

Testing Informational Efficiency of Indian Stock Market – A Study With Reference To Fast Moving Consumer Goods Industry

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ABSTRACT

An efficient and integrated Capital Market is an important infrastructure that facilitates capital formation, which is possible only if the securities traded in the markets are priced appropriately. The efficiency with which the capital formation is carried out depends on the efficiency of the capital markets and financial institutions. A capital market is said to be efficient with respect to an information item if the prices of securities fully impound the returns implications of that item. This study has empirically examined the informational efficiency of capital market with regard to stock split announcement information released by the FMCG companies in the semi-strong form of EMH. The study found that the Indian Capital market is not perfectly efficient in the semi- strong form of EMH, which can be used by the investors to make abnormal returns.

Keywords: Quarterly Announcement, Efficient Market Hypothesis, Market, Reaction/Stock Price Reaction, Abnormal Returns, Announcement Period.

I. INTRODUCTION

The economic development of any country depends upon the existence of a well organized financial system. The well established financial system is one which supplies the necessary financial inputs for the production of goods and services with a view to promote the well being and standard of living of the people of a country. Financial markets refer to the place where financial assets are created and transferred. It is classified into capital market and money market. Capital markets play a vital role in capital formation of the Indian economy. It would not be an exaggeration to say that of all the segments of the financial system, the capital markets have the most crucial role to play in the process of capital formation. The efficiency with which the process of capital formation is carried out depends on the efficiency of the capital markets and the financial institutions. All the developed economies of the world achieved a high level of growth in capital formation mainly on account of the efficient function of their capital market.

Capital Market Efficiency

Capital market efficiency is an important research topic. The efficiency, in the context of capital markets, is commonly assumed to refer to the incorporation of the expectations and information of all market participants into the prices of financial assets. The concept of efficient capital market has been continuously developed, studied and tested by French mathematician Bachelier (1900). Bachelier recognized that “past, present and even discounted future events are reflected in market price, but often show no apparent relations to price changes”.

Efficient Market Hypothesis Theory (EMH)

The phrase “Efficient Market” is used to describe the market price that fully reflects all available information. An Efficient Market is defined as a market where there are large numbers of rational, profit maximizing actively competing, with each trying to predict future market values of individual securities and where important current information is almost freely available to all participants (Ross et al. 2005). According to this theory, the stock market will have random walk. Random walk hypothesis assumes that price volatility is exogenous and unexplained. Randomness means that knowledge of the past cannot help to predict the future.

Statement of Problem

A capital market is said to be efficient with respect to an information item if the prices of securities fully impound the return implications of that item. In an efficient market, when a new information item is added to the market, its revaluation implications for security returns are instantaneously and unbiasedly impounded in the current market price. Several studies have empirically tested the reaction of security prices to the release of different information. The result of these studies shows that there is a reaction in the security prices to the release of accounting information and

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there is abnormal return during the announcement periods. Only very few studies have tested the efficiency of the Indian capital market with respect to stock split announcement information. Further, these studies could not find out the exact period during which the market reacts to information. The FMCG stocks are highly active in the Indian capital market during the last decade. With this background the present study is an attempt to examine the informational efficiency of stock split announcement by the Indian FMCG companies.

II. REVIEW OF LITERATURE

The following are important studies which are relevant for the present study.

Beaver (1968), a classic study in the field of event studies, examined Trading Volume Activity (TVA) and Security Return Variability (SRV). The study finds that there was a dramatic increase in the trading volume activity and security return variability during the annual earnings announcement week. Patel and Wolfson (1984) examined the intra-day behaviour of security returns in the period surrounding earnings announcements. The study concludes that there is a very strong reaction at the announcement, the major portion of which decays within two hours, but with detectable traces that lingers in to the following day. Examining the security return variability for a sample of interim and annual earnings announcements by Foster (1981) concludes that in the two-day trading day up to and including the report of earnings in The Wall Street Journal, there was a 78 percent increase in security return variability relative to the variability of two-day security returns in non-announcement periods. Richardson (1984) examined a sample of 153 New York Stock Exchange and American Stock Exchange firms and reports that there was a 40 percent increase in the variability of security returns in the earnings announcement week. Ball and Brown (1968) examined the security return behaviour of 261 firms listed in the New York Stock Exchange. The study finds that the reported earnings increases experience a 5.6% abnormal returns and earnings decrease resulted in a -11.3% abnormal returns in the 12 months up to and including the earnings announcement month.

M.Selvam, S.Vanitha and M.Raja (2006) Study the share price reaction to mergers and acquisitions on Industrial Credit Investment Corporation of India Bank (ICICI Bank) and found that there is no difference in the security price behaviour of ICICI Bank around Merger and acquisition announcement. M.Selvam and M.Raja (2008) examined the impact of terrorism on Asian Stock Market and they found that among the asisan stock market, Indian stock markets are more resilient than in the pastand they recovered sooner from the terrorist attacks than other Asian stock market.

M.Raja, J.Clement Sudhahar and M.Selvam (2009) testing the informational efficiency of Indian capital market with respect to buyback announcement by IT companies found that the buyback announcement contained informationare useful for valuing the securities and for buyback announcement the market was react quickly

during post buyback announcement. M. Raja (2010) testing the efficiency of Indian capital market with respect to quarterly announcement by petrochemical industry found that Indian capital market is not perfectly efficient in the semi-strong form of efficiency market hypothesis, which can be used by the investors to make abnormal returns.

The SRV model which has been used in many early studies on the developed markets indicates the market/security price reaction to information. This model has not been tested on the Indian capital market. Very few studies have been made in India to test the information content of stock split announcement by FMCG companies. Therefore, the present study is an attempt to fill this gap.

III. DATA AND METHODOLOGY

Objectives of the Study

The main objective of the study is to test the informational efficiency of the stock split announcement by the FMCG companies. The specific objectives of the study are:

- To examine the information content of the stock split announcement by FMCG Companies.
- To test how quickly and how effectively the information content are captured by the market.
- To test the direction and magnitude of change in the security prices around the date of announcement of stock split announcement.

Data

The study intends to cover only the FMCG industry stocks listed in the Bombay Stock Exchange. There are 25 FMCG stocks were considered for the study. The criteria for selecting the sample were active trading, and availability of the dates of announcement of stock split announcement and the availability of stock split announcement information. Active trading is considered in order to ensure the availability of daily prices. The study covers five accounting years from 2013 to 2018.

Methodology

Security return variability (SRV) and Cumulative abnormal return (CAR) models have used for analyzing the reaction of security prices to the announcement of stock split. The daily returns on each security in the sample were calculated using the daily prices adjusted for dividends, bonus issues, rights issues, stock splits and stock consolidations, using equation 1, as follows:

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$$R_{i,t} = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100 \quad \text{----- (1)}$$

Where $R_{i,t}$ = Return on security i on time t.

P_t = Price of the security at time t.

P_{t-1} = Price at time t-1.

Equation 1 was used to calculate the return from the market index too.

Security Return Variability (SRV)

In order to examine the reaction of security prices and the information content of stock split announcement, the Security Return Variability model is used. The model is,

$$SRV_{i,t} = \frac{AR_{i,t}^2}{V(AR_{i,t})} \quad \text{----- (2)}$$

Where, $SRV_{i,t}$ = Security Return Variability of security i in time t.

$AR_{i,t}$ is the abnormal return on security i on day t.

$V(AR_{i,t})$ = Variance of abnormal returns during the announcement period.

The significance of reaction in prices is tested using the t-test. The t-statistic is calculated

$$t_{stat} = \frac{ASRV_{i,t} - 1}{S/\sqrt{n}} \quad \text{----- (3)}$$

Where n is the number of stock split announcement in the sample and S is the standard deviation of SRV.

Abnormal Return

The sign of the abnormal return, which shows the direction of security price movement to the reported earnings change and the magnitude of abnormal return, are calculated for study period. Abnormal returns were calculated based on Sensex adjusted return.

Abnormal return under **Risk Adjusted Return** were calculated using capital Asset Pricing Model (CAPM) as follows

$$R_i = R_f + (R_m - R_f) \beta_i \text{----- (4)}$$

Where R_f = Risk free rate

R_m = Market return

β_i = Beta coefficient for security i

$$\beta_i = \text{Cov}_{im} / \sigma_m^2$$

Where $\text{Cov}_{i,m}$ = Covariance of security return to market return

β_i = Beta for security i

σ_m^2 = Variance of market return

Beta for one year proceeding the announcement period were calculated and taken as beta for calculating return under CAPM for the same announcement period.

Abnormal return under **Sensex –Adjusted Return** is

$$AR_{i,t} = R_{i,t} - R_{m,t} \text{----- (5)}$$

$R_{i,t}$ is the return on security i on time t.

$R_{m,t}$ is the return on the market index (Sensex an index of 30 active securities of the Bombay Stock Exchange) on time t.

The **Average Abnormal Return** is calculated as

$$AAR_t = \frac{\sum_{i=1}^n AR_{i,t}}{n} \text{----- (7)}$$

Where, AAR_t is the average abnormal return on day t and $AR_{i,t}$ is the abnormal return on security i on day t.

The significance of the AAR_t is tested using the t test as follows:

$$t_{stat} = \frac{AAR_t - 0}{S/\sqrt{n}} \text{----- (8)}$$

The cumulative abnormal return (CAAR) is calculated to find the magnitude of abnormal returns for different holding periods and for different stock split announcements change categories. It is calculated as

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$$CAAR_k = \sum_{t=1}^k AAR_t \text{ ----- (9)}$$

Where, AAR_t is the average abnormal return of the sample securities at time t

Limitations of the study

- The study has been confined only to the FMCG industry
- Only the semi-strong form of efficiency has been analyzed in this study
- The study is restricted with SRV and CAR model alone

Result and Discussion

Table-1: ASRV around the Stock Split Announcement

The ASRV were calculated for the entire sample based on Sensex adjusted returns. The ASRV were calculated for the entire sample of 86 quarterly earnings announcement based on Sensex adjusted returns. It is understand from the above that the ASRV based on Sensex adjusted returns react sharply on day 0 and 1. The ASRV on day 0 is 1.39 and on day 1 it is 1.61. This shows that security prices react to the announcement of quarterly earnings on day 0 and day1. This is clearly depicted in chart 1.1. The chart shows that the curve is steeply rising on day -14 (1.31) and on day -7 (1.43). The reaction on these days may be due to anticipation of the quarterly earnings.

Table-2: Abnormal Return for Stock Split Announcement

The SRV model is used to find out whether the stock split announcement by FMCG companies contains information relevant for security valuation. However, the SRV model does not provide insight into the directional nature of the impact of stock split announcement.

Abnormal returns for the stock split announcement were calculated based on Sensex adjusted returns. It is very clear from the above table that the on days -15 through -12 there has been negative abnormal returns. On days -11 through day 2 there has been positive abnormal returns excepting on day -8 and day -2. Beyond day 2, there have been negative abnormal returns in general. However, only on day 1 there has been statistically significant positive abnormal return of 1.21. In general, there is positive abnormal returns during the pre announcement period and negative returns beyond day 2. Only on day 1 there is significant abnormal returns. This indicates that the FMCG stocks react on the next day of announcement of stock split. This shows that the risk of FMCG stocks is less than the market and returns are greater than the market. Hence, the FMCG stocks are performing better than the market.

Table-3: CAR for the Stock Split Announcement

Cumulative abnormal return (CAR) was calculated based on Sensex adjusted returns. The above table shows the result of CAR based on Sensex adjusted returns. It understands from the above table that on day -15 to -12 there was negative cumulative abnormal return. On days -11 through days 2 there were positive cumulative abnormal returns except on day -7. Beyond day 2, there has been negative abnormal return in general. However, only on day 1 there has been statistically significant positive cumulative abnormal return of 1.64. In general, there has been a positive cumulative abnormal return during the pre-announcement period and negative cumulative abnormal return post announcement period. Only on day 1 there is significant cumulative abnormal return.

Summary of Findings, Suggestions and Conclusions

Findings

- The stock split announcements made by FMCG companies contain information relevant for valuation of securities.
- Investors react to the announcement of stock split announcement.
- The security prices react to the stock split announcements on day 0 and 1, significantly.
- The reaction is very sharp on day1, the next day of announcement.
- The investors can make use of the stock split announcement information for making superior returns.
- The Capital Asset Pricing Model (CAPM) does not hold for the Indian Capital Market.
- The capital market for FMCG stocks is efficient with respect to stock split announcement information.

Suggestion

- Disclosure of adequate information will make the market more efficient. In order to make the Indian capital market efficient the regulators should impose stringent accounting regulations and information disclosure norms.
- A market is said to be efficient, if there is equilibrium between risk and return. However, the most widely accepted equilibrium theory Capital Asset Pricing Model (CAPM) does not seem to be relevant for the Indian capital market. Therefore, the regulator must strive to make the market more efficient.
- The present study has tested the efficiency only with respect to stock split announcement information. Similar studies may be undertaken on other types of company related as well as market related information.
- The present study finds that the Capital Asset Pricing Model is not relevant for the Indian capital market. A thorough study may be undertaken to test the relevance of CAPM for the Indian capital market.

IV. CONCLUSION

This study has empirically examined the informational efficiency of capital market with regard to stocks split announcement by the FMCG companies. The results of the study showed that the security prices reacted to the stock split announcement made by the FMCG companies. The reaction took place for the very few days surrounding day 0, for the stock split announcement the reaction was extended up to +15 days. Thus one can safely conclude from the foregoing discussions that the Indian capital market for the FMCG stocks, in general, are efficient, but not perfectly efficient, to the announcement of stock split. This informational inefficiency can be used by the investors for making abnormal returns at any point of the stock split announcement period.

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