A Study on Factors Affecting Profitability and Market Capitalization in Indian Paper Industry

Savitha Kulkarni[1*], Uday Kumar Jagannathan[2*], Lavanya A[3*]

[1,2]*Assistant Professor, Faculty of Management and Commerce, Ramaiah University of Applied Sciences, Bengaluru, Karnataka, India – 560054.*

Contact No.: +919620064856, +919535756405

[3]*MBA Student, Faculty of Management and Commerce, Ramaiah University of Applied Sciences, Bengaluru, Karnataka, India – 560054.*

Contact No.: +918892581472

[1]*savitha.ms.mc@msruas.ac.in,* [2]*ujagannathan.ms.mc@msruas.ac.in,* [3]*lavanya.amd.25@gmail.com*

Abstract: *This study examines the factors effecting the profitability and market capitalization in Indian paper industry. Manufacturing firms are one among the fastest growing sectors. The analysis is carried out using discriminant and logistic analysis for sample size of 190 in Indian paper industry listed on Bombay Stock Exchange (BSE). The period of the study is from 2009-2018. Firstly, the dependent variables were Profitability and the independent variables were EPS (Earnings per share), DPS (Dividend per share), Interest to total assets, Asset turnover ratio, Book leverage and Market leverage and Discriminant analysis was done. Secondly, the dependent variables were Market Capitalization and Independent variables were ROE (Return on equity), ROA (Return on asset), Current ratio, Earnings yield, Debt to equity, Logistic regression was done. Furthermore, it is concluded that there is 74.3% Increase in Profitability were EPS and Interest to total asset has high significant level, whereas there is 67.8% Increase in Market Capitalization. Therefore, it is recommended that more new variables can be introduced for advanced researches*

Keywords: Market capitalization, Profitability, Paper Industry, EPS, Earnings yield.

JEL Classification codes: F65, G30, G39

1. Introduction

The increasing contribution of manufacturing sector to India's Gross Domestic product (GDP) plays a vital role for the growth of the Indian economy. Growing manufacturing sector, requirement of better quality packaging of Fast Moving Consumer Goods (FMCG) products marketed through organized retail and the demand for the upstream market of paper products, such as tissue paper, filter paper, tea bags, light weight online coated paper and medical grade coated paper are expected to drive the paper and paper products market in India in coming years. The Indian paper and paper products market is projected to grow from $ 8.6 billion in 2018 to $ 13.4 billion by 2024. According to 10-year forecast of Indian Pulp and Paper Industry Compounded Annual Growth Ratio (CAGR) Paper industry Percent is 7-8%. There are

approximately 600 paper mills in India, of which twelve are the major players. Profitability of the companies contributes to the growth of the country's economy and profitability is based on market capitalization. Profitability and market capitalization are the measure of the business's ability to generate revenue and market value of publicly traded companies outstanding shares which is defined as present value of future cashflow divided by initial investment (Wang, Y., 2018). There are various factors that affect firm's profitability. At the initial point profitability in the tradeable sector is high and the economy growing rate is higher (Kaneko, 2003). Profitability is the firm's ability to consistently generate net income concentrating on profit maximization. Managers continuously try to make choices that results in increase of firm's profit avoiding those that have negative effect on profits. Profitability of a firm is usually affected by various factors; capital structure, inflation rates, firm size, competition and many more (Kumar, 2015). Profitability is usually measured using four ratios which assist in summarizing large volumes of financial data into meaningful figures for interpretation. There are several profitability ratios such as: Return on Equity (ROE) ratio which shows the return of shareholders from their funds, Return on Capital Employed (ROCE) determines firm's ability to generate return for the owners and gross profit markup is the net of revenue and cost of goods sold (Chunlu, Liu, 2016). Profit per share of reserves is commonly calculated with current costs and revenues. It is observed that not all investments are made with a profit motivation. There are many unforeseen occurrences that can substantially reduce or even eliminate the anticipated income. (G. Agiomirgianakis 2006).

The important fact in making an evaluation is to identify the variables affecting the market capitalization. Now-a-days market capitalization has become a universally accepted indicator of business valuation. It represents the aggregate value of company or stock (Jaya and Sunder, 2012). The market capitalization is considered as a significant market indicator to the value of shares and the value of companies (Toramane, 2009) (Dias, 2013). Market capitalization represents the public consensus on the value of a company's equity. In public corporation, ownership interest is freely bought and sold through purchases and sales of stock, providing a market mechanism which determines the price of the company's shares (Kaundal and Sharma, 2010). Market capitalization is also serving as a measure for investors in the determination of the returns on their investment. Day-to-day stock price fluctuations provide freely available information on the health of a publicly traded company which helps in understanding the effect of various fundamental variables on share price in turn helps investors, management and government in decision making. The market price of the share depends upon various factors; EPS, Dividend Per Share (DPS), pay-out ratio, dividend yield. For predicting share prices there are different approaches, mean reversion, value investors, martingales (Ologunde, 2006). Fundamental approach predicts share price on the basis of financial, environmental and managerial factors, whereas, technical approach takes the help of past trends in predicting future share price (Patel and Prajapati, 2014). The study focuses on paper industry because of rapid growth in the Indian paper industry and to find out the factors affecting the profitability and market capitalization of Indian paper industry. The research in the field of Indian paper industry focuses on profitability. However, the methodology they employed did not include panel data analysis and most of the paper industry research did not consider profitability and market capitalization as a dependent variable. These variables are not been used in the prior studies. Hence, profitability and market capitalization are considered as dependent variables. Market capitalization is defined as current adjusted share price * number of shares outstanding for a particular firm in the concerned year (Jaya and Sunder, 2012).

2. Review of Literature

The main motivation of profitability and market capitalization is to analyze the increase or non-increase in profitability in Indian Paper Industry. The research conducted by Pietro Pavone (2019) on the determinants of profitability and market capitalization on Indian paper industry. The profitability ratios and market capitalization ratios are important tools to understand market capitalization. The variables considered are ROE, Return on Assets (ROA), price, operating income, working capital per share, establishes relationships to understand indices for regulatory purpose and for decision making purpose of operating and investors and finds the relationships are not significant.

Chandrika Prasad Das, Rabindra Kumar Swain, (2019) conducted research on the determinants which helps to explain the growth of the stock market in India or not. Considering Market Capitalization to measure the stock market development. With the use of a descriptive test and normality test for solving the problem. Finally, the result shows that income per capita and security market lending have significant contribution on stock market development in India.

Mohammad Abdelkarim Yousef Almumani, (2018) evaluated the effect of profitability ratios and market value ratios on the market capitalization for Jordanian listed commercial banks. They evaluated the effect of profitability ratio and market value ratios of some listed commercial banks by gathering the data for the period of 2010-2016 from the Amman stock exchange archives. Finally, the result shows that return on equity and dividend pay-out ratio are the major determinants of market capitalization of the listed commercial banks in Jordan.

Pei Lin Deng (2018) researched that in the last decade the turnover-return relationship of stock portfolios has gone through ups and downs. From quarterly data over the recent decade, mutual funds that focus on smaller cap stocks are found to pay a greater performance penalty for active trading compared to those that focus on larger cap stocks.

Khairul Alom (2017) examined the relationship between liquidity and profitability of the non-financial firms listed in Dhaka Stock Exchange (DSE) for the period of 1998– 2013. The results of Padroni test explain that out of seven statistics, four of them are statistically significant to confirm the cointegration relationship among the explanatory variables in this study. The results of Johansen co-integration test are quite interesting that liquidity has long-run co-integration relationship with profitability, firm-size, LTD validating that all the test statistics are statistically significant.

Aron A. Gottesman, Gady Jacoby and Huijing Li, (2017) examines the success of contrarian investment strategies can be attributed to differences in the relative illiquidity of stocks categorized as value versus those categorized as glamour. The portfolio formation and stock return estimation methodology used in this paper closely follows Lakonishok research using American Stock Exchange (AMEX) and New York Stock Exchange (NYSE) stock data from the period May 1967 through April 2005, extracted from the center for Research in Security Prices (CRSP) database. The strong evidence is found that those portfolios characterized as "value" investments are associated with dramatically greater levels of illiquidity than "glamour" portfolios.

M. Ángeles López-Cabarcos, Sérgio Göttling-Oliveira-Monteiro, and Paula Vázquez-Rodríguez, (2015) analysis the relationship between organizational capabilities, business

strategy and profitability in the Portuguese textile industry is analyzed. The strong relationship between these variables suggests that the organizational capabilities and the choice of business strategy may be the key to increase the profitability in this study context. Highlighting the importance of the choice of the business strategy as a partial mediator between the organizational capabilities and the profitability.

None of the existing Literature review didn't conduct a research on Increase or Non-Increase in profitability and market capitalization in Indian paper industry between the period of 2009 to 2018.we have come up with new variables like earnings yield and market leverage where none of the others literature review focused.

3. Data Sources and Methodology

3.1 Data Source

The research is entirely on the secondary information, the study investigates the factors affecting profitability and market capitalization of Indian paper industry. The data is collected from Quandl, a leading database for financial data. The study considerers 19 companies which are listed in BSE from the Indian paper industry sector. There are totally 190 observations i.e. (19 companies * 10 years data). The data of 10 years i.e. 2009 to 2018, both inclusive is considered for the analysis. The missing data is excluded for analysis.

3.2 Methodology

This study is tested by running the discriminant and logistic regression. On the basis of research objectives of the study, variables used in this study and their measurements are largely adopted from existing literature review. The dependent variable is the profitability; the explanatory variables include EPS, DPS, interest to total assets, assets turnover ratio, book leverage and market leverage. This study uses profitability as dependent variable to measure increase/non-increase in profitability. In order to estimate the affects of the explanatory variables on profitability, the discriminant and logistic analysis is employed for the increase and non-increase in profitability. The detailed description of the tools and techniques is given below.

Equation used for analysis

$$\frac{\Delta Profit}{Profit}_{it} = \alpha_o + \gamma_1 EPS_{it} + \gamma_2 DPS_{it} + \gamma_3 INT\ TO\ TA_{it} + \gamma_4 ASSTO\ Ratio_{it} + \gamma_5 B\_L_{it} +$$

$$\gamma_6 M\_L_{it} + \varepsilon_{it} \qquad\qquad ... (1)$$

$$\frac{\Delta MCAP}{MCAP}_{it} = \alpha_i + \gamma_7 ROE_{it} + \gamma_8 ROA_{it} + \gamma_9 CR_{it} + \gamma_{10} EAR\_Yld_{it} + \gamma_{11} DE_{it} + \varepsilon_{it} \qquad ... (2)$$

4. RESULTS AND DISCUSSION

4.1 Analysis the Increase and Non-Increase of Profitability and Market Capitalization in Indian Paper Industry

Table 1: Discriminant analysis results for profitability vs. percentage change in profitability

Classification Results[a,c]					
		Profitability	Predicted Membership	Group	Total
			0	1	
Original	Count	0	7	42	49
		1	2	120	122
		Ungrouped cases	2	17	19
	%	0	14.3	85.7	100.0
		1	1.6	98.4	100.0
		Ungrouped cases	10.5	89.5	100.0
Cross-validated[b]	Count	0	5	44	49
		1	3	119	122
	%	0	10.2	89.8	100.0
		1	2.5	97.5	100.0
Note: 74.3% of original grouped cases correctly classified.					
Note: Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.					
Note: 72.5% of cross-validated grouped cases correctly classified.					

Source: Based on SPSS output, Authors' analysis

Table 1 shows the discriminant function and works equally well for each group of the dependent variables. Classification matrix shows very high hit ratio or correct classification. The discriminant function correctly classifies about 74.3 percent. The discriminant function strongly classifies between categories of financial preferences. Among six variables, EPS, interest to total assets apprise to be the variables with higher discrimination power, other independent variables, namely, DPS, assets turnover ratio, book leverage, market leverage are not significant in differentiating the increase or non-increase in profitability.
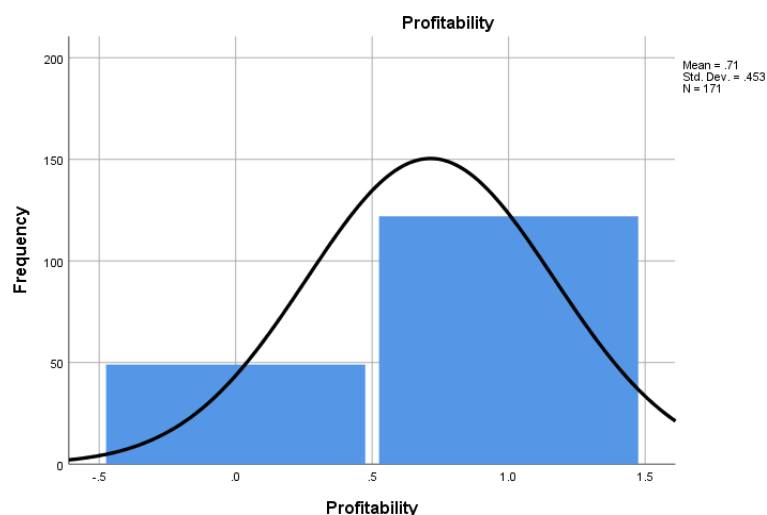
Figure 1: Increase and Non-Increase in Profitability
Source: Based on SPSS output, Authors' analysis

In figure 1, the comparison of 19 companies is considered and it shows us the profit or loss based on 10 years forecast. Therefore, paper industry does have profit but comparatively less when compared to other manufacturing industries. In the below figure 1, we can see the mean value of 0.71 and standard deviation of 0.453, whereas, the overall profitability is increased by 74.3%. Hence, it can be concluded that paper industry sector is profitable.

Table 2: Test of Equality of Group Means

Tests of Equality of Group Means					
Variables	**Wilks' Lambda**	**F**	**df1**	**df2**	**Sig.**
EPS	.949	9.124	1	169	.003
DPS	.993	1.235	1	169	.268
Interest to total assets	.939	10.944	1	169	.001
Asset turnover ratio	.995	.775	1	169	.380
Book Leverage	.998	.384	1	169	.536
Market Leverage	.998	.391	1	169	.533

Source: Based on SPSS output, Authors' analysis

In table 2 test of equality of group means comprises of 190 observations of 19 companies from 2009 to 2018. The discriminant function strongly determines categories of increase in profitability. Among six variables, EPS, interest to total assets seems to be the variables with higher discrimination power, other independent variables, DPS, asset turnover ratio, book leverage, market leverage are not significant in differentiating among levels of increase/non-increase in profitability.

Table 3: Wilks' Lambda

Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.901	17.360	6	.008

Source: Based on SPSS output, Authors' analysis

Table 4: Eigenvalues

Eigenvalues				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.110[a]	100.0	100.0	.315
Note: First 1 canonical discriminant functions are used in the analysis				

Source: Based on SPSS output, Authors' analysis

The smaller value of Wilks lambda for an independent variable indicates that particular variable contributes to the discriminant function (Hassan, 2009). Since the values of Wilks lambda static for EPS (0.949), DPS (0.993), interest to total assets (0.939), asset turnover ratio (0.995), book leverage (0.998) and market leverage (0.998) are accurate than others, it is interpreted that these predicators contribute to the discriminant function more than other independent variables (Table 3). Moreover, the p- value of each of these predicators is significant. Wilk's lambda statistic is considered to test the significance of the model. Significant Wilks' lambda statistic (0.901, chi-square 17.360) shows that the model differentiated scores among the groups significantly (Table 3). Considering Eigenvalue (Table 4) and Wilks lambda (Table 3), it is determined that the model strongly discriminates between percent change in profitability and percent non-change in profitability; i.e. increase in profitability in paper industry is highly significant.

Table 5: Logistic regression results for market capitalization variables vs. percentage change in market capitalization

Classification Table[a]					
	Observed		Predicted		
			MCAP		Percentage
			0	1	Correct
Step 1		0	11	43	20.4
	MCAP	1	12	105	89.7
	Overall Percentage				**67.8**
Note: The cut value is .500, where MCAP = Market capitalization					

Source: Based on SPSS output, Authors' analysis

The classification table shows that this rule allows to correctly classify 105 / 117 = 89.7% of the subjects where the predicted event (increase in the market capitalization) is observed. This is known as the sensitivity of prediction; this rule allows us to correctly classify 12 / 54 = 2.4% of the subjects where the predicted event is not observed. This is known as the specificity of prediction, i.e. the percentage of non-increase in market capitalization is correctly predicted. Overall, the predictions are correct to 117 out of 171 times, for an overall success rate of 67.8%.
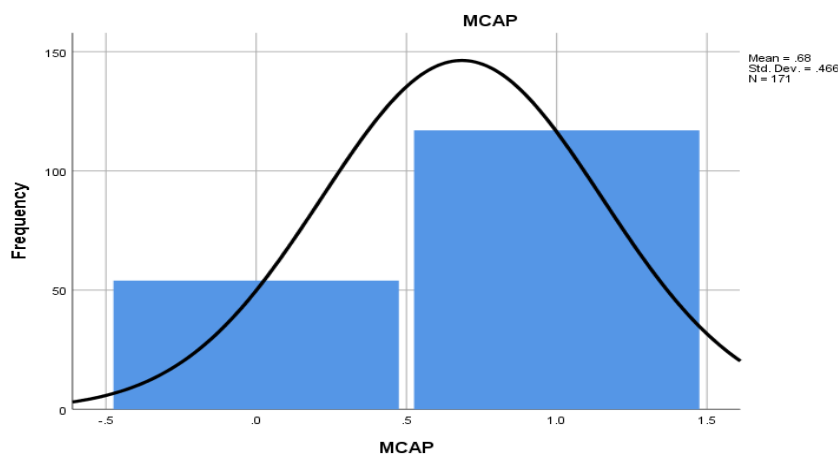

Figure 2: Increase and Non-Increase in Market Capitalization

Source: Based on SPSS output, Authors' analysis

In figure 2, the comparison of 19 companies is considered and it shows the increase or non-increase in market capitalization of Indian paper industry for 10 years. In the below figure 2, we can see the mean value of 0.68 and standard deviation of 0.466, whereas, the overall market capitalization has increased by 67.8%.

Table 6: Logistic Regression results of Omnibus tests of model coefficients

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	27.884	5	.000
	Block	27.884	5	.000
	Model	27.884	5	.000

Source: Based on SPSS output, Authors' analysis

In table 6 market capitalization is added as a predictor. Omnibus tests of model coefficients give chi-square of 27.884 on 5 df, significant beyond 0.000. Chi-square statistic is computed comparing the observed frequencies with those expected under the linear model. A non-significant chi-square indicates that the data fit the model well. This procedure suffers from several problems, one of which is that it relies on a test of significance. With large sample sizes, the test may be significant, even when the fit is good. With small sample sizes it may not be significant, even with poor fit.

Table 7: Logistic Regression results for Variables in the equation

Variables in the Equation								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	ROE	.349	.213	2.687	1	.101	1.418	.934	2.152
	ROA	1.6599	.8175	4.123	1	.042	1.6172	1.780	1.46947
	Current Ratio	.009	.027	.116	1	.733	1.009	.957	1.064
	Earnings Yield	-1.142	.873	1.710	1	.191	.319	.058	1.768
	Debt to equity	-.002	.008	.040	1	.842	.998	.983	1.014
	Constant	.211	.272	.603	1	.437	1.235		

Source: Based on SPSS output, Authors' analysis

The Hosmer-Lemeshow tests the null hypothesis that predictions made by the model fit perfectly with observed group memberships. Cases are arranged in order by their predicted probability on the criterion variable. These ordered cases are then divided into ten (usually) groups of equal or near equal size ordered with respect to the predicted probability of the target event. For each of these groups, the predicted group memberships and the actual group memberships are obtained. This results in a 2 x 10 contingency table, as shown below. A chi-square statistic is computed comparing the observed frequencies with those expected under the

linear model. A non-significant chi-square indicates that the data fits the model well. This procedure suffers from several problems, one of which is that it relies on a test of significance.

5. Conclusion and research implications, limitations of this research and suggestions for further research

This study investigates the main factors affecting the profitability and market capitalization for the period 2009 – 2018, both inclusive. The paper also analyzed the affects of determinants to explain the increase or non-increase in profitability. The profitability and market capitalization are considered as dependent variable and EPS, DPS, interest to total assets, asset turnover ratio, book leverage, market leverage, ROE, ROA, current ratio, earnings yield and debt to equity are independent variables to examine their contribution on profitability and market capitalization. Firstly, EPS and interest to total assets contribute positively to the increase in profitability. Further, DPS and assets turnover ratio shows a negative effect. The result shows that EPS and interest to total assets have significant contribution on increase in profitability and ROE have significant contribution on increase in market capitalization in Indian paper Industry. Here we can see chi-square of 27.884 is determined in this study. Hence, the study reveals that the paper industry does have increase in profitability and market capitalization but when compared to other manufacturing industries it seems to be lesser. The study was limited to 19 selected Companies for a period of 10 years from 2009 to 2018. As the study was limited to six months the work can be carried forward for future study. The objective was to find the factors that affects the profitability and Market Capitalization of Paper Industry in India. It was limited to Indian paper industry and the missing data has been excluded from the analysis. More new variables can be introduced for advanced research. The work can be further extended for longer time period and more geographic areas can be included to get better results. Therefore, more factors should be developed, so that profitability and market capitalization can be seen with better significant values. Further, research can be done on adding more variables and a comparison study can be undertaken with other emerging sectors using similar analysis.

References

[1] Pavone, P,“ Market Capitalization and Financial Variables: Evidence from Italian Listed Companies”, *International Journal of Academic Research in Business and Social Sciences*, *9*(3) **(2019)**.

[2] Gottesman, A. A., Jacoby, G., & Li, H, “Value investing or investing in illiquidity? The profitability of contrarian investment strategies, revisited”, *Financial Innovation*, *3*(1) **(2017)**.

[3] López-Cabarcos, M. Á., Göttling-Oliveira-Monteiro, S., & Vázquez-Rodríguez, P, “Organizational Capabilities and Profitability: The Mediating Role of Business Strategy”, *SAGE Open*, *5*(4) **(2015)**.

[4] Alom, K. “Liquidity and Profitability: A Co-Integration Study. *Review of Pacific Basin”, Financial Markets and Policies*, *21*(2) **(2018)**.

[5] Almumani, M. A. Y, “An Empirical Study on Effect of Profitability Ratios & Market Value Ratios on Market Capitalization of Commercial Banks in Jordan”, *International Journal of Business and Social Science*, *9*(4) **(2018)**.

[6] Deng, P, "The Effect of Trading Activity and Holdings Market Capitalization on Portfolio Performance", *International Journal of Economics and Finance*, *10*(8) **(2018)**.

[7] Chen, Z., Harford, J., & Kamara, A,"Operating leverage, profitability, and capitala structure", *Journal of Financial and Quantitative Analysis*,*54*(1) **(2019)**.

[8] Emilios C. Galariotis, Phil Holmes and Xiaodong S. Ma, *"Contrarian and momentum profitability revisited: Evidence from the London Stock Exchange 1964-2005",* *Journal of Multinational Financial Management, 17(5)* **(2007)**.

[9] Ting, H, "Financial development, role of government, and bank profitability: evidence from the 2008 financial crisis", *Journal of Economics and Finance*, *41*(2) **(2016)**.

[10] Kaundal, R., & Sharma, S, "Stock Market Integration", *Foreign Trade Review*, *45*(3) **(2010)**.

[11] Ali Raza, S., Mansoor, M., & M. Iraqi, K, "Influence of Investor Sentiments on Stock Market Capitalization of Different Economic Sectors in a Developing Economy: Evidence from Pakistan", *Journal of Finance & Economics Research*, *4*(1) **(2019)**.

[12] Chen, Y. C., Hung, M., & Wang, Y,"The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China",*Journal of Accounting and Economics*, *65*(1) **(2018)**.