Financial Mathematics

MATH 5870/6870[1]
Fall 2021

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[1] Based on Robert L. McDonald's *Derivatives Markets*, 3rd Ed, Pearson, 2013.

Chapter 3. Insurance, Collars, and Other Strategies

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Directional positions

- Bull spread
- Bear spread
- Collars
- Box spreads

Nondirectional positions

- Straddles
- Strangle
- Butterfly spread

Investors who do not care whether the stock goes up or down, but only how much it moves.

Investors are speculating on volatility.

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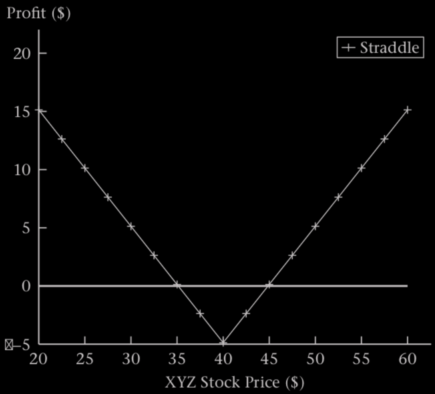
Straddles

Straddle is the strategy of buying a call and a put with the same strike price and time to expiration.

A straddle is a bet that volatility will be high relative to the market's assessment



Strangle

Straddle is the strategy of buying an out-of-the-money call and put with the same time to expiration.

A strangle can be used to reduce the high premium cost, associated with a straddle.

Example 3.4-1 Draw profit diagram for 40-strike straddle and strangle composed of 35-strike put + 45-strike call.

Solution.

$\square$

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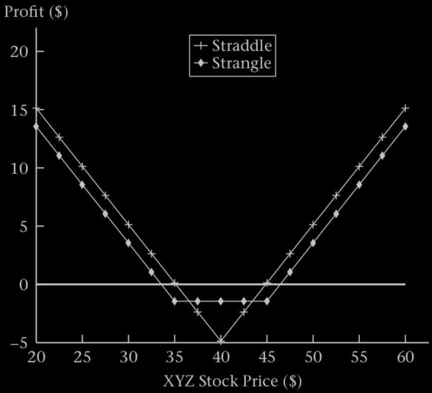
Solution.



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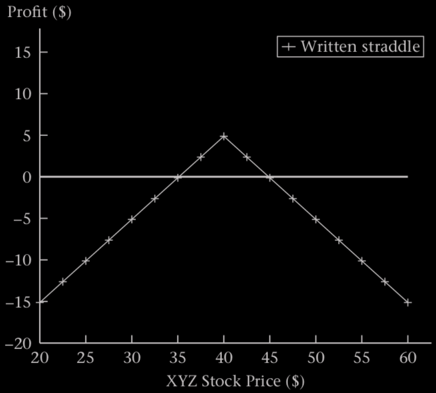
Written straddles

Written straddle is the strategy of selling a call and put with the same strike price and time to maturity.

Unlike a purchased straddle, a written straddle is a bet that volatility will be low relative to the market's assessment



Butterfly spreads

Butterfly spreads $=$ Insured wrien straddle

$=$ Write a straddle $+$ add a stragle

A butterfly spread insures against large losses on a straddle.