

Package: GUIDE (via r-universe)

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Type Package

Title GUI for DERivatives in R

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Description A nice GUI for financial DERivatives in R.

Depends R (>= 3.0.0), rpanel, tkrplot

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| | |
|---------------|---|
| GUIDE-package | <i>The main menu for the GUIDE package.</i> |
|---------------|---|

Description

Function to bring up the main menu for the GUIDE package

Usage

GUIDE()

Details

Entering "GUIDE()" brings up a GUI containing the following menus:

- Forwards
- Futures
- Options
- Swaps
- Stochastic Processes
- Value at Risk
- Bonds and
- Utilities

Value

The main menu for the GUIDE package

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

ABMPaths

Simulate and plot Arithmetic Brownian Motion path(s)

Description

Function to simulate and plot Arithmetic Brownian Motion path(s)

Usage

```
ABMPaths()
```

Details

The user inputs are as follows:

Drift (or mu)

Volatility(or sigma)

Paths

Clicking on the '+' and '-' respectively increases and decreases the values of each of the above three inputs.

Value

A graph of Arithmetic Brownian Motion path(s) for user specified Drift rate (mu) and the Volatility (sigma).

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[GBMPaths](#), [BrownianPaths](#)

`basicpayoffs`*Plot payoffs / profit and loss of European Call/Put.*

Description

Function to Plot payoffs / profit and loss of European Call/Put.

Usage

```
basicpayoffs()
```

Details

The user inputs are as follows:

Position: choose Long/Short/both

Option Type: chosen between Call/Put

Plot Type: chosen between Payoff/Profit-and-Loss

Value

Plot of payoffs / profit and loss of European Call/Put.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[trading.menu](#)

`bearsreadputs`*Profit & Loss plot of bear spread with puts.*

Description

Function to plot Profit & Loss of bear spread with puts.

Usage

```
bearsreadputs()
```

Details

Short put check box: checking it plots the Profit and loss of a short put position.

Long put check box: checking it plots the Profit and loss of a long put position.

Profit check box: checking it plots the over all Profit and loss of a bear spread with puts.

Value

Profit & Loss plot of bear spread with puts.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bullspreadcalls](#), [trading.menu](#)

blackscholes

Calculate the Black scholes formula value of a European Call/Put.

Description

Function to calculate the Black scholes formula value of a European Call/Put.

Usage

blackscholes()

Details

The user inputs are as follows:

Exercise style: chosen between European/American

Spot: to be entered in numbers for e.g. 120.50

Strike: to be entered in numbers for e.g. 110.50

Risk free rate per annum: to be entered in decimals. For e.g. 0.05 for 5 per cent

Maturity in number of years: to be entered in decimals. For e.g. 0.25 for a quarter year

Sigma (or Volatility) per annum: to be entered in decimals. For e.g. 0.25 for 25 per cent

Dividend yield: to be entered in decimals. For e.g. 0.02 for 2 per cent

Type of Option: chosen between Call/Put

Value

Calculate the Black scholes formula value of a European Call/Put.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[stockoptiontreegi](#)

| | |
|------------|---|
| bondchange | <i>Calculate the change in the price of a bond for change in yield based on the duration or duration and convexity approximation.</i> |
|------------|---|

Description

Function to calculate change in the price of a bond for change in yield based on the duration or duration and convexity approximation.

Usage

bondchange()

Details

The user inputs are as follows:
Face Value: to be entered in numbers for e.g. 1200.50
Modified Duration: percent per annum
Convexity: percent per annum
Change in yield (in basis points): clicking on "+/-" increases/decreases the yield.
Formula/Approximation: chosen between Duration/Duration and Convexity

Value

The change in the price of a bond for change in yield based on the duration or duration and convexity approximation.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bondchange](#), [bonddur](#)

| | |
|----------|---|
| bondconv | <i>Calculate the convexity of a bond.</i> |
|----------|---|

Description

Function to calculate the convexity of a bond.

Usage

```
bondconv()
```

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 1200.50

Coupon rate: percent per annum

Discount rate: percent per annum

Maturity: number of years

Note: Clicking on the '+' and '-' respectively increases and decreases the value.

Coupon Payments: chosen amongst Quarterly/Semi-annual/Annual

Frequency of rates: chosen amongst continuous/same as coupon/annual

Value

Duration of a bond.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bonddur](#), [bondprice](#)

bonddur

Calculate the duration of a bond.

Description

Function to calculate the duration of a bond.

Usage

bonddur()

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 1200.50

Coupon rate: percent per annum

Discount rate: percent per annum

Maturity: number of years

Note: Clicking on the '+' and '-' respectively increases and decreases the value.

Coupon Payments: chosen amongst Quarterly/Semi-annual/Annual

Frequency of rates: chosen amongst continuous/same as coupon/annual

Duration formula: chosen between Macaulay and Modified

Value

Duration of a bond.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bondchange](#), [bondprice](#)

bondforwardtreegui *Plot a Bond Forward Tree*

Description

Function to plot a Bond Forward Tree

Usage

bondforwardtreegui ()

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 120.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

Coupon: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Bond Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Forward Maturity: must be lesser than Bond Maturity. Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Bond Forward tree / Bond tree

Value

A plot of Bond Forward Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[bondtreegui](#), [bondfuturestreegui](#)

bondfuturestreogui *Plot a Bond Futures Tree*

Description

Function to plot a Bond Futures Tree

Usage

bondfuturestreogui ()

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 120.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

Coupon: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Bond Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Futures Maturity: must be lesser than Bond Maturity. Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Bond Futures tree / Bond tree

Value

A plot of Bond Futures Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[bondtreogui](#), [bondforwardtreogui](#)

bondoptiontreegui *Plot a Bond Option Tree*

Description

Function to plot a Bond Option Tree

Usage

```
bondoptiontreegui()
```

Details

The user inputs are as follows:

Type of Option: chosen between Call/Put

Exercise style: chosen between European/American

Face Value: to be entered in numbers for e.g. 120.50

Strike price: to be entered in numbers for e.g. 110.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

Coupon: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Bond Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Option Maturity: must be lesser than Bond Maturity. Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Bond Option tree / Bond tree

Value

A plot of Bond Option Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[bondtreegui](#)

| | |
|-----------|---------------------------------------|
| bondprice | <i>Calculate the price of a bond.</i> |
|-----------|---------------------------------------|

Description

Function to calculate the price of a bond.

Usage

bondprice()

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 1200.50

Coupon rate: percent per annum

Discount rate: percent per annum

Maturity: number of years

Note: Clicking on the '+' and '-' respectively increases and decreases the value.

Coupon Payments: chosen amongst Quarterly/Semi-annual/Annual

Value

Price of a bond.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bondchange](#), [bonddur](#)

`bondtreegui`*Plot a Bond Tree*

Description

Function to plot a Bond Tree

Usage

```
bondtreegui()
```

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 120.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

Coupon: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Bond Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Bond tree / Rate tree

Value

A plot of Bond Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[ratetreegui](#)

BrownianPaths

Simulate and plot Brownian Motion path(s)

Description

Function to simulate and plot Brownian Motion path(s)

Usage

BrownianPaths()

Details

The user inputs are as follows:

Paths

Clicking on the '+' and '-' respectively increases and decreases the values of each of the input.

Value

A graph of Brownian Motion path(s).

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[GBMPaths](#), [ABMPaths](#)

bullspreadcalls

Profit & Loss plot of bull spread with calls.

Description

Function to plot Profit & Loss of bull spread with calls.

Usage

bullspreadcalls()

Details

Long call check box: checking it plots the Profit and loss of a long call position.

Short call check box: checking it plots the Profit and loss of a short call position.

Profit check box: checking it plots the over all Profit and loss of a bull spread with calls.

Value

Profit & Loss plot of bull spread with calls.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bearsreadputs](#), [trading.menu](#)

butterfly

Profit & Loss plot of butterfly.

Description

Function to plot Profit & Loss of butterfly.

Usage

```
butterfly()
```

Details

Long call 1 check box: checking it plots the Profit and loss of a long call position.

Long call 2 check box: checking it plots the Profit and loss of a long call position.

Short two calls check box: checking it plots the Profit and loss of 2 short calls position.

Profit check box: checking it plots the over all Profit and loss of a butterfly.

Value

Profit & Loss plot of butterfly.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[reversebutterfly, trading.menu](#)

calcgreeks

Calculate the greeks for a European Call/Put.

Description

Function to calculate the greeks for a European Call/Put.

Usage

```
calcgreeks()
```

Details

The user inputs are as follows:

Spot: to be entered in numbers for e.g. 120.50

Strike: to be entered in numbers for e.g. 110.50

Maturity in number of years: to be entered in decimals. For e.g. 0.25 for a quarter year

Dividend yield: to be entered in decimals. For e.g. 0.02 for 2 per cent

Type of Option: chosen between Call/Put

Greek: chosen amongst Delta, Gamma, Vega, Theta, Rho

Sigma (Volatility) per annum

Risk free rate per annum:

Clicking "+ / -" increases/decreases the value of the above two inputs.

Value

The value of the chosen greek for a European Call/Put.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[blackscholes](#)

captreogui

Plot a Cap Tree

Description

Function to plot a Cap Tree

Usage

```
captreogui()
```

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 120.50

Strike: to be entered in numbers for e.g. 110.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Coupon: to be entered in percent. For e.g. enter 5.0 for 5 percent

Cap Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Cap tree / Rate tree

Value

A plot of Cap Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[ratetreogui](#), [floortreogui](#)

| | |
|-----------|---|
| cashprice | <i>Calculate the Cash price of a T Bond Futures</i> |
|-----------|---|

Description

Function to calculate the Cash price of a T Bond Futures

Usage

cashprice()

Details

The user inputs are as follows:

Quoted Price: e.g. 97.8

Conv. Factor: e.g. 1.06

Acc. Interest: in dollars e.g. 3.50

Value

The Cash price of a T Bond Futures.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[futurescurrency](#), [futurescommodity](#)

| | |
|--------|---|
| cdswap | <i>Calculate the spread in a credit default swap.</i> |
|--------|---|

Description

Function to calculate the spread in a credit default swap.

Usage

cdswap()

Details

The user inputs are as follows:

Notional: to be entered in numbers for e.g. 1000000

Risk free rate: entered in decimals for e.g. 0.05 for 5 per cent

Maturity in yrs: entered for e.g. 5 for 5 years

Probability of Default: entered in decimals for e.g. 0.02 for 2 per cent

Default assumption: chosen amongst End of Q1/End of half year/End of Q3/End of Year

recovery rate: Clicking on "+/-" increases/decreases the recovery rate.

Value

The spread in a credit default swap.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[curswapvalue](#), [cdswap](#)

curswapvalue

Calculate the value of a fixed-fixed currency swap.

Description

Function to calculate the value of a fixed-fixed currency swap.

Usage

curswapvalue()

Details

The user inputs are as follows:

Notional(Home): to be entered in numbers for e.g. 1000000

Payment rate (Home): entered in decimals for e.g. 0.05 for 5 per cent

Interest rate (Home): entered in decimals for e.g. 0.05 for 5 per cent

Notional(Foreign): to be entered in numbers for e.g. 1200000

Payment rate (Foreign): entered in decimals for e.g. 0.05 for 5 per cent

Interest rate (Foreign): entered in decimals for e.g. 0.05 for 5 per cent

Months for first payment: enter 3 for 3 months

Spot exchange rate: units of home currency per unit of foreign currency. e.g. 1.5 dollars per pound is entered as 1.5

Frequency of spot rates: chosen amongst continuous/quarterly/semi-annual/annual

Number of periods: corresponds to settlement frequency. for e.g. if settlement frequency is chosen as semi-annual, a value of 3 (Number of periods) means three semi-annums. Settlement frequency: chosen amongst quarterly/semi-annual/annual

Value

The Value of a fixed-fixed currency swap.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[irswapvalue](#), [cdswap](#)

durcoupon

Plot the relationship between duration and coupon rate of a bond.

Description

Function to Plot the relationship between duration and coupon rate of a bond.

Usage

durcoupon()

Details

The user inputs are as follows:

Discount Rate (Maturity (Yrs)

Clicking on "+/-" increases/decreases the values of the above two inputs

Value

A Plot of the relationship between duration and coupon rate of a bond.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bondchange](#), [bondprice](#)

durmaturity

Plot the relationship between duration and maturity of a bond.

Description

Function to Plot the relationship between duration and maturity of a bond.

Usage

```
durmaturity()
```

Details

The user inputs are as follows:

Coupon (Discount rate (or yield) (Clicking on "+/-" increases/decreases the values of the above two inputs.

Value

A Plot of the relationship between duration and maturity of a bond.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bondchange](#), [bondprice](#)

duryield

Plot the relationship between duration and yield of a bond.

Description

Function to Plot the relationship between duration and yield of a bond.

Usage

duryield()

Details

The user inputs are as follows:

Coupon (Maturity (Yrs)

Clicking on "+/-" increases/decreases the values of the above two inputs.

Value

A Plot of the relationship between duration and yield of a bond.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[bondchange](#), [bondprice](#)

eurodollar

Calculate the value of a eurodollar futures contract price from the CME IMM Quote.

Description

Function to calculate value of a eurodollar futures contract price for notional of 1 mn from the CME IMM Quote.

Usage

eurodollar()

Details

The user inputs are as follows:
CME Quote: e.g. 97.8

Value

The value of a eurodollar futures contract price for notional of 1 mn from the CME IMM Quote.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[futurescurrency](#), [futurescommodity](#)

floortreegui

Plot a Floor Tree

Description

Function to plot a Floor Tree

Usage

```
floortreegui()
```

Details

The user inputs are as follows:
Face Value: to be entered in numbers for e.g. 120.50
Strike: to be entered in numbers for e.g. 110.50
Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent
u: up move factor- to be entered in decimals. For e.g. 1.25
d: down move factor- to be entered in decimals. For e.g. 0.80
q: probability of up move- to be entered in decimals. For e.g. 0.60
Coupon: to be entered in percent. For e.g. enter 5.0 for 5 percent
Floor Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.
Plot type: chosen between Floor tree / Rate tree

Value

A plot of Floor Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[ratetreegui](#), [captreegui](#)

| | |
|------------------|--|
| forwardcommodity | <i>Calculate the forward value of a commodity.</i> |
|------------------|--|

Description

Function to calculate the forward value of a commodity.

Usage

```
forwardcommodity()
```

Details

The user inputs are as follows:

Spot: entered in decimals. For e.g. 105.50

Risk free Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Maturity: entered in number of years. For e.g. half year is 0.5

Convenience yield: entered in decimals. e.g. enter 0.02 for 2 per cent. Storage cost(s): entered with comma separation if it is in cash and occurring at multiple times e.g. 2.50, 3.0. If it is in yield terms, it is entered in decimals. e.g. enter 0.02 for 2 per cent

Storage time(s): entered with comma separation e.g. 0.25, 0.50 for 3 months and 6 months

Type of Income: chosen between yield/cash

Value

The forward value of a commodity.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[forwardcurrency](#), [forwardstock](#)

| | |
|-----------------|---|
| forwardcurrency | <i>Calculate the forward value of a currency.</i> |
|-----------------|---|

Description

Function to calculate the forward value of a currency.

Usage

forwardcurrency()

Details

The user inputs are as follows:

Spot: entered in decimals. For e.g. 105.50

Risk free Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Maturity: entered in number of years. For e.g. half year is 0.5

Foreign Interest(s): entered with comma separation if it is in cash and occurring at multiple times e.g. 2.50, 3.0. If it is in yield terms, it is entered in decimals. e.g. 0.02 for 2 per cent

Interest time(s): entered with comma separation e.g. 0.25, 0.50 for 3 months and 6 months

Type of Income: chosen between yield/cash

Value

The forward value of a currency.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[forwardstock](#), [forwardcommodity](#)

| | |
|--------------|--|
| forwardstock | <i>Calculate the forward value of a stock.</i> |
|--------------|--|

Description

Function to calculate the forward value of a stock.

Usage

forwardstock()

Details

The user inputs are as follows:

Spot: entered in decimals. For e.g. 105.50

Risk free Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Maturity: entered in number of years. For e.g. half year is 0.5

Dividend(s): entered with comma separation if it is in cash and occurring at multiple times e.g. 2.50, 3.0. If it is in yield terms, it is entered in decimals. e.g. 0.02 for 2 per cent

Dividend time(s): entered with comma separation e.g. 0.25,0.50 for dividends in 3 months and 6 months

Type of Income: chosen between yield/cash

Value

The forward value of a stock.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[forwardcurrency](#), [forwardcommodity](#)

fra *Calculate the forward rate.*

Description

Function to Calculate the forward rate.

Usage

fra()

Details

The user inputs are as follows:

Months1: number of months for the loan period to begin- enter 3 for 3 months

Rate1: enter in decimals. For e.g. 5 Months2: number of months for the loan period to end- enter 6 for 6 months

Rate2: enter in decimals. For e.g. 8 Frequency of spot rates: chosen between Continuous and Loan period

Value

The forward rate of interest.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[forwardcurrency](#), [forwardcommodity](#)

fravalue *Calculate the value of a forward rate agreement.*

Description

Function to Calculate value of a forward rate agreement.

Usage

fravalue()

Details

The user inputs are as follows:

Notional: enter notional value of FRA. e.g. 1 mn is entered as 1000000

Fixed Rate: enter in decimals. For e.g. 5 Fwd Rate: enter in decimals. For e.g. 8 Months1: number of months for the loan period to begin- enter 3 for 3 months

Months2: number of months for the loan period to end- enter 6 for 6 months

Value

The value of a forward rate agreement.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[fra](#)

futurescommodity *Calculate the value of a commodity futures.*

Description

Function to calculate the value of a commodity futures.

Usage

futurescommodity()

Details

The user inputs are as follows:

Spot: entered in decimals. For e.g. 105.50

Risk free Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Maturity: entered in number of years. For e.g. half year is 0.5

Convenience yield: entered in decimals. e.g. 0.02 for 2 per cent. Storage cost(s): entered with comma separation if it is in cash and occurring at multiple times e.g. 2.50, 3.0. If it is in yield terms, it is entered in decimals. e.g. 0.02 for 2 per cent

Storage time(s): entered with comma separation e.g. 0.25, 0.50 for 3 months and 6 months

Type of Income: chosen between yield/cash

Value

The value of a commodity futures.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[futurescurrency](#), [futuresstock](#)

futurescurrency

Calculate the value of a currency futures.

Description

Function to calculate the value of a currency futures.

Usage

futurescurrency()

Details

The user inputs are as follows:

Spot: entered in decimals. For e.g. 105.50

Risk free Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Maturity: entered in number of years. For e.g. half year is 0.5

Foreign Interest(s): entered with comma separation if it is in cash and occurring at multiple times e.g. 2.50, 3.0. If it is in yield terms, it is entered in decimals. e.g. 0.02 for 2 per cent

Interest time(s):entered with comma separation e.g. 0.25,0.50 for 3 months and 6 months
Type of Income: chosen between yield/cash

Value

The value of a currency futures.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[futuresstock](#), [futurescommodity](#)

futuresstock

Calculate the value of a stock futures.

Description

Function to calculate the value of a stock futures.

Usage

futuresstock()

Details

The user inputs are as follows:

Spot: entered in decimals. For e.g. 105.50

Risk free Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Maturity: entered in number of years. For e.g. half year is 0.5

Dividend(s): entered with comma separation if it is in cash and occurring at multiple times e.g. 2.50, 3.0. If it is in yield terms, it is entered in decimals. e.g. 0.02 for 2 per cent

Dividend time(s):entered with comma separation e.g. 0.25,0.50 for dividends in 3 months and 6 months

Type of Income: chosen between yield/cash

Value

The value of a stock futures.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[futurescurrency](#), [futurescommodity](#)

fv

Calculate the future value of an amount.

Description

Function to calculate the future value of an amount.

Usage

fv()

Details

The user inputs are as follows:

Present Value: entered in decimals. For e.g. 105.50

Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Time: entered in number of years. For e.g. half year is 0.5

Compounding frequency: chosen amongst continuous/Quarterly/Semi-annual/Annual

Value

The future value of an amount.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[fvann](#), [pv](#)

| | |
|-------|--|
| fvann | <i>Calculate the future value of an annuity.</i> |
|-------|--|

Description

Function to calculate the future value of an annuity.

Usage

fvann()

Details

The user inputs are as follows:

Installment: entered in decimals. For e.g. 105.50

Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Time: entered in number of years. For e.g. half year is 0.5

Payment frequency: chosen amongst Monthly/Quarterly/Semi-annual/Annual

Value

The future value of an annuity.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[pvann](#), [fv](#)

| | |
|----------|--|
| GBMPaths | <i>Simulate and plot Geometric Brownian Motion path(s)</i> |
|----------|--|

Description

Function to simulate and plot Geometric Brownian Motion path(s)

Usage

GBMPaths()

Details

The user inputs are as follows:

Drift (or mu)

Volatility(or sigma)

Paths

Clicking on the '+' and '-' respectively increases and decreases the values of each of the above three inputs.

Value

A plot of Geometric Brownian Motion path(s) showing the Drift rate (mu) and the Volatility (sigma).

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[ABMPaths](#), [BrownianPaths](#)

`greekneutrality`

Calculate the hedge positions for achieving greek(s) neutrality for European Call/Put.

Description

Function to calculate the hedge positions for achieving greek(s) neutrality for European Call/Put.

Usage

`greekneutrality()`

Details

The user inputs are as follows:

Positions: entered with comma separation in case of multiple options. Short positions are entered with a '-' sign prefixed. e.g. -1000, -500, -2000, -500

Deltas: entered with comma separation in case of multiple options. e.g. 0.5, 0.8, -0.4, 0.7

Gammas: entered with comma separation in case of multiple options. e.g. 2.2, 0.6, 1.3, 1.8

Vegas: entered with comma separation in case of multiple options. e.g. 1.8, 0.2, 0.7, 1.4

Type of Neutrality desired: chosen amongst Delta, Delta and Gamma, Delta and Vega, Delta Gamma and Vega

Delta, Gamma, Vega of traded option 1: entered with comma separation in case of multiple options.

e.g. 0.6, 1.5, 0.8

Delta, Gamma, Vega of traded option 2:entered with comma separation in case of multiple options.

e.g. 0.1, 0.5, 0.6

Value

Positions in the underlying or traded option(s) to achieve the desired greek neutrality

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[calcgreeks](#)

GUIDE

The main menu for the GUIDE package.

Description

Function to bring up the main menu for the GUIDE package

Usage

GUIDE()

Details

Entering "GUIDE()" brings up a GUI containing the following menus:

Forwards

Futures

Options

Swaps

Stochastic Processes

Value at Risk

Bonds and

Utilities

Value

The main menu for the GUIDE package

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

impvol

Calculate the Black scholes implied volatility of a European Call/Put.

Description

Function to calculate the Black scholes implied volatility of a European Call/Put.

Usage

impvol()

Details

The user inputs are as follows:

Exercise style: chosen between European/American

Spot: to be entered in numbers for e.g. 120.50

Strike: to be entered in numbers for e.g. 110.50

Risk free rate per annum: to be entered in decimals. For e.g. 0.05 for 5 per cent

Maturity in number of years: to be entered in decimals. For e.g. 0.25 for a quarter year

Dividend yield: to be entered in decimals. For e.g. 0.02 for 2 per cent

Mkt price: to be entered in numbers for e.g. 12.50

Type of Option: chosen between Call/Put

Value

The Black scholes implied volatility of a European Call/Put.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[blackscholes](#)

| | |
|-------------|--|
| irswapvalue | <i>Calculate the value of an interest rate swap.</i> |
|-------------|--|

Description

Function to calculate the value of an interest rate swap.

Usage

irswapvalue()

Details

The user inputs are as follows:

Notional: to be entered in decimals for e.g. 1000000

Fixed rate: entered in decimals for e.g. 0.05 for 5 per cent

Last spot rate: entered in decimals for e.g. 0.05 for 5 per cent

Months for first payment: enter 3 for 3 months

Spot rates: enter with comma separation. e.g. 0.054, 0.056, 0.058

Frequency of spot rates: chosen amongst continuous/quarterly/semi-annual/annual

Settlement frequency: chosen amongst quarterly/semi-annual/annual

Value

The Value of an interest rate swap.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[curswapvalue](#), [cdswap](#)

JDPaths

Simulate and plot Jump Diffusion path(s)

Description

Function to simulate and plot Jump Diffusion path(s)

Usage

JDPaths()

Details

The user inputs are as follows:

Drift (or mu)

Volatility(or sigma)

Mean of jumps

Std Dev of Jumps

Jump Intensity

Paths

Clicking on the '+' and '-' respectively increases and decreases the values of each of the above inputs.

Value

A graph of Jump Diffusion path(s) showing the parameter values.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[GBMPaths](#), [ABMPaths](#)

Premium3D

Option premium as a function of stock price/strike and time.

Description

Function to plot the option premium as a function of stock price/strike and time

Usage

Premium3D()

Details

The user inputs are as follows:

Type of Option: chosen between Call/Put

X-Y axis: chosen between Stock price-Time/Strike - Time

sigma

Risk free rate

Clicking on the '+'/'-' respectively increases/decreases the values.

Value

A plot of the option premium as a function of stock price/strike and time

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[basicpayoffs](#)

pricematurity

Plot the relationship between price and maturity of a bond.

Description

Function to Plot the relationship between price and maturity of a bond.

Usage

pricematurity()

Details

The user inputs are as follows:

Coupon rate (per cent p.a.)

Discount rate (or yield) p.a.

Moving the slider increases/decreases the values of the above two inputs.

Coupon frequency: chosen amongst quarterly, semi-annual and annual.

Value

A Plot of the relationship between price and maturity of a bond.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[priceyield](#), [bondprice](#)

priceyield

Plot the relationship between price and yield of a bond.

Description

Function to Plot the relationship between price and yield of a bond.

Usage

```
priceyield()
```

Details

The user inputs are as follows:

Coupon rate (per cent p.a.)

Maturity (yrs)

Moving the slider increases/decreases the values of the above two inputs.

Coupon frequency: chosen amongst quarterly, semi-annual and annual.

Value

A Plot of the relationship between price and yield of a bond.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[pricematurity](#), [bondprice](#)

pv

Calculate the Present value of an amount.

Description

Function to calculate the Present value of an amount.

Usage

pv()

Details

The user inputs are as follows:

Future Value: entered in decimals. For e.g. 105.50

Rate: entered in decimals. For e.g. 5\ per cent is entered as 0.05

Time: entered in number of years. For e.g. half year is 0.5

Compounding frequency: chosen amongst continuous/Quarterly/Semi-annual/Annual

Value

The Present value of an amount.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[pvann](#), [fv](#)

| | |
|------|--|
| pval | <i>Calculate the cumulative probability corresponding to a given a z value from a normal distribution.</i> |
|------|--|

Description

Function to calculate the cumulative probability corresponding to a given a z value from a normal distribution.

Usage

pval()

Details

The user input is as follows:

z value: A number that can be from - infinity to + infinity. E.g. -1.65

Value

The cumulative probability from the left tail of the distribution till the given z value.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[zval](#)

| | |
|-------|---|
| pvann | <i>Calculate the Present value of an annuity.</i> |
|-------|---|

Description

Function to calculate the Present value of an annuity.

Usage

pvann()

Details

The user inputs are as follows:

Installment: entered in decimals. For e.g. 105.50

Rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Time: entered in number of years. For e.g. half year is 0.5

Payment frequency: chosen amongst Monthly/Quarterly/Semi-annual/Annual

Value

The Present value of an annuity.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[pv](#), [fvann](#)

rate

Calculate rate in the desired frequency.

Description

Function to calculate rate in the desired frequency.

Usage

rate()

Details

The user inputs are as follows:

Given frequency: chosen amongst continuous/Quarterly/Semi-annual/Annual

Required frequency: chosen amongst continuous/Quarterly/Semi-annual/Annual

Given rate: entered in decimals. For e.g. 5 per cent is entered as 0.05

Value

Rate expressed the desired frequency.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[pv](#), [fv](#)

ratetreogui

Plot a interest rate tree

Description

Function to plot a interest rate tree

Usage

```
ratetreogui()
```

Details

The user inputs are as follows:

Rate: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Rate tree steps: Clicking on the '+' and '-' respectively increases and decreases the value.

Value

A plot of interest rate tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[bondtreogui](#)

reversebutterfly *Profit & Loss plot of reverse butterfly.*

Description

Function to plot Profit & Loss of reverse butterfly.

Usage

reversebutterfly()

Details

Short call 1 check box: checking it plots the Profit and loss of a Short call position.

Short call 2 check box: checking it plots the Profit and loss of a Short call position.

Long two calls check box: checking it plots the Profit and loss of 2 long calls position.

Profit check box: checking it plots the over all Profit and loss of a reverse butterfly.

Value

Profit & Loss plot of reverse butterfly.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[butterfly](#), [trading.menu](#)

reversestraddle *Profit & Loss plot of reverse straddle.*

Description

Function to plot Profit & Loss of reversestraddle.

Usage

reversestraddle()

Details

Long Put check box: checking it plots the Profit and loss of a long put position.
Long Call check box: checking it plots the Profit and loss of a long call position.
Profit check box: checking it plots the over all Profit and loss of a reverse straddle.

Value

Profit & Loss plot of reversestraddle.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[straddle](#), [trading.menu](#)

reversestrangle

Profit & Loss plot of reverse strangle.

Description

Function to plot Profit & Loss of reversestrangle.

Usage

```
reversestrangle()
```

Details

Long Put check box: checking it plots the Profit and loss of a long put position.
Long Call check box: checking it plots the Profit and loss of a long call position.
Profit check box: checking it plots the over all Profit and loss of a reverse strangle.

Value

Profit & Loss plot of reversestrangle.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[strangle](#), [trading.menu](#)

stockoptiontreegui *Plot a stock option Tree*

Description

Function to plot a Binomial stock Tree

Usage

```
stockoptiontreegui()
```

Details

The user inputs are as follows:

Type of Option: chosen between Call/Put

Exercise style: chosen between European/American

Stock Price: to be entered in numbers for e.g. 120.50

Strike price: to be entered in numbers for e.g. 110.50

Time in number of years: to be entered in decimals. For e.g. 0.25 for a quarter year

Volatility(or sigma) per annum: to be entered in decimals. For e.g. 0.25 for 25 percent

Risk free rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Dividend yield: to be entered in decimals. For e.g. 0.02 for 2 percent

No of steps: Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Stock tree / option tree

Value

A plot of Stock Tree / Option Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[blackscholes](#)

| | |
|-----------------|---|
| stockTimeGreeks | <i>Plot of option greeks for a European Call/Put as a function of stock price and time.</i> |
|-----------------|---|

Description

Function to plot of option greeks for a European Call/Put as a function of stock price and time.

Usage

```
stockTimeGreeks()
```

Details

The user inputs are as follows:

Type of Option: chosen between Call/Put

Greek: chosen amongst Delta, Gamma, Vega, Theta, Rho

Sigma (Volatility) per annum

Risk free rate per annum:

Clicking "+ / -" increases/decreases the value of the above two inputs.

Value

Plot of option greeks for a European Call/Put as a function of stock price and time.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[calcgreeks](#)

straddle

Profit & Loss plot of straddle.

Description

Function to plot Profit & Loss of straddle.

Usage

```
straddle()
```

Details

Long Put check box: checking it plots the Profit and loss of a long put position.

Long Call check box: checking it plots the Profit and loss of a long call position.

Profit check box: checking it plots the over all Profit and loss of a straddle.

Value

Profit & Loss plot of straddle.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[reversestraddle](#), [trading.menu](#)

strangle

Profit & Loss plot of strangle.

Description

Function to plot Profit & Loss of strangle.

Usage

```
strangle()
```

Details

Long Put check box: checking it plots the Profit and loss of a long put position.
Long Call check box: checking it plots the Profit and loss of a long call position.
Profit check box: checking it plots the over all Profit and loss of a strangle.

Value

Profit & Loss plot of strangle.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[reversestrangle](#), [trading.menu](#)

strap

Profit & Loss plot of strap.

Description

Function to plot Profit & Loss of strap.

Usage

```
strap()
```

Details

Two Long Calls check box: checking it plots the Profit and loss of a long put position.
Long Put check box: checking it plots the Profit and loss of a long call position.
Profit check box: checking it plots the over all Profit and loss of a strap.

Value

Profit & Loss plot of strap.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[strip, trading.menu](#)

strip

Profit & Loss plot of strip.

Description

Function to plot Profit & Loss of strip.

Usage

```
strip()
```

Details

Two Long Puts check box: checking it plots the Profit and loss of a long put position.

Long Call check box: checking it plots the Profit and loss of a long call position.

Profit check box: checking it plots the over all Profit and loss of a strip.

Value

Profit & Loss plot of strip.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[strap, trading.menu](#)

swaptiontreegui

Plot a Swaption Tree

Description

Function to plot a Swaption Tree

Usage

```
swaptiontreegui()
```

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 120.50

Strike price: to be entered in numbers for e.g. 110.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Swap Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Option Maturity: must be lesser than Swap Maturity. Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Swaption tree / Swap tree

Value

A plot of Swaption Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[bondoptiontreegui](#), [swaptreegui](#)

`swaptreogui`*Plot a swap Tree*

Description

Function to plot a Swap Tree

Usage

```
swaptreogui()
```

Details

The user inputs are as follows:

Face Value: to be entered in numbers for e.g. 120.50

Rate per annum: to be entered in percent. For e.g. enter 5.0 for 5 percent

u: up move factor- to be entered in decimals. For e.g. 1.25

d: down move factor- to be entered in decimals. For e.g. 0.80

q: probability of up move- to be entered in decimals. For e.g. 0.60

Fixed Rate: to be entered in percent. For e.g. 4.5 for 4.5 percent

Swap Maturity: Clicking on the '+' and '-' respectively increases and decreases the value.

Plot type: chosen between Swap tree / Rate tree

Value

A plot of Swap Tree with user specified parameters.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

David G. Luenberger, "Investment Science", 2/E, Oxford University Press, 2013.

See Also

[ratetreogui](#), [swaptiontreogui](#)

trading.menu

A menu for Option trading strategies.

Description

Function to bring up the menu for option trading strategies.

Usage

```
trading.menu()
```

Details

Brings up a menu of option trading strategies to choose from. Strategies include:

Bull spread

Bear spread

Butterfly

Reverse butterfly

Straddle

Reverse straddle

Strangle

Reverse Strangle

Strip

Strap

Making a choice plots the chosen trading strategy.

Value

A menu of various Option trading strategies.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[basicpayoffs](#)

`var1stock`*Calculate the value at risk of a single stock.*

Description

Function to calculate the value at risk of a single stock.

Usage

```
var1stock()
```

Details

The user inputs are as follows:

Value of the stock: to be entered in numbers for e.g. 110.50

mu: the expected return- to be entered in decimals. For e.g. 0.05 for 5 per cent

Sigma (or Volatility) per annum: to be entered in decimals. For e.g. 0.25 for 25 per cent

Confidence level: to be entered in decimals. For e.g. 0.95 for 95 per cent

Horizon (in months): For e.g. enter 12 for a year

Distribution: chosen between normal/lognormal

Value

The dollar value at risk of a single stock.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[var2stocks](#)

`var2stocks`*Calculate the value at risk of two stocks.*

Description

Function to calculate the value at risk of two stocks.

Usage

```
var2stocks()
```

Details

The user inputs are as follows:

Value of the first stock: to be entered in numbers for e.g. 110.50

Value of the second stock: to be entered in numbers for e.g. 170.50

mu1: the expected return- to be entered in decimals. For e.g. 0.05 for 5 per cent

mu2: the expected return- to be entered in decimals. For e.g. 0.06 for 6 per cent

Sigma1 (or Volatility) per annum: to be entered in decimals. For e.g. 0.25 for 25 per cent

Sigma2 (or Volatility) per annum: to be entered in decimals. For e.g. 0.3 for 30 per cent

Confidence level: to be entered in decimals. For e.g. 0.95 for 95 per cent

Correlation: a number between -1 and +1 to be entered in decimals. For e.g. 0.6

Horizon (in months): For e.g. enter 12 for a year

Distribution: chosen between normal/lognormal

Value

The dollar value at risk of two stocks.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[var1stock](#)

`varbehavior`*Plot the behavior of value at risk as a function of its determinants.*

Description

Function to plot the behavior of value at risk as a function of its determinants.

Usage

```
varbehavior()
```

Details

The user inputs are as follows:

weight1: The weight of stock 1

mu1: the expected return

Sigma1 (or Volatility) per annum:

mu2: the expected return

Sigma2 (or Volatility) per annum:

Clicking on "+/-" increases/decreases the values of each of the above parameters.

Value

A graph of the behavior of value at risk as a function of its determinants.

Author(s)

S Subramanian <ssubramanian@ssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[var1stock](#), [var2stocks](#)

zval

Calculate the cumulative probability corresponding to a given a z value from a normal distribution.

Description

Function to calculate the cumulative probability corresponding to a given a z value from a normal distribution.

Usage

zval()

Details

The user input is as follows:

z value: A number that can be from - infinity to + infinity. E.g. -1.65

Value

The cumulative probability from the left tail of the distribution till the given z value.

Author(s)

S Subramanian <ssubramanian@sssihl.edu.in>

References

John C. Hull, "Options, Futures, and Other Derivatives", 8/E, Prentice Hall, 2012.

See Also

[pval](#)

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