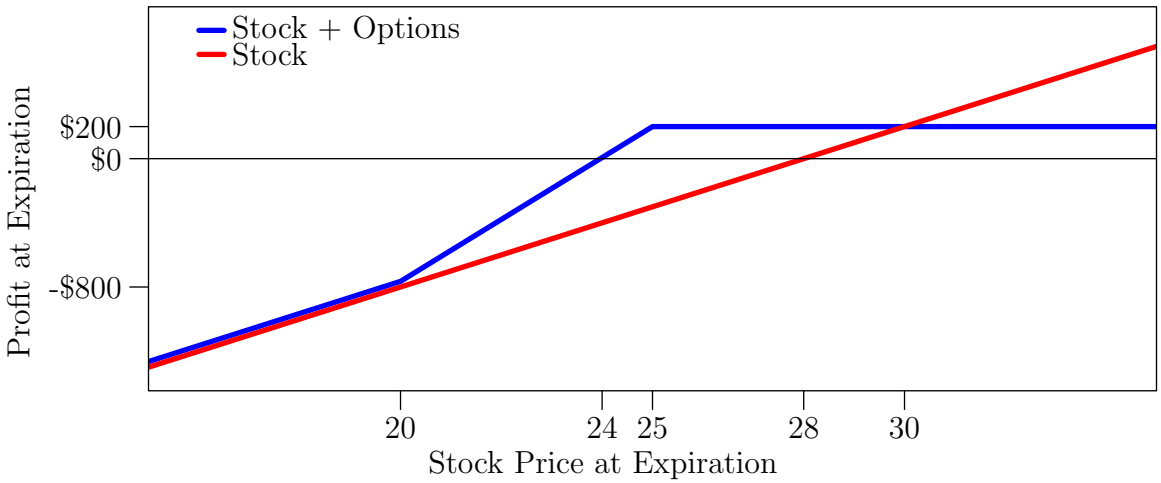

Figure 4.5: Stock repair with options.

new position. The break-even point has been lowered by 4 points, to $24. Should the stock continue to drop, the calls will expire worthless, and you can try again if you wish. This strategy has a tremendous amount to recommend it. You stand to gain a lot and give up very little if you are able to do something like this with a losing stock position.

When the option premiums cooperate, this can also make a good opening position. For example, if you were just opening a position in this stock, you could buy the shares and then buy one April $20 and sell two April $25's, at even money, just as you did here. The spread would outperform holding just the stock unless the shares went above $26 by expiration.

4.8.2 Using Bull Spreads Instead of Covered Calls

You can buy a deep in-the-money call with little time premium, and write a close-to-the-money call against it. This has similar characteristics to covered call selling (see chapter 2), with the long arm of the position acting in place of the stock. This is a type of bull spread, with the lower call well-in-the-money and the written call closer to it. You would not want to replace your covered call writing opportunities completely with this strategy, since a market decline would wipe you out. After all, in a covered call strategy, you still own the shares and can wait for them to recover. But a small amount of money might be moved into a position like this, which would cost less than the covered call positions, and the remainder placed in treasuries. It is a reasonable strategy for a cautious investor.

Example

Nate's Hula Dancers shares are selling for $89. There is a May $90 call which sells for 3-points, and a May $75 call which is selling for 14-points. Here are the two possibilities:

Covered Call	
Buy 100 Shares @ 89	($8,900)
Sell 1 May $90 call @ 3	300
Net Investment:	$8,600
Bull Spread	
Buy 1 May $75 call @ 14	($1,400)
Sell 1 May $90 call @ 3	(300)
Net Investment	$1,100

Here is a table comparing the returns from each position when the stock is over $90 in May:

	Covered Call	Bull Spread
Max profit	$400	$400
Break-even	86	86
Cost	$8,600	$1,100

As you can see, the potential returns and break-even are exactly the same for both positions. But the spreader risks much less capital, and can take the $7,500 saved and put it into a safer investment to earn interest, or find other stocks or options to invest in. Of course, if Nate's pays a dividend, that should be considered. Finding a deep-in-the-money call is key, because you want the premium of the long call to move in lock-step with the stock[2]. Of course, such a call may not be available but if it is, this is a viable strategy.

4.9 Up To The Minute Summary

- A spread involves having a long and a short position on the same underlying stock at the same time.
- The two positions are called the "arms", "legs", or "sides" of the spread.
- A spread becomes profitable when it widens, which is when the short arm becomes less valuable, and the long arm becomes more valuable.
- If the spread narrows, you will lose money.
- Spreads can be classified as debit spreads or credit spreads:
  - A **debit** spread costs you money to enter it.
  - A **credit** spread pays you to enter it.

[2]If you don't understand this comment, review subsection 3.4.1 on deltas.

- Spreads can also be classified as vertical, horizontal or diagonal:
  - In a **vertical spread**, both options have the same expiration date, but different strike prices.
  - In a **horizontal spread**, both options have the same strike price, but different expiration dates.
  - In a **diagonal spread**, the options have both different strikes and different expirations.
- You should be mildly bullish on the stock to consider a bull spread.
- To set-up a bull spread, buy a call and sell a call with a higher strike, but same expiration date.
- Spreads do best when the stock slowly advances to the upper strike by expiration.
- Little followup action is required in a bull spread.
- If the stock appreciates, pay attention to the short arm to prevent assignment.
- If the stock falls, you can close the position to limit your loss.
- If the stock falls, you can also sell the short arm to lock-in profits from that arm.
- You should never sell the long call without closing the position completely. Leaving yourself with a naked call is very high risk.
- You can use a bull call spread and a covered call to repair stock losses
- You can use bull spreads instead of covered calls if the right calls are available.

4.10 Chapter Glossary

Credit Spread A spread which pays you money when you open it.

Debit Spread A spread which costs you money to open.

Diagonal Spread A spread where the options differ in both the strike price and the expiration dates.

Horizontal Spread A spread where the options have the same strike price, but different expiration dates.

Vertical Spread A spread where the options have the same expiration date, but different strike prices.