

PROFITABILITY OF SELECT INDIAN PHARMACEUTICAL COMPANIES

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Abstract: The Indian pharmaceutical industry plays a vital role in the nation's economic growth by contributing significantly to healthcare, exports, and employment. This study examines the determinants of profitability of ten selected Indian pharmaceutical companies representing large-cap, mid-cap, and small-cap firms listed on the BSE and NSE. The study is descriptive in nature and relies exclusively on secondary data collected from the annual reports of the selected companies. Profitability is measured using Return on Capital Employed (ROCE), while multiple regression analysis is employed to assess the influence of firm-specific variables such as size, leverage, liquidity, inventory turnover ratio, fixed assets turnover ratio, operating expenses to sales ratio, past profitability, growth, and age on profitability. The findings reveal that the explanatory power of the regression models is consistently high across the selected companies, with R² values ranging from 0.96 to 0.99. Firm size, inventory turnover, past profitability, growth, and age emerge as significant positive determinants of profitability in most companies, whereas leverage and operating expenses generally exhibit a negative influence. The study concludes that efficient management of operational and financial factors is essential for improving profitability and sustaining competitive performance in the Indian pharmaceutical industry. The findings provide useful insights for corporate managers, investors, and policymakers in formulating strategies to enhance financial performance.

Keywords: Indian Pharmaceutical Industry, Profitability, Multiple Regression Analysis, Financial Performance, Inventory Turnover Ratio and so on.

1. INTRODUCTION

The Indian pharmaceutical industry plays a pivotal role in Indian economy by securing third largest Producer of pharmaceutical products in the World. This industry produces Vaccines, generic medicines, bio- technological medicines in the form of tablets, tonics and injections. This industry produce vaccines to the tune of twenty percent and generic medicines to the tune of sixty percent in the global requirements. It contributes 60 billions US dollar in the Indian GDP. It provides direct employment to 8 lakh people and indirect employment to 20lakh people. The major pharmaceutical Companies occupy dominant share than the MSME players of pharmaceutical industries in India. The Constant Support by government, this industry Contributes much to the export performance. Considering the profitability Conditions of the pharmaceutical Companies, the present study is undertaken to decide the determinants of profitability of 10 Selected Indian pharmaceutical Companies.

2. METHODOLOGY

This study is descriptive in nature and is primarily based on Secondary data which were collected from the annual reports of the Companies. This study covers 10 Companies based on the market Capitalization of BSE and NSE. This selected Companies were based on large Cap, mid Cap and small Cap. Various profitability ratios were Calculated and the determinants of Profitability is applied on the multiple Regression analysis. The aim of the study is to assess which determinants of profitability influence either proportionately or disproportionately and to find out the determinants which need a more attentions. The present study covers only profitability of pharmaceutical Companies and do not cover the other aspect of the pharmaceutical companies. As the study is based on the Secondary data, it suffers from the bias of Secondary data such as different purpose, different nature of analysis and others.

3. RESULTS AND DISCUSSION

Aurobindo Pharma Limited

The model described above has been estimated for Aurobindo Pharma Limited and is presented in Table 3.1. In Aurobindo Pharma Limited, the model explains 99 per cent of variation in the profitability of firms. The analysis shows that all the variables except fixed assets turnover ratio are found to be statistically significant in explaining the profitability of Aurobindo Pharma Limited. It is evident from the results that size is a stronger determinant of profitability followed by inventory turnover ratio, fixed assets turnover ratio, age, past profitability, growth, leverage and liquidity.

It is evident from the results that Aurobindo Pharma Limited co-efficient of size shows an increase of 4.77 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage indicates a decrease of 0.53 units in profitability as a result of one unit increase in leverage. It is understood from the results that a decrease of 4.28 units in profitability as a result of one unit increase in liquidity is statistically significant at 5 per cent level. The results also indicate that a decrease of 0.30 units in profitability as a result of one unit increase in operating expenses to sales ratio is statistically significant at 1 per cent level. It is also apparent from the table that co-efficient of inventory turnover ratio and age shows 2.16 units and 1.41 unit increase in profitability as a result of one unit increase, which is statistically significant at 5 per cent level. However, the co-efficient of past profitability and growth shows 0.92 units and 0.14 units increase in profitability as a result of one unit increase which is statistically significant at 1 per cent level.

Table 3.1: Determinants of Profitability – Multiple Regression Model Aurobindo Pharma Limited

Dependent Variable: Return on Capital Employed (PR)

(PR = 28.51+ 4.77S-0.53LEV-4.28LIQ+2.16ITR+1.65FATR- 0.30OPES+0.92PP+0.14G+1.41A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	28.51		
Size (S)	4.77	3.88	Significant*
Leverage (LEV)	-0.53	2.41	Significant**
Liquidity (LIQ)	-4.28	1.96	Significant**
Inventory Turnover Ratio (ITR)	2.16	2.62	Significant**
Fixed Assets Turnover Ratio (FATR)	1.65	0.61	Not Significant
Operating Expenses to Sales Ratio (OPES)	-0.30	3.27	Significant*
Past Profitability (PP)	0.92	3.12	Significant*
Growth (G)	0.14	3.03	Significant*
Age (A)	1.41	2.53	Significant**
R ² = 0.99 Adj R ² = 0.98 F = 60.2 D.W = 1.90			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level;

Source: Computed.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R^2) which is the measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 98 per cent. On the whole, it can be concluded that Aurobindo Pharma Limited should consider all these possible determinants while considering its profitability.

Cadila Pharmaceutical Limited

The model described above has been estimated for Cadila Pharmaceutical Limited and is presented in Table 3.2. In Cadila Pharmaceutical Limited, the model explains 98 per cent of variation in the profitability of firms. The analysis shows that all the variables except Operating Expenses to Sales Ratio are found to be statistically significant in explaining the profitability of Cadila Pharmaceutical Limited. It is evident from the results that size is a stronger determinant of profitability followed by fixed assets turnover ratio, past profitability, inventory turnover ratio, growth, age, operating expenses to sales ratio, liquidity and leverage.

Table 3.2: Determinants of Profitability – Multiple Regression Model Cadila Pharmaceutical Limited

Dependent Variable: Return on Capital Employed (PR)

(PR = 44.14 + 2.64S - 16.49LEV - 8.94LIQ + 0.58ITR + 1.88FATR - 0.07OPES + 1.00PP + 0.18G + 0.03A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	44.14		
Size (S)	2.64	3.20	Significant*
Leverage (LEV)	-16.49	2.99	Significant*
Liquidity (LIQ)	-8.94	1.88	Significant**
Inventory Turnover Ratio (ITR)	0.58	3.97	Significant*
Fixed Assets Turnover Ratio (FATR)	1.88	2.46	Significant**
Operating Expenses to Sales Ratio (OPES)	-0.07	0.37	Not Significant
Past Profitability (PP)	1.00	3.78	Significant*
Growth (G)	0.18	9.87	Significant*
Age (A)	0.03	2.02	Significant**
R ² = 0.98 Adj R ² = 0.93 F = 17.48 D.W = 1.86			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level; Source: Computed.

It is evident from the results that Cadila Pharmaceutical Limited co-efficient of size shows an increase of 2.64 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage indicates a decrease of 16.49 units in profitability as a result of one unit increase in leverage. It is understood from the results that a decrease of 8.94 units in profitability as a result of one unit increase in liquidity, is statistically significant at 1 per cent level. It is also apparent from the table that co-efficient of inventory turnover ratio, fixed assets turnover ratio, past profitability, growth and age shows respectively 0.58 units, 1.88 units, 1.00 units, 1.18 units and 0.03 units increase in profitability as a result of one unit increase. The result also indicates that a decrease of 0.07 units in profitability as a result of one unit increase in operating expenses to sales ratio is statistically not significant.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R^2) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 93 per cent. On the whole, it can be concluded that Cadila Pharmaceutical Limited should consider all these possible determinants while considering its profitability.

Cipla Ltd

The model described above has been estimated for Cipla Ltd and is presented in Table 3.3. In Cipla Ltd, the model explains 99 per cent of variation in the profitability of firms. The analysis shows that all the variables except growth and age are found to be statistically significant in explaining profitability of Cipla Ltd. It is evident from the results that leverage is a stronger determinant of profitability followed by inventory turnover ratio, past profitability, size, fixed assets turnover ratio, growth, age, operating expenses to sales ratio and liquidity.

Table 3.3: Determinants of Profitability – Multiple Regression Model - Cipla Ltd

Dependent Variable: Return on Capital Employed (PR)

(PR = -8.99+ 0.82S+4.75LEV-0.34LIQ+1.53ITR+0.48FATR-0.07OPES+1.01PP+0.21G+0.18A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	-8.99		
Size (S)	0.82	3.37	Significant*
Leverage (LEV)	4.75	2.43	Significant**
Liquidity (LIQ)	-0.34	2.27	Significant**
Inventory Turnover Ratio (ITR)	1.53	1.92	Significant**
Fixed Assets Turnover Ratio (FATR)	0.48	3.31	Significant*
Operating Expenses to Sales Ratio (OPES)	-0.07	2.28	Significant**
Past Profitability (PP)	1.01	2.29	Significant**
Growth (G)	0.21	3.74	Significant*
Age (A)	0.18	0.44	Not Significant
R ² = 0.99 Adj R ² = 0.95 F = 23.71 D.W = 1.98			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level; Source: Computed.

It is evident from the results that Cipla Ltd co-efficient of leverage shows an increase of 4.75 units in profitability as a result of one unit decrease in profitability, which is statistically significant at 5 per cent level. The co-efficient of liquidity indicates that a decrease of 0.34 units in profitability as a result of one unit increase in liquidity is statistically significant at 5 per cent level. As a result of one unit increase in inventory turnover ratio, fixed assets turnover ratio, past profitability and growth reveal respectively 1.53 units, 0.48 units, 1.01 units and 0.21 units increase in profitability are statistically significant. The co-efficient of age indicates that the increase of 0.18 units in profitability as a result of one unit increase in age, is statistically not significant. The results also indicate that a decrease of 0.07 units in profitability as a result of one unit increase in operating expenses to sales ratio is statistically significant at 5 per cent level.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R²) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 99 per cent. On the whole, it can be concluded that Cipla Ltd should consider all these possible determinants while considering its profitability.

Dr. Reddy's Laboratories Ltd

The model described above has been estimated for Dr. Reddy's Laboratories Ltd and is presented in Table 3.4. In Dr. Reddy's Laboratories Ltd, the model explains 99 percent of variation in the profitability of firms. The analysis shows that all the variables are found to be statistically significant in explaining the profitability of Dr. Reddy's Laboratories Ltd. It is evident from the results that size is a stronger determinant of profitability followed by age, inventory turnover ratio, past profitability, growth and fixed assets turnover ratio, operating expenses to sales ratio, liquidity and leverage.

Table 3.4: Determinants of Profitability – Multiple Regression Model

Dr. Reddy's Laboratories Ltd.

Dependent Variable: Return on Capital Employed (PR)

(PR = -83.68+ 38.66S-7.67LEV-1.76LIQ+3.21ITR-0.01FATR-0.71OPES+0.04PP+0.02G+6.66A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	-83.68		
Size (S)	38.66	1.75	Significant***
Leverage (LEV)	-7.67	2.77	Significant*
Liquidity (LIQ)	-1.76	3.51	Significant*
Inventory Turnover Ratio (ITR)	3.21	1.45	Significant***
Fixed Assets Turnover Ratio (FATR)	-0.01	4.01	Significant*
Operating Expenses to Sales Ratio (OPES)	-0.71	2.36	Significant**
Past Profitability (PP)	0.04	3.18	Significant**
Growth (G)	0.02	1.41	Significant***
Age (A)	6.66	2.51	Significant**
R ² = 0.99 Adj R ² = 0.95 F = 25.58 D.W = 1.93			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; *- Significant at 0.10 level; Source: Computed.**

It is evident from the results that the Dr. Reddy's Laboratories Ltd, co-efficient of size shows an increase of 38.66 units in profitability as a result of one unit increase in size, which is statistically significant at 10 per cent level. The decreasing co-efficient of leverage, liquidity and operating expenses to sales ratio in respect of 7.67 units, 1.76 units and 0.71 units in profitability as a result of one unit increase is statistically significant at 1 per cent level. It is also apparent from the table that co-efficient of inventory turnover ratio, past profitability, growth and age in respect of 3.21 units, 0.04 units, 0.08 units and 6.66 units increase in profitability as the result of one unit increase is statistically significant. However, the co-efficient of fixed assets turnover ratio shows a decrease of 0.01 units in profitability as a result of one unit decrease in profitability at 1 per cent level.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R²) which is the measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 99 per cent. On the whole, it can be concluded that Dr. Reddy's Laboratories Ltd should consider all these possible determinants while considering its profitability.

Glaxo Smith Kline Pharma Ltd

The model described above has been estimated for Glaxo Smith Kline Pharma Ltd and is presented in Table 3.5. In Glaxo Smith Kline Pharma Ltd, the model explains 96 per cent of variation in the profitability of firms. The analysis shows that all the variables except liquidity are found to be statistically significant in explaining profitability of Glaxo Smith Kline Pharma Ltd. It is evident from the results that size is a stronger determinant of profitability followed by age, liquidity, inventory turnover ratio, past profitability, fixed assets turnover ratio, growth, operating expenses to sales ratio and leverage.

It is evident from the results that Glaxo Smith Kline Pharma Ltd, co-efficient of size shows an increase of 43.59 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage indicates a decrease of 2.69 units in profitability as a result of one unit increase in leverage. It is understood from the result that an increase of 1.99 units in liquidity, is statistically not significant. The result also indicates that a decrease of 0.32 units in profitability as a result of one unit increase in operating expense to sales ratio is statistically significant at 5 per cent level. It is also apparent from the table that co-efficient of inventory turnover ratio, past profitability, growth and age shows 1.98 units, 0.95 units, 0.04 units and 4.78 units increase in profitability as a result of one unit increase in profitability.

Table 3.5: Determinants of Profitability – Multiple Regression Model

Glaxo Smith Kline Pharma Ltd

Dependent Variable: Return on Capital Employed (PR)

$$(PR = 46.39 + 43.59S - 2.69LEV + 1.99LIQ + 1.99ITR + 0.31FATR - 0.32OPES + 0.95PP + 0.04G + 4.78A)$$

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	46.39		
Size (S)	43.59	3.36	Significant*
Leverage (LEV)	-2.69	2.27	Significant**
Liquidity (LIQ)	1.99	1.06	Not Significant
Inventory Turnover Ratio (ITR)	1.99	2.32	Significant**
Fixed Assets Turnover Ratio (FATR)	0.31	2.15	Significant**
Operating Expenses to Sales Ratio (OPES)	-0.32	1.90	Significant**
Past Profitability (PP)	0.95	1.85	Significant**
Growth (G)	0.04	3.30	Significant*
Age (A)	4.78	3.38	Significant*
R ² = 0.96 Adj R ² = 0.93 F = 17.35 D.W = 1.80			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; *- Significant at 0.10 level; Source: Computed.**

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R²) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 96 per cent. On the whole, it can be concluded that Glaxo Smith Kline Pharma Ltd should consider all these possible determinants while considering its profitability.

Glenmark Pharmaceutical Limited

The model described above has been estimated for Glenmark Pharmaceutical Limited and is presented in Table 3.6. In Glenmark Pharmaceutical Limited, the model explains 99 per cent of variation in the profitability of firms. The analysis shows that all the variables except liquidity and age are found to be statistically significant in explaining the profitability of Glenmark Pharmaceutical Limited. It is evident from the results that size is a stronger determinant of profitability followed by fixed assets turnover ratio, inventory turnover ratio, past profitability, growth, operating expenses to sales ratio, liquidity, leverage and age.

Table 3.6: Determinants of Profitability – Multiple Regression Model

Glenmark Pharmaceutical Limited

Dependent Variable: Return on Capital Employed (PR)

$$(PR = 29.30 + 29.33S - 6.29LEV - 0.29LIQ + 0.73ITR + 2.52FATR - 0.04OPES + 0.15PP + 0.03G - 6.30A)$$

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	29.30		
Size (S)	29.33	9.21	Significant*
Leverage (LEV)	-6.29	8.18	Significant*
Liquidity (LIQ)	-0.29	0.97	Not Significant
Inventory Turnover Ratio (ITR)	0.73	3.61	Significant*
Fixed Assets Turnover Ratio (FATR)	2.52	3.83	Significant*
Operating Expenses to Sales Ratio (OPES)	-0.04	2.38	Significant**

Past Profitability (PP)	0.15	1.54	Significant***
Growth (G)	0.03	3.43	Significant*
Age (A)	-6.30	9.40	Not Significant
R ² = 0.99 Adj R ² = 0.99 F = 90.07 D.W = 1.91			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level; Source: Computed.

It is evident from the results that Glenmark Pharmaceutical Limited, co-efficient of size shows an increase of 29.33 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage, liquidity and operating expenses to sales ratio show that a decrease of 6.29 units, 0.29 units and 0.04 units in profitability as a result of one unit increases. It is understood from the results that an increase of inventory turnover ratio, fixed assets turnover ratio, past profitability and growth show 0.73 units, 2.52 units, 0.15 units and 0.03 units increase in profitability, which is statistically significant. However, the co-efficient of age shows 6.30 units decrease in profitability which statistically not significant.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R²) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 99 per cent. On the whole, it can be concluded that Glenmark Pharmaceutical Limited should consider all these possible determinants while considering its profitability.

Lupin Ltd

The model described above has been estimated for Lupin Ltd and is presented in Table 3.7. In Lupin Ltd, the model explains 99per cent of variation in the profitability of firms. The analysis shows that all the variables found except inventory turnover are found ratio to be statistically significant in explaining the profitability of Lupin Ltd. It is evident from the results that size is a stronger determinant of profitability followed by age, fixed assets turnover ratio, past profitability, growth, inventory turnover ratio, operating expenses to sales ratio, liquidity and leverage.

Table 3.7: Determinants of Profitability – Multiple Regression Model

Lupin Ltd

Dependent Variable: Return on Capital Employed (PR)

(PR = -17.98+ 34.50S-3.95LEV-1.19LIQ+0.02ITR+3.73FATR-0.22OPES+0.91PP+0.16G+6.79A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	-17.98		
Size (S)	34.50	4.07	Significant*
Leverage (LEV)	-3.95	1.82	Significant**
Liquidity (LIQ)	-1.19	2.67	Significant**
Inventory Turnover Ratio (ITR)	0.02	1.02	Not Significant
Fixed Assets Turnover Ratio (FATR)	3.73	1.75	Significant***
Operating Expenses to Sales Ratio (OPES)	-0.22	2.00	Significant**
Past Profitability (PP)	0.91	7.43	Significant*
Growth (G)	0.16	8.87	Significant*
Age (A)	6.79	3.72	Significant*
R ² = 0.99 Adj R ² = 0.99 F = 153.73 D.W = 2.01			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level; Source: Computed.

It is evident from the results that the Lupin Ltd, co-efficient of size shows an increase of 34.50 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage, liquidity and operating expenses to sales ratio show that a decrease of 3.95 units, 1.19 units and 0.22 units in profitability as a result of one unit increase. It is also apparent from the table that co-efficient of inventory turnover ratio shows 0.02 units increase in profitability as a result of one unit increase, which is statistically not significant. However, the co-efficient of past profitability, growth and age show 0.91 units, 0.16 units and 6.79 units increase in profitability as a result of one unit increase which is statistically significant in 1 per cent level.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R^2) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 99 per cent. On the whole, it can be concluded that Lupin Ltd should consider all these possible determinants while considering its profitability.

Ranbaxy Laboratories Ltd

The model described above has been estimated for Ranbaxy Laboratories Ltd and is presented in Table 3.8. In Ranbaxy Laboratories Ltd, the model explains 99 per cent of variation in the profitability of firms. The analysis shows that all the variables are found to be statistically significant in explaining the profitability of Ranbaxy Laboratories Ltd. It is evident from the results that size is a stronger determinant of profitability followed by inventory turnover ratio, age, fixed assets turnover ratio, past profitability, growth, operating expenses to sales ratio, leverage and liquidity.

Table 3.8: Determinants of Profitability – Multiple Regression Model

Ranbaxy Laboratories Ltd

Dependent Variable: Return on Capital Employed (PR)

(PR = 66.08 + 28.66S - 2.90LEV - 15.17LIQ + 11.04ITR + 1.44FATR - 0.64OPES + 0.77PP + 0.03G + 3.12A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	66.08		
Size (S)	28.66	3.31	Significant*
Leverage (LEV)	-2.90	1.37	Significant***
Liquidity (LIQ)	-15.17	3.27	Significant*
Inventory Turnover Ratio (ITR)	11.04	3.28	Significant*
Fixed Assets Turnover Ratio (FATR)	1.44	2.40	Significant**
Operating Expenses to Sales Ratio (OPES)	-0.64	4.61	Significant*
Past Profitability (PP)	0.77	3.07	Significant*
Growth (G)	0.03	6.84	Significant*
Age (A)	3.12	6.37	Significant*
R ² = 0.99 Adj R ² = 0.99 F = 203.05 D.W = 2.94			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level; Source: Computed.

It is evident from the results that the Ranbaxy Laboratories Ltd, co-efficient of size shows an increase of 28.66 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage, liquidity and operating expenses to sales ratio show that decreases of 2.90 units, 15.19 units and 0.64 units in profitability as a result of one unit increase. It is understood from the results that an increase of inventory turnover ratio, past profitability, growth and age respectively show 11.04 units, 0.77 units, 0.03 units and 3.12 units in profitability as a result of one unit increase, which are statistically significant at 1 per cent level. However, the co-efficient of fixed assets turnover ratio shows 1.44 units increase in profitability as a result of one unit increase which is statistically significant at 5 per cent level.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R^2) which is the measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 99 per cent. On the whole, it can be concluded that Ranbaxy Laboratories Ltd should consider all these possible determinants while considering its profitability.

Sun Pharmaceutical Industries Ltd

The model described above has been estimated for Sun Pharmaceutical Industries Ltd and is presented in Table 3.9. In Sun Pharmaceutical Industries Ltd, the model explains 99 per cent of variation in the profitability of firms. The analysis shows that all the variables are found to be statistically significant in explaining profitability of Sun Pharmaceutical Industries Ltd. It is evident from the results that size is a stronger determinant of profitability followed by inventory turnover ratio, age, fixed assets turnover ratio, past profitability, growth, operating expenses to sales ratio, liquidity and leverage.

It is evident from the results that in Sun Pharmaceutical Industries Ltd, co-efficient of size shows an increase of 5.67 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage, liquidity and operating expenses to sales ratio show that decreases of 6.41 units, 1.23 units and 0.22 units in profitability as a result of one unit increase. It is understood from the result that an increase of inventory turnover ratio, fixed assets turnover ratio, past profitability, growth and age indicate respectively 3.04 units, 2.04 units, 0.41 units, 0.02 units and 2.38 units increase in profitability as a result of one unit increase, which is statistically significant.

Table 3.9: Determinants of Profitability – Multiple Regression Model

Sun Pharmaceutical Industries Ltd

Dependent Variable: Return on Capital Employed (PR)

(PR = 42.41 + 5.67S - 6.41LEV - 1.23LIQ + 3.04ITR + 2.04FATR - 0.22OPES + 0.41PP + 0.02G + 2.38A)

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	42.41		
Size (S)	5.67	2.76	Significant*
Leverage (LEV)	-6.41	1.58	Significant***
Liquidity (LIQ)	-1.23	2.00	Significant**
Inventory Turnover Ratio (ITR)	3.04	3.81	Significant*
Fixed Assets Turnover Ratio (FATR)	2.04	2.53	Significant**
Operating Expenses to Sales Ratio (OPES)	-0.22	1.96	Significant**
Past Profitability (PP)	0.41	3.41	Significant*
Growth (G)	0.02	3.38	Significant*
Age (A)	2.38	2.32	Significant**
R ² = 0.99 Adj R ² = 0.99 F = 89.08 D.W = 1.88			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; ***- Significant at 0.10 level; Source: Computed.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R^2) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 99 per cent. On the whole, it can be concluded that Sun Pharmaceutical Industries Ltd should consider all these possible determinants while considering its profitability.

Torrent Pharmaceuticals Limited

The model described above has been estimated for Torrent Pharmaceuticals Limited and is presented in Table 3.10. In Torrent Pharmaceuticals Limited, the model explains 99 per cent of variation in the profitability of firms. The analysis shows that all the variables except liquidity are found to be statistically significant in explaining the profitability of Torrent Pharmaceuticals Limited. It is evident from the results that size is a stronger determinant of profitability followed by past profitability, age, inventory turnover ratio, growth, operating expenses to sales ratio, leverage, liquidity and fixed assets turnover ratio.

Table 3.10: Determinants of Profitability – Multiple Regression Model

Torrent Pharmaceuticals Limited

Dependent Variable: Return on Capital Employed (PR)

$$(PR = 42.41 + 5.67S - 6.41LEV - 1.23LIQ + 3.04ITR + 2.04FATR - 0.22OPES + 0.41PP + 0.02G + 2.38A)$$

Variables	Beta Co-efficient	t value	Significant / Not Significant
Constant	-11.07		
Size (S)	5.35	2.83	Significant*
Leverage (LEV)	-2.52	3.46	Significant*
Liquidity (LIQ)	-4.67	1.06	Not Significant
Inventory Turnover Ratio (ITR)	0.90	2.46	Significant**
Fixed Assets Turnover Ratio (FATR)	-5.44	2.19	Significant**
Operating Expenses to Sales Ratio (OPES)	-0.30	3.44	Significant*
Past Profitability (PP)	1.42	3.80	Significant*
Growth (G)	0.30	4.30	Significant*
Age (A)	1.04	2.83	Significant*
R ² = 0.99 Adj R ² = 0.98 F = 66.92 D.W = 1.99			

D.W – Durbin Watson; * - Significant at 0.01 level; ** - Significant at 0.05 level; *- Significant at 0.10 level; Source: Computed.**

It is evident from the results that in Torrent Pharmaceuticals Limited, co-efficient of size shows an increase of 5.35 units in profitability as a result of one unit increase in size, which is statistically significant at 1 per cent level. The co-efficient of leverage, liquidity and operating expenses to sales ratio shows a decrease of 2.52 units, 4.67 units and 0.30 units in profitability as a result of one unit increase. It is also apparent from the table that co-efficient of inventory turnover ratio, past profitability, growth and age show 0.90 units, 1.42 units, 0.30 units and 1.04 units increase, which is statistically significant. However, the co-efficient of fixed assets turnover ratio shows a negative result.

The overall explanatory power of regression appears to be good. This may be inferred from the co-efficient of determination (R²) which is a measure of the extent of movement in the dependent variable that is explained by the independent variables. The adjusted explanation is around 98 per cent. On the whole, it can be concluded that Torrent Pharmaceuticals Limited should consider all these possible determinants while considering its profitability.

4. CONCLUSION

It is concluded from the study that the Return on Capital employed or Net profit of the Companies are highly influenced by the Inventory to Turnover, fixed assets to turnover, operating expenses to turnover, Past profitability, growth and years of existence collectively in some Companies and individually in some Companies. The improvement of inventory, fixed assets, operating expenses, past profitability measures, growth factors and increasing in years of existence will greatly increase the return and profitability of the pharmaceutical Companies.

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