عنوان مقاله:
Option Pricing on Commodity Prices Using Jump Diffusion Models

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خلاصه مقاله:
In this paper, we aim at developing a model for option pricing to reduce the risks associated with Ethiopian commodity prices fluctuations. We used the daily closed Unwashed Lekempti grade ۵ (ULK۵) coffee and Whitish Wollega Sesame Seed Grade۳ (WWSS۳) prices obtained from Ethiopia commodity exchange (ECX) market to analyse the prices fluctuations.The natures of log-returns of the prices exhibit asymmetric heavy tails and high kurtosis. We used jump diffusion models for modeling and option pricing on commodity prices. The method of maximum likelihood is applied to estimate the parameters under the models. The root mean square error (RMSE) is used to test the goodness of fitting for the models to the data. This test indicates that the models fit the data well. The techniques of analytical and Monte Carlo simulation are used to find the call option pricing of the commodity prices. Based on the empirical results, we conclude that double exponential jump diffusion model is more efficient than Merton's model for modeling and option pricing of the commodity prices.

کلمات کلیدی:
Jump diffusion model, Option pricing, Kurtosis, Skewness, Risk neutral measure, Commodity prices