Package 'BCC1997'

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Type Package

Title Calculation of Option Prices Based on a Universal Solution

Version 0.1.1

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Description Calculates the prices of European options based on the universal solution provided by Bakshi, Cao and Chen (1997) <doi:10.1111/j.1540-6261.1997.tb02749.x>. This solution considers stochastic volatility, stochastic interest and random jumps. Please cite their work if this package is used.

Depends R (>= 3.1.0)

Imports stats

Encoding UTF-8

LazyData true

RoxygenNote 6.0.1

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

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BCC *Calculation of Option Prices Based on a Universal Solution*

Description

This is a function to calculate the prices of European options based on the universal solution provided by Bakshi, Cao and Chen (1997) <doi:10.1111/j.1540-6261.1997.tb02749.x>. This solution takes stochastic volatility, stochastic interest and random jumps into consideration. Please cite their work if this package is used.

Usage

```
BCC(kappav, kappar, thetav, thetar, sigmav, sigmar, muj, sigmaj, rho, lambda,
  S0, K, V0, R0, t)
```

Arguments

kappav	Speed of convergence on variance
kappar	Speed of convergence on risk free rate
thetav	Long-term variance
thetar	Long-term risk free rate
sigmav	Volatility of variance
sigmar	Volatility of risk free rate
muj	Jump size
sigmaj	Volatility of jumps
rho	Correlation between underlying price and variance
lambda	Jump intensity
S0	Initial/Current underlying price
K	Strike price
V0	Initial/Current variance
R0	Initial/Current risk free rate
t	Time to maturity

Value

Call: return the price of the European call oprion

Put: return the price of the European put oprion

Note

Please notice each parameter has its "reasonable range". e.g. volatilities cannot be zero or smaller than zero, please input 0.0000001 when they are zero.

Examples

```
BCC(kappav=0,kappar=0,thetav=0,thetar=0,sigmav=0.0000001,sigmar=0.0000001,muj=0,
        sigmaj=0.0000001,rho=0,lambda=0,S0=100,K=100,V0=0.04,R0=0.01,t=1)
BCC(kappav=0.5,kappar=0,thetav=0.025,thetar=0,sigmav=0.09,sigmar=0.0000001,muj=0,
        sigmaj=0.0000001,rho=0.1,lambda=0,S0=100,K=100,V0=0.04,R0=0.01,t=1)
```

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