Profitability Analysis through Discriminant Analysis – A Study on FMCG Sector

Dr. Somnath Das

Assistant Professor of Commerce,
Kabi Sukanta Mahavidyalaya,
Bhadreswar, Hooghly, India
Under the University of Burdwan. India.
dassomnath_bu@rediffmail.com

Abstract

In this study we give emphasis on FMCG sector. Seven popular FMCG companies have been selected for analysis. Profitability analysis of the selected companies with the help of Wilks' Lambda and multiple discriminant analysis is the main objective of this study. For this reason different financial ratios like Net Profit Margin, Total Assets Turnover Ratio, Operating Profit Margin, Earning per Share, Dividend Pay-out Ratio, Return on Capital Employed, Cash Profit Margin, Equity Multiplier and Current ratio are used. These companies are segregated into highly profitable and less profitable companies on the basis of Return on Net Worth. Among the nine ratios three ratios namely Dividend Pay-out ratio, Earning per share and Return on Capital Employed are the significant ratios due to their discriminatory power. Dividend pay-out ratio has the highest impact on profitability and it followed by Earning per share and Return on Capital employed.

Keywords: Wilks' Lambda, Multiple Discriminant function analysis, Return on Net worth, Financial Ratios.

JEL CODES: G32, G33, G35

Introduction

In this study we selected 7 FMCG companies of India. Fast-Moving Consumer Goods (FMCG) industry is the fourth largest sector in India contributing nearly 3 % of India's GDP. FMCG sector includes food, beverage, healthcare, personal care and household products. In India FMCG sector includes foods, chocolate, batteries, pharmaceuticals, packaged foods, plastic goods, toiletries, non-durable consumer products. There is a high growth in FMCG sector. Generally, FMCG sector focused on urban areas. Most of the middle-income group people are working in this sector. Agriculture, healthcare, education, MSMEs, infrastructure and employment are directly influence companies in FMCG sector.

FMCG is one of the profitable sectors in India. Its market growth is very high than other sector. So it has ample opportunity to invest in FMCG

sector. But the market is volatile. Investors have not enough knowledge about the changing scenario of the market. Investors may analyse the financial statement of the company but due to insufficient knowledge of technical analysis, they are unable to take proper decision to invest their fund in any profitable organisation. Rather they are very much dependent on others viz. friends, relatives, family members etc. Therefore, it is very difficult for them to take correct investment decision. Numbers of factors (internal as well as external) are responsible for taking correct decision. Different credit rating agencies like CARE, ICRA provide information about the financial position of the organisation but they do not provide information regarding the investment in equity. Due to lack of information, the investor takes the investment decision on the basis of risk and return. If the decision is right then it is okay otherwise he/she is in panic for selling such equities.

In this research paper we discriminate the performance of selected FMCG companies on the basis of some popular financial ratios. With these financial ratios the profitability of FMCG companies can be analysed and classified into highly profitable and less profitable. In this paper attempt has been made to show the discriminatory power of the selected ratios and also discriminate the performance of the companies.

About the Companies: Britannia: Britannia industries Ltd. manufacturing food products in India. During 2004 to 2018 the market capitalisation of the company moved from Rs. 2400 crore to Rs. 76000 crore. In 2017-18 the net sales of the company was Rs. 9905.60 crore. The net profit of the company in the year 2017-18 was 1777.40 crore.

Dabur: Dabur India Limited is well known FMCG company in India. In 2014, first time Dabur launches India's first Ayurvedic Medical journal. In 2015 there was an agreement between Dabur and Starcom Media Vest Group (SMG). On 26th September 2017 Dabur announced its alliance with Amazon to make its product global. From 2018, Dabur manufacturing products like cosmetic, Body and health products.

Godrej: Godrej consumer product is a famous FMCG company in India. It serves consumers of India over 122

years. This group enjoy the patronage of 1.15 billion consumers globally. Now Godrej expands their products to the emerging markets of Asia, Africa and Latin America.

HUL: Hindustan Unilever Limited is the largest FMCG company in India over 80 years. Around 18000 people are working in the company. HUL is the subsidiary of Unilever, the largest supplier of food. Now HUL is selling their products in 190 countries. It has around 67% shareholding in HUL.

ITC: ITC Ltd. is another popular FMCG company in India. ITC Ltd. produces food, personal care products, education and stationery products, agarbaties, cigarettes etc. It is one of the leading marketers in FMCG. It market capitalisation is nearly US$50 billion. Gross sales value US $ 10.8 billion. 6 billion people's livelihoods are maintained by ITC.

Marico: Marico Ltd. is another India's leading consumer goods companies providing consumer products and services in the areas of health, beauty and wellness. It has emerging markets around 25 countries in Asia and Africa. In 2017, it has own Flame award. In 2016, it has own International business PR awards. Marico's market capitalisation is 25000 crore.

Nestle: Nestle India is consumer goods company. 8th March, 2018 its famous product Maggi completed 35 years of business in India. It produces mill & nutrition, beverage, chocolate and confectionery items. Marico is selling products in many countries in Asia and Africa.

Literature Review: A. Chakraborty (2017) conducted a study on Performance evaluation of leading FMCG firms. In this study he selected 5 FMCG companies. The objective of the study is to analyse the financial position of the companies. For analysing the differences in mean value of the selected ratios of companies he use one way ANOVA test. From profitability analysis ITC was in the top position. In terms of rate of return HUL was the best. From liquidity as well as structural point of view again ITC was in top.

S. Bansal, G. Singh (2017) conducted a study on Indian FMCG companies. The main objective of the study was to examine the fundamental analysis of the selected FMCG companies. In this analysis he used one way ANOVA test. He found that there is significant difference between the

selected variables (Net profit margin, ROCE, EPS, DPS, Dividend pay-out ratio) of the selected companies.

A. Puwar, K. Jalan et.al.(2017) conducted a study on financial analysis of 12 pharmaceuticals Indian companies using Du Pont analysis with 3 points model and 5 points model. They have shown that the growth in ROE value of Torrent Pharmaceuticals was tremendous even though the Sun Pharma, the leading company in India having highest assets making , losses for its investors.

H. Desai made a study on earning per share in FMCG sector of India. For his study he collected earning per share ratio of 14 FMCG companies for a period of 10 years (2005 to 2014) from the annual reports. After that the researcher used Mann-Kendall trend detection test to find out the trend. The researcher found no such trend in this analysis.

In 2017 S.M.I. Haque and A. Afzal conducted a study on two FMCG companies. The study period of the study was 2011-12 to 2015-16. The objective of the study was to evaluate the financial performance of the selected companies. The results of the study were i) sound return for shareholders, ii) satisfactory liquidity position, iii) firms were not in trading on equity and iv) liquidity and profitability are positively associated with sales.

Khamrui (2012) made a study of two popular FMCG companies – ITC and HUL. In this study he computed different profitability ratios and made a comparison between them considering ROI as the dependent variable. The study revealed that both profitability and liquidity have significant impact on profitability.

Joshi (2013) conducted the study on three major FMCG companies – HUL, Colgate Palmolive & ITC- Agro Tech Foods. In this study he focused on various profitability ratios like Net operating profit, net profit margin, PAT to net worth, cash profit to net profit etc. He used mean and ANOVA test. He concluded that there have been vast differences among the selected ratios.

R.Dhingra, K. Dev and M Gupta (2018) conducted a study on Performance Analysis of FMCG sector in India. In this study they used financial ratios. They also evaluated the financial ratios with Wilks' Lambda and Multiple discriminant analysis. Market capitalization is taken as the basis of selecting the companies. They used data from 2006 to 2017. On the basis of average stock market return they dividend the companies into under performer and out performer. They found that revenue from operations/share is the most important ratio and have impact on market performance of the company and it followed by Debt equity ratio and inventory turnover ratios. Dividend pay-out ratio has less impact on stock market performance.

Research Gap: After prolong study of literature on financial performance analysis of companies it is clear that there are different angles of the evaluation of financial performances. In those studies so many relationships were established considering the FMCG sectors. But analysing the financial performance / profitability with the help of Discriminant function analysis was not done yet in FMCG sector. Therefore, to cover the gap in earlier studies, the present work is considered to provide an insight into the Profitability analysis of selected FMCG companies. In the present study we used the Wilks' Lambda and Discriminant function analysis model and also to measure the degree of impact of different variables, Step Discriminant function Analysis has been used. And I think it will strengthen the performance analysis approach of companies in future.

Importance of the Study: All the ratios have not same impact on the profitability of the company. This study helps us to find out the discriminatory power of ratios. I think the findings will help investors for taking logical and rational decision relating to his investment. The findings also help the govt. authorities to frame policies for FMCG sector. This study is also important to judge the profitability of the company from the view point of investors, shareholders, management, govt., researchers etc.

Research Methodology:

Research Statement: Profitability Analysis through Discriminant Analysis – A study on FMCG sector

Hypothesis of the study:

H0-Null Hypothesis- There is no significant impact of various variables (ratios) on Profitability of the selected FMCG companies.

H1-Alternative Hypothesis- There is significant impact of various variables (ratios) on Profitability of the selected

FMCG companies.

About the research problem: The present study focuses on the performance analysis of selected Indian companies in FMCG sector for a period of 15 years from 2004 to 2018. One of the important factors affecting the functioning of the company is the size of the unit. I have tried to use Discriminant function analysis to evaluate profitability of the selected FMCG companies. In this study my focus is on key financial ratios which have discriminatory power of the selected companies. For visualising the impact of different variables Step Discriminant Analysis through SPSS has been used.

Research Design: The present study entitled "Profitability Analysis through Discriminant Analysis – A study on FMCG sector" is an analytical, conclusion oriented and hypothesis testing type of research study. In this study we used different ratios like Net profit Margin, Total assets turnover ratio (i.e. net sales / total assets), Operating Profit Margin, Earning per share, Dividend Pay-out ratio, Return on Capital Employed, Cash profit Margin, Equity Multiplier, Return on Net Worth and Current Ratio.

Objectives of the Study: The Objectives of the present study are as follows;

i) To examine the profitability position of the selected FMCG companies of India by comparing different profitability ratios.

ii) To find out the ratios which have major impact on profitability of the selected FMCG companies of India.

iii) To judge the discriminatory power of the significant ratios of the selected FMCG companies of India.

Nature and source of data: The present study is based on the secondary data and such data have been collected from Capitaline data base from the University of Burdwan. Other information have been collected from annul reports of the company and also from internet as per requirement.

Period of the study: The present study covers a period of 15 years from 2003-04 to 2017-18.

Sample Design: In the present study I used purposive sample technique to select the leading FMCG companies from the FMCG industry.

Population: The population consisted popular FMCG companies in India.

Sampling units and sample size: For the present study 7 FMCG companies have been selected as the sampling units. These companies are listed in the BSE and NSE or both in India. Out of many companies only the top seven companies have been selected in this study. Then all units of population are classified on the basis of size of the company.

Tools and Techniques: In the present study we used Ratio analysis and different techniques of average (mean), standard deviation. For evaluating the impact of ratios Step Discriminatory analysis has been done. Wilks' Lambda test has been used. In this analysis Eigen values also been calculated.

Findings of the Study: Discriminant Analysis is a useful technique to discriminate two or more groups. In 1968 Altman used discriminant analysis in finance to predict the corporate bankruptcy. This discriminant technique was developed by R.A Fisher in 1936. The main aim of the technique is to discriminate among groups. With this analysis we can develop linear combinations of predictor variable which discriminate the groups of development variables. It will help us to identify differences among groups. The accuracy of the groupings of the groupings of the dependent variable can also be judged through discriminant analysis. Practically through discriminant analysis inter groups differences are identified. The 'Z score' of each observation as well as of the groups is calculated on the basis of variables discriminant coefficient in discriminant analysis.

In this study profitability of the FMCG companies has been measured. The companies are divided into highly profitable and less profitable company using multiple discriminant analysis. So for multiple discriminant analysis we can write, $D = x + b1v1 + b2v2 + ---- bnvn$.

Where, D is the Discriminant score, v is the constant term viz. 'Canonical Discriminant function coefficient'

b1b2 are the discriminant function coefficient, v1v2 are the predictor (in dependent variable).

For analysing, different variables are identified and

classified into two groups highly profitable and less profitable groups among the seven FMCG companies of India. Discriminant coefficients are derived from the ratios which are popularly known as discriminant variables. These ratios are collected from the financial statements of seven companies of 15 years from 2004 to 2018.

The companies are classified into highly profitable and less profitable on the basis of return on net worth. The other internal and external factors are not considered as the basis of classification in this study. The companies whose average returns on net worth is more than 50 % are grouped as highly profitable company and the companies whose average return on net worth is less than 50 % are grouped as less profitable company. Therefore, in this study all the seven companies are classified into two sections 1 and 2. 1 signifies whose average return on net worth > 50% and 2 portrays the companies whose average return on net worth < 50%.

Table – 1 Classification of companies of FMCG sector on the basis of Average Return on Net Worth

S.L. No	Name of the companies	Average RONW (%)	Profitability group
1	Britannia	31.394	2
2	Dabur	43.389	2
3	Godrej	84.671	1
4	HUL	84.643	1
5	ITC	30.352	2
6	Marico	37.847	2
7	Nestle	81.851	1

Wilks' Lambda: To test the significance of variable Wilks' Lambda multivariate statistic has been used. In this study Wilks' Lambda step wise approach has been used. It is the ratio of within group sums squares to the total sum of squares. Like F test in one way ANOVA, Wilks' Lambda plays the same role. It signifies two or more variables. If Wilks Lambda is nearer to zero then such variable contributes to the discriminant function. Though, canonical correlation also depicts the same. The important factor is that Wilks lambda directly measures the proportion of variance in accordance with the dependent variables which is not traced by the independent variable.

The variance in dependent variables which is not explained by independent variable has been shown by Wilks' Lambda. It portrays two or more variables. In this context the variable that minimizes the overall Wilks' Lambda getting entered. In Table -2 the univariate ANOVA having ratios in the form of predictor variable. In this study using SPSS (version 20) grouped the data into two groups, highly profitable and less profitable and data are distributed accordingly. In that table observations are distributed into different groups by the group statistics. The first canonical linear discriminant function depicts the function of the variables. The value of each variable in the model is shown by Lambda. The number of observation is 103 out of which 98% of the total numbers of observations are classified into two groups for the discriminant analysis. df1 is the symbol of important predictor variables which can influence the discriminant function whereas df2 indicate the values allocated for predictor variables. For significance of MANOVA F statistic has been used and insignificant values are not considered by F statistics.

Table – 2 Wilks' Lambda (Variables Entered/Removeda,b,c,d)

Step	Entered	Wilks' Lambda							
		Statistic	df1	df2	df3	Exact F			
						Statistic	df1	df2	Sig.
1	DPO	.641	1	1	103.000	57.691	1	103.000	.000
2	EPS	.519	2	1	103.000	47.230	2	102.000	.000
3	ROCE	.466	3	1	103.000	38.560	3	101.000	.000

At each step, the variable that minimizes the overall Wilks' Lambda is entered.
a. Maximum number of steps is 18.
b. Minimum partial F to enter is 3.84.
c. Maximum partial F to remove is 2.71.
d. F level, tolerance, or VIN insufficient for further computation.

In the model the contribution of predictor variable is tested by Wilks' Lambda test. In this study the range of scale is 1 to 2, 1 means discrimination and 2 means no discrimination. In table 2 the significance F statistics being tested and Wilks Lambda is significant. So the three predictor variables are significant and they have discriminatory power which helps the investor or researcher to predict or analyse the profitability of the companies.

Canonical Discriminant function signifies the joint effect of the variables in the function. It shows the influence of variable among other variable but not the effect of the variable. It is none other than correlation between weighted linear composite and multiple predictor variables.

The statistics between and within group variability of predictor variables are provided by the Eigen Value. It is the linear mapping of distortion caused by transformation. Eigen value is related to Canonical correlation and it expresses the discriminating ability of the function. And we know that canonical correlation is the categorical measure of discriminant function. The square of canonical correlation coefficient depicts the percentage of categorical variance. Higher Eigen value signifies larger variability explained by the function of the dependent variable.

Table -3 shows that one canonical discriminant function was displayed in the analysis. In our study two discriminating variables are used and the number of function depends on the discriminating variable. So 2-1=1 is our discriminating function. Earlier it is stated that higher the Eigen value better it is. The multiple correlations between the predictors and the discriminant function are shown by the canonical correlation. The value one is considered the ideal value for canonical correlation and the value tense to one is considered the best fit value for discriminant function. In our study the value is 0.731 is close to one, so we can say that the discriminant function is best fitted.

Table -3 Eigen Values

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.145[a]	100.0	100.0	.731

a. First 1 canonical discriminant functions were used in the analysis.

The unexplained variance of the total variance among the groups is the value of Wilks' Lambda. In Table -4 the Wilks' lambda is significant. It means that the function is significant. So we can use the function. Chi-square value in the function is 77.475, with 3 degree of freedom, which is higher and implier that group means differ.

Table -4 Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.466	77.475	3	.000

In Table -5 Standardized Canonical Discriminant coefficients are shown. It indicates the significant importance of the independent variable. It is similar to multiple regressions. In the study we used the coefficients to judge the importance of independent variable in the discriminant function. The difference in mean among group implies more difference among coefficients of variables. So from these differences we can easily say which variable has more discriminating power among the selected variable. Higher discriminatory power symbolizes by the larger

standardized discriminant coefficient. From table 5 we can say that DPO (Dividend Pay-out ratio) has the more discriminating power (0.635) and it followed by EPS (Earning per share) (0.557) and ROCE (Return on Capital employed) (0.474). Therefore, we can concluded that Dividend pay-out is the most significant ratio in measuring the profitability of selected FMCG companies in India.

Table – 5: Standardized Canonical Discriminant Function Coefficients

	Function
	1
EPS	.557
DPO	.635
ROCE	.474

To calculate Z score unstandardized Canonical Discriminant function has been used. Such unstandardized Canonical discriminant coefficients has been used to formulate discriminant function. Below we can formulate the multiple discriminant analysis function.

Table – 6 Unstandardized Canonical Discriminant Function Coefficients

	Function
	1
EPS	.027
DPO	.030
ROCE	.014
(Constant)	-2.963

As per notation, $D = x + b1v1 + b2v2 + ---- bnvn$.

D = Discriminant Score,

x = Constant term (mentioned in the Canonical discriminant function coefficient),

b1, b2 = Discriminant function coefficients,

v1, v2 = Independent variable or predictor variable.

Therefore, we can write the equation as

D = -2.963 + 0.030 (Dividend pay-out ratio) + 0.027 (Earning per share) + 0.014 (Return on Capital employed)

In Table – 7 ranks has been done of the predictor independent variables according to their discriminatory power.

Table – 7 Ranking of the Predictor Variables

Ranking of the Variable	Predictor Variable
1	Dividend Pay-Out Ratio
2	Earnings Per Share
3	Return on Capital Employed

In Table – 8 Structure Matrix has been shown. The standardized Canonical discriminant function depicts the correlations between within groups pooled discriminating variables. Through structure matrix we can easily distinguish between variables and also identify their relationship with each function. In table – 8 some variables are marked by 'a' denotes that the variables are not used in the analysis. In our present study there are nine predictor variables, out of which three variables are significant and having in discriminating power and also impact on profitability of the selected companies. Simply it is the correlation between the observed variables and the pardon created by the unobserved discriminant functions. The correlation value, greater than 0.30 considered as significant. From the structure matrix table it is clear that the correlation DPO (0.699), ROCE (0.695) and EPS (0.407) play a significant role in discriminant analysis. The pattern of variables in structure matrix and the pattern of variables in Canonical discriminant function are identical.

Table – 8 Structure Matrix

	Function
	1
DPO	.699
ROCE	.695
TATR [a]	.605
CR [a]	-.421
EPS	.407
OPM [a]	.091
EM [a]	-.057
CPM [a]	.052
NPM [a]	.047

a. This variable not used in the analysis

In Table – 9 the functions at group centroids has been stated. Canonical observations are represented by group centroids. The average discriminant score of the two groups is indicated by the function at group centroids and it indicates the extreme point to formulate the decision rule. The larger the difference between Canonical group means, the higher the predictive power of Canonical discriminant function.

Table – 9 Functions at Group Centroids

STATUS	Function
	1
HIGHLY PROFITABLE	1.224
LESS PROFITABLE	-.918
Unstandardized canonical discriminant functions evaluated at group means	

In Table – 10 prior probabilities for groups has been shown. These probabilities for groups depict the performance groups and number of observations used for discriminant analysis. In our study total number of observation is 105. Out of these 105 observations 45 observations are highly profitable group and 60 observations are less profitable group. Weighted value is treated as the centroid value. Though, the highly profitable group and less profitable group are not same, so dividing point should be calculated. The centroid values of highly profitable group and less profitable group are 1.224 and -0.918. Therefore, the mean value is 0.153.

Table – 10 Prior Probabilities for Groups

STATUS	Prior	Cases Used in Analysis	
		Unweighted	Weighted
HIGHLY PROFITABLE	.500	45	45.000
LESS PROFITABLE	.500	60	60.000
Total	1.000	105	105.000

In Table – 11 Fisher's Linear discriminant function has been shown. This linear discriminant function is known as classification function. The discriminatory power of the independent variables is shown by its coefficient. From the table we can easily assess which variable plays an important role in analysing the profitability of the selected FMCG companies. From table 11 it is clear that DPO is the most significant ratio having higher discriminatory power

for its higher coefficient of 0.195 in highly profitable group and it followed by EPS (0.094) and ROCE (0.045). In case of less profitable group DPO is the most significant ratio having higher discriminatory power for its higher coefficients of 0.095 and it followed by EPS (0.036) and ROCE (0.015). Therefore, from overall point of view on the basis of Fisher's linear discriminant function Dividend pay-out ratio is the most significant and having higher impact on profitability of the selected FMCG companies through other two ratios are also having discriminatory power to analyse the profitability of the FMCG companies.

Table – 11 Classification Function Coefficients

	STATUS	
	HIGHLY PROFITABLE	LESS PROFITABLE
EPS	.094	.036
DPO	.159	.095
ROCE	.045	.015
(Constant)	-9.822	-3.148
Fisher's linear discriminant functions		

From Table- 12 it is clear that 87.6% data is correctly classified into two groups highly profitable and less profitable. From the highly profitable companies there are 45 observations and out of these 45 companies, 37 are correctly classified whereas in case of less profitable companies out of 60 observations in total, 55 companies are correctly classified. With this we can concluded that the model is rightly predict the profitability of the selected FMCG companies in India.

Table – 12 Classification Resultsa

		STATUS	Predicted Group Membership		Total
			HIGHLY PROFITABLE	LESS PROFITABLE	
Original	Count	Highly profitable	37	8	45
		Less profitable	5	55	60
	%	Highly profitable	82.2	17.8	100.0
		Less profitable	8.3	91.7	100.0
a. 87.6% of original grouped cases correctly classified.					

Conclusion: In this study we conducted and in-depth and comparative analysis of the selected FMCG companies. From this study we find out some important financial ratios which have significant impact on profitability of the FMCG companies. In this I took the help of Wilks' lambda and multiple discriminant analysis model to obtain the goal. Out of seven FMCG companies, some companies are classified as highly profitable and some companies are classified as less profitable on the basis of return on net worth (RONW).

In this paper focuses is on important financial ratios or independent variable or predictor which have significant impact on profitability. In group statistics, the distribution of observation in the two categories has been shown. For this analysis different predictor variables such as Net profit margin, total assets turnover ratio, operating profit margin, earning per share, dividend pay-out ratio, return on capital employed, cash profit margin, equity multiplier, current ratio and return on net worth have been used. For checking the statistical significance of MANOVA, F-statistic has been used and the function is significant. For testing the goodness to fit of the model Eigen values are tested and it shows the significant Wilks' Lambda (0.000) of the function. From the analysis of the model we opined that 87.6% of the observations are correctly classified. Therefore, the model is accurate and gives us accurate results which give emphasis on the predictability of profitability of the companies. The Canonical discriminant analysis helps us to rank the predictor variables as per their importance. From the Canonical coefficients it has been observed that DPO is the most significant variable having highest coefficient of 0.635 and it followed by EPS and RO In order to calculate Z cut off rate, centroid value has been used and it is 0.153. If the discriminant function is more than 0.153 then we can say that it is highly profitable and if the discriminant function is below 0.153 then it is less profitable. As 87.6% of the observations are correctly classified so the estimation of highly profitable and less profitable companies through this discriminant model is correct.

Different ratios have been selected to judge their impact on profitability and from these ratios DPO, EPS and ROCE having discriminatory power. DPO has the highest impact on profitability and it followed by EPS and ROCE.

References:

- Chakraborty, A. (2017), "Performance Evaluation of Leading FMCG firms", *ICTACT Journal on Management Studies*. Vol- 03. Issue- 03. Pp- 587–596.

- Bansal, S. & Singh, G (2017), "Fundamental Analysis of selected FMCG companies in India", "*International Journal of Research in Applied Science and Engineering Technology*". Vol-5, Issue- X. Pp-2297-2303.

- Sheela, S.C & Karthikeyan, K (2012), "Financial performance of Pharmaceutical Industry in India using Du Pont Analysis", *European Journal of Business and Management*.

- Bansal, R, (2014). "A Comparative Financial Study: Evidence from Selected Indian Retail Companies" *Journal of Finance and Investment Analysis*.

- Bansal, R, Kar, S, K, & Mishra, S. "Comparative financial performance analysis of Indian oil companies during 2010-2014", *Oil, Gas & Energy Law Intelligence*.

- Desai, H (2017), "Earning per share in FMCG sector in India", *International Journal of Commerce & Management Research*. Vol 5, issue 2, Pp. 136-140.

- Dhingra, R et al (2018), "Performance Analysis of FMCG sector in India", International Journal of Business Analytics and intelligence, Vol-6, Issue-2, pp. 12-23.

- Haque, S.M.I. & Afzal, A. (2017), "An appraisal of financial performance of the Fast Moving Consumer Goods (FMCG) industry in India", *Pacific Business Review International*. Vol-10, Issue-6. Pp-61-66.

- Joshi, A.(2013), A study of profitability analysis of selected FMCG companies in Indian. Indian Journal of Applied Research. Vol-3, Issue-6, Pp-368-370.

- Khamrui, BB.(2012) Profitability & Liquidity Management of FMCG companies in India. International Journal of Research in Commerce & Management. Vol-3.Issue-1, Pp-128-130.