Section 4. Complex strategies

This section will discuss the more complex option strategies and will present examples of these strategies.

The previous section covered the simpler option trading strategies, mainly the buying and selling of puts and calls. These simpler strategies are usually thought of as very aggressive strategies, with high profit potential on the long side and large risk on the short side.

This section will examine option positions which are structured by combining options of different terms, put and call options, or options and stock positions. Because they provide reduced risk, some of these strategies are much more conservative than the simpler strategies. It is of the utmost importance that the trader understand the risk/reward characteristics of any strategy that he or she is considering.

A Note about Commissions

Because the more complex strategies involve multiple positions, commission costs can be substantial. For this reason, it is advantageous to keep commissions as low as possible through the use of discount brokers, etc.

Margin

For covered positions, the user can elect to use margin for the purchase of stock. When Use margin is selected, Cash Outlay will only include the margin requirement for the stock and Cash ROI is based on the margin requirement rather than the full value of the stock.

Note
Margin rates can be viewed and/or modified through the *Margin Criteria* page of *Broker/Margin Properties*

Certain of the complex option strategies are credit positions. That is, at the time the position is entered, a net credit is received. In this respect, they are similar to the naked write option strategies discussed in the previous section in that the option trader does not make a cash investment. The investment is in the form of collateral, not cash. However, for analysis purposes, OptionExpert assumes that the investment in a credit position is the collateral requirement less premiums received.

The computation of collateral for some of the complex strategies can be rather involved. For instance, although the butterfly spread results in a small net debit, the spread actually consists of a bull and a bear spread. In this case, the collateral requirement is the sum of the two spread requirements, which is much greater than the debit for the position.

Spread Strategies

Spread strategies are designed to take advantage of one of the more basic tenets of option trading — sell time value and buy intrinsic value. To become profitable, a spread must be held for some time even if the stock price moves in favor of the position. If you want maximum profit from a quick short-term move in the stock, calls are a better choice. Spreading provides a hedge but, since profit is limited, it is only advantageous when the stock moves slowly.

A spread position consists of two options of the same type (puts or calls) on the same stock. The spreader buys one option and simultaneously sells another with different terms. There are three basic types of spreads:

- Vertical - Same expiration date, different strike price
- Horizontal - Same strike price, different expiration date
- Diagonal - Different expiration date, different strike price

The butterfly spread is a special type of spread which is a combination of a bull and a bear spread. It involves the buying of two options with different strike prices and the selling of two options with the same strike price. The strike of the sold options is between the strike prices of the two purchased options. This special spread position has limited risk and requires small outlay. Maximum profit occurs when the stock price at expiration is unchanged from the price when the position was entered. Since it is most appropriate for the trader who is neutral on the stock, it is termed a neutral position.

Straddles

A straddle consists of a put and a call with the same terms. Straddles can be bought or sold and the short straddle can be covered or uncovered.

The long straddle, a speculative strategy, has unlimited profit potential in both directions. However, the more likely outcome, a relatively small change in the stock price, results in a limited loss.

The uncovered short straddle, a neutral strategy, is the mirror image of the long straddle. Loss is unlimited in either direction but, the more likely outcome, a relatively small change in stock price, results in a limited gain.

The covered short straddle is similar to the covered call write, a conservative strategy. This is true because only the sale of the call is

covered and an uncovered put is equivalent to a covered call. Therefore, the strategy is the same as selling two covered calls.

Strangles

The strangle or combination strategy is similar to the straddle in that the position involves both puts and calls. However, with the strangle the terms of the options are not the same. Usually, the strike prices differ with the call one strike above the put, which is out-of-the-money.

A long strangle is similar to a long straddle with large potential profit in either direction but high probability of a limited loss. The difference is that the strangle requires a smaller investment and, therefore, the maximum loss, which occurs anywhere between the two strike prices, is smaller. However, with a straddle the maximum loss occurs only if the stock is at the exact strike at expiration.

A short uncovered strangle is also similar to the equivalent straddle position. Both are neutral strategies with high probability of limited profit. However, with the strangle, maximum profit occurs anywhere between the two strike prices and the strangle writer makes maximum profit over a wider range than the straddle writer. The straddle has larger maximum profit but it occurs only if the stock is at the exact strike at expiration.

Again, the covered strangle write is similar to and a variation of the covered straddle write. The strangle differs in that the put is usually out-of-the-money and a strike below the call. This increases the profit potential of the position but also increases the potential loss should the stock drop below the lower strike price.

Variable Ratio Call Write

In addition to the spreads, straddles, and strangles, OptionExpert's Strategy List includes two other positions, the covered call write and the variable ratio call write. The covered call write is covered in Section 3.

The ratio call write, which is a special type of covered call write, is a sophisticated strategy that combines covered and uncovered call writing. In a ratio call write, the writer sells calls against more shares than are owned. The most common ratio, called the covered call ratio, is 2:1, where two calls are sold against 100 shares of the underlying stock.

With a ratio call write, the trader usually attempts to establish a neutral position with the strike of the calls close to the stock price. If the stock remains relatively unchanged, this strategy will generally result in higher profits than either the covered write or the uncovered write. However, the ratio call write has both downside risk, as does a covered write, and unlimited upside risk, as does a naked write. The ratio call write position is similar to selling an uncovered straddle which also involves selling large amounts of time premium. Both are attractive to the more aggressive trader who is willing to risk that the stock will remain fairly stable.

The variable ratio call write is a special form of the ratio write strategy. In this variation, calls are written with two different strike prices. Normally, it is used to obtain a neutral profit range when the stock price is between two strikes. The 2:1 ratio is maintained by writing one in-the-money call and one out-of-the-money call against each 100 shares of stock. The variable ratio write position is similar to selling an uncovered strangle. Since the strategy is profitable for the most probable range of prices for the underlying stock, it has a large probability of resulting in a limited profit. With this position, follow-up action is mandatory to avoid large losses in both the upside and downside directions.

Examples of complex strategies

Examples of complex strategies include:

- Bull Spread
- Bear Spread
- Bullish Time Spread
- Neutral Time Spread
- Bearish Time Spread
- Diagonal Bull Spread
- Diagonal Bear Spread
- Butterfly Spread
- Buy Straddle
- Sell Straddle
- Buy Strangle
- Sell Strangle
- Sell Covered Straddle
- Sell Covered Strangle
- Variable Ratio Call Write
- Ratio Call Write

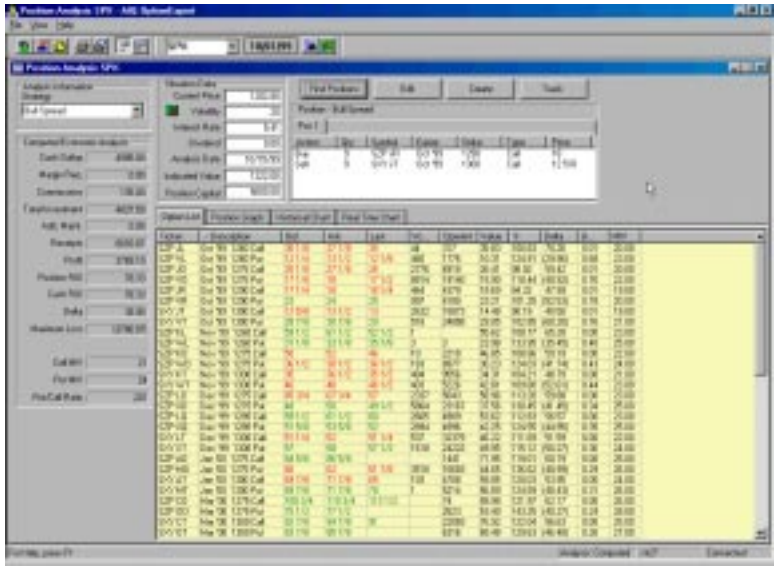
Bull Spread Example

S&P 500 (SPX): October 1, 1999.

For the trader who is bullish but prefers a hedge, the bull spread is a good alternative to buying calls. A bull spread using calls is constructed by buying a call at one strike price and selling a second call at a higher strike price. Normally the spread is vertical, meaning that both options have the same expiration date.

In this example, our trader prefers to trade options on the S&P 500 index but is only moderately bullish on the market. This trader wants the downside risk protection that a spread will provide. He realizes that by spreading the position he is limiting his profit potential on the upside but, if a moderately bullish outlook is correct, the profit he will achieve can be as good or better than buying calls. However, his primary goal in choosing a spread position is to reduce downside risk.

Looking at the Situation Data, the SPX is currently valued at 1282.80 and the Indicated Value for the Analysis Date of October 15, 1999 is 1322.00.



Position Analysis screen for SPX on 10/01/99

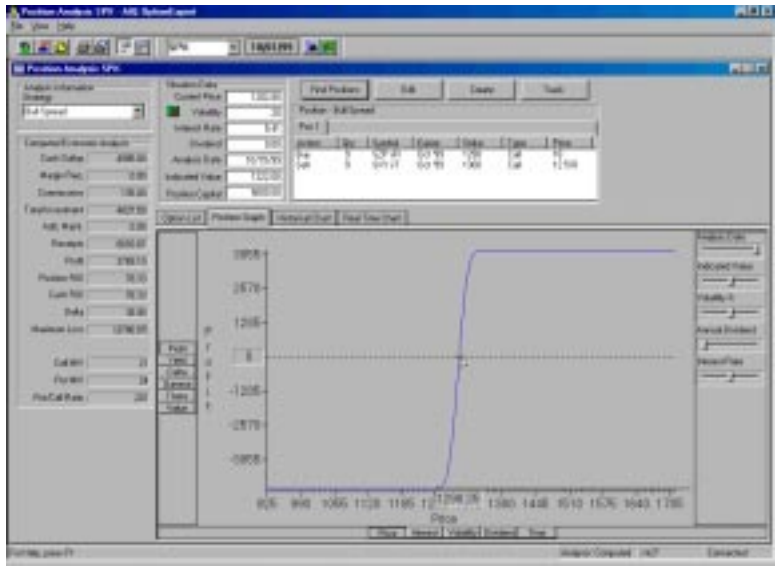
To ask OptionExpert to select a Bull Spread, the strategy is first selected from the list of strategies. With *Bull Spread* selected, the Find Position command button is clicked and OptionExpert starts looking for profitable bull spread positions.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is specified and the system selects positions requiring a Total Investment as close to this amount as possible without exceeding it (for this purpose, Commissions are not included in Cash Outlay). Total investment for a bull spread is the difference between the price of the two calls times the number of contracts — a bull spread is always a debit transaction since the lower strike price call must trade for more than the higher strike price call.

On October 1, five option expiration months are trading for the SPX: October, November, December, January, and March.

When the analysis is completed, the Position window displays the selected bull spread position. The spread consists of the Oct 1290 call (buy 9 at 18) and the Oct 1300 call (sell 9 at 12-5/8). This is a fairly conservative spread position as both options are not far out-of-the-money. The premium of the short Oct 1300 call contributes on the upside and also functions as downside protection.

Note
For Bull Spreads, OptionExpert selects only positions in which both calls are out-of-the-money. If no positions meeting this requirement are found, the message "no appropriate positions" will appear in the Position window.



Position Analysis screen for SPX with graph of Bull Spread position on 10/01/99

A graph of the bull spread position for SPX shows the computed value of the position on the analysis date vs. the price of the stock. The break-even index value, the value below which the position is unprofitable, is around 1300. From the graph, it is evident that maximum profit is limited to about $4,000 where the limitation on profit due to the sale of the 1300 call takes effect.

Bear Spread Example

IBM: October 4, 1999.

A put bear spread is constructed by selling one put with an out-of-the-money strike price while buying a second put at a higher strike price. Like the call bull spread, the put bear spread is a debit spread. This is true because for any two puts with the same expiration the one with the lower strike price will always sell at a higher price.

The put bear spread has a profit potential similar to the call bull spread. Both maximum profit and maximum risk are limited. As the stock declines, the price spread between the two puts widens and reaches a maximum when the stock is below the lower strike price. At this point, the spread equals the difference between the two strike prices and profit is at a maximum.

The bear spread is an alternative to buying puts for the trader who is bearish but wants to hedge upside risk. In this example, our trader is bearish on IBM but wants the upside risk protection that a spread will provide. He is aware that by spreading the position he is limiting profit potential on the downside but, if a moderately bearish outlook is correct, his profit may be as good or better than buying puts. However, his primary goal in choosing a spread position is to limit his loss if the position should move against him.

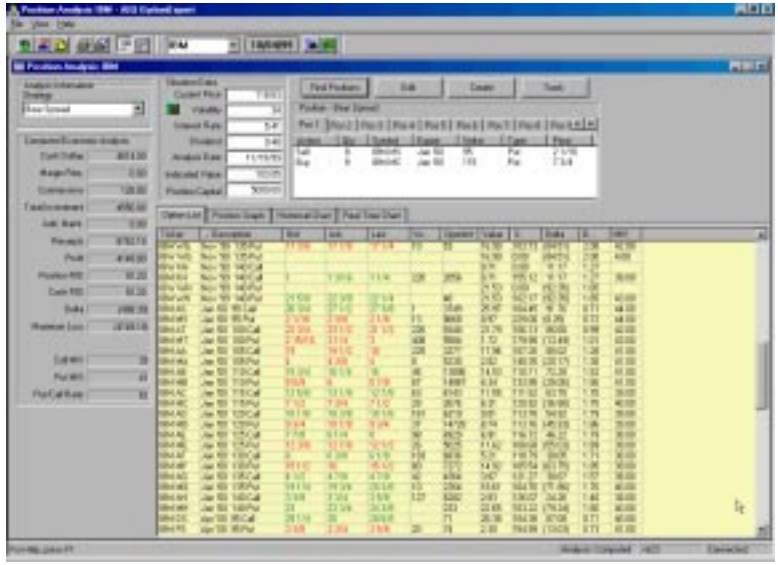
Looking at the Situation Data window, the Current Price for IBM is 118-5/8 and the Indicated Value for the Analysis Date of November 19 is 103.05. Volatility is 34.

To ask OptionExpert to select a bear spread, the Strategy list is first displayed and the *Bear Spread* strategy is selected from the list of strategies. When the Find Position button is selected, OptionExpert starts looking for profitable bear spread positions.

Note
For Bear Spreads, OptionExpert selects only positions in which both puts are out-of-the-money. If no positions meeting this requirement are found, the message “no appropriate positions” will appear in the Position window.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is specified and the system selects positions with Cash Outlay not exceeding this amount (for this purpose, Commissions are not included in Cash Outlay). Total Investment for a bear spread is the difference between the price of the two puts times the number of contracts.

On October 4, 1999, the four option expiration months trading for IBM are October, November, January, and April. Since the Analysis Date is very close to the October expiration, the October options will not be considered in the analysis process.



Position Analysis screen for IBM 10/04/99

When the analysis is completed, the most profitable position found by the system appears in the Position window. In this example, more than one profitable position is found as is indicated by the row of numbered buttons located along the top of the Position window.

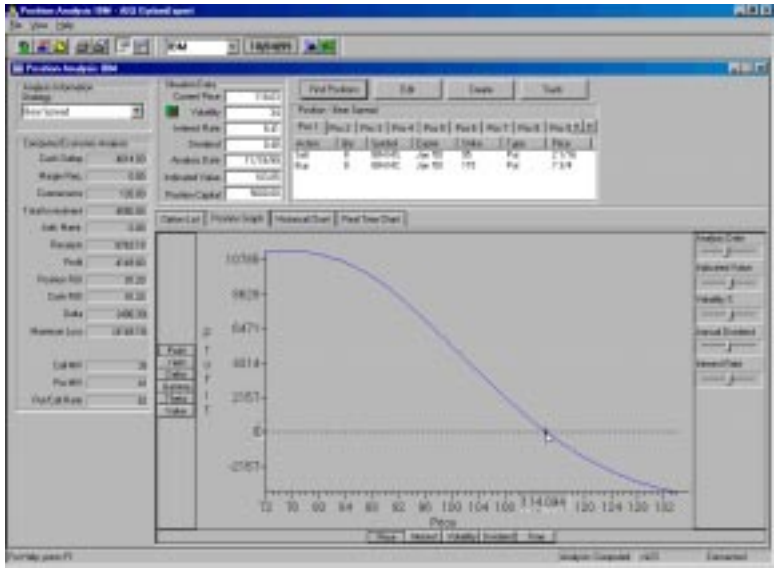
The top position, the #1 position, sell the October 95 put and buy the October 115 put, is displayed. This spread is classified as a moderately aggressive position since the higher priced option is only slightly out-of-the-money. From the position data, a return of 91% is computed (ROI = 91%) but the price of the stock must move below 114 in order for the position to become profitable.

Looking at the Option List, both options are overpriced relative to their fair values. The long side, the higher priced put, is priced at 120% of fair value, while the short side, the lower priced put, is priced at 229% of fair value.

The Economic Analysis window shows an investment of $4,550. Investment is computed by multiplying the number of contracts, 8, times the position net debit, which is the difference between the two option prices, 2 11/16, times 100. Cash Outlay of $4,614 is investment plus entry Commissions.

Receipts and Profit are computed based on the computed values of the options on the Analysis Date, November 19. Receipts are monies received or paid out at the close of the position. In this case Receipts, $8,763, is the net credit from the sale of the long puts less the outlay

to close the short side of the position. The value of these puts on the Analysis Date is calculated based on the projected value of the stock (Indicated Value). The profit, $4,150, is derived from receipts less selling commissions. The Position ROI (return on investment) of 91% is computed based on the total investment. Maximum Loss is roughly equivalent to the Cash Outlay.



Position Analysis screen for IBM with graph of Bear Spread position on 10/04/99

The above screen shows a graph of the bear spread position for IBM on the Analysis Date of November 19, 1999. For the conditions specified, the graph reflects the computed value of the position on the Analysis Date vs. the price of the stock. The break-even stock price, the price below which the position is profitable, is around 114.

From the graph, it is evident that maximum loss is limited to about $4,500 while maximum profit is about $11,200. Maximum profit occurs at stock prices below 95 where the limitation on profit due to the sale of the 95 put takes effect.

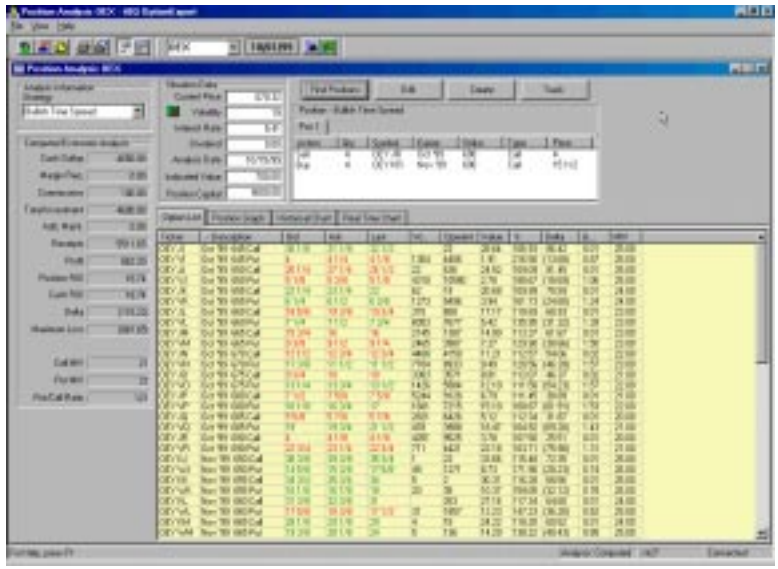
Bullish Time Spread Example

S&P 100 Index (OEX): October 1, 1999.

Time spreads are horizontal, meaning that both options have the same strike price. A bullish time spread is constructed by selling one near-term call while buying a second longer-term call, both with the same out-of-the-money strike price. Since the two calls have the same strike price, the longer term call will always sell at a higher price. The bullish time spread is, therefore, a debit spread.

In a bullish time spread, the sale of the near-term call reduces the net cost of the longer-term call. Maximum profit is achieved when the near-term call expires out-of-the-money and, when the stock subsequently rises, substantial profit is achieved from the longer-term call. The profit potential of the spread is relatively large and risk is moderate due to the low dollar investment which keeps losses small. The strategy is considered speculative, however, since the probability of making a profit is low.

In this example, our trader is bullish on the OEX index and has selected a time spread because of the strategy's high profit potential. He recognizes the risk inherent in this type of spread and, therefore, is committing only a small share of his trading capital to the position.



Position Analysis screen for OEX 10/01/99

Looking at the Situation Data, the OEX is currently priced at 670.32. Volatility is 19 and the Indicated Value for the Analysis Date of October 15 is 700.00. The system generated value was replaced by the analyst to reflect a bullish outlook for the index.

Before requesting OptionExpert to find positions, *Bullish Time Spread* was selected from the list of strategies available on the strategy menu. With this selection made, the Find Positions command was executed and OptionExpert began to look for profitable positions.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is specified and the system selects positions requiring a Total Investment as close to this amount as possible without exceeding it (for this purpose, Commissions are not included in Cash Outlay). A bullish time spread is a debit position. Total investment is the difference between the price of the long calls and the price of the short calls multiplied by the number of contracts times 100.

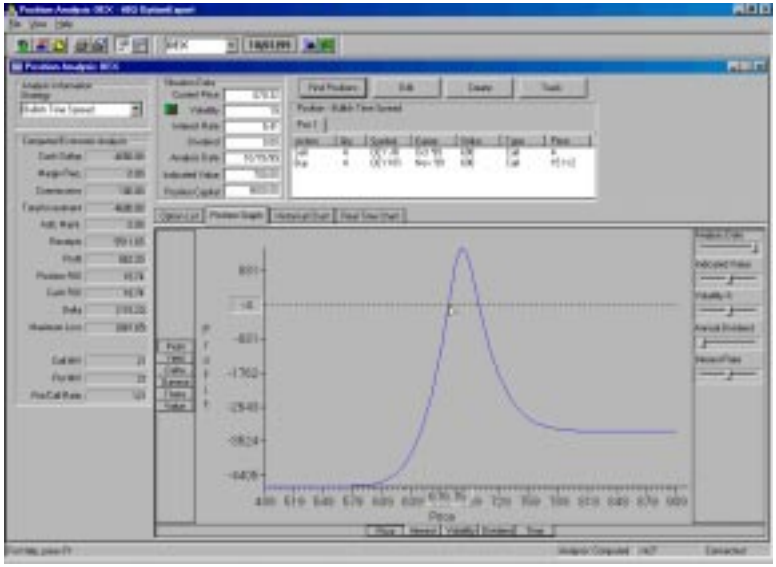
On October 1, the option expiration months trading for OEX index options are October, November, December, January, and March.

In this example, only one profitable position is found, a bullish time spread consisting of the Oct 690 call (sell 4 at 4) and the Nov 690 call (buy 4 at 15-1/2). This spread has a net debit of 11-1/2, and requires an investment of $1,150 per spread contract, or $4,600 for 4 contracts. Note that the near-term (Oct) call is only two weeks from expiration and the long-term (Nov) call is six weeks from expiration.

Note
For time spreads, OptionExpert selects only those positions where the strike price is approximately one strike from the current stock price.

Looking at the Economic Analysis window, the Cash Outlay of $4,650 is the Total Investment plus entry Commissions. Receipts and Profit are computed based on the computed values of the options on the Analysis Date, October 15, after exit Commissions. The Position ROI of 10.7% is computed based on the Total Investment. Maximum Loss is $862.

The screen on the next page displays a graph of this bullish time spread position for the OEX. For the conditions specified, the graph reflects the computed value of the position on the Analysis Date for a range of stock prices. The graph clearly shows that maximum profit occurs at a value of about 690, the strike price of the options. The range of profitability for the position is about 677 to 707. Therefore, the index must rise at least seven points above the current level in order for the position to become profitable.



Position Analysis screen for OEX with graph of Bullish Time Spread position on 10/01/99

Neutral Time Spread Example

General Motors: October 15, 1999

Time spreads are horizontal, meaning that both options have the same strike price. They are constructed by selling one near-term option while buying a second longer-term option and are designed to take advantage of the characteristics of the decay of time value premium. The near-term option is sold to obtain maximum rate of decay on the short side, and the longer-term option is bought to lessen the effect of time decay on the long side.

In a neutral time spread, the strike price of the options is at or near the price of the underlying stock. Since both options have the same strike price, the longer-term option will always sell at a higher price. The neutral time spread is, therefore, a debit spread.

The neutral time spread is based on the principal that time erodes the value of the near-term option faster than the value of the more distant option. As long as the stock remains in a fairly narrow range, the spread will widen with time and a profit will result at the expiration of the near-term option. With a neutral time spread, the initial intent should be to close the position when the near-term option expires. Maximum profit is achieved when the stock price equals the strike price of the options at expiration. When this occurs, the near-term call expires out-of-the-money and the more distant option still has significant time value premium.

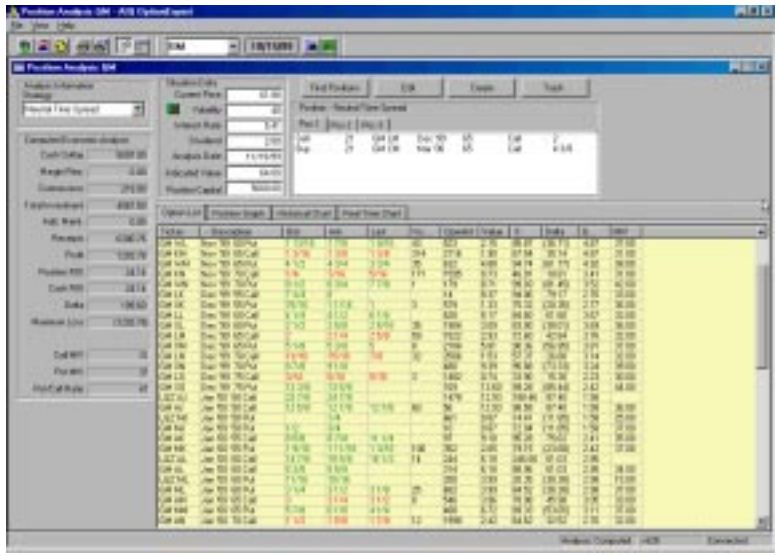
The neutral time spread is profitable over a wide range of stock prices. The risk is that the stock will make a big move in either direction. Risk is, therefore, relatively low. Maximum Loss is limited to the amount of the initial debit plus Commissions. However, the profit potential of this spread is limited.

In this hypothetical example, our trader is neutral on General Motors stock for the short term. He wants a low risk strategy for generating trading profits, and has selected a neutral time spread.

Looking at the Situation Data, the current price for GM is 61-7/8. Volatility is 40 and the Indicated Value has been changed to 64 to reflect a neutral outlook on the stock.

In evaluating this type of spread, the Analysis Date is critical. This is because profitability depends entirely on the decay of the time value premium of the near-term option with respect to the longer-term option. For maximum rate of decay, it is best that the spread be established 8 to 12 weeks before the expiration of the near-term

option. To eliminate options that expire too early and allow adequate time for decay of premiums, the Analysis Date can be moved ahead.



Position Analysis screen for GM 10/15/99

In this example, the *Neutral Time Spread* strategy is selected and the Find Positions command is executed to ask OptionExpert to find profitable positions.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is specified and the system selects positions requiring a Total Investment as close to this amount as possible without exceeding it (for this purpose, Commissions are not included in Cash Outlay). A neutral time spread is a debit position and Total Investment is the difference between the price of the long options and the price of the short options multiplied by the number of contracts (times 100).

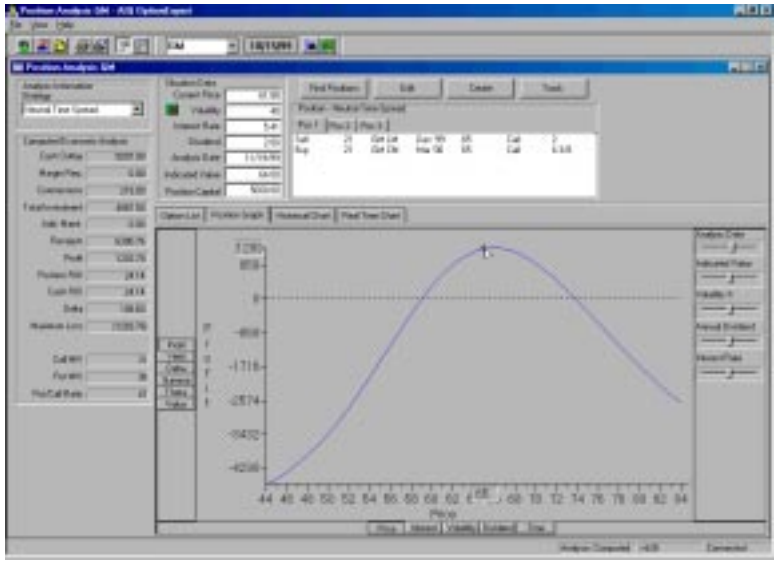
Note
For neutral time spreads, OptionExpert selects only those positions where the strike price is less than one strike from the current stock price.

On October 15, the option expiration months trading for GM are November, December, January, and March.

On this date, three profitable positions were found. The #1 (most profitable) neutral time spread position consists of the Dec 65 call (sell 21 at 2) and the Mar 65 call (buy 21 at 4-3/8). This spread has a net debit of 2-3/8 point, and requires an investment of $237.50 per spread contract, or $4,987.50 for 21 contracts. Note that the near-term (Dec) call is more than two months from expiration and the long-term (Mar) call is more than five months from expiration.

Looking at the Economic Analysis section, the Cash Outlay of $5,097 is the Total Investment plus entry Commissions. Receipts and Profit are computed based on the values of the options computed for the Analysis Date, November 19, after exit Commissions. The position ROI (return on investment) of 24% is computed based on the Total Investment. Maximum Loss is only $1204.

The screen below displays a graph of the neutral time spread position for GM on the Analysis Date of November 19, 1999. For the conditions specified, the graph reflects the computed value of the position on the Analysis Date for a range of stock prices. Maximum profit is at 65, the strike price of the options. The break-even stock price on the low side, the price that defines the low end of the profitability range, is around 59. The high end break-even price, the price above which the position is unprofitable, is about 74. Therefore, the range of profitability for the spread is 59 to 74.



Position Analysis screen for GM with graph of Neutral Time Spread position on 10/15/99

Bearish Time Spread Example

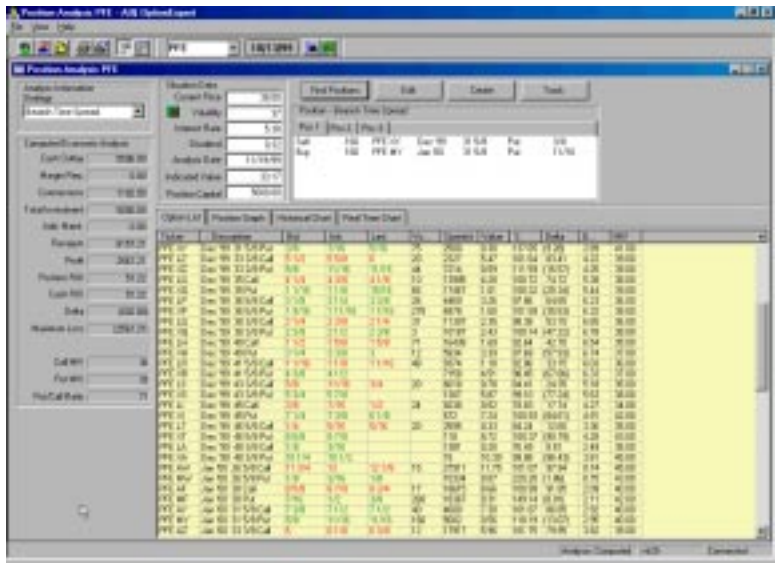
Pfizer: October 13, 1999.

Time spreads are horizontal spreads, meaning that both options have the same strike price. A bearish time spread is constructed of two puts — selling one near-term and buying a second longer-term, both with the same out-of-the-money strike price. Since the two puts have the same strike price, the longer-term put will always sell at a higher price. The bearish time spread is, therefore, a debit spread.

In a bearish time spread, the sale of the near-term put reduces the net cost of the longer-term put. Maximum profit is achieved when the near-term put expires out-of-the-money and the longer-term put expires in-the-money. If this occurs, the return from the spread is substantially greater than from buying only the longer-term put. The profit potential of the spread is relatively large and, due to the low dollar investment which keeps losses small, risk is moderate. This spread strategy is considered speculative, however, since the probability of making a profit is low.

In this example, our trader is bearish on Pfizer and has selected a time spread because of the strategy's high profit potential. He recognizes the risk inherent in this type of spread and, therefore, is committing only a small share of his trading capital to the position.

Looking at the Situation Data, the Current Price for PFE is 38.



Position Analysis screen for PFE 10/13/99

Volatility is 37, and the Indicated Value for the Analysis Date of November 19 is 33.17. No changes were made to the data generated by the system on this date.

Before asking OptionExpert to select a position, the strategy shown in the Strategy box was first changed to *Bearish Time Spread*. Bearish time spread is one of the strategies provided on the list of strategies. The Find Positions command was then selected and OptionExpert started looking for profitable bearish time spread positions.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is specified and the system selects positions requiring a Total Investment as close to this amount as possible without exceeding it (for this purpose, Commissions are not included in Cash Outlay). A bearish time spread is a debit position. Total Investment is obtained by multiplying the net debit, the difference between the price of the long puts and the price of the short puts, by the number of contracts times 100.

On October 13, the option expiration months trading for Pfizer are November, December, January, and April.

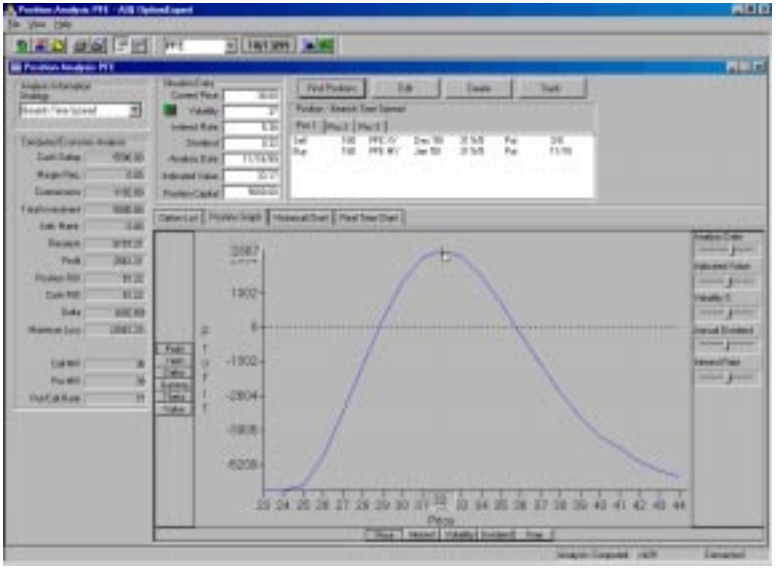
In this example, three profitable position were found which is indicated by the buttons (labeled Pos 1, Pos 2, and Pos 3) located at the top of the Position window.

Note
For time spreads, OptionExpert selects only those positions where the strike price is approximately one strike from the current stock price.

The #1 spread position is the December 31-5/8 put (sell 160 at 3/8) and the January 31-5/8 put (buy 160 at 11/16). This spread has a net debit of 5/16, and requires an investment of 31.25 per spread contract, or $5,000 for 160 contracts. Note that the near-term (December) put is two months from expiration and the long-term (January) put is three months from expiration.

Looking at the Economic Analysis section, the Cash Outlay of $5,596 is the Total Investment plus entry Commissions. Receipts and Profit are computed based on the expected values of the options on the Analysis Date, November 19, after exit Commissions. The position ROI (return on investment) of 51% is computed based on the Total Investment. Maximum Loss is only $2,561.

A graph of the bearish time spread position for PFE is shown on the next page. For the conditions specified, the graph reflects the computed value of the position on the Analysis Date (11/19/99) for a range of stock prices. The break-even stock price, the price below which the position is profitable, is around 35-3/4. From the graph, it is evident that maximum profit occurs at a stock price of about 32 on the Analysis Date.



Position Analysis screen for PFE with graph of Bearish Time Spread position on 10/13/99

Diagonal Bull Spread Example

Sun Microsystems: October 15, 1999.

Diagonal spreads use different striking prices and different expiration dates. In a diagonal spread, the long side of the spread expires later than the short side. Therefore, a horizontal spread is diagonalized by buying an option with a longer expiration than the short side of the spread.

A diagonal bull spread differs from a normal bull spread in that the long call, the call with the lower strike price, has a later expiration than the short call, the call with the higher strike price. The profit potential of the diagonal bull spread is similar to the normal bull spread. However, by diagonalizing a bull spread, the downside hedge of the position is increased somewhat. Consequently, if the stock remains unchanged or falls, the diagonal spread can do better than the normal bull spread. The negative aspect is that because it is more expensive to establish, the upside profit potential of the diagonal spread is somewhat lower.

Another advantage of the diagonal spread is that the spread can be reestablished if the short call expires worthless. In this case, the long call is written against twice, and the diagonal spread may turn out to be more than worth its higher cost.

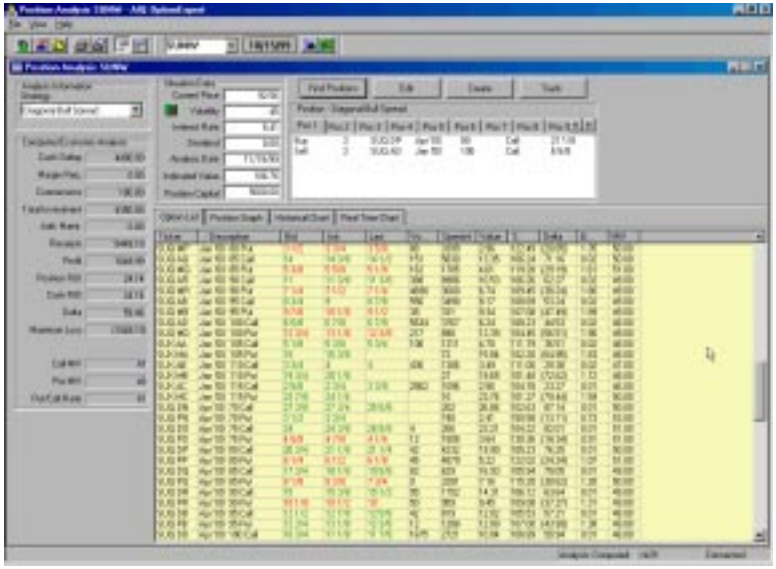
Since the long call has both a lower strike price and a longer term, it will always sell at a higher price. The diagonal bull spread is, therefore, a debit spread.

In this example, our trader is bullish on Sun Microsystems but wants the downside risk protection that a spread position will provide. He realizes that by diagonalizing the spread he is limiting further his profit potential on the upside. However, his primary goal in choosing a spread position is to reduce downside risk, and for this reason he has selected a diagonal bull spread.

The Situation Data for October 15, 1999 shows that the current stock price for SUNW is 92-9/16. The stock has a volatility of 23 and the indicated value for the analysis date of November 17 is 106.76.

To ask OptionExpert to select a *Diagonal Bull Spread*, the strategy is first selected from the list of strategies. With this strategy shown in the Strategy box, Find Positions is executed and OptionExpert starts looking for profitable positions.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is



Position Analysis screen for SUNW 10/15/99

specified and the system selects positions requiring a Total Investment as close to this amount as possible without exceeding it (for this purpose, Commissions are not included in Cash Outlay). Total Investment for a diagonal bull spread is the difference between the price of the two calls times the number of contracts.

On October 15, 1999, the option expiration months trading for SUNW are October, November, December, January, and April.

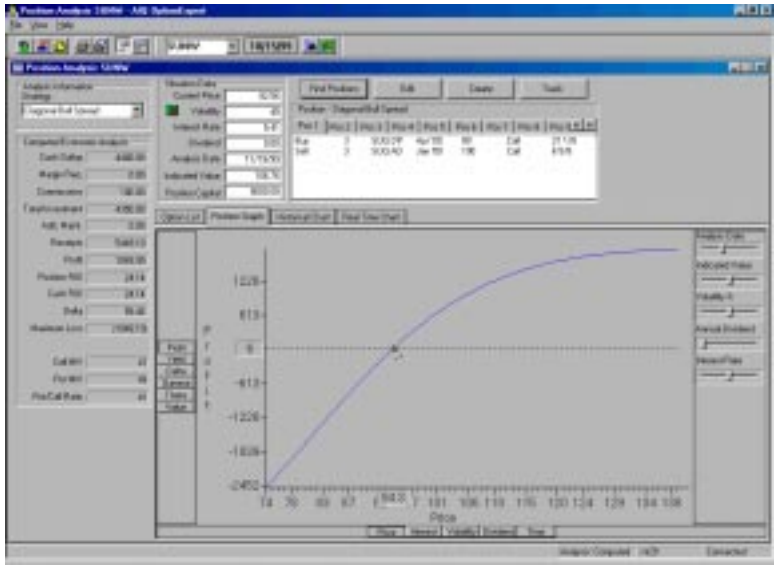
Since more than one profitable position is found, numbered tabs appear along the top of the Position window. These tabs are used to display individual positions in the Position and Economic Analysis sections of the screen.

In this example, the #1 position is selected. This diagonal bull spread consists of the January 100 call (sell 3 at 6-5/8) and the April 80 call (buy 3 at 21-1/8). The position net debit is 14-1/2, and each spread contract requires an investment of $1,450, or $4,350 for 3 contracts.

Looking at the Economic Analysis section, the Cash Outlay of $4,400 is the Total Investment plus entry Commissions. Receipts and Profit are computed based on the values computed for the options on the Analysis Date, November 19, after exit Commissions. The position ROI (return on investment) of 24% is computed based on the Total Investment. Maximum Loss for the position is only $1,049.

Below is a graph of the diagonal bull spread position for Sun Microsystems on the analysis date of November 19, 1999. For the conditions specified, the graph reflects the computed value of the position on the Analysis Date for a range of stock prices. The break-even stock price, the price above which the position is profitable, is around 94-1/4. From the graph, it is evident that profit is limited to about $1,500 regardless of the price on the Analysis Date.

Should the January 100 calls expire out-of-the-money, the trader has the option of closing the position or re-establishing a spread by writing another call, such as the April 90 call, against the long April call. In this case, the new spread would, of course, be a normal bull spread.



Position Analysis screen for SUNW with graph of Diagonal Bull Spread position on 10/15/99

Diagonal Bear Spread Example

Bank of America: October 13, 1999.

Diagonal spreads use different striking prices and different expiration dates. In a diagonal spread, the long side of the spread expires later than the short side. Therefore, a horizontal spread is diagonalized by buying an option with a longer expiration than the short side of the spread.

Diagonal spreads attempt to take advantage of the characteristics of the decay of time value premium. A near-term option is sold to obtain maximum rate of decay on the short side and a longer term option is bought to lessen the effect of time decay on the long side.

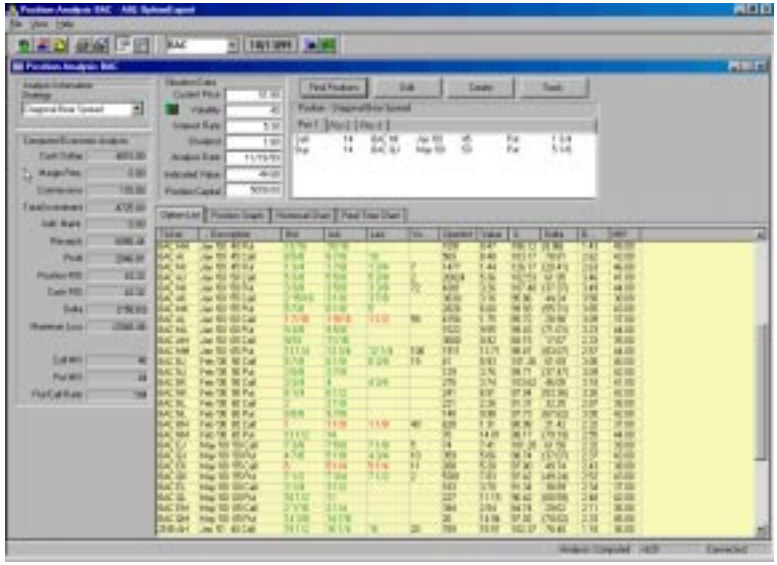
A diagonal bear spread differs from a normal bear spread in that the long put, the put with the higher strike price, has a later expiration than the short put, the put with the lower strike price. The profit potential of the diagonal bear spread is similar to the normal bear spread. However, by diagonalizing a bear spread, the upside hedge of the position is increased somewhat. Consequently, if the stock remains unchanged or rises, the diagonal spread can do better than the normal bear spread. The negative aspect is that because it is more expensive to establish, the downside profit potential of the diagonal spread is somewhat lower.

Another advantage of the diagonal spread is that the spread can be re-established if the short put expires worthless. In this case, the long put is written against twice, and the diagonal spread may turn out to be more than worth its higher cost.

Since the long put has both a higher strike price and a longer term, it will always sell at a higher price. The diagonal bear spread is, therefore, a debit spread.

In this example, our trader is moderately bearish on Bank of America and wants the upside risk protection that a spread position will provide. He realizes that by diagonalizing the spread he is limiting further his profit potential on the downside. However, his primary goal in choosing a spread position is to reduce upside risk and for this reason he has selected a diagonal bear spread.

Looking at the Situation Data, the Current Price for BAC on October 13, 1999 is 51-7/8. The system-generated Indicated Value for the Analysis Date of November 19 is 44.68 and the stock's Volatility is 40.



Position Analysis screen for BAC 10/13/99

Before asking OptionExpert to find positions, *Diagonal Bear Spread* was selected from the list of strategies. With this selection made, the Find Positions command button is clicked and OptionExpert starts looking for profitable positions.

OptionExpert always looks at Capital in the Situation Data window to determine how many option contracts to write. In this case, $5,000 is specified and the system selects positions requiring a Total Investment as close to this amount as possible without exceeding it (for this purpose, Commissions are not included in Cash Outlay). Total Investment for a diagonal bear spread is the difference between the price of the two calls times the number of contracts.

On October 13, the option expiration months trading for BAC are November, January, February, and May.

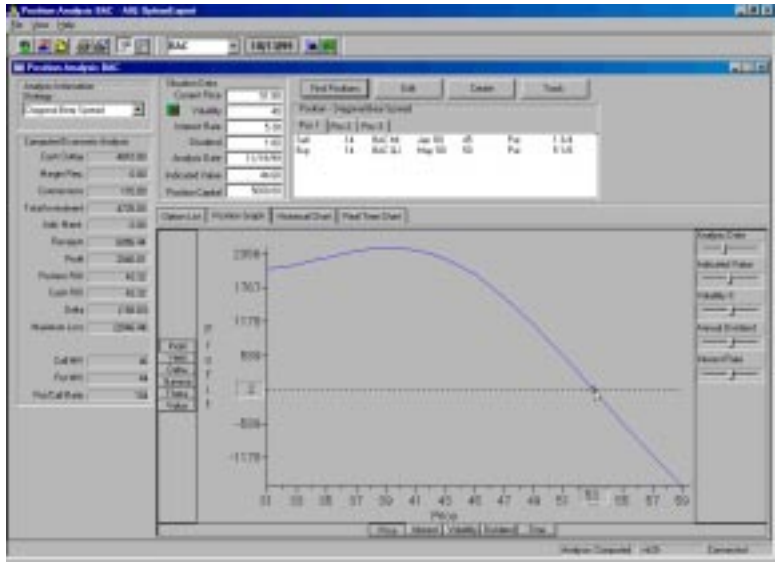
When the selection process is complete, the most profitable position appears in the Position window and tabs are displayed at the top of the window indicating the number of profitable positions found. In this example, three profitable positions were found as is shown by the three tabs (tabs labeled Pos 1, Pos 2, and Pos 3). When a position is selected by clicking its tab, the position is displayed in the Position window and an analysis of the position appears in the Economic Analysis section.

In this example, the most profitable position (Pos 1) is selected. This position is a diagonal bear spread consisting of the January 45 put

(sell 14 at 1-3/4) and the May 50 put (buy 14 at 5-1/8). This position has a net debit of 4-3/8, and requires an investment of $337.50 per spread contract, or $4,725 for 14 contracts.

Looking at the Economic Analysis data, the Cash Outlay of $4,810 is the Total Investment plus entry Commissions. Receipts and Profit are computed based on the computed values of the options on the Analysis Date, November 19, after exit Commissions. The Position ROI (return on investment) computed based on the Total Investment is 42% and Maximum Loss is $2,046.

The screen below displays a graph of the diagonal bear spread position for BAC on the Analysis Date, November 19, 1999. For the conditions specified, the graph depicts the computed value of the position on the Analysis Date over a range of stock prices. The break-even stock price, the price below which the position is profitable, is about 53. From the graph, it is evident that maximum profit occurs at a stock price of about 40 on the Analysis Date.



Position Analysis screen for BAC with graph of Diagonal Bear Spread position on 10/13/99