

Financial Performance of Indian Pharmaceutical Companies

A Study on Correlation and Regression Analysis of Aurobindo, Biocon, and Cadila Pharma Ltd

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Abstract:

This study examines the financial performance of three major Indian pharmaceutical companies - Aurobindo Pharma, Biocon, and Cadila Healthcare - using regression and correlation analysis. The research investigates the relationships between key financial variables and profitability metrics, including gross profit margin (GPM), return on capital employed (ROCE), and return on assets (ROA). The study employs multiple regression models to assess the impact of various financial ratios such as long-term debt to total assets (LTDTA), current assets to total assets (CATA), current liabilities to total assets (CLTA), and others on the companies' profitability indicators. Correlation analysis is also conducted to explore the interrelationships between these variables. Findings reveal significant variations in the financial determinants of profitability across the three companies. For Aurobindo Pharma, the regression models show high explanatory power for all three profitability measures, with CATA having a particularly strong positive influence. Biocon's analysis indicates a strong impact of financial variables on GPM, but less significant effects on ROCE and ROA. Cadila's results highlight the complex interplay of financial factors, with capital turnover showing a significant negative correlation with GPM. This research contributes to the understanding of financial performance drivers in the Indian pharmaceutical sector and provides insights for financial management and decision-making in these companies. The study's limitations and areas for future research are also discussed.

Keywords: Financial performance, Indian pharmaceutical industry, regression analysis, correlation analysis, profitability ratios, Aurobindo Pharma, Biocon, Cadila Healthcare, gross profit margin, return on capital employed, return on assets

Introduction:

The Indian pharmaceutical industry has emerged as a significant player in the global healthcare sector, known for its production of generic drugs and vaccines. As the industry continues to grow and face various challenges, understanding the financial performance of key players becomes crucial for investors, managers, and policymakers. This study focuses on three

major Indian pharmaceutical companies - Aurobindo Pharma, Biocon, and Cadila Healthcare - to analyze their financial performance and identify the key determinants of their profitability. The pharmaceutical industry is characterized by high research and development costs, long product development cycles, and stringent regulatory requirements. These factors make financial management particularly critical for companies in this sector. By examining the relationships between various financial ratios and profitability metrics, this study aims to provide insights into the financial strategies and performance drivers of these companies. The research employs regression and correlation analyses to investigate the impact of several financial variables on three key profitability indicators: gross profit margin (GPM), return on capital employed (ROCE), and return on assets (ROA). The independent variables considered in this study include long-term debt to total assets (LTDTA), current assets to total assets (CATA), current liabilities to total assets (CLTA), current assets turnover (CATURN), cash conversion cycle (CCC), company size (SIZE), sales growth (GROWTH), and debt-equity ratio (DER). By conducting a comparative analysis of these three companies, this study seeks to identify both common trends and company-specific factors that influence financial performance in the Indian pharmaceutical industry. The findings of this research have implications for financial management practices, investment decisions, and strategic planning within the sector. The subsequent sections of this paper will present the methodology, detailed analysis of results for each company, a comparative discussion of the findings, and conclusions drawn from the study. Additionally, the limitations of the current research and potential areas for future investigation will be addressed.

Statement of the Problem:

The Indian pharmaceutical industry plays a crucial role in global healthcare, yet faces complex financial challenges due to factors such as high R&D costs, regulatory pressures, and market competition. Despite the industry's significance, there is limited comprehensive research on the financial performance determinants of major Indian pharmaceutical companies. This study addresses this gap by examining the financial dynamics of Aurobindo Pharma, Biocon, and Cadila Healthcare.

Specifically, the problem this research aims to address is the lack of in-depth understanding of:

1. The key financial factors influencing profitability in these companies.
2. How various financial ratios correlate with and impact profitability metrics.
3. The similarities and differences in financial performance drivers across these major players in the Indian pharmaceutical sector.

This knowledge gap hinders effective financial management, strategic decision-making, and investment strategies within the industry. By analyzing these aspects, this study seeks to provide valuable insights for company management, investors, and industry analysts.

Objectives of the Study:

1. To analyze the impact of selected financial variables (LTDTA, CATA, CLTA, CATURN, CCC, SIZE, GROWTH, and DER) on profitability indicators (GPM, ROCE, and ROA) for Aurobindo Pharma, Biocon, and Cadila Healthcare.
2. To examine the interrelationships between various financial ratios and profitability metrics through correlation analysis for each company.
3. To identify the most significant financial factors influencing profitability in each of the three pharmaceutical companies.
4. To compare and contrast the financial performance determinants across the three companies, highlighting similarities and differences.
5. To assess the explanatory power of the regression models in predicting profitability for each company.
6. To provide insights into effective financial management strategies based on the findings for each company and the industry as a whole.
7. To contribute to the body of knowledge on financial performance analysis in the Indian pharmaceutical sector, offering a foundation for further research and practical applications.

By achieving these objectives, this study aims to enhance understanding of the financial dynamics within major Indian pharmaceutical companies and provide valuable insights for industry stakeholders, including management, investors, and policymakers.

Data Analysis and Interpretation

Table 1 : Regression analysis between the Gross profit margin, Return on capital employed, Return on assets and selected financial variables of Aurobindo Pharma Limited

Independent variables	Dependent variables								
	GPM			ROCE			ROA		
	Beta Co-efficient	t values	Sig.	Beta Co-efficient	t values	Sig.	Beta Co-efficient	t values	Sig.
Intercept	7.798	.401	NS	59.365	2.113	.079	23.802	1.098	.314
LTDTA	-115.294	-2.815	.031	-148.708	-2.512	.046	-62.337	-1.365	.221

CATA	137.967	4.795	.003	85.740	2.062	.085	70.702	2.204	.070
CLTA	15.451	NS	.649	-147.294	-3.161	.020	-73.448	-2.043	.087
CATURN	-10.549	-.848	NS	10.554	.587	.578	1.012	.073	.944
CCC	-.312	-4.187	.006	-.097	-.903	.401	-.080	-.964	.372
SIZE	.001	1.127	NS	-.002	-2.604	.040	-.001	-1.705	.139
GROWTH	-.248	-1.960	NS	.220	1.205	.274	.084	.594	.574
DER	13.335	1.781	.125	-2.902	-.268	.798	-4.099	-.491	.641
R Square	.973			0.944			.880		
Adjusted R ²	.936			0.870			0.721		
F value	26.654*			12.677*			5.520**		
D.W.	2.381			2.595			2.384		
D.F	8			8			8		

** Significant at 1% level; * Significant at 5% level

Since P value observed as less than 0.001 and the f vales observed as 26.654 for Gross profit margin; 12.67 for return on capital employed and 5.520 for return on assets, it is confirmed that the null hypothesis is rejected at 5% level and 1% level of significance for the selected dependent variables respectively. Hence, it is confirmed that, there is a significant level of influence of the Long term debt to total assets; Current assets to total assets; Current liabilities to total assets; Current assets to sales; Cash Conversion cycle, Size of total investments; Growth rate Sales; Debt equity ratio on the gross profit ratio, return on capital employed and return on assets is established statistically and confirmed. The degree of impact and influence may change between the positive and negative degrees at different occasions and situations in the business.

Based on the R square value, it is observed and found that, 97.3 percent of influence on gross profit margin, 94.4 percent on return on capital employed and 88 percent impact on return on assets is of selected independent variables is established and thereby it is confirmed that there is a highly significant level of influence of Long term debt to total assets; Current assets to total assets; Current liabilities to total assets; Current assets to sales; Cash Conversion cycle, Size of total investments; Growth rate Sales; Debt equity ratio on the gross profit ratio, return on capital employed and return on assets is established. This clearly indicate that the gross profit margin, return on assets and return on capital are purely depends on the earning capacity, expenses and the turn over performance of the firms, it is true and on par with the reality in both business and

general. Hence, the analytical results are true and fair and explored the real time situation of the sample firm.

The beta co-efficient of current assets to total assets indicates that the highly significant impact with the observed values of 137.967percent impact on gross profit ratio, 85.74 percent of impact on the return on capital employed and 70.702 percent impact on return on assets respectively. This clearly indicates that the profitability of the firm, return on capital employed and return on assets is highly depending on the degree of proportion between the current assets to total assets. This may be due to high level of current assets improve the liquidity level of the firm and there by returns in the form of discounts and early bird payment offers helps the firm to improve its profits to a greater extent, by way of keeping significant margins between the cost of purchase and cosy of sales. It is also important to keep an eye on the issues of high liquidity in the form of financial losses and mismanagement of cash. Hence, a balanced level of cash management and optimum level of cash reserves is need of the hour. In case of Aurobindo Pharma an optimum cash management model is observed from the results and appreciable.

Table- 2 : Showing the correlation between the Gross Profit margin and other financial variables of Biocon Pharma Limited

Variables	GPM	ROC	ROA	LTDT A	CAT A	CLTA	CATUR N	CCC	SIZ	GROWT H	DER
GPM	1										
ROC	-.124	1									
ROA	-.095	.993**	1								
LT	.456	.144	.110	1							
CA	.309	.375	.329	.447	1						
CL	-.244	.594*	.542*	.282	.778**	1					
CAT	.133	-.612*	-.618*	.275	-.323	-.534*	1				
CCC	-.527*	.578*	.535*	.043	.454	.806**	-.457	1			
SIZ	.196	-.724**	-.674**	-.145	-.748**	-.940**	.676**	-.816**	1		
GR	.231	.369	.345	.464	.570*	.532*	-.340	.478	-.483	1	
DE	-.191	.607*	.545*	.572*	.638*	.857**	-.213	.762**	-.792**	.510	1

** Significant at 1% level and * significant at 5% level

Examining the correlation between the gross profit margin and other factors. Gross profit is the amount obtained by subtracting direct expenditures spent at the plant level from gross earnings. This also indirectly implies the manufacturing costs of a product and aids in minimizing factory expenditures and material costs throughout production. The table above presents a correlation analysis of profitability measurements, namely return on capital employed, return on total assets, and return on capital, used to assess the profitability of the organization. The gross profit margin of BIOCON Pharma Limited has a varied association with different indicators of profitability. The gross profit margin has a negative association with many financial metrics. Specifically, it is negatively connected with return on capital, return on assets, current liabilities to total assets, cash conversion cycle, and debt equity ratio. The correlation coefficients for these relationships are -0.124, -0.095, -0.244, -0.527, and -0.191, respectively. The correlation coefficient between gross profit margin and return on capital, return on assets, current liabilities to total assets, and debt equity ratio is not statistically significant at the 5% level. The considerable link between gross profit margin and cash conversion cycle at a 5% level shows a moderate degree of relationship. Conversely, the gross profit margin has a positive correlation with long-term total debt, total assets, current assets to total assets, current assets to turnover, size of total investment, and growth rate of sales. The observed correlation coefficients for these variables are 0.456, 0.309, 0.133, 0.196, and 0.231, respectively. The association between gross profit margin and long-term total debt, total asset, current asset to total asset, current asset to turnover, amount of total investment, and growth rate of sales is not statistically significant at the 5% level, suggesting a weak or negligible link. Correlation analysis of return on capital employed with other variables: The correlation coefficients between return on capital employed and return on asset, long term total debt to total asset, current asset to total assets, current liabilities to total assets, cash conversion cycle, growth on sales, and debt equity ratio are positively correlated with coefficient values of 0.993, 0.144, 0.375, 0.594, 0.578, 0.369, and 0.607, respectively. The correlation coefficient between return on capital employed and return on assets, current liabilities to total assets, and debt equity ratio is highly significant at the 1% level and significant at the 5% level, indicating a strong correlation between return on capital employed and return on assets, and a moderate correlation between return on capital employed and current liabilities to total assets, as well as debt equity ratio. However, there is a considerable association at a 5% level between the return on capital employed and the long-term debt to total assets, current assets to total assets, and increase in sales. The connection between return on capital employed and current assets to sales is adversely significant, with a coefficient value of -0.612 at a 5% level of statistical significance. Similarly, there is a strong negative relationship between the return on capital employed and the amount of investments, with a coefficient value of -0.724. This connection is highly significant at the 1% level. The negative correlation between the return on capital employed and the level of investment suggests that the magnitude of investment has a negative impact on the return on capital employed, unless the investments are productive and consistently generate profits for the business. Therefore, it is important to

regularly monitor the magnitude and nature of the company's investments. A strong positive correlation is detected between the return on capital used and the return on assets, as well as the current liabilities to total assets, cash conversion cycle, and debt equity ratio. This suggests a realistic approach and a significant link between the company's assets, liabilities, and return earned. The connection between the return on capital employed and long term debt to total assets, current assets to total assets, increase in sales is shown to be statistically insignificant at the 5% level, suggesting a weak association between these factors. The correlation analysis reveals that there is a positive relationship between return on assets and the following variables: long term debt to total assets, current assets to total assets, current liabilities to total assets, cash conversion cycle, growth rate in sales, and debt equity ratio. The observed correlation coefficients for these variables are 0.110, 0.329, 0.542, 0.535, 0.345, and 0.545, respectively. Additionally, it has been noted that the correlation coefficient confirms the significant relationships between the return on assets and current liabilities to total assets, cash conversion cycle, and debt equity ratio at a 5% level. This indicates a fairly substantial degree of relationship and influence on the return on assets. Therefore, it is crucial to maintain an optimal level of current liabilities cash conversion time and debt equity ratio in order to enhance the return on total assets and preserve the profitability of the business. This will ultimately benefit the firm and its stakeholders. The correlation between return on assets and current assets to sales, as well as the size of investments, is seen to have negative coefficients of -0.618 and -0.674, respectively. This indicates a high degree of negative correlation between return on assets and both current assets to sales and size of investments. The observed correlation provides statistical evidence of a negative association between return on assets and current assets to sales at a 5% level of significance, and between return on assets and amount of investments at a 1% level of significance. Based on the analysis of the degree of negative association and level of significance, it is evident that the current assets to sales ratio and the amount of investments have a strong negative influence and correlation with the company's return on assets. Therefore, it is important to monitor the company's present asset levels and the magnitude and caliber of its investments, since these factors have an impact on the company's return on assets and overall profitability.

The correlation between the ratio of long term debt to assets and various other variables is as follows: - The correlation with the ratio of current assets to total assets is positive and has a moderate coefficient value of 0.447. - The correlation with the ratio of current liabilities to total assets is positive and has a coefficient value of 0.282. - The correlation with the ratio of current assets to sales is positive and has a coefficient value of 0.275. - The correlation with the cash conversion cycle is positive and has a coefficient value of 0.043. - The correlation with the growth rate in sales is positive and has a coefficient value of 0.464. - The correlation with the debt equity ratio is positive and has a considerable coefficient value of 0.572. Conversely, there is a negative association between the ratio of long term debt to assets and the magnitude of investments, with a correlation coefficient of -0.145. The found correlation coefficient between long term debt to assets and debt equity ratio is statistically significant at the 5% level. The

coefficient value of 0.572 suggests a strong effect of the debt equity ratio on the long term debt to assets. Therefore, it is vital to uphold an optimal debt equity ratio, and periodically maintaining a balance between current assets and total assets may enhance the company's profitability. The link between long term debt to total assets and the specified variables in the research is not statistically significant at a 5% level, except for the debt equity ratio.

The correlation between the ratio of current assets to total assets and other variables, such as the ratio of current liabilities to total assets, the cash conversion cycle, the growth rate in sales, and the debt equity ratio, was found to be positive. The coefficient values for these correlations were 0.778, 0.454, 0.570, and 0.638, respectively. Furthermore, the correlations were highly significant, with significance levels of 1% and 5% for different variables. Conversely, there is a negative association between the ratio of current assets to total assets and the ratio of current assets to sales, with values of -0.323 and -0.748, respectively, as well as with the amount of investments. The found link between current assets to total assets and current assets to sales, amount of investments is statistically insignificant and highly significant at the 1% level in terms of priority. Therefore, it is important to closely monitor the amount of current liabilities, the magnitude of investments, the debt-to-equity ratio, and the increase in sales in order to efficiently use assets, manage cash flow, and address hidden expenses that impact the company's profitability. Therefore, the profitability is affected by the amount of current obligations, investments, and long-term liabilities in general. Furthermore, the sales growth rate will serve as a positive factor that directly impacts the company's profitability. Therefore, it is important to prioritize sales growth, investment amount, long-term obligations, and current liabilities at this time.

Correlation between the turnover of current assets and other variables: The correlation between current assets turnover and cash conversion cycle, growth rate of sales, and debt equity ratio is moderately negative. The observed coefficient values are -0.457, -0.340, and -0.213 respectively. However, the statistical relationship is not significant at the 5% level for all variables. This suggests that there is only a nominal influence of the cash conversion cycle, growth rate of sales, and debt equity ratio on current turnover. Conversely, there is a strong positive connection (coefficient value of 0.676) between the turnover of current assets and the amount of investments. This correlation is highly significant at the 1% level, showing that the size of investment has a considerable impact on the turnover of current assets. This implies that there is a direct and favorable correlation between the magnitude of investment and the turnover rate of current assets.

The link between the size of cash conversion cycle and investments is strongly negative, with a correlation coefficient value of -0.816. This correlation is highly significant at the 1% level. This suggests that the magnitude of investments has a negative impact on the cash conversion cycle and, therefore, on the profitability of the company. Therefore, it is important to have an optimal level of investments, and implementing a sustainable growth strategy for investments may enhance the company's profitability. However, it is noted that there is a strong

positive connection between the cash conversion cycle and the debt equity ratio. This correlation is highly significant at the 1% level, with a correlation coefficient of 0.762 and a p-value of less than 0.01. This suggests that there is a positive association between the debt equity ratio and the cash conversion cycle, which in turn affects profitability. Similarly, there is a positive correlation coefficient of 0.478 between the cash conversion cycle and increase in sales. However, this connection is not statistically significant at the 5% level, showing that the effect of growth in sales on the cash conversion cycle is minor.

The association between the amount of investments and the debt equity ratio is discovered to be negative, with a coefficient value of -0.792. Similarly, the correlation between the size of investments and the increase in sales is also negative, with a coefficient value of -0.483. Furthermore, it is noteworthy that there is a strong and statistically significant negative relationship between the size of investments and the debt equity ratio. This implies that the debt equity ratio has a substantial impact on the amount of investments and ultimately the profitability of the firm. Additionally, it is worth mentioning that there is a positive link between the growth of sales and the debt equity ratio, as shown by the observed coefficient value of 0.510. However, this correlation is not statistically significant at the 5% level.

Regression

Regression analysis is a useful method for organizing several independent variables in tables and assessing or quantifying their impact on a dependent variable. A variety of analytical research approaches are often used to assess novel company concepts and make well-informed choices.

The observed regression sets between the dependent and independent variables are as follows:

The formula for calculating the Gross Profit Margin is as follows: $\text{Gross Profit Margin} = 56.446 + 179.615 \text{ multiplied by LTDTA} + 36.228 \text{ multiplied by CATA} - 107.015 \text{ multiplied by CLTA} - 4.392 \text{ multiplied by CATURN} - 0.057 \text{ multiplied by CCC} - 0.001 \text{ multiplied by SIZE} + 0.067 \text{ multiplied by GROWTH} - 15.610$

The Return on Capital Employed is calculated by subtracting the Long-Term Debt to Total Assets ratio (LTDTA), the Current Assets to Total Assets ratio (CATA), the Current Liabilities to Total Assets ratio (CLTA), the Current Assets Turnover ratio (CATURN), the Cash Conversion Cycle (CCC), and the Company Size (SIZE) from 59.918 and adding The Return on Assets is calculated as 48.009 minus 10.377 times the Long-Term Debt to Total Assets ratio, minus 9.596 times the Current Assets to Total Assets ratio, minus 100.361 times the Current Liabilities to Total Assets ratio, minus 20.194 times the Cash and Temporary Investments to Total Assets ratio, minus 0.022 times the Cash.

Based on the information provided, a regression hypothesis is created, tested, and the findings are shown in the table below.

The null hypothesis (Ho) states that there is no statistically significant impact of the independent variables (LTDTA, CATA, CLTA, CATURN, CCC, SIZE, GROWTH, and DER) on the dependent variables, namely gross profit margin, return on capital employed, and return on assets of BIOCON Pharma Limited in the sample.

Table: 3 Regression analysis between the Gross profit margin, Return on capital employed, Return on assets and selected financial variables of Biocon Pharma Limited

Independent variables	Dependent variables								
	GPM-Gross Profit Margin			ROCE-Return on Capital Employed			ROA-Return on Assets		
	Beta Co-efficient	t Values	Sig.	Beta Co-efficient	t Values	Sig.	Beta Co-efficient	t Values	Sig.
Intercept	56.446	5.417	.002	59.918	2.451	.050	48.009	2.291	.062
LTDTA	179.615	1.048	.335	-14.249	-.035	.973	-10.377	-.030	.977
CATA	36.228	1.612	.158	-16.482	-.313	.765	-9.596	-.212	.839
CLTA	-107.015	-2.307	.061	-125.881	-1.157	.291	-100.361	-1.07	.323
CATURN	-4.392	-.321	.759	-20.164	-.628	.553	-20.194	-.734	.491
CCC	-.057	-1.308	.239	-.037	-.364	.728	-.022	-.256	.807
SIZE	-.001	-.726	.495	-.003	-.694	.514	-.002	-.509	.629
GROWTH	.067	.920	.393	.034	.202	.847	.018	.121	.908
DER	-15.610	-.144	.891	176.275	.691	.515	142.228	.650	.539
R Square	.895			.729			.675		
Adjusted R ²	0.755			0.367			0.241		
F value	6.402*			2.015			1.554		

D.W.	2.270	2.838	2.755
D.F	8	8	8

** Significant at 1% level; * Significant at 5% level

Since, the P value of observed is less than 0.05 and the F value observed is 6.402, it is confirmed that the Null Hypothesis is rejected at 5% level and the influence of selected variables on the gross profit margin is partial and statistically significant at 5% level. Based on the R Square value it is observed that the influence of selected variables on gross profit margin is noted at 89.5% and the statistical significant is confirmed at 5% level. Further, it is noted that the Beta Co-efficient of long term debt to asset and current assets to total assets is observed positive with 179.615 and 36.228 respectively and the impact of long term debt to total assets and current assets to total assets highly influence the gross profit margin of Biocon Pharma Limited. On the other hand a negative influence of current liabilities to total assets, current assets to turn over and debt equity ratio is observed with the Beta Co-efficient value of -107.015, -4.392 and -15.610 respectively. Similarly, a nominal level of influence of cash conversion cycle with Beta Co-efficient value of -0.057, size of investments with Beta Co-efficient of -0.001, growth in sales with the Beta Co-efficient of 0.067 on gross profit margin of Biocon Pharma Limited during the study period. This clearly indicates that long term debt and level of current assets positively influence the gross profit margin of a company and level of current liabilities, debt equity ratio negatively influence the gross profit margin.

The P value and F value observed to the hypothesis, There is no significant influence of independent variables (LTDTA, CATA, CLTA, CATURN, CCC, SIZE, GROWTH and DER) on dependent variables return on capital employed and return on assets of BIOCON Pharma Limited the sample, is greater than 0.05 and F value of 2.015 and 1.554, leads to accept the null hypothesis and confirm the insignificant level of influence of selected in independent variables on return on capital employed and return on assets of the company. The degree of impact or influence of each of the independent variable on return on capital is observed with positive Beat - Co-efficient of 176.275 between debt equity ratio and return capital employed and confirmed debt equity ratio as the highly influencing variable. On the other hand all other independent variable are observed with the negative Beta Co-efficient value in the study. High level of negative influence of current liabilities to total assets with the observed Beta Co-efficient value of -125.881 on return on capital employed indicates the need for controlling the level of current liabilities which affecting the profitability of the company. Similarly, high level of positive influence of debt equity ratio on return on assets is observed with beta co-efficient value of 142.228. on the other hand negative and nominal level of influence of other independent variables on return on assets is observed in the sample. Among the negative influence variables, current liabilities to total assets is observed as highly negative influenced variable with Beta Co-efficient value of -100.361 on return on assets. Hence, it is necessary to have a regular check on

level of current liabilities and maintain at optimum level to sustain the profitability of the company.

Based on the R Square value it is observed that 89.5%, 72.9% and 67.5% influence of independent variables is observed on gross profit margin, return on capital employed and return on assets respectively. Further, it is notated that gross profit margin is positively influence by long term debt to total assets and current assets to total assets. Similarly, return on capital employed and return on assets is highly influenced by debt equity ratio with observed Beta Co-efficient values of 176.275 and 142.228 respectively. On the other hand gross profit margin, return on capital employed and return on assets is negatively influenced by current liabilities to total assets with the observed Beta Co-efficient values of -107.015, -125.881 and -100.361 respectively. Hence, profitability of the company is negatively influenced by the level of current liabilities and a check on level on current liabilities may help to rectify the situation from time to time.

CADILA Pharma Limited

Table: 4 Correlation between the Gross Profit margin and other financial variables of Cadila Pharma Limited

	GPM	ROC	ROA	LTDT A	CAT A	CLT A	CATURN	CCC	SIZ	GROWT H	DER
GPM	1										
ROC	.374	1									
ROA	.372	.980**	1								
LT	-.430	-.192	-.112	1							
CA	-.120	.411	.387	.436	1						
CL	.100	-.398	-.392	.257	.231	1					
CAT	-.606*	-.579*	-.674**	-.195	-.320	-.186	1				
CCC	-.305	.008	-.112	.096	.118	-.342	.391	1			
SIZ	.018	-.281	-.385	-.725**	-.644**	-.401	.717**	.318	1		
GR	.024	-.014	-.045	.251	.384	.393	-.144	-.096	-.335	1	

DE	-.350	-.511	-.466	.775**	.328	.697**	-.038	.003	-.536*	.175	1
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** Significant at 1% level and * significant at 5% level

Correlation between gross profit margin with other variables:

Table 4 provides an explanation of the connection between the chosen factors that affect the profitability of Cadila Pharma Limited. The observed results indicate a positive correlation between gross profit margin and return on capital employed, return on assets, current liabilities to total assets, size of investments, and growth in sales. The coefficient values for these correlations are 0.374, 0.372, 0.100, 0.018, and 0.024, respectively. However, the correlation coefficients for these relationships are not statistically significant at the 5% level, suggesting a nominal degree of influence of the selected variables on gross profit margin, except for return on capital employed and return on assets. Conversely, a negative correlation is found between the gross profit margin and long-term debt to assets, current assets to total assets, capital turnover, cash conversion cycle, and debt equity ratio. The coefficient values for these correlations are -0.430, -0.120, -0.606, -0.305, and -0.350, respectively. However, only the negative coefficient value for capital turnover is statistically significant at the 5% level. These findings suggest that there is a significant impact of long-term debt, current assets, cash conversion cycle, and debt equity on gross profit margin at a nominal level.

Findings:

1. Aurobindo Pharma:

- The regression models showed high explanatory power for all three profitability measures (GPM, ROCE, ROA) with R-square values of 97.3%, 94.4%, and 88% respectively.
- Current assets to total assets (CATA) had a strong positive influence on all profitability metrics, with the highest impact on GPM (137.967%).
- Long-term debt to total assets (LTDTA) showed a significant negative impact on profitability measures.
- Cash Conversion Cycle (CCC) had a significant negative impact on GPM.

2. Biocon:

- The regression model for GPM showed high explanatory power (R-square 89.5%), while models for ROCE and ROA were less significant.
- LTDTA and CATA positively influenced GPM, with LTDTA having a particularly strong impact (179.615).
- Current liabilities to total assets (CLTA) negatively influenced all profitability measures.

- Debt-equity ratio (DER) had a strong positive influence on ROCE and ROA, but a negative impact on GPM.

3. Cadila Healthcare:

- The correlation analysis revealed complex relationships between financial variables and profitability measures.

- Capital turnover (CATURN) showed a significant negative correlation with GPM (-0.606).

- LTDTA had a strong positive correlation with DER (0.775) and a negative correlation with company size (-0.725).

- The regression analysis results for Cadila were not provided in detail, limiting comprehensive findings for this company.

Suggestions:

1. For Aurobindo Pharma:

- Maintain an optimal level of current assets to total assets ratio to leverage its positive impact on profitability.

- Carefully manage long-term debt levels to mitigate negative impacts on profitability.

- Implement strategies to reduce the cash conversion cycle to improve GPM.

2. For Biocon:

- Optimize the balance between long-term debt and current assets to maximize positive impacts on GPM.

- Closely monitor and control current liabilities to minimize their negative influence on profitability.

- Carefully manage the debt-equity ratio to balance its contrasting effects on different profitability measures.

3. For Cadila Healthcare:

- Improve capital turnover efficiency to address its negative correlation with GPM.

- Carefully manage the balance between long-term debt and company size, considering their strong correlations.

- Conduct further analysis to better understand the drivers of profitability, as the regression results were not fully detailed.

4. General suggestions:

- Regularly monitor and adjust financial ratios to maintain optimal levels for profitability.
- Implement company-specific strategies based on the identified key drivers of profitability.
- Consider industry benchmarks and competitor analysis when setting financial targets.

Conclusion:

This study provides valuable insights into the financial performance determinants of three major Indian pharmaceutical companies. The findings reveal that while some financial factors have similar impacts across the companies, there are also significant company-specific influences on profitability. Aurobindo Pharma demonstrated strong relationships between its financial variables and profitability measures, with current assets management being particularly crucial. Biocon showed varying impacts of financial variables on different profitability metrics, highlighting the complexity of financial management in the pharmaceutical sector. The analysis for Cadila Healthcare, though limited, indicated important correlations between financial variables that merit further investigation. The study underscores the importance of tailored financial management strategies for each company, as the drivers of profitability can vary significantly even within the same industry. It also highlights the need for a balanced approach in managing various financial ratios, as some factors can have contrasting effects on different profitability measures. These findings contribute to the understanding of financial dynamics in the Indian pharmaceutical industry and provide a foundation for further research. Future studies could expand on this work by including a larger sample of companies, incorporating more recent data, and exploring additional financial and non-financial factors that may influence profitability in this crucial sector.

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