

# A Study of Financial Performance Post-Merger and Acquisition in the Pharmaceutical Sector:ACACA Approach

**Ashima Verma**

Research Scholar,  
Department of Management Studies  
J.C.Bose University of Science and Technology,  
YMCA, Faridabad

**Rachna Agrawal**

Associate Professor,  
Department of Management Studies  
J.C.Bose University of Science and Technology,  
YMCA, Faridabad

## Abstract

The purpose of this paper is to analyse the financial performance of the companies in the pharmaceutical sector post-merger and acquisition. To study the financial performance of the companies, a company-wise clubbed average comparative analysis (CACA) has been used. The study will focus on 6\*6\*6 i.e., six companies with six years (3 Pre years and 3 post years) and with in-depth six major-interpreted variables. The comparative analysis of the various ratios also shows fruitful interpretations in the research. With all-inclusive ratio analysis, PH5 gains most from the merger and acquisition (M&A) among the six companies. It will be a profound aid in decision making for the managers of companies, policymakers in the respective sector, investors and other stakeholders in analyses and deciding for M&A as a form of restructuring.

**Keywords:** Merger and acquisition, financial performance, clubbed average comparative analysis (CACA), pharmaceutical sector

## Introduction

The world is witnessing a major crisis in the present scenario. It is on the verge of unfathomable recession. With corona pandemic affecting the lives of millions of people around the globe, temporary shutdown of all manufacturing units, abridged businesses etc. is bringing life to a standstill. Many organisations are already terminating their operations and a spike in the unemployment rate is witnessed. The world output is likely to drop to -3% as the world lockdown is bringing economic activity to a stoppage. There is a 6.8% fall in the projected growth rate of 2020 (World Economic Outlook, 2020). With such turbulent circumstances, the primary goal of any business is to survive. Merger and Acquisition (M&A) is one of the profound ways to keep themselves alive. The concept of restructuring through M&A has evolved since its inception. Earlier the only aim of considering M&A was to make sick units profitable again (Bose, 2006). This has transformed into getting new technologies, entering new and unexplored markets and gaining synergies. This cycle is coming back to its initial position for pharmaceutical sector, whose survival has become imperative in the current scenario. Pharmaceutical sector has become extremely significant in the present scenario. Therefore the

study selects this pivotal sector to understand the performance of companies post-M&A and explains the relevance of M&A as a mode of restructuring in Indian context.

The world is now looking up to Indian Pharmaceutical Industry (IPI) which is unique because, first, branded generics account for 70% to 80% of the retail market segment. Second, the Indian Pharmaceutical Sector has revolutionised from being a generic drug provider to an investor in research and development (R&D) to a caterer to the world market. More than 50% of the generic drug demand of the world is served by India. This estimate has reached 40% and 25% for the U.S. and the U.K. respectively (IBEF, 2019). Third, it ranks third in position for production of drugs by volume on the global scale (McKinsey & Company, 2020). It is growing very well and giving shoulder to shoulder competition to the other pharmaceutical companies across the globe. Recently, 15 new drugs are permitted for production in India and 42 applications are approved by USFDA for their production in India which is equivalent to the applications from the USA. This has made M&A a necessary tool for the pharmaceutical sector to grow and prosper. It is evidenced from the fact that 25 new M&A deals were finalised in this sector in 2019 (Grant Thornton Annual Health Check, 2019). Minister of Chemicals and Fertilizers at India Pharma and India Medical Device 2020 event said that Indian Pharmaceutical sector will become a \$ 100 Billion sector by 2025 (Pharma Express, 2020).

Analysing the financial performance of the companies undergoing M&A is highly demanded (Majumdar & Rahman, 2011; Shahnian & Endri, 2020). Park, Kim and Lee (2017) use knowledge acquisitions to study the alliance performance. One of the indispensable ways is through ratio analysis (Novyarni & Ningsih, 2019). Various studies in the past conclude that the analysis through ratio measurement forms an appropriate way to predict their performances. It is also a very persistent measure of bankruptcy. Altman (1968) suggests that it is difficult to find out the generalised order of relative importance of each ratio. Ratio analysis helps in forecasting the future trends by determining the troubling areas and taking required actions (Lessambo, 2018).

### Significance of the study

The role of pharmaceutical sector cannot be de-emphasised in the current global scenario and their survival and growth becomes particularly significant. Companies embrace M&A for the need of resources, synergistic benefits, new technologies, entering new markets and so on (Xiao, 2020). And the need for better technologies and resources has

never been more reflective. Therefore, financial analysis is essential with regards to the companies' financial position pre and post-M&A (Fadel & Parkinson, 2012). Financial ratio analysis forms a link between each element of the financial statements (Endri, et al., 2020). It helps in predicting how to work with assets and liabilities to have a balanced position of the organisation in the future on the basis on the current ratios (Rahaman, 2014). It is one of the oldest yet the most helpful in determining the financial performance of any organisation. The present study focusses on a new element: clubbed average comparative analysis (CACA) blended with the performances of pharmaceutical companies' pre and post-M&A. It will be of a magnanimous help to the companies by comparing the actual financial operations.

### Review of Existing Literature and Objective Formulation

Moreno and Casillas (2007); Yim and Mitchell (2005) distinguish between growths of different companies where they use solvency, liquidity, asset turnover and other financial ratios. The investors can take advantage of the change in prices of stocks of the companies undergoing M&A. Barreda, et al. (2017); Ferrier, et al. (2002) conceptualize that the financial ratios foretell the future status of the company.

Beaver (1966); Courtis (1978) are of the opinion that financial ratios help in determining the illness of a company. They are a guide for financial analysts to take corrective actions in order to save a company from failure. According to O'Conner (1973); Castagna (1976) financial ratios have been used for analysis of company data since the 1880s but its usage in decision making is brought to light only in the 1960s. Van Horne (1990); Parasanna (2004) consider them as one of the most important instruments of evaluation of a company's performance. Ocal, et al., (2007); Innocent, Mary and Matthew (2013) believe that a company wise analysis in a sector and a sector wise comparison can be done with financial ratios. They say that a positive or a negative picture about a company's performance cannot be concluded with only one ratio, but a combination of many ratios. Christopoulos, et al. (2018) prepares three models viz. liquidity model - on the basis of liquidity ratios, profitability model - on the basis of profitability ratios and the third model is the one that blends the first two. They find that profitability is a better predictor of the future success or failure of any firm. Mateos-Ronco and Mas (2011); Imhanzenobe (2020) consider various financial ratios to achieve a correct prediction of failure and financial sustainability while stating the profoundness of efficiency, liquidity and solvency ratios. Liang (2016) uses financial

ratios namely solvency ratios, liquidity ratios and cash flow ratios to develop a model to predict financial instability and bankruptcy.

The literature review shows that it is worthwhile and pertinent to use ratio analysis in almost every field to help the management find a fault in the performance of a company and rectify it. These tools are used for checking bankruptcy, success or failure and health of companies. The use of CACA for analysing the post-M&A financial performance of a company is not found anywhere to the best of researchers' knowledge. Therefore, the present study employs CACA to understand the impact of M&A on the financial performance of the companies.

## Objectives of the research

To study the financial variables of pre and post-M&A performance of the pharmaceutical companies

To have a company-wise clubbed average comparative analysis (CACA) pre and post-M&A of the pharmaceutical companies

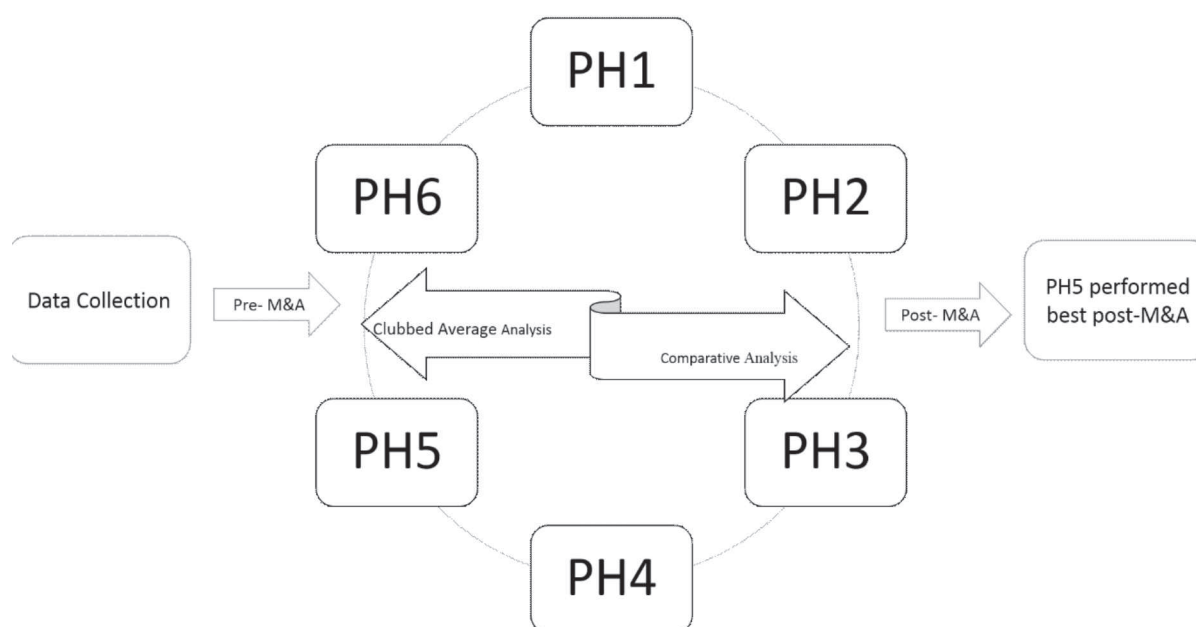
### Framework model of research

The present study tries to analyse the usefulness of M&A to the companies in the pharmaceutical sector by comparing their financial performances pre and post-M&A. The

research analyses six ratios namely return on net worth (RNW), return on total assets (RTA), current ratio (CR), interest coverage ratio (IC), total income/total assets (TITA) and total income/compensation to employees (TICE). These ratios are from the broader heads of profitability, liquidity and efficiency. This is followed by a company wise evaluation of each ratio and their comparative assessment. Zenzerovic (2009) uses these 6 ratios to get better results in the performance of the companies post-M&A.

RNW is an estimate that presents financial performance to the shareholders. RTA measures the impressive use of assets given the returns. Okoye et.al. (2017) check sustainability through this ratio. CR is a representation of liquidity (Bowlin, 1963). It implies how well a company is able to pay off its short term debts. Imminent authors consider it a very meaningful ratio as short term liabilities need to be paid in a year, so it measures the urgency to pay debts. IC explains the ability of the company to pay interest expenses. A falling interest coverage ratio is not good for the company as it shows the hardship the company will incur in future to pay off its debt expenses. TITA and TICE are efficiency ratios that depict the optimal utilization of income in buying assets and paying to the employees.

### Figure1: Conceptual Framework



According to Wang, Dennis and Tu (2007), the health of a human body is on the same lines as the financial health of a company. Just as one system of human body cannot work without the other system and are dependent upon each other, similarly the financial health cannot be assessed by one financial ratio but a combination of them. They form a connect with the financial parameters that help stakeholders including the managers, investors and employees to understand the financial performance of the company and take required actions respectively. According to Barnes (1990), the most integral part of prediction for decision making by the managers is the accounting data. Hence, to actually come to a conclusion to the success or failure of the M&A financial ratio analysis becomes imperative.

### Methodology

The study follows analytical research design to understand how well these ratios predict the companies' performance pre and post-M&A. This ratio analysis is used to understand how the performances of the pharmaceutical companies that have undergone M&A have changed. It is followed by a CACA of the 6 ratios of the companies. Following this research design will be a lot of help to the

stakeholders in this sector as it follows an all-inclusive analysis of the financial performance and gives coherent conclusions.

The present study uses secondary data for analysis. The main data source used is PROWESS of Centre for Monitoring Economy (CMIE) which is an internationally accepted database for academicians. Alongside, the annual reports of the companies are also taken for data collection. Research and Development (R&D) cost is taken as the basis for selecting the companies in pharmaceutical sector (Mahajan, Nauriyal and Singh, 2014). R&D is the heart and soul of this sector. The domestic sector understood the essentiality of R&D for this sector with The Patents (Amendment) Act (2005) when India moved from process patents to product patents (Mahajan, 2020). The research takes 2015-16 as the base year for considering the companies that are R&D intensive and undergo M&A. Out of a total of 17 companies which underwent M&A in 2015-16, six companies that were research intensive, are considered for this study. The study focuses on three years pre and post-M&A for the research (Sil and Saha, 2013). Therefore, the period of study is from 2012-13 to 2018-19.

#### 1.1 Definition of variables and other components

Table 3.1 List of variable with their definitions and abbreviations

S.No.	Variable	Definition	Abbreviation
1.	Return on Net Worth		RNW
2.	Return on Total Assets	EBIT/Total Assets	RTA
3.	Current Ratio	Current Assets/Current Liabilities	CR
4.	Interest Coverage Ratio	EBIT/Interest Expense	IC
5.	Total income o Total Assets ratio	Total Income/Total Assets	TITA
6.	Total Income to Compensation to Employees	Total Income/Compensation to Employees	TICE
7.	Biocon Ltd.	Pharmaceutical Company 1	PH1
8.	Cadila Healthcare Ltd.	Pharmaceutical Company 2	PH2
9.	Lincoln Pharmaceuticals Ltd	Pharmaceutical Company 3	PH3
10.	Lupin Ltd.	Pharmaceutical Company 4	PH4
11.	Natco Pharmaceutical Ltd	Pharmaceutical Company 5	PH5
12.	Torrent Pharmaceutical Ltd	Pharmaceutical Company 6	PH6

### Data Analysis and Discussion

A company-wise clubbed and comparative ratio analyses (CCRA) has been applied with six pharmaceutical companies' pre and post-M&A with the help of IBM SPSS Statistics 25 and Microsoft Excel (2013). This study with the help of six ratios tries to explain if the companies

performed better because of M&A and improved their financial performance or not. Six variables namely two profitability ratios i.e. RNW, RTA, two liquidity ratios i.e. CR and IC, two efficiency ratios i.e. TITA and TICE are taken. Skogsvik (1990) states the importance of the ratios mentioned above.

Table 4.1 Group statistics

Groups		Mean	Standard Deviation	Maximum value	Minimum value
<b>Pre-M&amp;A</b>	RNW	0.384	0.157	0.565	0.214
	RTA	0.226	0.107	0.407	0.096
	CR	0.031	0.015	0.053	0.016
	IC	2.124	3.07	7.190	0.061
	TITA	0.014	0.003	0.014	0.012
	TICE	0.168	0.052	0.269	0.115
<b>Post-M&amp;A</b>	RNW	0.234	0.106	0.410	0.079
	RTA	0.159	0.085	0.316	0.069
	CR	0.030	0.011	0.046	0.016
	IC	1.103	1.222	2.930	0.054
	TITA	0.009	0.003	0.016	0.005
	TICE	0.116	0.009	0.125	0.102

This table 4.1 represents about the descriptive statistics for all ratios over a period of six years. It is observed that the mean values for all the ratios decrease post-M&A. It cannot be stated about the standard deviation values that show

mixed results post-M&A. The standard deviation value fall for all the ratios except TITA where it remains the same post-M&A.

**Table 4.2.1** Descriptive Statistics (in \$ Millions)

Table 4.2.1 (a) RNW

	PH1		PH2		PH3		PH4		PH5		PH6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean	0.23	0.07	0.43	0.22	0.21	0.25	0.56	0.20	0.3	0.41	0.56	0.23
SD	0.07	0.072	0.07	0.05	0.01	0.013	0.20	0.06	0.41	0.02	0.11	0.05
Median	0.23	0.06	0.44	0.23	0.21	0.25	0.54	0.13	0.28	0.44	0.61	0.22
Max Value	0.23	0.12	0.5	0.27	0.22	0.27	0.64	0.34	0.33	0.50	0.68	0.31
Min Value	0.23	0.05	0.33	0.15	0.20	0.24	0.48	0.13	0.28	0.28	0.40	0.16

Table 4.2.1 (b) RTA

	PH1		PH2		PH3		PH4		PH5		PH6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean	0.17	0.06	0.23	0.12	0.09	0.16	0.41	0.16	0.17	0.31	0.27	0.11
SD	0.004	0.02	0.04	0.02	0.01	0.016	0.05	0.07	0.02	0.06	0.06	0.03
Median	0.17	0.05	0.23	0.13	0.09	0.15	0.38	0.11	0.15	0.35	0.31	0.08
Max Value	0.18	0.11	0.29	0.16	0.11	0.18	0.48	0.28	0.20	0.36	0.33	0.16
Min Value	0.17	0.04	0.17	0.09	0.08	0.14	0.35	0.11	0.14	0.23	0.18	0.07

Table 4.2.1 (c) CR

	PH1		PH2		PH3		PH4		PH5		PH6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean	0.04	0.04	0.19	0.15	0.02	0.03	0.05	0.06	0.01	0.03	0.03	0.02
SD	0.004	0.01	0.005	0.004	0.003	0.001	0.011	0.004	0.008	0.01	0.001	0.01
Median	0.04	0.04	0.019	0.017	0.018	0.02	0.05	0.052	0.02	0.04	0.03	0.01
Max Value	3.09	3.83	1.17	1.39	1.58	2.15	3.88	4.39	1.03	3.34	2.29	2.96
Min Value	2.29	2.66	1.02	0.65	0.99	1.76	2.01	3.39	0.82	1.53	1.85	1.13



The table 4.2.1 (a) discusses about Return on Net worth of six pharmaceutical companies and their respective comparison pre and post-M&A. RNW is the ratio between net income and Shareholders' equity. It is also known as return on equity. In the table above, the average values of this ratio falls for PH1, PH2, PH4 and PH6 post-M&A. Except for PH2, PH4, PH5 and PH6, the deviation for all other companies rise post-M&A. The median values follow the same trend average values. The minimum return on net worth value throughout all years of the six pharmaceutical companies is 0.05 and maximum value for the same group is 0.68.

The table 4.2.1 (b) depicts the descriptive statistics of RTA ratio of six pharmaceutical companies and their comparison pre and post-M&A. This ratio keeps a check on the usage of the assets for the generation of revenue. It is estimated by dividing EBIT (Earnings before Interest and Taxes) by total assets. In other words, this ratio analyses the effective utilisation of assets by the companies to produce the revenues. The mean values of this ratio fall for PH1, PH2, PH4 and PH6. The deviation falls for PH2 and PH6

post-M&A. The median values also witness a similar trend as the average values and they rise only for PH3 and PH5 post-M&A. Where we see PH4 with a maximum Return on total assets ratio pre-M&A to be 0.48, we also have a minimum return on total assets ratio for PH6 post-M&A i.e.0.07.

Finally the table 4.2.1 (c) discusses descriptive statistics of CR for six pharmaceutical companies and their comparison pre and post-M&A. Current ratio analyses the ability of a company to pay its short term obligations. It is calculated by dividing current assets with the current liabilities. This ratio provides the short term solvency position of a company at a snapshot. Looking into the table, the average values for PH2 and PH6 fall post-merger and acquisition can be observed. The median values rise for PH3, PH4 and PH5. The standard deviation values are contrasting and fall only for PH2, PH3 and PH4 post-M&A. The maximum current ratio value is seen for PH4 post-M&A with 4.39 and the minimum value is for PH2 post-M&A with 0.65.

#### Descriptive statistics (in \$ Millions)

Table 4.2.1 (d) IC

	PH1		PH2		PH3		PH4		PH5		PH6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean	7.19	2.93	0.37	0.41	0.06	0.17	4.7	2.3	0.08	0.71	0.31	0.05
SD	1.4	1.2	0.25	0.40	0.01	0.04	4.2	0.77	0.01	0.16	0.16	0.01
Med	7.5	2.1	0.2	0.4	0.06	0.17	2.4	2.04	0.08	0.64	0.42	0.04
Max.Val ue	8.7	4.7	0.72	0.44	0.06	0.23	10.6	3.4	0.10	0.94	0.45	0.07
Min.Val ue	5.2	1.9	0.1	0.3	0.05	0.1	0.9	1.5	0.08	0.5	0.4	0.04

Table 4.2.1 (e) TITA

	PH1		PH2		PH3		PH4		PH5		PH6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	post
Mean	0.01	0.005	0.012	0.006	0.017	0.01	0.01	0.009	0.01	0.01	0.01	0.00
						5	8				4	7
SD	0.000	0.0002	0.0003	0.000	0.000	0.00	0.00	0.001	0.000	0.00	0.00	0.00
	3			9	8	1	1	5	6	2	2	1
Med	0.01	0.005	0.01	0.007	0.01	.015	0.01	0.008	0.009	0.01	0.01	0.00
												6
Max.Val	0.012	0.0057	0.013	0.007	0.018	0.01	0.01	0.01	0.01	0.01	0.01	0.00
ue	8					6	9			4	7	9
Min.Val	0.012	0.0051	0.012	0.005	0.016	0.01	0.01	0.008	0.009	0.00	0.01	0.00
ue	1					4	6			7	1	6

Table 4.2.1 (f) TICE

	PH1		PH2		PH3		PH4		PH5		PH6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	post
Mean	0.15	0.10	0.14	0.12	0.26	0.12	0.17	0.11	0.11	0.12	0.15	0.10
SD	0.01	0.012	0.006	0.01	0.016	0.012	0.012	0.012	0.01	0.018	0.012	0.01
Med	0.15	0.1	0.14	0.12	0.26	0.11	0.18	0.1	0.11	0.12	0.15	0.1
Max.Value	0.17	0.11	0.15	0.13	0.26	0.14	0.18	0.13	0.12	0.14	0.17	0.12
Min.Value	0.14	0.08	0.14	0.1	0.24	0.11	0.15	0.1	0.1	0.1	0.14	0.09

The table 4.2.1 (d) represents descriptive statistics of IC for six pharmaceutical companies' pre and post-M&A. This ratio signifies the interest expenses paying capacity of the companies. The average values for PH1, PH4 and PH6 fall contrary to the other companies. Standard deviation follows the same path and decline for PH1, PH4 and PH6. The median values show a similar trend to the mean values. The maximum and minimum values are 10.6 for PH4 pre-M&A and 0.08 for PH5 pre-M&A respectively.

The table 4.2.1 (e) shows descriptive statistics of TITA for six pharmaceutical companies' pre and post-M&A. The mean values are decreasing for PH1, PH2, PH4 and PH6.

The standard deviation is falling for PH1, PH3 and PH6. The middle values are on the same lines as mean values. The maximum value is for PH4 pre-M&A, while the minimum value is for PH2 post-M&A.

Finally, table 4.2.1 (f) depicts descriptive statistics of TICE for six pharmaceutical companies. The average values increase for only PH5 and no other company. The standard deviation values fall only for PH3 and no other company. The median values increase only for PH5. The maximum values and minimum values are 0.26 for PH3 pre-M&A and 0.08 for PH1 post-M&A.



Table 4.3 Clubbed average analysis (in \$ Million)

		PH1		PH2		PH3	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
<b>Sales</b>	Pre	377.6	29.6	664.2	107.1	35.9	0.8
	post	393.1	14.9	772.7	202.8	48.9	2.15
<b>Total Expenses</b>	Pre	334.02	39.4	655.2	58.5	34.5	0.62
	Post	368.2	31.4	698.5	139.1	44.3	1.3
<b>PAT</b>	Pre	54.4	21.1	95.1	42.9	2.03	0.2
	Post	61.6	17.6	165.7	53.3	5.2	1.1
<b>Total Liabilities/Total Assets</b>	Pre	545.5	45.6	1135.7	91	35.8	2.8
	Post	1173.3	36.5	1998.3	153.4	50.9	4.1
		PH4		PH5		PH6	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
<b>Sales</b>	Pre	1469.8	121.5	108.8	7.12	544.5	26
	Post	1690.5	151.1	304.1	17.6	717.7	68.9
<b>Total Expenses</b>	Pre	1199.8	64.3	94.6	2.8	475.4	41.5
	Post	1444.5	54.5	223.7	9.15	683.8	69.9
<b>PAT</b>	Pre	337.7	75	19.2	4.4	109.4	11.7
	Post	299	119.8	92.5	14.2	102.9	21.6
<b>Total Liabilities/Total Assets</b>	Pre	1530.8	212.5	206.3	15.7	806.7	192.8
	Post	2819.6	94.8	517.8	119.9	1682.4	301.7

Table 4.3 shows a comparative analysis of major heads in balance sheet of six pharmaceutical companies. Here, values of sales, total expenses, PAT and Total Liabilities/Total assets of the pre and post three years of M&A is taken. The average values of all six companies under four heads is increasing post-M&A. This increase in Sales and PAT and Total Assets definitely is positive for the companies and this indicates their efficiency and good financial performance post-M&A. But it can be observed that an increase in the mean values of total expenses and total liabilities that adds a little worry for the management. The same cannot be stated for standard deviation values. With an increase in mean values majorly all pharmaceutical companies also see a rise in deviations. Looking at PH4, where even though there is an increase in mean of total expenses, the deviations from the mean decrease post-M&A. It signifies a better control on total expenses by PH4. But a major matter of concern is the fall in mean values for PAT and a simultaneous increase in

deviations. A very interesting observation is for PH1, here Sales, Total Expenses, Total liabilities/Total assets show a fall in deviations post-M&A with an increase in mean values for sales and PAT, which is definitely an applauding change brought out due to M&A. Similarly, PH5 has also tried to increase mean and reduce deviations for Sales post-M&A.

### Comparative analysis among Companies

Comparative analysis represents the absolute change and percentage change of the main heads in balance sheet of six pharmaceutical companies. The absolute change is the difference in values post-M&A. First the average of three years of the values have been taken under each head post-M&A and then subtract with the average value of three years pre-M&A under the chosen head. It gives us the absolute change. In this way, it can be calculated the percentage change of the heads in various companies.

Table 4.4.1 Comparative analysis among companies

PH1	PH2		PH3		PH4	
	Absolute Change	Percentage Change	Absolute Change	Percentage Change	Absolute Change	Percentage Change
<b>Sales</b>	15.5	4.1	108.4	16.3	12.9	36.1
<b>Change in Stock</b>	6.2	197.7	14.1	215.3	0.6	88.7
<b>Total Expenses</b>	34.4	10.2	43.29	6.6	9.8	28.4
Raw Material, Stores, Spares	15.5	10.7	34.9	22.8	2.4	51.1
Power, Fuel and Water Charges	(1.4)	(5.4)	3.4	18.3	0.6	198.5
Compensation to employees	18.4	44.1	5.2	5.4	3.7	160.1
Interest Expenses	0.19	118.6	(2.3)	(22.6)	(0.3)	(40.25)
Depreciation	0.95	4.6	18.5	72.1	0.2	83.6

<b>PAT</b>	7.16	13.1	70.5	74.2	3.24	159.2
<b>Total</b>	627.7	115.1	862.5	75.9	15.13	42.2
<b>Liabilities</b>						
Shareholder's Funds	604.1	147.8	523.6	83.7	16.3	96.1
Paid up Equity Capital	17.6	103.5	(2.23)	(12.7)	0.19	6.9
Reserves and Funds	585.8	149.3	533.5	87.7	16.1	113.6
Non-Current Liabilities	1.07	3.2	197.3	102.6	2.4	170.8
Long Term Borrowings	5.6	124.9	81.04	63.5	0.4	128.9
Current Liabilities	23.1	22.4	133.8	42	(3.6)	(20.9)
<b>Net Worth</b>	604.1	147.8	523.6	83.7	16.3	96.1
Tangible Net Worth	603.5	148.2	509.2	8109	16.3	96.9
<b>Total Assets</b>	627.7	115	862.5	75.9	15.1	42.2
Non-Current Assets	552	197.9	732.9	98.4	11.1	97.3
Net Fixed Assets	(14.9)	(9.7)	124.6	45.4	6.24	110.5
Long Term Investments	534.3	2370.7	377	163.6	2.04	102.4
Current Assets	75.7	28.4	129.5	33.1	4.01	16.4

In the table 4.4.1, we have comparative analysis starting with PH1. The Power, Fuel and Water charges under the main head of Total Expense witness a fall post-M&A. There is a decline of 5.4% in comparison to the pre period. The shareholder's funds increase by 147.8%. Both these changes show positive sign for the company. There is a fall of almost 22% in interest expenses. We also see that there is an increase in stock by 215.3%. It is appreciable for a

company whose major proportion of the revenue comes through sales. There is a 159.2% increase in PAT post-M&A shows a favourable impact of M&A on the profits of the company. The net fixed assets increase by 110.5% which is a good sign for the company. The current assets increase by 16.4% and the current liabilities decline by 20.9%, which again depicts a very good short term solvency of the company.

**Table 4.4.2** Comparative analysis among companies

	PH4		PH5		PH6	
	Absolute Change	Percentage Change	Absolute Change	Percentage Change	Absolute Change	Percentage Change
<b>Sales</b>	220.6	15	195.1	179.2	173.1	31.8
<b>Change in Stock</b>	(12.8)	(52)	0.6	24.9	3.04	31.2
<b>Total Expenses</b>	244.6	20.3	129.1	136.3	208.4	43.8
Raw Material, Stores, Spares	7.5	2.1	(31.4)	(33.1)	14.4	10.7
Power, Fuel and Water Charges	3.3	6.1	(24.9)	(75.9)	4.2	33.9
Compensation to employees	70.3	47.3	21.4	128.4	45.3	71.8
Interest Expenses	(0.2)	(19.8)	(2.5)	(53.9)	35.8	300.2
Depreciation	23.2	80.4	4.8	97.1	42	258

<b>PAT</b>	(38.7)	(11.4)	73.3	381.7	(6.5)	(5.9)
<b>Total</b>	1288.8	84.1	311.5	150.9	876.2	108.6
<b>Liabilities</b>						
Shareholder's Funds	1193.2	101.6	294.2	242.6	321.2	85.6
Paid up Equity Capital	(1.8)	(12.1)	(0.17)	(3.12)	0.7	6.2
Reserves and Funds	1195	103.1	294.9	254.8	320.4	88.2
Non-Current Liabilities	37.7	55.4	(17.9)	(67.9)	393.7	175.6
Current Liabilities	57.9	20.1	34.7	59.3	161.2	77.8
<b>Net Worth</b>	1323.4	112.7	294.2	242.6	320.7	85.4
Tangible Net Worth	1192.3	101.7	294.1	244.3	(149.7)	(54.8)
<b>Total Assets</b>	1288.8	84.1	311.5	150.9	876.2	108.6
Non-Current Assets	785.9	117.6	107.6	74.5	748.8	196.4
Net Fixed Assets	128.8	36.3	10.1	11.3	668.1	272.3
Long Term Investments	561.5	28.9	(1.6)	(9.6)	(4.12)	(16.1)
Current Assets	502.9	58.2	203.8	329.1	127.4	29.9

---

The table 4.4.2 shows the comparative analysis where the PH4 witnesses a fall of 11.4% in the PAT of the company which does not represent a favourable impact of M&A on the company. The paid up capital sees a decline post-M&A that signifies the lack of confidence of the shareholders in the company. There is a fall in the expenditure of raw material, stores and spares by 33.1% and Power, fuel and water charges by 75.9% and interest expenses by 53.9%. All these form a substantial part of the total expenses and such a change is very advantageous for the company. The tangible net worth of the PH6 has fallen by 54.8% which is definitely not an appreciative change post-M&A. This reduces the liquidity of the company and is a cause of concern for the management. Again the long term investment shows a negative trend post-M&A.

## Conclusion

### Practical Implications

CACA forms a comprehensive test for evaluating future survival of a company. Many premier authors were of the opinion that ratios related to efficiency, assets, liquidity, profitability and capital structure move in tandem with the economic changes in the country (Endri & Rinaldo, 2020). A company doing CACA will be able to analyse their own faults and issues in decision making. It can thereby help in rectifying the actions taken by the management. Therefore, financial ratio analysis is a significant tool for the decision makers of the companies to study their current position and come up with the required corrective actions.

### Concluding Remarks

The present study showcases the analysis of financial performance of companies in the pharmaceutical sector pre and post-M&A. It evaluates the positive impact of M&A on the financial performance of the company. Therefore, this study aims to understand it as a blueprint of a company's performance management tool.

The comparative analysis among companies shows varied results. PH5 shows a commendable increase in PAT post-M&A with an increase of 381.7%. The same cannot be stated about PH4 that shows 11.4% and PH6 with 5.9% fall post-M&A. Again PH5 witnesses the highest percentage increase in sales and net worth. Therefore, all in all PH5 has gained and performed the best post-M&A. It gains the most from its M&A. While calculating CACA descriptive statistics of major heads in the financial statement are calculated. While there is a noteworthy increase in the mean sales value for PH5 post-M&A, this increase is accompanied with a considerable rise in total expenses and standard deviation values. All other companies do not witness such a profound increase in sales. Hence, out and

out PH5 benefits the most due to M&A.

Overall, it can be interpreted that CACA is indispensable for the evaluation of financial performance of a company. Ratio Analysis has been used as a tool to find out bankruptcy, financial distress, success or failure of the company. It works as a diagnostic tool to assess the financial performance of any company and the probable existence of the company in the future. Today, when the economy is so dynamic and robust, companies always have an eye on alternatives to survive and ultimately grow profitably, financial ratios provide a pragmatic view of a company's financial position (Subramaniam, Wild & Yanti, 2010). Right now is the period of opportunity for the pharmaceutical companies to gather resources and synergise their operations for collaborative profits. This study will be the most beneficial for the managers of such companies that are wary of going in for M&A. Since the study articulates about the ratios that are highly predictive of the financial performance of the companies, it will guide them to take correct decisions for restructuring the companies. This will positively impact the nation as a whole at a time when the pharmaceutical companies' contribution to the society is pivotal.

### Limitations and Scope of Future Research

The present study considers financial ratios to analyse the performance of companies in the pharmaceutical sector post-M&A. The study may increase the number of ratios under the existing three heads of ratios or may expand the heads of ratios for bringing out in-depth results. More companies can be added to existing companies for giving enriched conclusions about the research. Furthermore, the study is one sector specific i.e. pharmaceutical sector; a similar evaluation may also be done with other industries like textile sector, manufacturing sector, service sector etc. that could be useful for the dynamic Indian economy. Another interesting area of research will be an inter-sector analysis where two competitive sectors may be selected and a comparison may be done that will analyse the success rate of M&A specific to the sector. The present study will help in forming a base to form a theory that finds out the impact of M&A on the financial performance with and ratio analysis. This theory will then be replicated to other sectors as well.

### References

- Altman, E.I. (1968). Financial ratios, discriminant analysis and the prediction of corporate Bankruptcy, *The Journal of Finance*, 23(4), pp.589-609. <http://doi.org/10.1111/j.1540-6261.1968.tb00843.x>
- Bajaj, A.K. (2019). *Health check*. Grant Thornton: An



- instinct for growth [online] website: <https://www.grantthornton.in/en/insights/articles/health-check-q2-2019/> (accessed on 22 February 2020)
- Barnes, P. (1990). The Prediction of takeover targets in the U.K. by means of Multiple Discriminant Analysis. *Journal of Business Finance & Accounting*, 17(1), pp. 73-84. <http://doi.org/10.1111/j.1468-5957.1990.tb00550.x>.
- Barreda, A.A., Kageyama, Y., Singh, D. and Zubieta, S. (2017). Hospitality Bankruptcy in United States of America: A Multiple Discriminant Analysis-Logit Model Comparison. *Journal of Quality Assurance in Hospitality & Tourism*, 18(1), pp.86-106. <http://doi.org/10.1080/1528008X.2016.1169471>
- Beaver, W. (1966). Financial Ratios as Predictors of Failure', *Journal of Accounting Research*, 4, pp. 71-111. <http://doi.org/10.2307/2490171>.
- Bose, S. (2006). Merger and acquisition: A Study in Indian Context [Ph.D. dissertation], University of Kalyani, West Bengal, India
- Bowlin, O.D. (1963). The current ratio in current position analysis. *Financial Analysts Journal*, 19(2), pp.67-72. <http://doi.org/10.2469/faj.v19.n2.67>.
- Castagna, A.D. (1976). Financial ratios as predictors of company acquisitions. *The securities institute journal*, pp.6-10.
- Christopoulos, A.G., Dokas, I.G., Kalantonis, P. and Koukkou, T. (2019). Investigation of financial distress with a dynamic logit based on the linkage between liquidity and profitability status of listed firms. *Journal of the Operational Research Society*, 70(10), pp.1817-1829. <http://doi.org/10.1080/01605682.2018.1460017>.
- Courtis, J. K. (1978). Modelling financial ratios Categorical Framework. *Journal of Business Finance & Accounting*, 5(4), pp.371-386. <http://doi.org/10.1111/j.1468-5957.1978.tb01059.x>.
- Endri, E., Susanti, D., Hutabarat, L., Simanjuntak, T.P. & Handayani, S. (2020). Financial performance evaluation: Empirical analysis of pharmaceutical companies in Indonesia. *Systematic Review Pharmacy*, 11(6), pp. 803-816.
- Endri, E. & Rinaldo, N.V. (2020). Analysis of Financial Performance of Plantation Sub-Sector Companies Listed on the Indonesia Stock Exchange for the 2014-2019 Period. *International Journal of Innovative Science and Research Technology*, 5(4), pp. 530-536.
- EP News Bureau (2020) Finding the Silver Lining of Corona Virus Pandemic. *Express Pharma*, 15(10). Available at [www.expresspharma.in](http://www.expresspharma.in). (Accessed on 17 March 2020)
- Ferrier, W.J., Fhionnlaoich, C.M., Smith, K.G., & Grimm, C.M. (2002). Impact of performance distress on aggressive competitive behaviour: A reconciliation of conflicting views. *Managerial & Decision Economics*, 23, pp.301-316. <http://doi.org/10.1002/mde.1067>.
- Hisham Fadel & John M. Parkinson (1978). Liquidity Evaluation by Means of Ratio Analysis, *Accounting and Business Research*, 8(30), 101-107. <http://doi.org/10.1080/00014788.1978.9729114>
- Imhanzenobe, J.O. (2020). Managers' financial practices and financial sustainability of Nigerian manufacturing companies: Which ratios matter most? *Cogent Economics & Finance*, 8(1), pp.1-23. <http://doi.org/10.1080/23322039.2020.1724241>.
- India Brand Equity Foundation (2019). Pharmaceuticals [online] Available at <https://www.ibef.org/sector/pharmaceutical-india.aspx>. (Accessed on 8 March 2020)
- Innocent, E.C., Mary, O.I. and Matthew, O.M. (2013). Financial ratio analysis as a determinant of Profitability in Nigerian Pharmaceutical Industry. *International Journal of Business and Management*, 8(8), pp. 107-117. <http://doi.org/10.5539/ijbm.v8n8p107>
- Lessambo F.I. (2018). Financial Ratios Analysis, Financial Statements, Palgrave Macmillan, Cham. [http://doi.org/10.1007/978-3-319-99984-5\\_17](http://doi.org/10.1007/978-3-319-99984-5_17)
- Liang, D., Lu, C. C., Tsai, C. F., & Shih, G. A. (2016). Financial Ratios and Corporate Governance Indicators in Bankruptcy Prediction: A Comprehensive Study. *European Journal of Operational Research*, 252(2), pp. 561-572. <http://doi.org/10.1016/j.ejor.2016.01.012>.
- Mahajan, V. (2020). Is productivity of Indian pharmaceutical industry affected with the introduction of product patent act? *Indian Growth and Development Review*, Vol. 13 No. 1, pp. 227-258. <https://doi.org/10.1108/IGDR-11-2018-0116>.
- Mahajan, V., Nauriyal, D.K. & Singh, S.P. (2014). R&D and Performance Analysis of Indian Pharmaceutical Firms: An Application of DEA. *Advances in Intelligent Systems and Computing*, vol. 259, pp. 303-313. [http://doi.org/10.1007/978-81-322-1768-8\\_28](http://doi.org/10.1007/978-81-322-1768-8_28).
- Majumder, M.T.H. & Rahaman, M.M. (2011). Financial

- analysis of selected pharmaceutical companies in Bangladesh. *Journal of Biology, Agriculture and Healthcare*, 1(2), pp. 25-49.
- Mateos-Ranco, A & Mas, A.L. (2011). Developing a business failure prediction model for cooperatives: Results of an empirical study in Spain. *African Journal of Business Management*, 5(26), pp.10565–10576. <http://doi.org/10.5897/AJBM11.1415>.
- McKinsey & Company (2020). India Pharma 2020 Propelling access and acceptance, realising true potential [Online]. Available at [www.mckinseycompany.com](http://www.mckinseycompany.com) (Assessed on 3 March 2020)
- Moreno, A.M. & Casillas, J.C. (2007). High-growth SMEs versus non-high growth SMEs: a discriminant analysis, *Entrepreneurship and Regional Development*, 19, pp. 69-88. <http://doi.org/10.1080/08985620601002162>
- Novyarni, N. & Ningsih, L. (2019). Comparative Analysis of Financial Ratios and Economic Value Added Methods in Assessing Company Financial Performance, *Advances in Economics, Business and Management Research*, 127, pp. 137-142. <https://dx.doi.org/10.2991/aebmr.k.200309.031>
- Ocal, M.E., Oral, E.L., Erdis, E. and Vural, G. (2007). Industry financial ratios-application of Factor Analysis in Turkish construction industry. *Building and Environment*, 42, pp. 385 - 392. <http://doi.org/10.1016/j.buildenv.2005.07.023>.
- O'Connor, M. C. (1973). On the usefulness of financial ratios to Investors in Common Stock. *Accounting Review*, 48(2), pp.339–352.
- Okoye, L. U., Erin, O. A., Ado, A., & Areghan, I. (2017). Corporate governance and financial sustainability of microfinance institutions in Nigeria. 29th IBIMA conference, Vienna, Austria.
- Park, Y.-C., Kim, B.-K. & Lee, S. (2017). The effects of alliance governance on knowledge acquisition and alliance performance of Korean firms, *Asian Journal of Technology Innovation*, 25(3), 428-446. <http://doi.org/10.1080/19761597.2018.1435164>
- Parasanna, C. (2004). *Investment Analysis and Portfolio Management*. Tata McGraw-Hill Publishing Company Ltd., New York.
- Rahaman, M.M. (2014). Financial Performance of Pharmaceutical Industry in Bangladesh with special reference to Square Pharmaceutical Ltd. *IOSR Journal of Business Management*, 16 (10), pp. 45-53.
- Shahnia, C., Endri, E. (2020). Dupont Analysis for the Financial Performance of Trading, Service & Investment Companies in Indonesia. *International Journal of Innovative Science and Research Technology*, 5(4), pp. 193-211.
- Sil, B.K. and Saha, M. (2013). Post-Merger Scenario of some selected pharmaceutical companies in India: a Study [Ph.D Thesis]. University of Calcutta, West Bengal, India.
- Skogsvik, K. (1990). Current cost accounting ratios as predictors of business failure: the Swedish case. *Journal of Business Finance & Accounting*, 17(1), pp. 137-160. doi:10.1111/j.1468-5957.1990.tb00554.x
- .Subramanyam, K.R., Wild, J. & Yanti, D. (2010). Analisis Laporan Keuangan : Financial Statement analysis. Jakarta: Salemba Empat
- Van Horne, J.C. (1990). *Financial Management and Policy*, 12th ed., Prentice Hall Inc., Stanford University, New Jersey.
- Wang, X., Dennis, L., & Tu, Y. S. (2007). Measuring financial condition: A study of U.S. states. *Public Budgeting & Finance*, 27(2), pp. 1–21. <http://doi.org/10.1111/j.1540-5850.2007.00872.x>.
- World Economic Outlook: The Great Lockdown (2020). “Global prospects and Policies” [online]. Available: <https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020>. [Accessed: 21-April-2020].
- Xiao, H. (2020). Anchoring in international merger and acquisition equity decisions: evidence from Chinese firms. *Baltic Journal of Management*, 15(3), pp. 395-410. <https://doi.org/10.1108/BJM-04-2019-0124>
- Yim, J. and Mitchell, H. (2005). A comparison of corporate distress prediction models in Brazil: hybrid neural networks, logit, models and discriminant analysis, *Nova-Economia-Belo Horizonte*, 15(1), pp.73-93.
- Zenzerović, R. (2009). Business' Financial Problems Prediction - Croatian Experience. *Economic Research-Ekonomska Istraživanja*, 22(4), pp.1-15. <http://doi.org/10.1080/1331677X.2009.11517387>