A Study of Efficiency of Indian Stock Market

Abstract

Whether or not the markets are efficient has been investigated by the economists for a long time. Economists have investigated the phenomenon of price determination in different market settings like the monopoly, oligopoly, and perfect competition. One of the most important markets that have been studied by economists has been the perfect competition. Under perfect competition, market equilibrium ensures that prices of different markets do not deviate much from the equilibrium price and the new information is absorbed by the market as and when it is made available. Therefore, the prices in this market reflect all the available information and it is referred as Efficient Market Hypothesis (EMH) (Fama 1965, 1970). The development of the capital markets is changing the relevance and empirical validity of the EMH. The dynamism of capital markets determines the need for efficiency research. This study aims at testing the random walk hypothesis (RWH), semi-strong form of market efficiency and P/E effect in the Indian stock market. In the first part, we examine the RWH of Indian stock market. The study considered daily closing prices of BSE-500 companies from 1st January 1990 to 31st December 2013. Data is collected from PROWESS database of the Centre for Monitoring Indian Economy (CMIE). Both parametric and nonparametric tests are applied for the purpose of testing RWH. The results suggested that the Indian stock market is inefficient and doesn’t follow RWH during the study period. The study reports that all the stock prices are influenced largely by historical prices and other information that is publically available. Thus, it can be concluded that the Indian stock market is informationally inefficient and investor can usurp privileged information to make abnormal profits. In the second section, we study the information content of accounting numbers and the speed at which the new information is incorporated into stock prices. The sample is composed of 32 quarters earnings announcements of BSE-500 based companies published by Centre for Monitoring Indian Economy (CMIE) during the period March 2006 to December 2013. For every date, the event is classified into one of three categories: good news, bad news or full sample portfolio. The study uses event study methodology to examine market reaction before and after the event. We use mean adjusted model, market adjusted model and market model to calculate the abnormal returns of the sample companies. The analysis reveals several results. Firstly, investors reacted positively to quarterly earnings announcement for majority of the quarters. Secondly, average abnormal returns (AAR) and cumulative average abnormal
returns (CAAR) are statistically significant for majority of the days in the event window. Thirdly, Runs test shows that AARs are the non-random for mean adjusted model and market model. Finally, the Sign statistics rejects the null hypothesis that there is a significant difference between the number of positive and negative AARs for the mean adjusted model and market model. However, investigation of the CAARs shows that the returns are not only positive for most of the days but are also statistically significant for most of the days. The CAAR values clearly show that the investors who use the buy-and-hold strategy in the event window period have been able to make abnormal profits. Therefore, we conclude that the Indian stock market is not efficient in the semi-strong form. Further, many financial anomalies explains the departure from EMH theory emerged in the securities market and one among them is P/E anomaly. Nicolas (1960, 1968) examined the P/E effect to know whether low P/E stocks outperform the high P/E stocks. In the third section, we examine whether there is P/E effect in the Indian stock market. We use BSE-500 companies as our sample. We use 9 years data from January 2005 to December 2013 and apply performance measures like Treynor's reward to volatility measure, Sharpe's reward-to-variability and Jensen's differential return to analyse the performance of high and low P/E portfolios. The results confirm that high P/E portfolios perform better than low P/E portfolios in Indian stock market. These results suggest that there is P/E effect in the Indian market and therefore, the EMH does not hold. The implication of this study for the regulators is that the Indian market is still to mature in terms of information assimilation and there is a need for investigating how the information flows and gets assimilated by the market participants.

**Key words:** Market efficiency, Indian stock market, Random walk hypothesis, Semi-strong form efficiency, quarterly earnings, average abnormal returns (AAR), cumulative average abnormal returns (CAAR), P/E effect, information assimilation.