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- Kelkar V. (2009): Towards a New Natural Gas Policy, Economic and Political Weekly, Viewed on February 17, 2011 http://epw.in/epw/user/viewabstract.jsp

IMPACT OF INFORMATIONAL FLOW ON STOCK RETURNS: EMPIRICAL EVIDENCE FROM NATIONAL STOCK EXCHANGE

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ABSTRACT

This study investigates whether an investor can achieve an abnormal normal return by acting on public announcement. Traditionally, event study methodology is used to evaluate the reaction of the market to certain corporate events. These studies which are specific in nature are designed to measure market efficiency at certain points in time and only in conjunction with specific events. This paper is aimed to test the market price of share in response to date of declaration of accounting information empirically. The event of the study is earning announcement for the period from 2008 to2009 were taken from a sample frame of current constituents of S&P CNX Nifty. The 'event day' for each company is taken as the date of 'Board of Directors Meeting' in which the decision to declare the earning reports were taken. For testing the reaction and change in magnitude of earnings the ASRV and CAAR test have been employed. The result of the study support that the stock market is efficiently performing leading towards no scope for investors to earn positive abnormal returns. In this study, it has been observed that public announcement of earning reports has a significant impact on investors' behavior while selecting securities.

KEYWORDS

Stock, NSE, Returns, Market.

INTRODUCTION

The concept of efficient market describes a market consisting of a large number of rational, profit maximizers actively competing with each other to predict future market values of individual securities and where important current information is almost freely available to all participants (Fama 1965). Thus, efficient market assumes rationality, which implies risk aversion, unbiased forecast and instantaneous response to new information. It has been argued that investors are loss averse and are more sensitive to losses than to gains. Loss averse investors who have incurred losses in previous period may attempt to recover these losses, thus leading to risk-loving or risk neutral behavior. They may also tend to weigh more their own forecast, thus introducing bias in their trading behavior. Moreover, uninformed traders may follow the actions of informed traders, thus delaying their own trading. All of these may lead to stock prices reacting to new information non-linearly.

According to Fama (1970), market efficiency can take on three forms: the weak form, the semi-strong form and the strong form. Three forms of market efficiency are generally distinguished:

1. The Weak Form: Where a current price is considered to incorporate all the information contained in the past prices.
2. The Semi-Strong Form: Where a current price incorporates all publicly known information, including its own past prices.
3. The Strong Form: Where prices reflect all information that can possibly be known, including privately known information.

This study investigates whether an investor can achieve an abnormal normal return by acting on public announcement. Traditionally, event study methodology is used to evaluate the reaction of the market to certain corporate events. These studies which are specific in nature are designed to measure market efficiency at certain points in time and only in conjunction with specific events.

Literature Reviews

Srivastava S.C. (1968) unveiled that the notion of share price behavior is not significantly influenced by retained earnings. The result of the analysis suggested that there were no significant influence of retained earnings on share market prices for the period covering from 1960 to 1962.

Obaidullah M. (1992) vetted the adjustment of stock prices to the announcement of bonus issues by examining the semi-strong efficiency of Indian stock market. For this study the author had the sample size of 75 bonus issues that covered the period from 1987-89. To reach at his conclusion he used naïve method of proportional adjustment and residual analysis method. The result supported the semi-strong form of EMH.

Rao and Geetha (1996) solved one major egress whether India is tuning to what form of efficiency for a period from April 1991 to March 1994. Their study focused on weak-form, semi-strong form and possible anomalies in informational efficiency. As in result they showed that the Indian stock markets are efficient to first two forms of the tune. There was clear existence of weak form efficiency in the market whereas in regard to semi-strong form, it evince that there was delay in stock price adjustment about 3 to 4 weeks ahead.

Thomas S. and Shah A. (2001) corroborated the stock market response to the union budget regarding the informational efficiency, the budget as an economy policy package and as well as implications for portfolios and trading. The data consisted of 4,673 observations of daily returns from Indian Stock Market index over the period from April 04, 1979 to June 11, 2001. The result excogitated that the stock market is fairly efficient in response to Union Budget.

Babu K. A. and Selvam (2006) examined the informational efficiency of capital market with regard to quarterly earnings released by the banking sector companies. The result of the study showed that the Indian capital market for the banking stocks, in general, are efficient, but not perfectly efficient, to the announcement of quarterly earnings (comes with positive earnings change information) and ineffectual for the negative earnings change information.

Ansari V.A. and Mahmood F. (2007) studied the market efficiency with respect to price-earnings ratio. They analyzed the market for the period 2005. The paper reflected the fact that PE ratio anomaly is non-existent in India as the lowest portfolio earned the lowest returns. The findings also suggested that there was limited or absent predictive power of PE ratios in explaining cross-section returns. Furthermore, there was no relationship found between beta and return.

Malhotra et al. (2007) examined the stock market reaction and liquidity changes around the bonus issue announcement of the chemical companies in India. The period used for the study ranges from January 2000 to January 2006 the analysis is done through the use of standard event study methodology. The result of their study showed that bonus issue announcement yielded negative abnormal returns around the announcement date implying that there was persistence of semi-strong form of EMH.

Raja M., Sudhahar J.C. and Selvam M. (2009) tried to study the Semi-strong efficiency in the Indian market in relation to stock split announcement. Their study showed the fact that the securities prices reacted to the announcement of stock splits and they concluded that the market is efficient one but not perfectly efficient to the announcement of stock split.

Thus many studies have been conducted to test the semi-strong efficiency of the market for events, where stock splits, right issues, bonus issues, earning announcements and share price adjustment in response to budget were the vital issues. However, prior research could not explain the exact period to say probable effect of announcements in the share price.

OBJECTIVE DATA AND METHODOLOGY

This paper is aimed to test the market price of share in response to date of declaration of accounting information empirically. The rationale of studying the paper is to analyze the situation how quickly any information dissemination meliorate the behavior of different communities. To fortify our assumptions the studies is done in eight different window periods with respect to the facility of electronic interface introduced by NSE for public listed companies. The facility of electronic interface means to announce all those important corporate actions and reports in the site of NSE in lieu of their own site. With the availability of electronic interface the information is quickly responding to the market. The prime objective of the study is to examine the information content of the quarterly earnings announcement made by the companies. In other specification the study is aimed to examine the speed with which the quarterly earnings news are instantaneously and unbiased mannerly impounded in the share price. To carry out the above fortified objectives the study is best fitted in the linear regression model where we found the linear normal return of daily share prices of tested company by using market model throughout window period. To console the study of above objectives we framed two set of hypothesis and tested the sample companies.

Set-I: For testing **Average Security Returns Variability (ASRV)** null and alternative hypothesis are as follows

H_0: Security prices do not react to quarterly earnings announcement i.e. ASRV = 1.

H_1: Security prices react apparently to quarterly earnings report i.e. ASRV >1.

Set-II: For testing **Average Abnormal Returns (AAR)** null and alternative hypothesis are as follows

H_0: There is no reaction and hence the abnormal returns are zero. To aver, AAR = 0.

H_1: There is either positive or negative reaction to the announcement of quarterly earnings. To aver, AAR ≠ 0.

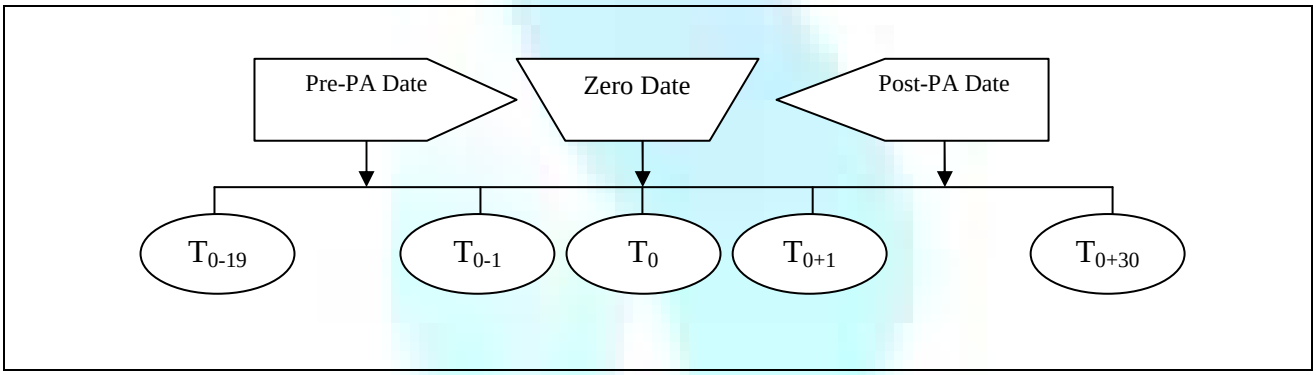
DATA FOR THE STUDY

The event of the study is earning announcement for the period from 2008 to2009 were taken from a sample frame of current constituents of S&P CNX Nifty. The 'event day' for each company is taken as the date of 'Board of Directors Meeting' in which the decision to declare the earning reports were taken. In the quarterly earnings reports we have chosen all the four quarter announcements for the study, thus we have 8 window periods for the analysis.

EVENT DATE AND WINDOWS

Public announcement date of accounting information (earning reports) is considered as zero date. The zero date is the date on which price-sensitive information has been released. For the study, the event window construed in respect of zero date giving a total of 50 observations by taking 19 days observation prior to zero date and 30 days observation after the announcement.

FIGURE 1: EVENT WINDOW CONSIDERED FOR THE STUDY



METHODOLOGY

The daily returns were calculated for both individual securities as well as market index using the following equation

$$R_{i,t} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where, $R_{i,t}$ = Return on Security i on day t

P_t = Closing Price of the security on day t

P_{t-1} =Opening Price of the security on day t.

For the statistical models, the assumption that returns are jointly multivariate normal and independent and identically distributed through time is imposed. This distributional assumption is sufficient for the constant mean return model and market model to be correctly specified. Although, there are different models for computing expected returns. Despite of all those models the famous model is market model which is widely used by researchers.

In this study, we used the market model to manifest expected return on a stock given in the following equation:

$R_{i,t} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$

Where, $R_{i,t}$ = observed daily return for the security 'i' on day 't'

α_i = intercept for the security 'i'

β_i = beta factor for the security 'i'

R_{mt} = observed daily return for the market index for the security 'm' on day't'

$\varepsilon_{it} \sim$ iid $(0, \sigma^2)$

The parameters of the market model have been estimated for 3 years pertaining to the sample study. Our study used analysis for the period from 2008-09 whereas the parameters of the market model have been determined for the period from 2007 to 2009 on daily return basis, to have compounded effect on the parameter of the market model. The alpha (α) and beta (β) of each sampled stock is exhibited in the following table:

TABLE 1: PARAMETERS OF REGRESSION COEFFICIENT

S.N.	Name of the Company	Alpha (α)	Beta (β)
1	ABB Ltd.	-0.00186	0.597906
2	Bharat Petroleum Corporation Ltd.	-0.00053	0.39279
3	GAIL (India) Ltd.	-0.00095	0.620059
4	Hindalco Industries Ltd.	-0.0019	0.98735
5	Idea Cellular Ltd.	-0.00381	0.748346
6	Infrastructure Development Finance Co. Ltd.	-0.0017	1.075939
7	I T C Ltd.	-0.00096	0.422712
8	Mahindra & Mahindra Ltd.	-0.00036	0.654583
9	NTPC Ltd.	-0.00106	0.596096
10	Oil & Natural Gas Corporation Ltd.	-0.00084	0.682019
11	Ranbaxy Laboratories Ltd.	-0.00142	0.496246
12	Steel Authority of India Ltd.	-0.00097	1.017548
13	Siemens Ltd.	-0.00175	0.660473
14	Unitech Ltd.	-0.00334	1.20527
15	Wipro Ltd.	-0.00126	0.653739

The above parameters of the regression model were gratified into the regression model with respect to the return of market index. The outcomes of model were compared against the actual returns of the sample companies daily share price returns.

The abnormal returns of the company were calculated by getting the difference of expected returns over actual returns. Then these calculated abnormal returns were averaged for their respective quarters for a particular sample company. To serve the purpose of our study, we cumulated all the available average abnormal returns (AAR) for their respective lags known as Cumulative Average Abnormal Returns (CAAR). The significance of CAAR is tested through t-statistics. The reaction in the security prices to the announcement of an information item is studied in this paper with the help of Security Returns Variability (SRV) model. SRV model can be calculated as the square of abnormal returns to the variance of abnormal returns of window period. Further, SRV for the entire quarters were averaged to yield the Average Security Returns Variability (ASRV). The significance of reaction in ASRV is applied using t-statistics on the value of (ASRV-1).

ANALYSIS

TABLE 2: ANALYSIS OF ASRV AND CAAR

Days	ASRV	T-Test	CAAR	T-Test	Days	ASRV	T-Test	CAAR	T-Test
-19	1.039723	0.232099	-0.00986	-0.24634	6	0.749091**	-2.02979	0.050127	1.05233
-18	1.105995	0.661788	0.061148	1.504172	7	1.271844	0.831852	-0.04269	-1.16841
-17	1.040385	0.290828	0.002381	0.039595	8	1.046902	0.248693	-0.00011	-0.0023
-16	1.03568	0.302734	0.000504	0.008448	9	1.123511	0.816047	0.026482	0.599738
-15	1.130058	0.781452	0.080957*	1.757412	10	1.186106	1.059079	-0.08818	-1.49367
-14	1.244038	0.720454	0.021015	0.460898	11	1.068198	0.398416	0.019034	0.423315
-13	1.293861**	1.710747	-0.04707	-0.98387	12	0.818464**	-1.82827	0.02254	0.505288
-12	1.013096	0.074793	-0.0413	-0.96756	13	0.786514**	-1.83608	0.061153	1.491223
-11	1.054612	0.616841	-0.03658	-0.92553	14	0.847594	-0.92606	-0.01128	-0.23252
-10	1.035592	0.211895	0.005296	0.172297	15	0.752127***	-2.39267	-0.01669	-0.39714
-9	1.06161	0.367945	0.077274	1.43702	16	0.63073***	-4.21341	0.003887	0.12353
-8	1.073071	0.33804	-0.01115	-0.28539	17	0.678484***	-3.7703	0.063996	1.38631
-7	0.949167	-0.32642	-0.0696	-1.48992	18	0.820375	-0.93612	-0.00839	-0.30047
-6	1.225388**	1.72299	0.06475*	1.909892	19	0.801444	-1.30382	0.031389	0.61537
-5	1.229639*	1.471825	-0.12351***	-3.06162	20	0.898951	-0.78822	0.070235	1.37563
-4	1.167589	0.773611	-0.09852	-1.54231	21	0.65294***	-2.73726	-0.00718	-0.1846
-3	1.154793	0.577417	-0.02256	-0.20696	22	0.861482	-0.98607	0.057423	1.37722
-2	1.155106	0.780803	-0.04459	-0.78909	23	0.708812***	-4.60169	-0.05579	-1.89578
-1	1.038803	0.268009	-0.01246	-0.23239	24	0.784755**	-1.78288	0.055026	1.551424
0	1.597374***	2.699646	-0.0687	-1.14663	25	0.712342***	-3.72656	0.038596	1.257903
1	1.87944***	3.290749	-0.0663	-1.05372	26	0.772416	-2.13877	0.056066	1.385384
2	1.19261*	1.421301	-0.01121	-0.18593	27	0.990777	-0.04575	0.096429	1.820024
3	1.153909	0.952014	-0.02957	-0.79477	28	0.718997***	-2.36055	0.044031	1.152402
4	0.931334	-0.83397	-0.03397	-0.74996	29	0.881781	-0.8433	0.014385	0.529113
5	0.916824	-0.59198	-0.00597	-0.14585	30	0.753163**	-1.92884	-0.02103	-0.5192

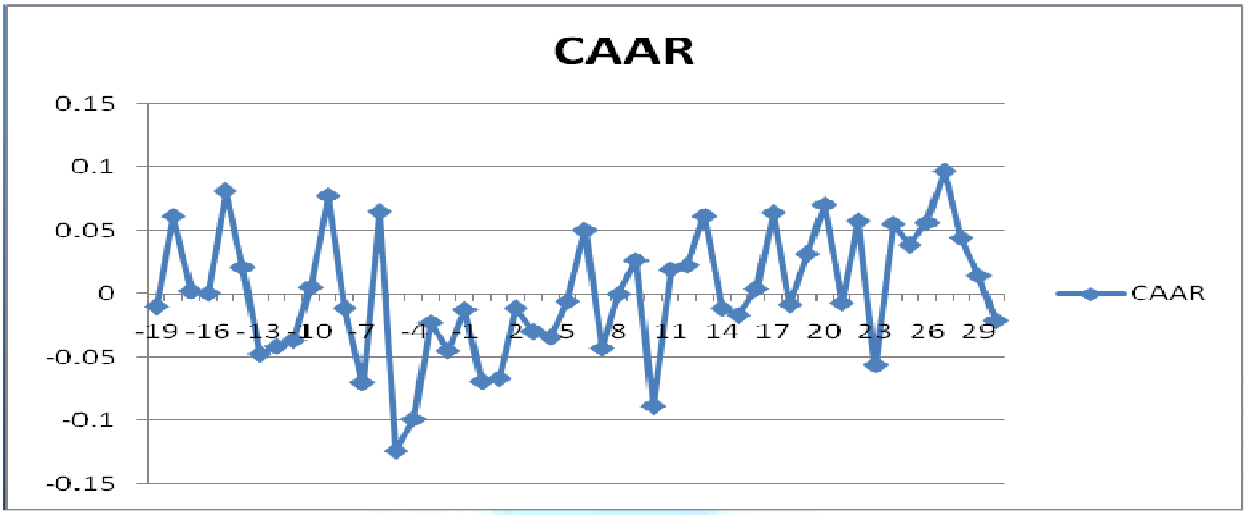
*10% significant, **5% significant and ***1% significant.

Above table depicts the analytical values of ASRV as well as CAAR. ASRV is showing how efficiently, the information regarding corporate action (in our case earning announcement) impound in share price returns. In an informational efficient market the ASRV is expected to be one. If the ASRV is greater than 1 shows the significant reaction in the security price. The mean ASRV during the window period of 50 days is 1.00075. During the event day the ASRV is 60 percent greater than the average and on the day 1 the ASRV is 88 percent. Alas, the t-test clearly indicates that the prices of the securities are not significantly reacted to the announcement, particularly the day surrounding to the event day. With the help of above testing of ASRV, it can easily be inferred that there is fast flow of information in security prices leaving no scope for investors to gain abnormally.

The CAAR shows the relationship between the magnitudes of change in earnings to that of price change. The CAAR is expected to be zero in case of semi-strong form of efficient market. As regards to the CAAR, it is assumed that it should be zero before the announcement day and then shift to a positive level right after the event and remains at that level in an efficient market. In this study we found that the CAAR is close to zero as -0.00986 and remains close to zero up to the announcement date. The shift to a positive level right begins a week later to the announcement date. On 6th day of post announcement period this magnitude of CAAR is about 0.050127 that arose to around 0.096429 on 20th day of post-announcement period. The insignificant CAAR on the day of earning announcement

signifies that the investors could not gain with respect to their adherent information of earning announcement. The following figure provides a clue that returns on share price is quickly adjusting to the information date which is pre-decided date so that the investors became much cautious to that of their trading rules leading CAAR towards zero.

FIGURE 2: CAAR AROUND PUBLIC ANNOUNCEMENT DATE



CONCLUSION

The main thrust of the study is to examine the efficiency of stock market returns for accounting information viz. earning report. To establish the reliability of the results, the study used market model in two different ways- the ASRV and the CAAR for window period of 50 days. The result of the study support that the stock market is efficiently performing leading towards no scope for investors to earn positive abnormal returns. In this study, it has been observed that public announcement of earning reports has a significant impact on investors' behavior while selecting securities. On zero date CAAR is around zero while ASRV is nearly one (1). CAAR increased substantially from 6th to 20th of post-announcement window period.

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Hoping an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

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