

Long Memory in Stock Market Volatility: Indian Evidences

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Long memory in variance or volatility refers to a slow hyperbolic decay in auto-correlation functions of the squared or log-squared returns. GARCH models extensively used in empirical analysis do not account for long memory in volatility. The present paper examines the issue of long memory in volatility in the context of Indian stock market using the fractionally integrated generalized autoregressive conditional heteroscedasticity (FIGARCH) model. Daily values of 38 indices from both National Stock Exchange and Bombay Stock Exchange are used. The results of the study confirm presence of long memory in volatility of all the index returns. This shows that FIGARCH model better describes the persistence in volatility than the conventional ARCH-GARCH models.

I Introduction

The rapid growth of emerging markets like India in the recent past and the increasing importance of the Indian equity market in global finance have attracted the attention of investors across the globe to her. As a result, there has been increasing interest among researchers, investors and practitioners to understand the behaviour of the Indian stock market. Thin-trading, high volatility and various frictions generally characterize stock markets of emerging economies. Volatility in stock returns has been considered as an indicator of vulnerability of financial markets and the economy. Volatility forecasting is also essential for option pricing and value at risk modelling. Absolute returns, squared and log-squared returns are used as proxies of returns volatility in empirical studies.

A large volume of literature focuses on modelling volatility. The unconditional volatility models which assume that volatility would be constant are the oldest found in the literature. Later, scholars have recognized the fact that volatility cannot be constant as it evolves overtime and shocks persist for a long time. Hence, several conditional volatility models have been proposed to capture the volatility persistence properties in conditional variance. Autoregressive

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