MEASURING THE RELATIONSHIP BETWEEN MARKET PRICE AND PER SHARE VALUES: A CASE STUDY

Dr.S.SIVAKUMAR [1], BITTO BENNY [2], BHARATH KUMAR G S [3]
[1] Associate Professor, Department of commerce, Christ University, Bangalore
[2 & 3] Research Scholar, Department of commerce, Christ University, Bangalore
Email - [1]sivakumar1976phd@gmail.com [2]bittobennykply@gmail.com [3]bkgs595@gmail.com

Abstract: *The paper empirically tests the relationship between the market price and the per share values of a share. The market price of a share is subject to frequent fluctuations. There are various factors contribute for the volatility of the market price of a share, of which per share values are more important. The study considered the basic per share values namely dividend, earnings per share and book value per share. The study collected data for top ten companies according to the weightage given in the NSE NIFTY for the period of 13 years from 2015 to 2017. While the two variables namely earnings per share and book value per share confirm the positive theoretical relationship with the market price, the dividend per share was found to have a strong negative relationship with the share price. Though the obtained results for the variable dividend are against the theoretical expectations, the negative influence clearly exhibits the mind of the investors of earning an income out of short term market price changes rather than the dividend declared by the companies.*

Key words: *Market Price, Dividend, Earnings per share and Book value.*

1. INTRODUCTION:

The basic objective behind investment in shares is to earn a fair return over a reasonable long period. The increase in the price of a share results in the capital appreciation. It is the changes in the share price which decide the investment decision of the individuals in the capital market. Share price is the most important factor readily available to the investors for their investment decisions. Investment can be considered as a process of converting savings into productive investment. Saving is often considered unproductive as it does not earn any return (as it is free from risk). But the investment decisions are positively related to the level of risk. The equity market is subject to high market risk and as such the capital appreciation is also more in the investment made in the equity shares.

Volatility is the unique feature of equity market. In recent times there has been a debate whether the stock prices have a strong predictability and if it is true what factors predict it? From the past empirical studies, it can be concluded that it is highly difficult to include all the factors which have an influence on the share price. The share price reflects not only the business decisions of the company concerned but it is also the outcome of economic and political instability. In spite of this nature, the investment decisions are made on the basis of the behaviour of market price of a share. The present study is primarily concerned with the estimation of factors responsible for the changes in the price of a share.

Market value of a share is determined by several factors of which some are quantitative and others qualitative. Qualitative factors are largely external to the business organization and as such they cannot be measured in absolute terms. Quantitative factors, particularly company specific, may include profit, sales, earnings, dividend and others. While many studies considered the aggregate values like profit as determining forces, the present study takes into account the role of per share values on the market price of the share. This is so because any change in the aggregate values will make equivalent changes in per share values also. Similarly, when the market price indicates the price of per share, it was thought apt to include per share values as the independent variables to explain the variation in the dependent variable, market price in the study. The better understanding of the factors responsible for the volatility of the share price, particularly the values related to the share, will be of great help to the investors to make right decisions with regard to their investment.

2. REVIEW OF LITERATURE:

The behavior of the stock market is an issue that can be examined only by empirical research. During the last few decades a number of studies have been carried out at the national and international level on the subject by the experts. Some of these studies are reviewed below.

Tuli and Mittal (2001) identified the major determinants of stock price and observed that the current rate of dividend and book value were the determining factors of market price of shares. This observation was noticed to be similar with the earlier findings of Raghunathan and Varma (1991), Dixit (1986) and Balkrishnan (1984).

Bhatt and Sumangala (2012) observed in their study of cross sectional data of 50 NSE scripts that EPS affects the market price of the share. While justifying their findings they suggested that the inclusion of more variables responsible for the behavior of the market price may change the impact of EPS.

Gupta and others (2012) attempted to estimate the impact of dividend announcements on the share price in the market. They observed that out of 30 companies in BSE Sensed, 28 responded positively to the dividend announcements during the study period of 2006-09. The empirical findings of the study revealed that understanding of the market played a significant role as could be revealed that more the market understandings about the firm less was the impact of the dividend announcements while the less the understandings, the impact of dividend was higher.

Malhotra and Tandon (2013) collected data for 95 companies out of NSE 100 for the period 2007-12 and estimated the determinants of market price of share by considering the firm specific variables like book value, dividend per share, earnings per share, dividend cover, dividend yield and price-earnings ratio. The study, from the empirical analysis, found that book value, earnings per share and price-earnings ratio were found to have a significant positive impact on the market price while dividend was found to have significant negative impact on the share price of the shares in the market.

Bhattarai (2014) attempted to identify the major determinants of market price of shares of commercial banks in Nepal during the period 2006-14. He considered dividend payout ratio, dividend yield, earnings per share, price earnings ratio and size as the determinants of the share price in the market. His study, based on the analysis, found that earnings per share (EPS) and price-earnings ratio (P/E ratio) have significant positive impact on the share price of share while dividend yield showed the significant negative relationship with the market of price of share of commercial banks considered in the study.

Masum (2014) made a panel data analysis on the association between the dividend and share price of the companies listed in the Dhaka Stock Exchange, Bangladesh. His findings revealed that there was a negative and statistically significant association between dividend yield and market while the earnings per share was estimated to statistically significant positive effect on the stock of price in the Dhaka Stock Exchange.

Matthew and others (2014) studied the relationship between payment of dividend and share price of 17 scripts quoted in Nigerian Stock Exchange during the period 2003-2011. Their results revealed that there has been a positive association between dividend and market price and association was found to be statistically insignificant.

Ozlen (2014) analysed the effect of company fundamentals on the stock values and found from his study that the book value per share has strong positive impact on the movement of stock price in the market while the impact of book value on the market price was found common, the effect was found different in different sectors.

With these theoretical support, the present study aims to study the trends in the behaviour of market price of selected scripts and per share values namely, dividend, earnings per share and book value and to estimate causal relationship between the market price and the set of per share values.

3. DATA AND METHODOLOGY:

The present study covers a period of 13 years (from 2005 to 2017) and confines to the analysis of the trends in the behavior of market price of shares and the impact of per share values on the market price of shares of the companies included in the NSE Nifty index.

IISL (2017) explained the methodology of index of NIFTY 50. According to the report, the NIFTY 50 is the flagship index on the National Stock Exchange of India Ltd. (NSE). The Index tracks the behavior of a portfolio of blue chip companies, the largest and most liquid Indian securities. It includes 50 of the approximately 1600 companies listed on the NSE, captures approximately 65 per cent of its float-adjusted market capitalization and is a true reflection of the Indian stock market. The NIFTY 50 covers major sectors of the Indian economy and offers investment managers exposure to the Indian market in one efficient portfolio. The Index has been trading since April 1996 and is well suited for benchmarking, index funds and index-based derivatives.

The NIFTY 50 is a 50 stock, float-adjusted market-capitalization weighted index for India. It is used for a variety of purposes, such as benchmarking fund portfolios, index based derivatives and index funds. The NIFTY 50 is derived from economic research and is created for those interested in investing and trading in Indian equities.

A. Market Representation. The NIFTY 50 stocks represent about 65 per cent of the total float-adjusted market capitalization of the National Stock Exchange (NSE).

B. Diversification. The NIFTY 50 is a diversified index, accurately reflecting the overall market. The reward-to-risk ratio of NIFTY 50 is higher than other leading indices, offering similar returns but at lesser risk.

C. Liquidity. Market impact cost is the best measure of the liquidity of a stock. It accurately reflects the costs faced when actually trading an index. For a stock to qualify for inclusion in the NIFTY 50, it has to reliably have market impact cost below 0.50 per cent, when doing NIFTY 50 trades of Rupees 2 crores.

From the list of 50 scripts included in the index, the study considers top 10 constituents by weightage which is about 54 per cent of total weightage. (NSE fact sheet June 2017) which include -

HDFC Bank Ltd. (9.30%)
I T C Ltd. (7.65%)
Housing Development Finance Corporation (7.13%)
Reliance Industries Ltd. (6.36%)
Infosys Ltd. (5.19%)

ICICI Bank Ltd. (5.17%)
Larsen & Toubro Ltd. (3.85%)
Tata Consultancy Services Ltd. (3.49%)
Kotak Mahindra Bank Ltd. (3.23%)
State Bank of India (2.82%)

The study applied semi-log quadratic equation as given below to find the trends in the behaviour of the market price of share and the per share values considered in the study. The equation takes the following form;

$\ln Y = \alpha + \beta_1 t_1 + \beta_2 t_2 + \mu$

Y being the dependent variable, t_1 and t_2 are the time variables (t and t^2). While the coefficient β_1 (t) explains the growth of the variables, the coefficient β_2 (t^2) explains the rate of growth of the variable. A positive sign of β_2 will indicate growth acceleration while negative sign will indicate growth deceleration.

A multiple regression model was also framed for all the companies selected for the study. Ordinary Least Square (OLS) method was used to estimate the influence of a set of independent variables, per share values, on the dependent variable, market price. The common per share values considered in the analysis of share price movements are the Book Value per share (BV), Earnings per Share (EPS), Dividend per Share (DPS), Price-Earnings Ratio (PE) and Pay-Out Ratio (PO). But the present study has considered the first three variables and left the Price-Earnings Ratio and Pay-Out Ratio as these two variables have close relationship with the other variables. For example, PE is the ratio of market price to earnings and PO is the ratio of dividend to earnings. With these explanatory variables, the equation was formulated and it takes the following form;

$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \mu$

Where,

Y = Yearly average share price, X_1 = Dividend per Share (DPS), X_2 = Earnings per Share (EPS)

X_3 = Book Value per Share (BV), μ = error term (α, the constant and βs, the coefficients)

All variables have been represented in natural logarithm to offset the proliferation effect.

Specification of Variables:

Market Price of Share:

The market price of the share was taken as dependent variable. It was estimated as the mean of the highest and lowest price of each share in the particular financial year. Thus, the yearly average price was taken into account for the study as obtained below;

Market price = 1/2 x (H + L) where, H denotes highest price and L refers to lowest price in a financial year

DIVIDEND PER SHARE: (DPS)

Dividend is the portion of the profit after taxes, which is paid to the shareholders for taking risk in the company. It is the ratio earnings paid to equity shareholders to number of equity share outstanding as shown below:

$$\text{DPS} = \frac{\text{Earnings paid to equity shareholder}}{\text{Number of equity shares subscribed}}$$

The dividend per share is expected to be a significant factor influencing the market price of share positively.

EARNINGS PER SHARE: (EPS)

EPS is the most commonly used indicator of investment decision. It indicates the earning power of a company calculated on per share basis. It is the net earnings of the company after making payment of dividend to the preference shareholders. It is expected to have a positive relationship with share price. It is estimated as below:

$$\text{EPS} = \frac{\text{(Net Profit – Preference dividends)}}{\text{Number of equity share subscribed}}$$

BOOK VALUE PER SHARE: (BV)

It is the investment of per share made in the company by the shareholders. It is also known as the net asset value per share as it measures the amount of asset the company owns on behalf of each shareholder. A stock's book value per share remains the best easily accessible measure of the assets which lie behind each share. The book value is defined as below:

$$BV = \frac{\text{(Equity share capital + reserves)}}{\text{Total number of equity shares subscribed}}$$

From the earlier empirical studies, it is hypothesised that all the independent variables have been expected to influence the dependent variable, market price, positively.

4. RESULTS AND DISCUSSIONS:

The study estimated the trends in the growth of market price and per share values as defined earlier during the period of study and the obtained estimates have been presented in the table 1. From the table-1, it could be noticed that the market price of all the companies considered in the study witnessed a growth during the period of study. While L&T recorded a highest growth of 53.5 per cent followed by Reliance industries (39 per cent) and Kotak Mahindra (37.3 per cent) the scripts of the companies TCS showed a least growth of 13.8 per cent followed by Infosys (18 per cent) and ICICI Bank (18.7 per cent). Though there was an increase in the market price of share, the rate of increase was negative for all the scripts since the estimated co-efficient of t^2 was found negative for all the companies except for TCS which indicated that the market price of TCS has been increasing at 13.8 per cent with an acceleration of 0.4 per cent per annum.

The payment of dividend was found increasing since the coefficient of the variable 't' was positive for all the companies except for Kotak Mahindra which showed a negative growth of 56 per cent while the other companies showed a positive sign of growth of ranging from 39.6 per cent (TCS) followed by SBI (34.8 per cent) and 15.4 per cent (L&T) followed by 15.9 per cent (HDFC). While there was a growth in the declaration of dividend, the rate of growth of dividend witnessed a deceleration for all the companies except for HDFC Bank and Kotak Mahindra. While HDFC Bank recorded a growth of 23 per cent with a marginal acceleration of 0.1 per cent per annum, Kotak Mahindra showed a fall in the dividend which was found increasing at an average rate of 3.7 per cent annum.

Earnings per share of all the companied considered in the study recorded a growth during study period and the growth was found varying from 41.2 per cent (L&T) followed by 26.8 per cent (Infosys) and 10.1 per cent (ICICI Bank) followed by 15.9 per cent (ITC). While there was a growth, the growth was found declining over the period of time since the estimated coefficient of the variable t^2 was found negative for all the scripts except for ICICI Bank and rate of acceleration was marginal at 0.1 per cent.

In accordance with dividend and earnings per share, book value per share also showed a positive growth for all the companies except for ITC (-49.4 per cent) and TCS (-5.4 per cent) and the positive growth in the book value of other companies considered in the study was found varying between 56.8 per cent (SBI) and 2.9 per cent (L&T) respectively. From the table that though there was a growth in book value, the growth was found declining over the years as the estimate co-efficient of the variable 't^2' was negative for all the companies and was further found statistically significant except in the case of L&T which showed a growth in the book value with accelerating trend of 0.2 per cent per annum. It is interesting to note that in the case of ITC, book value per share was found declining at the rate of 49.4 per cent and the fall was found increasing (decelerating) at an annual rate of 3.2 per cent.

It could be inferred that the market price of the shares of the companies considered in the study depicted a growth during the study period and growth was found decelerating over the years. In most of the cases, the per share values too showed an increasing trend in general and the growth was also noticed to be decelerating during the study period.

Table-1 Estimates of Growth Acceleration

Company	Variable	Mkt Price	Dividend	EPS	BV
HDFC Bank	T	0.268***	0.23***	0.25***	0.13
	t2	-0.004	0.001	-0.002	-0.008
ITC	T	0.272***	0.322***	0.159***	-0.494**
	t2	-0.006	-0.01**	-0.002	0.032**
HDFC	T	0.302***	0.159***	0.203***	0.053
	t2	-0.009**	-0.003**	-0.004**	-0.005
Reliance Industries	T	0.39**	0.189***	0.178**	0.086
	t2	-0.021*	-0.007**	-0.006	-0.001
Infosys	T	0.18**	0.325**	0.268***	0.338***
	t2	-0.004	-0.008	-0.008***	-0.20***
ICICI Bank	T	0.187**	0.185**	0.101*	0.486***
	t2	-0.006	-0.007	0.001	-0.036***
L&T	T	0.535**	0.154**	0.412***	0.029
	t2	-0.028**	-0.0005	-0.02***	0.002

TCS	T	0.138*	0.396***	0.259***	-0.054
	t2	0.004	-0.01	-0.003	0.012**
Kotak Mahindra	T	0.373**	-0.56***	0.253**	0.264**
	t2	-0.009	0.037***	-0.001	-0.011
SBI	T	0.362***	0.348***	0.25***	0.568***
	t2	-0.02***	-0.019***	-0.014***	-0.045***

Table-2 Determinants of Market Price of Shares

Market Price	Constant	Dividend	EPS	BV	R^2	F
HDFC Bank	1.63 (0.41)	-0.652 -(0.49)	1.58 (1.21)	0.122 (1.52)	0.98	240.67***
ITC	3.64*** (25.00)	-0.046 -(0.57)	1.35*** (11.76)	-0.22*** -(6.60)	0.99	402.59***
HDFC	1.99*** (4.25)	-0.84* -1.85	2.05*** (4.47)	-0.034 -(0.39)	0.98	137.5***
Reliance Industries	1.59 (0.78)	-0.26 -(0.34)	1.38* (1.80)	0.007 (0.01)	0.78	11.12***
Infosys	4.88*** (7.74)	0.23** (2.17)	0.53*** (3.21)	-0.13 -(1.08)	0.91	42.52***
ICICI Bank	2.94** (2.60)	-0.019 -(0.04)	0.82** (2.09)	0.057 (0.38)	0.72	7.85**
L&T	0.13 (0.03)	-0.44 -(0.55)	1.31** (2.13)	0.47 (0.64)	0.75	7.95**
TCS	3.5*** (5.25)	0.14 (0.74)	0.68* (2.06)	0.088 (0.35)	0.95	60.25***
Kotak Mahindra	1.97 (0.99)	-0.13 -(0.42)	0.69** (2.80)	0.47 (0.89)	0.82	13.89***
SBI	9.36*** (5.29)	2.92*** (4.11)	-2.37** -(2.56)	-0.15* -(2.03)	0.89	25.09***

4. REGRESSING ESTIMATES:

The analysis made in the previous section is of great help to understand the pattern of growth of market price of shares and the variables which are closely associated with the shares.The variations in the market price has been determined by so many factors which cannot be predicted accurately. Yet, to make investment decisions, it is wise to consider the impact of certain basic variables pertaining to the share in which an investor is interested. With this view, the study made an analysis on the impact of per share values namely, dividend, earnings per share and book value on the market price of share. To estimate the impact of these identified variables on the market price, the study applied a multiple regression model as outlined in the previous section and the obtained estimates have been reported in the table-2.

From the table, it could be understood that out of ten companies considered, the market price of the shares tended to be affected negatively by the dividend and the negative influence was found statistically significant in the case of HDFC. As against this, a positive impact was noticed for the remaining three companies namely, Infosys, TCS and SBI and the coefficient of dividend was found statistically significant except of TCS. Dividend is simply the payment to compensate the investors for not receiving interest which they might have received with other investments. The changes in market price are considerably decided by the attitude of the investors towards the act of speculation (Barua and others, 1992). Investors can also make a profit if the stock price increases over time. The present trend that prevails in the stock market is earning an income from short term price variations and not to earn a dividend declared by the company. Due to this reason, the negative influence was found for 70 per cent (7 out of 10 companies) of the companies considered in the study.

The other factor identified as an independent variable in the study was earnings per share. Sharma (2011) empirically found that earnings per share has a strong impact on the market price of shares.Table-2 presents the influence of earnings per share on the market price of shares. It could be observed from the table that there was positive influence of earnings per share on the market price as the estimated coefficient was positive for nine out of ten companies considered in the analysis. Further, the positive impact was noticed to be statistically significant for eight companies. Quite contrary to the theoretical expectations, the study obtained negative impact of this factor on the share price for SBI and this could be viewed as the increase in the earnings is not enough to make its positive impact on the market price.

The market price of shares was found to be closely associated with the book value. As outlined earlier, it is a measure of share holders' equity in the balance sheet. Higher the book value, higher will be the equity of the shareholders in the company. Hence, the share price tends to move upwards in the market. To estimate the anticipated impact, the study included book value as an explanatory variable in the model and obtained coefficients also justify the expectation. Of the ten companies, a positive impact of book value was found for six companies while the remaining four companies showed the insignificant negative impact. The obtained results were in confirmation with the earlier findings of Dixit (1986), Raghunathan and Varma (1991) and Tuli and Mittal (2001).

5. CONCLUSION:

A change in the market price of a share has been a thumb rule of investment decisions of the investors in the stock market. With a vague idea about the factors that influence the market price, their decisions often lead to incur heavy losses. Hence an attempt has been made in this study to understand the impact of per share values on the market price of a share. The specified independent variables explain the variation in the dependent variable, market price significantly. This explanation has been supported by the significant coefficient of determination measured by R^2 for all the companies considered in this study. The collective influence of all the per share values on the market price of a share is significant as the estimated R^2 value is found statistically significant. From the empirical evidence, it could be inferred that the theoretical relationship between the dependent variable, market price, and independent variables, dividend, earnings per share and book value per share have been accepted. The positive theoretical relationship of dividend per share with the market price cannot be hold good as it has strong negative empirical relationship with the market price. Ohlson and Nauroth (2003) also came out with the similar result of the irrelevancy of the dividend in determining the market price of a share. Though it is against the theory, the negative influence clearly exhibits the mind of the investors of earning an income out of short term price changes rather than the dividend declared by the companies.

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