Implementasi metode dimension reduction monte carlo pada model six-factor cross currency untuk menentukan harga opsi = Implementation of dimension reductio monte carlo method to determine option price under six-factor cross currency model

Natalia Jennifer, author

Abstrak

ABSTRACT
Penentuan harga opsi penting untuk meningkatkan pendapatan untuk keperluan investasi. Pada skripsi ini, metode dimension reduction Monte Carlo diimplementasikan pada model six-factor cross currency untuk menentukan harga opsi Eropa. Model six-factor cross currency merupakan suatu model berdimensi tinggi yang biasa diselesaikan menggunakan metode Monte Carlo. Akan tetapi, metode Monte Carlo membutuhkan jumlah simulasi yang besar. Dimension Reduction Monte Carlo merupakan suatu pendekatan yang digunakan untuk mereduksi jumlah dimensi pada model berdimensi tinggi secara one-way coupling. Metode tersebut dapat digunakan untuk mereduksi dimensi dari model six-factor cross currency dari 6 menjadi 1. Melalui pendekatan dimension reduction, hanya satu variabel yang perlu diaproksimasi. Pada kasus tersebut, dipilih variabel variansi dari spot foreign exchange rate dan nilainya diaproksimasi menggunakan metode Milstein.
<hr>
ABSTRACT
Option pricing determination is important in order to increase profit for investment. In this thesis defend, the dimension reduction Monte Carlo method is implemented to determine put and call European option pricing under a six-factor cross currency model. A six-factor cross currency model is a high-dimensional model which is usually solved using Monte Carlo. However, Monte Carlo requires hugh numbers of simulations. Dimension reduction Monte Carlo is an approach for reducing the dimension of high-dimensional models with one-way coupling. It can be applied to reduce the dimension of six-factor cross currency from 6 to 1. By the dimension reduction approach, only the factor that is conditioned on is needed to be approximated. In this case, the variance of spot foreign exchange rate is chosen as the factor that is conditioned on and its value is approximated using the Milstein method.