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CHICAGO BOARD OPTIONS EXCHANGE

Option Strategies for Special Situations

25th Annual Risk Management Conference

Gary Trennepohl

President, Oklahoma State University - Tulsa

Jim Bittman

Senior Instructor, The Options Institute at CBOE

Disclosures

Options involve risks and are not suitable for everyone. Prior to buying or selling options, an investor must receive a copy of *Characteristics and Risks of standardized Options*. Copies may be obtained by contacting your broker or The Chicago Board Options Exchange at 400 S. LaSalle St., Chicago, IL 60605

In order to simplify the computations, commissions, fees, margin interest and taxes have not been included in the examples used in these materials. These costs will impact the outcome of all stock and options transactions and must be considered prior to entering into any transactions. Investors should consult their tax advisor about any potential tax consequences.

Any strategies discussed, including examples using actual securities and price data, are strictly for illustrative and educational purposes only and are not to be construed as an endorsement, recommendation, or solicitation to buy or sell securities. Past performance is not a guarantee of future results.

Session Outline

Pension and Endowment Fund Objectives

What are “special situations”?

Six Investor Strategies for Special Situations

Three Speculative Strategies

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Pension and Endowment Fund Objectives

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Using Options to meet Pension and Endowment Fund Objectives

Assumptions for the case studies that follow:

- Current asset allocation is 40% equities, 45% bonds, 5% other and 10% cash
- Your target is 60% equities, 35% bonds, 5% cash.
- A portion of your stock portfolio is highly correlated with the S&P 500 index.

Using Options to meet Pension and Endowment Fund Objectives

Objectives:

- Increase exposure to equities <u>without</u> increasing risk
- Buy equities during the next year at lower prices
- Generate income
- Conserve cash

Suitable Option Investment Strategies 1

Invest cash 5%-20% below current market level and generate income

- Sell cash-secured put
- Sell out-of-the-money put spread
- Ratio Put Spread

Suitable Option Investment Strategies 2

Increase market exposure, limit risk and conserve cash

- Ratio call spread overlay
- Long a synthetic or split-strike synthetic

Target buy/sell prices and generate income

- Sell covered straddle or strangle

Special Situations Defined

Portfolio rebalancing driven by

- Unanticipated market moves
- Anticipated cash flows
- Market timing events
- Price entry/exit decisions

Options give investors more strategy alternatives to manage these decisions/situations.

Prices for Case Studies

February 20, 2009 S&P 500 @ 770

Strike Price	Sep Calls	Sep Puts	Dec Calls	Dec Puts
850	52	140	67	153
800	74	110	88	125
750	100	87	114	102
700	130	67	142	81

Sep 207 days; Dec 298 days

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3 Strategies that Invest Below the Current Market Level and Bring in Cash Income

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Case 1 – Ready to Buy Down 10%

Market View: You are willing to commit funds to the S&P below 700

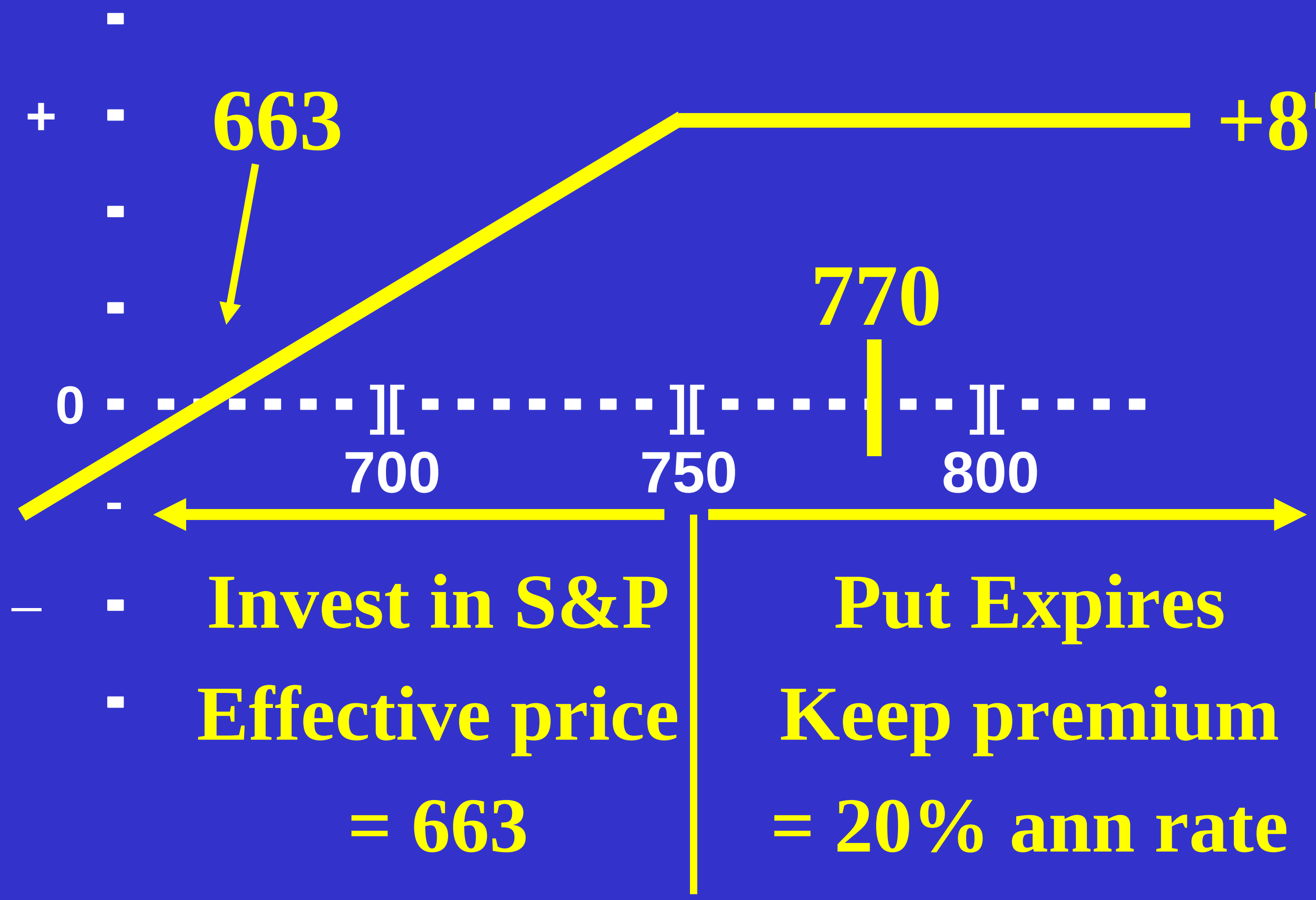
Objective: Bring in cash income and buy the market below 700

Strategy: Sell cash-secured put

Sell SPX Sep 750 Puts @ 87

T-Bills: $75,000 per put

Case 1 – Sell Cash-Secured Put



Case 1 – Sell Put – Outcomes

<u>Market</u>

Up:	Puts expire; keep premium, equal to 20% annual rate
Steady:	Same as up
Down:	Buy the S&P at 663 (14% below current level of 770)

Case 2 – Ready to Buy if Risk is Limited

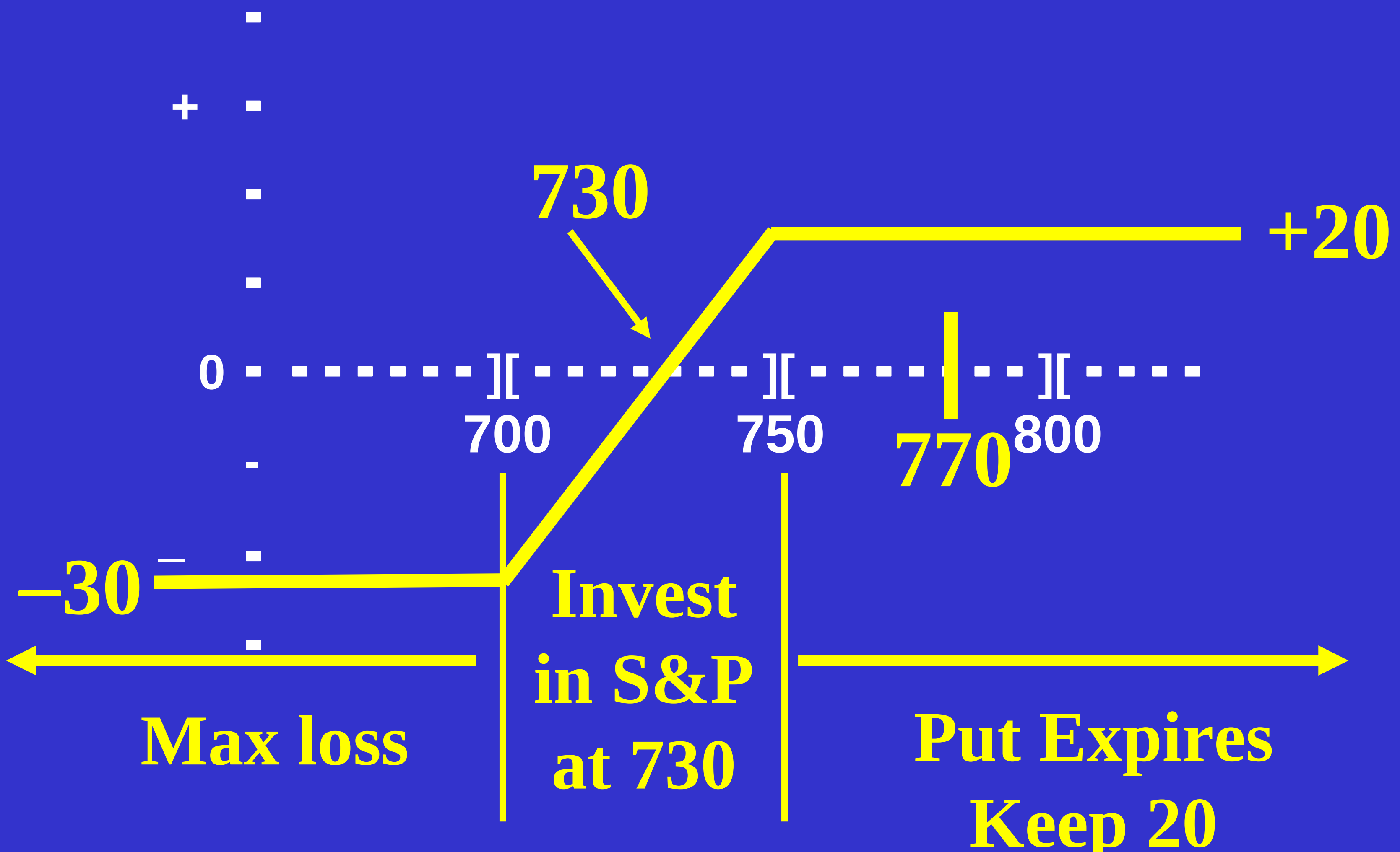
Market View: You are willing to buy near current levels if risk is limited

Objective: Commit funds with limited risk and bring in cash income

Strategy: <u>Sell put spread</u>

Sell SPX Sep 750 Puts @	87	Cr
Buy SPX Sep 700 Puts @	(67)	Dr
Net Credit	20	

Case 2 – Sell Put Spread



Case 2 – Sell Put Spread – Outcomes

Market

> 750:	Puts expire; keep premium of 20 index points
700-750:	Buy S&P at level of 730 (≈5% below current level)
< 700:	Max loss of 30 index points

Case 3 – Ready to Buy 20% Lower

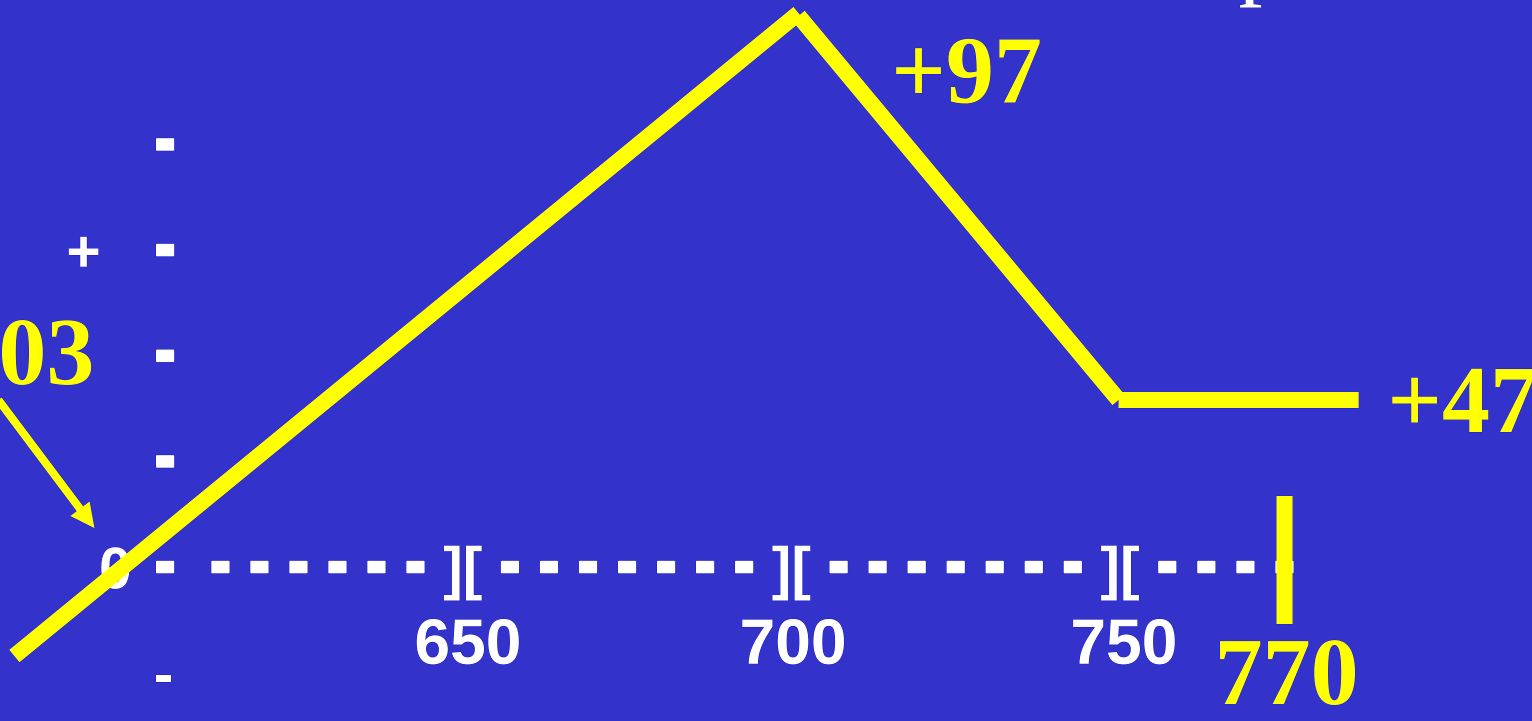
Market View: The market will continue to decline another 15-20%

Objective: Bring in cash income and buy the market down 20%.

Strategy: Cash-secured ratio put spread

Buy 1 SPX Sep 750 Put	@ 87	(87)	Dr
Sell 2 SPX Sep 700 Puts	@ 67 ea.	134	Cr
T-Bills $60.3K	Net Credit	47	

Case 3 – Cash-Secured Ratio Put Spread



Buy at a level of 603

Long put settles in cash

Puts expire keep 47

Case 3 – Ratio Put Spread – Outcomes

<u>Market</u>

> 750:	Puts expire; keep premium of 47 index points (11%)
700-750:	Long put settles in cash for additional income
< 700:	Buy the S&P 500 at 603

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2 Strategies that Increase Market Exposure, Limit Risk and Conserve Cash

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Case 4 – Increase Exposure Without Risk

Market View: The market will rise modestly

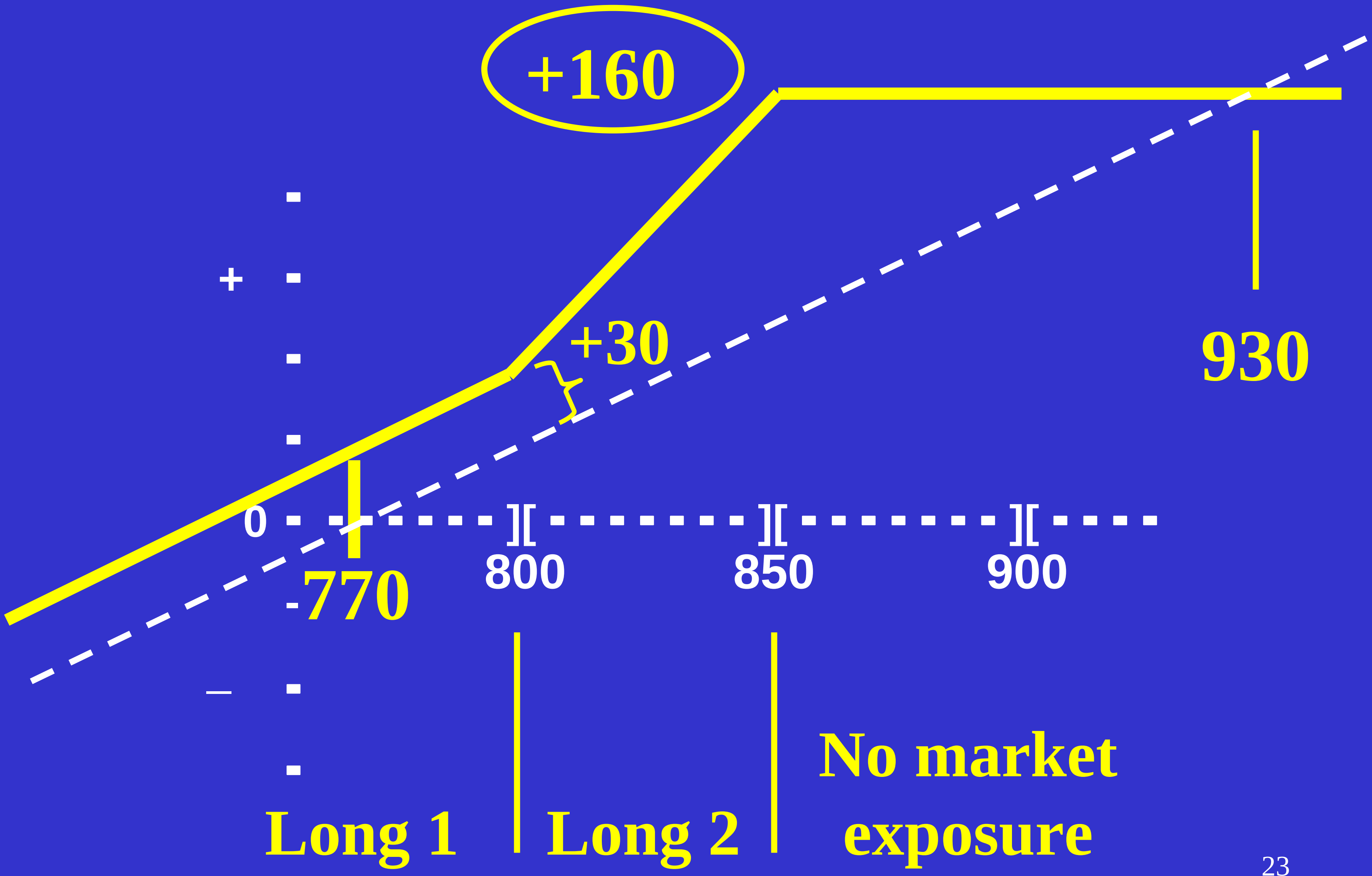
Objective: Add upside exposure without increasing downside risk.

Strategy: Ratio Call Spread Overlay

Own SPY (or S&P stocks)

Buy 1 SPX Sep 800 Call	@	74	(74)	Dr
Sell 2 SPX Sep 850 Calls	@	52 ea.	104	Cr
		Net Credit	30	

Case 4 – Ratio Call Spread Overlay



Case 4 – Ratio Spread Overlay – Outcomes

<u>Market</u>

< 800: Long 1 – performs 30 points better than SPY

800-850: Long 2

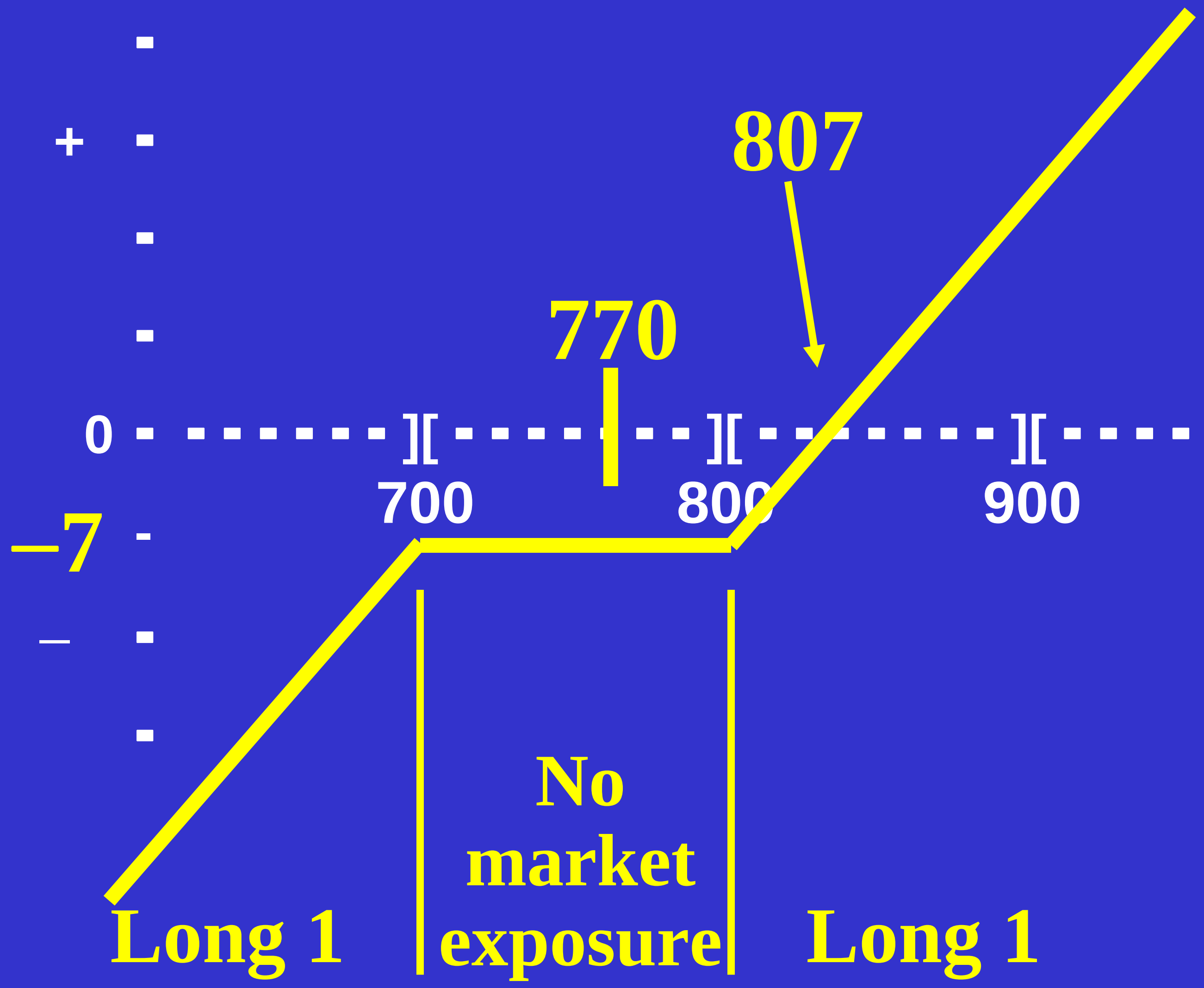
> 850: No market exposure – maximum profit = +160 (+21% in 7 months)

Case 5 – Target Lower, but Can’t Miss Rally

Market View:	Think market will decline, but worried about missing a rally
Objective:	Establish a buy point down 3% and participate in the upside.
Strategy:	Split-strike synthetic

Buy 1 SPX Sep 800 Call	@	(74)	Dr
Sell 1 SPX Sep 700 Put	@	67	Cr
T-Bills $70K	Net Cost	(7)	

Case 5 – Split-Strike Synthetic



Case 5 – Split-Strike Synthetic – Outcomes

<u>Market</u>

< 700:	Put assigned – long the S&P 500 at 707
700-800:	No market exposure
> 800:	Exercise call - long the S&P 500 at 807

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1 Strategy that Targets Buy and Sell Prices and Generates Income

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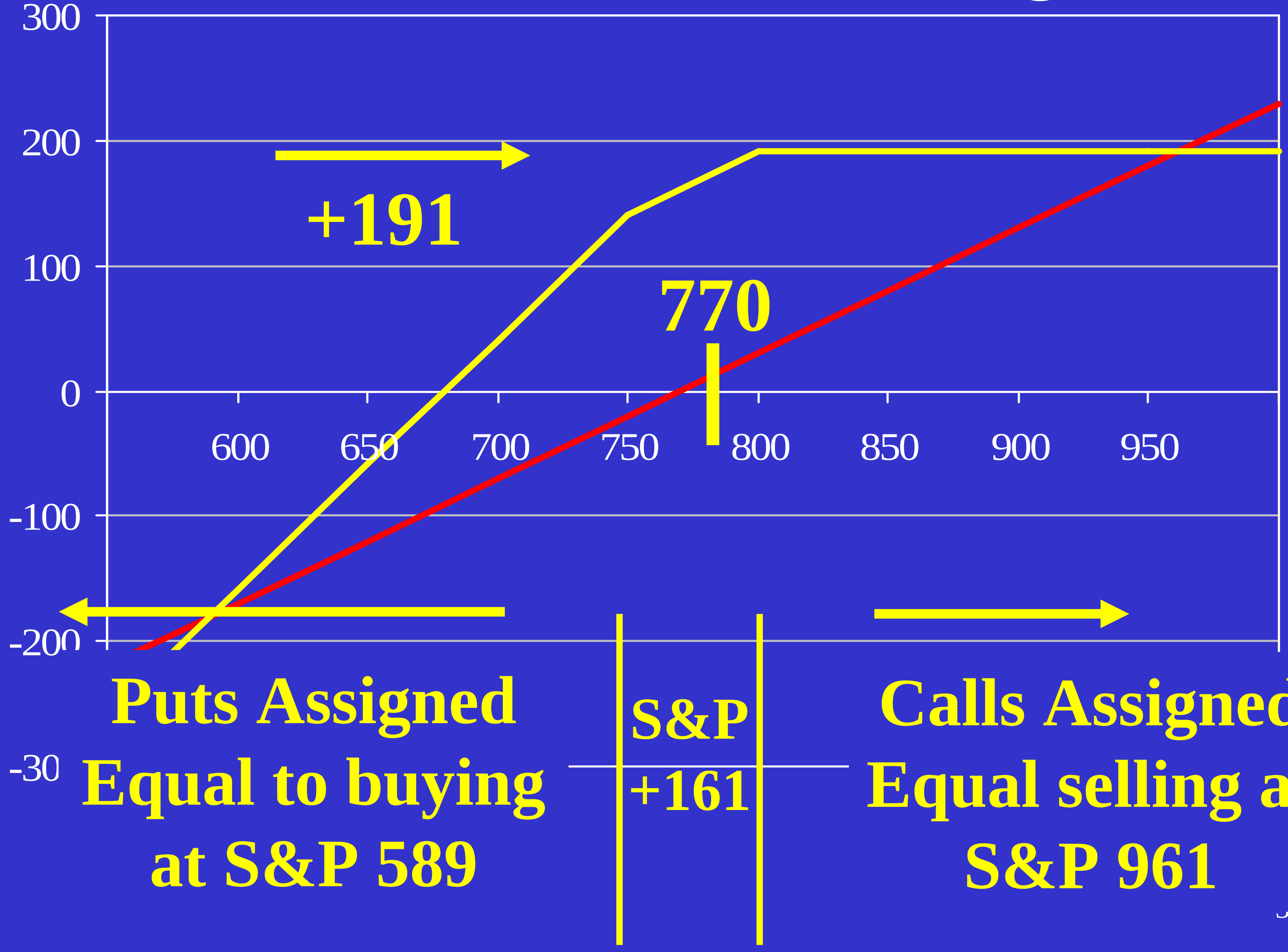
Case 6 – Trading a Range

Market View:	The S&P 500 is “range bound” between 600 and 950
Objective:	Increase exposure near 600, decrease exposure near 950, and earn income while waiting.
Strategy:	<u>Covered Strangle</u>
	Sell SPX Sep 800 Calls @ 74 Cr
	Sell SPX Sep 750 Puts @ 87 Cr
	Own 10 SPY for each call and put

Case 6 – Covered Strangle



Puts Assigned Equal to buying at S&P 589

Calls Assigned Equal selling at S&P 961

Case 6 – Covered Strangle – Outcomes

Market

> 800:	Calls assigned; equal to selling at S&P 961
750-800:	Long S&P + 161 points
< 750:	Puts assigned; equal to buying at S&P 589

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Speculative Strategies

(& How Traders Use Implied Volatility)

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What is “Speculation”?

Speculative strategies use leverage.

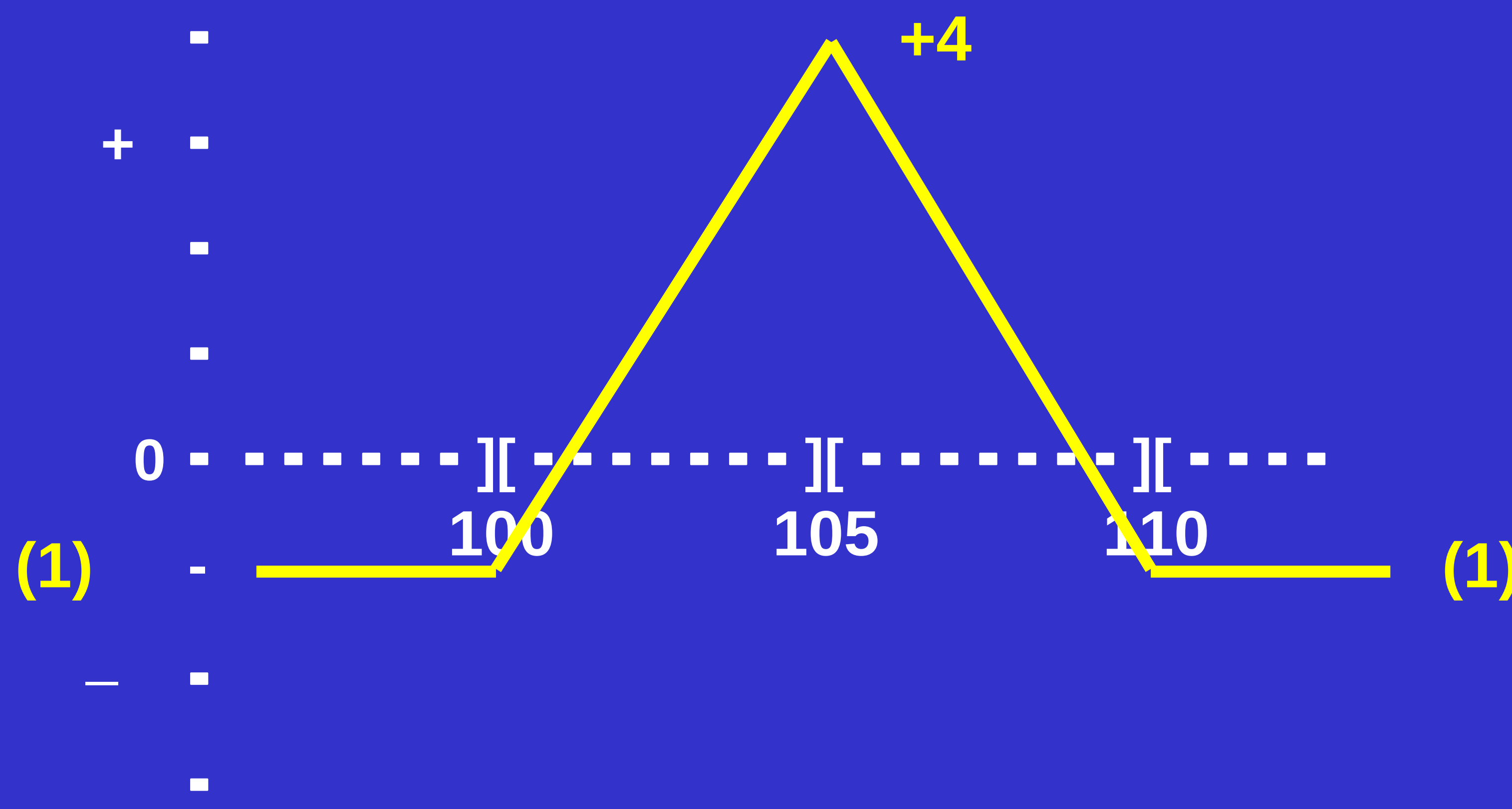
Two types:

- High probability (low profit and big % risk)
- Low probability (big % profit and low risk)

The Butterfly Spread

Buy	1	100 Call	@	7.00	(7.00) DR
Sell	2	105 Calls	@	4.50 ea.	9.00 CR
Buy	1	110 Call	@	3.00	(3.00) DR
			Net		(1.00) DR

The Butterfly Spread

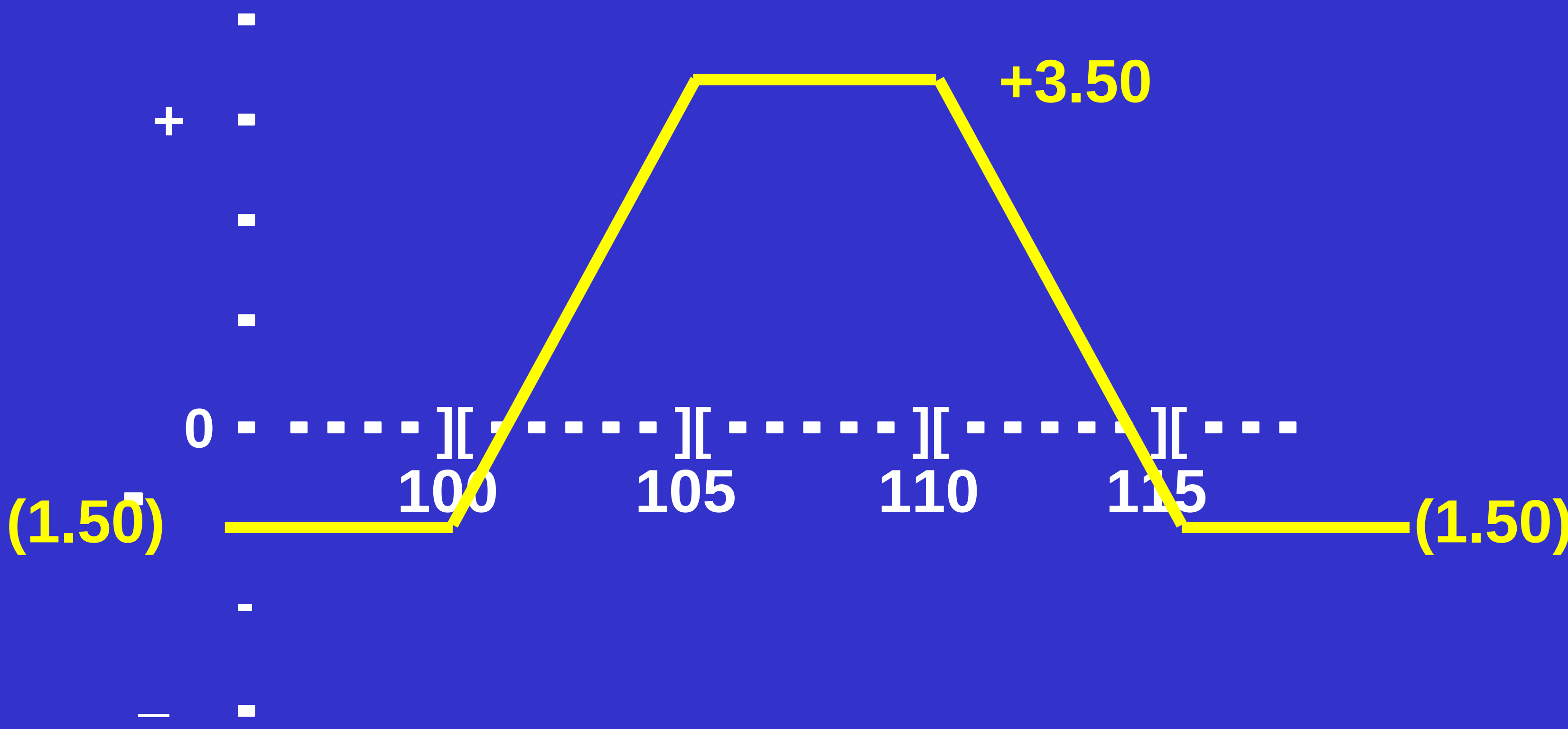


A low-volatility strategy that profits if the underlying trades in a narrow range around the center strike price.

The Condor Spread

Buy	1	100 Call	@	7.00	(7.00) DR
Sell	1	105 Call	@	4.50	4.50 CR
Sell	1	110 Call	@	3.00	3.00 CR
Buy	1	115 Call	@	2.00	(2.00) CR
			Net		(1.50) DR

The Condor Spread

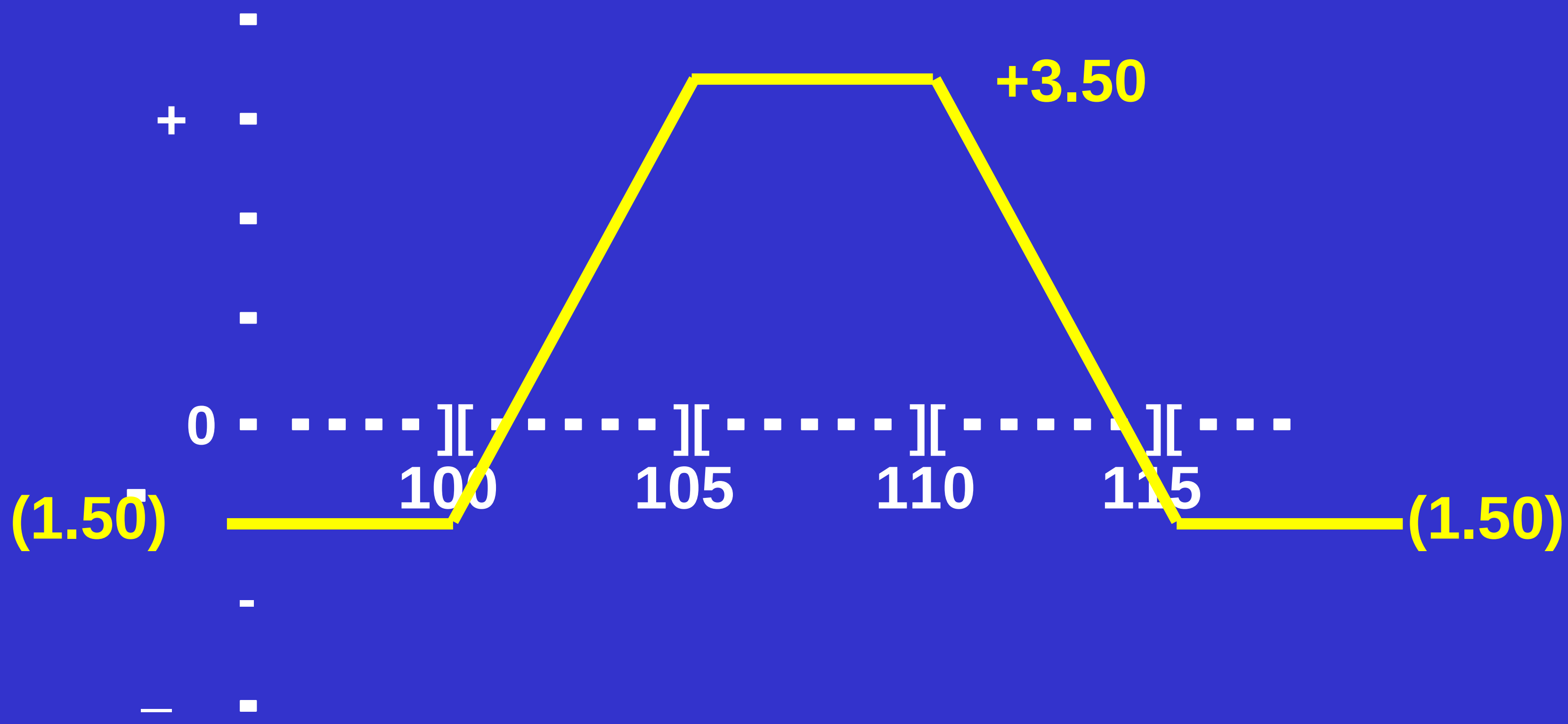


A low-volatility strategy that profits if the underlying trades in a narrow range around the center strike price.

The Iron Condor Spread

Buy	1	100 Put	@	6.50	(6.50) DR
Sell	1	105 Put	@	9.00	9.00 CR
Sell	1	110 Call	@	3.00	3.00 CR
Buy	1	115 Call	@	2.00	<u>(2.00) CR</u>
			Net		3.50 CR

The Iron Condor Spread

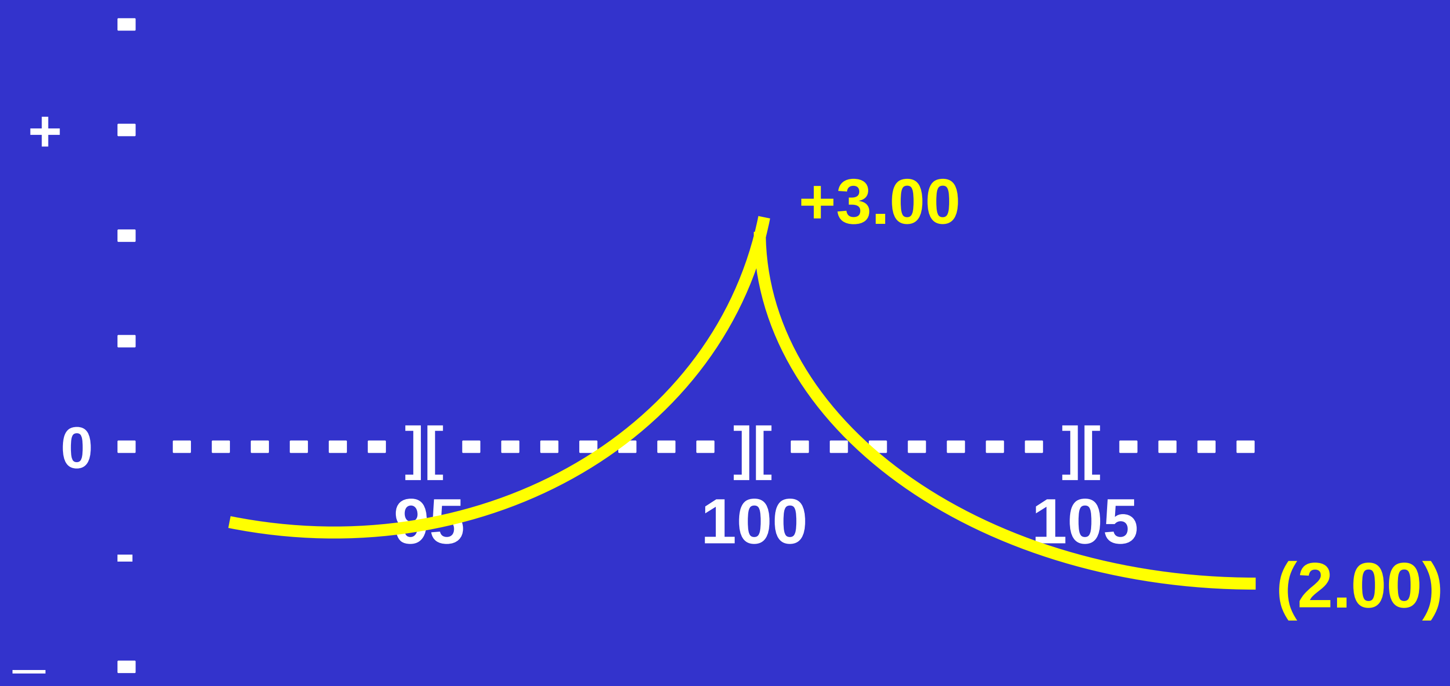


A low-volatility strategy that profits if the underlying trades in a narrow range between the center strikes.

The Time Spread

Buy	1	60-day	100 Call	@	7.00	(7.00) DR
Sell	1	30-day	100 Call	@	5.00	5.00 CR
				Net		(2.00) DR

The Time Spread
(at expiration of s-t option)

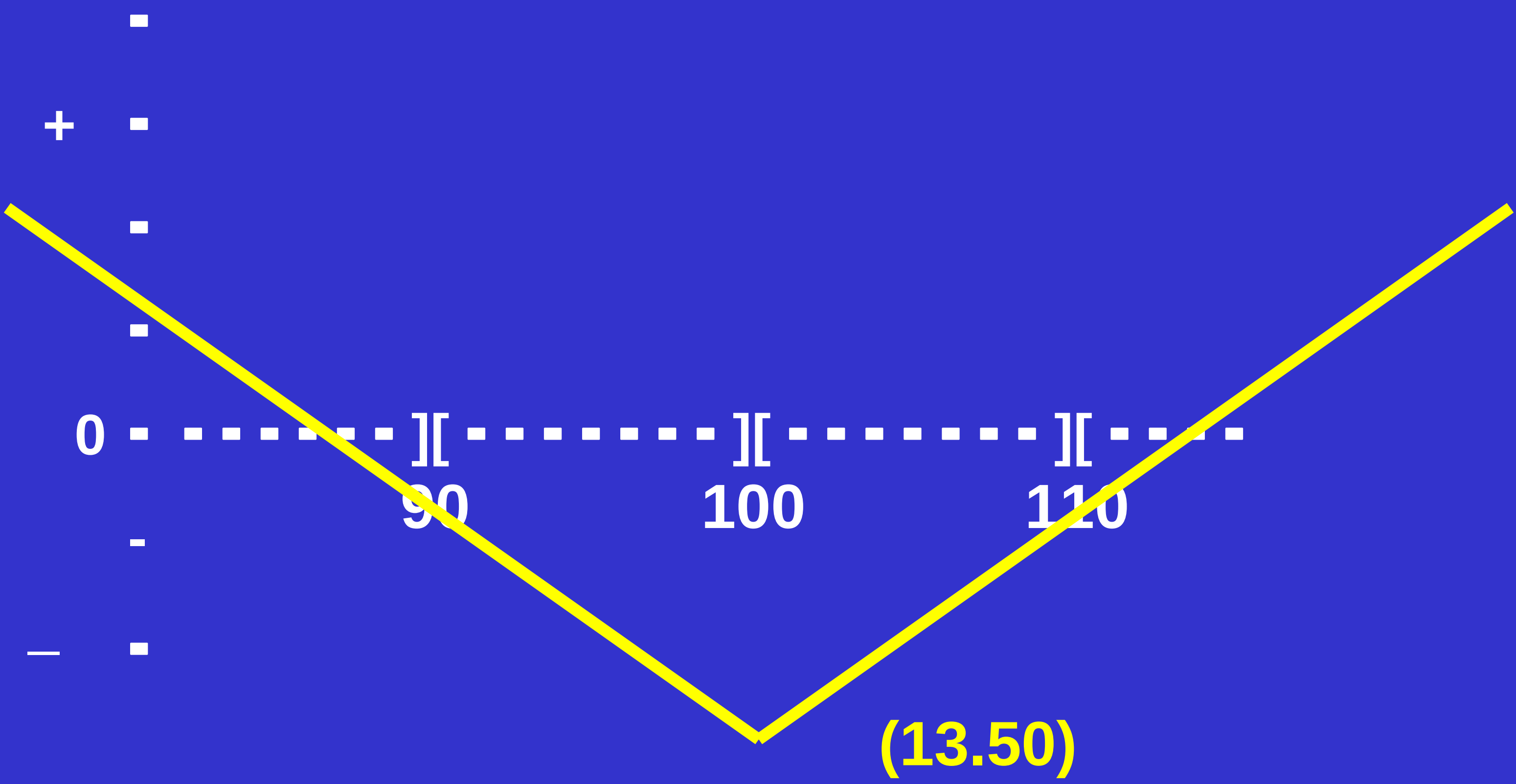


A low-volatility strategy that profits if the underlying trades in a narrow range around the strike price.

The Straddle

Buy	1	100 Call	@	8.00	(7.00) DR
Buy	1	100 Put	@	7.00	(6.50) DR
			Total		(13.50) DR

The Straddle



A high-volatility strategy that profits from a large price change in underlying away from the strike price.

30% Volatility – Its Meaning?

30% is the 1-year standard deviation

In one year, an index at 100 today will be:

- between 70 and 130 68% of the time
- between 40 and 160 95% of the time
- between 10 and 190 99% of the time

A 1-year time frame is of little use.

How Traders Use Volatility

The volatility in an option's market price (implied volatility) can be used to estimate the market's expectation for the range of the underlying price between now and expiration.

Volatility - Underlying Price Range Expectations

Implied Volatility	Days 30	Days 60	Days 90
15%	4.35%	6.13%	7.50%
20%	5.75%	8.17%	10.00%
25%	7.25%	10.21%	12.50%
30%	8.65%	12.26%	15.00%
35%	10.15%	14.30%	17.50%
40%	11.55%	16.34%	20.00%
45%	13.00%	18.38%	22.50%
50%	14.45%	20.43%	25.00%
55%	15.90%	22.47%	27.50%

Converting the 1-Year Std. Dev.

Formula:

Stock Price × I.V. × sqr root of time in yrs

$$\frac{\text{Stock Price} \times \text{I.V.} \times \sqrt{\text{Days to Exp}}}{\sqrt{\text{Days per year}}}$$

The Market on May 30, 2008

SPX Index	1,400
Days in 4 weeks	28
VIX	18%

$$\frac{\text{Stock Price} \times \text{I.V.} \times \sqrt{\text{Days to Exp}}}{\sqrt{\text{Days per year}}}$$

$$\frac{1400 \times .18 \times \sqrt{28}}{\sqrt{365}} \approx 70$$

70 = 5% of 1,400

The Market on November 20, 2008

SPX Index	750
Days in 4 weeks	28
VIX	80%

$$\frac{\text{Stock Price} \times \text{I.V.} \times \sqrt{\text{Days to Exp}}}{\sqrt{\text{Days per year}}}$$

$$\frac{750 \times .80 \times \sqrt{28}}{\sqrt{365}} \quad \mathbf{\approx 166}$$

166 = 22% of 750

The Market on March 2, 2009

SPX Index	700
Days in 4 weeks	28
VIX	50%

$$\frac{\text{Stock Price} \times \text{I.V.} \times \sqrt{\text{Days to Exp}}}{\sqrt{\text{Days per year}}}$$

$$\frac{700 \times .50 \times \sqrt{28}}{\sqrt{365}} \approx \mathbf{97}$$

97 = 14% of 700

Calendar Days or Trading Days?

The difference is minimal.

Calendar days are easier to get.

For less than 7 days, use trading days.

The standard deviation calculation is only a guide. The market forecast is most important.

Using I.V. to Choose Strike Prices

Sell options that are 2 Std Dev O-O-M?

Buy options and have a 1 Std Dev price target for the underlying?

Choose strategies by combining technical and fundamental analysis with price ranges implied by option imp. vol.

Summary

- Options can be used to target investment objectives
- Options give investors more strategies with unique tradeoffs.
- Speculators use leverage; investors <u>do not</u>
- Using options requires more decisions
  - Expiration date
  - Strike Price

DECISION MAKING FOR INVESTORS

OPTIONS		EQUITIES
Life of Option	**Time**	Time Value of Money
Strike Price Plus or Minus Option Premium	**Break-Even Point**	Trade Price
Specific Time and Price Objective	**Clarity of Market View**	Vague
Wide Range of Choices	**Capital Management**	Limited No Leverage
Short-Term Trading Risk Management: · Hedge · Income Enhancement · Leverage	**Flexibility**	Short-Term Trading Investment
Discipline Two-Step Thinking	**Psychology**	Buy and Sell Decisions are Unrelated

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