A Study on the Operational Efficiency of Selected Pharmaceutical Companies in India

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Abstract

The Indian pharmaceutical industry has emerged as a significant contributor to the global healthcare market because of its innovation, cost efficiency, and expanding production capacity. This study analyzes the financial and operational performances of ten leading pharmaceutical companies in India—Cipla, Sun Pharmaceutical Industries, Aurobindo Pharma, Dr. Reddy's Laboratories, Cadila Pharmaceuticals, Glaxo Smith Kline Pharmaceuticals Ltd, Glenmark Pharmaceuticals, Torrent Pharmaceuticals, Lupin Limited, and Ranbaxy Laboratories—during the period 2012–13 to 2021–22. The primary objective was to evaluate their financial efficiency and operational performance using various accounting and statistical measures. The study is based on secondary data collected mainly from the PROWESS database of the Centre for Monitoring Indian Economy (CMIE), along with information from the Bombay Stock Exchange and other reliable sources. Financial performance was assessed through ratio analysis covering profitability, liquidity, solvency, asset utilisation, and working capital efficiency. Statistical techniques, such as mean, standard deviation, variance, skewness, kurtosis, and compound annual growth rate (CAGR), correlation, and regression analysis, were applied using Microsoft Excel and SPSS.

The results reveal that the selected companies exhibit satisfactory overall financial performance, although moderate fluctuations are observed across the study period. Cipla records the highest mean production and sales performance, indicating its dominant market position, while Glenmark Pharmaceuticals demonstrates the highest growth rate. Stability in production is observed in Glaxo Smith Kline Pharmaceuticals Ltd. and Ranbaxy Laboratories, whereas higher variability is found in Torrent Pharmaceuticals and Lupin Limited. Regression analysis further indicates that company size, growth, GDP, leverage, and cash conversion cycle significantly influence liquidity This study assesses the profitability of the Indian pharmaceutical industry. It helps companies and investors understand its financial efficiency. It aims to help management identify its financial problems at present and the specific areas in the business that might need some effort for more effective and efficient utilisation of its resources. The study concludes that efficient asset utilisation, improved sales performance, and increased investment are crucial for sustaining long-term growth and competitiveness in the Indian pharmaceutical industry.

Keywords: Return on Investment (ROI), Bio-Pharmaceuticals, DuPont Analysis, Assets Utilization, Liquidity, Working Capital Efficiency.

Introduction

The Indian pharmaceutical industry plays a vital role in the global healthcare market because of its continuous growth, innovation, and cost-effectiveness. Over the years, the industry has rapidly expanded and has become an important contributor to both the national economy and global medicine supply. However, pharmaceutical companies face several challenges, such as intense competition, high research and development costs, regulatory pressures, and fluctuations in production and sales. These challenges necessitate that

companies maintain strong financial and operational performance. Differences in profitability, liquidity, production levels, and overall financial efficiency can be observed among pharmaceutical companies, which may affect their long-term stability and growth. Therefore, it is important to analyse and compare the financial performances ofselected pharmaceutical companies in India. The present study aims to analyse the overall financial performance of the Indian pharmaceutical industry, understand and compare the importance of financial performance among selected pharmaceutical companies, examine the application of various accounting ratios, such as profitability, liquidity, activity, solvency, and efficiency ratios, and compare the liquidity positions of the selected companies. The study evaluates these aspects using statistical tools and financial analysis for a period of ten years from 2012–13 to 2021–22 to provide insights into the financial efficiency and operational performance of pharmaceutical companies in India.

Review of Literature

S. Christina Sheela and Dr. K. Karthikeyan1 studied the financial performance of the pharmaceutical industry by analysing three leading companies—Cipla, Dr. Reddy's Laboratories, and Ranbaxy Laboratories—for the period 2003–2012. The main objective of the study was to calculate the return on equity (ROE) and return on investment (ROI), rank the companies, and evaluate their financial performance using DuPont analysis. The findings revealed that Cipla had the highest ROE (23.10) and ROI (0.21), followed by Dr. Reddy's Laboratories with an ROE of 17.00 and ROI of 0.18. Ranbaxy Laboratories ranked third with an ROE of 16.16 and ROI of 0.13. The study concluded that Cipla improved its financial performance by effectively controlling expenses and costs.

Karunakar, 2 in his article, examined the evaluation and growth of the Indian pharmaceutical industry. The study analysed industry performance and the growth strategies adopted by Indian pharmaceutical companies, particularly generics, biosimilars, and formulations. Economic drivers, such as rising income levels, increasing penetration of health insurance, and expansion of pharmaceutical distribution networks in rural areas, are expected to further boost industry growth. Additionally, policy support from the Government of India through "Pharma Vision 2020" aims to position India as a global leader in end-to-end drug manufacturing.

Kumar et al., (2012)3 in their article Financing Decision: A Pharmaceutical Companies in India, analyzed the capital structures pattern of selected pharmaceutical companies namely Dabur India Ltd, Cipla, Aurobindo Pharma Ltd, Cadila Health Care Ltd. for the period of five years ranging from 2007 – 2011. Their study revealed that the capital structure decisions of the selected pharmaceutical companies had very little effect on their investment patterns, which defined the company 's use of long-term sources of funds to finance its current assets and its operational activities of its business with the objective of attaining long-term solvency and maximising profitability at the least cost of capital.

Vijayalakshmi and Srividhya (2014)4 conducted a study on the financial performance of the Indian pharmaceutical industry. In their study, they selected the top 10 companies listed in major stock exchanges for five years, from 2010 to 2014. To test the impact of profitability by different independent variables, they applied multiple regression models and found that four independent variables–gross profit ratio, operating profit ratio, net profit ratio, and return on equity (ROE)–significantly affected firms' financial performance. Finally, they concluded that an increase in profitability would lead to greater efficiency and improve the financial performance of companies in the future and that the profitability position of the selected pharmaceutical companies in India was satisfactory during the study period.

Statement of the Problem

The Indian pharmaceutical industry has grown rapidly and plays an important role in both the national economy and global healthcare. Despite this growth, pharmaceutical companies face several challenges, such as intense competition, high research and development costs, and strict regulatory requirements. These challenges necessitate that companies maintain strong financial and operational performance. Variations in production, sales, profitability, and liquidity can be observed among

pharmaceutical companies. Such differences may affect their financial stability and long-term sustainability. Therefore, it is important to analyse and compare the financial performances of selected pharmaceutical companies in India. This study focuses on evaluating financial efficiency using various accounting ratios and statistical techniques. It examines production trends, profitability, liquidity, and other financial indicators. The analysis covers a ten-year period from 2012–13 to 2021–22. The results of this study will help management, investors, and policymakers understand the financial performance and operational efficiency of pharmaceutical companies in India.

Objectives of the Study

- The primary objective of this study is to analyse the overall financial performance of the Indian pharmaceutical industry.
- □□□□□□□□□□□□□□□□□□□□: To understand and compare the concept and importance of financial performance among selected pharmaceutical companies in India.
- To present the study and explain the use of different accounting ratios in terms of profitability, liquidity, activity, solvency, and efficiency for evaluating the financial performance of selected Indian pharmaceutical companies.
- To examine and compare the liquidity positions of the selected pharmaceutical companies.

Scope of the Study

This study aims to assess the profitability of the pharmaceutical industry in India. The findings may help companies and investors understand financial efficiency. The study also assists management in identifying current financial problems and specific business areas that require improvement for more effective and efficient utilisation of resources.

Methodology of the Study

Research Design

This study is based on an analytical and descriptive research design. It aims to evaluate the financial and operational performances of selected pharmaceutical companies in India using financial ratios and statistical tools.

Sample Selection

The study covers ten leading pharmaceutical companies in India, namely, Cipla, Sun Pharmaceutical Industries, Aurobindo Pharma, Dr. Reddy's Laboratories, Cadila Pharmaceuticals, Glaxo Smith Kline Pharmaceuticals Ltd, Glenmark Pharmaceuticals, Torrent Pharmaceuticals, Lupin Limited, and Ranbaxy Laboratories. These companies were selected based on their listing in the Bombay Stock Exchange, availability of financial data for the past ten years, and market capitalisation exceeding Rs.15,000 crore.

Period of the Study

The study covers a period of ten years from the financial year 2012–13 to 2021–22 to analyse trends and financial performance over a longer timeframe.

Sources of Data

The study mainly relies on secondary data. The required financial data were collected from the PROWESS database maintained by the Centre for Monitoring Indian Economy. Additional information was gathered from companies' annual reports, BSE publications, financial journals, business newspapers, and other reliable Internet sources.

Tools for Analysis

To evaluate the financial performance of the selected companies, various financial ratios, such as profitability, liquidity, activity, solvency, and efficiency ratios, were used. Statistical tools, including mean, standard deviation, variance, skewness, kurtosis, compound annual growth rate (CAGR), correlation, and regression analysis, were applied. The analysis was conducted using Microsoft Excel and SPSS software.

Hypothesis Testing

Both parametric and nonparametric statistical tests were used to test the formulated hypotheses and examine the significance of variations in production trends and profitability ratios among the selected pharmaceutical companies.

There was no significant difference between the actual production and trend values of production among different years in the selected Indian pharmaceutical companies.

There is no significant difference in the mean percentage of profitability ratios between years and between the companies in the selected Indian pharmaceutical companies. correct without mistake

Analysis of Operating Performance

Operating Performance

Analysis of Production Trend

The term 'production' refers to a process by which inputs or factors of production (land, labour, capital, etc.) are converted or transformed into an output. The production process helps a business unit to stay alive. However, the production process does not necessarily involve the physical conversion of raw materials into tangible goods; an input may also be intangible, and an output may be intangible too. Moreover, transporting a commodity from one place to another where it can be used in the production of a commodity can also be referred to as production. Production may be considered the backbone of manufacturing business enterprises.

Table 1 Actual Production of Selected Indian Pharmaceutical Companies

	Aurobin	Cadila	Cipla	Dr Reddy	Glaxo	Glenmark	Lupin	Ranbaxy	Sunpharma	Torrent
Mean	2083.99	1083.06	3571.97	2052.99	1065.97	455.95	1949.92	2606.50	1191.78	690.18
CV	0.60	0.53	0.51	0.62	0.37	0.62	0.65	0.37	0.48	0.70
CAGR										
(in%)	15.69	16.50	16.55	17.48	8.11	20.38	18.81	11.67	13.44	18.46
Kurtosis	-0.39	-0.46	-1.25	-0.69	1.68	-0.12	-0.53	0.58	-0.84	-0.68
Skewness	0.81	0.82	-0.41	0.65	1.46	0.77	0.77	0.87	-0.03	0.84
Range	3749.25	1829.46	5245.75	3658.28	1330.96	925.33	3823.92	3494.67	1839.13	1356.75

Source: Computed from annual reports of the respective companies.

Interpretation

Table 1 presents the statistical analysis of the actual production of selected Indian pharmaceutical companies. Among the companies, Cipla recorded the highest mean production (3571.97), indicating its dominant production scale, followed by Ranbaxy, Aurobindo Pharma, and Dr. Reddy's Laboratories. In contrast, Glenmark Pharmaceuticals recorded the lowest mean production, reflecting a comparatively smaller operational size. The coefficient of variation revealed that Glaxo Smith Kline Pharmaceuticals Ltd. and Ranbaxy exhibited greater stability in production, whereas Torrent Pharmaceuticals and Lupin Limited displayed higher variability. In terms of growth performance, Glenmark recorded the highest CAGR (20.38%), followed by Lupin and Torrent, indicating rapid expansion during the study period, while Glaxo recorded the lowest growth rate (8.11%). The kurtosis values suggest that most companies have a flatter distribution, indicating moderate fluctuations without extreme peaks, except Glaxo and Ranbaxy, which showed relatively higher peakedness. Skewness values were predominantly positive, implying an increasing production trend over time, although Cipla exhibited a slight negative skewness. The range analysis further highlighted that Cipla experienced the widest production fluctuation, whereas Glenmark showed a comparatively limited variation. Overall, the analysis indicated that while Cipla led in production scale, Glenmark demonstrated strong growth momentum, and Glaxo and Ranbaxy maintained relatively stable production performance.

Indian pharmaceutical companies under review were studied by computing various trends related to production, sales, exports, value addition, cash flows from operating activities, cash flows from investment activities, cash flows from financial activities, and net increase in cash/cash equivalents. The financial efficiency of the selected Indian pharmaceutical companies under review was studied by computing various ratios related to profitability, asset utilisation, liquidity, working capital efficiency, solvency, market value, and foreign trade measures.

In Dr. Reddy's Laboratories Ltd., the model explains 74% of the variation in liquidity. The analysis shows that all variables are statistically significant in explaining the liquidity of Dr. Reddy's Laboratories Ltd. The results show that size has a stronger impact on liquidity than profitability,

followed by GDP, growth, CCC, and leverage. The selected independent variables explain 79% of the variation in liquidity in the case of Glaxo Smith Kline Pharma Ltd. The analysis shows that all variables are statistically significant in explaining the liquidity of Glaxo Smith Kline Pharma Ltd.

Findings

The analysis of the production performance of the selected pharmaceutical companies shows noticeable differences among the firms during the study period. Cipla recorded the highest mean production, indicating its strong production capacity, followed by Ranbaxy Laboratories, while Glenmark Pharmaceuticals recorded the lowest mean production. The coefficient of variation indicates that production is more stable in Glaxo Smith Kline Pharmaceuticals Ltd, Ranbaxy Laboratories, and Sun Pharmaceutical Industries, whereas other companies show higher fluctuations. The compound annual growth rate is positive for all selected companies, with Glenmark Pharmaceuticals recording the highest growth during the study period. The analysis of skewness and kurtosis indicates moderate variation in production distribution among the companies. Trend analysis shows that the yearly increase in production is highest for Cipla. Hypothesis testing reveals that there is no significant difference between actual and trend production values for Lupin Limited and Torrent Pharmaceuticals, while significant differences are observed for the remaining companies during the study period.

Future Research Directions

The present study focuses on the operational and financial efficiencies of selected pharmaceutical companies in India over a ten-year period. However, further research can be conducted in several areas. Future studies may include a larger number of pharmaceutical companies to provide a more comprehensive analysis of the industry. Researchers may also extend the study period to examine long-term trends and changes in financial performance. In addition, future research could compare the performance of Indian pharmaceutical companies with international pharmaceutical firms to understand global competitiveness. Further studies may incorporate additional variables, such as research and development expenditures, innovation capability, and technological advancements, to better understand their impact on operational efficiency. Researchers may also apply advanced analytical methods, such as panel data analysis or data envelopment analysis, to measure efficiency more accurately. Moreover, future studies can examine the impact of government policies, healthcare reforms, and regulatory frameworks on the performance of pharmaceutical companies. Such research would provide deeper insights into improving the efficiency, productivity, and competitiveness of the pharmaceutical industry.

Suggestions

The profitability of the selected Indian pharmaceutical companies during the study period was satisfactory. During the study period, there were a few ups and downs in profitability; however, it did not affect the operations of the company to a great extent. If the pharmaceutical industry has to perform well, it has to invest more capital and increase sales; only then will it improve its performance level.

Fixed assets should be promptly used to ensure efficient working capital management.

Conclusion

In conclusion, the production of all the selected Indian pharmaceutical companies showed fluctuating trends throughout the study period. The mean value of production was the highest for Cipla Ltd, followed by Ranbaxy Laboratories Limited. The analysis of company-wise dispersion in the sales trend of the selected Indian pharmaceutical companies reveals that the mean sales rates varied considerably for all the selected companies. The mean value of sales was the highest for Cipla Ltd, followed by Ranbaxy Laboratories Limited, and the lowest mean value was for Glenmark Pharmaceuticals Limited. The cash flows from the operational activities of all the selected Indian pharmaceutical companies showed fluctuating trends throughout the study period. The Indian pharmaceutical industry stands as a testament to the country's capability to excel in innovation, affordability, and accessibility in healthcare. With its strong foundation, technological prowess, and

global outlook, the industry is poised for further expansion and remains a vital contributor to both national economic development and global public health. From 2000 to 2022, the profitability of large pharmaceutical companies was significantly greater than that of other large, public companies, but the difference was less pronounced when considering company size, year, or research and development expenses. Data on the profitability of large pharmaceutical companies may be relevant for formulating evidence-based policies to make medicines more affordable.

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