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A Comparative Study on the Solvency Position of Selected Indian Pharmaceutical Companies

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ABSTRACT

This study examines the solvency position and financial stability of selected Indian pharmaceutical companies, namely Torrent Pharmaceuticals Ltd., Aurobindo Pharma Ltd., and Alkem Laboratories Ltd., over the period 2019–20 to 2023–24. The research is based on secondary data collected from annual reports and published sources. Traditional solvency ratios, including Debt-Equity Ratio, Proprietary Ratio, Interest Coverage Ratio, and Debt to Total Assets Ratio, were used to assess long-term financial sustainability. Statistical measures such as Mean, Standard Deviation, Coefficient of Variation (CV), CAGR, and One-Way ANOVA were employed for analysis. The findings indicate that Alkem Pharma Ltd. maintained the strongest solvency position due to lower leverage and greater financial stability, while Aurobindo Pharma Ltd. demonstrated strong proprietary strength and interest servicing capability. Torrent Pharma Ltd. exhibited relatively higher dependence on debt financing. The study further reveals a declining trend in debt reliance across all selected companies, indicating improved financial sustainability. ANOVA results show significant differences among the companies in Debt-Equity Ratio, Proprietary Ratio, and Debt to Total Assets Ratio, whereas no significant difference was observed in Interest Coverage Ratio. Overall, the selected pharmaceutical companies maintained satisfactory solvency positions and sound long-term financial stability during the study period.

KEYWORDS: *Solvency, Financial Stability, Pharmaceutical Companies, Debt Management, Solvency Ratios, Financial Sustainability, ANOVA.*

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INTRODUCTION

The Indian pharmaceutical industry is one of the major contributors to the country's economic and healthcare sectors. India is known as the "Pharmacy of the World" because of its large-scale production of affordable and quality medicines. The industry ranks third globally in terms of volume and eleventh in terms of value. In FY 2024-25, the pharmaceutical sector recorded a turnover of ₹4,71,898 crore with significant annual growth. India also supplies nearly 20 per cent of the world's generic medicines and plays an important role in meeting global healthcare needs, especially in developing countries. Government initiatives such as the Production Linked Incentive (PLI) scheme have strengthened domestic pharmaceutical manufacturing and reduced dependence on imports of Active Pharmaceutical Ingredients (APIs) As a result, Indian pharmaceutical companies have improved their production capacity and global competitiveness. The sector achieved a total annual turnover of ₹4,71,898 crore ($5,578 million) in FY 2024-25, registering a remarkable year-on-year growth rate of 13.07%. As a global leader in healthcare access, India accounts for approximately 20% of the global generic drug supply, including over 50% of Africa's generic requirements and more than 70% of the world's anti-retroviral drugs. Further, backed by active government interventions like the Production Linked Incentive (PLI) schemes, India has significantly reduced its import dependence by scaling up the domestic

manufacturing of critical bulk drugs such as Penicillin G and Clavulanic Acid, while expanding its Active Pharmaceutical Ingredient (API) market to an estimated ₹1,31,700 crore, positioning the nation as a resilient and self-reliant leader in global healthcare.

Literature Review:

Panigrahi, A. (2019) conducts a study on validity of Altman's "Z" score model in predicting financial distress of pharmaceutical companies. This study assessed the financial health of corporations using financial ratios relating to liquidity, profitability, solvency and operational efficiency. In this study researcher conclude that the Altman model produced early warning signs of distress and was successful in detecting financially troubled business, the Z score model can be a trustworthy instrument for evaluating long term solvency in the pharmaceutical sector.

(Azam et al., 2023) conduct a study on Comparative Analysis of Financial Health of Selected Indian Metals and Mining Companies Using the Altman Z-Score, And Zmijewski Models. Various financial ratios were used in the study's comparison analysis, which revealed notable variations in the chosen organisations' financial stability. The researcher found that, businesses with more profitability and retained earnings maintained higher Z-scores, which are indicative of superior solvency conditions.

(Acharyya, 2023) conduct a study on Assessing the Feasibility of Altman's "Z" Score Model in Identifying Companies on the Verge of Financial Collapse: A Study on Select Indian Pharma Companies. On this study researcher assessed the applicability of Altman's Z score model in identifying financially distressed pharmaceutical firm in india. The researcher found that the model successfully differentiated between financially healthy and vulnerable firms.

Singh & Chakraborty, (2023) have studied financial performance of Indian pharmaceutical industry through recent decade with the help of profitability, liquidity and solvency measures. The analysis concluded that the increase in leverage and financial risk has led to the decrease in the solvency status of some organisations. The researcher conclude that long term debt management became a major challenge after the pandemic.

Shi, W., & Wang, T. (2024) conduct a study a financial risk analysis of pharmaceutical companies using the Altman Z score farmwork. The study observed that rising debt burden and declining profitability adversely affected long term solvency and increased financial distress risk the authors concluded that the Altman model provides a comprehensive measure of financial sustainability by integrating liquidity, solvency and operational efficiency indicator.

Gautam & Madhavi, (2024), conducted research on financial performance of selected Indian Pharmaceutical companies in India and analysed liquidity, profitability and solvency ratio. They found that some organisations maintained stable debt equity ratio and others were having greater financial responsibilities due to growth and R&D expenditure.

Lobo & Bhat, (2024) conduct a study on topic financial fortitude: Indian pharmaceutical sector's performance before and during covid -19 using fussy AHP & TOPSIS methodologies on this study the researcher conclude that solvency and liquidity were significantly influenced during the pandemic year 2020-2022.

Joshi, S. (2024), examined the liquidity performance of specific pharmaceutical businesses in India from 2017 to 2022. The study established an indirect correlation between liquidity management and solvency performance, revealing variations in debt management efficiency among organisations.

Ahlawat D, Sharma P, Kumar S (2024), the researchers studied on financial competitiveness in Indian healthcare companies and included solvency as a major financial parameter. Their findings showed that intellectual capital and operational efficiency positively influenced solvency strength.

Vohra, A. A. (2025) studied on An Empirical Assessment of COVID-19's Impact on the financial of small- cap Pharmaceutical Companies in India. In this study the researcher observed fluctuations in debt equity and interest coverage ratio after the pandemic period.

Objective of the study

- To analyse the solvency position of selected pharmaceutical companies using traditional solvency ratio.
- To evaluate the financial stability of selected pharmaceutical companies through solvency ratio analysis.
- To compare the long-term financial sustainability of selected pharmaceutical companies on the basis of solvency ratio.

Research Methodology

Research Design

The present study is descriptive and analytical in nature. The study aim to examine and compare the solvency position of selected Indian pharmaceutical companies using traditional solvency ratio.

Sample Size

The sample for the study has been drowning from among the pharmaceutical companies of India. The top 3 companies on the basis of their market share are selected for the study. The three pharmaceutical companies that are selected as the proxy for analysing the sector as a whole are:

- Torrent Pharmaceutical Ltd.
- Aurobindo Pharma Ltd.
- Alkem Laboratories Ltd.

Data Collection:

Secondary data has been used for this research like annual reports of companies, previous research paper, magazines journals and internet.

Study Period:

The study covers a period of five from 2019-20 to 2023-24.

Tool and Techniques:

The current study is based on an examination of the financial health and solvency of selected pharmaceutical businesses. A various accounting, financial, and statistical tools were used to reach the study's objectives. For the study, the following methods and tools are used:

1. Solvency Ratio Analysis

Traditional solvency ratio is used to assess the long-term financial stability and debt paying capacity of the selected company. Which are following: -

A. Debt Equity Ratio

This ratio indicates the relationship between total debt and shareholders' equity.

$$\text{Debt Equity Ratio} \frac{\text{Total Debt}}{\text{Shareholders' Equity}}$$

B. Proprietary Ratio

This ratio measures the proportion of shareholders' funds to total assets.

$$\text{Proprietary Ratio} = \frac{\text{Shareholders' Funds}}{\text{Total Assets}}$$

C. Interest Coverage Ratio

This ratio indicates the ability of a company to meet its interest obligations.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

D. Debt to Total Assets Ratio

On the basis of this ratio calculate the proportion of total assets financed through debt.

$$\text{Debt to Total Assets Ratio} - \frac{\text{Total Debt}}{\text{Total Assets}}$$

2. Statistical Techniques:

1. Mean
2. Standard Deviation
3. Coefficient of Variations
4. CAGR

Hypothesis of the study:

H_{01}: There is no significant difference in the solvency position of selected pharmaceutical companies in India.

H_{02}: There is no significant difference in Debt equity ratio of selected pharmaceutical companies in India.

H_{03}: There is no significant difference in Proprietary ratio of selected pharmaceutical companies in India.

H_{04}: There is no significant difference in Interest coverage ratio of selected pharmaceutical companies in India.

H_{05}: There is no significant difference in Debt to Total assets ratio of selected pharmaceutical companies in India.

Data Analysis:

The solvency position and financial stability of the selected pharmaceutical companies have been examined through traditional solvency ratios. Statistical measures such as Mean, Standard Deviation (SD), Coefficient of Variation (CV) and Compound Annual Growth Rate (CAGR) have also been used to evaluate the consistency and growth trend of the selected variables during the study period.

Debt Equity Ratio Analysis:

The Debt Equity Ratio is a solvency ratio that analyses the correlation between a company's total debt and equity of its shareholders. It indicates the level of that's a company depends on borrowed funds to finance its operations in comparison to the funds of its proprietors. A lower debt equity ratio indicates a stronger financial position and reduced financial risk, and a higher ratio suggests a larger dependent on external debt financing (Pandey, 2019).

$$\textit{Debt Equity ratio} = \frac{\textit{Total Debt}}{\textit{Shareholders Equity}}$$

Table 1: Debt-Equity Ratio of selected pharmaceutical companies

Companies / Year	Torrent Pharma Ltd	Aurobindo Pharma ltd	Alkem Pharma Ltd
2019-20	0.76	0.29	0.19
2020-21	0.73	0.25	0.17
2021-22	0.53	0.11	0.26
2022-23	0.71	0.23	0.12
2023-24	0.49	0.14	0.09
Mean	0.64	0.20	0.17
SD	0.12	0.08	0.07
CV	19.32	37.27	39.64
CAGR	-10.38%	-16.94%	-17.28%

Source: - Compiled and computed from various Annual reports of selected Pharmaceutical Companies.

Interpretation

Torrent Pharma Ltd. has been showed mean Debt–Equity Ratio of 0.64, which indicates a comparatively higher reliance on borrowed funds in its capital structure among the selected firms. The standard deviation value of 0.12 suggests moderate fluctuations in leverage over the study period. The coefficient of variation of 19.32 reflects relatively lower dispersion compared to the other companies, indicating a more consistent pattern in the ratio. The CAGR of -10.38% highlights a downward movement in the debt–equity ratio, suggesting a continuous reduction in dependence on external financing and an improvement in long-term financial stability.

Aurobindo Pharma Ltd. has been reported an average of ratio is 0.20, which reflects a relatively safe capital structure with limited dependence on debt financing. The standard deviation of 0.08 indicates moderate variation in the ratio across the years. The CV of 37.27 suggests a comparatively higher level of fluctuation in financial leverage. The CAGR of -16.94% shows a consistent declining trend in leverage, indicating strengthening solvency and reduced reliance on borrowed capital over time.

Alkem Pharma Ltd. recorded the lowest mean ratio of 0.17, indicating minimal use of debt and a comparatively strong solvency position. The standard deviation of 0.07 reflects limited absolute variation over the period. However, the CV of 39.64 indicates relatively higher inconsistency due to the lower mean value. The CAGR of -17.28% represents a continuous reduction in debt usage, signifying an improvement in capital structure stability.

ANOVA test of Debt equity ratio

H_0 - There is no significant difference in Debt equity ratio of selected pharmaceutical companies in India.

ANOVA: Single Factor

Groups	Count	Sum	Average	Variance
Torrent Pharma Ltd	5	3.22	0.644	0.01548
Aurobindo Pharma ltd	5	1.02	0.204	0.00578
Alkem Pharma Ltd	5	0.83	0.166	0.00433

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.70588	2	0.35294	41.37632	4.13E-06	3.885294
Within Groups	0.10236	12	0.00853			
Total	0.80824	14				

Source : Author's calculation through EXCEL

** at 5% significance level

The One-Way ANOVA test was conducted to examine whether there is a significant difference in the Debt Equity Ratios of the selected pharmaceutical companies. The calculated F-value (41.376) is greater than the table value (3.885), and the p-value (0.00) is less than the significance level of 0.05. Therefore, the null hypothesis is failed to accept.

Proprietary Ratio:

Proprietary Ratio is a solvency ratio that measures the proportion of shareholders' funds to total assets of a company. It indicates the extent to which total assets are financed by owners' funds rather than external liabilities. A higher proprietary ratio reflects stronger financial stability and better solvency position, whereas a lower ratio indicates greater dependence on outsiders' funds (Pandey, 2019).

$$\text{Proprietary ratio} = \frac{\text{Shareholder's Funds}}{\text{Total Assets}}$$

Table 2: Proprietary Ratio of selected pharmaceutical companies

Companies / Year	Torrent Pharma Ltd	Aurobindo Pharma ltd	Alkem Pharma Ltd
2019-20	0.43	0.67	0.69
2020-21	0.51	0.69	0.71
2021-22	0.57	0.79	0.66
2022-23	0.50	0.72	0.73
2023-24	0.55	0.78	0.75
Mean	0.51	0.73	0.71
SD	0.05	0.06	0.03
CV	10.45	7.73	4.92
CAGR	6.38	4.12	2.18

Source: - Compiled and Computed from various Annual reports of selected Pharmaceutical Companies.

Interpretation:

Torrent Pharma Ltd**.** has been showed an average proprietary ratio of 0.51, suggesting a relatively lower contribution of shareholders' funds in total assets compared to other companies. The standard deviation of 0.05 indicates moderate variation over time. The CV of 10.45 reflects comparatively lower stability among the selected firms. The CAGR of 6.38% indicates an upward trend in the proprietary ratio, signifying continuous improvement of owners' funds in the capital structure.

Aurobindo Pharma Ltd. has been recorded the highest mean value of 0.73, reflecting a stronger dependence on equity financing and a comparatively stable financial structure. The standard deviation of 0.06 shows moderate fluctuations during the study period. The CV of 7.73 indicates relatively stable performance compared to other firms. The CAGR of 4.12% highlights a steady improvement in the proportion of shareholders' funds**,** indicating gradual strengthening of financial stability.

Alkem Pharma Ltd. has been registered a mean ratio of 0.71, indicating a strong level of owners' funds supporting total assets. The standard deviation of 0.03 reflects very low variation, suggesting high consistency over time. The CV of 4.92 confirms the most stable performance among all selected companies. The CAGR of 2.18% shows a mild upward trend, indicating slow but consistent improvement in proprietary position.

ANOVA test of Proprietary Ratio

H_0 - There is no significant difference in Proprietary ratio of selected pharmaceutical companies in India.

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance		
Torrent Pharma Ltd	5	2.57	0.51	0.003		
Aurobindo Pharma ltd	5	3.65	0.73	0.003		
Alkem Pharma Ltd	5	3.55	0.71	0.001		

ANOVA

Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	0.143	2	0.07	29.52	2E-05	3.89
Within Groups	0.029	12	0			
Total	0.172	14				

Source : Author's calculation through EXCEL

** at 5% significance level

The One-Way ANOVA test has been conducted to analyse the difference in Proprietary Ratios among Torrent Pharma Ltd, Aurobindo Pharma Ltd, and Alkem Pharma Ltd. The calculated F-value (29.517) is greater than the critical F-value (3.885), and the p-value (0.00) is less than the significance level of 0.05. Therefore, the null hypothesis is failed to accept. This indicates that there is a statistically significant difference in the Proprietary Ratios of the selected pharmaceutical companies.

Interest Coverage ratio:

Interest Coverage Ratio is a solvency ratio that measures the ability of a company to meet its interest obligations from operating earnings. It shows how many times a company's earnings before interest and tax (EBIT) can cover its interest expenses. A higher ratio indicates stronger financial stability and better debt servicing capacity, whereas a lower ratio reflects higher financial risk and weaker solvency position (Pandey, 2019).

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

Table 3: Interest Coverage Ratio of selected pharmaceutical companies

Companies / Year	Torrent Pharma Ltd	Aurobindo Pharma ltd	Alkem Pharma Ltd
2019-20	3.59	10.74	35.57
2020-21	5.09	147.2	44.89
2021-22	7.21	97.66	47.26
2022-23	6.30	22.87	16.36
2023-24	7.32	14.16	20.91
Mean	5.90	58.53	33.00
SD	1.57	61.07	13.92
CV	26.61	104.34	42.17
CAGR	19.48	7.15	-12.44

Source: - Compiled and computed from various Annual reports of selected Pharmaceutical Companies.

Interpretation:

Torrent Pharma Ltd. has been reported a mean Interest Coverage Ratio of 5.90, which indicates a satisfactory ability to meet interest obligations from operating earnings. The standard deviation of 1.57 reflects comparatively lower fluctuations in the ratio during the study period. The coefficient of variation of 26.61 indicates relatively stable performance and consistency in debt servicing capability. The CAGR of 19.48% reveals a continuous improvement in the company's interest coverage capacity, indicating strengthening operational earnings and reduced financial risk over time.

Aurobindo Pharma Ltd. recorded an average Interest Coverage Ratio of 32.03, reflecting a very strong ability to cover interest expenses from operating profits. The company reported exceptionally high ratios of 147.20 times in 2020-21 and 97.66 times in 2021–22. These unusually high values were mainly due to substantially higher EBIT and comparatively lower finance costs during those years. This indicates that the company generated strong operating earnings while maintaining limited interest obligations, thereby strengthening its debt servicing capability. However, the standard deviation of 36.96 indicates substantial fluctuations in earnings relative to interest obligations during different years. The coefficient of variation of 115.39 shows a high degree of inconsistency in the ratio over the study period. The CAGR of 7.15% indicates an overall improving trend in the company's interest servicing capacity despite variations in performance.

Alkem Pharma Ltd. has been observed the highest average Interest Coverage Ratio of 33.00 among the selected companies, indicating excellent debt servicing capability and strong solvency position. The standard deviation value of 13.92 suggests moderate fluctuations in the ratio over the years. The coefficient of variation of 42.17 reflects moderate inconsistency in performance. However, the negative CAGR of –12.44% indicates a declining trend in interest coverage capacity, which may reduce future debt servicing efficiency if the trend continues.

ANOVA test of Interest coverage ratio

H_0 - There is no significant difference in Interest Coverage ratio of selected pharmaceutical companies in India.

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance		
Torrent Pharma Ltd	5	29.51	5.902	2.47117		
Aurobindo Pharma ltd	5	292.63	58.526	3729.436		
Alkem Pharma Ltd	5	164.99	32.998	193.5956		

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	6925.3	2	3462.63	2.646258	0.1117	3.885
Within Groups	15702	12	1308.5			
Total	22627	14				

Source: Author's calculation through EXCEL
** at 5% significance level

The One-Way ANOVA test was conducted to examine whether there is a significant difference in the Interest Coverage Ratio among the selected pharmaceutical companies. The calculated F-value (2.646) is lower than the critical F-value (3.885), and the p-value (0.1117) is greater than 0.05. Therefore, the null hypothesis is accepted.

On the basis of the above table there is no statistically significant difference in the Interest Coverage Ratio of Torrent Pharma Ltd., Aurobindo Pharma Ltd., and Alkem Pharma Ltd. during the study period. Although Aurobindo Pharma Ltd. reported a higher average ratio and greater fluctuations due to exceptionally high ICR values in some years, the overall difference among the selected companies was not statistically significant.

Debt to Total Assets Ratio:

Debt to Total Assets Ratio is the proportion of total debt to total assets of a company. It indicates the extent to which company assets are financed through borrowed funds. A higher ratio reflects greater financial risk and weaker solvency position, whereas a lower ratio indicates stronger financial stability and lower dependence on external debt (Pandey, 2019).

$$\text{Debt to Total Assets Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

Table 4: Debt to Total Assets Ratio of selected pharmaceutical companies

Companies / Year	Torrent Pharma Ltd	Aurobindo Pharma ltd	Alkem Pharma Ltd
2019-20	0.33	0.19	0.13
2020-21	0.37	0.17	0.12
2021-22	0.30	0.08	0.17
2022-23	0.35	0.17	0.09
2023-24	0.27	0.11	0.07
Mean	0.33	0.14	0.12
SD	0.04	0.04	0.04
CV	12.79	30.81	34.15
CAGR	-4.91	-12.45	-15.35

Interpretation:

Torrent Pharma Ltd**.** has been showed an average ratio of 0.33, indicating a comparatively higher proportion of assets financed through debt. The standard deviation of 0.04 reflects moderate variation during the period. The CV of 12.79 indicates relatively stable behaviour in the ratio. The CAGR of -4.91% suggests a continuous reduction in debt financing**,** indicating improvement in capital structure over time.

Aurobindo Pharma Ltd**.** has been recorded a mean value of 0.14, indicating limited dependence on borrowed funds. The standard deviation of 0.04 shows moderate fluctuations. The CV of 30.81 reflects moderate instability in the ratio. The CAGR of -12.45% represents a declining trend in leverage, showing strengthening solvency position.

Alkem Pharma Ltd. reported the lowest mean ratio of 0.12, indicating minimal reliance on external financing and a strong solvency position. The standard deviation of 0.04 indicates stable variation. The CV of 34.15 reflects comparatively higher inconsistency. The CAGR of **-**15.35% indicates a continuous reduction in debt usage**,** reflecting improvement in financial stability**.**

ANOVA test of Debt to Total Assets Ratio

H_0 - There is no significant difference in Debt to Total Assets Ratio of selected pharmaceutical companies in India.

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.128086	2	0.064043	36.22994	0.00	3.885294
Within Groups	0.021212	12	0.001768			
Total	0.149298	14				

Groups	Count	Sum	Average	Variance
Torrent Pharma Ltd	5	1.625885	0.325177	0.001731
Aurobindo Pharma ltd	5	0.722688	0.144538	0.001983
Alkem Pharma Ltd	5	0.583676	0.116735	0.001589

Source: Author's calculation through EXCEL
** at 5% significance level

The One-Way ANOVA test was conducted to examine the difference among the selected pharmaceutical companies. The calculated F-value (36.230) is greater than the critical F-value (3.885), and the p-value (0.00) is less than the significance level of 0.05. Therefore, the null hypothesis is failed to accept. This indicates that there is a statistically significant difference among Torrent Pharma Ltd, Aurobindo Pharma Ltd, and Alkem Pharma Ltd with respect to the Debt to Assets ratio during the study period.

Findings of the Study

The present study analysed the solvency position and long-term financial stability of selected Indian pharmaceutical companies, namely Torrent Pharma Ltd., Aurobindo Pharma Ltd., and Alkem Pharma Ltd., with the help of traditional solvency ratios such as Debt-Equity Ratio, Proprietary Ratio, Interest Coverage Ratio, and Debt to Total Assets Ratio. The major findings of the study are summarized below:

The analysis of Debt–Equity Ratio revealed that Alkem Pharma Ltd. maintained the lowest average leverage among the selected companies, indicating lower dependence on borrowed funds and a comparatively stronger solvency position. Torrent Pharma Ltd. showed comparatively higher reliance on debt financing during the study period.

The Proprietary Ratio analysis indicated that Aurobindo Pharma Ltd. possessed the highest proportion of shareholders' funds in total assets, reflecting a stronger ownership-financed capital structure and better financial stability. Alkem Pharma Ltd. also maintained a stable and satisfactory proprietary position throughout the study period.

The Interest Coverage Ratio analysis showed that all the selected pharmaceutical companies maintained adequate ability to meet their interest obligations efficiently. Aurobindo Pharma Ltd. and Alkem Pharma Ltd. reported comparatively stronger interest servicing capacity than Torrent Pharma Ltd. Further, Aurobindo Pharma Ltd. recorded exceptionally high ICR values during 2020–21 and 2021–22 due to higher operating earnings and lower finance costs. However, the ANOVA result confirmed that the overall difference in Interest Coverage Ratio among the selected companies was not statistically significant.

The Debt to Total Assets Ratio analysis highlighted that Alkem Pharma Ltd. depended less on external liabilities for financing its assets, whereas Torrent Pharma Ltd. showed comparatively higher utilization of debt in financing total assets.

The Coefficient of Variation analysis indicated that Alkem Pharma Ltd. maintained greater stability and consistency in most solvency indicators, while Aurobindo Pharma Ltd. experienced higher fluctuations in certain ratios, particularly in Interest Coverage Ratio.

The CAGR analysis revealed that the selected pharmaceutical companies gradually reduced their dependence on debt financing during the study period, indicating improvement in long-term solvency and financial sustainability.

The ANOVA results further confirmed that significant differences existed among the selected pharmaceutical companies with respect to Debt–Equity Ratio, Proprietary Ratio, and Debt to Total Assets Ratio. However, no statistically significant difference was observed in the Interest Coverage Ratio, which indicates that all the companies maintained satisfactory capability to fulfil their interest obligations.

Conclusion of the Study

The study concludes that the selected Indian pharmaceutical companies maintained a satisfactory solvency position and sound financial stability during the study period from 2019-20 to 2023-24. The analysis of traditional solvency ratios fulfilled the objectives of evaluating and comparing the long-term financial sustainability of the selected companies.

Among the selected firms, Alkem Pharma Ltd. emerged as the financially strongest company due to its lower leverage position, reduced dependence on

external borrowings, and comparatively stable solvency performance. Aurobindo Pharma Ltd. also demonstrated strong financial stability through higher proprietary strength and exceptionally strong interest servicing capacity in certain years. Torrent Pharma Ltd., although financially stable, showed comparatively higher dependence on debt financing, which exposed the company to relatively higher financial risk.

The study further concludes that all the selected pharmaceutical companies possessed adequate ability to meet their long-term obligations and maintain financial sustainability.

The ANOVA analysis established significant differences among the companies in terms of Debt–Equity Ratio, Proprietary Ratio, and Debt to Total Assets Ratio. However, no significant difference was found in the Interest Coverage Ratio, indicating that all the selected companies maintained satisfactory debt servicing capability during the study period.

Overall, the study confirms that the Indian pharmaceutical industry maintains a healthy solvency position and is gradually strengthening its long-term financial stability through reduced dependence on external debt and improved financial management practices.

Suggestions of the Study:

- Torrent Pharma Ltd. should focus on reducing dependence on external borrowings and strengthening its equity base in order to improve long-term solvency and financial stability.
- Aurobindo Pharma Ltd. should maintain consistency in operating earnings and control fluctuations in Interest Coverage Ratio to ensure stable debt servicing performance in future years.
- Alkem Pharma Ltd. should continue its conservative financing strategy and maintain balanced utilization of debt and equity to preserve its strong solvency position.
- The selected pharmaceutical companies should continuously monitor solvency indicators and adopt efficient debt management practices to reduce financial risk and strengthen long-term sustainability.
- Companies should emphasize better utilization of retained earnings and internal funds instead of excessive dependence on external financing sources.
- The selected pharmaceutical companies should improve operational efficiency and profitability, as stronger earnings enhance interest servicing capability and overall financial health.
- Long-term financial planning and proper risk management strategies should be adopted by pharmaceutical companies to maintain stability in the competitive and research-oriented business environment.

Limitations of the Study

- The study is limited only to three selected Indian pharmaceutical companies, namely Torrent Pharma Ltd., Aurobindo Pharma Ltd., and Alkem Pharma Ltd. therefore, the findings may not represent the entire pharmaceutical industry in India.
- The present study is based on secondary data collected from annual reports, journals, websites, and other published sources. Hence, the accuracy of the study depends upon the reliability of the published financial data.
- The study covers a limited period of five years from 2019–20 to 2023–24. A longer study period may provide more comprehensive and reliable results regarding solvency trends.
- The analysis is confined only to traditional solvency ratios such as Debt–Equity Ratio, Proprietary Ratio, Interest Coverage Ratio, and Debt to Total Assets Ratio. Other financial indicators and advanced models of financial distress have not been included in the study.
- The study focuses mainly on quantitative financial analysis and does not consider qualitative factors such as managerial efficiency, research and development capability, market competition, and technological advancement, which may also influence the solvency position of companies.

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