

1163-91-1334

Martin Le Doux Mbele Bidima* (mbelebidima@gmail.com), University of Yaounde I, Department of Mathematics, PO Box 812, Yaounde, Cameroon, and **Tesfamariam Tadesse Welemical** (tesfatade@gmail.com), Askum University, Ethiopia. *A New Two-factor Commodity Model of Schwartz-CIR Type for Futures Contracts Pricing.*

The two-factor model for storable commodity developed by Schwartz (1997) has the main drawback that the second factor i.e., the net convenience yield, which is modeled as an Ornstein-Uhlenbeck (OU) process, can be negative, which may lead to cash-storage arbitrage opportunity as proved a decade ago by Liu and Tang (2010). In this talk, we propose a new model overcoming this drawback by modifying the diffusion part of spot prices dynamics and by assuming that the net convenience yield follows the Cox-Ingersoll-Ross (CIR) process instead of an OU process. With this new model, we derive a new pricing formula for futures contracts on the storable commodity. Finally, using Kalman Filter method, we calibrate the new model to crud oil real data taken for US Energy Information Administration, showing that our proposed model presents less volatile futures prices than the Schwartz (1997)'s. (Received September 15, 2020)