

## Option Spreads (Cont'd)

Option spreads fall into two categories: vertical spreads and calendar (time) spreads. In the first 2012 issue, we covered bullish vertical spreads and bearish vertical spreads. Bullish vertical spreads are constructed by buying an option (call or put) with a lower strike price and by selling an option of the same type (call or put) with a higher strike price with the same expiration date. Bearish vertical spreads are the exact opposite: they are constructed by buying an option (call or put) with a higher strike price and by selling the same type of option (call or put) with a lower strike price with the same expiration date. The use of vertical spreads allows an investor to take advantage of directional moves with limited risks and limited profits.

Calendar spreads are established the same way: purchase and sale of the same type of options, but the expiration dates are different and the strike prices can be identical.

### CALENDAR SPREADS

Calendar spreads are divided in two groups: horizontal and diagonal spreads that can be constructed with call options or with put options. Depending on an investor's objectives, the investor will choose either identical strike prices (horizontal spread), different strike prices (diagonal spread), or a combination of options contracts with longer or shorter expiration dates.

#### Horizontal spreads with call options

Whether constructed with call options or put options, horizontal spreads are established the same way: sale of an option with a near-term expiration date (short-term option) and purchase of an option (same type) with a longer term expiration date and the same strike price.

Horizontal spreads with call options are designed to take advantage of time decay, which is greater for near-term options compared to the time decay for longer term options. Ideally, the short-term call will expire worthless and the investor will be able to profit from a potential rise in the stock price through the long-term call that is still being held.

Let's look at an example using the iShares S&P/TSX 60 ETF (XIU), which was trading at \$17.65 on February 15, 2012. An investor expects the price of the XIU to remain relatively stable until the expiration of the call options in March after which a rally is expected. The investor decides to buy a call option with a strike price of \$17.50 expiring in April at a price of \$0.60 per share, and the investor sells simultaneously a call option with a strike price of \$17.50 expiring in March at a price of \$0.45 per share. The position debit is \$0.15 per share (or \$15.00 per option contract).

**Figure 1\* – Profit and loss profile from the sale of the short-term XIU MAR 17.5 call option at the expiration date of March 2012**



**Figure 2 – Profit and loss profile from the purchase of the long-term XIU APR 17.5 call option at the expiration date of the short-term call option (March 2012)**



\* All graphs in this document have been created using Options Oracle.

**Figure 3 – Payoff of the horizontal spread with call options at the expiration date of the short-term option (March 2012)**

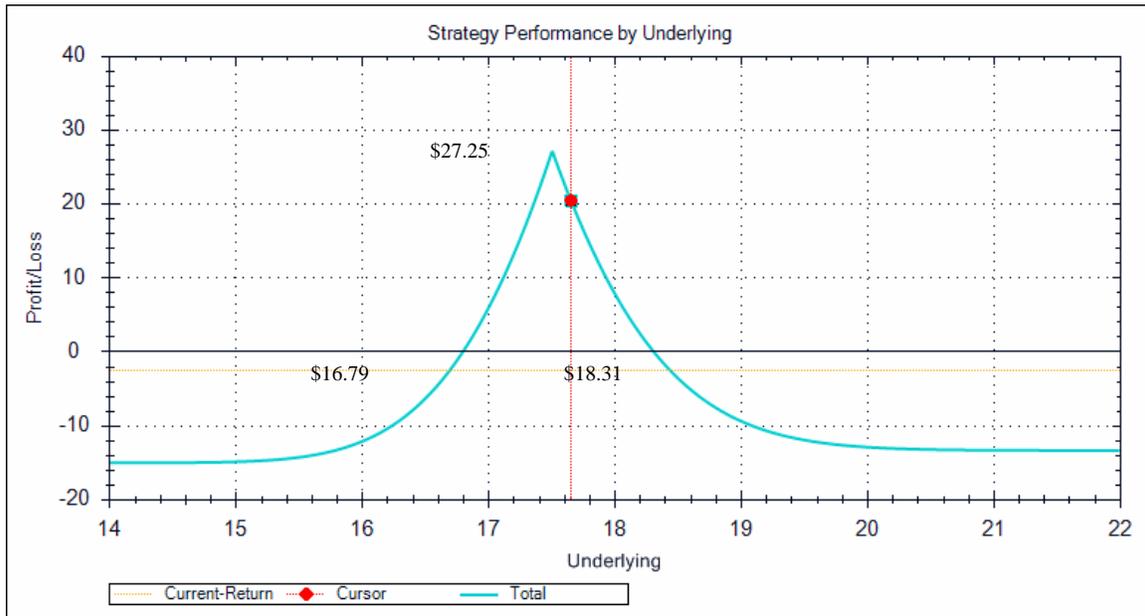


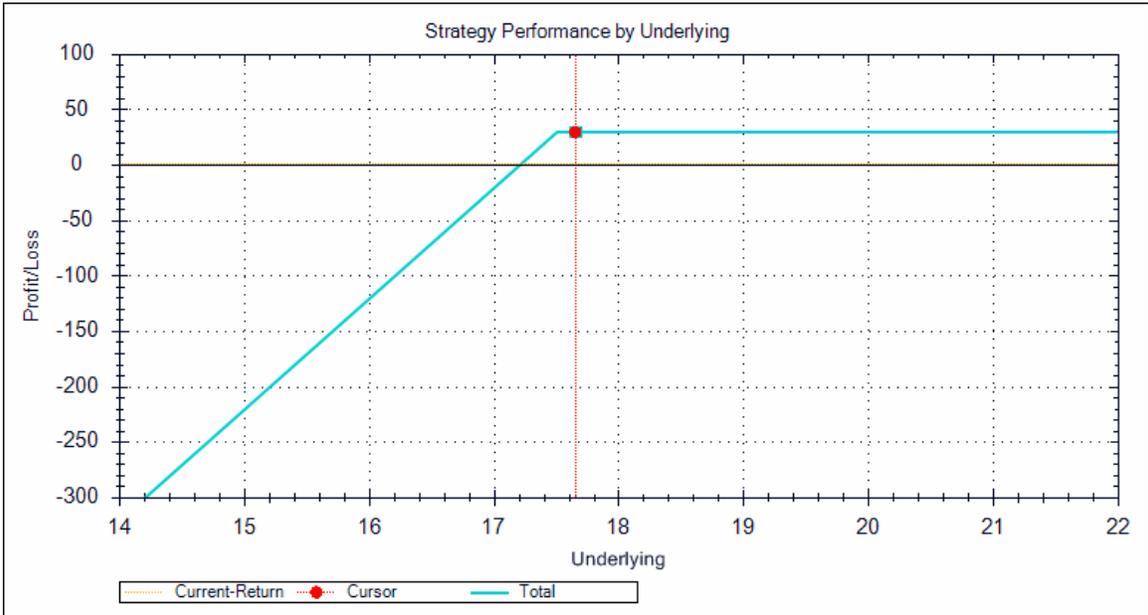
Figure 3 shows that the maximum profit of \$27.25 of the horizontal spread is realized if the price of XIU remains rather stable and very close to the strike price of \$17.50 at expiry of the short-term option (i.e. in March 2012). The strategy will generate a profit if the price of the XIU remains between the two breakeven prices of \$16.79 and \$18.31 on the same date. The maximum loss of \$15.00 (the position debit) occurs if the price of XIU fluctuates outside the two breakeven prices. If, at the expiration of the call option, the price of XIU is lower than the strike price of \$17.50 then the short-term call option will expire worthless. The investor will be able to participate in any rally in the price of XIU that may occur through the long-term call option (April contract month) still being held, as shown in Figure 2. If, at the expiration of the call options, the price of XIU is higher than the strike price of \$17.50, the short-term call option will be exercised by the holder and the investor is obligated to sell the XIU shares at \$17.50. To avoid this scenario, the investor could buy-back the short-term call options previously sold. The profit or loss will result from the difference between the selling price and the buying price of the transaction. The investor will have the opportunity to keep the long-term call option according to their expectation on the price of XIU.

### Horizontal spreads with put options

Horizontal spreads with put options are established the same way: by selling an option with a near-term expiration date (short-term option) and by buying an option with a longer term expiration date (long-term option). The investor still wants to take advantage of time decay of the short-term put option so that it will expire worthless. However, in this case, the investor expects to take advantage of a drop in the price of XIU, if it materializes, with the long-term put option still being held.

Consider the following example using the iShares S&P/TSX 60 ETF (XIU), which was trading at \$17.65 on February 15, 2012. An investor expects the price of XIU to remain relatively stable until the expiration of the put options in March after which lower prices are expected. The investor decides to buy a put option with a strike price of \$17.50 expiring in April for a price of \$0.50 per share. The investor sells simultaneously a put option with a strike price of \$17.50 expiring in March for a price of \$0.30 per share. The position debit is \$0.20 per share (or \$20 per option contract).

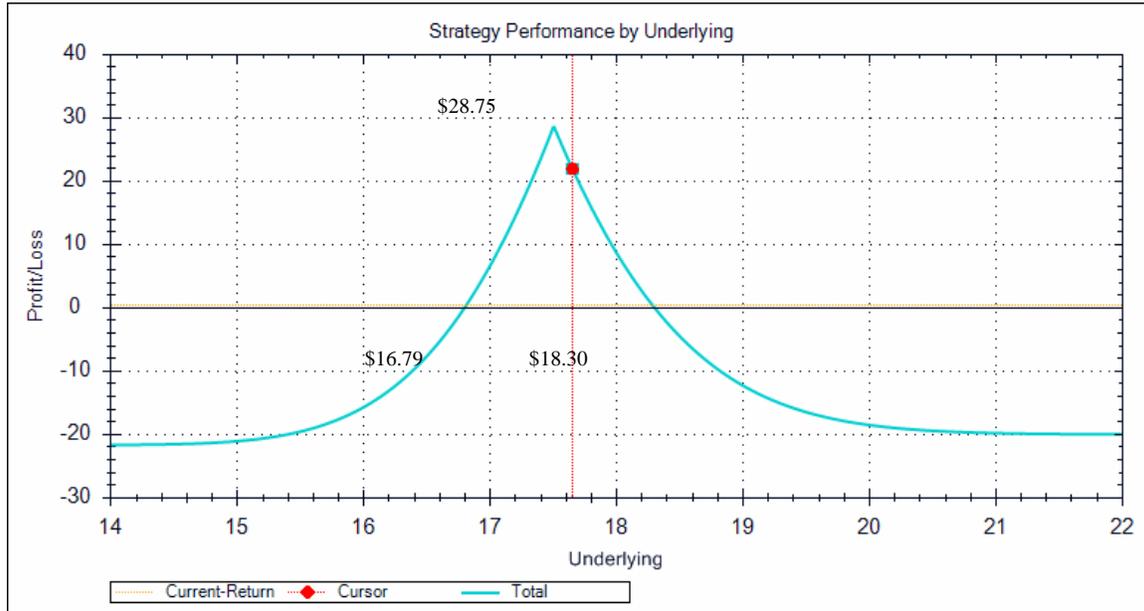
**Figure 4 – Profit and loss profile from the sale of the short-term XIU MAR 17.5 put option at the expiration date of March 2012**



**Figure 5 – Profit and loss profile from the purchase of the long-term XIU APR 17.5 put option at the expiration date of the short-term put option (March 2012)**



**Figure 6 - Payoff of the horizontal spread with put options at the expiration date of the short-term put option (March 2012)**



As in the previous example, Figure 6 shows that the maximum profit of \$28.75 is realized if the price of XIU remains rather stable and very close to the strike price of \$17.50 at expiry of the short-term put option (March 2012). The strategy will generate a profit if the price of XIU stays between the two breakeven prices of \$16.79 and \$18.30 on the same date. The maximum loss of \$20 (the position debit) occurs if the price of XIU fluctuates outside the two breakeven prices. If, at the expiration of the put option, the price of XIU is greater than the strike price of \$17.50, the short-term put option will expire worthless. As such, the investor will participate in any drop in the price of XIU that may occur through the long-term put option (April contract month) still being held, as shown in Figure 5. If, at the expiration of the put option, the price of XIU is lower than the strike price of \$17.50, the short-term put option will be exercised by the holder and the investor is obligated to buy XIU shares at \$17.50. To avoid this scenario, the investor could buy-back the short-term put options previously sold. The profit or loss will result from the difference between the selling price and the buying price of the transaction. The investor will have the opportunity to keep the long-term put depending on their expectation for the price of XIU.

## CONCLUSION

As seen, horizontal put or call spreads are designed to take advantage of the time decay, which is greater for short-term options compared to the time decay of long-term options. This strategy has limited risk equal to the net premium paid and a maximum profit realized when the price of the underlying is very close to the strike price of the short-term option at expiration. An investor who expects a stock price to increase after the expiration of the short-term option will favor the use of call options, whereas put options will be chosen if a decrease in the stock price. Choosing the expiration date of the long-term option will depend on the time the investor believes necessary for the stock price to rise or fall according to their view after the expiration of the short-term option.