



ANALYZING THE COVID-19 PANDEMIC'S IMPACT ON INDIAN HEALTHCARE INDUSTRY'S FINANCIAL PERFORMANCE

¹Veera Jain, ²CA Dr. Chandrashekhar Deore,

Research Scholar, Associate Professor

Department of Accountancy

K.P.B. Hinduja College of Commerce, Mumbai, India

Abstract: The Covid-19 pandemic has had a profound impact on the global economy, with the healthcare industry being one of the most affected sectors. In India, the pandemic has not only strained the healthcare system but has also significantly impacted the financial performance of healthcare companies. This study analyzes the impact of the COVID-19 pandemic on key financial metrics of selected Indian healthcare companies, utilizing a comprehensive dataset from the pre- and post-pandemic periods. The data has been analyzed from 11 major healthcare companies listed on the National Stock Exchange from F.Y. 2017-18 to F.Y. 2022-23. Using ratio analysis, we examine Operating Profit Margin (OPM), Return on Equity (ROE), Return on Capital Employed (ROCE), Debt-Equity Ratio (DER), and Total Assets Turnover Ratio (TATR) employing descriptive statistics and Paired Samples t-tests. The results have crucial implications for stakeholders, including policymakers and healthcare administrators, aiming to fortify the healthcare sector against future crises. This study contributes to the understanding of how major disruptions like pandemics can influence financial strategies and operations within healthcare industry.

Keywords: Covid-19, Indian healthcare sector, Financial performance, Operating Profit Margin, Return on Equity, Debt-Equity Ratio, Total Assets Turnover Ratio.

1. Introduction:

Before the Covid-19 pandemic hit, India's healthcare sector was already grappling with challenges such as accessibility, affordability, and the availability of critical resources (Ravichandran, N., 2021). The pandemic further exacerbated these issues, revealing stark disparities in the quality of care between rural and urban regions, as well as between public and private healthcare providers. (Kapoor et al. 2023).

The financial performance of India's healthcare industry has been significantly impacted by Covid-19 India, with noticeable disruptions in healthcare services leading to a sharp decline in the management of non-Covid-19 diseases and routine vaccinations (Kapoor et al., 2023)(Nimavat et al., 2022).

Impact of COVID-19 on Healthcare Services and Operations

The Indian healthcare system faced significant disruptions, particularly with a heavy reliance on imports for pharmacy/drugs raw materials and personal protective equipment (PPE) (Ravichandran, 2021). Public-Private Partnership Strains: The pandemic highlighted the need for better coordination and integration between public and private healthcare establishments, challenging the existing public-private partnership (PPP) models 1. Hospitals postponed elective surgeries to prioritize

COVID-19 cases, affecting the growth of the healthcare industry temporarily. However, sectoral growth has since recovered, showing a compound annual growth rate (CAGR) of about 11% from FY20 to FY23.(Rojan, 2023)

A cohort study in India noted a 54% reduction in new patient registration and significant declines in follow-up visits, hospital admissions, and surgeries during the pandemic (Kapoor et al., 2023). There was a notable decrease in outpatient chemotherapy, major and minor surgeries, and diagnostic testing, indicating a broad impact across various medical services (Kapoor et al., 2023). A tertiary care ophthalmic institute reported a drastic reduction in patient visits and surgeries, highlighting the pandemic's impact on specialized healthcare sectors (Kapoor et al., 2023). The focus on managing the pandemic led to a neglect of chronic conditions and routine vaccinations, which might have severe short and long-term consequences (Nimavat et al., 2022). One of the critical issues has been the delayed diagnosis of non-COVID-19 diseases, such as advanced-stage cancers, necessitating emergency care due to the focus on handling the pandemic.

The pandemic revealed the limitations of the existing healthcare system, with a critical shortage of oxygen, essential drugs, and inadequate ICU facilities leading to higher mortality rates (Kapoor et al., 2023).

Growth Trends in the Healthcare Sector

Hospital Sector Growth: The hospital sector in India is projected to grow at a compounded annual growth rate (CAGR) of 12% until FY26, indicating a robust recovery and expansion post-pandemic (Rojan, 2023). Health insurance premiums have seen a significant rise, with a CAGR of 18% from FY14 to FY21, and are expected to accelerate at a CAGR of 22% over the next three years (Rojan, 2023).

There has been a healthy increase in average revenue per occupied bed, with a 15% growth in FY22 and a 9% growth in FY23, expected to continue at a rate of 4-5% in the coming years (Rojan, 2023).

Financial Performance of Major Healthcare Companies

The top five healthcare companies in India, including Sun Pharma, Cipla, Divi's Lab, Dr. Reddy Lab, and Apollo Hospitals, demonstrated varying growth rates and profitability from FY 2019-20 to FY 2021-22. This variability highlights the diverse impacts of the pandemic on different segments within the healthcare sector (Smriti Suman et al., 2022).

A favorable current ratio post-Covid indicates improved solvency among these top healthcare companies, suggesting a stronger financial stance to withstand future economic challenges (Smriti Suman et al., 2022).

Economic Impact on Households and Government Response

The economic burden of COVID-19 has been substantial on Indian households, with 36% of families using more than one financial strategy to manage expenses related to care in private hospitals (George et al., 2023). For families, the financial impact of Covid admissions varied significantly with severity, costing \$934 for level 1 severity to \$3611 for level 3 (George et al., 2023). In response to the pandemic, the Indian government allocated ₹223,846 crores (US\$ 30.70 billion) for healthcare in the financial year 2021, with ₹64,180 crores (US\$ 8.80 billion) specifically earmarked for strengthening the National Health Mission (Rai & Singh, 2022). The U.S. Government, through USAID, contributed over \$226 million in COVID-19 relief to India, which included more than \$40 million to support India's COVID-19 vaccination program (<https://www.usaid.gov/india/coronavirus>).

Broader Economic Effects

The first lockdown led to a significant contraction in the Gross Domestic Product (GDP), with a decrease of 24.4% in the second quarter of 2020, illustrating the immediate economic shock caused by the pandemic (Dr. Sonalika Sinha & Prof. Tarun Jain, n.d.). The lockdown periods likely exacerbated income inequality, potentially extending the negative economic impacts beyond the immediate health crisis (Raman et al., 2021). The fiscal deficit for FY21 was anticipated to be at 5% or higher, largely due to the economic repercussions of COVID-19 (Shukla et al., 2020). The Indian government initially responded to the COVID-19 outbreak by implementing a complete lockdown on March 24, 2020, aiming to contain the virus's spread. This lockdown was initially set for 21 days but was subsequently extended (Kandpal, 2024) (Kapoor et al., 2023).

2. Literature review

- 1) Bircea & Teodora, (2022) explores the effects of the COVID-19 pandemic on the financial performance of pharmaceutical companies in Romania. The study delves into the influence of external factors during the pandemic, such as restrictions, government measures, and market dynamics, on commercial companies in the pharmaceutical

sector. The study focuses on the financial performance of selected Romanian pharmaceutical companies, including Antibiotice, Biofarm, Zentiva, and Med Life, in response to the pandemic conditions. Through an analysis of sales volume, gross profit, added value, net margin, financial return, and return on shares, the researchers assess how these companies navigated the challenges brought about by the pandemic. The key findings include that Sales volume fluctuated for different companies, with some experiencing increases and others facing decreases during the pandemic period. The Gross profit evolution varied among the companies, with Zentiva showing significant performance. The Net margin calculations highlighted differences in financial profitability, with certain companies outperforming others in terms of efficiency and profitability. The Financial return rates were analyzed to gauge the return on investments for shareholders, showing variations across companies.

- 2) Msweli et al., (2022) explore the impact of the pandemic on the business, healthcare, and societal landscape, with a focus on a company referred to as company X. The study employs a qualitative approach, conducting in-depth interviews with nine participants from different departments within company X to assess the effects of the pandemic on firm performance and strategy. The findings reveal that the COVID-19 pandemic forced company X to adjust its strategy to align with the changing environment, emphasizing the significant influence of COVID-19 on financial performance, which subsequently affects overall firm performance.
- 3) James O'connor & Borkowski, (2022) conducted a study on 142 not-for-profit health systems from 2015 to 2017. The research explored the correlation between long-term debt to capitalization ratio and financial performance, specifically total and non-operating margins. The results showed a negative correlation between debt ratio and margin performance, with the relationship becoming stronger as equity market returns increased. The study controlled for factors like days of cash on hand and return on assets to provide insights for hospital administrators and finance institutions targeting ideal capital structure. Various statistical analyses, including t-tests and regression, were used to examine the impact of debt ratios on financial metrics. Key hypotheses were formulated and tested, revealing interesting findings regarding the impact of leverage on total and non-operating margins. Detailed descriptive statistics were employed to evaluate the data, highlighting the trends in total margin, non-operating margin, long-term debt to capitalization ratio, days of cash on hand, and return on assets across the three-year period. The conclusion emphasized the importance of capital structure decisions in optimizing financial performance for not-for-profit health systems.
- 4) Endri et al., (2020) focuses on evaluating the financial performance of nine pharmaceutical companies listed on the Indonesia Stock Exchange during the period from 2014 to 2018. The study utilizes financial ratio analysis, including liquidity ratios, activity ratios, solvency ratios, and profitability ratios, supplemented by DuPont analysis methodology to assess the companies' financial health. The analysis reveals fluctuating changes in financial ratios over the observation period, indicating variations in liquidity, operational efficiency, debt levels, and profitability across the pharmaceutical companies. Liquidity ratios show the ability to pay short-term liabilities, while solvency ratios highlight the risk associated with high debt levels. The profitability ratios, including ROI, ROE, and DuPont analysis, indicate positive values in shareholder earnings. Additionally, the study emphasizes the importance of financial statements in analyzing financial performance and making informed investment decisions.
- 5) Tengilimoğlu et al., (2023) examines the financial stability of publicly held healthcare companies in Türkiye during crisis periods, specifically the 2018 economic crisis and the COVID-19 pandemic crisis. The findings of the study indicated that healthcare companies in Türkiye were able to maintain their liquidity, turnover, leverage, and profitability ratios steady during crisis periods, specifically the 2018 economic crisis and the COVID-19 pandemic. Despite higher unemployment rates during the 2018 economic crisis, there was no significant impact on the financial ratios of publicly held healthcare companies. The research highlights the need for further analysis with a larger sample size to assess financial stability before and after crisis periods. Additionally, the study emphasizes the importance for managers and policymakers to strengthen areas for better readiness in handling future crisis situations. The article focuses on examining the financial stability of publicly held healthcare companies in Türkiye leaving room for a comparative study focusing on the Indian healthcare sector.
- 6) Tanor & Purba, (2022) explore the financial performance of pharmaceutical companies in Indonesia before and during the Covid-19 pandemic. The study analyzes various financial aspects, including liquidity ratios, profitability

ratios, leverage ratios, activity ratios, firm size, firm growth, and DuPont analysis. Notable findings include significant differences in profitability and growth ratios before and during the pandemic, while liquidity ratios, leverage ratios, activity ratios, firm size, and DuPont analysis showed insignificant differences. The pandemic had a significant economic impact on various sectors in Indonesia, including pharmaceuticals, with varying effects on companies' financial performance. The authors recommend pharmaceutical companies to focus on developing quality products despite insignificant differences in some financial aspects before and during the pandemic. Further research is suggested to include more observation periods and other sector companies to comprehensively analyze the impact of the Covid-19 pandemic on financial performance across industries.

3. Objectives:

- 1) To study the evolution of Indian healthcare sector in recent years.
- 2) To study the financial health of Indian Healthcare companies using key financial performance parameters.
- 3) To analyze the Pre and Post Covid-19 financial performance of selected Indian Healthcare companies.
- 4) To provide suggestions to improve financial performance while navigating post-Covid-19 landscape.

4. Hypothesis

H01: There is no significant difference in Operating Profit Margin of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

Ha1: There is a significant difference in Operating Profit Margin of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

H02: There is no significant difference in Return on Equity of selected Indian Healthcare companies in pre and post covid-19 pandemic period.

Ha2: There is a significant difference in Return on Equity of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

H03: There is no significant difference in Return of Capital Employed of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

Ha3: There is a significant difference in Return of Capital Employed of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

H04: There is no significant difference in Debt-Equity Ratio of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

Ha4: There is a significant difference in Debt-Equity Ratio of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

H05: There is no significant difference in Total Assets Turnover ratio of selected Indian Healthcare companies in pre and post Covid-19 pandemic period.

Ha5: There is a significant difference in Total Assets Turnover ratio of selected Indian Healthcare companies in pre and post Covid-19 pandemic period

5. Research Methodology

The methodology used in the study is quantitative with comparative analysis approach. The time span of the study is from F.Y.2017-2020 (pre-pandemic period) to F.Y.2020-2023 (post-pandemic period). The paper employs a case study-based approach including 11 healthcare companies listed on NSE, namely Apollo Hospitals Enterprise Ltd, Cipla Ltd, Divi's Laboratories Ltd, Dr Reddy's Laboratories Ltd, Sun Pharmaceutical Industries Ltd, Torrent Pharmaceutical Ltd, Zydus Lifesciences Ltd, Max Healthcare Institute Ltd, Lupin Ltd, Aurobindo Pharma Ltd and Biocon Ltd. The study utilizes secondary data from credible sources such journals, financial statements, annual reports of companies listed on NSE. Ratio analysis has been utilized to analyze the key performance indicators such as

- (a) Operating Profit Margin (OPM).
- (b) Return on Equity (ROE)
- (c) Return on Capital Employed (ROCE)
- (d) Debt-Equity ratio (DER)
- (e) Total Assets Turnover Ratio (TATR)

6. Data Analysis: Data analysis has been conducted using Descriptive statistical analysis. Normality test was performed to ensure that the data is adequately distributed for parametric statistical analysis. The Kolmogorov - Smirnov test and Shapiro-

Wilk has been utilized to test the normality of the data. Data is considered to have a normal distribution if the probability value from the test exceeds 0.05. Conversely, if the probability value is below 0.05, the data is deemed not to be normally distributed.

The research further investigated the financial performance in pre and post of the COVID-19 pandemic period using statistical hypothesis testing. The method employed for this purpose is the Paired Samples t-Test, which is commonly used in pre-post or before-after study designs. The significance level, or alpha, was set at 0.05 or 5%, to determine the statistical significance of the observed changes.

7. Results & Discussion

Table 1. Descriptive Statistical test Results

Descriptive Statistics	N	Mean	Standard Deviation	Minimum	Maximum
OPM during Pre-Pandemic period	11	0.20	0.07	0.08	0.35
OPM during Post-Pandemic period	11	0.22	0.08	0.10	0.38
ROE during Pre-Pandemic period	11	0.11	0.06	0.00	0.18
ROE during Post-Pandemic period	11	0.12	0.06	0.00	0.20
ROCE during Pre-Pandemic period	11	0.13	0.06	0.04	0.25
ROCE during Post-Pandemic period	11	0.15	0.07	0.03	0.29
DER during Pre-Pandemic Period	11	1.04	0.59	0.16	1.99
DER during Post-Pandemic Period	11	0.72	0.48	0.14	1.58
TATR during Pre-Pandemic period	11	0.62	0.17	0.43	1.00
TATR during Post-Pandemic period	11	0.65	0.20	0.33	1.06

From the results of descriptive statistical calculations of variables in Pre and Post Covid-19 pandemic period as shown in Table 1, the average Operating Profit Margin (OPM) slightly increased from 0.20 to 0.22 indicating improved operational efficiency during the post-pandemic period. The mean Return on Equity (ROE) increased from 0.11 to 0.12 which suggests that the companies were slightly more effective at generating profits from shareholders' equity during the post-pandemic period. The average Return on Capital Employed (ROCE) increased from 0.13 to 0.15 indicating better utilization of capital employed. However, there was a notable decrease in the mean Debt-equity ratio (DER) from 1.04 to 0.72 suggesting that companies reduced their reliance on debt during the pandemic, possibly to minimize financial risk in uncertain times. There was a slight increase in the average Total Asset turnover ratio (TATR) from 0.62 to 0.65.

Table 2. Normality test using Shapiro-Wilk and Kolmogorov-Smirnov Test

Data Category	Shapiro-Wilk				Kolmogorov-Smirnov			
	df	Test Statistic	Sig.	Result	df	Test Statistic	Sig.	Result
Pre-Pandemic OPM	10	0.957	0.73	Normal	10	0.148	0.942	Normal
Post-Pandemic OPM	10	0.944	0.57	Normal	10	0.206	0.665	Normal
Pre-Pandemic ROE	10	0.935	0.465	Normal	10	0.13	0.981	Normal
Post-Pandemic ROE	10	0.962	0.798	Normal	10	0.12	0.992	Normal
Pre-Pandemic ROCE	10	0.935	0.459	Normal	10	0.197	0.716	Normal
Post-Pandemic ROCE	10	0.943	0.562	Normal	10	0.197	0.719	Normal
Pre-Pandemic DER	10	0.936	0.476	Normal	10	0.142	0.956	Normal
Post-Pandemic DER	10	0.865	0.067	Normal	10	0.238	0.487	Normal
Pre-Pandemic TATR	10	0.9111	0.2513	Normal	10	0.1553	0.9173	Normal
Post-Pandemic TATR	10	0.9529	0.6806	Normal	10	0.1559	0.9154	Normal

Data source: Self Processed, 2024

From the results of the normality test as shown in Table2. above it can be seen that all variables are normally distributed during Pre and Post Covid-19 Pandemic period.

Paired Sample t - test

Table 3. Paired Sample t – test

	OPM	ROE	ROCE	DER	TATR
t Stat	-1.2515	-1.3686	-1.8100	2.3982	-1.1426
P(T<=t) one-tail	0.1196	0.1005	0.0502	0.0187	0.1399
t Critical one-tail	1.8125	1.8125	1.8125	1.8125	1.8125
P(T<=t) two-tail	0.2392	0.2011	0.1004	0.0374	0.2798
t Critical two-tail	2.2281	2.2281	2.2281	2.2281	2.2281
Result	Insignificant	Insignificant	Insignificant	Significant	Insignificant

Source: MS-Excel

7.1. Differences in Operating Profit Margin between Pre and Post Covid-19 Pandemic period

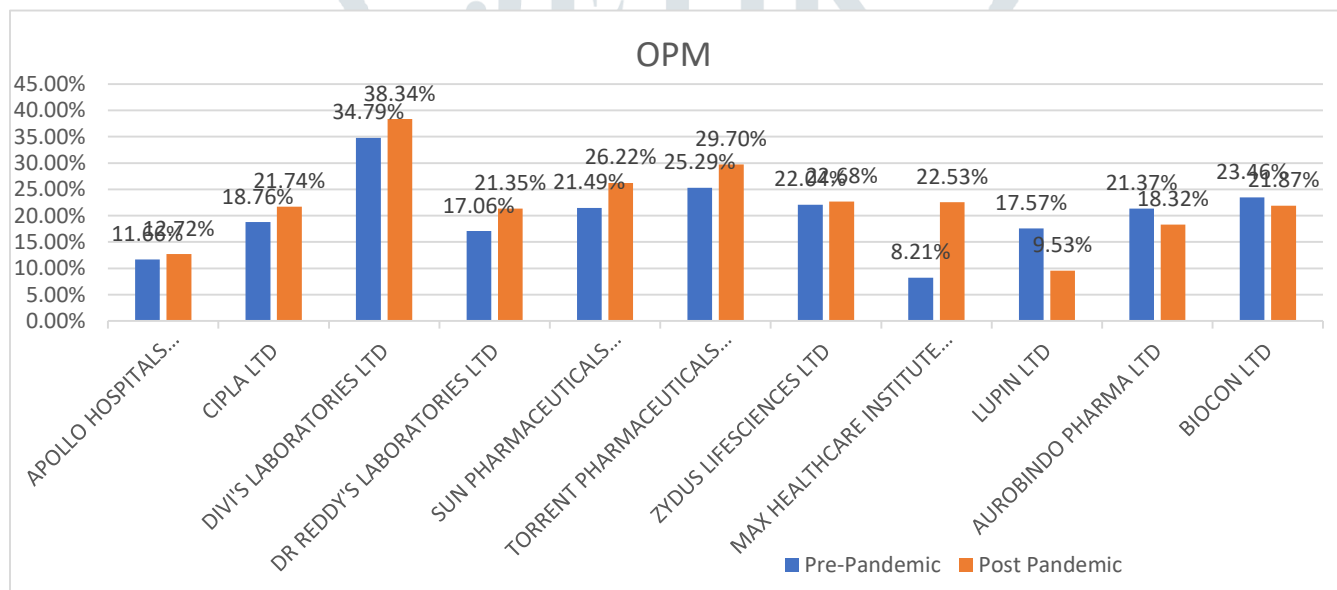


Figure 1. The mean of Operating Profit Margin during Pre and Post Covid-19 Pandemic period

Operating Profit Margin is a key financial performance metric used to assess the profitability business’s core operations. It measures a company’s operating efficiency A higher operating profit margin indicates a company is more efficient at converting sales into profits from its primary business activities.

Based on the Paired Sample t - test results as shown in Table 3. it is observed that the Operating Profit Margin shows a higher significance value than the significance value namely $0.24 > 0.05$, hence we fail to reject H_0 . It can be concluded there is no significant difference in Operating Profit Margin of selected Indian healthcare companies between Pre and Post Covid-19 Pandemic period.

7.2 Differences in Return on Equity between Pre and Post Covid-19 Pandemic period

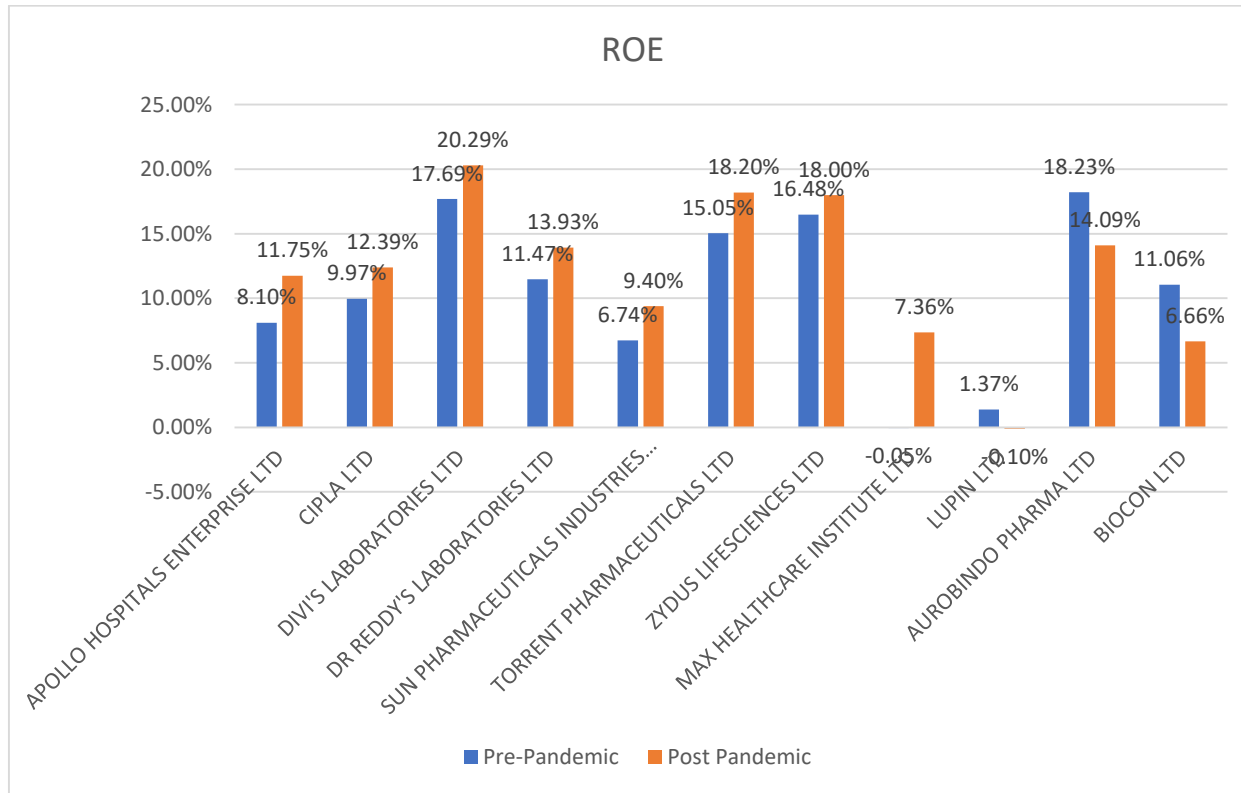


Figure 2. The mean of Return on Equity during Pre and Post Covid-19 Pandemic period

Return on Equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. A higher ROE indicates more effective management and a better return on the investment for shareholders. (Ross, Westerfield, & Jordan, 2013).

Based on the Paired Sample t - test results as shown in Table 3. it is observed that the Return on Equity shows a significance value of $0.20 > 0.05$ which means there is no significant difference in Return on Equity in pre and post Covid-19 Pandemic period. Hence, we fail to reject the H02.

7.3 Differences in Return on Capital Employed during Pre and Post Covid-19 Pandemic period

Return on Capital Employed evaluates a company's efficiency at allocating the capital under its control to profitable investments. Capital employed typically includes equity and debt, highlighting the effectiveness of management's use of capital (Brealey, Myers, & Allen, 2020).

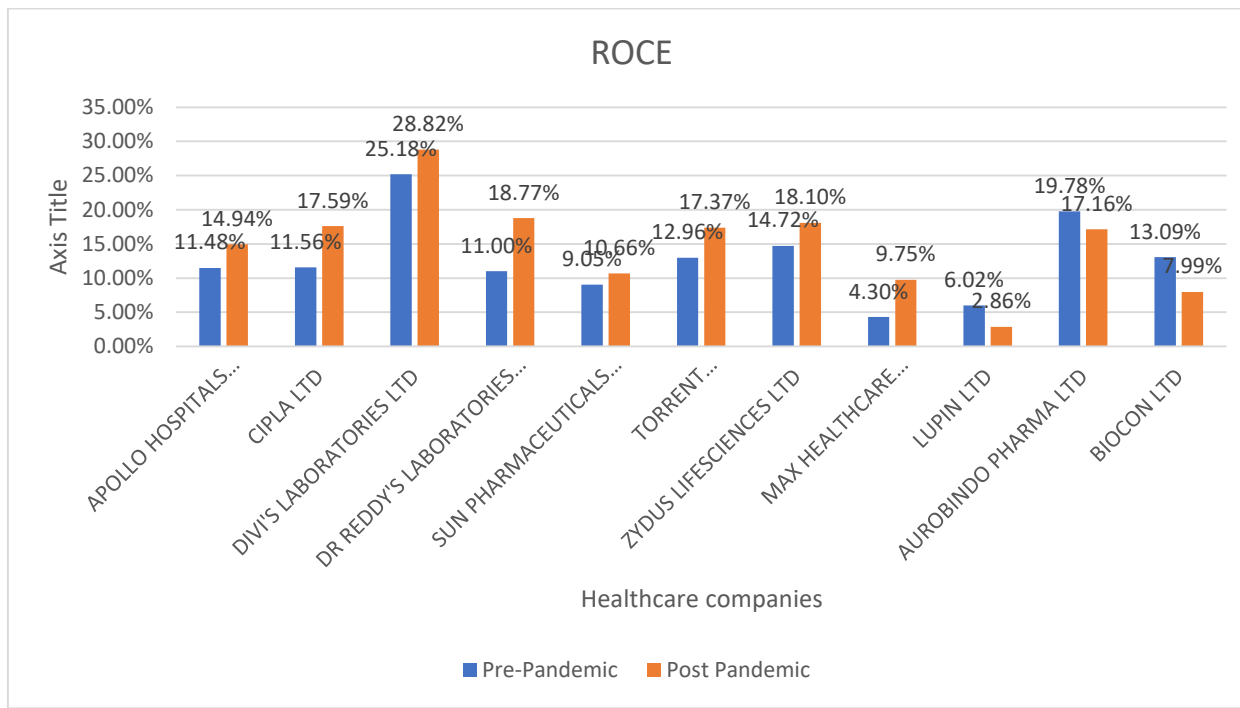


Figure 3. The mean of Return on Capital Employed between Pre and Post Covid-19 Pandemic period

The p-value of 0.10 exceeds the significance level of 0.05, indicating that you fail to reject the null hypothesis at the 95% confidence level. This suggests that the observed differences in ROCE between the pre- and post-pandemic periods are not statistically significant.

The results indicate that while there is a noticeable increase in ROCE from the pre-pandemic to the post-pandemic period, this change is not statistically significant at the 95% confidence level based on the two-tailed test. This shows that the data does not provide strong enough evidence to conclude definitively that the pandemic had a significant impact on ROCE for these companies. Thus, the null hypothesis (H03) that there is no significant difference in ROCE pre and post the pandemic is not rejected based on the data provided.

7.4 Differences in Debt Equity ratio between Pre and Post Covid-19 Pandemic period

The Debt-Equity Ratio measures the degree to which a company is financing its operations through debt versus wholly owned funds. This ratio helps investors understand the risk level associated with the company's financial structure. A higher ratio implies more leverage and, potentially, higher risk (Gitman, Lawrence J., et al., 2017).

Based on the Paired Sample t - test results as shown in Table 3. it has been observed that p-value of 0.0374 is less than level of significance of 0.05. This indicates that the differences in DER between the pre-pandemic and post-pandemic periods are statistically significant. Hence, we reject H04.

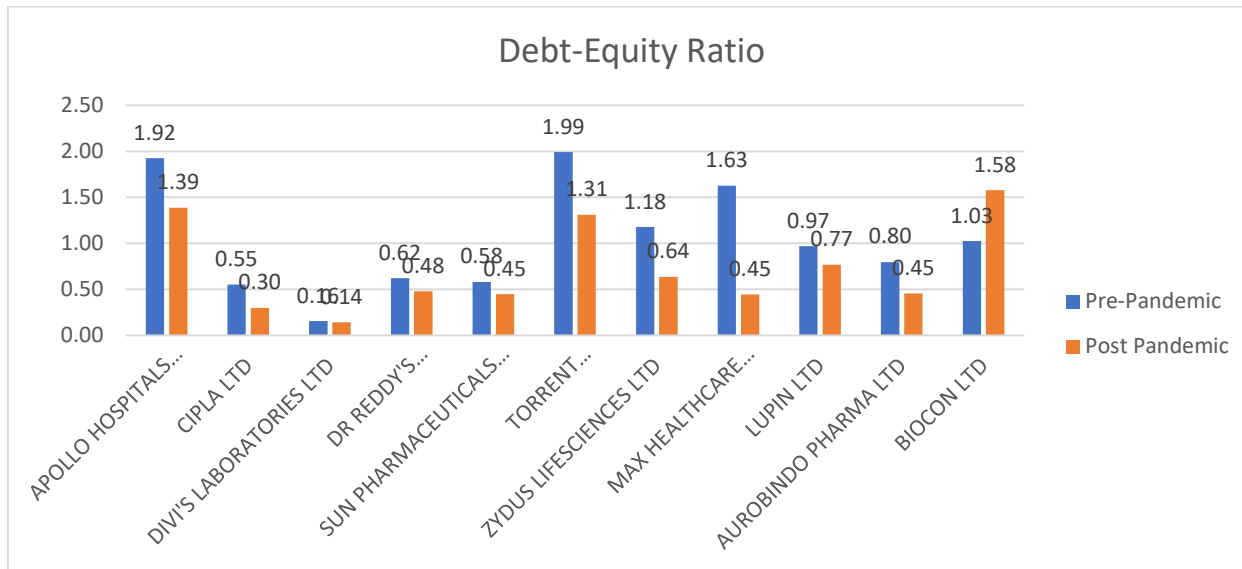


Figure 4. The mean of Debt Equity ratio during Pre and Post Covid-19 Pandemic period

7.5 Differences in Total Assets Turnover ratio between Pre and Post Covid-19 Pandemic period

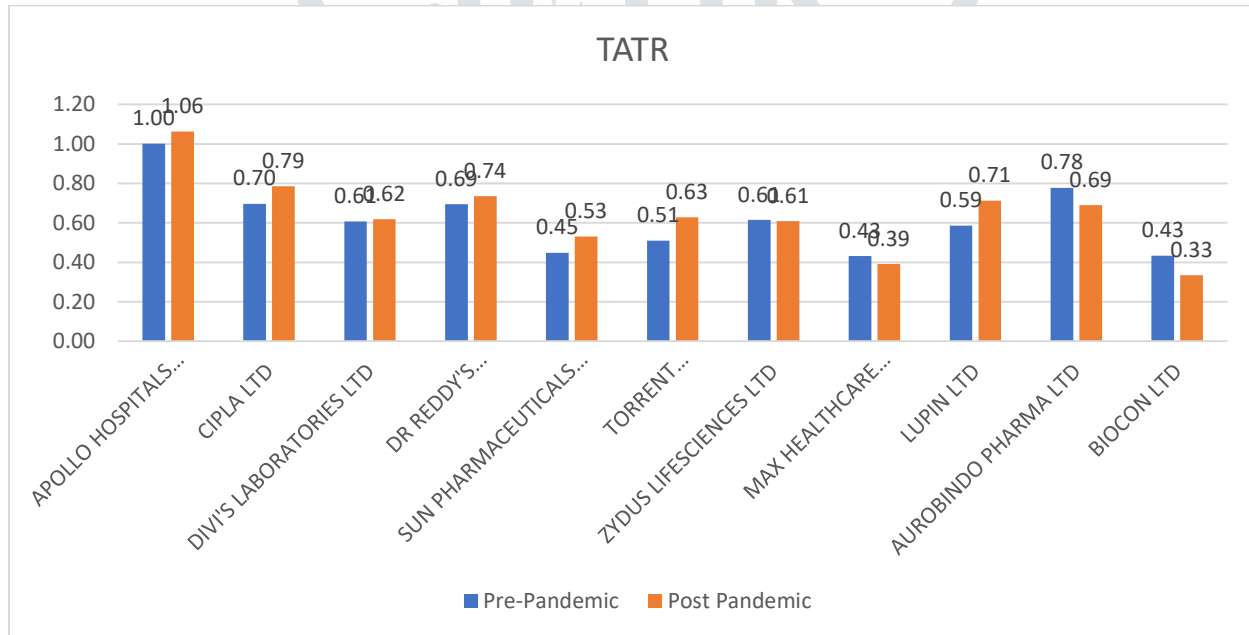


Figure 5. The mean of Total Assets Turnover ratio during Pre and Post Covid-19 Pandemic period

The Total Assets Turnover ratio measures the efficiency with which a company uses its assets to generate sales revenue. This ratio is particularly important in assessing how well a company is utilizing its total assets to produce revenue.

Based on the Paired Sample t - test results as shown in Table 3. the p-value of 0.28 is greater than the significance level of 0.05. Hence, we fail to reject H05. This indicates that there is no significant difference in Total assets turnover ratio between the pre-pandemic and post-pandemic period.

8. Conclusion

In this paper we evaluated changes in several key financial performance metrics. The analysis reveals that companies generally maintained or slightly improved their financial health during the pandemic, with the most notable positive change being a significant reduction in leverage. While improvements in profitability and efficiency metrics were observed, they were not statistically significant, indicating stable performance rather than marked improvement.

The Covid-19 pandemic has undeniably tested the resilience and adaptability of India's healthcare sector, surfacing numerous challenges but also paving the way for substantial innovations and reforms. From grappling with infrastructural inadequacies and disparate access to care, to witnessing a swift embrace of technological advancements and public-private collaborations, the sector's journey through the pandemic highlights both vulnerabilities and strength in crisis management. The financial analysis pre and post-Covid-19 offers insights into the healthcare industry's capacity to recover and grow, underpinned by an increased focus on health insurance expansion, revenue growth among major healthcare entities, and significant government and international support.

9. Suggestions

- Financial Vigilance: Companies should continue to monitor their financial metrics closely to navigate the ongoing economic uncertainties effectively
- Leverage Financial Stability for growth: With the positive impact observed from reduced leverage, companies should evaluate their debt management strategies to balance risk and growth.
- Enhance Efficiency: Companies should explore new operational strategies to enhance asset utilization further, which could be crucial in a post-pandemic recovery phase.

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