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Profit and Loss Diagrams

Overview

While some concepts are best explained conceptually, it is easier to teach others with the help of visual aids. The purpose of profit and loss diagrams is to present visually the profit potential, risk potential and break-even point of a strategy. Profit and loss diagrams also make it easier to identify the trade-off that a strategy offers, that is, what its advantages and disadvantages are.

If you are new to options, learning profit and loss diagrams is definitely an important first step. Option users who can draw these diagrams generally have a good understanding of option strategies and a high comfort level when using them.

This section will teach you the step-by-step process for creating profit and loss diagrams. It may seem difficult at first, but, with practice, anyone can master this simple technique for visually presenting a strategy. Why is being able to create profit and loss diagrams important? Because the ability to draw these diagrams will serve you well in the use of options. It will help you choose appropriate strategies, and it will help you clarify your forecast and your objective.

This lesson is divided into six sections. As a starting point, profit and loss diagrams of long and short stock positions will be illustrated first. After the method of creating these diagrams has been explained, then diagrams of several option strategies will be presented.

Section 1 - Introduction to Profit and Loss Diagrams

Creating a profit and loss diagram for any option strategy involves 5 steps. In this section, each of these steps will be explained. In subsequent sections, individual strategies will be discussed in detail.

Step 1: Start with a profit and loss grid

A profit and loss diagram is drawn on a grid as illustrated below. The horizontal axis represents the stock price. For a stock strategy (buy stock or sell stock short), the time is when the position is closed. For an option strategy, the time is the option's <u>expiration</u> <u>date</u>. The horizontal axis indicates the stock price, and the vertical axis indicates the profit or loss of the strategy on a share per share basis.



Step 2: Create a profit/loss table over a range of stock prices

A profit and loss table contains columns for a range of stock prices, the profit or loss of each component of the strategy and the total profit or loss for the strategy. The table below is an example of how a profit and loss table for a two-option strategy might be created. Each row in the table represents a different stock price, as indicated in the left-most column, and each cell to the right of the stock price would contain a profit or loss number.

Sample Profit/Loss Table for a 2-Option Strategy			
Stock Price at Expiration	Option #1 Profit/Loss	Option #2 Profit/Loss	Strategy Total Profit/Loss
55			
54			
53			
52			
51			

Step 3: Describe the initial transaction in detail

It is important to be very specific when describing the strategy to be diagramed. It is insufficient to say "buy a call," because such a description does not provide enough information to complete the profit/loss table or the diagram. You must say something like "buy a 70 Call at 2." For profit/loss tables and diagrams, it is understood that all prices are on a per share basis.

Step 4: Fill in the profit/loss table with the profit or loss at each stock price

An option position's profit or loss at expiration is calculated by first determining the option's <u>intrinsic value</u> and, second, by comparing that value to the price of the initial transaction.

With a stock price of \$76 at expiration, for example, a 70-strike call has an intrinsic value of \$6 (per share). If this call were initially purchased for \$2, then the result is a profit of \$4 -- intrinsic value at expiration of \$6 minus the initial purchase price of \$2. If, however, this call were purchased for \$9, then the result would be a loss of \$3.

When the initial transaction is the sale of an option, then the intrinsic value at expiration is subtracted from the initial price. With a stock price of \$39 at expiration, for example, a 35-strike call has an intrinsic value of \$4. If this call were initially sold for \$7, then the result is a profit of \$3 - initial sale price of \$7 minus the intrinsic value at expiration of \$4. If, however, this call was sold initially for \$3, then the result would be a loss of \$1.

Sample Entry in a Profit/Loss Table: With a stock price of \$76 at expiration, a 70 Call purchased for 2 results in a profit of 4	
Stock Price at Expiration	Long 70 Call @ 2 Profit/Loss
79	
78	
77	
76	+4
75	

Step 5: Plot the numbers in the right-most column of the profit/loss table on the profit/loss grid.

If the profit is 4 with the stock price at \$76 at expiration, for example, then a mark is placed on the grid four points above the price of \$76.



When all of the profit/loss numbers for the strategy have been plotted on the grid, then a visual representation of the strategy will appear.

Creating a Profit/Loss Diagram for Long Stock

An easy starting point is to consider the process of creating a profit and loss table and a profit and loss grid for "Long Stock." A long stock position is created by simply purchasing stock. Investors typically buy stock in multiples of 100 shares, but, since profit and loss diagrams are on a "per share" basis, it is assumed that only one share is purchased. Also, transaction costs are typically not included in profit and loss diagrams, but they should be included when analyzing any strategy. In the example below, it is assumed that one share of XYZ stock is purchased at \$100 per share. The profit and loss table contains only two columns, one for the stock price at the time when the position is closed, i.e., sold, and one for the profit or loss.

Completed Profit/Loss Table

for Long Stock (Purchased at \$100 per share)		
Stock Price at Time of Sale	Long Stock @ \$100 Profit/Loss	
110	+10	
109	+ 9	
108	+ 8	
107	+ 7	
106	+ 6	
105	+ 5	
104	+ 4	
103	+ 3	
102	+ 2	
101	+ 1	
100	0	
99	- 1	
98	- 2	
97	- 3	
96	- 4	
95	- 5	
94	- 6	
93	- 7	
92	- 8	
91	- 9	
90	-10	

The profit and loss diagram is created by plotting the profit and loss numbers in the rightmost column of the table onto a grid. The completed diagram presented below shows that the long stock strategy earns a profit if the stock price rises, incurs a loss if the stock price declines and breaks even at the purchase price of \$100. This is not expected to be a startling revelation, it is presented only as an introduction to the up-coming diagrams of option strategies.



Risk Profile Described

The diagram above shows that the long stock strategy has "substantial risk and unlimited profit potential." The risk is "substantial," because the stock price could decline to zero. The profit potential is unlimited, because the stock price could rise indefinitely. As we will see in the upcoming sections of this lesson, option strategies have a variety of risk profiles, and this is one aspect of options that make them appealing to many investors and traders.

The Four Basic Option Strategies

You are now ready to diagram the four basic option strategies, long call, long put, short call, and short put. In each of the upcoming sections, I will first show you how the profit/loss table is filled out and then how the profit/loss diagram looks. Finally, I will discuss the risk profile of each strategy.

Section 2 - The Long Call Strategy

We start by describing the strategy in detail. In this example, we assume that a 100 Call is purchased for \$5 per share.

- Description of the strategy to be diagramed: Buy a 100 Call for 5
- Second, we create a profit and loss table and fill in the profit and loss outcomes. To do this, we choose a stock price at option expiration date, determine the option's intrinsic value and then calculate the profit or loss.

The table to the right has a range of stock prices from \$95 to \$110. Let's begin at the bottom. With a stock price of \$95 at expiration, the 100 Call has an **intrinsic value** of zero, and it expires worthless. After all, no rational person would exercise the right to buy stock at \$100 per share when they could purchase it at \$95 per share in the market. Since this call was purchased for \$5 per share, the result is a loss of \$5 per share. And "-5" appears in the table next to \$95.



Loss of 5 Indicated at a Stock Price of \$95 at Expiration.

Stock Price @ Option Expiration	Long 100 Call @ 5 Profit/Loss
110	
109	
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	
95	- 5

Next, at a stock price of \$96 at expiration, the result is the same. The 100 Call has an intrinsic value of zero for a loss of 5, and the number "-5" is placed in the table next to the price of \$96.

Profit/Loss	Start of Profit/Loss Diagram
101	for 100 Call Purchased for 5
21	
81 1	
7 -	
6-	
5-	
4 -	
3 -	
2 -	
1 -	
0 +	Stock
-1 90	95 100 105 110 Price
-2 -	
-3 -	
-4 -	
-5 -	**
-6 -	
-7 -	
-8 -	
-9 -	
-10 J	

Loss of 5 Indicated at a Stock Price of \$96 at Expiration.

Stock Price @ Option Expiration	Long 100 Call @ 5 Profit/Loss
110	
109	
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	- 5
95	- 5

Now let's try a stock price at the top of the table. With a stock price of \$110 at expiration, the 100 Call has an intrinsic value of \$10 per share. For any person willing to purchase the underlying stock at \$110 per share, the right to buy stock at \$100 has a value of \$10. Since this call was purchased for 5 and its value is now 10, the result is a profit of 5 per share. And the number "+5" is placed in the table next to the price of \$110.



Profit of 5 Indicated at a Stock Price of \$110 at Expiration

Stock Price @ Option Expiration	Long 100 Call @ 5 Profit/Loss
110	+ 5
109	
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	- 5
95	- 5

Now consider a stock price of \$109 at expiration. At this price, the 100 Call has an intrinsic value of \$9 per share, and the result is a profit of 4 per share. Consequently, the number "+4" is placed in the table next to the price of \$109.



Profit of 4 Indicated at a Stock Price of \$110 at Expiration

Stock Price @ Option Expiration	Long 100 Call @ 5 Profit/Loss
110	+ 5
109	+ 4
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	- 5
95	- 5

When all the numbers from the completed profit/loss table have been transferred onto the grid, then a picture of the strategy will appear. The profit/loss table is now completed for every row. Finally, all of the profit or loss numbers from the right column are plotted on the grid. The result is a graphical representation of the Long Call strategy.



Completed Profit/Loss Table for Long Call (100 Call Purchased for 5)		
Stock Price @ Option Expiration	Long 100 Call @ 5 Profit/Loss	
110	+ 5	
109	+ 4	
108	+ 3	
107	+ 2	
106	+ 1	
105	0	
104	- 1	
103	- 2	
102	- 3	
101	- 4	
100	- 5	
99	- 5	
98	- 5	
97	- 5	
96	- 5	
95	- 5	

Risk Profile Described

The diagram above shows that the "long call" strategy is very different from the "long stock" strategy presented in Section 1 of this Lesson. The risk of the long call, in this example, is limited to \$5 per share, while the risk of the long stock is, theoretically, \$100 per share. Even though few stocks actually decline to zero, it is clear that the risk of a long stock position is substantially greater than the risk of a long call position.

For the reasons given above, the risk profile of a long call is described as "limited risk and unlimited profit potential." The risk profile long stock, however, is "substantial risk

and unlimited profit potential."

At this point you might be asking which strategy is better, the long call or long stock? Actually, neither is "better" in an absolute sense. A comparison of purchasing a 100 Call for \$5 per share and purchasing stock at \$100 per share reveals that each strategy has a potential advantage over the other and also a potential disadvantage.

Purchasing the 100 Call at \$5 per share has the advantage of lower cost and lower risk relative to purchasing stock at \$100 per share. But the long call does not break even at expiration until the stock price reaches \$105. In contrast, purchasing stock at \$100 per share earns a profit at any price above \$100. And, let's not forget that a longcall position will expire while a stock position may be held indefinitely.

For an investor, this means that a choice has to be made. Do you purchase a call because you want to limit your risk, and you are willing to wait for a price rise in the underlying stock to make money? Or, do you buy stock because you want to try to make money right away, and you are willing to assume the much larger risk that purchasing stock entails?

There is rarely an objective answer to this question. Investors and traders must weigh many subjective considerations when making decisions. The thinking process for investors and traders will be discussed later.

Section 3 - The Long Put Strategy

Description of the strategy to be diagramed: Buy a 100 Put for 4

The profit/loss table below has four rows completed. At stock prices of \$105 and \$104 at expiration the 100 Put has an intrinsic value of zero, and it expires worthless. No rational person would exercise the right to sell stock at \$100 per share when they could sell the stock in the market at either \$105 or \$104 per share. Since this put was purchased for \$4 per share, the result is a loss of \$4 per share or "-4" in the table below.

At a stock price of \$90, the 100 Put has an intrinsic value of \$10 per share at expiration. For any person willing to sell the underlying stock at \$90 per share, the right to sell stock at \$100 has a value of \$10. Since this put was purchased for 4 and its value is 10 with a stock price of \$90, the result is a profit of 6 per share. And the number "+6" is placed in the table next to the price of 90. At a stock price of \$91, the 100 Put has a value of \$9 per share at expiration, and the result is a profit of 5 per share. The number "+5" is placed in the table next to the price of 91.



Start of the Profit/Loss Table for Long Put (100 Put Purchased for 4)		
Stock Price @ Option Expiration	Long 100 Put @ 4 Profit/Loss	
105	-4	
104	-4	
103		
102		
101		
100		
99		
98		
97		
96		
95		
94		
93		
92		
91	+5	
90	+6	

l r

Next the profit/loss table is completed and the profit/loss diagram is completed:



Completed Profit/Loss Table for Long Put (100 Put Purchased for 4)	
Stock Price Option Expiration	Long 100 Put @ 4 Profit/Loss
105	-4
104	-4
103	-4
102	-4
101	-4
100	-4
99	-3
98	-2
97	-1
96	0
95	+1
94	+2
93	+3
92	+4
91	+5
90	+6

Risk Profile described

Buying a put is a bearish strategy, which means that, conceptually, it earns a profit if the underlying stock declines. The diagram above shows that the long put strategy has "limited risk and substantial profit potential." The risk is limited, because the maximum risk is the premium paid. The profit potential is substantial, because the underlying stock can only decline to zero. Another bearish strategy is selling stock short, and the risk profile of a <u>short position</u> is described as "unlimited risk and substantial profit potential." The risk of short stock is unlimited, because a stock price can rise indefinitely. If an investor or trader understands the difference between the two risk profiles, then it is

clear that option strategies offer important alternatives to stock-only strategies.

So which is better, purchasing a put or selling stock short? Again, there is no "better" in an absolute sense. Purchasing the 100 Put at \$4 per share has the advantage of lower risk relative to selling stock short at \$100 per share. But the long put, in this example, does not begin earning a profit at expiration until the stock price declines to \$96. Also remeber that the long put will expire while the stock position does not. In contrast, selling stock short at \$100 per share any price below \$100.

For an investor, this means that a choice has to be made. Do you purchase a put because you want to limit your risk, and you are willing to wait for a price decline in the underlying stock before you begin to make money? Or, do you sell stock short because you want to try to make money right away, and you are willing to assume the unlimited risk that selling stock short entails? As with buying a call versus purchasing stock, the answer depends on subjective considerations that every investor and trader must analyze.

Section 4 - The Short Call

Perhaps a word of warning is in order. Short option strategies require a kind of reverse thinking, because the option is **sold** first. If you are accustomed to purchasing first and selling second, then you will have to concentrate hard on the thinking required to calculate the profit and loss of short option strategies.

We start by describing the strategy in detail. In this example, we assume that we sell (or write) a 100 Call at \$5 per share.

Description of the strategy to be diagramed: Sell a 100 Call at 5

To start a profit and loss table, let's begin at the bottom of the table. With a stock price of \$95 at expiration, the 100 Call has an <u>intrinsic value</u> of zero, and it expires worthless. The owner of this call would not exercise the right to buy stock at \$100 per share when the stock can be purchased at \$95 per share in the market place. Since we sold this call for \$5 per share, we get to keep this money, and the result is a profit of \$5 per share or, "+5" as indicated in the table below.



Profit of 5 Indicated at a Stock Price of \$95 at Expiration

Stock Price Option Expiration	Short 100 Call @ 5 Profit/Loss
110	
109	
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	
95	+5

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Next, at a stock price of \$96 at expiration, the result is the same, the 100 Call expires worthless, and we, as the seller of this call, get to keep the money. The \$5 received is our profit, and the number "+5" is placed in the table next to the price of \$96.



Profit of 5 Indicated at a Stock Price of \$96 at Expiration

Stock Price Option Expiration	Short 100 Call @ 5 Profit/Loss
110	
109	
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	+5
95	+5

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Now consider a row at the top of the table. At a stock price of \$110, the 100 Call has an intrinsic value of \$10 per share at expiration. Since this call was initially sold for 5 and its value is now 10, we will have to repurchase the call at 10 which will result is a loss of 5 per share. And the number "-5" is placed in the table next to the price of \$110.



Loss of 5 Indicated at a Stock Price of \$110 at Expiration

Stock Price Option Expiration	Short 100 Call @ 5 Profit/Loss	
110	-5	
109		
108		
107		
106		
105		
104		
103		
102		
101		
100		
99		
98		
97		
96	+5	
95	+5	

Now consider a stock price of \$109 at expiration. At this price, the 100 Call has an intrinsic value of \$9 per share, and the result is a loss of 4 per share. Consequently, the number "-4" is placed in the table next to the price of \$109.



Loss of 4 Indicated at a Stock Price of \$109 at Expiration

Stock Price Option Expiration	Short 100 Call @ 5 Profit/Loss
110	-5
109	-4
108	
107	
106	
105	
104	
103	
102	
101	
100	
99	
98	
97	
96	+5
95	+5

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The profit/loss table is now completed for every row. All of the profit and loss numbers from the right column are plotted on the profit/loss grid. The result is a graphical representation of the Short Call strategy.



Completed Profit/Loss Table for 100 Call Sold for 5			
Stock Price Option Expiration	Short 100 Call @ 5 Profit/Loss		
110	- 5		
109	- 4		
108	- 3		
107	- 2		
106	- 1		
105	0		
104	+1		
103	+2		
102	+3		
101	+4		
100	+5		
99	+5		
98	+5		
97	+5		
96	+5		
95	+5		

Description of Risk Profile

The diagram above shows that the "short call" strategy has "unlimited risk and limited profit potential." The risk is unlimited, because the stock price could rise indefinitely. And the profit potential is limited, because the maximum potential profit is the <u>premium</u> received. In contrast, the strategy of selling stock short has "unlimited risk and substantial profit potential." And, once again, neither strategy is "better" in an absolute sense. Rather each has an advantage and a disadvantage relative to the other.

Selling the 100 Call at \$5 per share has the advantage of not losing money at expiration until the stock price rises above \$105 per share. But the profit potential of the short call

is limited to \$5 in this example which is the premium received. Selling stock short at \$100, however, has the advantage of having substantial profit potential, because the stock, in theory, could decline to zero. The disadvantage of short stock, however, is that losses begin immediately if the stock price rises above \$100 in this example.

The choice facing a trader is whether to accept limited profit potential in return for a higher break-even price (short call) or accept the risk of a lower break-even price in return for a substantial profit potential (short stock). This is another trading decision for which there is no objective answer.

Section 5 - The Short Put Strategy

The short put is another strategy in which the option is sold, or written, initially, and, therefore, requires one to think differently than the traditional buy-first-and-sell-second method.

Description of the strategy to be diagramed: Sell a 100 Put at 4

The profit/loss table below has four rows completed. At stock prices of \$105 and \$104 at expiration the 100 Put has an intrinsic value of zero, and it expires worthless. The owner of such a put would not exercise the right to sell stock at \$100 per share when stock could be sold in the market at either \$105 or \$104 per share. Since this put was sold initially for \$4 per share and the put expires worthless, this money is kept as profit. The result is a profit of \$4 per share or, "+4" as indicated in the table below.

At a stock price of \$90, the 100 Put has an intrinsic value of \$10 per share at expiration. For any person willing to sell the underlying stock at \$90 per share, the right to sell stock at \$100 has a value of \$10. Since this put was sold for 4 and its value is now 10, the result is a loss of 6 per share. And the number "-6" is placed in the table next to the price of 90. At a stock price of \$91, the 100 Put has a value of \$9 per share at expiration, and the result is a loss of \$5 per share. The number "-5" is placed in the table next to the price of 91.



Start of Profit/Loss Table for Short Put (100 Put Sold for 4)			
Stock Price @ Option Expiration	Short 100 Put @ 4 Profit/Loss		
105	+4		
104	+4		
103			
102			
101			
100			
99			
98			
97			
96			
95			
94			
93			
92			
91	-5		
90	-6		

Next the profit/loss table is completed and the profit/loss diagram is completed:



Completed Completed Profit/Loss Table for Short Put (100 Put Sold for 4)			
Stock Price Option Expiration	Short 100 Put @ 4 Profit/Loss		
105	+4		
104	+4		
103	+4		
102	+4		
101	+4		
100	+4		
99	+3		
98	+2		
97	+1		
96	0		
95	-1		
94	-2		
93	-3		
92	-4		
91	-5		
90	-6		

Risk Profile described

Like the other strategies presented earlier, the short put strategy has trade-offs of its own, i.e., advantages and disadvantages. A short put has "substantial risk and limited profit potential." The risk occurs if the stock price declines below the break-even point, and the maximum profit is earned when the stock price is above the strike price at expiration, but the profit potential is limited to the premium received. A strategy which the short put can be compared to is the long stock strategy which has "substantial risk and unlimited profit potential."

Selling a 100 Put at \$4 per share has the advantage of not losing money until the stock price declines to \$96 at expiration in this example. But the short put has limited profit potential. All that can be made is the money received for selling the put. In contrast, purchasing stock at \$100 per share loses money at any price below \$100, but has an

unlimited profit potential.

For an investor, this means that a choice has to be made. Do you sell a put because you want a lower break-even price, and you are willing to accept the limited profit potential? Or, do you purchase stock because you want the potential for unlimited profit, and you are willing to assume the risk of losing immediately if the stock price declines?

As with all of the strategies presented above, choosing between selling a put and purchasing stock involves many subjective considerations.

Section 6 - The Long Straddle Strategy

Now that the four basic option strategies have been illustrated, we will conclude this lesson with an introduction to a more complicated strategy, the Long Straddle. The purpose of showing the long straddle is to show you how the technique of profit and loss diagrams can be applied to more complicated strategies.

We start by describing the strategy in detail. A long straddle involves the purchase of a call and a put both of which have the same underlying, the same strike price, and the same expiration date. In this example, we assume that a 100 Call is purchased for \$5 per share and a 100 Put is purchased for \$4 per share.

Description of the strategy to be diagramed:

- Buy a 100 Call for 5 *and*
- Buy a 100 Put for 4

The profit and loss table for this strategy is slightly different than the tables for the oneoption basic option strategies presented earlier. First, there are more columns, one for the stock price at expiration, one for the profit or loss of each component, and one for the total profit and loss of the strategy. Second, the table below has a range of stock prices from \$80 to \$120 with price intervals of \$5 between each row. These differences are not always a requirement for all multiple-part strategies, but you must learn to flexible in the use of profit and loss tables and diagrams. Let us begin at the top of the table. With a stock price of \$120 at expiration, the 100 Call has an intrinsic value 20 and the 100 Put has an intrinsic value of zero. Consequently, the long 100 Call results in a profit of \$15, and the long 100 Put results in a loss of \$4. The combined result, therefore, is a net profit of \$11, and "+11" appears in the table below in the right-most column of the \$120 row.



Profit of 11 Indicated at a Stock Price of \$120 at Expiration			
Stock Price at Expiration	Long 100 Call @ 5 Profit/Loss	Long 100 Put @ 4 Profit/Loss	Long 100 Straddle Total Profit/Loss
120	+15	- 4	+11
115			
110			
105			
100			
95			
90			
85			
80			

Now let's try a stock price at the bottom of the table. With a stock price of \$80 at expiration, the 100 Call has an intrinsic value zero and the 100 Put has an intrinsic value of 20. Consequently, the long 100 Call results in a loss of \$5, and the long 100 Put results in a profit of \$16. The combined result, therefore, is a net profit of \$11, and "+11" appears in the right-most column of the \$80 row.



Profit of 11 Indicated at a Stock Price of \$80 at Expiration			
Stock Price At Expiration	Long 100 Call @ 5 Profit/Loss	Long 100 Put @ 4 Profit/Loss	Long 100 Straddle Total Profit/Loss
120	+15	- 4	+11
115			
110			
105			
100			
95			
90			
85			
80	- 5	+16	+11

Now consider a stock price of \$100 at expiration. At this price, both the 100 Call and the 100 Put have intrinsic values of zero and they both expire worthless. If this occurs, then the long 100 Call results in a loss of \$5, and the long 100 Put results in a loss of \$4. The combined result, therefore, is a net loss of \$9, and "-9" appears in the right-most column of the \$100 row.



Loss of 9 Indicated at a Stock Price of \$100 at Expiration			
Stock Price at Expiration	Long 100 Call @ 5 Profit/Loss	Long 100 Put @ 4 Profit/Loss	Long 100 Straddle Total Profit/Loss
120	+15	-4	+11
115			
110			
105			
100	-5	-4	-9
95			
90			
85			
80	-5	+16	+11

The profit/loss table is now completed for every row. All of the profit and loss numbers from the right column are plotted on the profit/loss grid. The result is a graphical representation of the strategy.



Completed Profit/Loss Table for Long Straddle (100 Straddle Purchased for 9)			
Stock Price At Expiration	Long 100 Call @ 5 Profit/Loss	Long 100 Put @ 4 Profit/Loss	Long 100 Straddle Total Profit/Loss
120	+15	- 4	+11
115	10	- 4	+6
110	5	- 4	+1
105	0	- 4	- 4
100	- 5	- 4	- 9
95	- 5	+1	- 4
90	- 5	+6	+1
85	- 5	+11	+6
80	- 5	+16	+11

Risk Profile Described

The profit/loss diagram for the long <u>straddle</u> shows a risk profile that has "limited risk and unlimited profit potential." What is unique about this diagram, however, is that profits can be earned if the stock makes a large enough move either up or down. That is quite a difference from the long call and the long put which only profit if the stock moves in the right direction. What is the disadvantage of the long straddle? The answer is: its cost. Relative to the long call or long put, the long straddle requires the purchase of two options and, therefore, the payment of two premiums. As a result, the price of the underlying stock must move considerably farther in either direction for the long straddle to be profitable at expiration.

So, once again, the long straddle is not "better" in an absolute sense than other strategies. It only offers traders a unique set of trade-offs that will be appropriate for some forecasts but not for others.

Summary

Profit/loss diagrams are an important tool for investors and traders who use options. These diagrams show the maximum risk, the profit potential and the break-even point of a strategy. The ability to create these diagrams reinforces understanding of strategies and helps investors and traders clarify their forecasts and objectives. Learning to draw profit/loss diagrams is an important first step in learning to use options.