Time / Diagonal Spreads

Effects of Stock Price on the Time Spread

The price of a time spread will fluctuate with movements in stock price. A time spread will be at its widest when the stock price and the strike price of the spread are identical (i.e. at-the-money).

As the stock moves away from the strike in either direction, the value of the time spread will decrease. As the stock moves in either direction away from the spread's strike, the closer month will experience a quicker price change due to the front month's higher gamma.

Gamma shows the rate of change of an option's delta in relation to movements in the price of the stock. It is the delta of the delta! Gamma is highest in at-the-money options and in the front month. It decreases as you move away from the at-the-money strike and as you move out over time.

In the same way that a time spread loses value as the stock price moves away from the strike price, the opposite is true also. As the stock price moves closer to the strike price, the value of the time spread increases.

For example, let's examine the June / July 65 call time spread. With the stock priced at 65 (directly at the strike) the spread is at its widest point (highest value). Now, as the stock climbs away from 65 and pushes toward 70, the June / July 65 spread loses value.

Chart 1

Stock Price	June 65 Calls $	July 65 Calls $	June / July 65 Spread $
59.5	.47	1.47	1.00
61.5	.93	2.16	1.23
63.5	1.64	3.02	1.38
65.5	2.62	4.05	1.43
67.5	3.85	5.24	1.39
69.5	5.33	6.59	1.26
71.5	6.99	8.07	1.08

However, at the same time the June / July 65 loses value, the June / July 70 spread gains in value as the stock approaches the 70 strike. When the stock reaches 67.50 the point equidistant (mid-point) between the two strikes, both spreads will be trading at approximately the same value.

Look at chart 2. Notice that as the stock increases from 57.50, both the June / July 65 and June / July 70 spreads increase in value. Their increases continue until they reach their strike price at which time they both begin to lose value.

This demonstrates that the spread with the strike price that the stock is moving toward will increase in value while the spread with the strike price that the stock is moving away from will simultaneously lose value.

Chart 2 follows the effect of the movement of the stock price across the two time spreads.

CHART 2		
	June / July 65	June / July 70
57.5	.75	.32
59.5	1.00	.52
61.5	1.23	.76
63.5	1.38	1.01
65.5	1.43	1.25
67.5	1.39	1.44
69.5	1.26	1.53
71.5	1.08	1.54
73.5	.89	1.45

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