

Identifying the Financial Ratios that May Have an Impact on the Stock Prices of Companies in Various Industrial Sectors of India

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Article Info

Volume 83

Page Number: 6027-6037

Publication Issue:

May -June 2020

Abstract

The aim of this research paper is to identify if different financial ratios have a relation with the company stock prices in different industrial sectors of India. The companies chosen for analysis are the leaders of their own sectors and form a part of the BSE top 30 companies index. The companies selected are ITC Limited, a leading fast-moving consumer goods company, Sun Pharmaceutical Industries Limited, a leading pharmaceutical company, and Maruti Suzuki India Limited, a leading automobile manufacturing company. The financial ratios that have been chosen for analysis have been selected based on the past research carried out in this field. The methodology for analysis includes individual analysis of each company from the selected sectors. This includes determining the Pearson correlation coefficient of each financial ratio against the dependent variable, i.e., the stock price of the company. Further, hypothesis testing has been done using linear regression of each independent variable against the dependent variable and a multiple linear regression model is developed if multiple independent variables are found to be significant. Secondary data sources have been used to collect data. Through this study, we are able to understand which financial ratio is significant in each sector of study and can be used as a metric for understanding the stock price movement of a company in that particular sector.

Article History

Article Received: 19 November 2019

Revised: 27 January 2020

Accepted: 24 February 2020

Publication: 17 May 2020

Keywords: Stock prices, financial ratios, linear regression, Pearson correlation

I. INTRODUCTION

Performance assessment of a company is done to evaluate whether the company is profitable or not and also to benchmark the company w.r.t its competitors in the same sector, both, domestically and globally. Based on this performance benchmarking, investors make decision whether or not to invest in the stocks of such companies. This investment decision is also based on the market scenario at that point of time and also based on the future growth prospects of that company. To assess if a company is investment worthy or not, a lot of times stock price forecasting is done based on the past stock price data. However, stock prices are influenced by the market sentiment and overall economic condition of the country and thus, future forecasting the same based on past data may not always yield the appropriate result. A lot of factors

which influence stock prices are behavioural and predicting the stock futures based on them can be tricky. Similar to research carried out by Audrius and Svetlana w.r.t the Lithuanian markets [1], this research paper tries to establish whether a dependency can be established between financial ratios and stock prices in different industrial sectors in India. Financial ratios of companies have been used as a measure to predict stock prices because they are more to do with the company's internal environment and how a company manages itself internally based on external and internal triggers. Also, financial statements give a strong base for analysis as they are based on the performance of a company in a particular fiscal year. Identifying the significant ratios that have some impact on stock prices can help investors analyse those ratios instead of going through the complete financial statements.

II. LITERATURE REVIEW

The literature review carried out was to understand whether similar research has been carried out by other researchers in the field and identify which financial ratios best represent a firm's profitability and performance.

Research on similar aspect has also been carried out with respect to Austrian financial companies in which the author tried to relate financial ratios with the stock prices to see if some dependency could be found. As per the results, there were sporadic correlation between the stocks and the ratios, but it could not be generalized for all the selected firms [2].

Similarly, food companies of Europe were analyzed by another author which are listed on the Austrian, Polish and Swiss stock exchanges. The aim was to analyze if causality can be found between the selected financial ratios and stock prices of the companies. The results varied for the three stock exchanges and different ratios were found to be significant for different markets [3].

Based on the research done by **Vijayalakshmi and Srividya** [4] on the topic of “a study of financial performance of pharmaceutical industry in India”, the profitability ratios of ten pharmaceutical companies were analyzed using various techniques such as Co-Variance, Multiple Regression and Analysis of Variances. Further, in another study by **Viswanathan, Palanisamy and Mahesh** [5], they analyzed the working capital management abilities of pharmaceutical companies in India using different techniques like Ratio Analysis, Pearson correlation, Analysis of Variances, Multiple Regression and Descriptive Statistics. They used the liquidity ratios, turnover ratios and profitability ratios to analyze these companies. When it comes to automobile sector of India, **Sanjay Hiran** [6] analyzed the performance of Indian automobile companies using ratios like current ratio, quick ratio, inventory turnover ratio, operating profit ratio, net profit ratio and return on net worth. Statistical tools of ANOVA, significance tests were run to carry out analysis. In another research on “financial analysis of Indian automobile industry” post the 2008 economic crisis, **Dr. Sharma** [7] analyzed the performance of 7 automobile giants of India on the basis of net profit margin, EPS, current

ratio, quick ratio, inventory turnover ratio and asset turnover ratio. Moving to the FMCG sector, there a lot research has been done with regards to this industry when it comes to profitability analysis and some of the ratios that have been analyzed for the same are return on capital employed, debt-equity ratio, net profit margin, current ratio, total assets turnover ratio and so on [8][9][10].

III. METHODOLOGY

The analysis done in this work is purely quantitative and the data is obtained from secondary data resources and no primary data has been collected. For analysis, first, three industrial sectors were selected. PSU companies and sector dominated by the same were avoided as they tend to undergo consolidation and privatization and highly government policy controlled. The sectors selected were FMCG, Automobile and Pharmaceutical. Now, to select the representative companies for each of these sectors, the BSE top 30 companies index was used. As the BSE index comprises of the top 30 performing companies, it is a good resource for selection of a company for the chosen sector. The top company based on weightage in each of the selected sectors was chosen. Hence, ITC Limited, Maruti Suzuki India Limited, and Sun Pharmaceuticals Industries Limited were the companies that were selected for analysis based on their weightage in the BSE index. After selection of the companies, the data for stock prices for past 10 years was obtained through Moneycontrol website for years between 2009-2018. The data obtained was daily stock price data and the same was averaged out for the whole year. This way, 10 data points were obtained for each of the 3 companies. Average of the stock prices for each year was done because the financial ratios are also a representation of average performance for a year of a company and hence, any fluctuations in the value are taken care through use of averages. Based on the literature review, the financial ratios which have been selected are chosen from each of the three categories, i.e., liquidity ratios, profitability ratios and solvency ratios. The financial ratios chosen are current ratio, net profit margin, return on capital employed (ROCE), inventory turnover ratio, and total asset turnover ratio. The data for financial ratios is obtained from the Moneycontrol website for a period of 10 years

from 2009-2018. The financial ratios are validated from the respective companies' annual financial statements which were obtained from the respective annual reports.

In this study, the stock prices are the dependent variable and the five selected financial ratios are the independent variables. The analysis of the data conducted is done independently for each of the three companies. To analyze the data, initially, Pearson correlation coefficient of each of the financial ratio is calculated against the stock prices to determine if each of the independent variable has some relationship or no relationship with the dependent variable. This helps in further analysis.

After the determination of Pearson correlation, linear regression is done for each of the independent variable separately against the dependent variable to identify, which variable is significant. Hypothesis testing is done using the p-value and the t-test to determine if the independent variable is significant or not.

Linear regression has been opted for instead of multiple regression to isolate the effect of individual variables from each other as it is possible that an insignificant variable might suppress the R^2 (adj) value of the regression model due to heteroscedasticity. Thus, through linear regression, the significant independent variables or predictors are identified for each of the three sectors and then using the multiple significant independent variables (if multiple significant variables are obtained) a multiple regression model is developed for future forecasting on the stock prices.

The software used for analysis of data is Minitab 19, and MS Excel was used for data consolidation. For the simplification of notation, the following abbreviations have been used here on forward – Stock Price – SP; Current Ratio – CR; Inventory Turnover Ratio – ITR; Total Assets Turnover Ratio – TATR; Net Profit Margin – NPM; Return on Capital Employed – ROCE.

IV. ANALYSIS

In the analysis, sector-wise complete analysis from start to end is conducted and then the next sector is analyzed. An assumption of the analysis carried out is that the top performing company of each sector is

a representative of the complete sector to determine which financial ratios have a relationship with the stock prices.

A. ITC Limited – FMCG sector analysis

Considering the FMCG sector, ITC Limited was the company chosen as it the best performer for the sector on the BSE index. First, the Pearson correlations of the independent variable against the dependent variable were calculated using Minitab 19 and the results of the same are in the table below

Pearson Correlation - ITC	
Ratios	SP
CR	0.613
ITR	0.707
TATR	-0.591
NPM	0.91
ROCE	-0.195

As can be seen from the table above, NPM has considerable positive correlation with SP while ITR and CR also show some amount of positive correlation with SP. TATR has minor negative correlation with SP while ROCE has next to negligible correlation with SP. Based on this correlation analysis, we can see that NPM and ITR are the possible independent variables which may have a causal relationship with the SP. The same needs to be analyzed using linear regression model.

In the linear regression model, each independent variable is regressed against the dependent variable SP and hypothesis is develop whether the independent variable significantly impacts the dependent variable or not. The hypothesis is as follows:

H_0 : CR does not significantly impact the SP.

H_1 : CR has significant impact on the SP.

Running a linear regression on Minitab 19, the results are as follows:

R^2 Values

S	R^2	R^2 (adj)	R^2 (pred)
59.8429	37.53%	29.72%	0.00%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	17213	17213	4.81	0.060
CR	17213	17213	4.81	0.060
Error	28649	3581		
Total	45863			

From the table, R squared value is very poor, and the p-calculated is more than the critical value of p-crit. = 0.05. Thus, the H_0 is accepted, and it is concluded that CR does not significantly impact the SP. This was also evident from Pearson correlation coefficient values as it was not significant for this pair of variables.

The next variable that is analyzed is ITR. Again, we ran a linear regression on Minitab 19 with the following as the hypothesis:

H_0 : ITR does not significantly impact the SP.

H_1 : ITR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
53.5365	50.00%	43.76%	9.49%

Analysis of Variance

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	22934	22934	8.00	0.022
ITR	22934	22934	8.00	0.022
Error	22929	2866		
Total	45863			

From the table, R squared value is poor, and the p-calculated is less than the critical value of p-crit. = 0.05. Thus, the H_0 is rejected for now, and it is concluded that ITR does significantly impact the SP. This was also evident from Pearson correlation coefficient values as it showed some amount of correlation between the pair of variables.

Further, the next variable of study was TATR. Again, we ran a linear regression on Minitab 19 with the following as the hypothesis:

H_0 : TATR does not significantly impact the SP.

H_1 : TATR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
61.0846	34.91%	26.78%	11.97%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	16012	16012.3	4.29	0.072
TATR	16012	16012.3	4.29	0.072
Error	29851	3731.3		
Lack-of-Fit	28600	4766.7	7.62	0.120
Pure Error	1251	625.3		
Total	45863			

From the table, R squared value is very poor, and the p-value of the test is more than the p-critical value of 0.05. Thus, the H_0 is accepted, and it is concluded that TATR does not significantly impact the SP. This was also evident from Pearson correlation coefficient values as it was not significant for this pair of variables.

The next variable that is analyzed is NPM or net profit margin. The hypothesis to be tested is as follows:

H_0 : NPM does not significantly impact the SP.

H_1 : NPM has significant impact on the SP.

The results of the regression are as follows for the same:

R² Values

S	R ²	R ² (adj)	R ² (pred)
31.3550	82.85%	80.71%	76.82%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	37998	37997.8	38.65	0.000
NPM	37998	37997.8	38.65	0.000
Error	7865	983.1		
Lack-of-Fit	6069	867.0	0.48	0.807
Pure Error	1796	1796.4		
Total	45863			

From the table, R squared value is very good, and the p-calculated is less than the critical value of p-crit. = 0.05. Thus, the H_0 is rejected, and it is concluded that NPM does significantly impact the SP. This was also evident from Pearson correlation coefficient values as it showed some amount of correlation between the pair of variables.

The last independent variable to be analyzed is ROCE or return on capital employed. The hypothesis to be tested is as follows:

H_0 : ROCE does not significantly impact the SP.

H_1 : ROCE has significant impact on the SP.

The results of the regression are as follows for the same:

R² Values

S	R ²	R ² (adj)	R ² (pred)
74.2595	3.81%	0.00%	0.00%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	1747	1747	0.32	0.589
ROCE	1747	1747	0.32	0.589
Error	44116	5514		
Total	45863			

Based on the R squared value itself we can concluded that the two variables do not have a relationship. Also, p-calculated is more than the critical value of p-crit. = 0.05. Thus, the H_0 is

accepted, and it is concluded that ROCE does not significantly impact the SP. This was also evident from Pearson correlation coefficient values as it was not significant for this pair of variables.

Thus, from the linear regression analysis, the significant variables identified are ITR and NPM. Determining a multiple regression model for the two independent variables against the dependent variable, we get the following results:

Regression equation:

$$\text{Stock Price} = -871 + 51.8 \text{ ITR} + 32.03 \text{ NPM}$$

The results of the multiple regression for the model are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
22.3065	92.41%	90.24%	84.49%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	42380	21189.9	42.59	0.000
ITR	4382	4382.0	8.81	0.021
NPM	19446	19446.1	39.08	0.000
Error	3483	497.6		
Total	45863			

Based on the results of the above table, the p-calculated of both, ITR and NPM are less than the p-crit. = 0.05 and hence both the variables are significant and the model is also a good fit as the R squared value is very good.

Thus, based on the above results and analyses it can be concluded that to forecast the stock prices of FMCG companies, ITR and NPM can be used as the financial ratios for future growth analysis purposes.

B. Sun Pharmaceuticals – Pharmaceutical Industry

Considering the Pharmaceutical sector, Sun Pharmaceuticals Industries Limited was the company chosen, as it the best performer for the sector on the BSE index. First, the Pearson

correlations of the independent variable against the dependent variable were calculated using Minitab 19 and the results of the same are in the table below

Pearson Correlation - SunPharma	
Ratios	SP
CR	-0.87
ITR	0.555
TATR	0.894
NPM	-0.804
ROCE	0.123

As can be seen from the table above, NPM and CR have considerable negative correlation with SP while TATR shows considerable positive correlation with SP. Both ITR and ROCE has low correlation with SP. Based on this correlation analysis, we can see that NPM, CR and TATR are the possible independent variables which may have a causal relationship with the SP. The same needs to be analyzed using linear regression model.

Applying the linear regression model to the independent variables, starting with CR, the hypothesis is as follows:

H₀: CR does not significantly impact the SP.

H₁: CR has significant impact on the SP.

The results of the regression using Minitab 19 are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
134.757	75.76%	72.73%	62.51%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculate	P-Calculate
Reg.	454143	454143	25.01	0.001
CR	454143	454143	25.01	0.001
Error	145276	18159		
Total	599418			

Based on the above results it can be seen that the R squared value is good and shows goodness of fit. Further, F-value calculated of the model indicates that the model is significant and as the p-calculated is less than p-crit. = 0.05, the H₀ is rejected. Thus, CR significantly impacts the SP of a pharmaceutical industry.

The next independent variable analysed is ITR. The hypothesis for the same is as follows:

H₀: ITR does not significantly impact the SP.

H₁: ITR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
227.617	30.85%	22.21%	0.00%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculate	P-Calculate
Reg.	478923	478923	31.80	0.000
TATR	478923	478923	31.80	0.000
Error	120495	15062		
Total	599418			

Based on the above results it can be concluded that the as the R squared value is very poor, the regression model shows poor goodness of fit. Also, as the p-calculated is more than the critical value of p-crit. = 0.05, the H₀ is accepted. Thus, the variable ITR does not significantly impact the SP in a pharmaceutical industry.

The next variable of analysis is TATR. The hypothesis to be tested is as follows:

H₀: TATR does not significantly impact the SP.

H₁: TATR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
122.727	79.90%	77.39%	71.27%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	184942	184942	3.57	0.096
ITR	184942	184942	3.57	0.096
Error	414477	51810		
Total	599418			

Based on the above results it can be seen that the R squared value is good and shows goodness of fit. Further, F-value calculated of the model indicates that the model is significant and as the p-calculated is less than the critical value of p-crit. = 0.05, the H_0 is rejected. Thus, TATR significantly impacts the SP of a pharmaceutical industry.

The next variable that is analyzed is NPM or Net Profit Margin. The hypothesis formulated for the same is as below:

H_0 : NPM does not significantly impact the SP.

H_1 : NPM has significant impact on the SP.

The results of the regression are as follows for the same:

R² Values

S	R ²	R ² (adj)	R ² (pred)
162.89	64.59%	60.16%	29.35%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	387139	387139	14.59	0.005
NPM	387139	387139	14.59	0.005
Error	212279	26535		
Total	599418			

Based on the above results it can be seen that the R squared value is moderate and shows moderate goodness of fit. Further, F-value calculated of the model indicates that the model is significant and as the p-calculated is less than the critical value of p-crit. = 0.05, the H_0 is rejected. Thus, NPM

significantly impacts the SP of a pharmaceutical industry.

The last variable of analysis is ROCE. The hypothesis to be tested is as below:

H_0 : ROCE does not significantly impact the SP.

H_1 : ROCE has significant impact on the SP.

The results of the regression are as follows for the same:

R² Values

S	R ²	R ² (adj)	R ² (pred)
271.653	1.51%	0.00%	0.00%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	9057	9057	0.12	0.735
ROCE	9057	9057	0.12	0.735
Error	590361	73795		
Total	599418			

Based on the above results it can be concluded that the as the R squared value is very poor, the regression model shows poor goodness of fit. Also, as the p-calculated is more than the critical value of p-crit. = 0.05, the H_0 is accepted. Thus, the variable ROCE does not significantly impact the SP in a pharmaceutical industry.

Based on the analysis of all the variables, the significant variables identified are CR, TATR and NPM. These variables have some causal relationship with the dependent variable SP for the pharmaceutical industry. Based on this study, we now try to develop a multiple regression model from the significant variables.

To determine the best possible regression model, the multiple regression analysis was done by taking all three independent variables together at first. The result of the same is as below:

R² Values

S	R ²	R ² (adj)	R ² (pred)
74.45	94.45%	91.68%	75.81%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	566154	188718	34.04	0.000
CR	379	379	0.07	0.802
TATR	108530	108530	19.58	0.004
NPM	12739	12739	2.30	0.180
Error	33264	5544		
Total	599418			

Based on the above regression analysis it can be seen that p-calculated of the two variables, CR and NPM is more than the p-crit. = 0.05 and they become insignificant while TATR is the only significant variable. To rectify this, pairwise variables were selected, and multiple regression model were formed to determine which variables can be significant in a multi-variate model. Based on analysis it was found that the multiple regression model with NPM and TATR as the independent variable pair was the best out of three possible combinations of the three variables as the total error of the model was least in case of NPM and TATR as the independent variables. The results of the same are as below:

Regression equation:

Stock Price = -194 – 11.17 NPM + 1368 TATR

R² Values

S	R ²	R ² (adj)	R ² (pred)
69.3269	94.39%	92.78%	82.18%

Variance Analysis

Source	Adjusted	Adjusted	F-	P-
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e	d SS	d MS	Calculate d	Calculate d
Reg.	565775	282887	58.86	0.000
NPM	86852	86852	18.07	0.004
TATR	178636	178636	37.17	0.000
Error	33643	4806		
Total	599418			

Thus, to predict the growth or decline of a stock of a company in the pharmaceutical industry, the Net profit margin and Total asset turnover ratio of the company can be evaluated to assess the direction in which the stock prices would move.

C. Maruti Suzuki India Ltd – Automobile Industry

There are many dominant players in the Indian automobile industry, but none has been able to hold the market share as Maruti Suzuki has done. Based on the weightage given to Maruti on the BSE index, it was selected as the representative for analysis of stock prices of companies in the automobile sector in India.

The Pearson correlations of the independent variables w.r.t the dependent variable are as follows:

Pearson Correlation - Maruti Suzuki	
Ratios	SP
CR	-0.812
ITR	-0.442
TATR	-0.674
NPM	0.827
ROCE	0.464

As can be seen from the table above, CR has a strong negative correlation with SP while TATR shows moderate negative correlation with SP. Also, NPM shows strong positive correlation with SP. Both ITR and ROCE have low correlation with SP. Based on this correlation analysis, we can see that NPM, CR and TATR are the possible independent

variables which may have a causal relationship with the SP. The same needs to be analyzed using linear regression model.

Applying the linear regression model to the independent variables, starting with CR, the hypothesis is as follows:

H_0 : CR does not significantly impact the SP.

H_1 : CR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
1686.20	66.01%	61.76%	43.82%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	44175752	44175752	15.54	0.004
CR	44175752	44175752	15.54	0.004
Error	22746100	2843263		
Total	66921852			

Based on the above results it can be seen that the R squared value is moderate and shows moderate goodness of fit. Further, F-value calculated of the model indicates that the model is significant and as the p-calculated is less than the critical value of p-crit. = 0.05, the H_0 is rejected. Thus, CR significantly impacts the SP of an automobile industry.

The next independent variable analysed is ITR. The hypothesis for the same is as follows:

H_0 : ITR does not significantly impact the SP.

H_1 : ITR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
2594.13	19.55%	9.50%	0.00%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	13085906	13085906	1.94	0.201
ITR	13085906	13085906	1.94	0.201
Error	53835946	6729493		
Total	66921852			

Based on the above results it can be concluded that the as the R squared value is very poor, the regression model shows poor goodness of fit. Also, as the p-calculated is more than the critical value of p-crit. = 0.05, the H_0 is accepted. Thus, the variable ITR does not significantly impact the SP in an automobile industry.

The next variable of analysis is TATR. The hypothesis to be tested is as follows:

H_0 : TATR does not significantly impact the SP.

H_1 : TATR has significant impact on the SP.

The results of the regression are as follows:

R² Values

S	R ²	R ² (adj)	R ² (pred)
2136.85	45.42%	38.59%	0.54%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	30392949	30392949	6.66	0.033
TATR	30392949	30392949	6.66	0.033
Error	36528903	4566113		
Total	66921852			

Based on the above results it can be concluded that the as the R squared value is poor, the regression model shows poor goodness of fit. Also, as the p-calculated is less than the critical value of p-crit. = 0.05, the H_0 is rejected. Thus, the variable TATR significantly impacts the SP in an automobile industry. This kind of result is possible if the independent variable has a non-linear relationship with the dependent variable. Thus, this linear regression model shows heteroscedasticity.

The next variable that is analyzed is NPM or Net Profit Margin. The hypothesis formulated for the same is as below:

H_0 : NPM does not significantly impact the SP.

H_1 : NPM has significant impact on the SP.

The results of the regression are as follows for the same:

R² Values

S	R ²	R ² (adj)	R ² (pred)
1626.70	68.37%	64.41%	52.06%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	45752550	45752550	17.29	0.003
NPM	45752550	45752550	17.29	0.003
Error	21169302	2646163		
Total	66921852			

Based on the above results it can be seen that the R squared value is moderate and shows moderate goodness of fit. Further, as the p-calculated is less than the critical value of p-crit. = 0.05, the H_0 is rejected. Thus, NPM significantly impacts the SP of an automobile industry.

The last variable of analysis is ROCE. The hypothesis to be tested is as below:

H_0 : ROCE does not significantly impact the SP.

H_1 : ROCE has significant impact on the SP.

The results of the regression are as follows for the same:

R² Values

S	R ²	R ² (adj)	R ² (pred)
2562.40	21.51%	11.70%	0.00%

Variance Analysis

Source	Adjusted SS	Adjusted MS	F-Calculated	P-Calculated
Reg.	14394600	14394600	2.19	0.177
ROCE	14394600	14394600	2.19	0.177
Error	52527252	6565907		
Total	66921852			

Based on the above results it can be concluded that the as the R squared value is very poor, the regression model shows poor goodness of fit. Also, as the p-calculated is more than the critical value of p-crit. = 0.05, the H_0 is accepted. Thus, the variable ROCE does not significantly impact the SP in an automobile industry.

Thus, after carrying out linear regression, the significant variables identified for the automobile sector are CR, NPM and to some extent, TATR. This indicates that these independent variables have some level of causal relationship with the dependent variable, SP.

Trying to develop a multiple regression model for these three significant variables did not yield a statistically significant model even after taking the independent variables pairwise. This maybe due one variable suppressing the impact of another variable. Thus, to analyse the automobile industry, it would be better to analyse Current ratio and Net profit margin to understand if there maybe growth or fall in the stock prices of the company in the sector. TATR should not be ideally used directly as

it shows a non-linear relationship with the stock prices.

V. CONCLUSION

Thus, based on the research conducted in this paper, the results can be summarized as follows:

1. Different industrial sectors require study and analysis of different financial ratios to forecast future stock price trends of a company in the sector.
2. The key financial ratios for analyzing stock trends in the FMCG sector are Inventory Turnover Ratio and Net Profit Margin.
3. The key financial ratios for analyzing stock trends in the Pharmaceutical sector are Total Assets Turnover Ratio and Net Profit Margin.
4. The key financial ratios for analyzing stock trends in the Automobile sector are Current Ratio and Net Profit Margin.
5. Also, based on this study, Net Profit Margin is a common financial ratio among all the sectors for stock price forecasting. Thus, it can be concluded, w.r.t this paper, that Net Profit Margin individually can also be used to assess performance of a company stock in the FMCG, Pharmaceutical and Automobile sector and then forecast future trends based on it.

Also, after conducting the analysis, it can be concluded that while the above financial ratios can be used to evaluate stocks, it is also necessary to conduct sector analysis and econometric analysis of the firms to come to a conclusion as the financial ratios might not represent the true picture of a firm sometimes. This maybe because the annual reports of the firms are window dressed and do not represent the actual financial condition. Thus, while these ratios can be the first ones that are referred for assessment, other means of analysis should always be used in tandem with this study.

VI. FUTURE SCOPE

In this research paper, we have considered a single company in each sector for analysis and determining dependency on stock prices. This study can be further expanded sector-wise to multiple companies and individual sectors can be studied in more depth.

Also, different financial ratios can also be included and further analyzed to determine if they show causal relationship with the stock prices.

Further, this research can also be expanded to other sectors of the Indian market to determine what ratios can be used to forecast stock prices in other sectors.

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