

Hedging RUT Spreads with TF Futures



CBOE[®]
CHICAGO BOARD OPTIONS EXCHANGE

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- Credit Spread Basics
- Option Price Behavior
- TF Futures – Contract Specs
- When Things Go Wrong!
 - To Exit or Hedge?
 - Formulating a Plan

Sell one option (close to the money) and buy one option (out of the money)
(same underlying and same expiration)

The short option is considered covered by the long option.

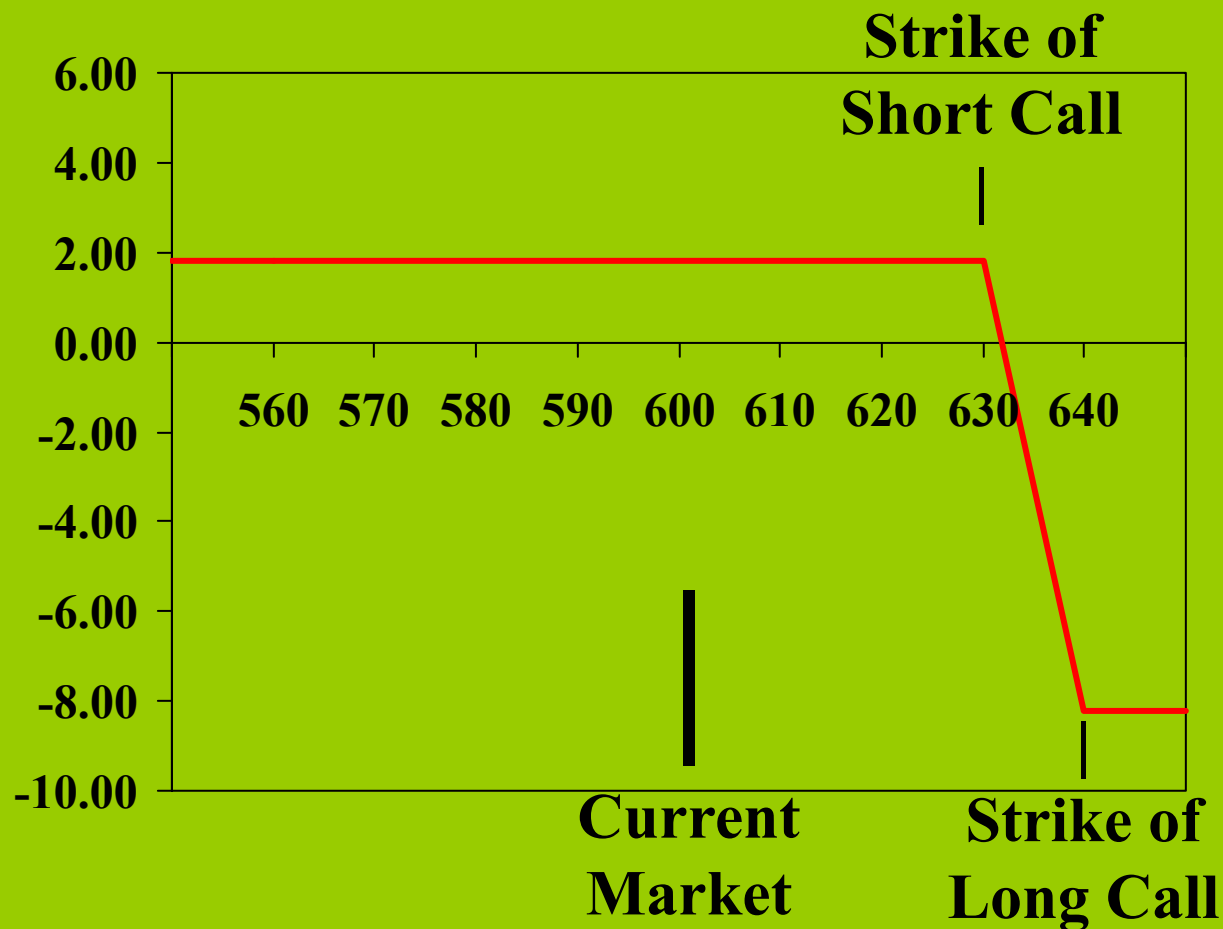
The margin requirement is the difference between the strike prices, less the net credit received.

Credit Spread with Calls

Sell 1 35-day 630 RUT Call @	5.80
Buy 1 35-day 640 RUT Call @	<u>(4.00)</u>
Net Premium Received:	1.80
Maximum Risk:	8.20
Break-even point at exp.	631.80

RUT at 600.00 (volatility, 22%; interest rate, 0.30%)

Credit Spread with Calls at Exp



A credit call spread (also known as a “bear call spread”) profits from:

1. **neutral-to-bearish price action**
2. **time decay.**

Credit Spread with Puts

Buy 1 35-day 560 RUT Put @ (3.20)

Sell 1 35-day 570 RUT Put @ 5.20

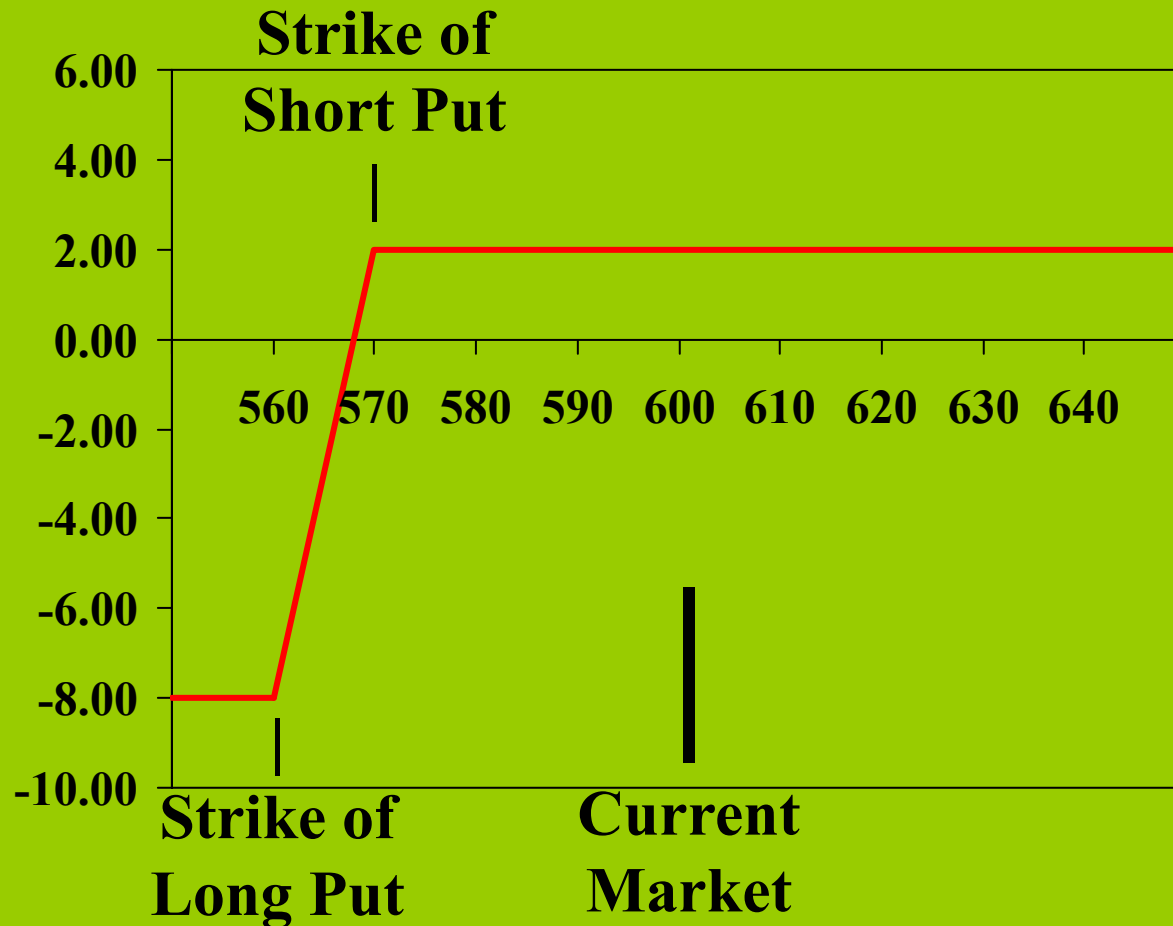
Net Premium Received: **2.00**

Maximum Risk: **8.00**

Break-even point at exp. **568.00**

RUT at 600.00 (volatility, 22%; interest rate, 0.30%)

Credit Spread with Puts at Exp



A credit put spread (also known as a “bull put spread”) profits from:

1. **neutral-to-bullish price action**
2. **time decay.**

an out-of-the-money bear call spread
and
an out-of-the-money bull put spread

Note: *multiple commissions are involved

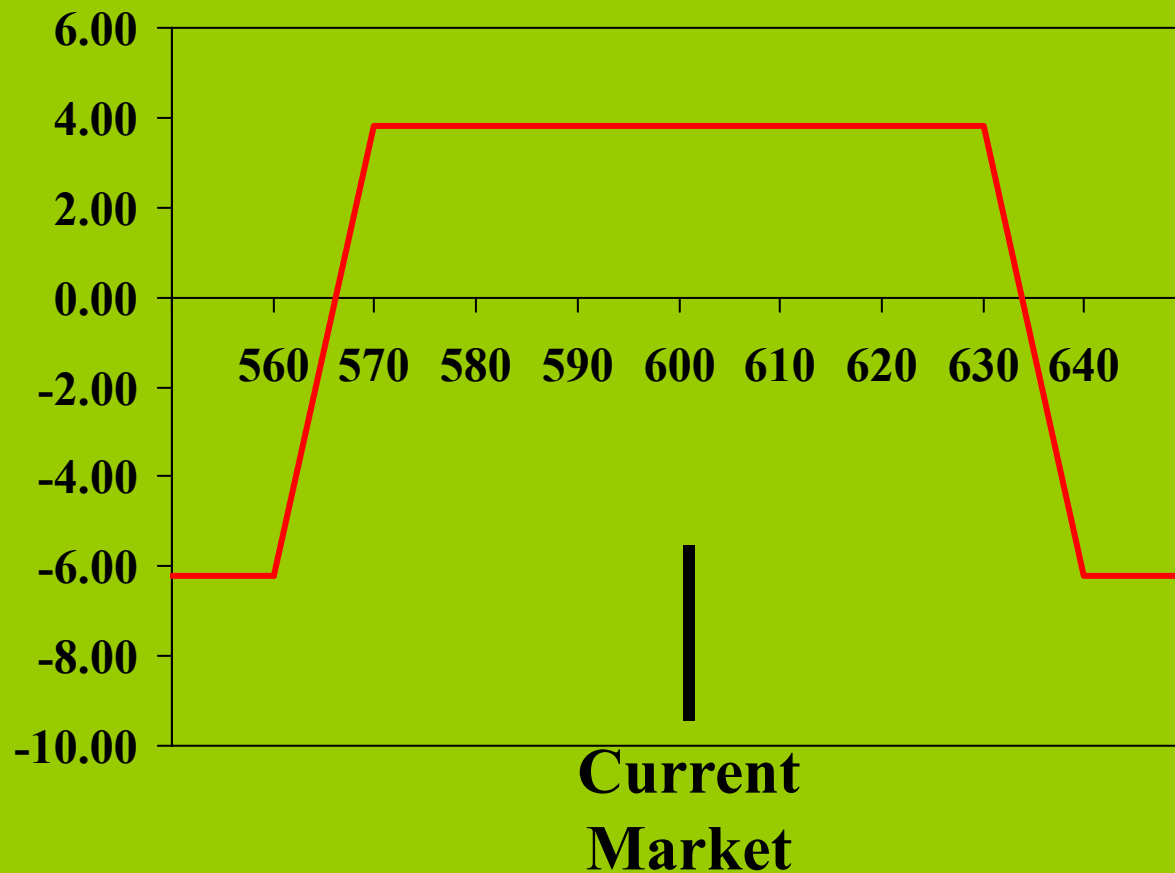
The Iron Condor

B 35-day 640 Call	(4.00)	Call Spread
S 35-day 630 Call	5.80	1.80
S 35-day 570 Put	5.20	Put Spread
B 35-day 560 Put	(3.20)	<u>2.00</u>

Net Credit for Iron Condor: 3.80

RUT @ 600.00

The Iron Condor at Exp



An iron condor profits from **time decay** and **neutral price action** (the underlying stays between the strikes of the short options).

What if the market doesn't cooperate?

Understand option price behavior

Have a plan to hedge

A Trading Quiz

Components of Option Prices

The Impact of Changing Underlying Price

Calculating a Hedge

Today is 32 days to January expiration

	<u>Today</u>		<u>Forecast</u>	
RUT	595.00	→	610.00	+ 3%
Days to Exp.	32	→	25	7 days
Jan 600 Call	14.00	→	20.20	

Starting estimate the price of the 600 Call

Option pricing concepts:

Impact of underlying price change

Impact of passing time

Concept 1: Delta

Underlying price up 1 point

→ Call up less than 1 point (put down less)

The symbol for delta is Δ (the Greek letter).

Examples of Delta

RUT **595.00**

Days to Exp. **32**

	<u>Price</u>	<u>DELTA</u>
590 Call	18.90	+57%
600 Call	14.00	+47%
610 Call	10.00	+37%
620 Call	7.00	+29%

Deltas of calls are positive (from 0 to +1.00)

In-the-Money Calls delta +0.50 to +1.00

At-the-Money Calls delta \approx +0.50

Out-of-the-Money Calls delta 0 to +0.50

Deltas of puts are negative (from -1.00 to 0)

In-the-Money Puts delta -1.00 to -0.50

At-the-Money Puts delta \approx -0.50

Out-of-the-Money Puts delta -0.50 to 0

Deltas Change

<u>Index Level</u>	<u>Price of 600 Call</u>	<u>Delta</u>
580	8.05	0.32
590	11.75	0.42
600	16.43	0.52
610	22.07	0.61
620	28.63	0.70

Assumes: Days, 32; Volatility, 22%; Interest rate, 0.3%; No Dividends

Delta – change in an option’s theoretical value for a one-unit change in price of the underlying

Gamma – change in delta for a one-unit change in price of the underlying

Theta - change in an option’s theoretical value for a one-unit change in time to expiration.

Vega - change in an option’s theoretical value for a one-percent change in the volatility assumption.

Spreads Have Deltas

<u>RUT @ 600</u>	<u>Price</u>	<u>Delta</u>
Short 1 630 Call	5.80	-0.25
Long 1 640 Call	<u>4.00</u>	<u>+0.18</u>
Net	1.80	-0.07

If RUT rises, the delta will get more negative.

RUT	600	→	610	→	620	→	630
Delta	-.07	→	-.08	→	-.11	→	-.18

Assumes: Days, 32; Volatility, 22%; Interest rate, 0.3%; No Dividends

Spread Deltas Change

<u>RUT @ 600 (35 days)</u>				<u>Price</u>	<u>Delta</u>
Short	1	630	Call	5.80	-0.25
Long	1	640	Call	<u>(4.00)</u>	<u>+0.18</u>
			Net	1.80	-0.07
<u>RUT @ 633 (12 days)</u>					
Short	1	630	Call	11.65	-0.56
Long	1	640	Call	<u>7.05</u>	<u>+0.36</u>
			Net	4.60	-0.20

Assumes: Volatility, 22%; Interest rate, 0.3%; No Dividends

Close the position (at a loss?)

Hold and hope

Hedge with TF futures

Other alternatives

TF – contract specs

Calculating the “hedge ratio”

Analyzing scenarios

Russell 2000[®] Index Mini Futures **CBOE[®]**

Symbol:	TF
Underlying:	Russell 2000 [®] Index
Contract Size:	\$100 × Index (same as RUT opts)
Tick Size:	.10 = \$10
Trading Hours:	Sunday 6:00 pm – Friday 4:15 pm EST

**TF trades at night when
options markets are closed!**

The goal of hedging is to reduce the position delta to the “desired level” (usually zero).

Each TF contract has a delta of “1.00”

Long 1 TF, delta = +1.00

Short 1 TF, delta = -1.00

Use the position delta to calculate the number of futures contracts needed to hedge.

Hedge Ratio Example

<u>RUT @ 633 (12 days)</u>	<u>Price</u>	<u>Delta</u>
Short 30 630 Call	11.65	-0.56 ea.
Long 30 640 Call	<u>7.05</u>	<u>+0.36 ea.</u>
Net	4.60	-0.20 ea.
times number of spreads		<u>x 30</u>
= total position delta		-6.00

To hedge delta to zero, **buy 6 TF futures**

Can only trade whole futures contracts

Hedging, requires rounding up or down

Two weeks ago, at 28 days to expiration, the RUT was 620, and you sold 25 590-580 Put spreads for 2.10 (net credit each).

Original trade (28 days to exp):

<u>RUT @ 620</u>	<u>Price</u>	<u>Delta</u>
Short 25 590 Put	5.80 ea	+0.23 ea.
Long 25 580 Put	<u>3.70 ea</u>	<u>-0.16 ea.</u>
Combined	<u>2.10 ea</u>	+1.75 total

Today is Friday, 14 days to expiration.

The RUT is 598, and the 590-580 Put spread is trading for 3.30.

You think the market decline is over, and you want to hold your credit spread position, but you are uncomfortable with the pending “over-the-weekend” risk.

How can you keep the position and “get flat” at the same time?

Hedging with TF futures

<u>RUT @ 598</u> (14 days)	<u>Price</u>	<u>Delta</u>
Short 25 590 Put	8.00 ea	+0.38 ea.
Long 25 580 Put	<u>4.70 ea</u>	<u>-0.25 ea.</u>
Combined	3.30 ea	+3.25 total

Hedge: sell 3 TF futures: -3.00

New Position delta: +0.25

Tomorrow TF futures fall 10 points to 588.

<u>RUT @ 588</u> (13 days)	<u>Price</u>	<u>P / (L)</u>
Short 25 590 Put	12.00 ea	-4.00 ea.
Long 25 580 Put	<u>7.40 ea</u>	<u>+2.70 ea.</u>
Combined	4.60 ea	-32.50 total

Short 3 TF futures at 598: +30.00

Net Profit/Loss : - 2.50

Tomorrow TF futures rise 10 points to 608.

<u>RUT @ 608</u> (13 days)	<u>Price</u>	<u>P/ (L)</u>
Short 25 590 Put	4.40 ea	+ 3.60 ea.
Long 25 580 Put	<u>2.50 ea</u>	<u>- 2.20 ea.</u>
Combined	1.65 ea	+35.00 total

Short 3 TF futures at 598: -30.00

Net Profit/Loss : + 5.00

Selling 3 TF futures effectively reduced the position delta to zero.

If the market fell 10 points, this hedge reduced the loss from -32.50 to -2.50 .

If the market rose 10 points, this hedge reduced the profit from $+35.00$ to $+5.00$.

The hedge effectively “got you out of the trade.”

If market does not move? Close the hedge.

Option prices change less than underlying prices. (delta concept) ✓

Use the position delta to calculate the required number of futures contracts. ✓

Hedging brings the position to zero (nearly) ✓

TF futures trade when the options market is closed! ✓

THANK YOU FOR ATTENDING.

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