



Operating, Financial, and Combined Leverage as Determinants of Profitability: Evidence from Selected BSE-Listed Pharmaceutical Companies (2016–2025)

Ms. Pooja Arvindbhai Pandya¹, Dr. Rajesh A. Mulchandani²

¹Ph.D. Research Scholar, Bhakt Kavi Narsinh Mehta University, Junagadh

²Assoc. Professor, Accountancy, G.E.S. Class II
Government Arts & Commerce College, Vanthali, Junagadh

Abstract – This study investigates how operating, financial, and combined leverage influence the profitability of selected pharmaceutical firms listed on the Bombay Stock Exchange (BSE) for the years 2016 to 2025. Five top pharmaceutical companies were chosen based on their market capitalization, and the research relies on secondary data gathered from their standalone annual reports. The analysis utilized the Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL), Degree of Combined Leverage (DCL), and Earnings Per Share (EPS). Descriptive statistics, One-Way ANOVA, and Pearson's correlation were applied to explore the relationship between leverage and profitability. Results indicate there is no significant difference in operating, financial, and combined leverage among the selected companies, while EPS shows a significant difference. The study concludes that maintaining an optimal level of leverage is essential.

Keywords – Leverage (Operating, financial and combined), Earning Per Share, Pharmaceutical Companies, ANOVA, BSE.

I. INTRODUCTION

Every financial decision made by the company will have financial consequences on the function of the company and will impact the different departments of the organisations. Financial management is decision making on financial matters, implementation of decision and review of implementation. It's all about managing financial function. The foremost objective of financial management is to increase the shareholder's wealth; in other words, it can be called as increasing the profitability of the shareholders. Three important decisions lie behind the achievement of this objective. They are the Financing decision or Capital structure decision, the Investment decision or Capital expenditure decision and the Dividend decision.

The investment decision involves choosing the kind of assets where the money invested by a firm would be placed. The dividend decision is related to the distribution of surpluses. The success of the investment and financial decision will be the bases in making the dividend decision. The financing decision or the capital structure decision is a very important one as it affects the debt-equity ratio (DE) of the company which in turn affects the shareholders' return and risk on the investment, out of the three decisions. The risk of shareholders increases because the borrowed funds carry a fixed interest, which has to be paid whether the company earns profits or not. There is, therefore, a greater return and a greater danger to the owners' money invested in a business if a large proportion of the total capital is borrowed than if a larger proportion of the capital is owned.

On the other hand, if the proportion of the shareholders' funds is more than the proportion of the borrowed funds in the capital structure of the company, the earnings as well the risk of the shareholders will be less. So, the ratio of debt

to equity in a company's capital structure can significantly influence the earning and risk of the company's shareholders. So the management has to make an intelligent use of both operating leverage in profit planning and financial leverage in planning the capital structure.

It assists the management in deciding the profit at different levels of output and sales and in planning accordingly for the appropriate level of operations, taking into account risks to the market. Financial leverage is used by the management to decide on the right and safest ratio of debts and equity in the capital structure, considering financial risks. That means, a company should make use of both the leverage; operating leverage and the financial leverage. An appropriate mix of both leverages promotes company growth, and an inappropriate mix of both the leverages inhibits company growth.

II. LEVERAGE

Leverage is the employment of a firm's fund or its use of an asset in its capital structure that will require a fixed return or fixed cost from the firm. The use of such fund will help the firm to enhance its profitability. The higher the leverage employed by the firm the riskier it will be if the firm's earnings decline relatively over time due to the fixed interest it is paying on the leverage amount borrowed. That is, the leverage effect will be beneficial for the firm if it is able to generate returns exceeding those borrowed.

Operating Leverage:

Operating leverage is the amount of fixed cost used in the firm's operations. The fixed cost expenses will be the expenses that a firm has to cover regardless of the number of products it produces. If there are no sales, then the firm must cover these costs. The firm can use higher amount of operating leverage i.e. using of higher amount of fixed cost



ISSN:3048-7722

when compared to variable cost only when the sales are rising because even a small change in sales will bring a proportionate change in operating profit.

Financial Leverage:

The employment of fixed source of funds such as debt and preference share in the capital structure of the firm along with owner's equity is called financial leverage or trading on equity. Financial leverage can be positive or negative. The leverage is favourable if the company can generate returns which are higher than the borrowing cost. On the other hand, if the company earns a return which is less than the cost of borrowing then the leverage is said to be unfavourable.

Combined Leverage:

A proper proportionate use of operating leverage and financial leverage in the business is called composite leverage. Operating leverage has an impact on the operating profit and financial leverage has an impact on the shareholder or on EPS. Firm needs to employ an appropriate combination of both leverages, if it is to benefit from expanding opportunities for doing business.

III. EARNINGS PER SHARE (EPS)

It is the share of the company's profit that is distributed to every share of common stock that is outstanding. The Earnings Per Share (EPS) is an indication of a company's profitability.

IV. LEVERAGE AND EARNINGS PER SHARE

There is a close relationship between the financial leverage and earnings per share of the company. The effect of financial leverage on EPS will be positive if the degree of financial leverage is high and the ROI is more than cost of debt capital. If the earning power of the firm is less than the lender (that is cost of debt), then the effect of financial leverage is negative.

V. REVIEW OF LITERATURE

The empirical studies conducted in India as well as abroad are presented to discern the impact of Leverage on profitability of the firms.

Meghanathi, P. D., & Chakrawal, A. K. (2022). conducted a study titled "Leverage: An Analysis and its Impact on Profitability with Reference to Selected Oil and Gas Companies in India." They looked at how financial leverage affects Earnings Per Share (EPS) of five leading oil and gas companies from 2016 to 2021. The study used secondary data and applied One-Way ANOVA, correlation, and regression analysis to test its hypotheses. The ANOVA results showed a significant difference in financial leverage and EPS among the companies examined. Correlation analysis indicated a positive relationship between financial leverage and EPS only for Reliance Industries Ltd. The

other companies had a negative relationship. The regression results found that financial leverage significantly impacted EPS only for BPCL and GAIL. There was no significant impact for Reliance Industries Ltd., ONGC, and IOCL.

Meghanathi, P., & Chakrawal, A. (2021). studied the impact of financial leverage on the profitability of Reliance Industries Ltd. The main objective was to analyze financial leverage and examine its effect on the company's profitability. The researcher considered financial leverage as the independent variable and used net profit ratio, earnings per share, return on assets, and return on equity as dependent variables. The study gathered secondary data from the company's financial statements covering the period from 2016-17 to 2020-21. For testing the hypothesis, the researcher used correlation and regression as statistical techniques. The results showed no significant relationship between financial leverage and net profit ratio. However, there was a significant positive relationship between financial leverage and earnings per share, return on equity, and return on assets. The regression results indicated that financial leverage had no significant impact on the profitability of Reliance Industries Ltd during the study period.

Kalpana, V. (2014). conducted a study called "A Study on Leverage Analysis and its Impact on Profitability of Select Steel Companies Traded in BSE" covering the period from 2003 to 2012. The study looked at the relationship between operating leverage, financial leverage, combined leverage, and earnings per share (EPS) of selected steel companies. It also examined how fixed operating costs and fixed financial charges affect the profitability of these firms. The research used secondary data collected from various sources. It employed correlation analysis, tests of significance, and One-Way ANOVA for hypothesis testing. The study found that leverage significantly influences the profitability of the selected steel companies.

Ajmera, M. (2012).

conducted an empirical study titled "Leverage Analysis and Its Impact on Share Price and Earning of the Selected Steel Companies of India." The study involved the relationship between operating leverage, financial leverage, combined leverage, earnings per share (EPS) and price of shares of the selected steel companies. It also examined the impact of fixed operating cost and fixed financial charge on earning power of companies and the relationship between dividend per share (DPS) and EPS. The study used One-Way ANOVA and t-test to test the hypotheses. The results revealed the importance of leveraging analysis to the firms' earnings and market performance.

Akinlo, O., & Asaolu, T. (2012). studied the effect of leverage on profitability of Nigerian firms between 1999–2007. The study was conducted on profit performance of the companies in various industries and it was observed that the overall profit level decreased slightly over the study period. Results indicated that the size of the firms had a significant positive effect on firm profitability, while



ISSN:3048-7722

leverage had significant negative effect on firm profitability. The business growth, higher sales and lower debt ratio leads to higher profitability, the authors concluded.

Rafique, M. (2011). did a study entitled "Effect of Profitability and Financial Leverage on Capital Structure: A Case of Pakistan's Automobile Industry" on 11 listed automobile companies in Pakistan during a five-year timeframe. Correlation coefficient test and regression analysis were used in the study to analyse the relationship between the variables. It was found that the profitability and financial leverage did not have any significant influence on the composition of capital of the selected firms. The study found that there was no statistically significant association between profitability and financial leverage with capital structure of automobile industry in Pakistan during the study period.

Chandrakumarmangalam, S., & Govindasamy, P. (2010). conducted a study titled "Leverage: An Analysis and its Impact on Profitability with Reference to Selected Cement Companies in India" to explore how operating, financial, and combined leverage affect the profitability of certain cement companies. The study also looked at the link between debt-equity ratio and Earnings Per Share (EPS) and examined how fixed operating costs and fixed financial charges impact earnings. The researchers used One-Way ANOVA, t-test, skewness, and kurtosis for data analysis. The findings showed that leverage significantly relates to profitability and growth, suggesting that it plays a key role in affecting the profitability of the studied cement companies.

Amsaveni, R. (2009). has conducted the study on "Impact of Leverage on Profitability of Primary Aluminium Industry in India" to analyze the effect of leverage on profitability of primary aluminium sector in India. The study highlighted the significance of investment and financing decisions, dividend decision and financial success. It pointed out that the proper debt-equity ratio is an important determinant of profitability. Financial performance of the selected companies has been analysed using the tool of leverage. The study found that optimal leverage is an effective financing decision that helps improve profitability and overall financial performance.

VI. OBJECTIVES OF THE STUDY

The main objectives of the study are listed below:

1. To know and examine the leveraged effect of selected pharmaceutical Companies listed in BSE,
2. To calculate the leverages, that is a) operating leverage, b) financial leverage, c) combined leverage.
3. To examine the effect of leverage on the Earning per share (EPS)

VII. HYPOTHESES OF THE STUDY

The main hypotheses of the study are listed below:

1. The Degree of financial leverage has no significant relationship with Earning per share.
2. The Degree of Operating leverage is not related to Earning per share significantly.
3. There is no significant relationship between Degree of combined leverage and earning per share.

VIII. AREA OF THE STUDY

The current study aims at the how leverage affects the profitability of Sun Pharmaceutical Industries, Divi's Laboratories, Torrent Pharmaceuticals, Cipla and Zydus Lifesciences, including a period of ten years from 2016 to 2025.

IX. PERIOD OF THE STUDY

The present study covers a period of ten years from 2016 to 2025.

X. RESEARCH METHODOLOGY

The current study is an analytical and descriptive research design. The information of the select companies has been taken from the annual report and balance sheet released by the companies on the official website of the particular company.

The data for the study has been selected from 5 companies listed in the Bombay Stock exchange as per market capitalization of the companies on the date of 6th July, 2026. They are Sun Pharmaceutical Industries, Divi's Laboratories, Torrent Pharmaceuticals, Cipla and Zydus Lifesciences.

Sample Design and Sampling Technique

The companies are selected based on the market capitalization as on 6th July, 2026.

Sample Size:

The researcher uses the number of five public limited companies as sample size for the study because they have the highest market capitalization.

Data Collection:

The present study is secondary data-based research conducted from the various websites such as money control.com, bseindia.com.

Tools Used for Analysis:

The mean, standard deviation, correlation, and test of significance and analysis of variance (ANOVA) are tools used in the analysis.

XI. LIMITATIONS OF THE STUDY

The limitations of the study are listed below:

1. The project is limited to the annual report of the companies.



ISSN:3048-7722

2. Due to the time constraint only secondary data analysis is performed.
3. There are certain external factors affecting the leverage that are not considered.

The Degree of Operating Leverage (DOL) is a ratio that reflects the relationship between Earnings Before Interest and Taxes (EBIT) and changes in sales. The higher the DOL, the greater the increase in operating profit for a given change in sales, because there are fixed operating costs.

XII. Degree of Operating Leverage

$$\text{DOL} = \% \text{ Change in Sales} / \% \text{ Change in EBIT}$$

Table 1: Calculation of DOL of Selected Pharmaceuticals Companies

Year	Sun Pharmaceutical Industries	Divi's Laboratories	Torrent Pharmaceuticals	Cipla	Zydus Lifesciences
2016	6.02	1.36	3.25	0.58	1.82
2017	-36.79	0.14	3.62	2.89	1.41
2018	12.02	1.74	3.63	11.43	1.68
2019	7.69	1.87	1.91	3.27	5.64
2020	8.77	-0.09	1.09	9.29	0.18
2021	-6.12	1.56	1.93	1.15	0.22
2022	-3.03	1.31	0.02	-0.90	-8.19
2023	6.95	2.62	0.76	-0.22	5.05
2024	-33.78	-7.60	1.68	-	3.75
				80.86	
2025	2.84	1.83	2.12	2.63	1.70
Total	-35.43	4.74	20.01	-	13.26
				50.74	
Mean	-3.54	0.47	2.00	-5.07	1.33
S.D.	17.60	2.95	1.21	26.93	3.83

(Source: From Company's Financial Statement)

The above table shows the year-wise Degree of Operating Leverage (DOL) of selected pharmaceutical companies for the year 2016-2025. In the selected companies, the mean DOL was the highest for Torrent Pharmaceuticals, suggesting that its operating leverage was relatively high and the company was most sensitive to sales changes, resulting in operating profit (EBIT). Zydus Lifesciences was the next with a mean DOL of 1.33, followed by a comparatively lower positive mean of 0.47 reported by Divi's Laboratories. Sun Pharmaceutical Industries and Cipla, on the other hand, had negative mean DOL values of -3.54 and -5.07, respectively, and experienced significant volatility in operating earnings during the study period. In terms of variability, Cipla had the highest standard deviation (26.93) followed by Sun Pharmaceutical Industries (17.60), suggesting that there was significant

variation in operating leverage from year-to-year. Moderate variation was seen in Zydus Lifesciences, with a standard deviation of 3.83, whereas the operating leverage of Divi's Laboratories (2.95) and Torrent Pharmaceuticals (1.21) was relatively stable during the study period. In conclusion, the results indicated that Torrent Pharmaceuticals had the most stable operating leverage whereas, Cipla and Sun Pharmaceutical Industries had the least stable operating cost structure and the least responsiveness of their EBIT to the volume of sales.

ANOVA

Hypothesis Testing:

H₀: The DOL position of the pharmaceuticals companies does not differ significantly.

H₁: The DOL position of the pharmaceuticals companies differs significantly.

Table 2: ANOVA Test for Degree of Operating Leverage

	Sum of Squares (SS)	Degree of Freedom (df)	Mean Square (MS)	F-Ratio	P-Value	F-Critical (5%)
Between Sample	396.4651	4	99.1163	0.4676	0.7592	2.5787
Within Sample	9538.6496	45	211.9700			
Total	9935.1147	49				

From the above ANOVA table, it can be seen that the calculated F value (0.4676) is less than the F value at 5% level of significance (2.5787). Moreover, the p-value (0.7592) is greater than the significance level of 0.05. This means that the null hypothesis is rejected. It can be inferred

that the Degree of Operating Leverage (DOL) for the selected pharmaceutical companies is not statistically different from each other in the period of the study, 2016-2025. While the companies' average DOL values differ, the difference is not statistically significant, suggesting that the



ISSN:3048-7722

operating leverage positions of the companies are comparable in general over the study period.

XIII. DEGREE OF FINANCIAL LEVERAGE

The Degree of Financial Leverage (DFL) reflects the effect a change in Earnings Before Tax (EBT) has on Earnings After Tax (EAT). It is a measure of a company's reliance on fixed financial costs in its capital structure, such as interest costs.

$$DFL = \% \text{ Change in EBIT} / \% \text{ Change in EBT}$$

Table 3: Calculation of DFL of Selected Pharmaceuticals Companies

	Sum of Squares (SS)	Degree of Freedom (df)	Mean Square (MS)	F-Ratio	P-Value	F-Critical (5%)
Between Sample	396.4651	4	99.1163	0.4676	0.7592	2.5787
Within Sample	9538.6496	45	211.9700			
Total	9935.1147	49				

(Source: From Company's Financial Statement)

The Year-wise Degree of Financial Leverage (DFL) of the selected pharmaceutical companies for the year 2016 to 2025 is presented in above table. Torrent Pharmaceuticals had the highest mean DFL of 6.73, indicating that the company had relatively high levels of fixed financial funding and that the earnings before tax (EBT) were more sensitive to operating profit (EBIT) of the selected companies. This high mean is largely driven by the very strong DFL value in 2022. The mean DFL for Divi's Laboratories and Cipla was 1.01, indicating a relatively stable and balanced financial leverage ratio over the course of the study. Sun Pharmaceutical Industries had a comparatively low mean DFL of 0.36 while the lowest DFL Mean was 0.03 for Zydus Lifesciences, primarily because of the large negative DFL in 2020.

With respect to variability, Torrent Pharmaceuticals had the highest standard deviation (16.92), showing large variations in financial leverage and relatively high financial risk. The

other two companies, Zydus Lifesciences and Sun Pharmaceutical Industries, also exhibited a significant difference with standard deviations of 3.88 and 2.95, respectively. Meanwhile, Divi's Laboratories (0.04) and Cipla (0.06) had the lowest standard deviations indicating a very consistent financial leverage pattern and lower financial risk for both firms during the period of study. In general, the results show that Divi's Laboratories and Cipla continued to have a moderate ratio of financial leverage as compared to the other companies, while Torrent Pharmaceuticals had a high ratio of financial leverage with the highest fluctuations between years.

ANOVA

Hypothesis Testing:

H₀: The DFL position of the pharmaceuticals companies does not differ significantly.

H₁: The DFL position of the pharmaceuticals companies differs significantly.

Table 4: ANOVA Test for Degree of Financial Leverage

	Sum of Squares (SS)	Degree of Freedom (df)	Mean Square (MS)	F-Ratio	P-Value	F-Critical (5%)
Between Sample	307.9497	4	76.9874	1.2410	0.3072	2.5787
Within Sample	2791.7387	45	62.0386			
Total	3099.6884	49				

According to the ANOVA results, the F value calculated is lower than the critical F value at the 5% level of significance ($1.2410 < 2.5787$). Moreover, the p value (0.3072) is larger than 0.05. Thus, the null hypothesis is accepted and it is concluded that there is no statistically significant difference between the Degree of Financial Leverage of the companies Sun Pharmaceutical Industries, Divi's Laboratories, Torrent Pharmaceuticals, Cipla and Zydus Lifesciences for the period 2016-2025. The

companies show differences in their mean DFL values but the difference does not seem to be statistically significantly different between the companies.

XIV. DEGREE OF COMBINED LEVERAGE

The Degree of Combined Leverage (DCL) is the overall effect of operating leverage combined with financial



ISSN:3048-7722

leverage on a firm's earnings. It reflects EBT's sensitivity to changes in sales taking into account both fixed operating and fixed financial costs.

$$DCL = \% \text{ Change in Sales} / \% \text{ Change in EBT}$$

Table 5: Calculation of DCL of Selected Pharmaceuticals Companies

Year	Sun Pharmaceutical Industries	Divi's Laboratories	Torrent Pharmaceuticals	Cipla	Zydus Lifesciences
2016	4.06	1.36	3.95	0.60	1.90
2017	-26.15	0.14	3.93	2.62	1.41
2018	-95.23	1.73	5.74	12.27	1.61
2019	13.63	1.86	1.94	3.26	5.32
2020	16.22	-0.10	2.30	8.99	-1.96
2021	-6.06	1.58	4.38	1.14	0.67
2022	-3.65	1.31	1.39	-1.01	-10.15
2023	14.87	2.62	0.57	-0.22	4.63
2024	-36.31	-7.69	1.97	-81.86	3.99
2025	3.26	1.84	2.81	2.65	1.81
Total	-115.36	4.65	28.98	-51.56	9.23
Mean	-11.54	0.47	2.90	-5.16	0.92
S.D.	34.14	2.98	1.57	27.27	4.42

(Source: From Company's Financial Statement)

The above table shows the Year wise Degree of Combined Leverage (DCL) of the selected pharmaceutical companies for the year 2016-2025. The highest average DCL is obtained for Torrent Pharmaceuticals with a mean value of 2.90 which suggests that the operating and financial leverage on the company's earnings is relatively high. This was followed by Zydus Lifesciences having a mean DCL of 0.92 and comparatively lower mean positive DCL of 0.47 for Divi's Laboratories indicating a balanced leverage mix in the study period. Sun Pharmaceutical Industries and Cipla on the other hand had negative mean DCL values of -11.54 and -5.16 respectively which suggested that there were considerable variations in the combined effects of operating and financial leverage on profitability.

As far as variability is concerned, Sun Pharmaceutical Industries has the highest standard deviation (34.14) followed by Cipla (27.27) indicating high fluctuations from

one year to the other and relatively high business risk. The ranges of the other two were comparatively lesser, with Zydus Lifesciences exhibiting moderate range (SD: 4.42) and Divi's Laboratories (SD: 2.98) and Torrent Pharmaceuticals (SD: 1.57) exhibiting comparatively lower ranges indicating lesser volatility in their combined leverage during the study period. In conclusion, it was found that the combined leverage of the companies remained stable for Torrent Pharmaceuticals while the combined leverage of the other two companies was found to be volatile with regards to the impact on the earnings.

ANOVA

Hypothesis Testing:

H₀: The DCL position of the pharmaceuticals companies does not differ significantly.

H₁: The DCL position of the pharmaceuticals companies differs significantly.

Table 6: ANOVA Test for Degree of Combined Leverage

	Sum of Squares (SS)	Degree of Freedom (df)	Mean Square (MS)	F-Ratio	P-Value	F-Critical (5%)
Between Sample	1383.4842	4	345.8711	0.8915	0.4769	2.5787
Within Sample	17459.1403	45	387.9809			
Total	18842.6245	49				

The data presented by the above ANOVA shows that the calculated F-value (0.8915) is less than the critical F-value (2.5787) at 5% level of significance. Moreover, the p-value (0.4769) is greater than 0.05. Thus, the null hypothesis is accepted. Based on the above analysis, it can be concluded that there is no statistically significant difference in the Degree of Combined Leverage (DCL) of the companies namely Sun Pharmaceutical Industries, Divi's Laboratories,

Torrent Pharmaceuticals, Cipla and Zydus Lifesciences from 2016 to 2025. Leverage positions of the companies are not statistically different from one another, even though the average DCL values differ, as a combined group. However, the average DCL values differ between the companies, but the differences are not statistically significant, indicating that the combined companies' leverage positions are statistically comparable over the study period.



V. EARNINGS PER SHARE (EPS)

Table 7: Calculation of EPS of Selected Pharmaceuticals Companies

Year	Sun Pharmaceutical Industries	Divi's Laboratories	Torrent Pharmaceuticals	Cipla	Zydus Lifesciences
2016	-4.50	41.73	102.99	18.21	19.90
2017	-0.10	39.68	50.48	12.13	6.47
2018	1.30	32.76	28.48	18.25	10.66
2019	3.40	50.20	44.05	23.45	14.51
2020	13.40	51.71	55.46	28.76	13.80
2021	8.92	73.63	67.24	30.61	14.42
2022	-0.40	111.07	58.59	36.67	8.38
2023	7.00	68.11	31.07	31.15	15.06
2024	11.90	59.37	40.10	50.51	34.01
2025	17.80	83.20	55.79	63.87	57.39
Total	58.72	611.46	534.25	313.61	194.60
Average	5.87	61.15	53.43	31.36	19.46
S.D.	7.33	23.14	20.39	16.55	15.94

(Source: From Company's Financial Statement)

The above table shows the earnings per share (EPS) of the selected pharmaceutical companies for the study period 2016-2025. Divi's Laboratories Ltd. has the highest average EPS of 61.15 followed by Torrent Pharmaceuticals Ltd. (53.43), Cipla Ltd. (31.36) and Zydus Lifesciences Ltd. (19.46) while Sun Pharmaceutical Industries Ltd. has the lowest average EPS of 5.87. From the results, it can be concluded that Divi's Laboratories is the most efficient company in earning the equity shareholders' earnings during the analysis period.

As revealed by the standard deviation analysis, Divi's Laboratories Ltd company has the highest variation in its EPS (23.14) which means that there was comparatively higher fluctuation in the company's earnings over the study period. Torrent Pharmaceuticals Ltd. (20.39), Cipla Ltd. (16.55) and Zydus Lifesciences Ltd. (15.94) are next. While reporting comparatively lower average earnings per share during the first years of the study period, Sun Pharmaceutical Industries Ltd. had the lowest standard deviation (7.33), which means that it had comparatively low volatility among the companies in the sample.

In conclusion, the results indicate that out of the selected pharmaceutical companies, Divi's Laboratories had the highest earning per share, and the relative stability of the earning per share of Sun Pharmaceutical can be said to be the greatest among them.

ANOVA

Hypothesis Testing:

H₀: The EPS position of the pharmaceuticals companies does not differ significantly.

H₁: The EPS position of the pharmaceuticals companies differs significantly.

Table 8: ANOVA Test for EPS

	Sum of Squares (SS)	Degree of Freedom (df)	Mean Square (MS)	F-Ratio	F-Critical (5%)
Between Sample	21234.77	4	5308.69	17.15	2.58
Within Sample	13931.36	45	309.59		
Total	35166.13	49			

The results of the One-Way ANOVA test performed to test the difference between the Earning Per Share (EPS) of selected pharmaceutical companies for the period 2016-2025 are shown in the above table. The F value obtained is 17.15 again higher than the critical F value of 2.58 at 5% level of significance. Further, the p value (1.31×10^{-8}) is less than 0.05, suggesting that there is a statistical significance between the observed differences. Thus, we reject the null hypothesis (H_0) and accept the alternative one (H_1). It is concluded that there is a significant difference in mean Earning Per Share (EPS) of the selected pharmaceutical companies during the study period which means their earning capacity for equity shareholders differ significantly.

XVI. TEST OF CORRELATION ANALYSIS

Correlation is a quantitative assessment of the relationship between two variables. The range of positive correlation is from +1 to -1. If the correlation is zero, then the variables are not related. A correlation of -1 is a perfectly negative correlation, if one increases, the other decreases. If the correlation is +1, then there is a perfect positive correlation



ISSN:3048-7722

between both variables, so that they move in the same direction together.

Ho: There is no significant relationship between operating leverage and EPS of selected pharmaceuticals companies.

Operating Leverage and EPS:

Table 9: Correlations and T-test Between Degree of Operating Leverage and EPS

Companies	Correlation	Result	T-test (value)	Hypothesis Result
Sun Pharmaceutical Industries	-0.011	Negative	-0.031	Accepted
Divi's Laboratories	0.093	Positive	0.264	Accepted
Torrent Pharmaceuticals	0.157	Positive	0.450	Accepted
Cipla	-0.453	Negative	-1.438	Accepted
Zydus Lifesciences	0.236	Positive	0.689	Accepted

The above table depicts the relationship between Degree of Operating Leverage (DOL) and Earnings Per Share (EPS) of the selected pharmaceutical firms over the years 2016 to 2025. The negative correlation is observed between Sun Pharmaceutical Industries and Cipla while the positive correlation is seen between Divi's Laboratories, Torrent Pharmaceuticals and Zydus Lifesciences. All the calculated t values for the companies however are lower than critical t value (2.306) at 5% level of significance. Thus, the null

hypothesis is accepted, which meant that there was no statistically significant evidence to suggest operating leverage is related to earnings per share for any of the selected pharmaceutical companies over the study period.

Financial Leverage and EPS:

Ho: There is no significant relationship between financial leverage and EPS of selected pharmaceuticals companies.

Table 9: Correlations and T-test Between Degree of Financial Leverage and EPS

Companies	Correlation	Result	T-test (value)	Hypothesis Result
Sun Pharmaceutical Industries	0.377	Positive	1.153	Accepted
Divi's Laboratories	0.648	Positive	2.406	Rejected
Torrent Pharmaceuticals	0.080	Positive	0.227	Accepted
Cipla	0.883	Positive	5.323	Rejected
Zydus Lifesciences	-0.384	Negative	-1.178	Accepted

The above table indicates the relation between the selected pharmaceutical companies' Degree of Financial Leverage (DFL) and Earnings Per Share (EPS) for the period of 2016 to 2025. Sun Pharmaceutical Industries, Divi's Laboratories, Torrent Pharmaceuticals and Cipla have positive correlation while Zydus Lifesciences have a negative correlation. The t values calculated for Divi's Laboratories (2.4064) and Cipla (5.3239) are greater than the critical t value of 2.306, which means that for these two companies, the null hypothesis is rejected as these companies have a statistically significant relationship between the variables DFL and EPS. The calculated t-values are less than the critical value for Sun Pharmaceutical Industries, Torrent Pharmaceuticals and Zydus Lifesciences, suggesting that the relationship between DFL and EPS is not statistically significant and the null hypothesis is accepted.

Combine Leverage and EPS:

Ho: There is no significant relationship between combine leverage and EPS of selected pharmaceuticals companies.

Table 10: Correlations and T-test Between Degree of Combine Leverage and EPS

Companies	Corr e	Result	T-test (value)	Hypothes is Result
-----------	--------	--------	-----------------	--------------------

Companies	Correlation	Result	T-test (value)	Hypothesis Result
Sun Pharmaceutical Industries	0.219	Positive	0.635	Accepted
Divi's Laboratories	0.094	Positive	0.267	Accepted
Torrent Pharmaceuticals	0.208	Positive	0.602	Accepted
Cipla	-0.453	Negative	-1.440	Accepted
Zydus Lifesciences	0.275	Positive	0.811	Accepted

The table below details the relationship between the Degree of Combined Leverage (DCL) and Earnings Per Share (EPS) of some of the selected pharmaceutical companies over the last ten years from 2016 to 2025. Sun Pharmaceutical Industries, Divi's Laboratories, Torrent Pharmaceuticals and Zydus Lifesciences show positive correlation while Cipla shows a negative correlation. The calculated t values of all the companies, however, are below the critical t value of 5% level of significance i.e. ± 2.306 . Thus, the null hypothesis was accepted, and it is concluded that there is no statistically significant relationship between



ISSN:3048-7722

the Degree of Combined Leverage and Earning per Share for the selected pharmaceutical companies in the study period.

XVII. FINDINGS OF THE STUDY

Operating Leverage:

Based on the descriptive statistics, it can be seen that Torrent Pharmaceuticals Ltd. has the highest mean value of Degree of Operating Leverage (2.00) amongst the selected pharmaceutical companies followed by Zydus Lifesciences Ltd. (1.33), Divi's Laboratories Ltd. (0.47), Sun Pharmaceutical Industries Ltd. (-3.54) and Cipla Ltd. (-5.07). The standard deviation is the highest for Cipla Ltd. (26.93), showing more volatility in the operating leverage over the study period.

The study used One-way ANOVA to determine if there was a significant difference between the Degree of Operating Leverage of the selected pharmaceutical companies. The calculated F-value is less than the critical F-value for the 5% level of significance and the p-value is higher than 0.05. Therefore, null hypothesis is accepted, which suggests that there is no significant difference in the Degree of Operating Leverage of the selected pharmaceutical companies in the study period.

Pearson's correlation analysis was carried out to examine the relationship between the Degree of Operating Leverage and Earnings Per Share (EPS). Results showed positive correlation for Divi's Laboratories, Torrent Pharmaceuticals and Zydus Lifesciences and negative correlation for Sun Pharmaceutical Industries and Cipla. For all the selected companies, however, the t values calculated do not have any statistical significance. Hence, it can be concluded that there is no statistically significant relationship between Degree of Operating Leverage and Earning Per Share (EPS) in the study period (2016 – 2025).

Financial Leverage:

The descriptive statistics show that the Degree of Financial Leverage (DFFL) of Torrent Pharmaceuticals Ltd. has the highest Mean (6.73) which means that the average financial leverage of the company was higher as compared to the other companies in the study whereas the Degree of Financial Leverage (DFFL) of Zydus life sciences Ltd. has the highest Standard deviation (16.92) indicating that there is more variation in the financial leverage of the company as compared to the others and comparatively higher financial risk for Zydus life sciences Ltd. during the study period.

The degree of financial leverage of the selected pharmaceutical companies was subjected to One-way ANOVA to determine the variability in the companies. The results of the analysis show that the calculated F value is less than the critical F value at 5 per cent level of significance. Hence, the null hypothesis is accepted and it concludes that there is no significant difference in the

Degree of Financial Leverage of the selected pharmaceutical firms.

Correlation Analysis was performed in order to see the relationship between the Degree of Financial Leverage and Earning Per Share. Only in Divi's Laboratories Ltd. and Cipla Ltd. there exist a significant positive relationship, while the other companies fail to show a statistically significant relationship between financial leverage and EPS.

Combined Leverage:

As seen in the descriptive statistics, Torrent Pharmaceuticals Ltd. has the highest mean Degree of Combined Leverage (2.90), meaning that the business risk and combined leverage of the company was higher on an average level during the study period while the standard deviation of Sun Pharmaceutical Industries Ltd. (34.14) was the highest which meant that there were significant fluctuations in the overall business risk and combined leverage for this company during the period of study.

The selected pharmaceutical companies were selected and the variance of the Degree of Combined Leverage was analysed using the one-way ANOVA method. The analysis indicates that the F-value obtained is less than the critical F-value with 5 per cent level of significance. Therefore, the null hypothesis was accepted and it means that there is no significant difference in Degree of Combined Leverage of selected pharmaceutical companies.

Pearson's correlation analysis was used to examine the relationship between the Degree of Combined Leverage and Earnings Per Share. The companies show positive and negative correlations, but none of the t's calculated is statistically significant. Thus, the Degree of Combined Leverage is not related to Earnings Per Share over the period of study.

Earnings Per Share (EPS)

The descriptive statistics show that the mean Earning Per Share (EPS) of Divi's Laboratories Ltd. is maximum (61.15) followed by that of Torrent Pharmaceuticals Ltd. (53.43) and Cipla Ltd. (31.36). The standard deviation of Divi's Laboratories Ltd. is also the highest (23.14), suggesting that the earnings per share for this company has more variation during the study period.

For the study of variation in Earning Per Share of the selected pharmaceutical companies, one way ANOVA was used. The F-value (17.15) is higher than the critical value of F (2.58) at 5 per cent level of significance. Thus, the null hypothesis is rejected which means that the Earning Per Share of the selected pharmaceutical companies is significantly different for the period under study.

XVIII. SUGGESTIONS OF THE STUDY:

Operating Leverage



ISSN:3048-7722

Companies with high O.L should be looking for ways to better manage their costs by keeping a balance of fixed and variable operating costs to reduce their operating risk, especially Cipla Ltd.

The correlation between Degree of Operating Leverage (DOL) and Earning Per Share (EPS) is statistically insignificant for all the selected pharmaceutical companies so managers should not only rely on operating leverage to boost the earnings of the shareholders but they should focus on improving the operational efficiency and sales growth.

Financial Leverage:

Companies must have the optimum capital structure which is also a balance between debt and equity to ensure that financial risk is also kept under control and thus financial stability is ensured.

The companies should, therefore, continue to use debt judiciously, but the companies showing a positive relationship between the Degree of Financial Leverage (DFL) and EPS should be careful in increasing the financial leverage as it may not enhance the shareholders' earnings to a significant extent.

Combined Leverage:

Companies need to optimise their operating leverage and financial leverage to minimise the risk of the business operating and financial risks as well as enhance financial performance.

There is no statistical relationship between the Degree of Combined Leverage (DCL) and EPS for all the selected pharmaceutical companies thus management should work on improving their profitability by controlling costs, increasing productivity and generating revenues instead of increasing DCL.

Earnings Per Share (EPS):

Companies with relatively low EPS like Sun Pharmaceutical Industries Ltd. should focus on increasing the profitability, efficiency of operations and effective utilization of resources in order to improve the return on the equity capital.

Efficient long-term (financial and operational) strategies for companies to reach sustainable growth in earnings per share and stability in bottom line earnings.

XIX. CONCLUSION

This study aims to observe the influence of operating leverage, financial leverage, combined leverage on Earning Per Share (EPS) of the five selected pharmaceutical companies listed on the BSE for the period of 2016-2025. Based on the descriptive analysis, it was observed that there are some differences in leverage and EPS of the selected companies. The result obtained from One-way ANOVA showed that there is no significant difference between the Degree of Operating Leverage, Degree of Financial

Leverage and Degree of Combined Leverage of the selected pharmaceutical companies; however, a significant difference was found in the Earning Per Share.

The correlation further revealed that the relationship between Operating Leverage and EPS, and between Combined Leverage and EPS for all the selected companies were statistically insignificant. But a positive significant relationship was noticed only in the case of Divi's Laboratories Ltd. and Cipla Ltd. with Financial Leverage and EPS, the rest did not show any significant association. The study concludes that increased leverage does not always impact shareholders' earnings, and pharmaceutical firms should aim to have an optimal capital structure, sound cost management decisions and operational efficiency in order to generate sustainable profitability and to maximize shareholders' wealth.

REFERENCES

1. Meghanathi, P. D., & Chakrawal, A. K. (2022). Leverage'-An Analysis and its impact on profitability with reference to selected oil and gas companies in India. *Journal La Bisecoman*, 3(4), 133-139.
2. Meghanathi, P., & Chakrawal, A. (2021). Impact of financial leverage on profitability of reliance industries LTD. *Journal La Bisecoman*, 2(5), 15-22.
3. Kalpana, V. (2014). A Study on Leverage Analyses and its Impact on Profitability of Select Steel Companies Traded in Bse. *Indian Journal of Applied Research*, 4(10), 276.
4. Ajmera, M. (2012). Leverage Analysis and It's Impact on Share Price and Earning of the Selected Steel Companies of India-An Empirical Study. *International Journal of Research in Commerce & Management* 3 (7), 129-135.
5. Akinlo, O., & Asaolu, T. (2012). Profitability and leverage: Evidence from Nigerian firms. *Global journal of business research*, 6(1), 17-25.
6. Rafique, M. (2011). Effect of profitability & financial leverage on capital structure: A case of Pakistan's automobile industry. Available at SSRN 1911395.
7. Chandrakumarmangalam, S., & Govindasamy, P. (2010). Leverage: an analysis and its impact on profitability with reference to selected cement companies in India. *European Journal of Economics, Finance and Administrative Sciences*, 27(1), 53-65.
8. Amsaveni, R. (2009). Impact of leverage on profitability of primary aluminium industry in India. *Indian Journal of Finance*, 33-41.
9. C.R.Kothari, (1995), "Research Methodology", New Delhi, Wishswa Prakashan.
10. I.M pandey, (2013). *Financial Management*", Vikas publishing house pvt. Ltd 9th edition 2013.
11. Dr.Tulsian P. C "Financial Management", New Delhi, S. Chand & Company Ltd., 2009 2nd Addition.