



## A COMPARATIVE ANALYSIS ON FINANCIAL PERFORMANCE OF INFOSYS LTD. USING RATIO ANALYSIS AND TREND ANALYSIS: AN EMPIRICAL STUDY

**Jerika Subba**

Student Of Management, Centre For Innovative Studies, University Of North Bengal

**Raj Das**

Faculty Of Commerce, Centre For Innovative Studies, University Of North Bengal

### ABSTRACT

The main focus of this research paper is to make a comparative analysis of one of the leading IT Company by market capitalization named Infosys Ltd. The financial status of this company has been analyzed by leveraging out various financial ratios such as liquidity, profitability, solvency and activity ratios. For the purpose of conducting our research, the data has been collected from secondary sources such as company's annual reports, journals, etc. The study covers a time period from FY18 to FY22. Sampling technique adopted for the purpose of carrying out this research is purposive sampling method. We also used trend analysis to forecast the future growth in sales and profitability of the business. This research also uses simple correlation technique to compute the relationship between liquidity and profitability of the company. More interestingly, this paper also considers the outputs of regression analysis so as to find the cause - and - effect relationship among variables.

**KEYWORDS :** IT company, Infosys Ltd., Ratio analysis, Correlation, Regression.

### INTRODUCTION

Infosys limited (INFY) is an Indian multinational software services company headquartered in Bangalore, India. It is a global leader in business consulting, technology services and enterprise software. Since its inception in 1981, Infosys has grown from a small Indian company into one of the largest providers of information technology and business consulting in the world. Its offerings range from traditional information technology services to newer domains such as Big Data, the Internet of Things (IoT), Artificial Intelligence (AI) and machine learning (ML). Infosys also provides a range of services in the banking and financial service sectors. The Company's global delivery model focuses on three key capabilities – consulting, technology and outsourcing.

Financial ratios are critical tool for assessing the health of the company. In this paper, we will analyze the financial performance of Infosys Ltd. using few key financial ratios. The analysis will focus on the following key areas: Profitability, liquidity and solvency. This paper also provides the comprehensive overview of the performance and financial status of Infosys Ltd. by compiling information about the company from its income statements, balance sheets and cash flow statements found in the annual report of the company. In addition to the financial information found in the financial statements, this paper will also contain details about the company's financing activities throughout the past 5 years as well. It also focuses on finding the cause- and-effect relationship among variables using regression analysis. Simple correlation technique has been included to determine the relationship between different financial ratios. Trend Analysis has also been employed for predicting the potential increase in the sales and profitability of the business in the future.

### Review Of Literature

1. Kariyawasam (2019) have studied impact of financial ratios on financial performance of ten companies which were registered in Colombo stock exchange using financial ratios such as current ratio, leverage ratio, BV/MV ratio for the time period of 2013-2018. The findings of this research showed that current ratio, leverage ratio and firm size have a significant relationship with the net profit and growth of a company.
2. Adjirackor et al. (2017) conducted a study on Aryton Drugs to assess its profitability using financial ratios such as liquidity and profitability from 2010 to 2015. The study found that the company's leverage has increased over the years, and this increase was negatively correlated with profitability. However, the p-value indicated that the relationship between leverage and profitability was negative but not statistically significant. This information suggests that Aryton Drugs may need to take a closer look at its leverage and its impact on profitability in order to improve its financial performance.
3. Haralaya (2022) have studied the impact of ratio analysis on financial performance of Royal Enfield for the financial year 2018-19 to 2020-21 using ratio analysis such as solvency, profitability, and earnings ratios, etc. The findings showed that the net profit ratio fluctuated in all three years and the current ratio and quick ratio in FY2020 decreased in comparison to previous year. Moreover, the solvency ratio also reduced and in past three years an increase in cash position ratio was found.
4. Srinivasan. P (2018) have studied on financial performance using various financial ratios of Vellore cooperative sugar mills using ratio analysis such as activity ratios, liquidity ratios, solvency ratios and profitability. The findings showed that the overall financial performance was not satisfactory. The company needs to take right measures to control the cost, increase the volume of sales, profit in the future years and plan to properly use their operating assets in order to minimize their non-operating expenses.
5. Ali et al. (2014) have done a comparative study of National Petrochemicals Co. and Sahara Petrochemicals Co. of Saudi Arabia using ratio analysis for the financial year which ended on 31st December, 2013 for both the companies. The findings showed that the operational performance and the financial soundness of Sahara petrochemicals is comparatively better than that of National Company.
6. Desrani (2013) have done a comparative study of ratio analysis of Reliance textile industry, Raymond Ltd., Bombay Dyeing & Mfg. Co. Ltd., Grasim Bhiwami Textile Ltd., Alok Industries Ltd using ratio analysis for the time period of 2008 to 2012. The findings showed that Bombay and Raymond have to focus on the profitability and by maintaining the cost and increasing the sales both the company can improve their profitability.
7. Daryanto et al. (2021) conducted a study on PT. Japfa

Comfeed Indonesia to evaluate its profitability ratios before and during the COVID-19 pandemic using ratios such as return on assets, return on invested capital, return on equity, gross margin percentage, and profit margin for the period of 2019 to 2020. The study found that during the pandemic, the company's profitability ratios, including return on assets, return on invested capital, return on equity, and profit margin, all decreased compared to before the pandemic. However, the Paired T-test results showed that there was no significant difference in the company's profitability when evaluated by its return on assets and return on invested capital. Moreover, even after the pandemic, there was no significant change in the company's overall profitability performance. These findings suggest that PT. Japfa Comfeed Indonesia may have been able to manage the impact of the pandemic on its profitability by making strategic decisions and adjusting its operations accordingly.

**OBJECTIVES OF RESEARCH**

1. To analyze the financial status of the Infosys Ltd. using financial ratios so as to ascertain the liquidity, profitability, solvency position of the company.
2. To employ trend analysis to forecast the future performance of Infosys Ltd.
3. To examine the relationship between liquidity and the profitability of the selected company.
4. To provide suggestions and recommendation to improve the financial performance of the company if necessary.

**Research Methodology**

In order to conduct our research so as to access the financial health of Infosys Ltd. the data has been extracted for a period starting from 2017-18 to 2021-22. This study is solely based on secondary data collected through financial reports of the company, journals, websites etc. The sampling technique adopted for this research is purposive sampling technique. The relationship between various financial ratios and profitability will be checked using correlation analysis and for testing the hypothesis among the variables we relied on the outputs of regression analysis done using SPSS software.

**Data Analysis And Interpretation**

**Liquidity Ratio**

**Current Ratio**

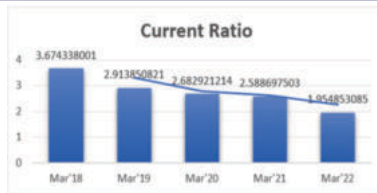
The current ratio is a tool that helps us understand whether a company can pay off its short-term debts. It does this by comparing the things a company owns that can be quickly converted to cash (like inventory or accounts receivable) to the amount of money the company owes to lenders and others in the short term.

**Formula**

$$\text{Current Ratio Formula} = \frac{\text{Current Assets}}{\text{Current Liability}}$$

**Table 1: Statement Showing The Computation Of Current Ratios For A Period 2018-22:**

Financial Years	Current Assets	Current Liabilities	Current Ratio
Mar'18	53,006	14,426	3.674338001
Mar'19	55,707	19,118	2.913850821
Mar'20	58,265	21,717	2.682921214
Mar'21	66,879	25,835	2.588697503
Mar'22	70,189	35,905	1.954853085



**Table 2: Average Current Ratio:**

1 - Year	3 Year's Average	5 Year's Average
1.954853085	2.408823934	3.000000000

**Interpretation**

An ideal current ratio according to the industry standards is 2:1. In case of Infosys Ltd. the computed average current ratio for the last five years is 3:1 which is well over the industry standards. The current ratio for FY22 is 1.95:1 and for FY21 it stands at 2.6:1. The current trend of liquidity for FY22 of Infosys Ltd. showed a marginal fall on YOY basis as compared to FY21. Overall, the current ratio of Infosys Ltd. is good but as far as FY22 is concerned, the current ratio has reduced below industry standards. This signifies that company can do more better or it may have problems meeting its short-term obligations.

**Solvency Ratio**

**Debt-equity Ratio**

A company's debt to equity ratio is a measure of their financial leverage, and it represents the amount of debt and equity they are using to finance their assets.

**Formula**

$$\text{Debt to Equity Ratio Formula} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

**Table 3: Statement Showing The Computation Of Debt-to-Equity Ratios For A Period 2018-22**

Financial Years	Total debt	Total equity	Debt-equity Ratio
Mar'18	0	1,088	0
Mar'19	0	2,170	0
Mar'20	4,633	2,122	2.183317625
Mar'21	5,325	2,124	2.507062147
Mar'22	5,474	2,098	2.609151573



**Table 4: Average Debt To Equity Ratio**

1 - Year	3 Year's Average	5 Year's Average
2.609151573	2.433177115	1

**Interpretation**

A debt-to-equity ratio of 2 or less than 2 is considered good. In case of Infosys Ltd., for the last two financial years 2018 and 2019, the debt-to-equity ratio was almost nil but it showed an increase in FY20 by 2.18; moreover, in comparison to FY20, the debt-to-equity ratio in the FY21 and FY22 showed a marginal increase to 2.50 and 2.60 respectively. This signifies that the company debt is significantly higher than its assets making the business more likely getting exposed to risk.

**Debt-capital Ratio**

The debt to capital ratio is a way to gauge how much debt a company has compared to its overall capital. It's an important metric because it helps us understand whether a company can manage its debts effectively.

**Formula**

$$\text{Debt to Capital Ratio} = \frac{\text{Total Debt}}{\text{Total Debt} + \text{Equity}}$$

**Table 5: Statement Showing The Computation Of Debt To Capital Ratios For A Period 2018-22**

Financial Years	Total debt	Total capital employed	Debt-capital Ratio
Mar'18	14,426	64,923	0.222201685
Mar'19	19,118	64,948	0.294358564
Mar'20	26,350	70,083	0.375982763
Mar'21	31,160	81,676	0.38150742
Mar'22	41,379	80,824	0.511964268



**Table 6: Average Debt To Capital Ratio:**

1 - Year	3 Year's Average	5 Year's Average
0.511964268	0.423151484	0.4

**Interpretation**

The above chart of the Infosys ltd. shows a marginal uptrend in the debt-capital ratio over the last five financial years. The debt-to-capital ratio of Infosys ltd. in FY19 has increased marginally from 0.22 in FY18 to 0.29 in FY19 and it has continued to show gradual increase from financial year 2020 to 2022. The five years average debt to capital ratio of Infosys ltd is 0.40.

**Equity Ratio**

Equity ratios are a type of solvency ratio that can be used to determine what value has been placed on the company's assets that have been financed by the owner's equity.

**Formula**

$$\text{Equity Ratio Formula} = \frac{\text{Total Equity}}{\text{Total Assets}}$$

**Table 7: Statement Showing The Computation Of Equity Ratios For A Period 2018-22**

Financial Years	Total equity	Total asset	Equity Ratio
Mar'18	64,923	79,349	0.818195566
Mar'19	64,948	84,066	0.772583446
Mar'20	65,450	91,800	0.712962963
Mar'21	76,351	1,07,511	0.710169192
Mar'22	75,350	1,16,729	0.645512255



**Table 8: Average Equity Ratio**

1 - Year	3 Year's Average	5 Year's Average
0.645512255	0.689548137	1

**Interpretation**

According to industry standards, equity ratios that are 0.50 and above are considered as conservative company. In case of Infosys Ltd., for the last five financial years 2018 to 2022 it has maintained its equity ratio. The average equity ratio for five years is 1 which is greater than 0.50, it implies that Infosys ltd. is a conservative company and they own more funding from equity than debt.

**Activity Ratio**

**Asset Turnover Ratio**

The asset turnover ratio is an efficiency metric that helps us understand how effectively a company is using its resources to generate sales or revenue. It does this by comparing the company's sales to its assets.

**Formula**

$$\text{Asset Turnover Ratio Formula} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

**Table 9: Statement Showing The Computation Of Asset Turnover Ratios For A Period 2018-22**

Financial Years	Net sales	Average total assets	Asset turnover ratio
Mar'18	70,522	81,249	0.867979101
Mar'19	82,675	81,708	1.011841018
Mar'20	90,791	87,933	1.032502019
Mar'21	1,00,472	99,656	1.008193226
Mar'22	1,21,641	1,12,120	1.084917945



**Table 10: Average Asset Turnover Ratio**

1 - Year	3 Year's Average	5 Year's Average
1.084917945	1.041871063	1

**Interpretation**

According to the Industry standard, an asset turnover of ratio of over 1 is always considered good. Higher asset turnover ratio means the company is earning more revenue by making use of its asset. The above chart of Infosys Ltd. shows a marginal uptrend in the asset turnover ratio over the last five financial years. The asset turnover ratio in FY 19 increased from 0.86 in FY18 to 1.01 in FY 19. The five years average asset turnover ratio is 1, it signifies that the company by employing its own resources is generating enough net revenue.

**Profitability Ratio**

**Operating Profit Margin**

Operating profit margin (OPM) is a key financial indicator that helps companies assess their profitability. It's simply the percentage of sales that falls below cost of goods sold (COGS).

**Formula**

$$\text{Operating Profit Margin Formula} = \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$$

**Table 11: Statement Showing The Computation Of Operating Profit Margin For A Period 2018-22**

Financial Years	Net profit	Total revenue	Net profit margin
Mar'18	16,029	1,21,641	13.17730042
Mar'19	15,410	1,00,472	15.3376065
Mar'20	16,639	90,791	18.32670639
Mar'21	19,423	82,675	23.49319625
Mar'22	22,146	70,522	31.40296645



**Table 12: Average Operating Profit Margin**

1 - Year	3 Year's Average	5 Year's Average
25.8884751	26.05733871	26

**Interpretation**

According to Industry standard, typically an operating profit margin of about 15% or higher is considered good. From the above chart of Infosys Ltd., it can be seen that the operating profit margin is showing downward trend over the last four financial year FY18. In FY21 it showed a surge by 27.75 and in FY22 In FY21 it showed a surge to 27.75 and in FY22 the operating profit margin dropped to 25.88 compared to preceding year FY21. The five years average operating profit margin is 26, it signifies that the company is profitable and its operating efficiency is good.

**Net Profit Margin**

The net profit margin is a metric that shows us the percentage of sales that remain after all expenses have been covered.

**Formula**

$$\text{Net Profit Margin Formula} = \frac{\text{Net Profit}}{\text{Total Revenue}} \times 100$$

**Table 13: Statement Showing The Computation Of Net Profit Margin For A Period 2018-22:**

Financial Years	Operating profit	Net sales	Operating profit margin
Mar'18	18,822	70,522	26.68954369
Mar'19	20,170	82,675	24.3967342
Mar'20	22,267	90,791	24.5255587
Mar'21	27,889	1,00,472	27.75798232
Mar'22	31,491	1,21,641	25.8884751



**Table 14: Average Net Profit Margin**

1 - Year	3 Year's Average	5 Year's Average
31.40296645	24.40762303	20

**Interpretation**

Higher net profit margin indicates efficient operation management and overall profitability of the business. In case of Infosys Ltd., the above chart shows an increase in the net profit margin over the following 4 years. The average asset turnover ratio for the last five financial years is 20, it indicates that the company has good profitability performance.

**Return On Equity Ratio**

Return on Equity (ROE) is a measure of profitability used by businesses to compare the profit that a firm earns against the value of its shareholders' equity

**Formula**

$$\text{Return on Equity (ROE) Formula} = \frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

**Table 15: Statement Showing The Computation Of Return On Equity Ratio For A Period 2018-22**

Financial Years	Net profit	Shareholders' equity	Return on equity
Mar'18	16,029	1,088	14.73253676
Mar'19	15,410	2,170	7.101382488
Mar'20	16,639	2,122	7.841187559
Mar'21	19,423	2,124	9.144538606
Mar'22	22,146	2,098	10.5557674



**Table 16: Average Return On Equity**

1 - Year	3 Year's Average	5 Year's Average
10.5557674	9.180497854	10

**Interpretation**

According to Industry standard, a return on equity ratio of 15% to 20% is usually considered good. A higher return on equity ratio implies that a company has efficiently utilized its shareholder's equity to generate income. From the above chart, we can see that the ROE of Infosys ltd. took a plunge in the FY19 compared to the preceding FY18 from 14.7 to 7.10 respectively, thereafter it showed a gradual increase in FY20 to FY22 compared to the previous years. The average return on equity ratio for five years is 10, this signifies that the company should do more better in utilizing the capital efficiently invested by the shareholders.

**Return On Capital Employed**

Return on capital employed is a financial metric that helps us understand how much profit a company is generating for the amount of money it has invested in its business operations.

**Formula**

$$\text{Return on Capital Employed} = \frac{\text{EBIT}}{\text{Total Assets} - \text{Total Current Liabilities}}$$



**Table 17: Statement Showing The Computation Of Return On Capital Employed Ratio For A Period 2018-22**

Financial Years	EBIT	Capital employed	Return on capital employed
Mar'18	20,270	64,923	0.31221601
Mar'19	21,041	64,948	0.323966866
Mar'20	22,007	65,450	0.336241406
Mar'21	26,628	76,351	0.348757711
Mar'22	30,110	75,350	0.399601858



**Table 18: Average Return On Capital Employed**

1 - Year	3 Year's Average	5 Year's Average
39.9601858	36.15336582	34

**Interpretation**

A higher return on capital employed (ROCE) suggests that a company is effectively using the capital invested in it to generate profits, usually ROCE of at least 20% is considered good. From the above chart, we can see that the ROCE of Infosys Ltd. is upward sloping, gradually increasing from FY18 to FY22. The average ROCE for last five years is 34, this signifies that the company is efficiently and effectively utilizing its capital in its business operations and generating maximum profits.

**HYPOTHESIS**

H<sub>0</sub> - There is no significant impact of liquidity on profitability

H<sub>1</sub> - There is a significant impact of liquidity on profitability

**Table 19: Relationship between profitability and liquidity of Infosys Ltd. from 2018-19 to 2021-22**

Year	CORRELATION	
	Profitability (Net Profit Ratio)	Liquidity (Current ratio)
Mar'18	13.17730042	3.674338001
Mar'19	15.3376065	2.913850821
Mar'20	18.32670639	2.682921214
Mar'21	23.49319625	2.588697503
Mar'22	31.40296645	1.954853085
Correlation	-0.916838602	

Table 19, shows the correlation coefficient between profitability and liquidity of Infosys Ltd. for the past five years covering 2018 to 2022. The computed correlation coefficient is -0.916838602 indicating a very strong negative relationship between these two variables. This means that when liquidity decreases, profitability tends to increase, vice versa.

**Table 20: Regression Coefficients Of Profitability And Liquidity Of Infosys Ltd.**

Name of company	P-value	R square	F (1,4)
Infosys Ltd.	0.03485*	0.771614	13.51422**

Note: N = 5

\* Implies the hypothesis is rejected at 5% level of significance.  
 \*\* F (1,2); implies that the computed value is greater than the critical value

Table 20, explains the impact of liquidity on profitability of Infosys Ltd. The calculated R<sup>2</sup> value of 0.771614 suggests that the regression model explains 77.16% of the variability in profitability is due to the liquidity of Infosys Ltd. Since, the P-value (0.003) is less than 0.05 and the F statistics (13.51422) is

greater than the critical value (7.7086) at 5% level of significance, we reject the H<sub>0</sub> (null hypothesis) and conclude that there is statistically significant impact of liquidity on profitability of Infosys Ltd

**Trend Analysis**

It is the process of examining changes in data over time to identify patterns and predict future trends.

**Table 21, Shows Trend value For Sales from FY18-FY22.**

Year	Net profit (Y) (in crores)	X = 2 * (Year - 2020)	X <sup>2</sup>	XY	Y = α + βx
2018	70,522	-4	16	-2,82,088	69213.2
2019	82,675	-2	4	-1,65,350	81216.7
2020	90,791	0	0	0	93220.2
2021	100,472	+2	4	2,00,944	105223.7
2022	121,641	+4	16	4,86,564	117227.2
Total	ΣY = 4,66,101	ΣX = 0	ΣX <sup>2</sup> = 40	ΣXY = 2,40,070	

**Table 22: Forecasted Value Of Sales For FY23 - FY25**

Year	X	Y = α + βx
2023	6	129,230.7
2024	8	141,234.2
2025	10	153,237.7

**Interpretation**

From the above table, it can be seen that the sales of Infosys Ltd., has been steadily increasing over the past few years, with sales reaching 70,522 cr. in FY18 and 121,641 cr. in FY22 thereby indicating a positive sales trend for the company. Using linear regression analysis to forecast future sales, the projected sales values for FY23 and FY24 are 129,230.7 and 141,234.2 crores respectively, these values suggest that the sales of Infosys Ltd. will continue to grow during these years indicating a positive sales outlook. However, the forecast for 2025 suggest a slight decrease in sales to 99,221.95 cr., which could indicate a slowdown in growth or a temporary fall in sales.

**Table 23, Shows Trend Value For Profit After Tax From 2018-2022**

Year	Net profit (Y) (in crores)	X = 2 * (Year - 2020)	X <sup>2</sup>	XY	Y = α + βx
2018	16,029	-4	16	-64,116	14,680
2019	15,410	-2	4	-30,820	16,304.7
2020	16,639	0	0	0	17929.4
2021	19,423	+2	4	38,846	19,554.1
2022	22,146	+4	16	88,584	21,178.8
Total	ΣY = 89,647	ΣX = 0	ΣX <sup>2</sup> = 40	ΣXY = 32,494	

**Table 24: Forecasted Value Of Profit For FY23-FY25**

Year	X	Y = α + βx
2023	6	22803.5
2024	8	24,428.2
2025	10	26,052.9

**Interpretation**

From the above table, it can be seen that the profit after tax of Infosys Ltd., has increased over the past few years, with profits reaching 16029 cr. in 2018 and 22149 cr. in 2022, indicating a positive trend in the company's profitability. Using linear regression analysis, the forecasted profits are 22803.5 cr. in 2023, 24428.5 in 2024 and 26052.9 cr. in 2025. These values

suggest that the profitability of Infosys Ltd. will continue to grow during these years, indicating a positive outlook for the company.

## CONCLUSION

Findings of the study shows that the overall financial performance of Infosys ltd. has been good, the liquidity ratio of the company has drastically improved over the years which indicates that Infosys Ltd is highly liquid and have sufficient assets to pay its short - term debt obligation. In terms of profitability, Infosys Ltd has shown a positive trend in its profits on year-on-year basis. The operating efficiency indicates that the company was able to efficiently generate adequate sales volume as compared to the available assets in business. Overall, Infosys Ltd has a sound liquidity, profitability and activity ratio. However, an inspection to the solvency position signifies that the company's debt is significantly higher than its assets making the business more likely getting exposed to risk. The output obtained from trend analysis to forecast future growth in profits and sales for FY23, FY24 and FY25; indicated a positive growth. The output report of regression analysis also focuses on having statistically significant impact of liquidity on profitability of Infosys Ltd. whereas the output report of correlation coefficient showed a very strong negative relationship between liquidity and profitability.

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