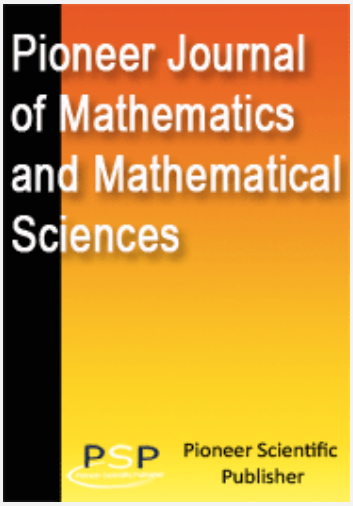
Pioneer Journal of Mathematics and Mathematical Sciences
Volume 23, Issue 2, Pages 93-103 (July 2018)

ISSN: 2230-9829



MODELLING BASED IN STOCHASTIC NON-LINEAR DIFFERENTIAL EQUATION FOR PRICE DYNAMICS

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Received May 3, 2018; Revised August 10, 2018

Abstract

The model of Itô's diffusion based in a ϕ^n -potential is proposed as a mathematical model for price dynamics. We have investigated the behaviour of the long tail distribution of the volatilities and verified the inverse power law behaviour obeyed for some financial markets. We obtain the behaviour of the long range memory for the model and obtain that it follows a distinct behaviour of the described by other models such as the two-dimensional Ising model that are used as a models for the financial market.

Keywords and phrases: nonlinear, stochastic Itô differential equations, price dynamics.