A Comparative Study on Profitability Analysis of Selected Indian Information Technology Industries

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Abstract

IT has great possibility of becoming an engine of accelerated economic growth, efficiency, improvement for all sectors of the economy, developing India's position in export market, improving trade insufficiency and means of efficient governance. This study is based on secondary data and discussions with personnel concerned. The secondary data consists of the annual reports of three IT Industries ranging for the last 10 years. The data of the sample IT industries (for a period of five years from 2008 to 2012) has been collected from the annual reports published by the IT industries. The Financial tool that is used for the purpose of analysis are Earning Per Share(EPS), Operating Profit Margin(OPM), Net Profit Margin(NPM), Debt Equity Ratio(DER), Return On Assets(ROA), Return On Net worth(RNW), Current Ratio (CR), Fixed Assets Turnover Ratio(FTR) In this study we shall make analysis of each ratio by Descriptive Statistics (Mean, S.D., C.V.), Trend Analysis, One Way ANOVA and Two Way ANOVA.

Keywords: [Profitability, IT Industries, India]

Introduction

Despite the global economy growing up, the Indian Information technology industry is maintaining a steady pace of growth. Financial analysis is an aspect of the overall business finance function that involves examining historical data for gain information about the current and future financial health of a company. IT has great possibility of becoming an engine of accelerated economic growth, efficiency, improvement for all sectors of the economy, developing India's position in export market, improving trade insufficiency and means of efficient governance. In enhances way in to information, protects consumers, provides access to government services, makes skill creation and training more effective, improves liberation of health services, and promotes simplicity. The present paper attempts to measure the profitability position of leading Indian IT companies for the period 2005-15. The paper is structured as follows: it presents scope of study, a brief review of the literature dealing with the accounting and liquidity performance, followed by a description of the objectives, data and methodology. Subsequently, it discusses the results, and finally, offers the conclusion.

Review of Literature

Bortolotti et al. (2002) examined the financial and operating performance of thirty one national telecommunication companies in twenty five countries that were fully or partially privatized through public share offering. Using conventional pre-versus post-privatization comparisons and panel data estimation techniques, they find that the financial and operating performance of telecommunication companies improves significantly after privatization, but a sizable fraction of the observed improvement results from regulatory changes-alone or in combination with major ownership changes-rather than from privatization alone

Rao et al. (2013) in their study entitled "An Empirical Analysis on Financial Performance of Public Sector Housing Corporation in India: A Case Study of HUDCO", stated that the main concept of their study is Profitability and liquidity management is of crucial importance in financial management decision. The most favourable financial performance could be achieved by a company that can trade-off between profitability and liquidity performance indicators. The purpose of this study is to find out the financial position of and know the significance of them. Descriptive statistics discloses that performance of the selected unit in terms of liquidity, solvency and profitability position is very satisfactory and relatively efficient financial position is found in 36 all the cases. They suggested that both the institutions under the study should concentrate on financial profitability, especially unexplained variables in purpose of creating shareholders" wealth

Daga and Parikh (2014) analyzed the financial performance of three IT giants of India – Tata Consultancy Services limited (TCS), Wipro Limited and Infosys Technologies Pvt. Ltd and understanding their foreign market exposure risk. With depreciation of Indian currency (depreciated to almost 60% since global economic crises 2008), understanding the exposure risk of Indian IT sector becomes all the more important. The study is based upon secondary data covering the period from 2003-2004 to 2012-2013. For analyzing the financial performance of all the three companies, growth analysis and ratio analysis are calculated. To understand the foreign market exposure risk Coefficient of Variation and Ratio analysis of turnover, gross profit and net profit for companies for two different period, 2003-2008 and 2008-2013 are calculated and compared.

Davda (2012) analyzes the profitability position of the sample banks ICICI, HDFC, AXIS, KOTAK MAHINDRA, ING Vysya Bank and Indusind Bank for a period of ten years 2002 to 2011. The study helps an investor who would like to be rational and scientific in his investment activity has to evaluate a lot of information about past performance and the expected future performance of the companies, industries and the economy as a whole before taking the investment decision The Financial tool that is used for the purpose of analysis are Earning Per Share, Net Profit Margin, Return on Equity, Assets turnover Ratio, and Return on Assets. While interpreting the results, the statistical tool of one way Analysis of Variance (ANOVA) has been used.

Sornaganesh and Maheswari (2014) anaylsed the profitability position the sample companies. The study adopts an analytical and descriptive research design. The data of the sample IT industries (for a period of five years from 2008 to 2012) has been collected from the annual reports published by the IT industries. The Financial tool that is used for the purpose of analysis are Earning Per Share(EPS), Operating Profit Margin(OPM), Net Profit Margin(NPM), Debt Equity Ratio(DER), Return On Assets(ROA), Return On Net worth(RNW), Current Ratio (CR), Fixed Assets Turnover Ratio(FTR).The statistical tool that is used for testing hypothesis is Two-Way Analysis Of Variance (ANOVA).

Objectives

In the background of the above discussion the following broad objectives are outlined to Study the Profitability Analysis of Information Technology Companies.

- To analyze the financial efficiency of the Information Technology Industries.
- To analyze the profitability position of the Information Technology Industries.

Research Hypothesis

The following Hypotheses have been taken to test

$H0_1$: The GPS of TCS, Infosys and Wipro does not differ significantly.

$H0_2$: The NPS of TCS, Infosys and Wipro does not differ significantly.

$H0_3$: The ROCE of TCS, Infosys and Wipro does not differ significantly.

$H0_3$: The RONW of TCS, Infosys and Wipro does not differ significantly.

Scope of the Study

The study aimed to make an analysis of financial performance of Information Technology industries in India. Hence, the present study is pertaining to Indian top three Information Technology companies. The study has used the financial facts of the selected companies from 2005-06 to 2014-15. The financial performance of the sample companies is evaluated in terms of Profitability.

Sample Design

Sampling Technique: The study is done with special reference to IT industries in India. The reason being that the data or the financial statements are readily available . Apart from this, IT industries in India are bound to disclose all their facts and figures publicly. Thus, the technique of 'Convenience Sampling' is being adopted for the study.

Sample Size: A sample of three IT Industries in India viz., TCS, INFOSYS and WIPRO is consider for the purpose of analysis.

Data and Variables

This study is based on secondary data and discussions with personnel concerned. The secondary data consists of the annual reports of three IT Industries ranging for the last 10 years.

Time Period of the Study

The study is conducted based on the audited financial statements of three selected companies of IT Industries for a period of 10years (2005-06 to 2014-15) The duration of the period is good enough to cover the short term fluctuations and is sufficient to provide insights into the performance of the different selected companies.

Methodology

The present study adopts an analytical and descriptive research design. The data of the sample IT industries (for a period of 10 years from 2005-06 to 2014-15) has been collected from the annual reports published by the IT industries. A finite sample size of three industries has been selected for the purpose of the study which are TCS, WIPRO and INFOSYS. .The following tools & techniques has been classified in the study

1. Profitability Ratio Analysis

A Ratio is figure showing the logical relationship between any two items taken financial Statement. A number of ratios are used by profitability analysis. They can be classified as

- Operating Profit Ratio,
- Net Profit Ratio
- ROCE
- RONW

2. Descriptive Statistical Analysis

- Mean
- S.D.
- C.V.

3. Straight line Trend Analysis

The trend equation is formed as

$$Y = \beta_0 + \beta_1 X$$

Where:

β_0 is the constant term and

β_1 is the slope of the trend line

4. Advanced technique such as One Way ANOVA and Two Way ANOVA are also applied

Results

Operating Profit Ratio

Operating Profit Ratio measures the relationship between operating profit and revenue from operation. An increase in the ratio over the previous period shows improvement in operational efficiency of the business enterprise. The results of various analyses on Operating Profit Ratio of selected IT Companies are as under:

Descriptive Statistics

Descriptive statistics of IT industries wise and year wise Operating Profit Ratio are shown in the following table no 4.1

Table 1: Descriptive statistics of Operating Profit Ratio between IT industries

Year	TCS	INF	WIP	Mean	SD	CV
2005-06	28.26	32.47	24	28.2	4.2	15.0
2006-07	27.7	31.8	22.9	27.5	4.5	16.2
2007-08	25.5	31.6	20	25.7	5.8	22.6
2008-09	26.2	33.5	20.5	26.7	6.5	24.4
2009-10	29.7	34.6	22	28.8	6.4	22.1
2010-11	29.8	32.6	20.7	27.7	6.2	22.5
2011-12	29.6	32	18.8	26.8	7.0	26.2
2012-13	29	28.9	20.45	26.1	4.9	18.8
2013-14	30.9	27.4	22.18	26.8	4.4	16.4
2014-15	26.1	28.7	21.9	25.6	3.4	13.4
Mean	28.3	31.4	21.3			
SD	1.8	2.3	1.5			
CV	6.5	7.3	7.2			

Table 1 shows the average Operating Profit Ratio of different years is the highest in case of Infosys (31.4), followed by TCS with average Operating Profit Ratio of different years (28.3) and Wipro with the average Operating Profit Ratio Of different years (21.3) .Coefficient of Variation of different years is highest in case of Infosys (7.3) showing more variability and less consistency in Operating Profit Ratio. Coefficient of Variation of different years is slightly less in case of Wipro (7.2) and lowest in case of TCS (6.5) showing more consistency and homogeneity and less variability in Operating Profit Ratio.

Year-wise analysis shows that the average Operating Profit Ratio is highest in the year 2009-10 that is 28.8 for selected three IT industries (TCS, Infosys and Wipro). Coefficient of Variation is highest in case of year 2011-12 (26.2 percent) indicating more variability in Operating Profit Ratio across the selected IT industries.

It is concluded that Infosys has the highest average Operating Profit Ratio as compare to all other selected IT Companies during the study period. TCS Company has higher degree of uniformity in Operating Ratio during study period. So, Infosys has more managerial efficiency as compare to other selected industries. It is also concluded that in the year 2014-15 of selected companies there is higher degree of uniformity in Operating Profit Ratio as compared to other years.

Straight line Trend Analysis

The trend equation is formed as

$$\mathbf{Y = \beta_0 + \beta_1 X}$$

Where:

β_0 is the constant term and

β_1 is the slope of the trend line

In trend analysis, we estimated Model Summary and trend equations of Operating Profit Ratio of selected companies.

Table 2: Model Summary for Operating Profit Ratio of selected Companies

	R	R2	F value	p value	Constant value	Beta coefficient	t value	p value
TCS	0.30	0.09	0.83	0.39	27.3	0.19	0.91	0.39
INF	0.68	0.46	6.81	0.03*	34.2	-0.51	-2.61	0.03*
WIP	0.34	0.11	1.02	0.34	22.3	-0.17	-1.01	0.34

*Significant at 0.05 level

The above table no.2 show that time doesn't have a significant effect on Operating Profit Ratio of TCS and Wipro because the coefficient of time is insignificant and R^2 is very low, therefore, the models of TCS and Wipro are not a good fit. But in the case of Infosys, time has a significant effect on Operating Profit Ratio because the coefficient of time is significant and R^2 is not very low.

The estimated trend equations are;

TCS: $y = 0.19X + 27.3$

INF: $y = -0.51X + 34.2$

WIP: $y = -0.17X + 22.3$

It is concluded that time does not affect much on the Operating Profit of TCS and Wipro Companies.

One Way Analysis of Variance

For the testing of the following hypothesis, One Way ANOVA has been applied on Operating Profit Ratio of selected companies.

Hypothesis:

H_0: There is no significant difference in Mean Operating Profit Ratio of selected IT Companies between the years.

H_1: There is significant difference in Mean Operating Profit Ratio of selected IT Companies between the years.

Table 3: One Way ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Years	30.12001	9	3.346668	0.112485	0.998997	2.392814
Within Years	595.0415	20	29.75207			
Total	625.1615	29				

The above table shows that the calculated F-value is less than that of table value, so null hypothesis is accepted .The result shows that there is no significant difference in Operating Profit Ratio of selected years.

It is concluded that Operating Profit Ratio of selected IT companies remained constant during the study period.

Two Way ANOVA

To test the following Hypotheses, Two Way ANOVA has been used on Operating Profit Ratio of selected companies

Hypothesis Testing:

Comparison between companies:

H_0: Mean Operating Profit Ratio of selected years is not significantly different between selected IT companies.

H_1: Mean Operating Profit Ratio of selected years is significantly different between selected IT companies.

Comparison between years:

H_0: Mean Operating Profit Ratio of selected IT companies is not significantly different between selected years.

H_1 ; Mean Operating Profit Ratio of selected IT companies is significantly different between selected years

Table 4: Two Way ANOVA for Operating Profit Ratio

Source of Variation	SS	Df	MS	F	P-value	F crit
Between the Companies	526.13	2	263.714	68.7	3.75e-09	3.55
Between the Years	30.129	9	3.34	0.87	0.57	2.45
Error	68.91	18	3.82			
Total	625.16					

The above table shows the result of Operating Profit Ratio between the companies and years

Between the Companies

The calculated F-value is more than the table value. So, the null hypothesis is rejected. The result shows that there is significant difference in Operating Profit Ratio of selected companies. It means that Operating Profit Ratio varies between the selected IT Companies.

Between the years

In the above table the calculated F-value is less than the table value. So, the null hypothesis is accepted, the result shows that there is no significant difference in Operation Profit Ratio between the years. This implies that the Operating Profit ratio has not fluctuated much in different years.

It is concluded that Operating Profit Ratio varies between the companies but not between years.

Net Profit Ratio

Net Profit Ratio establishes the relationship between net profit and revenue from operation. This ratio helps in determining the operational efficiency of the business .An increase in the ratio over the previous period shows improvement in operational efficiency and decline means otherwise. A comparison with the industry standard is also an indicator of the efficiency of a business. The results of various analyses on Net Profit Ratio of selected IT Companies are as under:

Descriptive Statistics

Descriptive statistics of IT industries wise and year wise Net Profit Ratio are shown in following table 5

Table 5: Descriptive statistics of Net Profit Ratio between IT industries

Year	TCS	INF	WIP	Mean	SD	CV
2005-06	22.21	25.23	19.28	22.2	3.0	13.4
2006-07	22.41	27.1	19.31	22.9	3.9	17.1
2007-08	21.98	27.91	16.43	22.1	5.7	26.0
2008-09	18.89	27.6	15.17	20.6	6.4	31.0
2009-10	23.31	27.55	17.01	22.6	5.3	23.4
2010-11	24.29	24.85	17.05	22.1	4.4	19.7
2011-12	21.29	24.69	15.07	20.4	4.9	24.0
2012-13	22.09	23.36	16.43	20.6	3.7	17.9
2013-14	23.42	21.25	18.3	21.0	2.6	12.2
2014-15	20.97	23.2	18.44	20.9	2.4	11.4
Mean	22.1	25.3	17.2			
SD	1.5	2.2	1.5			
CV	6.8	8.9	8.9			

Table 5 shows the average Net Profit Ratio of different years is highest in case of Infosys (25.3), followed by TCS with average Net Profit Ratio of different years (22.1) and Wipro with average Net Profit Ratio of different years (17.2). Coefficient of Variation of different year is highest in case of Infosys and Wipro (8.9) showing more variability and less consistency in Net Profit Ratio. Coefficient of Variation of different year is lowest in case of TCS (6.8) showing more consistency and homogeneity and less variability in Net Profit Ratio.

Year-wise analysis shows that the average Net Profit Ratio is highest in year 2006-07 that is 22.9 for selected three IT industries (TCS, Infosys and Wipro). Coefficient of Variation is highest in case of year 2008-09 (31 percent) indicating more variability in Net Profit Ratio for selected IT industries.

It is concluded that Infosys has highest average Net Profit Ratio as compared to all other selected IT Companies .TCS company has high degree of uniformity in Net Profit Ratio during study period .So, Infosys has more overall efficiency as compare to other selected industries. It is also concluded that in year 2014-15 of selected companies have higher degree of uniformity in Net Profit Ratio as compared to other years.

Straight Line Trend Analysis

The trend equation form as

$$Y = \beta_0 + \beta_1 X$$

Where:

β_0 is constant term and

β_1 is the slope of trend line

Table 6: Model Summary for Net Profit Ratio of selected Companies

	R	R2	F value	p value	Constant value	Beta coefficient	t value	p value
TCS	0.06	0.003	0.03	0.88	21.9	0.03	0.16	0.88
INF	0.76	0.58	11.1	0.00**	28.4	-0.57	-3.33	0.00**
WIP	0.18	0.03	0.26	0.62	17.7	-0.09	-0.51	0.62

**Significant at 0.01 level

The above table 6 shows that time doesn't have a significant affect much on Return on Capital Employed Ratio of TCS and Wipro because the coefficient of time is insignificant and R^2 is very low. Therefore, the models of TCS and Wipro are not a good fit. But in the case of Infosys, time has effect much on Net Profit Ratio because the coefficient of time is significant and R^2 is not very low.

The estimated trend equations are ;

TCS :y = 0.03X + 21.9

INF : y = -0.57X + 28.4

WIP :y = -0.09X + 17.7

It is concluded that time not affect on Net profit of TCS and Wipro companies

One Way ANOVA

For the testing of hypothesis, One Way ANOVA has been applied on Net Profit Ratio of selected companies.

Hypothesis Testing:

H_0: There is no significant difference in Mean Net Profit Ratio of selected IT Companies between the years.

H_1: There is significant difference in Mean Net Profit Ratio of selected IT Companies between years.

Table 7: One Way ANOVA

Source of Variation	SS	Df	MS	F	P-value	F crit
Between years	24.58096	9	2.731218	0.140324	0.997637	2.392814
Within years	389.2723	20	19.46362			
Total	413.85326	29				

In above table shows that the calculated F-value is less than table value. So, null hypothesis is accepted .The result shows that there is no significant difference in Net Profit Ratio of selected years.

It is concluded that Net Profit Ratio of selected IT companies remains constant during study period

Two Way ANOVA

For the testing hypotheses, Two Way ANOVA has been applied on Net Profit Ratio of selected companies

Hypotheses Testing:

Comparison between companies:

H_0:Mean Net Profit Ratio of selected years is not significantly different between selected IT companies.

H_1:Mean Net Profit Ratio of selected years is significantly different between selected IT companies.

Comparison between years:

H_0: Mean Net Profit Ratio of selected IT companies is not significantly different between selected years.

H_1 ; Mean Net Profit Ratio of selected IT companies is significantly different between selected years

Table 8: Two Way ANOVA for Net Profit Ratio

Source of Variation	SS	Df	MS	F	P-value	F crit
Between the Companies	326.5351	2	163.2676	46.84327	7.34E-08	3.554557
Between the Years	24.58096	9	2.731218	0.783617	0.634369	2.456281
Error	62.73721	18	3.4854			
Total	413.8533	29				

The above table shows that result of Net Profit Ratio between the companies and years

Between the companies

The calculated F-value is more than the table value. So, the null hypothesis is rejected. The result shows that there is significant difference in Net Profit Ratio of selected companies. It means that Net Profit Ratio varies between the selected IT Companies.

Between the years

In above table the calculated F-value is less than table value. So, null hypothesis is accepted. The result shows that there is no significant difference in Net Profit Ratio of selected years. This implies that Net Profit Ratio is not fluctuated in different years.

It is concluded that Net Profit Ratio is varies between the companies but not between years.

Return on Capital Employed Ratio

Return on Capital Employed ratio establishes the relationship between Net Profit before Interest Tax and Dividend to Capital employed. It aims to determine the overall performance of the enterprise. The results of various analyses on Return on Capital Employed Ratio of selected IT Companies are as under:

Descriptive Statistics

Descriptive statistics of IT industries wise and year wise Return on Capital Employed Ratio are shown in following table 9

Table 9: Descriptive Statistics of R.O.C.E between IT industries

Year	TCS	INF	WIP	Mean	SD	CV
2005-06	49.45	35.28	34.2	44.22667	12.64	22.5
2006-07	55.9	42.3	35.9	42.83333	10.0	23.86
2007-08	47.1	37.2	30.5	33.53333	8.5	25.35
2008-09	37.5	37.4	30.5	31.4	8.5	27.07
2009-10	41	30.3	28.8	29.8	9.6	32.21
2010-11	42.2	27.9	25.8	29.7	10.5	35.35
2011-12	38.3	29.1	22.5	28.43333	10.1	35.5
2012-13	40.6	27.2	23.15	31.50667	8.2	26.03
2013-14	43.4	25.8	24.73	32.64667	9.7	29.7
2014-15	38.5	26	23.34	29.87667	7.2	24.1
Mean	43.07	31.87	25.24			
SD	7.24	6.14	5.42			
CV	16.80	19.2	21.4			

Table 9 shows the average Return on Capital Employed of different years is the highest in case of TCS (43.07), followed by Infosys with average Return on Capital Employed Ratio of different years (31.87) and Wipro (25.24) with average Return on Capital Employed Ratio of different years. Coefficient of Variation of different year is highest in case of Wipro (21.4) showing more variability and less consistency in Return on Capital Employed Ratio. Coefficient of Variation of different year is slightly less in case of Infosys (19.2) and lowest in case of TCS (16.8) showing more consistency and homogeneity and less variability in Return on Capital Employed Ratio.

Year-wise analysis shows that the average Return on Capital Employed Ratio is highest in year 2005-06 that is 44.22 for selected three IT industries (TCS, Infosys and Wipro). Coefficient of Variation is highest in case of year 200-11 (35.3percent) indicating more variability in Return on Capital Employed Ratio for selected IT industries.

It is concluded that TCS has the highest average and has higher degree of uniformity in ROCE during study period. So, TCS has more overall performance as compare to other selected IT Industries. It is also concluded that in year 2005-06 have highest average and in year 2005-06 of selected companies have higher degree of uniformity in ROCE as compared to other years.

Straight Line Trend Analysis

The trend equation form as

$$Y = \beta_0 + \beta_1 X$$

Where:

β_0 is the constant and

β_1 is the slope of trend line

In applying of trend analysis, we estimated Model Summary and trend line equation of Ratio of selected companies.

Table 10: Model Summary for Return on Capital Employed Ratio of selected Companies

	R	R2	F value	p value	Constant value	Beta coefficient	t value	p value
TCS	0.61	0.37	4.73	0.06*	51.1	-1.46	-2.17	0.06
INF	0.93	0.86	48.9	0.00**	42.2	-1.88	-7.0	0.00**
WIP	0.37	0.14	1.23	0.30	28.8	-0.66	-1.11	0.30

**Significant at 0.01 level

The above table 10 shows that time doesn't have a significant affect much on Return on Capital Employed Ratio of TCS and Wipro because the coefficient of time is insignificant and R^2 is very low. Therefore, the models of Wipro and TCS are not a good fit. But in the case of Infosys, time has effect much on Return on Capital Employed Ratio because the coefficient of time is significant and R^2 is not very low.

The estimated trend equations are

TCS : y =-1.46X + 51.1

INF : y = -1.88X + 42.4

WIP: y = -0.66X + 28.8

It is concluded that time does not affect much on return on capital employed of Wipro Companies.

One Way Analysis of Variance

For the testing of hypothesis, One Way ANOVA has been applied on Return on Capital Employed Ratio of selected companies.

Hypothesis Testing

H_0: There is no significant difference in mean Return on Capital Employed Ratio of selected IT Companies between the years.

H_1: There is significant difference in mean Return on Capital Employed Ratio of selected IT Companies between years.

Table 11: One Way ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Years	834.3179	9	92.70199	0.993183	0.475807	2.392814
Within Years	1866.766	20	93.33828			
Total	2701.089	29				

In above table shows that the calculated F-value is less than table value. So, null hypothesis is accepted .The result shows that there is no significant difference in Operation Profit Ratio of selected years.

It is concluded that Return on Capital Employed Ratio of selected IT companies remained constant during study period.

Two Way ANOVA

For the testing hypotheses, Two Way ANOVA has been applied on Return on Capital Employed Ratio of selected companies

Hypothesis Testing

Comparison between companies

H_0: Mean Return on Capital Employed Ratio of selected years is not significantly different between selected IT companies.

H_1: Mean Return on Capital Employed Ratio of selected years is significantly different between selected IT companies.

Comparison between years:

H_0: Mean Return on Capital Employed Ratio of selected IT companies is not significantly different between selected years.

H_1 ; Mean Return on Capital Employed Ratio of selected IT companies is significantly different between selected years

Table 12: Two Way ANOVA for Return on Capital Employed Ratio

Source of Variation	SS	Df	MS	F	P-value	F crit
Between the Companies	1625.168	2	812.5841	60.54083	1.02E-08*	3.554557
Between the Years	834.3179	9	92.70199	6.906676	0.000268*	2.456281
Error	241.5975	18	13.42208			
Total	2701.0834	29				

*Significant at 0.01 level

The above table shows that result of Return on Capital Employed Ratio by between the companies and years between the companies

The calculated F-value is more than the table value. So, the null hypothesis is rejected. The results show that there is significant difference in Return on Capital Employed Ratio of selected companies. It means that Return on Capital Employed Ratio varies between the selected IT Companies.

Between the years

In above table the calculated F-value is more than table value. So, null hypothesis is rejected. The result shows that there is significant difference in Return on Capital Employed Ratio of selected years. So it means that Return on Capital Employed Ratio is fluctuated in different years.

It is concluded that Return on Capital Employed Ratio is varies between companies as well as between years.

Return of Net Worth Ratio

Return of Net Worth is also known as Return on Equity. It indicates the amount of net income returned as a percentage of share equity. Return on Equity measure Corporations profitability by revealing how much profit a company generates with the money shareholder have investment. The results of various analyses on Return of Net Worth Ratio of selected IT Companies are as under:

Descriptive Statistics

Descriptive statistics of IT industries wise and year wise Return of Net Worth Ratio are shown in following table 13

Table 13: Descriptive statistics of Return of Net Worth Ratio between IT industries

Year	TCS	INF	WIP	Mean	SD	CV
2005-06	49.45	35.28	34.2	39.6	8.5	21.5
2006-07	55.9	42.3	35.9	44.7	10.2	22.8
2007-08	47.1	37.2	30.5	38.3	8.4	21.8
2008-09	37.5	37.4	30.5	35.1	4.0	11.4
2009-10	41	30.3	28.8	33.4	6.7	19.9
2010-11	42.2	27.9	25.8	32.0	8.9	27.9
2011-12	38.3	29.1	22.5	30.0	7.9	26.5
2012-13	40.6	27.2	23.15	30.3	9.1	30.1
2013-14	43.4	25.8	24.73	31.3	10.5	33.5
2014-15	38.5	26	23.34	29.3	8.1	27.6
Mean	43.4	31.8	27.9			
SD	5.8	5.8	4.8			
CV	13.4	18.1	17.1			

Table 13 shows the average Return of Net Worth Ratio of different years is highest in case of TCS (43.4), followed by Infosys with average Return of Net Worth Ratio of different years (31.8) and Wipro with average Return of Net Worth Ratio of different years (27.9). Coefficient of Variation of different year is highest in case of Infosys (18.1) showing more variability and less consistency in Return of Net Worth Ratio. Coefficient of Variation of different year is slightly less in case of Wipro (17.2) and lowest in case of TCS (13.4) showing more consistency and homogeneity and less variability in Return of Net Worth Ratio.

Year-wise analysis shows that the average Return of Net Worth Ratio is highest in year 2006-07 that is 44.7 for selected three IT industries (TCS, Infosys and Wipro). Coefficient of Variation is highest in case of year 2013-14 (33.4 percent) indicating more variability in Return of Net Worth Ratio for selected IT industries.

It is concluded that TCS has highest average and have higher degree of uniformity in RONW during study period. So, TCS has more profit to generates with the money shareholder have

investment. It is also concluded that in year 2008-09 of selected companies there is higher degree of uniformity in Return on Net Worth as compare to other years.

Straight Line Trend Analysis

The trend equation form as

$$Y = \beta_0 + \beta_1 X$$

Where:

β_0 is the constant and

β_1 is the slope of trend line

In applying of trend analysis, we estimated Model Summary and trend equations of Return on Net Worth of selected companies.

Table 14: Model Summary for Return of Net Worth Ratio of selected Companies

	R	R2	F value	p value	Constant value	Beta coefficient	t value	p value
TCS	0.68	0.46	6.73	0.03*	50.6	-1.3	-2.59	0.03*
INF	0.88	0.78	27.6	0.00**	41.1	-1.67	-5.26	0.00**
WIP	0.92	0.85	45.1	0.00**	35.9	-1.45	-6.71	0.00**

**Significant at 0.01 level *Significant at 0.05 level

The above table 14 shows that time has a significant affect much on Return on Capital Employed Ratio of TCS, Infosys and Wipro because the coefficient of time is significant and R^2 is very not low. Therefore, the models of TCS, Infosys and Wipro are a good fit. But in the case of all selected companies, time has effect much on Return on Capital Employed Ratio because the coefficient of time is significant and R^2 is not very low

The estimated trend equations are

TCS :y = -1.3X + 50.6

INF : y = -1.67X + 41.1

WIP :y = -1.45X + 35.9

It is concluded that time affect much on Return on Net Worth of all selected companies.

One Way Analysis of Variance

For the testing of hypothesis, One Way ANOVA has been applied on Return of Net Worth Ratio of selected companies.

Hypothesis Testing:

H_0: There is no significant difference in Mean Return of Net Worth Ratio of selected IT Companies between the years.

H_1: There is significant difference in Mean Return of Net Worth Ratio of selected IT Companies between years.

Table 15: One Way ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between years	684.4519	9	76.05021	1.073678	0.422308	2.392814
Within years	1416.629	20	70.83146			
Total	2101.081	29				

In above table shows that the calculated F-value is less than table value. So, null hypothesis is accepted .The result shows that there is no significant difference in Return on Net Worth of selected years.

It is concluded that Return of Net Worth Ratio of selected IT companies remained constant during study period

Two Way ANOVA

For the testing hypotheses, Two Way ANOVA has been applied on Return of Net Worth Ratio of selected companies

Hypotheses Testing:

Comparison between companies:

H_0: Mean Return of Net Worth Ratio of selected years is not significantly different between selected IT companies.

H_1: Mean Return of Net Worth Ratio of selected years is significantly different between selected IT companies.

Comparison between years:

H_0: Mean Return of Net Worth Ratio of selected IT companies is not significantly different between selected years.

H_1 ; Mean Return of Net Worth Ratio of selected IT companies is significantly different between selected years

Table 16: Two Way ANOVA for Return of Net Worth Ratio

Source of Variation	SS	Df	MS	F	P-value	F crit
Between the Companies	1291.284	2	645.6421	92.7165	3.32E-10*	3.554557
Between the Years	684.4519	9	76.05021	10.92108	1.22E-05*	2.456281
Error	125.3451	18	6.963616			
Total	2101.081	29				

*Significant at 0.01 level

The above table shows that result of Return of Net Worth Ratio between the Companies and Years

Between the selected companies

The calculated F-value is more than the table value. So, the null hypothesis is rejected. The result shows that there is significant difference in Return of Net Worth Ratio of selected companies. It means that Return of Net Worth Ratio varies between the selected IT Companies.

Between the selected years

In above table the calculated F-value is more than table value, so null hypothesis is reject the result shows that there is significant difference in Return of Net Worth Ratio of selected years. This implies that Return of Net Worth Ratio is fluctuated in different years.

It is concluded that Return of Net Worth Ratio varies between companies as well as between years

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