MODELING LONG RANGE DEPENDENCE USING FRACTIONAL BROWN MOTION IN BSE SENSEX

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ABSTRACT

Brownian motion which is used to model stock price returns has the assumption that price changes are independent and identically distributed (IID), since many studies have shown that they are dependent. Fractional Brownian motion is a modification of Brownian motion with a parameter H (Hurst exponent). H determines the autocorrelation of time series. If H=1/2 it is a Brownian motion, H>1/2 persistent and H<1/2 anti persistent. This study shows that markets are not efficient.

KEY WORDS - Fractional Brownian motion, Long range dependence, Joseph effect, Hurst exponent, self similarity.

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