

Long skip-strike butterfly spread with calls



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Bearish

Goal

To earn a high percentage profit on a near-zero initial cash outlay from neutral stock price action near the strike price of the short calls with a limited, but high-percentage risk that greatly exceeds the initial cash outlay.

Explanation

A long skip-strike butterfly spread with calls is a three-part strategy involving four calls. If there are four strike prices, A, B, C and D, with A being the lowest, a long skip-strike butterfly spread with calls is created by buying one call at strike A, selling two calls at strike B, skipping strike C and buying one call at strike D. All calls have the same expiration date, and the four strike prices are equidistant.

Example of long skip-strike butterfly spread with calls

Buy 1 XYZ 95 Call at 8.40	(8.40)
Sell 2 XYZ 100 Calls at 4.80 each	9.60
Buy 1 XYZ 110 Call at 0.95	(0.95)
Net Credit =	0.25

In the example above, one 95 Call is purchased, two 100 Calls are sold, the 105 strike is skipped, and one 110 Call is purchased. In this example, the position is established for a small net credit, and both the potential profit and maximum risk are limited. However, both the potential profit and the maximum risk greatly exceed the initial net credit.

This is an advanced strategy because the maximum risk is high in percentage terms and because “costs” are high. Given three strike prices, there are multiple commissions in addition to three bid-ask spreads when opening the position and again when closing it. As a result, it is essential to open and close the position at “good prices.” It is also important to consider the per-contract commission rate since commissions will impact the return on investment.

Maximum profit

The maximum profit potential is equal to the difference between the lowest strike price (long call) and the strike price of the two short calls plus the initial net credit or minus the initial net debit including commissions. This profit is realized if the stock price is at the strike price of the short calls at expiration.

In the example above, the difference between the lowest strike price and the strike price of the short calls is 5.00, and the initial net credit is 0.25, not including commissions. The maximum profit, therefore, is 5.25 less commissions.

Maximum risk

The maximum risk is equal to the difference between the strike price of two short calls and the highest

strike price (long call) less the maximum profit.

If the position is established for a net credit as above, the maximum loss is realized if the stock price is at or above the highest strike price at expiration. In the example above, the difference between the strike price of short calls and the highest strike price is 10.00, and the maximum profit is 5.25, not including commissions. The maximum risk, therefore is 4.75 (10.00 – 5.25).

If the position is established for a net debit, there are two loss scenarios. If the stock price is at or below the lowest strike price at expiration, then all calls expire worthless and the net debit paid for the position plus commissions is lost. If the stock price is at or above the highest strike price at expiration, then all calls are in the money and the maximum loss, as calculated in the previous paragraph, is realized.

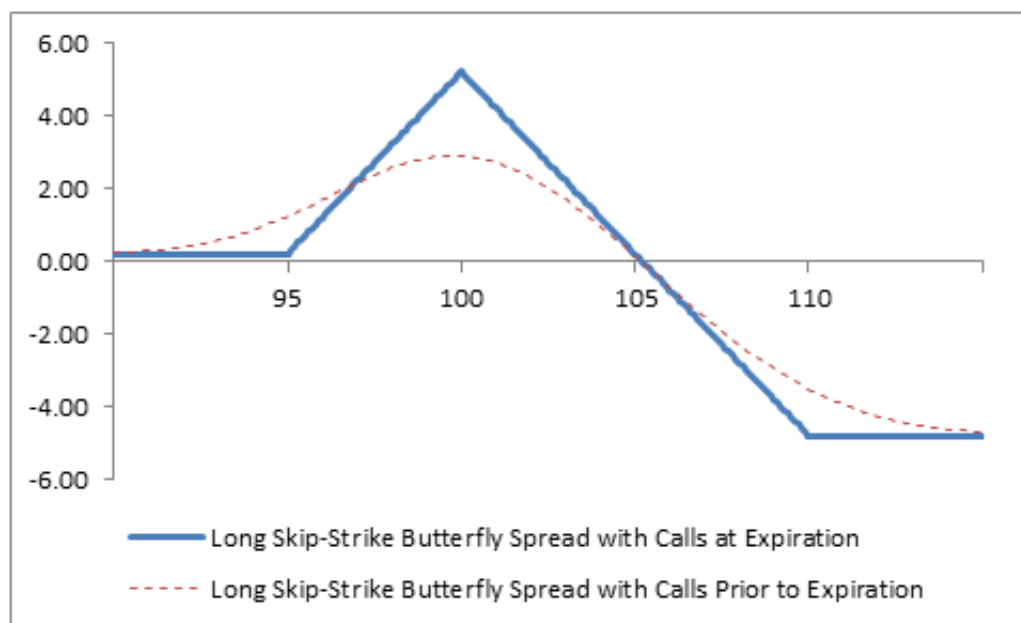
Breakeven stock price at expiration

If the position is established for a net credit as above, there is one breakeven point, and that is the stock price equal to the strike price of the short calls plus the maximum profit including commissions. In the example above, the strike price of the short calls is 100, and the maximum profit is 5.25, so the breakeven point at expiration is 105.25.

If the position is established for a net debit, there are two breakeven points. The lower breakeven point is the stock price equal to the strike price of the short calls minus the maximum profit. The upper breakeven point is the stock price equal to the strike price of the short calls plus the maximum profit.

Profit/Loss diagram and table: long skip-strike butterfly spread with calls

Buy 1 XYZ 95 Call at 8.40	(8.40)
Sell 2 XYZ 100 Calls at 4.80 each	9.60
Buy 1 XYZ 110 Call at 0.95	<u>(0.95)</u>
Net Credit =	0.25



Stock Price at Expiration	Long 1 95 Call Profit/(Loss) at Expiration	Short 2 100 Calls Profit/(Loss) at Expiration	Long 1 110 Call Profit/(Loss) at Expiration	Net Profit/(Loss) at Expiration
115	+11.60	(20.40)	+4.05	(4.75)
110	+6.60	(10.40)	(0.95)	(4.75)
105	+1.60	(0.40)	(0.95)	+0.25
100	(3.40)	+9.60	(0.95)	+5.25
95	(8.40)	+9.60	(0.95)	+0.25
90	(8.40)	+9.60	(0.95)	+0.25

Appropriate market forecast

A long skip-strike butterfly spread with calls realizes its maximum profit if the stock price is at the strike price of the short calls on the expiration date. The forecast, therefore, can either be “neutral,” “modestly bullish” or “modestly bearish” depending on the relationship of the stock price to the strike price of the short calls when the position is established.

If the stock price is at or near the strike price of the short calls when the position is established, then the forecast must be for unchanged, or neutral, price action.

If the stock price is below the strike price of the short calls when the position is established, then the forecast must be for the stock price to rise to that strike price at expiration (modestly bullish).

If the stock price is above the strike price of the short calls when the position is established, then the forecast must be for the stock price to fall to that strike price at expiration (modestly bearish).

Strategy discussion

A long skip-strike butterfly spread with calls is the strategy of choice when the forecast is for stock price action near the strike price of the short calls, because long skip-strike butterfly spreads profit primarily from time decay. They differ from standard butterfly spreads in two ways. First, the initial cash outlay for a skip-strike butterfly is smaller than for a standard butterfly, and skip-strikes can sometimes be established for a net credit as in the example above. The tradeoff is that both the margin requirement and the maximum risk of a skip-strike butterfly greatly exceed those of a standard butterfly.

Skip-strike butterfly spreads are sensitive to changes in the volatility in option prices, which is known as “implied volatility” (see Impact of Change in Volatility). The net price of a skip-strike butterfly spread falls when implied volatility rises and rises when implied volatility falls. Consequently some traders open long skip-strike butterfly spreads when they forecast that implied volatility will fall. Since

implied volatility tends to fall sharply after earnings reports, some traders will open a long skip-strike butterfly spread immediately before the report and hope for little stock price movement and a sharp drop in implied volatility after the report. The potential profit is high in percentage terms and risk is limited if the stock price falls. However, if the stock price rises above the highest strike price, the risk is a very high in percentage terms.

If implied volatility is constant, long skip-strike butterfly spreads do not rise noticeably in value and do not show much of a profit until it is close to expiration and the stock price is close to the strike price of the short calls. The strategy, therefore, is sometimes described as a “strategy with a low probability of a high profit.”

Patience and trading discipline are required when trading long skip-strike butterfly spreads. Patience is required because this strategy profits from time decay, and stock price action can be unsettling as it rises and falls around the strike price of the short calls as expiration approaches. Trading discipline is required, because, as expiration approaches, “small” changes in stock price can have a high percentage impact on the price of a skip-strike butterfly spread. Traders must, therefore, be disciplined in taking partial profits if possible and also in taking “small” losses before the losses become “big.”

Impact of stock price change

“Delta” estimates how much a position will change in price as the stock price changes. Long calls have positive deltas, and short calls have negative deltas.

The net delta of a skip-strike butterfly spread remains close to zero until two weeks or so before expiration. As expiration approaches, if the stock price is below the lowest strike price in a long skip-strike butterfly spread with calls, then the net delta is slightly positive. If the stock price is above the highest strike price, then the net delta is slightly negative. Overall, a long skip-strike butterfly spread with calls does not profit from stock price change; it profits from time decay as long as the stock price is near the strike price of the short calls.

Impact of change in volatility

Volatility is a measure of how much a stock price fluctuates in percentage terms, and volatility is a factor in option prices. As volatility rises, option prices tend to rise if other factors such as stock price and time to expiration remain constant. Long options, therefore, rise in price and make money when volatility rises, and short options rise in price and lose money when volatility rises. When volatility falls, the opposite happens; long options lose money and short options make money. “Vega” is a measure of how much changing volatility affects the net price of a position.

Long skip-strike butterfly spreads with calls have a negative vega. This means that the price of a skip-strike butterfly spread falls when volatility rises (and the long spread loses money). When volatility falls, the price of a skip-strike butterfly spread rises (and the long spread makes money). Long skip-strike butterfly spreads, therefore, should be purchased when volatility is “high” and forecast to decline.

Impact of time

The time value portion of an option's total price decreases as expiration approaches. This is known as time erosion. "Theta" is a measure of how much time erosion affects the net price of a position. Long option positions have negative theta, which means they lose money from time erosion, if other factors remain constant; and short options have positive theta, which means they make money from time erosion.

A long skip-strike butterfly spread with calls has a net positive theta as long as the stock price is near the strike price of the short calls. If the stock price moves away from this strike price, however, the theta becomes negative as expiration approaches.

Risk of early assignment

Stock options in the United States can be exercised on any business day, and holders of short stock option positions have no control over when they will be required to fulfill the obligation. Therefore, the risk of early assignment is a real risk that must be considered when entering into positions involving short options.

While the long calls in a long skip-strike butterfly spread have no risk of early assignment, the short calls do have such risk. Early assignment of stock options is generally related to dividends. Short calls that are assigned early are generally assigned on the day before the ex-dividend date. In-the-money calls whose time value is less than the dividend have a high likelihood of being assigned.

If one short call is assigned, then 100 shares of stock are sold short and the long calls (lowest and highest strike prices) remain open. If a short stock position is not wanted, it can be closed in one of two ways. First, 100 shares can be purchased in the marketplace. Second, the short 100-share position can be closed by exercising the lowest-strike long call. Remember, however, that exercising a long call will forfeit the time value of that call. Therefore, it is generally preferable to buy shares to close the short stock position and then sell the long call. This two-part action recovers the time value of the long call. One caveat is commissions. Buying shares to cover the short stock position and then selling the long call is only advantageous if the commissions are less than the time value of the long call.

If both of the short calls are assigned, then 200 shares of stock are sold short and the long calls (lowest and highest strike prices) remain open. Again, if a short stock position is not wanted, it can be closed in one of two ways. Either 200 shares can be purchased in the market place, or both long calls can be exercised. However, as discussed above, since exercising a long call forfeits the time value, it is generally preferable to buy shares to close the short stock position and then sell the long calls. The caveat, as mentioned above, is commissions. Buying shares to cover the short stock position and then selling the long calls is only advantageous if the commissions are less than the time value of the long calls.

Note, however, that whichever method is used, buying stock and sell the long call or exercising the long call, the date of the stock purchase will be one day later than the date of the short sale. This difference will result in additional fees, including interest charges and commissions. Assignment of a short option might also trigger a margin call if there is not sufficient account equity to support the stock position created.

Potential position created at expiration

The position at expiration of a long skip-strike butterfly spread with calls depends on the relationship of the stock price to the strike prices of the spread.

If the stock price is below the lowest strike price, then all calls expire worthless, and no position is created.

If the stock price is above the lowest strike (long call) and at or below the strike price of the two short calls, then the lowest strike long call is exercised and the other calls expire. The result is that 100 shares of stock are purchased and a stock position of long 100 shares is created.

If the stock price is above the strike of the two short calls and at or below the highest strike (long call), then the lowest-strike long call is exercised and the two short calls are assigned and the highest strike call expires. The result is that 100 shares are purchased and 200 shares are sold. The net result is a short position of 100 shares.

If the stock price is above the highest strike, then both long calls (lowest and highest strikes) are exercised and the two short calls (strike in between) are assigned. The result is that 200 shares are purchased and 200 shares are sold. The net result is no position, although several stock buy and sell commissions have been incurred.

Other considerations

A long skip-strike butterfly spread with calls can also be described as the combination of a “narrow” bull call spread and a “wide” bear call spread. In the example above, the narrow bull call spread is comprised of the long 95 Call and one of the short 100 Calls. The wide bear call spread is comprised of the other short 100 Call and the long 110 Call.

A frequent source of confusion regarding skip-strike butterfly spreads is the margin requirement. While the margin requirement for most spread strategies is equal to the maximum risk of the strategy, this is not the case for skip-strike butterfly spreads. In this strategy, the bull call spread and the bear call spread are margined separately. Consequently, the total margin requirement for a skip-strike butterfly can be greater than the maximum risk of the strategy.

In the example above, the 95-100 bull call spread is purchased for a net cost of 3.60 ($8.40 - 4.80$) not including commissions, which is the maximum risk of this spread. The 100-110 bear call spread is sold for a net credit of 3.85 ($4.80 - 0.95$), and its maximum risk is 6.15 ($10.00 - 3.85$).

First, for purposes of margin, the bull call spread must be paid for. In the example above, \$360 of cash is set aside from account equity. Second, the margin requirement for the bear call spread is the maximum risk of the spread, or \$615 in this example. Therefore, the total margin requirement for the skip-strike butterfly spread in the example above is \$975 ($\$360 + \615), not including commissions. Note that the cash received for the bear call spread is held in reserve as part of its margin requirement; it is not applied to the cash paid for the bull call spread.

Skip-strike butterfly spreads are also known as “broken-wing butterfly spreads.” The term “butterfly”

is thought to have originated from the profit-loss diagram, because the peak in the middle of the diagram looks vaguely like the body of a butterfly, and the horizontal lines stretching out to either side look vaguely like the wings of a butterfly. The term “broken-wing” is thought to be a comparison of the profit-loss diagrams of the standard butterfly and the skip-strike butterfly. Whereas the “wings” of a standard butterfly spread are even, the wings of a skip-strike butterfly are uneven or “broken.”

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