# Determinants Of Share Prices : An Empirical Study On The Services Sector In India

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## INTRODUCTION

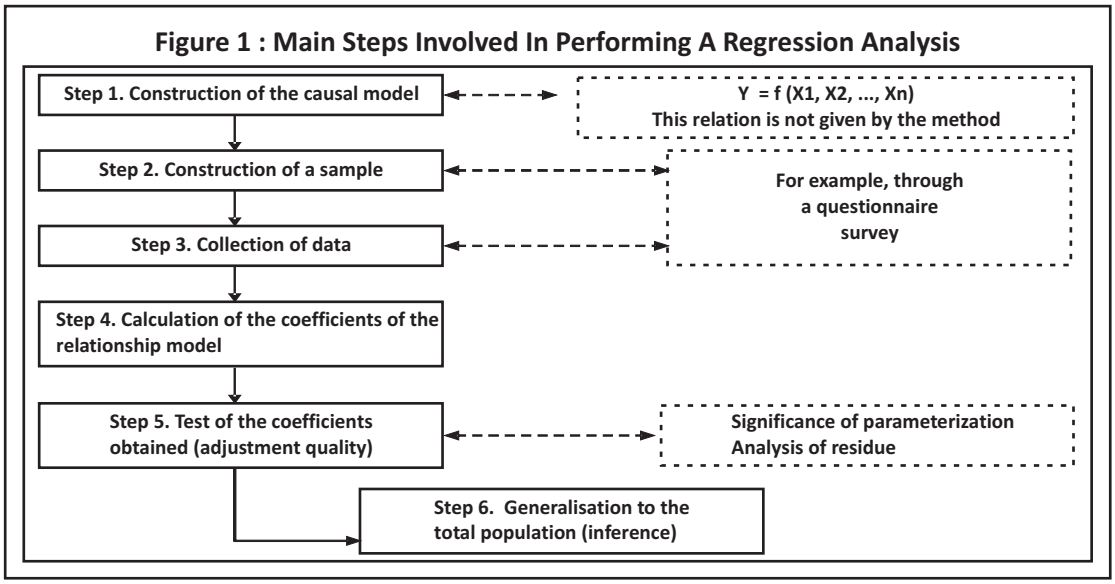
In the last almost two decades of economic reforms, there has been a paradigm shift in the Indian Capital Market. The secondary market in India has transformed itself completely from a conventional system, plagued with frequent broker-defaults, unlimited risks, bad deliveries and repeat market closures and poor price-discovery to a fully automated system, on the same level as the world's best.

In the twenty-first century, India automated trading, expanded the direct reach of major stock exchanges to over 600 centers, dematerialized shares, eliminated unsystematic risks, moved to rolling settlements and introduced derivatives and commodities trading. At the same time, there has been a significant change in the distribution of trading.

❖ **Reforms In Indian Securities Markets :** During the last decade, there have been substantial regulatory, structural, institutional and operational changes in the securities industry. These have been carried out with the objective of improving market efficiency, enhancing transparency, preventing unfair trade practices and bringing the Indian market up to international standards.

❖ **Regression Model :** A simple regression analysis shows that the relation between an independent variable X and a dependent variable Y is linear, using the simple linear regression equation Y= a + bX (where a and b are constants). Multiple regression provides an equation that predicts one variable from two or more independent variables, $Y= a + bX_1 + cX_2 + dX_3$. Regression analysis is used to understand the statistical dependence of one variable on other variables. The technique can show what proportion of variance between variables is due to the dependent variable, and what proportion is due to the independent variables.

**Figure 1 : Main Steps Involved In Performing A Regression Analysis**

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❖ **Main Steps Involved :** The application of a regression analysis is rooted in an initial credible explanatory model. A sound model can only be applied where the effects of the intervention are well identified and where the production process of the effects is understood. The main steps involved in performing a regression analysis are reviewed in the Figure 1.

❖ **Step 1 : Construction of The Causal Model :** The construction of an explanatory model is a crucial step in the regression analysis. It must be defined with reference to the action theory of the intervention. It is likely that several kinds of variables exist. In some cases, they may be specially created, for example, to take account of the fact that an individual has benefited from support or not (a dummy variable, taking values 0 or 1). A variable may also represent an observable characteristic (having a job or not) or an unobservable one (probability of having a job). The model may presume that a particular variable evolves in a linear, logarithmic, exponential or other way. All the explanatory models are constructed on the basis of a model, such as the following, for linear regression:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + .... + \beta_k X_k + \varepsilon$$

Where,
Y is the change that the programme is mainly supposed to produce (e.g. employment of trainees).
$X_{1\text{-}k}$ are independent variables likely to explain the change.
$\beta_{0\text{-}k}$ are constants, and
$\varepsilon$ is the error term

❖ **Step 2: Construction of A Sample :** To apply multiple regression, a large sample is usually required (ideally between 2,000 to 15,000 individuals). Note that for time series data, much less is needed.

❖ **Step 3: Data Collection :** Reliable data must be collected, either from a monitoring system, from a questionnaire survey, or from a combination of both.

❖ **Step 4: Calculation of Coefficients :** Coefficients can be calculated relatively easily, using statistical software that is both affordable and accessible to PC users (SPSS, excel, etc.).

❖ **Step 5: Test of The Model :** The model aims to explain as much of the variability of the observed changes as possible. To check how useful a linear regression equation is, tests can be performed on the square of the correlation coefficient r. This tells us what percentage of the variability in the y variable can be explained by the x variable. A correlation coefficient of 0.9 would show that 81% of the variability in Y is captured by the variables $X_{1\text{-}k}$ used in the equation. The part that remains unexplained represents the residue ($\varepsilon$). Thus, the smaller the residue, the better the quality of the model and its adjustment. The analysis of residues is a very important step: it is at this stage that one sees the degree to which the model has been adapted to the phenomena one wants to explain. It is the residue analysis that also enables one to tell whether the tool has made it possible to estimate the effects in a reasonable way or not. If significant anomalies are detected, the regression model should not be used to estimate effects, and the original causal model should be re-examined, to see if further predictive variables can be introduced.

❖ **Step 6: Generalization To The Total Population :** The purpose of this last phase is to generalize the coefficients of the model to the population as a whole. It is ,therefore, used to produce an estimation of the effects.

❖ **Strengths Of The Approach**

❖ Regression analysis provides an opportunity to specify hypotheses concerning the nature of effects (action theory), as well as explanatory factors.

❖ When it is successfully executed (with a statistically valid adjustment), regression analysis can produce a quantitative estimate of net effects.

❖ **Limitations Of The Approach**

❖ The technique is demanding because it requires quantitative data relating to several thousand individuals.

❖ Implementing the data collection can be time consuming and expensive.

❖ Regression analysis is likely to reach the conclusion that there is a strong link between two variables; whereas the influence of other, more important, variables may not have been estimated (this error is called "data snooping"). The tool should ,therefore, be used with care.

❖ Relations between the different explained and explanatory variables are often circular (X explains Y and Y explains

X). In this case, the method is inapplicable.

❖ The observations must present sufficiently contrasted evolutions to allow for adjustment. For example, if all the observations concern the 30-40 age groups, it will not be possible to estimate the influence of age on employment.

## LITERATURE REVIEW

The history of regression goes back to the 18th century. The earliest form of regression was the method of least squares, which was published by Adrien Marie Legendre in 1805 and by Carl Friedrich Gauss in 1809. According to Dunteman (1984), Multivariate Regression Analysis (MRA) considers the simultaneous effects of many variables taken together. A crucial role is played by multivariate normal distribution, which allows simplifying assumptions to be made, which makes it feasible to develop appropriate models. Multivariate regression is a powerful tool that allows examining the determinants of any response variables.

Balakrishnan (1984) also found that the current dividend and book value per share are more important determinants of market price as compared to earnings per share and dividend coverage. Dixit (1986) showed that dividend is the most important determinant of share prices. This is consistent with standard theories of fundamental value. Fama (1991) in his paper discussed the various hypotheses on efficient markets and their anomalies. In another paper, Fama (1999) stated that stock prices fully reflect the most complete and best information available. However, Fama himself acknowledged that his reading of the market has been a stubborn obstacle for active investors determined to find the ways to beat the market. Bansal (1996) analyzed the behavior and determinants of equity prices in India over the period 1987-1995 and found that book value, dividend per share, earnings per share and dividend cover were the variables which contributed the most in determining equity share prices followed by price-earnings ratio and dividend yield. Palia and Thomas (1997) wrote that a common belief among practitioners is that unexpected changes in foreign exchange rates shall affect the market value of certain firms. Given this common belief, the inability of a strong and systematic contemporaneous relation between stock returns and exchange rate changes is puzzling. Krugman (1999) argued that under the Efficient Market Hypotheses (EMH), at any given time, asset prices fully reflect all available information. Liu and Thomas (1999) attempted to derive and test a relation between period unexpected returns and unexpected earnings that incorporated revision in forecasts of future earnings.

Mohanty (2001) believed that there is now considerable evidence in the US that firm-specific characteristics like size, price-to-book value, and market risk premium can capture the common variation in stock returns. However, there is no consensus among researchers on whether an investor can earn risk-adjusted excess returns by investing in small stocks. Vuolteenaho (2001) used a Vector Auto Regressive (VAR) model to deconstruct an individual firm's stock return into two components-changes in cash flow (expected cash flow news) and changes in discount rates (expected returns news). Hossein and Bjorn (2002) investigated the ability of factor-mimicking portfolios to explain expected returns in multifactor asset pricing models. Lubos and Veronesi (2002) showed that uncertainty about a firm's average profitability increases the firm's Market-to-Book (M/B) value ratio as well as its idiosyncratic return volatility. Samanta and Bhattacharya (2002) discussed the issue of whether the spread between Earning to Market Price (E/P) ratio and interest rate contains useful information about the movement of the stock market. Ang and Liu (2003) developed a model to consistently value cash flow with changing risk free rates, predictable risk premiums and conditional betas, in the context of a Conditional Capital Asset Pricing Model (CAPM). Campbell and Motohiro (2003), in their paper, argued that tests of the predictability of stock returns may be invalid when the predictor variable is persistent, and its innovations are highly co-related with returns. Longstaff and Piazzesi (2003) attempted to quantify the risk premium attached to the standard asset pricing theory. Malkiel (2003) in his paper presented defense of passive financial investment (indexing) strategies of all types of investment markets, both nationally and internationally. Narasimhan and Pradhan (2003) found that the Indian stock market witnessed drastic changes during the past decade under the broad stock market liberalization measures. In their study, the researchers tested the validity of conditional CAPM for the Indian stock market, and found that the risk premium changes with changing economic conditions. Pandey (2003) believed that modeling and forecasting the volatility of capital markets are important areas of inquiry and research in financial economies, with the recognition of time varying volatility, volatility clustering and asymmetric response of volatility to market movements. Siegel (2003) defined a bubble as *"a sharp rise in the price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers-this concerns speculators interested in profits from trading in the assets rather than its use or*

*earning capacity."* Fama and French (2004) argued that the CAPM is still widely used in applications such as estimating the cost of capital for firms and evaluating the performance of managed portfolios. Anderson (2005) discussed how markets arrive at prices. Liu and Zhang (2005) stated that recent studies used the value spread to predict the aggregate stock returns to construct the cash flow betas that appear to explain the size and value anomalies. Pandey (2005) explored the significance of profitability and growth as drivers of shareholders' wealth, as measured by Jegadeesh and Livnat (2006),who stated that there is significant positive association between earning surprises and abnormal returns around the preliminary earnings announcements as well as in the post-earnings announcement period. Jonathan (2006) argued that asset pricing tests are highly misleading in the sense that apparently strong explanatory power, in fact, provides exceptionally weak support for a model. Thomas and Zhang (2006) stated that their study was motivated by the apparent gap between predictions regarding the determinants of market price earning ratios (P/E ratio) and was negatively related to risk and the level of interest rates, prior evidence suggests weak relations at the portfolio level.

## RESEARCH METHODOLOGY

❖ **Objectives :** To study the association between Earning Per Share, Dividend Per Share, Dividend Yield, Book Value Per Share and Price Earnings Ratio with the Market Price Of Equity Share.

❖ **Data Collection :** For this study, secondary data was used. Secondary data means the data which are already collected and used by somebody else. Secondary data was collected from the websites of the various companies as well as the other web resources like moneycontrol.com, rediff.com/money etc.

❖ **Research Design :** In this study, causal approach was used to determine the effect of the various independent variables EPS, DPS, BV, P/E, DY on the dependent variable i.e. Market Price Of Equity Shares.

❖ **Sample Selection :** The data was collected for those companies which are listed on the Bombay Stock Exchange (BSE). To construct the data sample, five companies from the three different service sectors were randomly selected. The service sectors selected were Banking, Health Care and Information Technology. The final sample of this research study consisted of 15 companies.

## SCOPE OF THE STUDY

❖ **Periodical Scope :** The study covered a period of five years from 2006 to 2010.

❖ **Geographical Scope :** The extent of the study was limited to only selected companies from the different service sectors like Banking, Health Care and Information Technology. The selected companies were the top performing companies in the Indian economy during the above selected period.

❖ **Operational Scope :** The present study covers some independent variables like EPS, DPS, Dividend Yield, Book Values and Price Earnings Ratio. The analysis was made by applying the Multivariate Regression Analysis model.

❖ **Hypothesis:**

❖ **Ho: There is no relationship between the Market Price of Equity Shares and EPS, P/E Ratio, DPS, DY and book value of shares of a company.**

❖ **Statistical Analysis :** To achieve the objectives of the research study, the following relationship of independent variables with dependent variables was formed :

MP = f (EPS, DPS, DY, BV, P/E Ratio)

Where, MP = Market Price of Equity Share

EPS = Earnings Per Share

DPS = Dividend Per Share

BV = Book Value Per Share

P/E = Price Earnings Ratio

DY = Dividend Yield

While, for studying the impact of explanatory variables on dependent variable, the following statistical techniques were employed:

❖ **Regression:** A linear multiple regression model was selected to measure the combined effects of explanatory variables on the dependent variable. The general form of multiple linear equations is:

$$Y = bo + b1X1 + b2X2 + \ldots + bnXn$$

Where, Y= dependent variable,
X1, X2, X3 = independent variables,
bo = regression constant, and
b1, b2, bn = regression coefficients of independent variables.

❖ **'T' Test :** The statistical significance of regression coefficients was worked out and tested by applying the 't' test.

❖ **Ho: There is no relationship between regression coefficient of variables.**

❖ **H1: There exists a relationship between regression coefficient of variables.**

❖ **Coefficient of Determination - R Square:** The coefficient of determination - R Square was computed to determine the percentage variation in the dependent variables. Also, with a view to account for the loss of degrees of freedom resulting from the inclusion of additional explanatory variables, the adjusted R Square was computed by the adj. R Square.

❖ **The 'F' Value :** The 'F' value was also computed to test the significance of R Square with 'F' distribution at 1 and 5 per cent significance level.

❖ **Ho: There is no valid linear equation/model.**

❖ **H1: There is a valid linear equation/model.**

## DATA TABULATION, COMPUTATION, ANALYSIS AND INTERPRETATION

Secondary data analysis was done by using the SPSS software (Statistical Package for Social Sciences). This software is used for the multiple variate data analysis. In this study, the software is used to compute the value of correlation regression and determine the significance between Market Price of Equity Shares and EPS, DPS, BV, P/E, DY. This SPSS software is known for fast and accurate results.

❖ **Computation of The Mean Values Of Independent Variables :** In this research project, to show the significance between Market Price and the other variables like EPS, DPS, BE, P/E & DY, three sectors of the economy were taken into consideration. Each sector included the five top performing companies. For each company, five years data (from the financial years 2006 to 2010) was collected, computed and tabulated. The secondary data of EPS, DPS, BV and MP was taken from various websites and on that basis, the values of P/E Ratio and DY were calculated by the following formulas :

$$\text{Price Earnings Ratio (P/E Ratio)} = \frac{\text{Market Price Per Share (MP)}}{\text{Earnings Per Share (EPS)}}$$

$$\text{Dividend Yield (DY)} = \frac{\text{Dividend Per Share (DPS)} \times 100}{\text{Market Price (MP)}}$$

To compute the correlation coefficient, the mean of five years data was calculated. For e.g., the computation of Mean EPS of Axis Bank Ltd.

$$\text{Mean EPS of Axis Bank Ltd.} = \frac{\text{Sum of all the values of EPS (from 2006 to 2010)}}{\text{No of year}}$$

$= (17.41 + 23.40 + 29.94 + 50.79 + 62.16) / 5$
$= 183.70 / 5$
$= 36.74$

Similarly, the mean values of the variables like DPS, BV, P/E, DY, MP were computed and are presented in the tables. These mean values help us to compute the values of correlation regression. In the following tables, the secondary data of fifteen companies and calculation of mean values are given.

In this research project, to show the significance between Market Price and the other variables like EPS, DPS, BE, P/E & DY, three sectors from the economy were selected. They are Banking, Health Care and Information Technology.

Each sector includes five companies. For each company, the data for the last five financial years - 2006 - 2010 - was collected and tabulated. The sector wise, company wise and year wise data is exhibited in the Tables 1, 2 and 3 for the selected sectors. To compute the correlation coefficient, the average of the five years' data was taken into account. To compute the market price, the Regression Equation formula was implemented.

The secondary data analysis and interpretation was done in SPSS software. For data analysis and interpretation, the mean of all the variables (company wise) was computed. The mean values were processed for further analysis and interpretation.

**Table 1 : Banking Sector**

| Name of the Company | Year | EPS | DPS | BV | P/E | DY | MP |
|---|---|---|---|---|---|---|---|
| Axis Bank Ltd. | 2006 | 17.41 | 3.5 | 103.1 | 20.99 | 0.01 | 365.4 |
| | 2007 | 23.4 | 4.5 | 120.5 | 19.66 | 0.01 | 460 |
| | 2008 | 29.94 | 6 | 245.1 | 25.52 | 0.008 | 764.2 |
| | 2009 | 50.79 | 10 | 284.5 | 8.072 | 0.024 | 410 |
| | 2010 | 62.16 | 12 | 396 | 8.072 | 0.251 | 1199 |
| | **Avg. Value** | **36.74** | **7.2** | **229.8** | **16.46** | **0.061** | **639.7** |
| HDFC Bank Ltd. | 2006 | 27.81 | 5.5 | 169.2 | 27.81 | 0.007 | 773.5 |
| | 2007 | 35.74 | 7 | 201.4 | 26.02 | 0.008 | 930 |
| | 2008 | 44.87 | 8.5 | 324.4 | 29.42 | 0.006 | 1320 |
| | 2009 | 52.68 | 10 | 344.4 | 18.56 | 0.01 | 978 |
| | 2010 | 64.33 | 12 | 470.2 | 18.56 | 0.173 | 1939 |
| | **Avg. Value** | **45.09** | **8.6** | **301.9** | **24.08** | **0.041** | **1188** |
| ICICI Bank Ltd. | 2006 | 28.55 | 8.5 | 249.6 | 20.64 | 0.014 | 589.3 |
| | 2007 | 34.58 | 10 | 270.4 | 23.8 | 0.012 | 823 |
| | 2008 | 37.37 | 11 | 417.6 | 20.74 | 0.014 | 775 |
| | 2009 | 33.6 | 11 | 444.9 | 10.06 | 0.033 | 338 |
| | 2010 | 34.9 | 12 | 463 | 10.06 | 0.738 | 952 |
| | **Avg. Value** | **33.8** | **10.5** | **369.1** | **17.06** | **0.162** | **695.5** |
| IDBI Bank Ltd. | 2006 | 7.75 | 1.5 | 88.04 | 7.613 | 0.025 | 59 |
| | 2007 | 8.7 | 1.5 | 86.09 | 6.782 | 0.025 | 59 |
| | 2008 | 10.06 | 2 | 93.82 | 5.865 | 0.034 | 59 |
| | 2009 | 11.66 | 2.5 | 102.7 | 5.06 | 0.042 | 59 |
| | 2010 | 14.24 | 3 | 113.5 | 5.06 | 1.492 | 59 |
| | **Avg. Value** | **10.48** | **2.1** | **96.83** | **6.076** | **0.324** | **59** |
| State Bank of India | 2006 | 83.73 | 14 | 525.3 | 10.91 | 0.015 | 913.4 |
| | 2007 | 86.29 | 14 | 594.7 | 10.48 | 0.015 | 904.5 |
| | 2008 | 106.6 | 21.5 | 776.5 | 15.12 | 0.013 | 1611 |
| | 2009 | 143.5 | 29 | 912.7 | 7.524 | 0.027 | 1080 |
| | 2010 | 144.5 | 30 | 1039 | 7.524 | 0.486 | 1319 |
| | **Avg. Value** | **112.9** | **21.7** | **769.6** | **10.31** | **0.111** | **1319** |

| Table 2 : Health Care Sector | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Name of the Company** | **Year** | **EPS** | **DPS** | **BV** | **P/E** | **DY** | **MP** |
| Biocon Ltd. | 2006 | 13.35 | 2.5 | 80.18 | 16.708 | 0.0112 | 223.05 |
| | 2007 | 15.84 | 3 | 94.05 | 15.11 | 0.0125 | 239.35 |
| | 2008 | 19.08 | 5 | 132.72 | 1.286 | 0.0232 | 215.33 |
| | 2009 | 10.16 | 3 | 68.74 | 14.222 | 0.0208 | 144.5 |
| | 2010 | 12.73 | 3.5 | 78.31 | 11.351 | 0.0242 | 285.5 |
| | **Avg. Value** | **71.16** | **3.4** | **90.8** | **13.736** | **0.0184** | **221.55** |
| Cipla Ltd. | 2006 | 20.26 | 2.5 | 65.83 | 13.069 | 0.0094 | 264.78 |
| | 2007 | 8.5 | 3 | 41.52 | 27.612 | 0.0128 | 234.7 |
| | 2008 | 9.01 | 5 | 48.2 | 24.417 | 0.0227 | 220 |
| | 2009 | 12.95 | 10 | 55.86 | 16.68 | 0.0463 | 216 |
| | 2010 | 12.93 | 13.47 | 73.55 | 16.705 | 0.0624 | 338.65 |
| | **Avg. Value** | **63.65** | **6.974** | **56.992** | **19.697** | **0.0307** | **254.83** |
| Divi's Laboratories Ltd. | 2006 | 55.86 | 10 | 265.87 | 3.3507 | 0.0534 | 187.17 |
| | 2007 | 149.87 | 10 | 419.82 | 2.0017 | 0.0333 | 300 |
| | 2008 | 57.72 | 4 | 135.38 | 10.993 | 0.0063 | 634.5 |
| | 2009 | 70.79 | 6 | 194.85 | 6.7354 | 0.0126 | 476.8 |
| | 2010 | 26.11 | 6 | 116.7 | 18.261 | 0.0126 | 679.05 |
| | **Avg. Value** | **360.35** | **7.2** | **226.52** | **8.2684** | **0.0236** | **455.5** |
| Dr. Reddy's | 2006 | 26.91 | 5 | 294.95 | 26.39 | 0.007 | 710.15 |
| Laboratories Ltd. | 2007 | 71.91 | 3.75 | 260.45 | 10.117 | 0.0052 | 727.5 |
| | 2008 | 25.75 | 3.75 | 286.12 | 23.105 | 0.0063 | 594.95 |
| | 2009 | 35.52 | 6.25 | 312.17 | 13.992 | 0.0126 | 497 |
| | 2010 | 45.81 | 11.25 | 350.3 | 10.849 | 0.0226 | 1285 |
| | **Avg. Value** | **205.9** | **6** | **300.8** | **16.891** | **0.0107** | **762.92** |
| Piramal Healthcare Ltd. | 2006 | 8.02 | 3 | 43.83 | 32.83 | 0.0114 | 263.3 |
| | 2007 | 8.9 | 3.5 | 48.71 | 26.966 | 0.0146 | 240 |
| | 2008 | 14.36 | 4.2 | 48.63 | 21.309 | 0.0137 | 306 |
| | 2009 | 13.17 | 4.2 | 56.89 | 15.084 | 0.0211 | 198.65 |
| | 2010 | 21.21 | 5.4 | 71.8 | 9.3659 | 0.0272 | 427 |
| | **Avg. Value** | **65.66** | **4.06** | **53.972** | **21.111** | **0.0176** | **286.99** |

| Table 3 : Information Technology Sector | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Name of the Company** | **Year** | **EPS** | **DPS** | **BV** | **P/E** | **DY** | **MP** |
| Moser Baer India Ltd. | 2006 | 4.25 | 1 | 178.88 | 36.812 | 0.0064 | 156.45 |
| | 2007 | -0.24 | 1 | 179.79 | -838.8 | 0.005 | 201.31 |
| | 2008 | 5.56 | 1.5 | 187.88 | 27.356 | 0.0099 | 152.1 |
| | 2009 | -8.1 | 1 | 117.07 | -6.673 | 0.0185 | 54.05 |
| | 2010 | -19.7 | 0.6 | 100.02 | -2.744 | 0.0111 | 76.05 |
| | **Avg. Value** | **-3.646** | **1.02** | **152.73** | **-156.8** | **0.0102** | **127.99** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Satyam Computer | 2006 | 18 | 4 | 81.6 | 23.589 | 0.0094 | 424.6 |
| Services Ltd. | 2007 | 24.14 | 5 | 100.76 | 19.056 | 0.0109 | 460 |
| | 2008 | 30.2 | 7 | 133.57 | 13.278 | 0.0175 | 401 |
| | 2009 | 21.14 | 3.5 | 86.65 | 1.8307 | 0.0904 | 38.7 |
| | 2010 | 25.92 | 3.5 | 109.71 | 1.4931 | 0.0904 | 93.45 |
| | **Avg. Value** | **23.88** | **4.6** | **102.46** | **11.849** | **0.0437** | **283.55** |
| Tata Consultancy | 2006 | 57.65 | 13.5 | 114.64 | 8.3008 | 0.0282 | 478.54 |
| Services Ltd. | 2007 | 37.1 | 11.5 | 82.35 | 16.482 | 0.0188 | 611.5 |
| | 2008 | 43.64 | 14 | 111.43 | 9.3378 | 0.0344 | 407.5 |
| | 2009 | 56.01 | 14 | 136.38 | 4.5104 | 0.0554 | 252.63 |
| | 2010 | 28.97 | 20 | 76.2 | 8.7204 | 0.0792 | 786.9 |
| | **Avg. Value** | **44.674** | **14.6** | **104.3** | **9.4704** | **0.0432** | **507.41** |
| Wipro Ltd. | 2006 | 14.14 | 5 | 45.03 | 23.701 | 0.0149 | 335.13 |
| | 2007 | 19.48 | 6 | 63.86 | 17.295 | 0.0178 | 336.9 |
| | 2008 | 20.96 | 6 | 79.05 | 12.166 | 0.0235 | 255 |
| | 2009 | 26.77 | 4 | 85.42 | 5.5136 | 0.0271 | 147.6 |
| | 2010 | 30.36 | 6 | 120.49 | 4.8617 | 0.0407 | 424.98 |
| | **Avg. Value** | **22.342** | **5.4** | **78.77** | **12.707** | **0.0248** | **299.92** |
| Financial Technologies | 2006 | 2.35 | 0.4 | 31.51 | 727.26 | 196.15 | 1709.1 |
| | 2007 | 10.79 | 6 | 34.32 | 169.4 | 0.0002 | 1827.8 |
| | 2008 | 20.48 | 8 | 45.05 | 80.073 | 0.0033 | 1639.9 |
| | 2009 | -39.57 | 20 | 320.24 | -15.54 | 0.0049 | 615 |
| | 2010 | 31.41 | 10 | 373.5 | 19.58 | 0.0325 | 1585 |
| | **Avg. Value** | **5.092** | **8.88** | **160.95** | **196.15** | **0.0114** | **1475.4** |

## ANALYSIS OF THE BANKING SECTOR

Since R Square is 1, statistically, it means that there is no variation. It is a good forecasting model ( Table 6). To have a valid linear equation / model, the value should be less than 0.05. In the Banking Sector, the value of F is less than 0.05. So, the null hypothesis is rejected and hence, we can say that there exists a significant relationship between the Market price of equity shares and the independent variables ( Table 7).

The coefficients of EPS, BV, P/E and DY have significant value less than 0.05, which means that the null hypothesis is rejected and hence, their exists a significant relationship between EPS, BV, P/E, DY and Market Price of equity shares.

The Regression Equation is:

**Market Price = -1011.986 + 18.296 EPS - 0.763 BV + 63.721 P/E + 1747.459 DY** ( Refer to Table 8)

**Table 4 : Computed Mean Values of EPS,DPS,BV,P/E,DY, MP For The Banking Sector**

| Banking Sector | EPS | DPS | BV | P/E | DY | MP |
|---|---|---|---|---|---|---|
| Axis Bank | 36.74 | 7.2 | 229.834 | 16.4625 | 0.060594 | 639.71 |
| HDFC Bank | 45.086 | 8.6 | 301.934 | 24.07663 | 0.04087 | 1188.1 |
| ICICI Bank Ltd. | 33.8 | 10.5 | 369.102 | 17.05934 | 0.162325 | 695.45 |
| IDBI Bank Ltd. | 10.482 | 2.1 | 96.832 | 6.075878 | 0.323864 | 59 |
| SBI | 112.926 | 21.7 | 769.582 | 10.31113 | 0.111498 | 1318.71 |

| Table 5 : Variables Entered/Removed[b] | | | |
|---|---|---|---|
| **Model** | **Variables Entered** | **Variables Removed** | **Method** |
| 1 | DY , BV, P/E, EPS[a] | . | Enter |
| a. Tolerance = .000 limits reached. | | | |
| b. Dependent Variable: MP | | | |

| Table 6 : Model Summary | | | | |
|---|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
| 1 | 1.000[a] | 1.000 | . | . |
| a. Predictors: (Constant), DY , BV, PE, EPS | | | | |

| Table 7 : ANOVA[b] | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **Sum of Squares** | **df** | **Mean Square** | **F** | **Sig.** |
| 1 | Regression | 1003424.873 | 4 | 250856.218 | . | .[a] |
| | Residual | .000 | 0 | . | | |
| | **Total** | **1003424.873** | 4 | | | |
| a. Predictors: (Constant), DY , BV, PE, EPS | | | | | | |
| b. Dependent Variable: MP | | | | | | |

| Table 8 : Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t** | **Sig.** |
| | | **B** | **Std. Error** | **BVt[a]** | | |
| 1 | (Constant) | -1011.986 | .000 | | . | . |
| | EPS | 18.296 | .000 | 1.410 | . | . |
| | BV | -.763 | .000 | -.386 | . | . |
| | P/E | 63.721 | .000 | .877 | . | . |
| | DY | 1747.459 | .000 | .395 | . | . |
| a. Dependent Variable: MP | | | | | | |

| Table 9 : Excluded Variables[b] | | | | | | |
|---|---|---|---|---|---|---|
| **Model** | | **Bvta In** | **t** | **Sig.** | **Partial Correlation** | **Collinearity Statistics** |
| | | | | | | **Tolerance** |
| 1 | DPS | .[a] | . | . | . | .000 |
| a. Predictors in the Model: (Constant), DY , BV, P/E, EPS | | | | | | |
| b. Dependent Variable: MP | | | | | | |

It is observed from Table 9 that DPS is insignificant among all independent variables.

## ANALYSIS OF THE HEALTH CARE SECTOR (HC)

Since R Square is 1, statistically, it means that there is no variation. It is a good forecasting model ( Table 12).

To have a valid linear equation / model, the value should be less than 0.05. In the Health Care Sector, value of F is less than 0.05, which means that the null hypothesis is rejected and there exists a significant relationship between the variables ( Table 13).

**Table 10 : Mean Values of EPS,DPS,BV,P/E,DY and MP For The Health Care Sector**

| Health Care Sector | EPS | DPS | BV | P/E | DY | MP |
|---|---|---|---|---|---|---|
| Biocon Ltd. | 71.16 | 3.4 | 90.8 | 13.73551 | 0.018389 | 221.546 |
| Cipla Ltd. | 63.65 | 6.794 | 56.992 | 19.69661 | 0.030722 | 254.826 |
| Divi's Laboratories Ltd. | 360.35 | 7.2 | 226.524 | 8.268355 | 0.023647 | 455.504 |
| Dr.Reddy's Laboratories Ltd. | 205.9 | 6 | 300.798 | 16.89055 | 0.010742 | 762.92 |
| Piramal Healthcare Ltd. | 65.66 | 4.06 | 53.972 | 21.11106 | 0.017606 | 286.99 |

**Table 11 : Variables Entered/Removed[b]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | DY , P/E, DPS, EPS[a] | . | Enter |
| a. Tolerance = .000 limits reached. | | | |
| b. Dependent Variable: MP | | | |

**Table 12 : Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 1.000[a] | 1.000 | . | . |
| a. Predictors: (Constant), DY , P/E, DPS, EPS | | | | |

**Table 13 : ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 200417.851 | 4 | 50104.463 | . | .[a] |
| | Residual | .000 | 0 | . | | |
| | **Total** | **200417.851** | **4** | | | |
| a. Predictors: (Constant), DY , PE, DPS, EPS | | | | | | |
| b. Dependent Variable: MP | | | | | | |

**Table 14 : Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | BVta | | |
| 1 | (Constant) | 529.881 | .000 | | . | . |
| | EPS | -.728 | .000 | -.424 | . | . |
| | DPS | 152.857 | .000 | 1.148 | . | . |
| | P/E | -9.108 | .000 | -.209 | . | . |
| | DY | -35408.951 | .000 | -1.179 | . | . |
| a. Dependent Variable: MP | | | | | | |

The coefficient of EPS, DPS, P/E and DY have significant value less than 0.05, which means that the null hypothesis is rejected and there exists a significant relationship between EPS, DPS, P/E, DY and Market Price of equity shares.
The Regression Equation is:

**Market Price = 529.881 – 0.728 EPS + 152.857 DPS – 9.108 P/E – 35408.951 DY** ( Refer to Table 14).

It is observed from Table 15 that BV is less significant as compared with other independent variables.

| Table 15 : Excluded Variables[b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | BVta In | t | Sig. | Partial Correlation | Collinearity Statistics |
| | | | | | | Tolerance |
| 1 | BV | .[a] | . | . | . | .000 |
| a. Predictors in the Model: (Constant), DY , P/E, DPS, EPS | | | | | | |
| b. Dependent Variable: MP | | | | | | |

## ANALYSIS OF THE INFORMATION TECHNOLOGY (IT) SECTOR

| Table 16 : Mean Values of EPS,DPS,BV,P/E,DY And MP For The IT Companies | | | | | | |
|---|---|---|---|---|---|---|
| Information Technology Sector | EPS | DPS | BV | P/E | DY | MP |
| Moser Baer India Ltd. | -3.646 | 1.02 | 152.728 | -156.808 | 0.010165 | 127.992 |
| Satyam Computer Services Ltd. | 23.88 | 4.6 | 102.458 | 11.84925 | 0.043725 | 283.55 |
| Tata Consultancy Services Ltd. | 44.674 | 14.6 | 104.304 | 9.470374 | 0.043191 | 507.414 |
| Wipro Ltd. | 22.342 | 5.4 | 78.77 | 12.70737 | 0.024802 | 299.922 |
| Financial Technologies | 5.092 | 8.88 | 160.954 | 196.1528 | 0.011435 | 1475.35 |

| Table 17 : Variables Entered/Removed[b] | | | |
|---|---|---|---|
| Model | Variables Entered | Variables Removed | Method |
| 1 | DY , P/E, DPS, BE[a] | . | Enter |
| a. Tolerance = .000 limits reached. | | | |
| b. Dependent Variable: MP | | | |

| Table 18 : Model Summary | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | 1.000[a] | 1.000 | . | . |
| a. Predictors: (Constant), DY , P/E, DPS, BE | | | | |

Since R Square is 1, statistically, it means that there is no variation. It is a good forecasting model ( Table 18).

| Table 19 : ANOVA[b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 1169089.447 | 4 | 292272.362 | . | .[a] |
| | Residual | .000 | 0 | . | | |
| | **Total** | **1169089.447** | **4** | | | |
| a. Predictors: (Constant), DY , P/E, DPS, BE | | | | | | |
| b. Dependent Variable: MP | | | | | | |

To have a valid linear equation, the value should be less than 0.05. In the Information Technology Sector, the value of F is less than 0.05, which means that the null hypothesis is rejected, and there exists a significant relationship between the variables ( Table 19).

The coefficient of DPS, BV, P/E, and DY have a significant value less than 0.05, which means that the null hypothesis is rejected and there is exists a significant relationship between DPS, BV, P/E, DY and Market Price of equity shares.

The Regression Equation is:

**Market Price = - 109.971 + 21.873 DPS + 5.146 BV + 3.233 P/E – 6235.788 DY** (Refer to Table 20).

| Table 20 : Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -109.971 | .000 | | . | . |
| | DPS | 21.873 | .000 | .208 | . | . |
| | BV | 5.146 | .000 | .337 | . | . |
| | P/E | 3.233 | .000 | .747 | . | . |
| | DY | -6235.788 | .000 | -.189 | . | . |
| a. Dependent Variable: MP | | | | | | |

| Table 21 : Excluded Variables[b] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics |
| | | | | | | Tolerance |
| 1 | EPS | .[a] | . | . | . | .000 |
| a. Predictors in the Model: (Constant), DY , PE, DPS, BE | | | | | | |
| b. Dependent Variable: MP | | | | | | |

Among the above given independent variables, EPS is less significant ( Table 21).

## FINDINGS

From the above analysis of the data, it was observed that the market price is determined by the independent variables like Earning Per Share, Dividend Per Share, Dividend Yield, Book Value Per Share and Price Earnings Per Share. If these values get affected by any reason, the market price of equity share will also get affected because there is a relationship between market share price and the other variables.

| Table 22 : Significant Variables For The Selected Service Sectors | | | | | |
|---|---|---|---|---|---|
| Sector Name | EPS | DPS | DY | P/E Ratio | BV per share |
| Banking | Sign. | | Sign. | Sign. | Sign. |
| Health care | Sign. | Sign. | Sign. | Sign. | |
| Information Technology | | Sign. | Sign. | Sign. | Sign. |
| Sign. = Significant relationship between the variables. | | | | | |

From the Table 22, it is evident that each sector has a significant relationship with Market Price of equity shares for at least four variables out of five.

| Table 23 : Insignificant Variables For The Selected Service Sectors | |
|---|---|
| Sub - Sector Name | Variable (Less Important) |
| Banking | DPS |
| Health Care | BV |
| Information Technology | EPS |

## SECTOR WISE FINDINGS

❖ **Banking Sector :** In the Banking sector, it is observed from the analysis tables that the dependent variables like EPS, BV, P/E Ratio and DY have a significant relationship with the Market Price of equity shares, but the DPS is less important in determining the market price as compared to other variables. It means that the dependent variables like

EPS, BV, P/E Ratio and DY factors play a vital role in determining the Market Price of equity shares.

❖ **Health Care Sector:** In the Health Care sector, it is observed from the analysis Tables that the dependent variables like EPS, DPS, P/E Ratio and DY have a significant relationship with the Market Price of equity shares, but the BV is less important in determining the market price as compared to the other variables. It means that the dependent variables like EPS, DPS, P/E Ratio and DY factors play a vital role in determining the market price of shares.

❖ **Information Technology Sector :** In the IT sector, it is observed from the analysis that the variables like DPS, BV, P/E Ratio and DY have a significant relationship with the Market Price of equity shares, but the EPS is less important in determining the market price as compared to other variables. It means that the dependent variables like DPS, BV, P/E Ratio and DY play a vital role in determining the market price of shares.

## CONCLUSION

From the findings, it can be stated that it is possible to forecast stock prices. It is also possible to ascertain the growth of a particular industry based on the derived data. It can be concluded that the multivariate regression model is an effective tool in forecasting stock prices with good accuracy. However, investors should take precautions while identifying variables which have a direct orientation on the stock prices of a particular security. At the same time, frequency in which the data is available should be borne in mind. If the stock price forecasting is done on daily basis, then it is better to use daily and/or intraday prices rather than monthly/quarterly or annual prices.

From the above sector wise data analysis of variables of all the companies, it can be concluded that Earning Per Share, Dividend Per Share, Price-Earnings Ratio, Dividend Yield and Book Value Per Share always play a vital role in determining the price of equity shares in the market.

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