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The Volatility Measure Significance in Stock Valuation

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Abstract

Our central interest in this paper is to present the significance of volatility in a stock price valuation with a real case data and its prediction from 'financial theory' and 'advanced mathematics', as a general assumption that while modelling of the stock return are 'normally' distributed and the volatility is *constant*, we observed from the time series of stock returns, in reality it is easy to predict that both of these notions are not consistent with the real data.

To measure volatility of future prices is very difficult, with advancing stochastic probabilistic models, stable distribution processes the volatility is predictable and simulated the data to verify the model behaviour in this paper. The final motto is when an investor aware how much volatility he is exposed to, so that he is wise enough to make decisions on his portfolio of investments.

I. Introduction

THE MOTIVATION OF this work is to explore the possible way to managing the risk and pricing assets from the advances in technologies with help of mathematical models and simulation techniques in a continuous time rather discrete time intervals. To name, Brownian motion (Bachelier, 1900) evolved as the benchmark process for explaining asset returns in continuous time. Over the period of time, many theories, models and studies on the time series of asset returns and stock price valuation conclude that- asset prices are not jump-free path follows return distributions are skewed with 'heavy tails' and non-Gaussian, volatility realization are actually *chaotic* (Peters, 1991) (rather stochastic) systems, it is known that such systems can bring about phenomena e.g. 'cluster property' (Mandelbrot,

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peaked near the mean and have what traders refer to as *fat tails*. In contrast, no concept in financial mathematics if as loosely interpreted and as deeply discussed as *'volatility'* and is used to denote various measures of changeability, volatility is the natural measure of uncertainty and changeability, the standard deviation σ.

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