DETERMINING THE PROFITABILITY OF SELECTED PHARMACEUTICAL COMPANIES IN INDIA

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Abstract

Pharmaceutical Sector is one of the fast growing sector in the world. Indian pharma companies are not an exemption to it. Indian Pharma Industry is the 3rd largest in the world which caters almost 20% of the volume and 3.5% of the exports. It covers almost 200 countries and territories in 2021. At Global level India is the most supplier of generic drugs. At the same time there is a huge competition among the pharma companies in India. The COVID-19 pandemic impacted the pharma sector positively. Most companies have increased their production and thereby their profitability. This paper aims on studying the profitability position of the selected pharma companies in India and its determinants.

Key words: *Pharma Companies, Drugs, Profitability, Exports, Territories*

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Introduction:

The pharmaceutical companies play a vital role in the development of a countries economy. Nowadays we could see lot of countries are involved in the field of medical research and all are trying to invent vaccine and medicine to overcome the new types of diseases. The pharmaceutical companies invest more funds in research to find the vaccine and medicine, and to increase their market share. It results in the profitability position of the company.

Recent research says that in India around 75 million strips of Dolo 650 tablet were sold since Covid. These are all the evidence for the growth of pharmaceutical companies' and thereby its financial performance. Keeping this scenario in mind this current research was carried out to study the profitability position of selected pharma companies in India. The top five listed companies having the highest market capitalization is taken for the study.

Scope of the study:

The Pharmaceutical industry is one of the important and ever growing sector in India, This Industry shares a reasonable percentage in Indian GDP. The outcome of the study will give a significant implication for the stake holders and government. This study attempt to elucidate the variation in profitability and its determinants. This also help the national and international investors to decide on the investment in the Pharmaceutical industry in India. For this study the data for five companies: Sun Pharma, Divis Laboratories limited, Dr. Reddy's Laboratories limited, cipla Pharmaceutical and Biotechnology Company and Grand Pharma are taken. These companies are selected based on the market capitalization.

Objectives of the study:

To study the profitability level of the top five Indian pharmaceutical companies

To measure the determinants on profitability of the top five pharmaceutical companies in India.

To find out the relationship between profitability and factors determining the profitability

Hypothesis:

1. The variables Firm Size, Firm Growth, Working Capital and Financial Leverage impact the Return on Assets
2. The variables Firm Size, Firm Growth, Working Capital and Financial Leverage impact the Return on Equity

Limitation:

The study is carried out only for a limited period of five years (2016-2021)

Only five Pharmaceutical companies are studied

Four independent variable such as firm size, firm growth, working capital and financial leverage are only taken to measure the impact of ROA

Reviews:

A study conducted by Szymańska among the pork manufacturing companies in the year of 2017, based on the study the Return on Equity (ROE) is determined by the huge fragmentation, minimum specialization, and confidence level of the customer. In that the researcher has taken the financial statements of meat companies which is situated in Poland, totally 86 meat companies financial statement from 2008 to 2012 has been used to measure the profitability level. For this study there are five different ratios are worked out such as Return on Equity, Return on Assets, and Return on Sales, Assets Turnover Ratio and Equity Multiplier. From the study the researcher has found that the profitability level of the companies are highly determined by internal factors such as companies total assets, capital structure of the company, efficiency of working capital management company liquidity and solvency position, sales performance, productivity and manpower quality likewise some external factor also highly determined such as inflation of the country, Legal and political systems of the country, interest rate and business conditions and climate etc .

Sivathaasan, Tharanika, Sinthuja and Hamitha (2013) study the factors determinants of profitability. It was conducted in with the use of manufacturing companies which is listed on the Colombian and Sri Lankan stock exchange from 2008 to 2012. In this study many independent variable has taken such as capital structure, assets structure, company size and company growth, and the dependent variables are ROA and ROE. From this study the researcher has found out the capital structure alone positively impact the profitability other independent variables are not effect on ROA and ROE.

A study of Tan & Floros at 2012 to find the determinants of profitability among 101 Chinese banks. From this study the researcher has trying to find out there is any impact of inflation on profitability among the Chinese bank, for this study the bank panel data has used from 2003 to 2009 with the use of 197 observations. The study has found out that there is a positive relationship dependent variable profitability and independent variables bank sector performance, inflation, stock market performance. The more taxation untraditional activities are leads to low profitability.

According to stierwald research (2010), the factors determinants of profitability among the Australian firms with the use of firms data from 1995 to 2005. The researcher has taken totally 961 large scale firms are taken for this study. Form the analysis the researcher has found through the descriptive study that huge profit is heterogeneity in sixty three nature across the firms and industry. The result of the study is the profitability is determined by firm level characteristics. Moreover the efficient productivity and productive consistency also improve the profit level.

According to Asimakopolos, Papadogonas & Samitas studied at (2009) that the variables influencing the profitability of non - financial firms listed in the Greece stock exchange. For this study researcher has taken the data from 1995 to 2003. In this study testing the hypothesis the profitability influenced by some independent variables of firm size, sales growth, investments, Leverages. In this study found that a positive relationship between dependent variable of profitability and independent variables of firm size, sales growth and investment. A negative relationship found between profitability and financial leverage.

According to empirical study of Anbar & Alper (2011), Aburime (2009), Blazkova (2018),Grau & Reig (2018). Both internal factors and external factors of various sectors are more important reason for the profitability. These two groups are highly responsible to determine the profitability. The internal factors of solvency, adequacy, liquidity, firm size and growth, firm

age, capital structure of the firm, effective management decision etc. likewise the external factors at industry level such as market performance, sector development, imports growth rate and external factors at macro levels are countries GDP, Inflation, Interest rate, Exchange rate etc.

According to Sufian & Parman 2009, conducted a study at Malaysia to ascertain the high factors influencing profitability among the non-banking financial companies. For this study the independent variables are taken such as operational expenses, capitalization, amount of loans and credits. For this analysis the least square methods are used to measure the profitability. Form the study the researcher has found that two independent variables such as huge operational expenses and capitalization highly impact on profitability that increase the profit level, other two independent variables such as amount of loans and credits have negative effects there is no impacts on profitability.

Methodology:

Profitability can be measured by ROA (Return on Asset), ROE (Return on Equity) and ROS (Return on Sales) etc. Return on Capital Employed etc. In this study the researcher have focused Return on Equity and Return on Assets as dependent variable, and four independent variables viz. Firm Size (FS), Firm Growth (FG), Working Capital (WC), and Financial Leverage (FL)

The following model is constructed

$$ROA = \beta O + \beta 1\ FS + \beta 2\ FG + \beta 3\ WC + \beta 4\ FL$$

$$ROE = \beta O + \beta 1\ FS + \beta 2\ FG + \beta 3\ WC + \beta 4\ FL$$

The Profitability = Return on Asset (ROA) is taken as the profitability of assets, and it is worked out by Net Profit after tax Divided by Total assets

The Profitability = Return on Equity (ROE) is taken as the profitability of equity and it is calculated by Net Profit after tax divided by Total Equity

βO = constant

"Firm size" - (FS) is taken as the firm's book value of sales

"Firm growth" is taken as the current year's sales – last year's sales divided by last year's sales;

"Working capital" is calculated by Current assets divided by Current Liability

"Financial Leverage" is taken as the ratio of total debt by total assets

Data:

This study are based on the secondary data. The data is taken from the Thomson Reuters Eikon, National Stock Exchange (NSE) Website and Company Website. The data for the period of five years from 2016 to 2021 is taken for the top five pharmaceutical companies based on market capitalization listed in the NSE.

Results and Discussion:

Table No 1.1: Table showing the Descriptive Statistics for dependent variable ROA and predictor variables (firm size, firm growth, working capital and financial leverage)

	Minimum	Maximum	Mean	Std. Deviation
Pharma company	1.00000	5.00000	3.0000000	1.43838990
Firm Size	1392.00000	33498.14000	13869.0386667	10312.50161735
Firm Growth	1391.00000	33497.14000	13868.0386667	10312.50161735
Working Capital	1023.00000	21514.57000	6846.6593333	6157.92724055
ROA	.04227	.25968	.1275573	.05977287
Financial Leverage	.00004	.30435	.1136001	.10462473
Valid N (listwise)				

The above table shows that the descriptive statistics of the variables, in this the Return on Assets (ROA) as dependent variable and four independent variables Firm Size (FS), Firm Growth (FG), Working Capital (WC), and Financial Leverage (FL). It also shown the Central Tendency mean values and dispersion of the data variance, the minimum and maximum value of each variable.

Table No 1.2: Table showing the Descriptive Statistics for dependent variable ROE and predictor variables (firm size, firm growth, working capital and financial leverage)

	Minimum	Maximum	Mean	Std. Deviation
ROE	6.298	60.941	21.37704	12.086462
Firm Size	1392.000	33498.140	13869.03867	10312.501617
Firm Growth	1391.000	33497.140	13868.03867	10312.501617
Working Capital	1023.000	21514.570	6846.65933	6157.927241
Financial Leverage	.000	.304	.11360	.104625
Valid N (listwise)				

This above table shows that the descriptive statistics of the variables, in this the Return on Equity (ROE) as dependent variable and four independent variables Firm Size (FS), Firm Growth (FG), Working Capital (WC), and Financial Leverage (FL). It also shown the Central Tendency mean values and dispersion of the data variance, the minimum and maximum value of each variable.

2. Correlation Analysis:

The correlation analysis is to find out the relationship between dependent variable ROA and predictor variables (Firm Size, Firm Growth, Working capital and Financial Leverage)

Table No .2.1 Correlation Table

Correlations

		ROA	Firm Size	Firm Growth	Working Capital	Financial Leverage
ROA	Pearson Correlation	1	-.652**	-.709**	-.518**	-.781**
	Significance value		.000	.000	.003	.000
Firm Size	Pearson Correlation	-.652**	1	.712**	.814**	.512**
	Significance value	.000		.000	.000	.001
Firm Growth	Pearson Correlation	-.709**	.712**	1	.916**	.571**
	Significance value	.000	.000		.000	.001
Working Capital	Pearson Correlation	-.518**	.814**	.916**	1	.399*
	Significance value	.003	.000	.000		.029
Financial Leverage	Pearson Correlation	-.781**	.512**	.471**	.399*	1
	Significance value	.000	.001	.001	.029	

The results of the above table shows that there is a Negative Correlation on all variables to the Return on Assets (ROA). It shows a reverse effect.

Table No .2.2 Correlation Table

The correlation analysis is used to find the relationship between dependent variable ROE and predictor variables (Firm Size, Firm Growth, Working Capital and Financial Leverage)

Correlations

		ROE	firm size	firm growth	working capital	financial leverage
ROE	Pearson Correlation	1	-.436*	-.531*	-.219	-.592**
	Significance value		.016	.016	.245	.001
Firm Size	Pearson Correlation	-.436*	1	.625**	.821**	.492**
	Significance value	.016		.000	.000	.001
Firm Growth	Pearson Correlation	-.531*	.625**	1	.916**	.571**
	Significance value	.016	.000		.000	.001
Working Capital	Pearson Correlation	-.219	.821**	.916**	1	.399*
	Significance value	.245	.000	.000		.029
Financial Leverage	Pearson Correlation	-.592**	.492**	.571**	.399*	1
	Significance value	.001	.001	.001	.029	

The result of the above table shows that there is a Negative Correlation on all variables to the Return on Equity (ROE). It shows a reverse effect.

3. Regression Analysis

TABLE NO: 3.1 REGRESSION TABLE FOR DEPENDENT VARIABLE (ROA) AND INDEPENDENT VARIABLES (FS, FG, WC, FL)

Table no 3.1.1 model summary

Model Summary

Model	R	r - square	Adjusted r Square	Std. Error of the Estimate
1	.861[a]	.741	.712	.032102

a. Predictors: (Constant), Financial Leverage, Working Capital, Firm Growth

R-value represents the correlation between the dependent and independent variable. The value is greater than 0.4 is taken out to further analysis. In this case, the r value is .861 which is good.

The above table depicts that, out of the four independent variables the Financial Leverage (FL), Working Capital (WC) and Firm Growth (FG) has an impact on ROA at 5% significant level

Table No .3.1.2 Anova

ANOVA[a]

Model		sum of squares	df	mean square	F	Sig.
1	Regression	.077	3	.026	24.846	.000[b]
	Residual	.027	26	.001		
	Total	.104	29			

a. dependent variable: ROA

b. predictors: (Constant), Financial Leverage, Working Capital, Firm Growth

F-Ratio in the ANOVA table is tests whether the overall regression model is good fit for the data. Here the table shows that the Financial Leverage, Working Capital and Firm Growth are statistically significant (P < 0.05). It shows that there is an impact of these three variable on the Return on Equity (ROA)

Table No .3.1.3 Coefficient

Coefficients[a]

Model		unstandardized coefficients		standardized coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.197	.010		19.214	.000
	Firm Growth	-4.937E-6	.000	-.852	-2.840	.009
	Working Capital	4.395E-6	.000	.453	1.685	.104
	Financial Leverage	-.272	.075	-.476	-3.635	.001

a. Dependent Variable: ROA

Independent variables	**signifiacnt Value**	**Hypothesis Testing Results (95% Confidence Interval)**	**Interpretation**
Firm Growth	0.009	Hypothesis is accepted (0.009<0.05)	There is a significant change in the profitability due to the Firm Growth, because of the significant value 0.009 is less than acceptable value 0.05.
Working Capital	0.104	Hypothesis is rejected (0.104<0.05)	Here no significant change in the profitability due to the Working Capital, because of the significant value 0.104 which is more than acceptable limits of 0.05.
Financial Leverage	0.001	Hypothesis is accepted (0.001>0.05)	There is a significant change in the profitability due to the Financial Leverage, because of the significant value 0.001 is less than acceptable value 0.05.

From the above table shows that significant value of Firm Growth and Financial Leverage is less than 0.05 (P < 0.05) then hypothesis is accepted, it means there is an impact on dependent variable ROA. However the significant value of Working Capital is more than 0.05 (P>0.05) then hypothesis is rejected, it means there is no impact on dependent variable ROA

TABLE NO: 3.2 REGRESSION TABLE FOR DEPENDENT VARIABLE (ROE) AND INDEPENDENT VARIABLES (FS, FG, WC, FL)

Table no 3.2.1 model summary

Model Summary[b]

Model	r	r Square	Adjusted r Square	Std. Error of the Estimate	Durbin-Watson
1	.683[a]	.466	.404	9.327581	.749

a. Predictors: (Constant), Financial Leverage, Working Capital, Firm Growth

b. Dependent Variable: ROE

r -value represents that the correlation between the dependent and independent variable. A value is greater than 0.4 is taken for further analysis. In this case, value is .683 which is good.

The above table depicts that, out of the four independent variables the Financial Leverage (FL), Working Capital (WC) and Firm Size (FS) has an impact on ROE at 5% significant level

Table No .3.2.2. Anova

ANOVA

Model		sum of square	df	mean square	F	Sig.
1	Regression	1974.296	3	658.099	7.564	.001[b]
	Residual	2262.098	26	87.004		
	Total	4236.394	29			

a. Dependent Variable: ROE

b. Predictors: (Constant), Financial Leverage, Working Capital, Firm Growth

The above table shows, that the independent variable Financial Leverage, Working Capital and Firm Size are statistically significant (P < 0.05). It shows that there is an impact of these three variable on the Return on Equity (ROE). F-test in the ANOVA shown that whether the overall regression model is a good fit for the data.

Table No .3.2.3 Coefficient

Coefficients

Model		unstandardized coefficients		standardized coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	31.070	2.977		10.438	.000
	Firm Growth	-.001	.001	-1.018	-2.362	.026
	Working Capital	.002	.001	.855	2.214	.036
	Financial Leverage	-40.770	21.749	-.353	-1.875	.072

a. Dependent Variable: ROE

From the above table shows that significant value of Firm Growth and Working Capital is less than 0.05 (P<0.05) then hypothesis is accepted, it means there is an impact on dependent variable ROE. However the significant value of Financial Leverage is more than 0.05 (P>0.05) then hypothesis is rejected, it means there is no impact on dependent variable ROE

Independent variables	**Sig Value**	**Hypothesis Testing (95% Confidence Interval)**	**Interpretation**
Firm Growth	0.026	Hypothesis is Accepted (0.026<0.05)	The significant change in the profitability due to the Firm Growth, because of the significant value 0.026 is less than acceptable value 0.05.
Working Capital	0.036	Hypothesis is accepted (0.036<0.05)	The significant change in the profitability due to the Working Capital, because of the significant value 0.036 is less than acceptable value 0.05.
Financial Leverage	0.072	Hypothesis is rejected (0.072>0.05)	There is no significant change in the profitability due to the Working Capital, because of the significant value 0.072 which is more than acceptable limits of 0.05.

Findings:

From the above (as per the correlation test) analysis it is seen that there is a negative Correlation between ROA and other independent variables. There is a positive correlation shown between Firm Size, Firm Growth, Working Capital and Financial Leverage. The same way it shown that there is a negative Correlation between ROE and other independent variables. There is a positive correlation shown between Firm Size, Firm Growth, Working Capital and Financial Leverage

From the Regression analysis it is evidence for the predictor variable Firm Growth (FG), and Financial Leverage (FL) are statistically significant the table shown the P value is less than 0.05 (P < 0.05) It has high impact on dependent variable ROA.

From the Regression analysis it is evidence for the predictor variable Firm Growth and Working Capital are statistically significant, the table shown the P value is less than 0.05 (P<0.05) It has high impact on dependent variable ROE.

Suggestions:

This study is based on the few independent variable has taken to measure the profitability. The same way researcher can use many independent variable to study the determinants of profitability. The Researcher could use both internal determinant factors such as Solvency, Liquidity, productivity etc. and External factors such as GDP, interest Rate, Exchange Rate etc.

Conclusion:

The study contrast the performance of selected pharmaceutical companies and management could understand the most important factors that highly determine the profitability. It will provide a clear picture into the some activities which require by the pharmaceutical companies for improving their profitability. The researcher furtherly can take many determinants like productivity, liquidity, solvency etc., to measure the profitability.

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