An enhanced applications of brownian motion to mathematical finance in stochastic modeling

R. Sasikumar*

Department of Statistics
M. S. University
Tirunelveli
Tamilnadu, 627 012
India

Abstract

There is always a factor of uncertainty in any economic situation, and in order to make the right investment decisions, or to choose the right business strategy, we require some form of workable hypothesis (that takes into account uncertainty and randomness) to base our decisions upon. Bachelier (1900), first proposed that financial markets follow a 'random walk' which can be modeled by standard probability calculus. In the simplest terms, a "random walk" is essentially a Brownian motion (BM) where the previous change in the value of a variable is unrelated to future or past changes. In this paper, the ideas presented here from the basis of many developments in the field of mathematical finance which have had a proposed impact on theory and practice. Applications of BM to mathematical finance is also discussed.