



Trading Debit Spreads



Peter Lusk

Instructor

The Options Institute at CBOE

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Debit Spread Basics

Price Behavior and the Greeks

Motivations and Considerations

Trading Exercises

Debit Spread Defined:

The purchase of one option and sale of another option with the same underlying and the same expiration date, but with a different strike price.

- Established for a net debit (cost)
- Also called “vertical spreads”
- Examples: Bull Call Spread
Bear Put Spread

Bull Call Spread

The purchase of one call and sale of another call with the same underlying and the same expiration date, but with a higher strike price.

Example:	Long 1 XSP 70 Call @	3.60
	Short 1 XSP 75 Call @	<u>2.00</u>
	Net Debit (Cost)	1.60

XSP @ 68.00; 45 days to expiration

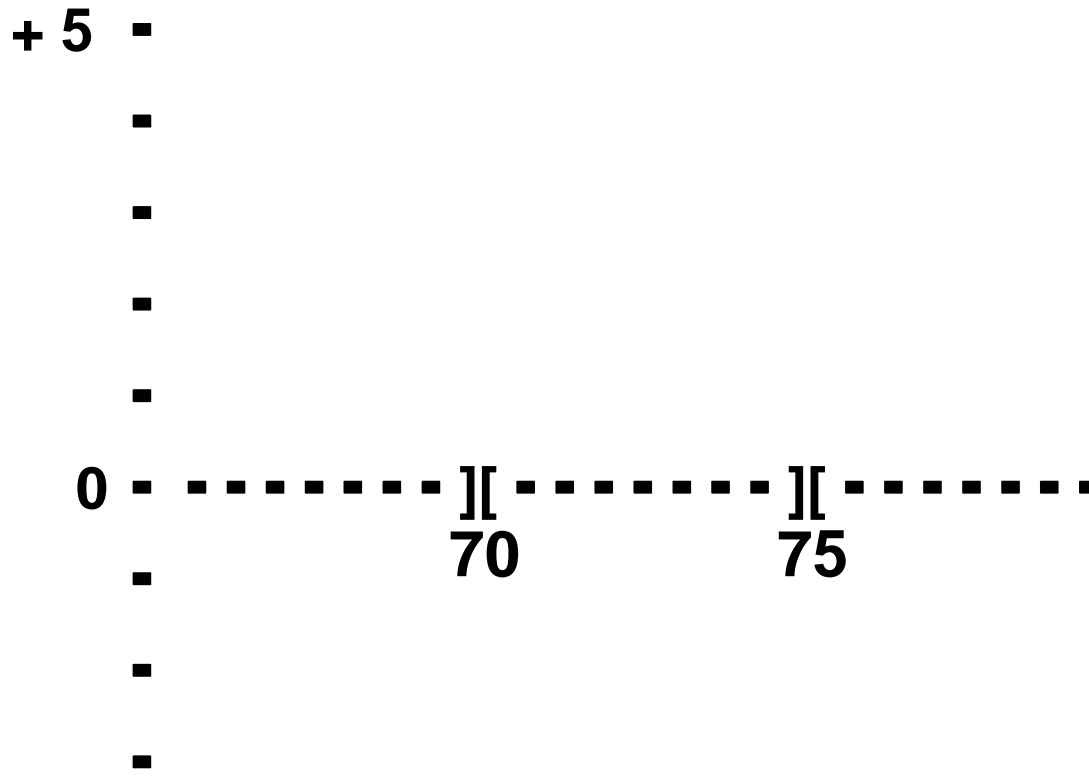
Buy 1 70 Call @ 3.60
 Sell 1 75 Call @ 2.00



Stock Price	+1 70 Call at 3.60	-1 75 Call at 2.00	P /(L)
85			
80			
75			
70			
65			

Buy 1 70 Call @ 3.60
 Sell 1 75 Call @ 2.00

P/(L)
+3.40
+3.40
+3.40
(1.60)
(1.60)



AT EXPIRATION:

Stock price at or below the lower strike price:

- Both calls expire; result: no position

Stock price between the strikes:

- Long call exercised; short call expires;
result: long 100 shares

Stock price above the higher strike price:

- Long call exercised; short call assigned;
result: no position

Bear Put Spread

The purchase of one put and sale of another put with the same underlying and the same expiration date, but with a lower strike price.

Example:	Long 1 XSP 65 Put @	2.40
	Short 1 XSP 60 Put @	<u>1.05</u>
	Net Debit (Cost)	1.35

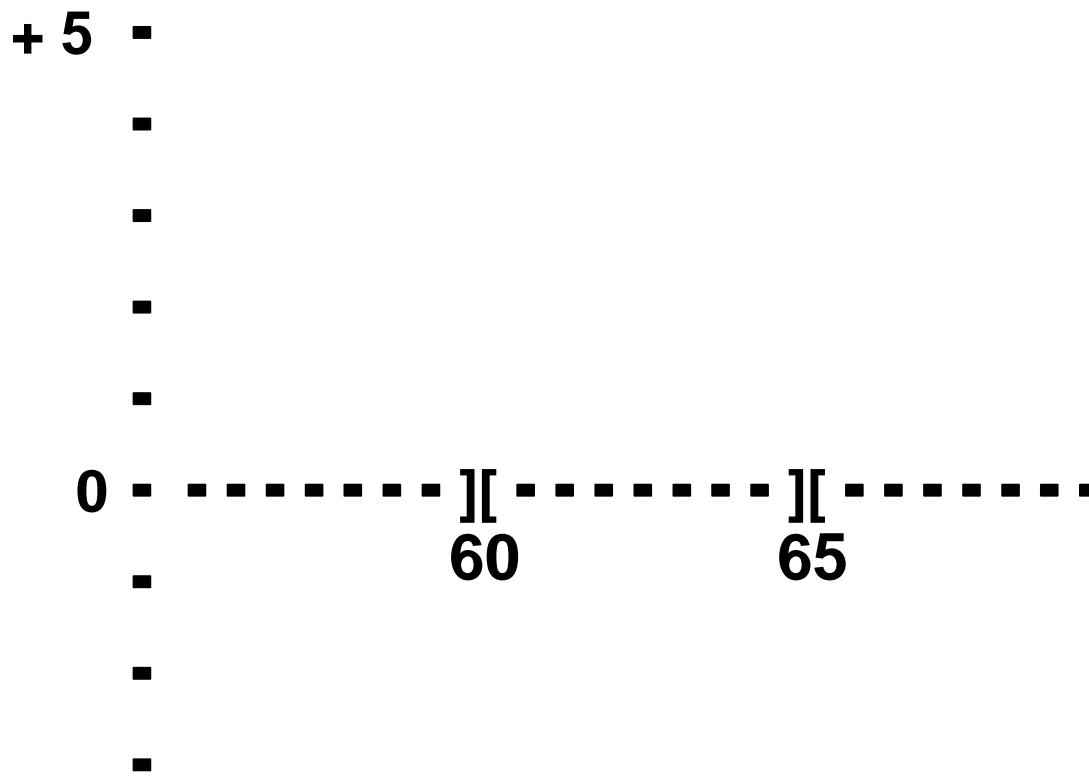
XSP @ 68.00; 45 days to expiration

Buy 1 65 Put @ 2.40
Sell 1 60 Put @ 1.05

Stock Price	+1 65 Put at 2.40	-1 60 Put at 1.05	P /(L)
75			
70			
65			
60			
55			

Buy 1 65 Put @ 2.40
 Sell 1 60 Put @ 1.05

P/(L)
(1.35)
(1.35)
(1.35)
+3.65
+3.65



AT EXPIRATION:

Stock price at or above the higher strike price:

- Both puts expire; result: no position

Stock price between the strikes:

- Long put exercised; short put expires;
result: short 100 shares

Stock price below the lower strike price:

- Long put exercised; short put assigned;
result: no position

Market Up 6% in 10 Days

XSP Index	68.70	→	72.80
Days to Exp	50	→	40
70 Call	2.50	→	4.50
75 Call	<u>1.00</u>	→	<u>1.95</u>
Spread	1.50	→	2.55

Volatility unchanged at 30%

Every option strategy is unique.

Unique profit/loss graph

Unique price behavior

Unique tradeoffs

Some option buyers prefer debit spreads. Why?

Psychology: ??

Consider the “Greeks”

The “Greeks”

Delta **Impact of underlying price**

Gamma **Change in delta**

Theta **Impact of time**

Vega **Impact of volatility**

Rho **Impact of interest rates**

The Greeks of a Debit Spread

		Δ	θ	ρ	τ^*
+1 70 Call	2.50	+0.46	+0.05	+0.10	-0.22
-1 75 Call	<u>1.00</u>	<u>-0.23</u>	<u>-0.04</u>	<u>-0.08</u>	<u>+0.17</u>
Spread	1.50	+0.23	+0.01	+0.02	-0.05

XSP, 68.70; Days, 50; Volatility 30%

* 7-day theta

Positives: Lower cost than at-the-money option
Near zero exposure to volatility
Near zero exposure to time

Negatives: Lower delta than at-the-money option
Limited profit potential
Two bid-ask spreads
Extra commissions

Buy 1 70 Call @ 2.50

Theo Price	50 days	44 days	38 days	32 days	26 days	20 days	14 days	8 days	2 days	0 days
82	12.49	12.39	12.30	12.21	12.13	12.07	12.03	12.01	12.00	12.00
80	10.70	10.58	10.45	10.33	10.22	10.13	10.05	10.01	10.00	10.00
78	9.00	8.84	8.69	8.53	8.38	8.24	8.11	8.03	8.00	8.00
76	7.40	7.22	7.03	6.84	6.64	6.44	6.25	6.08	6.00	6.00
74	5.93	5.73	5.51	5.29	5.05	4.80	4.53	4.24	4.01	4.00
72	4.61	4.39	4.17	3.92	3.66	3.36	3.02	2.62	2.11	2.00
70	3.46	3.25	3.01	2.76	2.49	2.18	1.82	1.38	0.69	0.00
68	2.50	2.29	2.07	1.84	1.58	1.29	0.97	0.58	0.10	0.00
66	1.73	1.54	1.35	1.14	0.92	0.69	0.44	0.19	0.00	0.00
64	1.13	0.98	0.82	0.65	0.49	0.32	0.17	0.04	0.00	0.00

Buy 1 70-75 Call Spread @ 1.50

Theo Price	50 days	44 days	38 days	32 days	26 days	20 days	14 days	8 days	2 days	0 days
82	4.13	4.21	4.30	4.41	4.53	4.67	4.81	4.95	5.00	5.00
80	3.85	3.93	4.02	4.13	4.26	4.42	4.61	4.84	5.00	5.00
78	3.52	3.59	3.67	3.77	3.89	4.05	4.26	4.57	4.96	5.00
76	3.14	3.19	3.25	3.33	3.43	3.55	3.74	4.04	4.66	5.00
74	2.72	2.75	2.78	2.82	2.87	2.94	3.04	3.22	3.67	4.00
72	2.28	2.28	2.28	2.28	2.28	2.27	2.25	2.21	2.08	2.00
70	1.85	1.82	1.78	1.74	1.68	1.60	1.47	1.25	0.69	0.00
68	1.43	1.38	1.32	1.24	1.15	1.02	0.84	0.55	0.10	0.00
66	1.05	0.99	0.91	0.82	0.71	0.57	0.40	0.18	0.00	0.00
64	0.73	0.66	0.59	0.50	0.40	0.28	0.16	0.04	0.00	0.00

Debit spreads only reach their maximum value
(1) very close to expiration and/or (2) when
they are deep in the money.

Therefore, buy debit spreads when:

- (1) you forecast a stock price rise to or above
the higher strike price at expiration.
- (2) there is time to benefit from time decay.

Back to the Original Forecast

XSP Index	68.70	→	72.80
Days to Exp	50	→	40
70 Call	2.50	→	4.50
75 Call	<u>1.00</u>	→	<u>1.95</u>
Spread	1.50	→	2.55

Mkt up 6%
in 10 days

Volatility unchanged at 30%

				<u>Total \$</u>
Buy <u>5</u>	70 Call	2.50	15.00	
Buy <u>15</u>	75 Call	1.00	15.00	
Buy <u>10</u>	70-75 Call Spd	1.50	15.00	

Market Up 6% – Volatility Down

XSP Index	68.70	→	72.80
Days to Exp	50	→	40
Volatility	30%	→	22%
70 Call	2.50	→	3.80
75 Call	<u>1.00</u>	→	<u>1.25</u>
Spread	1.50	→	2.55

Compare the Greeks of an at-the-money bull call spread to those of an out-of-the-money bull call spread.

What are differences?

When would choose one over the other?

The Greeks – A-T-M vs. O-O-M

		Δ	ρ	ν	τ^*
+1 70 Call	2.50	+0.46	+0.05	+0.10	-0.22
-1 75 Call	<u>1.00</u>	<u>-0.23</u>	<u>-0.04</u>	<u>-0.08</u>	<u>+0.17</u>
Net Debit	1.50	+0.23	+0.01	+0.02	-0.05
+1 72 Call	1.80	+0.34	+0.04	+0.09	-0.23
-1 77 Call	<u>0.75</u>	<u>-0.17</u>	<u>-0.03</u>	<u>-0.06</u>	<u>+0.15</u>
Net Debit	1.05	+0.17	+0.01	+0.03	-0.08

XSP, 68.70; Days, 50; Volatility 30%

* 7-day theta

Back Again to the Forecast

XSP Index	68.70	→	72.80	Mkt up 6% in 10 days	
Days to Exp	50	→	40		
70 Call	2.50	→	4.50	+2.00	+80%
75 Call	<u>1.00</u>	→	<u>1.95</u>	+0.95	+95%
70-75 Spread	1.50	→	2.55	+1.05	+70%
72 Call	1.80	→	3.70	+1.90	+105%
77 Call	<u>0.75</u>	→	<u>1.70</u>	+0.95	+126%
72-77 Spread	1.05	→	2.00	+0.95	+ 90%

Volatility unchanged at 30%

Original Forecast – Volatility Down

XSP Index	68.70	→	72.80	Mkt up 6% in 10 days	
Days to Exp	50	→	40		
Volatility	30%	→	22%		
70 Call	2.50	→	4.50	+1.30	+52%
75 Call	<u>1.00</u>	→	<u>1.95</u>	+0.25	+25%
70-75 Spread	1.50	→	2.55	+1.05	+70%
72 Call	1.80	→	2.55	+0.75	+41%
77 Call	<u>0.75</u>	→	<u>0.70</u>	(0.05)	(7%)
72-77 Spread	1.05	→	1.85	+0.80	+76%

At-the-money spreads and out-of-the-money spreads frequently behave similarly!

However, the individual options behave differently.

The choice is based on the forecast for the underlying price.

Trading Exercise 1

Market up 4% in 25 days (50 days, vol unch)

XSP Index 86.20 → 89.65

Days to Exp 50 → 25

Volatility 30% → 30%

86 Call 3.95 → ??

91 Call 2.00 → ??

Spread 1.95 → ??

Trading Exercise 2

Market down 5% in 4 days (22 days, vol up)

XSP Index 95.90 → 91.10

Days to Exp 22 → 18

Volatility 25% → 33%

95 Put 1.90 → ??

90 Put 0.45 → ??

Spread 1.45 → ??

Trading Exercise 3

Market up 9% in 30 days (60 days, vol down)

XSP Index 92.20 → 100.50

Days to Exp 60 → 30

Volatility 32% → 25%

95 Call 3.60 → ??

100 Call 2.05 → ??

Spread 1.55 → ??

Entering Spread Orders

XSP @ 96.99 55 days to expiration

	<u>Bid</u>		<u>Ask</u>
95 Put	2.76	–	2.86
90 Put	1.15	–	1.23

Buy the 95-90 Put Spread at what price?

Debit spreads cost less and have near zero exposure to time decay and volatility.

The tradeoff is a lower delta and extra costs.

Psychology: A “gradual” stock price rise to the short strike.

Debit spreads are the preferred strategy when volatility is declining.

Enter spread orders at a net price.

THANK YOU FOR ATTENDING.

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lusk@cboe.com



ANSWERS



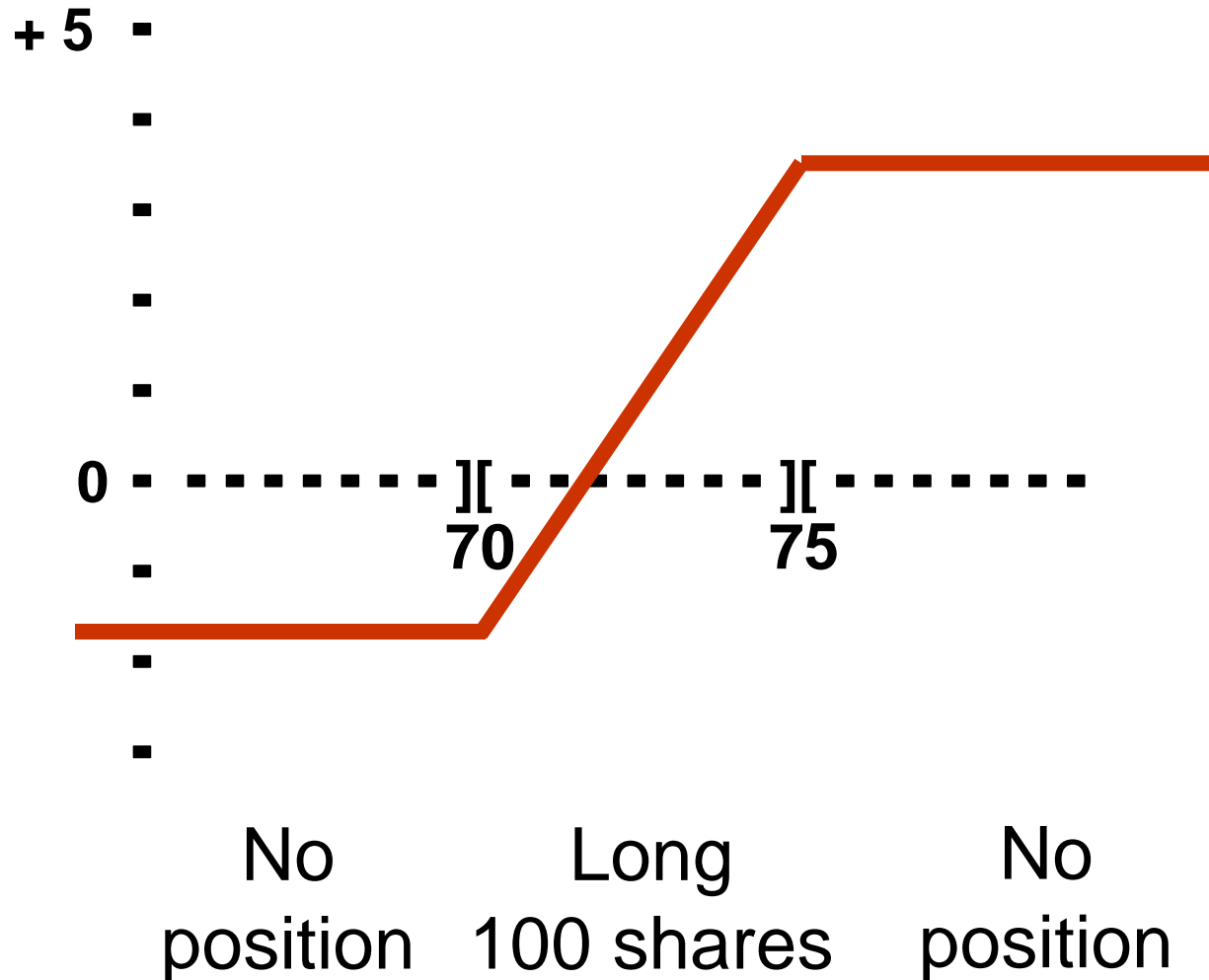
Trading Debit Spreads

Buy 1 70 Call @ 3.60
Sell 1 75 Call @ 2.00

Stock Price	+1 70 Call at 3.60	-1 75 Call at 2.00	P /(L)
85	+11.40	(8.00)	+3.40
80	+6.40	(3.00)	+3.40
75	+1.40	+2.00	+3.40
70	(3.60)	+2.00	(1.60)
65	(3.60)	+2.00	(1.60)

Buy 1 70 Call @ 3.60
 Sell 1 75 Call @ 2.00

P/(L)
+3.40
+3.40
+3.40
(1.60)
(1.60)

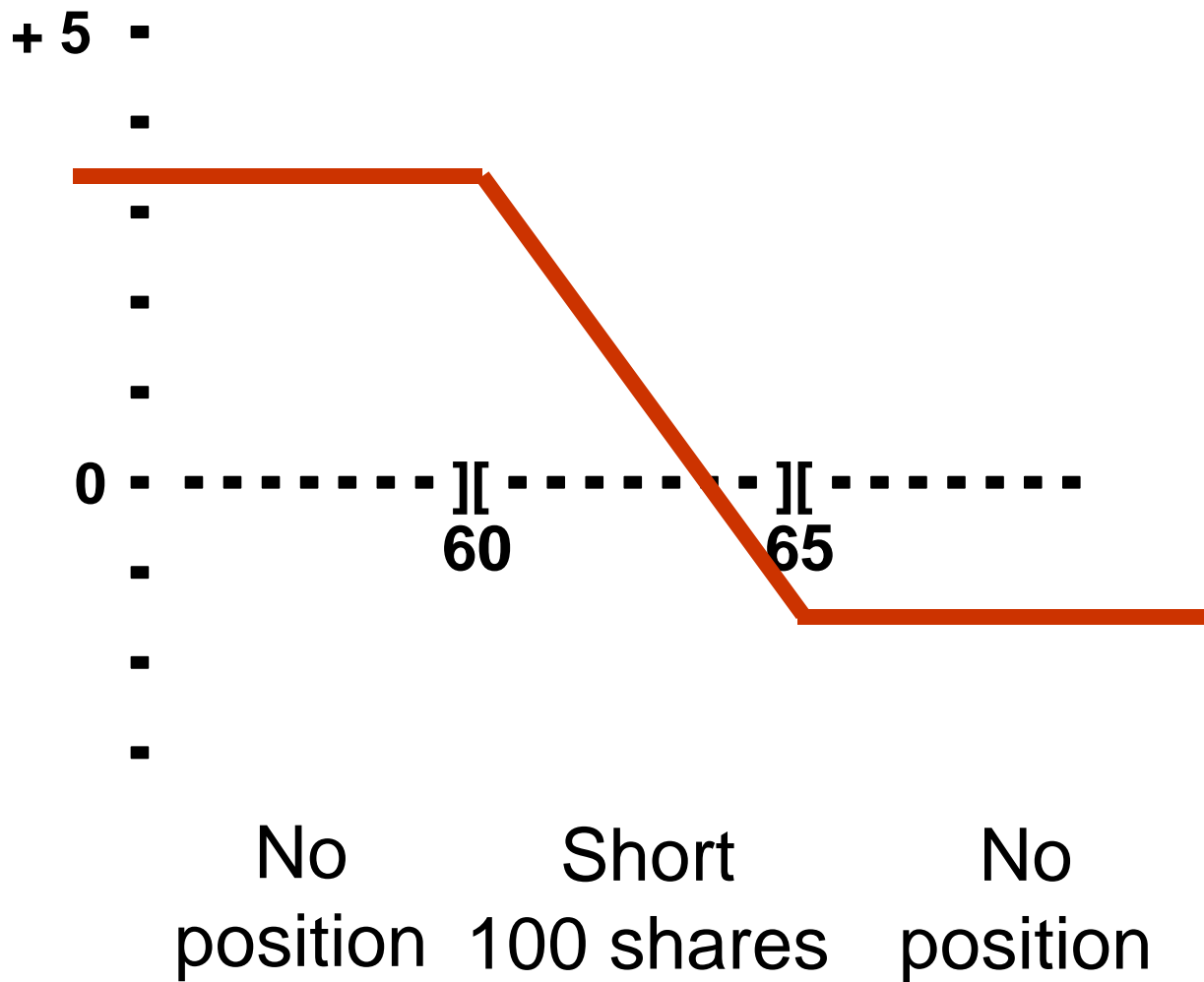


Buy 1 65 Put @ 2.40
 Sell 1 60 Put @ 1.05

Stock Price	+1 65 Put at 2.40	-1 60 Put at 1.05	P /(L)
75	(2.40)	+1.05	(1.35)
70	(2.40)	+1.05	(1.35)
65	(2.40)	+1.05	(1.35)
60	+2.60	+1.05	+3.65
55	+7.60	(3.95)	+3.65

Buy 1 65 Put @ 2.40
 Sell 1 60 Put @ 1.05

P/(L)
(1.35)
(1.35)
(1.35)
+3.65
+3.65



Market Up 6% in 10 Days

XSP Index	68.70	→	72.80		
Days to Exp	50	→	40		
70 Call	2.50	→	4.50	+2.00	+80%
75 Call	<u>1.00</u>	→	<u>1.95</u>	+0.95	+95%
Spread	1.50	→	2.55	+1.05	+70%

Volatility unchanged at 30%

The Greeks of a Debit Spread

		Δ	\mathcal{G}	ν	τ^*
+1 70 Call	2.50	+0.46	+0.05	+0.10	-0.22
-1 75 Call	<u>1.00</u>	<u>-0.23</u>	<u>-0.04</u>	<u>-0.08</u>	<u>+0.17</u>
Spread	1.50	+0.23	+0.01	+0.02	-0.05

Positive: Near -0- exposure to volatility and time

Negative: low delta and near zero gamma

XSP, 68.70; Days, 50; Volatility 30%

* 7-day theta

Debit spreads only reach their maximum value
(1) very close to expiration and/or (2) when
they are deep in the money.

Therefore, buy debit spreads when:

- (1) you forecast a stock price rise to or above the higher strike price at expiration.
- (2) there is time to benefit from time decay.

The psychology:

A “gradual” price move to the short strike.

Back to the Original Forecast

XSP Index	68.70	→	72.80	Mkt up 6% in 10 days	
Days to Exp	50	→	40		
70 Call	2.50	→	4.50	+2.00	+80%
75 Call	<u>1.00</u>	→	<u>1.95</u>	+0.95	+95%
Spread	1.50	→	2.55	+1.05	+70%

Two questions:

How to trade for percentage profits?

What if volatility declines?

Volatility unchanged at 30%

			<u>Total \$</u>
Buy <u>5</u>	70 Call	2.50	15.00
Buy <u>15</u>	75 Call	1.00	15.00
Buy <u>10</u>	70-75 Call Spd	1.50	15.00

Different quantities

All approx \$1,500 invested.

Now you can target % profits.

Market Up 6% – Volatility Down

XSP Index	68.70	→	72.80		
Days to Exp	50	→	40		
Volatility	30%	→	22%		
70 Call	2.50	→	3.80	+1.30	+52%
75 Call	<u>1.00</u>	→	<u>1.25</u>	+0.25	+25%
Spread	1.50	→	2.55	+1.05	+70%

The spread profit is unchanged!

Trading Exercise 1

Market up 4% in 25 days (50 days, vol unch)

XSP Index 86.20 → 89.65

Days to Exp 50 → 25

Volatility 30% → 30%

86 Call 3.95 → **??** **+1.05** **+26%**

91 Call 2.00 → **??** **+0.20** **+10%**

Spread 1.95 → **??** **+0.85** **+44%**

Trading Exercise 2

Market down 5% in 4 days (22 days, vol up)

XSP Index 95.90 → 91.10

Days to Exp 22 → 18

Volatility 25% → 33%

95 Put 1.90 → ?? **+3.20** **+168%**

90 Put 0.45 → ?? **+1.65** **+360%**

Spread 1.45 → ?? **+1.55** **+107%**

Trading Exercise 3

Market up 9% in 30 days (60 days, vol down)

XSP Index 92.20 → 100.50

Days to Exp 60 → 30

Volatility 32% → 25%

95 Call 3.60 → **??** **+2.80** **+ 78%**

100 Call 2.05 → **??** **+1.10** **+ 54%**

Spread 1.55 → **??** **+1.70** **+110%**

Entering Spread Orders

XSP @ 96.99	55 days to expiration		
	<u>Bid</u>	<u>Ask</u>	+1 95 Put
95 Put	2.76	– 2.86	@ 2.86
90 Put	1.15	– 1.23	-1 90 Put
		↑	@ 1.19
		1.19	

Buy the 95-90 Put Spread at what price?
Net 1.67 Dr

Bid for the expensive option on the ask.

Offer the cheap option in the middle.

Bid for the spread at a net price (1.67 debit).