World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Basket Option Pricing under Jump Diffusion Models

Authors : Ali Safdari-Vaighani

Abstract : Pricing financial contracts on several underlying assets received more and more interest as a demand for complex derivatives. The option pricing under asset price involving jump diffusion processes leads to the partial integral differential equation (PIDEs), which is an extension of the Black-Scholes PDE with a new integral term. The aim of this paper is to show how basket option prices in the jump diffusion models, mainly on the Merton model, can be computed using RBF based approximation methods. For a test problem, the RBF-PU method is applied for numerical solution of partial integral differential equation arising from the two-asset European vanilla put options. The numerical result shows the accuracy and efficiency of the presented method.

Keywords : basket option, jump diffusion, radial basis function, RBF-PUM
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020