Penentuan harga opsi menggunakan pendekatan regime-switching dengan threshold diffusion process = Option pricing by using regime switching approach with threshold diffusion process

Dhea Arokhman Yusufi Cahyo, author

Abstrak

ABSTRAK
Penentuan harga opsi sering dimodelkan menggunakan persamaan Black-Scholes dimana harga aset pada persamaan Black-Scholes dirumuskan dengan gerak Geometrik-Brownian. Namun gerak Geometrik-Brownian sering tidak konsisten terhadap harga pasar aktual karena tidak ada pengelompokan rezim dalam modelnya constant return rate . Model threshold autoregressive diadaptasi pada gerak Geometrik-Brownian sehingga parameter dari gerak Geometrik-Brownian berganti-ganti setiap terjadi regime-switching. Regime-switching ditandai dengan pergerakan force of interest dari harga aset yang mengikuti gerak Brownian. Asumsi pasar tidak lengkap menyebabkan ada tak hingga satuan ukur risk-neutral. Satuan ukur risk-neutral yang diinginkan, didapatkan menggunakan metode transformasi Esscher dan minimal entropy martingale measure MEMM . Pada akhirnya harga opsi dapat dihitung menggunakan satuan ukur risk-neutral yang telah didapatkan.
<hr>
ABSTRACT
Option pricing is often modeled using the Black Scholes equation where the asset price of the Black Scholes equation is formulated by Geometric Brownian motion. But Geometric Brownian motion is often inconsistent with market prices because there is no regime grouping in the model constant return rate . The threshold autoregressive model is adapted to Geometric Brownian motion so that the parameters of Geometric Brownian motion will alternate between regimes. Regime switching are detected by the movement of force of interest from the price of the underlying assets. The market assumption is incomplete causing there are infinite existences of risk neutral measure. The desired risk neutral measure, obtained using the Esscher transformation method and a minimum entropy martingale measure MEMM . In the end, the option price can be calculated using the risk neutral measure that already obtained.