Package ‘volatilityTrader’

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Imports ggplot2, dplyr, magrittr, tibble
Description Trading Strategies for high Option Volatility environment are represented here through their Graphs. The graphic indicators, strategies, calculations, functions and all the discussions are for academic, research, and educational purposes only and should not be construed as investment advice and come with absolutely no Liability.
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**Description**

According to Kakushadze and Serur (2018), non directional strategies can be divided into two subgroups: (a) volatility strategies that profit if the stock has large price movements (high volatility environment); and (b) sideways strategies that profit if the stock price remains stable (low volatility environment). Here, in this package only high volatility option strategies are discussed and represented through their graphs.

This is a volatility strategy consisting of a long position in an ATM (at the money) call option, and a long position in an ATM (at the money) put option with a strike price $X$. This is a net debit trade. The trader or investor has a neutral outlook. This is a capital gain strategy (Kakushadze & Serur, 2018).

**Usage**

```r
aStraddlePnL(
  ST,
  X,
  C,
  P,
  hl = 0,
  hu = 2,
  spot = spot,
  pl = pl,
  myData = myData,
  myTibble = myTibble,
  PnL = PnL
)
```

**Arguments**

- **ST**: Spot Price at time $T$.
- **X**: Strike Price or Exercise price.
- **C**: Call Premium or Call Price paid for the bought Call.
- **P**: Put Premium or Put Price paid for the bought put.
**aStranglePnL**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>hl</td>
<td>lower bound value for setting lower-limit of x-axis displaying spot price.</td>
</tr>
<tr>
<td>hu</td>
<td>upper bound value for setting upper-limit of x-axis displaying spot price.</td>
</tr>
<tr>
<td>spot</td>
<td>Spot Price</td>
</tr>
<tr>
<td>pl</td>
<td>Profit and Loss</td>
</tr>
<tr>
<td>myData</td>
<td>Data frame</td>
</tr>
<tr>
<td>myTibble</td>
<td>tibble</td>
</tr>
<tr>
<td>PnL</td>
<td>Profit and Loss</td>
</tr>
</tbody>
</table>

**Details**

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Straddle Option Strategy and draw its graph in the Plots tab.

**Value**

graph of the strategy

**Examples**

```r
aStraddlePnL(25,25,2.40,1.70)
aStraddlePnL(40,40,3,2,hl=0.7,hu=1.2)
aStraddlePnL(1000,1010,18,10,hl=0.955,hu=1.055)
```

**Description**

This is a volatility strategy consisting of a long position in an OTM (out of the money) call option with a strike price K1, and a long position in an OTM (out of the money) put option with a strike price K2. This is a net debit trade. However, because both call and put options are OTM (out of the money), this strategy is less costly to establish than a long straddle position. The flip side is that the movement in the stock price required to reach one of the break-even points is also more significant. The outlook of trader or investor is neutral. This is a capital gain strategy (Kakushadze & Serur, 2018).
Usage

```r
aStranglePnL(
ST,
X1LP,
X2HC,
C,
P,
hl = 0,
hu = 2.2,
spot = spot,
pl = pl,
myData = myData,
myTibble = myTibble,
PnL = PnL
)
```

Arguments

- **ST**: Spot Price at time T.
- **X1LP**: Lower Strike Price or eXercise price bought Put.
- **X2HC**: Higher Strike Price or eXercise price bought Call.
- **C**: Call Premium or Call Price paid for the bought Call.
- **P**: Put Premium or Put Price paid for the bought put.
- **hl**: lower bound value for setting lower-limit of x-axis displaying spot price.
- **hu**: upper bound value for setting upper-limit of x-axis displaying spot price.
- **spot**: Spot Price
- **pl**: Profit and Loss
- **myData**: Data frame
- **myTibble**: tibble
- **PnL**: Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Strangle Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

```r
aStranglePnL(25,22.50,27.50,0.85,1.40)
aStranglePnL(46,44,52,2,4,hl=0.6,hu=1.6)
aStranglePnL(1020,1015,1025,18,10,hl=0.95,hu=1.045)
```
Calculates per share Profit and Loss (PnL) at expiration for Guts Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description
This is a volatility strategy consisting of a long position in an ITM (in the money call: $ST > X_{1LC}$) call option with a strike price $X_{1LC}$, and a long position in an ITM (in the money put: $ST < X_{2HP}$) put option with a strike price $X_{2HP}$. This is a net debit trade. Since both call and put options are ITM, this strategy is more costly to establish than a long straddle position. The trader or investor has neutral outlook. This is a capital gain strategy (Kakushadze & Serur, 2018).

Usage
```
gutsPnL(
    ST, X2HP, X1LC, P, C,
    hl = 0, hu = 2,
    spot = spot,
    pl = pl,
    myData = myData,
    myTibble = myTibble,
    PnL = PnL
)
```

Arguments
- **ST**: Spot Price at time T.
- **X2HP**: Higher Strike Price or Exercise price bought Put.
- **X1LC**: Lower Strike Price or Exercise price bought Call.
- **P**: Put Premium or Put Price paid for the bought put.
- **C**: Call Premium or Call Price paid for the bought Call.
- **hl**: lower bound value for setting lower-limit of x-axis displaying spot price.
- **hu**: upper bound value for setting upper-limit of x-axis displaying spot price.
- **spot**: Spot Price
- **pl**: Profit and Loss
- **myData**: Data frame
- **myTibble**: tibble
- **PnL**: Profit and Loss
Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Guts Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

gutsPnL(25,27,24.75,2.5,3)
gutsPnL(46,48,44,2,4,hl=0.6,hu=1.6)
gutsPnL(1020,1025,1015,10,18,hl=0.95,hu=1.045)

longBoxPnL

Calculates per share Profit and Loss (PnL) at expiration for Long Box Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

The Long Box is a complex strategy that can (in some jurisdictions) have beneficial effects for tax planning from year to year. If your incentive for this strategy is a tax play, you should consult with your tax advisor beforehand to evaluate whether or not it is valid where you live and trade to invest (Cohen, 2015).

This volatility strategy can be viewed as a combination of a bull call spread and a bear put spread, and consists of a long position in an ITM put option with a strike price X1H, a short position in an OTM put option with a lower strike price X2, a long position in an ITM call option with the strike price X2, and a short position in an OTM call option with the strike price X1H. The trader or investor has an outlook that is neutral (Kakushadze & Serur, 2018).

Usage

longBoxPnL(
    ST,
    X1H,
    X2,
    P1,
    C2,
    P3,
    C4,
    hl = 0,
    hu = 2,
    spot = spot,
    pl = pl,
)
Arguments

ST       Spot Price at time T.
X1H      Higher Strike Price or Exercice price for one ITM long Put and one OTM shorted call.
X2       Strike Price or Exercise price for one shorted Put and one long call.
P1       Put Premium or Put Price received for the shorted Put.
C2       Put Premium or Put Price paid for the bought Call.
P3       Put Premium or Put Price paid for the bought Put.
C4       Call Premium or Put Price received for the shorted Call.
h1       lower bound value for setting lower-limit of x-axis displaying spot price.
hu       upper bound value for setting upper-limit of x-axis displaying spot price.
spot     Spot Price
pl       Profit and Loss
myData   Data frame
myTibble tibble
PnL      Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Long Box Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

longBoxPnL(34,40,30,1,6,7,2)
longCallSyntheticStraddlePnL

Calculates per share Profit and Loss (PnL) at expiration for Long Call Synthetic Straddle Option Strategy and draws its Bar Plot displaying PnL in the plots tab.

Description

This volatility strategy (which is the same as a long straddle with the put replaced by a synthetic put) amounts to shorting stock and buying two ATM (or the nearest ITM call options with a strike price X. The trader’s outlook is neutral. This is a capital gain strategy (assuming $S_0$ is greater than or equal to X and $V_0$ is greater than ($S_0$ minus X)) (Kakushadze & Serur, 2018).

Usage

```r
longCallSyntheticStraddlePnL(
  ST,  
  X,   
  C1,  
  C2,  
  S0,  
  hl = 0, 
  hu = 2, 
  spot = spot, 
  pl = pl, 
  myData = myData, 
  myTibble = myTibble, 
  PnL = PnL 
)
```

Arguments

- **ST**
  Spot Price at time T.
- **X**
  Strike Price or eXercise price.
- **C1**
  Call Premium or Call Price paid for the first bought Call.
- **C2**
  Call Premium or Call Price paid for the second bought Call.
- **S0**
  Stock Price at which the stock is shorted.
- **hl**
  lower bound value for setting lower-limit of x-axis displaying spot price.
- **hu**
  upper bound value for setting upper-limit of x-axis displaying spot price.
- **spot**
  Spot Price
- **pl**
  Profit and Loss
- **myData**
  Data frame
- **myTibble**
  tibble
- **PnL**
  Profit and Loss
Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Long Call Synthetic Straddle Option Strategy and draw its graph in the plots tab.

Value

graph of the strategy

Examples

longCallSyntheticStraddlePnL(25,25,2,2,25.10)
longCallSyntheticStraddlePnL(40,40,7,7,41,hl=0.4,hu=1.7)

Description

This volatility strategy (which is the same as a long straddle with the call replaced by a synthetic call) amounts to buying stock and buying two ATM (or the nearest ITM) put options with a strike price X. The outlook of investor or trader is neutral. This is capital gain strategy. This is a capital gain strategy (assuming S0 is less than or equal to X and V0 is greater than (X minus S0)) (Kakushadze & Serur, 2018).

Usage

longPutSyntheticStraddlePnL(
    ST,  
    X,    
    P1,   
    P2,   
    S0,   
    hl = 0, 
    hu = 2, 
    spot = spot, 
    pl = pl, 
    myData = myData, 
    myTibble = myTibble, 
    PnL = PnL
)
Arguments

ST  Spot Price at time T.
X   Strike Price or eXercise price.
P1  Put Premium or Put Price paid for the first bought Put.
P2  Put Premium or Put Price paid for the second bought Put.
S0  Stock Price at which the stock is bought.
hl lower bound value for setting lower-limit of x-axis displaying spot price.
hu upper bound value for setting upper-limit of x-axis displaying spot price.
spot Spot Price
pl Profit and Loss
myData Data frame
myTibble tibble
PnL Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Long Put Synthetic Straddle Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

longPutSyntheticStraddlePnL(25,25,2,2,25.10)
longPutSyntheticStraddlePnL(40,40,5,5.2,40.2,hl=0.3,hu=1.7)

shortCallButterflyPnL  Calculates per share Profit and Loss (PnL) at expiration for Short Call Butterfly Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

This is a volatility strategy consisting of a short position in an ITM (in the money) call option with a strike price X1L, a long position in two ATM (at the money) call options with a strike price X, and a short position in an OTM (out of the money) call option with a strike price X3H. The strikes are equidistant: X3H minus X equals to X minus X1L. This is a net credit trade. In this sense, this is an income strategy. The trader or investor has neutral outlook (Kakushadze & Serur, 2018).
Usage

shortCallButterflyPnL(
  ST,  
  X,  
  X1L,  
  X3H,  
  C,  
  C1L,  
  C3H,  
  hl = 0,  
  hu = 2,  
  spot = spot,  
  pl = pl,  
  myData = myData,  
  myTibble = myTibble,  
  PnL = PnL  
)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>Spot Price at time T.</td>
</tr>
<tr>
<td>X</td>
<td>Strike Price or eXercise price for two ATM bought Calls.</td>
</tr>
<tr>
<td>X1L</td>
<td>Lower Strike Price or eXercise price for one ITM shorted Call.</td>
</tr>
<tr>
<td>X3H</td>
<td>Higher Strike Price or eXercise price for one OTM shorted Call.</td>
</tr>
<tr>
<td>C</td>
<td>Call Premium or Call Price paid for the two ATM bought Calls.</td>
</tr>
<tr>
<td>C1L</td>
<td>Call Premium or Call Price received for the first ITM shorted Call.</td>
</tr>
<tr>
<td>C3H</td>
<td>Call Premium or Call Price received for the one OTM shorted Call.</td>
</tr>
<tr>
<td>hl</td>
<td>lower bound value for setting lower-limit of x-axis displaying spot price.</td>
</tr>
<tr>
<td>hu</td>
<td>upper bound value for setting upper-limit of x-axis displaying spot price.</td>
</tr>
<tr>
<td>spot</td>
<td>Spot Price</td>
</tr>
<tr>
<td>pl</td>
<td>Profit and Loss</td>
</tr>
<tr>
<td>myData</td>
<td>Data frame</td>
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<td>myTibble</td>
<td>tibble</td>
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<tr>
<td>PnL</td>
<td>Profit and Loss</td>
</tr>
</tbody>
</table>

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Short Call Butterfly Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy
shortCallCondorPnL

Calculates per share Profit and Loss (PnL) at expiration for Short Call Condor Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

This is a volatility strategy consisting of a short position in an ITM call option with a strike price X1L, a long position in an ITM call option with a higher strike price X2Ml, a long position in an OTM call option with a strike price X3Mu, and a short position in an OTM call option with a higher strike price X4H. All strikes are equidistant: X4H minus X3Mu equals to X3Mu minus X2Ml; equals to X2Mu minus X1L. This is a relatively low net credit trade. The trader or investor has a neutral outlook (Kakushadze & Serur, 2018).

Usage

```r
shortCallCondorPnL(
  ST,
  X1L, # Lower Strike Price or eXercise price for one ITM shorted Call.
  X2Ml, # Middle-low Strike Price or eXercise price for two middle strike bought Calls.
  X3Mu, # Middle-upper Strike Price or eXercise price for two middle strike bought Calls.
  X4H, # Higher Strike Price or eXercise price for one OTM shorted Call.
  C1L, C2Ml, C3Mu, C4H, # Call Option Prices
  hl = 0, hu = 2, spot = spot, pl = pl, myData = myData, myTibble = myTibble,
  PnL = PnL)
```

Arguments

- **ST**: Spot Price at time T.
- **X1L**: Lower Strike Price or eXercise price for one ITM shorted Call.
- **X2Ml**: Middle-low Strike Price or eXercise price for two middle strike bought Calls.
- **X3Mu**: Middle-upper Strike Price or eXercise price for two middle strike bought Calls.
- **X4H**: Higher Strike Price or eXercise price for one OTM shorted Call.

Examples

```r
shortCallButterflyPnL(50,50,45,55,5,9,3)
shortCallButterflyPnL(400,400,375,425,6,9.5,7.5,hl=0.8,hu=1.2)
```
shortIronButterflyPnL

C1L  Call Premium or Call Price received for the one ITM shorted Call.
C2Ml Call Premium or Call Price paid for the middle-low bought Call.
C3Mu Call Premium or Call Price paid for the middle-upper bought Call.
C4H  Call Premium or Call Price received for the one OTM shorted Call.
hl   lower bound value for setting lower-limit of x-axis displaying spot price.
hu   upper bound value for setting upper-limit of x-axis displaying spot price.
spot Spot Price
pl   Profit and Loss
myData Data frame
myTibble tibble
PnL   Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Short Call Condor Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

shortCallCondorPnL(52,45,50,55,60,10,7,4,3.)
shortCallCondorPnL(415,400,420,440,460,50,35,22,16,hl=0.95,hu=1.125)

shortIronButterflyPnL Calculates per share Profit and Loss (PnL) at expiration for Short Iron Butterfly Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

This volatility strategy is a combination of a bear put spread and a bull call spread and consists of a short position in an OTM put option (out of the money put : put Strike price is lower than spot price ) with a strike price X1L, a long position in an ATM (at the money) put option and an ATM (at the money) call option with a strike price X2M, and a short position in an OTM call option (out of the money call : call Strike price is higher than spot price ) with a strike price X3H. The strikes are equidistant: X2M minus X1L equals to X3H minus X2M . This is a net debit trade. The trader or investor has an outlook that is neutral (Kakushadze & Serur, 2018).
Usage

shortIronButterflyPnL(
    ST,
    X1L,
    X2M,
    X3H,
    P1L,
    P2,
    C2,
    C3H,
    hl = 0,
    hu = 2,
    spot = spot,
    pl = pl,
    myData = myData,
    myTibble = myTibble,
    PnL = PnL
)

Arguments

ST      Spot Price at time T.
X1L     Lower Strike Price or Exercise price for one ITM shorted Put.
X2M     Medium strike Price or Exercise price for one bought Put and one bought Call.
X3H     Higher Strike Price or Exercise price for one OTM shorted Call.
P1L     Put Premium or Put Price received for the first ITM shorted Put.
P2      Put Premium or Put Price paid for the bought Put.
C2      Put Premium or Put Price paid for the bought Call.
C3H     Call Premium or Put Price received for the one OTM shorted Call.
hl      lower bound value for setting lower-limit of x-axis displaying spot price.
hu      upper bound value for setting upper-limit of x-axis displaying spot price.
spot    Spot Price
pl      Profit and Loss
myData  Data frame
myTibble  tibble
PnL     Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Short Iron Butterfly Option Strategy and draw its graph in the Plots tab.
**shortIronCondorPnL**

**Value**

graph of the strategy

**Examples**

shortIronButterflyPnL(52,45,50,55,2,4,7,5)
shortIronButterflyPnL(405,400,410,420,8,12,14.5,9,hl=0.9,hu=1.1)

**Description**

This volatility strategy is a combination of a bear put spread and a bull call spread and consists of a short position in an OTM put option (out of the money put : put Strike price is lower than spot price X1L ) with a strike price X1L, a long position in put option with higher Strike X2 price and a long position OTM (out of the money) call option with a strike price X3, and a short position in call option with a higher strike price X4H. The strikes are equidistant: X2 minus X1L equals to X4H minus X3. This is a net debit trade. The trader or investor has an outlook that is neutral (Kakushadze & Serur, 2018).

**Usage**

shortIronCondorPnL(
    ST,
    X1L,
    X2,
    X3,
    X4H,
    P1L,
    P2,
    C3,
    C4H,
    hl = 0,
    hu = 2,
    spot = spot,
    pl = pl,
    myData = myData,
    myTibble = myTibble,
    PnL = PnL
)
Arguments

- \( ST \): Spot Price at time \( T \).
- \( X1L \): Lower Strike Price or Exercise price for one OTM shorted Put.
- \( X2 \): Strike Price or Exercise price for one bought Put.
- \( X3 \): Strike Price or Exercise price for one bought Call.
- \( X4H \): Higher Strike Price or Exercise price for one OTM shorted Call.
- \( P1L \): Put Premium or Put Price received for the first OTM shorted Put.
- \( P2 \): Put Premium or Put Price paid for the bought Put.
- \( C3 \): Put Premium or Put Price paid for the bought Call.
- \( C4H \): Call Premium or Put Price received for the one OTM shorted Call.
- \( hl \): lower bound value for setting lower-limit of x-axis displaying spot price.
- \( hu \): upper bound value for setting upper-limit of x-axis displaying spot price.
- \( spot \): Spot Price
- \( pl \): Profit and Loss
- \( myData \): Data frame
- \( myTibble \): tibble
- \( PnL \): Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Short Iron Condor Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

- \( \text{shortIronCondorPnL}(52, 45, 55, 60, 2, 4, 5, 3) \)
- \( \text{shortIronCondorPnL}(405, 400, 410, 420, 430, 8, 11, 13, 9, hl=0.95, hu=1.1) \)
Calculates per share Profit and Loss (PnL) at expiration for Short Put Butterfly Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

This is a volatility strategy consisting of a short position in an ITM put option (in the money put; strike price greater than spot price) with a strike price $X_{1H}$, a long position in two ATM (at the money) put options with a strike price $X_2$, and a short position in an OTM put option (out of the money : strike price less than spot price) with a strike price $X_{3L}$. The strikes are equidistant: $X_2$ minus $X_{3L}$ equals to $X_{1H}$ minus $X_2$. This is a net credit trade. In this sense, this is an income strategy However, the potential reward is sizably smaller than with a short straddle or a short strangle (albeit with a lower risk). The trader or investor has a neutral outlook (Kakushadze & Serur, 2018).

Usage

```
shortPutButterflyPnL(
  ST,
  X2,
  X1H,
  X3L,
  P2,
  P1H,
  P3L,
  hl = 0,
  hu = 2,
  spot = spot,
  pl = pl,
  myData = myData,
  myTibble = myTibble,
  PnL = PnL
)
```

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>Spot Price at time T.</td>
</tr>
<tr>
<td>X2</td>
<td>Strike Price or Exercise price for two ATM bought Puts.</td>
</tr>
<tr>
<td>X1H</td>
<td>Higher Strike Price or Exercise price for one ITM shorted Put.</td>
</tr>
<tr>
<td>X3L</td>
<td>Higher Strike Price or Exercise price for one OTM shorted Put.</td>
</tr>
<tr>
<td>P2</td>
<td>Put Premium or Put Price paid for the two ATM bought Puts.</td>
</tr>
<tr>
<td>P1H</td>
<td>Put Premium or Put Price received for the first ITM shorted Put.</td>
</tr>
<tr>
<td>P3L</td>
<td>Put Premium or Put Price received for the one OTM shorted Put.</td>
</tr>
<tr>
<td>hl</td>
<td>lower bound value for setting lower-limit of x-axis displaying spot price.</td>
</tr>
<tr>
<td>hu</td>
<td>upper bound value for setting upper-limit of x-axis displaying spot price.</td>
</tr>
</tbody>
</table>
According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Short Put Butterfly Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

shortPutButterflyPnL(50,50,55,45,6,9,5)
shortPutButterflyPnL(400,400,420,380,14,19,15,hl=0.9,hu=1.1)

shortPutCondorPnL

Calculates per share Profit and Loss (PnL) at expiration for Short Put Condor Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

This is a volatility strategy consisting of a short position in an OTM Put option with a strike price X1L, a long position in an OTM Put option with a higher strike price X2Ml, a long position in an ITM Put option with a strike price X3Mu, and a short position in an ITM Put option with a higher strike price X4H. All strikes are equidistant: X4H minus X3Mu equals to X3Mu minus X2Ml; equals to X2Mu minus X1L. This is a relatively low net credit trade. As with a short put butterfly, the potential reward is sizably smaller than with a short straddle or a short strangle (albeit with a lower risk). So, this is a capital gain (rather than an income) strategy. The trader or investor has neutral outlook (Kakushadze & Serur, 2018).

Usage

shortPutCondorPnL(
  ST,
  X1L,
  X2Ml,
  X3Mu,
  X4H,
  P1L,
Arguments

ST  Spot Price at time T.
X1L  Lower Strike Price or eXercise price for one ITM shorted Put.
X2ML  Middle-low Strike Price or eXercise price for middle strike bought Put.
X3MU  Middle-upper Strike Price or eXercise price for middle strike bought Put.
X4H  Higher Strike Price or eXercise price for one OTM shorted Put.
P1L  Put Premium or Put Price received for the one OTM shorted Put.
P2ML  Put Premium or Put Price paid for the middle-low bought Put.
P3M  Put Premium or Put Price paid for the middle-upper bought Put.
P4H  Put Premium or Put Price received for the one ITM shorted Put.
hl  lower bound value for setting lower-limit of x-axis displaying spot price.
hu  upper bound value for setting upper-limit of x-axis displaying spot price.
spot  Spot Price
pl  Profit and Loss
myData  Data frame
myTibble  tibble
PnL  Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Short Put Condor Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

shortPutCondorPnL(52, 45, 50, 55, 60, 2, 3, 7, 10.)
shortPutCondorPnL(425, 400, 420, 440, 460, 16, 22, 35, 50, hl=0.9, hu=1.125)
strapPnL

Calculates per share Profit and Loss (PnL) at expiration for Strap Option Strategy and draws its Bar Plot displaying PnL in the Plots tab.

Description

This is a volatility strategy consisting of a long position in two ATM (at the money) calls, and a long position in an ATM (at the money) put option with a strike price X. This is a net debit trade. The trader or investor has bullish outlook (Kakushadze & Serur, 2018).

Usage

```
strapPnL(
  ST,
  X,
  C1,
  C2,
  P,
  hl = 0,
  hu = 2,
  spot = spot,
  pl = pl,
  myData = myData,
  myTibble = myTibble,
  PnL = PnL
)
```

Arguments

- **ST**: Spot Price at time T.
- **X**: Strike Price or Exercise price.
- **C1**: Call Premium or Call Price paid for first bought Call.
- **C2**: Call Premium or Call Price paid for bought Call.
- **P**: Put Premium paid for the bought put.
- **hl**: lower bound value for setting lower-limit of x-axis displaying spot price.
- **hu**: upper bound value for setting upper-limit of x-axis displaying spot price.
- **spot**: Spot Price
- **pl**: Profit and Loss
- **myData**: Data frame
- **myTibble**: tibble
- **PnL**: Profit and Loss
stripPnL

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Strap Option Strategy and draw its graph in the Plots tab.

Value

graph of the strategy

Examples

```
strapPnL(25,25,2.40,2.40,1.70)
strapPnL(40,40,3,3,2,hl=0.7,hu=1.2)
strapPnL(1000,1010,18,18,10,hl=0.955,hu=1.055)
```

Description

This Strategy consists of a long call position (in an at the money call option) and a long position in two put options (at the money) with a strike price X. The Strip is a simple adjustment to the Straddle to make it more biased toward the downside. In buying a second put, the strategy retains its preference for high volatility but now with a more bearish slant (Cohen, 2016).

Usage

```
stripPnL(
    ST,
    X,
    C,
    P1,
    P2,
    hl = 0,
    hu = 2,
    spot = spot,
    pl = pl,
    myData = myData,
    myTibble = myTibble,
    PnL = PnL
)
```
Arguments

ST  Spot Price at time T.
X   Strike Price or eXercise price.
C   Call Premium or Call Price paid for bought Call.
P1  Put Premium paid for the first bought put.
P2  Put Premium paid for the second bought put.
hl lower bound value for setting lower-limit of x-axis displaying spot price.
hu upper bound value for setting upper-limit of x-axis displaying spot price.
spot Spot Price
pl Profit and Loss
myData Data frame
myTibble tibble
PnL Profit and Loss

Details

According to conceptual details given by Cohen (2015), and a closed form solution provided by Kakushadze and Serur (2018), this method is developed, and the given examples are created, to compute per share Profit and Loss at expiration for Strip Option Strategy and draw its graph in the Plots tab. EXAMPLE, Buy HypoVola December 9 call at $1.40 (outflow) and Buy two HypoVola December 9 Puts at $0.80 (outflow). This is a net debit trade and involves three cash outflows. The Bar Plot gets displayed in Plots tab.

Value

graph of the strategy

Examples

stripPnL(9, 9, 1.4, 0.80, 0.80)
stripPnL(40, 40, 2.00, 1.25, 1.25, hl=0.85, hu=1.25)
stripPnL(1000, 1000, 8, 5.50, 6.50, hl=0.985, hu=1.035)
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