CHAPTER - IV

FINANCIAL PERFORMANCE OF INDIAN AIRLINES AND AIR INDIA

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4.1 INTRODUCTION

Financial performance of the airlines can be measured by comparing the financial ratios.

The performance can be measured by the following ways.

- **Past Performance** - Across historical time periods for the same firm (the last 5 years for example),
- **Future Performance** - Using historical figures and certain mathematical and statistical techniques, including present and future values, this extrapolation method is the main source of errors in financial analysis as past statistics can be poor predictors of future prospects.
- **Comparative Performance** - Comparison between similar firms.

According to Metcalf and Titard, financial statement analysis is "a process of evaluating the relationship between component parts of a

financial statement to obtain a better understanding of a firm's position and performance".[120]

Financial analysis is "the process of identifying the financial strengths and weakness of the firm by properly establishing relationship between the items of the balance sheet and profit and loss account". The term "financial statement analysis" includes both 'analysis' and 'interpretation'. The term analysis means the simplification of financial data by methodical classification of the data given in the financial statements. Interpretation means explaining the meaning and significance of the data so simplified.

Financial statement analysis is an attempt to determine the significance and meaning of the financial statement data so that forecast may be made of the future earnings, ability to pay interest and debt maturities (both current and long term) and profitability of a sound dividend policy. The purpose of financial analysis is to diagnose the information contained in financial statement so as to judge the profitability and financial soundness of the firm.

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120 Shashi K. Guptha, "Financial Management Theory and Practice", R.K.Sharma Kalyani Publishers, New Delhi, 2000.

RATIO ANALYSIS

There are many ways to measure financial performance, but all measures should be taken in aggregation. Ratio analysis is one of the powerful techniques used for the financial statement analysis. A financial ratio is the relationship between two accounting figures expressed mathematically. Accounting ratios are therefore mathematical relationships expressed between inter-connected accounting figures. Obviously no purpose will be served by comparing two sets of figures which are not at all connected with each other. Moreover, absolute figures are also unfit for comparison. With the use of ratio analysis one can measure the financial condition of a firm and can point out whether the condition is strong, good, questionable or poor.

Ratios can be expressed in two ways.

1. Times: When one value is divided by another the unit used to express the quotient is in terms of times.

2. Percentage: If the quotient obtained is multiplied by 100 the unit of expression is termed as "Percentage".

Analysis of the financial performance is broadly classified under three major headings

1. Analysis of Working Capital
2. Analysis of Profitability
3. Analysis of test of solvency or long term financial position

4.2 ANALYSIS OF WORKING CAPITAL

Working capital is an essential requirement of an organization. In an airline industry, working capital is of major importance for efficiently carrying out its day-to-day business operation. In the absence of proper and effective management of working capital, it would be difficult to achieve the basic objectives of its operational efficiency. The goal of working capital management is to manage the firm's current assets and liabilities in such a way that a satisfactory level of working capital is maintained. Generally, working capital has its significance in two perspectives, they are 'gross working capital' and 'net working capital'. The term 'gross working capital' refers to the firm's investment in current assets. 'Net working capital' refers to excess of current assets over current liabilities.

Working capital should be at optimum level. Both excessive as well as inadequate working capital positions are dangerous from the industry point of view. Excessive working capital means idle funds which earn no profit for the industry. Paucity of working capital not only impairs industry's profitability but also results in production interruptions and inefficiencies. Ineffective management of working capital has been identified as one of the important variables causing industrial sickness. The two crucial determinants of corporate health are liquidity and profitability which may be influenced by working capital management.

The following are the ratios used to analyse the Working Capital Analysis of the Indian Airlines and Air India.

1. Current ratio
2. Quick ratio
3. Working capital turnover ratio
4. Inventory turnover ratio
5. Inventory to working capital ratio
6. Inventory to total current assets ratio
7. Cash to current assets ratio
8. Cash to current liabilities ratio

4.2.1 Current ratio of Indian Airlines and Air India

The current ratio is defined as the relationship between the current assets and the current liabilities. This ratio is the measure of general liquidity of the firm. It shows the extent of the working capital which is the amount by which the current assets exceeds the current liabilities.

A high current ratio indicates that the firm is liquid and has the ability to pay its current liabilities in time. A low ratio indicates that the liquidity position of the firm is not good and the firm shall not be able to pay its current liabilities. In any operating concern, the standard current ratio should be 2:1.The following is the formula to calculate the current ratio.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Current assets include cash, stock, debtors, bills receivables, short term investment, prepaid expenses and other short term assets.

Current liabilities include bills payable, creditors, bank overdraft, outstanding expenses and other short term liabilities.

The Current ratio calculated for the Indian Airlines and Air India is shown in Table 4.1.

Table 4.1

Current ratio of Indian Airlines and Air India

(Rs. in Crores)

YEAR	Indian Airlines			Air India		
	Current Assets	Current Liabilities	Ratio	Current Assets	Current Liabilities	Ratio
1992-93	1041.4	772.8	1.35	2108.6	925.2	2.28
1993-94	1003.6	769.1	1.30	2194.2	1025.2	2.14
1994-95	860.4	961.1	0.90	2189.3	1373.0	1.59
1995-96	893.3	1055.3	0.85	1854.6	1651.3	1.12
1996-97	1051.8	1402.7	0.75	2011.3	2182.9	0.92
1997-98	1024.4	1391.7	0.74	2307.1	2020.0	1.14
1998-99	1094.5	1469.5	0.74	2197.9	2133.5	1.03
1999-00	1348.0	1586.9	0.85	2373.9	2244.2	1.06
2000-01	1488.4	1676.1	0.89	2041.8	1982.7	1.03
2001-02	1605.9	1994.9	0.81	1917.1	1826.5	1.05
2002-03	1649.8	2105.9	0.78	1804.4	2134.8	0.85
2003-04	1610.5	2237.1	0.72	1887.6	2451.2	0.77
2004-05	1804.6	2279.4	0.79	2457.4	2519.0	0.98
2005-06	2369.8	2375.4	1.00	3366.4	2105.6	1.60
2006-07	2631.5	2410.4	1.09	4545.5	1538.4	2.95
Mean			**0.90**			**1.37**
SD			**0.20**			**0.63**
CV (%)			**22.06**			**46.13**
AGR (%)			**-12.88**			**-1.53**

Source: Annual Reports

Indian airlines

Table 4.1 shows that in the beginning of the year 1992-93 the Current Ratio stands at the peak position of 1.35 percent. But from 1992-93 to 1998-99, it shows a decreasing trend and increased thereafter. The Current ratio of Indian Airlines fluctuates in between 1.35 percent in 1992-93 and 1.09 percent in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 0.9 percent. The cumulative variance and annual growth rate of Indian Airlines stands at 22.06 percent and 12.88% respectively.

Air India

Table 4.1 reveals that the Air India group varied between 2.28 percent in 1992-93 and 2.95 percent in 2006-07. The average of this ratio was works out at to 1.37 per cent during the period of study. Among this group, this ratio is minimum (0.77 percent) during 2003-04 and maximum (2.95 percent) during 2006-07. The cumulative variance and annual growth rate of Air India are 46.63 percent and -1.53 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding current ratio (average score analysis) - Student's independent t test

The significant difference between the mean ratios of the current ratio using the inferential statistics of Independent t test is found out after verifying the normality assumption by Q-Q Plot technique. The Independent-samples t test procedure is used to compare mean scores of current ratio for Indian Airlines and Air India and the results are given in table 4.1.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the current Ratio.

The table displays the descriptive statistics of the sample size, mean, standard deviation and means percentage. The table also shows that the t statistics and the column P value show the probability value from the t distribution respectively.

Table 4.1.1

Test for mean score analysis regarding current ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.90	0.20	0.05	2.718	0.011*
Air India	1.37	0.63	0.16		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is less than 0.05 it shows that there is significant difference in the mean scores between Indian Airlines and Air India regarding the current Ratio.

4.2.2 Quick ratio of Indian Airlines and Air India

Quick ratio is a ratio of quick assets to quick liabilities. Quick ratio is also known as liquid ratio. Usually inventories and prepaid expenses are excluded from current assets for calculating quick assets ratio. This exclusion of inventory is based on the reason that it is not easily and readily convertible into cash. Prepaid expenses by their very nature are not available to pay off current debts. This ratio is more stringent than the current ratio.

The standard of this ratio is 1:1. High ratio indicates that the firm is liquid and has the ability to meet its current liabilities in time. A low ratio indicates that the firm's liquidity position is not good.

The following is the formula to calculate the quick ratio.

$$\text{Quick ratio} = \frac{\text{Quick assets}}{\text{Current liabilities}}$$

Quick assets = Current assets – (Stock + Prepaid expenses)

The quick ratio calculated for Indian Airlines and Air India presented is in Table 4.2

Table 4.2

Quick ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian airlines			Air India		
	Quick assets	Current liabilities	Ratio	Quick assets	Current liabilities	Ratio
1992-93	878.4	772.8	1.14	1840.5	925.2	1.99
1993-94	870.1	769.1	1.13	1965.6	1025.2	1.92
1994-95	710.5	961.1	0.74	1912.3	1373.0	1.39
1995-96	731.8	1055.3	0.69	1447.3	1651.3	0.88
1996-97	889.6	1402.7	0.63	1530.6	2182.9	0.70
1997-98	863.8	1391.7	0.62	1884.7	2020.0	0.93
1998-99	800.9	1469.5	0.55	1777.4	2133.5	0.83
1999-00	824.6	1586.9	0.52	2026.0	2244.2	0.90
2000-01	835.6	1676.1	0.50	1690.2	1982.7	0.85
2001-02	915.8	1994.9	0.46	1594.0	1826.5	0.87
2002-03	1069.7	2105.9	0.51	1462.8	2134.8	0.69
2003-04	1125.1	2237.1	0.50	1540.6	2451.2	0.63
2004-05	1068.1	2279.4	0.47	1759.7	2519.0	0.70
2005-06	1269.7	2375.4	0.53	2701.7	2105.6	1.28
2006-07	1795.7	2410.4	0.74	3650.0	1538.4	2.37
Mean			**0.65**			**1.13**
SD			**0.22**			**0.55**
CV (%)			**33.55**			**48.50**
AGR (%)			**-4.32**			**-2.17**

Source: Annual Reports

Indian Airlines

Table 4.2 shows that the quick ratio of Indian Airlines stands at the peak position of 1.14 percent in the year 1992-93. But after the year 1992-93 upto 2001-02 shows a decreasing trend, and then a slight increase during the study period. This ratio fluctuated in between 1.14 per cent in 1992-93 and 0.46 percent in 2001-02. The average of this ratio for Indian Airlines during the study period stands at 0.65 per cent. The Cumulative Variance showed as 33.55 percent and the Annual Growth Rate is -4.32 percent.

Air India

From the table 4.2 the analysis of this ratio reveals that the ratio of Air India group varied between 1.99 percent in 1992-93 and 2.37 percent in 2006-07. The average of this ratio is 1.37 per cent over the period of study. Among this group, this ratio was minimum (0.63 percent) during 2003-04 and maximum (2.37 percent) during 2006-07. The Cumulative Variance is as 48.50 percent and the Annual Growth Rate is -2.17 percent.

Test for mean score analysis between Indian Airlines and Air India regarding quick ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compares mean scores of quick ratio for Indian Airlines and Air India and the results are given in table 4.2.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the quick Ratio.

Table 4.2.1

Test for mean score analysis regarding quick ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.65	0.22	0.06	3.155	0.004**
Air India	1.13	0.55	0.14		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is less than 0.05, it shows there is a highly significant difference in the mean scores between Indian Airlines and Air India regarding the quick Ratio.

4.2.3 Working capital turnover ratio of Indian Airlines and Air India

Working capital ratio indicates the velocity of the utilisation of net working capital. This ratio indicates the number of times the working capital is turned over in the course of a year. It also measures the efficiency with which the working capital is being used by a firm. A higher ratio indicates efficient utilisation of working capital and a low ratio indicates the inefficient utilization of working capital. But a very high working capital turnover ratio is not a good situation for any firm. Working capital turnover ratio is calculated as a proportion of cost of sales to net working capital by using the formula

$$\text{Working capital turnover ratio} = \frac{\text{Sales}}{\text{Net working capital}}$$

Net working capital = current Assets – current liabilities

Table 4.3 shows the working capital turnover ratio of Indian Airlines and Air India.

Table 4.3

Working capital turnover ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian airlines			Air India		
	Sales	Working capital	Ratio	Sales	Working capital	Ratio
1992-93	1434.5	268.6	5.34	2233.4	1183.4	1.89
1993-94	1675.9	234.5	7.15	2371.4	1169.1	2.03
1994-95	1894.8	-100.7	-18.82	2734.3	816.3	3.35
1995-96	2289.2	-162.0	-14.13	2907.4	203.3	14.30
1996-97	2637.0	-350.9	-7.51	2964.4	-171.7	-17.27
1997-98	3001.7	-367.3	-8.17	3906.7	287.1	13.61
1998-99	3243.5	-375.0	-8.65	4200.2	64.4	65.22
1999-00	3423.6	-238.9	-14.33	4642.9	129.7	35.80
2000-01	3549.2	-187.7	-18.91	5132.3	59.1	86.86
2001-02	3793.3	-389.0	-9.75	4962.5	90.6	54.79
2002-03	3769.9	-456.1	-8.27	5527.4	-330.4	-16.73
2003-04	4101.5	-626.6	-6.55	6147.5	-563.7	-10.91
2004-05	4649.8	-474.8	-9.79	7588.2	-61.6	-123.22
2005-06	5333.1	-5.6	-966.14	8833.7	1260.8	7.01
2006-07	5766.0	221.1	26.08	8438.9	3007.1	2.81
Mean			**-70.16**			**7.97**
SD			**248.13**			**47.42**
CV (%)			**-353.65**			**595.10**
AGR (%)			**13.57**			**11.36**

Source: Annual Reports

Indian airlines

From the table 4.3, it is found that the working capital turnover ratio of Indian Airlines stands at the peak position of 26.08 percent in 2006-07. The ratio shows a positive trend for the first two years of the study period (1992-93 and 1993-94), later it shows a negative trend (-6.55 percent to -966.14 percent) up to 2005-06. The average of this ratio for Indian Airlines during the study period stands at -70.06 percent. The Cumulative Variance of the ratio shows as -353.65 percent which indicates a high variation in the ratio. The Annual Growth rate is as 13.57 percent.

Air India

Table 4.3 shows that the working capital turnover ratio for Air India analysis varied between 1.89 percent in 1992-93 and 86.86 percent in 2000 - 01. During the study period, it shows negative trend during 1996-97, 2002-03 to 2004-05. The average of this ratio was worked out at 7.97 percent during the period of study. The Cumulative Variance of the ratio is as 595.10 percent which indicates a high variation in the ratio. The Annual Growth rate is as 11.36 percent.

Test for mean score analysis between Indian Airlines and Air India regarding working capital turnover ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compares mean scores of working capital turnover ratio of Indian Airlines and Air India. The results are given in table 4.3.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the working capital turnover ratio.

Table 4.3.1

Test for mean score analysis regarding working capital turnover ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	-70.16	248.13	64.07	1.198	0.241_{NS}
Air India	7.97	47.42	12.24		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05 it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the working capital turnover ratio.

4.2.4 Inventory turnover ratio of Indian Airlines and Air India

Inventory turnover ratio indicates the relationship between the sales and inventory. The ratio indicates the number of times the stock has been turned over during the period and evaluates the efficiency with which a firm is able to manage its inventory. This ratio deemed to reflects the efficiency of inventory management.

Higher the ratio, the more efficient is the management of inventories and a lower ratio indicates that the utilisation of inventory is less. Inventory turnover ratio is calculated as a proportion of net sales to inventory by using the following formula.

$$\text{Inventory Turnover ratio} = \frac{\text{Sales}}{\text{Inventory}}$$

Table 4.4 shows the Inventory turnover ratio of Indian Airlines and Air India.

Table 4.4

Inventory turnover ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian airlines			Air India		
	Sales	Inventory	Ratio	Sales	Inventory	Ratio
1992-93	1434.5	268.2	5.35	2233.4	163.1	13.69
1993-94	1675.9	228.7	7.33	2371.4	133.5	17.76
1994-95	1894.8	277.0	6.84	2734.3	150.0	18.23
1995-96	2289.2	407.3	5.62	2907.4	161.5	18.01
1996-97	2637.0	480.7	5.49	2964.4	162.3	18.27
1997-98	3001.7	418.5	7.17	3906.7	640.7	6.10
1998-99	3243.5	661.0	4.91	4200.2	566.5	7.41
1999-00	3423.6	645.1	5.31	4642.9	706.1	6.58
2000-01	3549.2	691.8	5.13	5132.3	1016.4	5.05
2001-02	3793.3	940.5	4.03	4962.5	938.4	5.29
2002-03	3769.9	824.7	4.57	5527.4	1138.4	4.86
2003-04	4101.5	975.9	4.20	6147.5	1367.4	4.50
2004-05	4649.8	1061.7	4.38	7588.2	2217.7	3.42
2005-06	5333.1	1512.4	3.53	8833.7	3170.4	2.79
2006-07	5766.0	1986.8	2.90	8438.9	3557.4	2.37
Mean			**5.12**			**8.95**
SD			**1.28**			**6.26**
CV (%)			**25.00**			**69.89**
AGR (%)			**-4.79**			**-13.92**

Source: Annual Reports

Indian Airlines

Table 4.4 shows that the inventory turnover ratio stands at the peak position of 7.33 in 1993-94 and a minimum of 2.90 in 2006-07. A look at the figures for the Indian Airlines indicates that this ratio fluctuated between 2.90 in 1993-94 and 7.33 in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 5.12. The cumulative variance and annual growth rate is 25 percent and -4.79 respectively.

Air India

Table 4.4 reveals that the inventory turnover ratio of Air India group varied between 2.37 in 2006-07 and 18.27 in 1996- 97. The average of this ratio works out to 8.95 over the period of study. In the period of study, this ratio fluctuates from the year 1992-93 to 2000-01, and shows a decreasing trend till the year 2006-07. The cumulative variance and annual growth rate is 69.89 percent and 13.92 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding inventory turnover ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of Inventory turnover ratio of Indian Airlines and Air India. The results are given in table 4.4.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the Inventory turnover ratio.

Table 4.4.1

Test for mean score analysis regarding inventory turnover ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	5.12	1.28	0.33	2.327	0.027*
Air India	8.95	6.26	1.62		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is less than 0.05, it shows that there is significant difference in the mean scores between Indian Airlines and Air India regarding the inventory turnover ratio.

4.2.5 Inventory to working capital ratio of Indian Airlines and Air India

Inventory to working capital ratio examines the relationship between inventory and the net working capital. This ratio is usually used in analyzing the liquidity position of business enterprises. It is a recognized fact that the inventory is an important component of the working capital and its effective utilisation for production requirements is a variable and vital one. Usually the inventory level should be less than the net working capital. A low ratio will indicate a sound working capital position. Inventory to working capital ratio is calculated as a proportion of Inventory to Net working capital using the following formula.

$$\text{Ratio of inventory to working capital} = \frac{\text{Inventory}}{\text{Net working capital}}$$

The ratio of inventory to working capital of the Indian Airlines and Air India is presented in Table 4.5.

Table 4.5

Inventory to working capital ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Inventory	Working capital	Ratio	Inventory	Working capital	Ratio
1992-93	268.2	268.6	1.00	163.1	1183.4	0.14
1993-94	228.7	234.5	0.97	133.5	1169.1	0.11
1994-95	277.0	-100.7	-2.75	150.0	816.3	0.18
1995-96	407.3	-162.0	-2.51	161.5	203.3	0.79
1996-97	480.7	-350.9	-1.37	162.3	-171.7	-0.95
1997-98	418.5	-367.3	-1.14	640.7	287.1	2.23
1998-99	661.0	-375.0	-1.76	566.5	64.4	8.80
1999-00	645.1	-238.9	-2.70	706.1	129.7	5.44
2000-01	691.8	-187.7	-3.69	1016.4	59.1	17.20
2001-02	940.5	-389.0	-2.42	938.4	90.6	10.36
2002-03	824.7	-456.1	-1.81	1138.4	-330.4	-3.45
2003-04	975.9	-626.7	-1.56	1367.4	-563.7	-2.43
2004-05	1061.7	-474.7	-2.24	2217.7	-61.6	-36.01
2005-06	1512.4	-5.5	-273.99	3170.4	1260.8	2.51
2006-07	1986.8	221.1	8.99	3557.4	3007.1	1.18
Mean			**-19.13**			**0.41**
SD			**70.57**			**11.45**
CV (%)			**-368.87**			**2802.43**
AGR(%)			**19.27**			**29.42**

Source: Annual Reports

Indian Airlines

Table 4.5 shows that working capital turnover ratio of Indian airlines stands at the peak position of 8.99 in the end of the year 2006-07. But before that, from 1992-93 the ratio shows a decreasing trend. This ratio fluctuated between 1.0 per cent in 1992-93 and 8.99 per cent in 2006-07. The average of this ratio for Indian Airlines stands at -19.13 per cent. The cumulative variance is as 368.87 percent because of variations in the ratio. The annual growth rate stands at 19.27 percent.

Air India

Table 4.5 also reveals that the working capital turnover ratio of Air India group varied between 0.14 per cent in 1992-93 and 1.18 per cent in 2006 - 2007. The average of this ratio works out to 0.41percent during the period of study. In this group, this ratio is minimum (36.01 per cent) during 2004-05 and maximum (17.2 per cent) for during 2000-01. The cumulative variance is 2802.43 percent because of variations in the ratio. The annual growth rate stands at 29.42 percent.

Test for mean score analysis between Indian Airlines and Air India regarding inventory to working capital ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of inventory to working capital ratio for Indian Airlines and Air India. The results are given in table 4.5.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the Inventory to working capital ratio.

Table 4.5.1

Test for mean score analysis regarding Inventory to working capital ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	19.13	70.57	18.22	1.058	0.299_{NS}
Air India	0.41	11.45	2.96		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the inventory to working capital ratio.

4.2.6 Inventory to total current assets ratio of Indian Airlines and Air India

Inventory to total current asset ratio examines the relationship between inventory and total current assets to know the proportion of inventory position and also to know to what extent the inventory gets operated by the management. Inventory to total current assets ratio is calculated as a proportion of Inventory to total current assets is calculated by using this formula

$$\text{Inventory to total current assets ratio} = \frac{\text{Inventory}}{\text{Total currnet assets}}$$

Table 4.6 represents the inventory to total current assets ratio of Indian Airlines and Air India.

Table 4.6

Inventory to total current assets ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Inventory	Current assets	Ratio	Inventory	Current assets	Ratio
1992-93	268.2	1041.4	0.26	163.1	2108.6	0.08
1993-94	228.7	1003.6	0.23	133.5	2194.2	0.06
1994-95	277.0	860.4	0.32	150.0	2189.3	0.07
1995-96	407.3	893.3	0.46	161.5	1854.6	0.09
1996-97	480.7	1051.8	0.46	162.3	2011.3	0.08
1997-98	418.5	1024.4	0.41	640.7	2307.1	0.28
1998-99	661.0	1094.5	0.60	566.5	2197.9	0.26
1999-00	645.1	1348.0	0.48	706.1	2373.9	0.30
2000-01	691.8	1488.4	0.46	1016.4	2041.8	0.50
2001-02	940.5	1605.9	0.59	938.4	1917.1	0.49
2002-03	824.7	1649.8	0.50	1138.4	1804.4	0.63
2003-04	975.9	1610.5	0.61	1367.4	1887.6	0.72
2004-05	1061.7	1804.6	0.59	2217.7	2457.4	0.90
2005-06	1512.4	2369.8	0.64	3170.4	3366.4	0.94
2006-07	1986.8	2631.5	0.75	3557.4	4545.5	0.78
Mean			**0.49**			**0.41**
SD			**0.15**			**0.32**
CV (%)			**29.79**			**77.91**
AGR (%)			**6.86**			**24.77**

Source: Annual Reports

Indian Airlines

Table 4.6 shows that the inventory to total current assets ratio of the Indian Airlines has an increasing trend from the year 1992-93 and in the end of the study period 2006-07, the Inventory to total current assets ratio stands at the peak position 0.75. This ratio fluctuated in between 0.26 in 1992-93 and 0.75 in 2006-07. The average of this ratio for Indian Airlines during the study period stood at 0.49 per cent. The annual growth rate and cumulative variance of this ratio are 6.86 percent and 29.79 percent respectively.

Air India

Table 4.6 shows that the inventory to total current assets ratio of Air India group varied between 0.08 per cent in 1992-93 and 0.78 per cent in 2006-07. The average of this ratio works out to 0.41 per cent over the period of study. In this group, this ratio is minimum (0.03 percent) during 1999-00 and maximum (0.94 percent) for during 2005-06. The Annual Growth Rate and Cumulative Variance of this ratio are 24.77 percent and 77.91 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding inventory to total current assets ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of inventory to total current assets ratio of Indian Airlines and Air India. The results are given in table 4.6.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the inventory to total current assets ratio.

Table 4.6.1

Test for mean score analysis regarding inventory to total current assets ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.49	0.15	0.04	0.869	0.389
Air India	0.41	0.32	0.08		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the inventory to total current assets ratio.

4.2.7 Cash to current assets ratio of Indian Airlines and Air India

Cash to current assets ratio indicates the relationship between cash and current assets. The high proportion of cash denotes idleness and affects the profitability position of the concern. On the other hand, a lower proportion of cash implies poor liquidity. Cash to current assets ratio is calculated as a proportion of cash to current assets by using this formula.

$$\text{Cash to current assets ratio} = \frac{\text{Cash}}{\text{Current assets}}$$

Table 4.7 shows the cash to current ratio of Indian Airlines and Air India.

Table 4.7

Cash to current assets ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Cash	Current assets	Ratio	Cash	Current assets	Ratio
1992-93	69.4	1041.4	6.66	1294.2	2108.6	61.38
1993-94	108.0	1003.6	10.77	1169.2	2194.2	53.28
1994-95	79.2	860.4	9.20	966.5	2189.3	44.14
1995-96	76.7	893.3	8.59	490.6	1854.6	26.46
1996-97	105.6	1051.8	10.04	418.5	2011.3	20.81
1997-98	67.2	1024.4	6.56	826.0	2307.1	35.80
1998-99	67.5	1094.5	6.17	513.3	2197.9	23.36
1999-00	71.8	1348.0	5.32	996.6	2373.9	41.98
2000-01	61.5	1488.4	4.13	622.3	2041.8	30.48
2001-02	102.6	1605.9	6.39	471.0	1917.1	24.57
2002-03	117.0	1649.8	7.09	189.3	1804.4	10.49
2003-04	73.2	1610.5	4.54	187.3	1887.6	9.92
2004-05	101.3	1804.6	5.61	231.8	2457.4	9.43
2005-06	82.9	2369.8	3.50	187.9	3366.4	5.58
2006-07	309.3	2631.5	11.75	305.4	4545.5	6.72
Mean			**7.09**			**26.96**
SD			**2.48**			**17.49**
CV (%)			**34.96**			**64.86**
CAGR (%)			**-7.91**			**-14.30**

Source: Annual Reports

Indian Airlines

Table 4.7 shows that in the year 2006-07 the cash to current assets ratio stands at the peak position 11.75 percent. This ratio fluctuated between 6.66 per cent in 1992-93 and 11.75 per cent in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 7.09 per cent. The Cumulative Variance is as 34.96 percent and annual growth rate is at -7.91 percent.

Air India

Table 4.7 shows that cash to current assets ratio for Air India varied between 61.38 in 1992-93 and 6.72 per cent in 2006-07. The average of this ratio works out to 26.96 percent over the period of study. In this group, this ratio is minimum (0.77 percent) during 2005-06 and maximum (5.58 percent) at the beginning of the year 1992-93. The cumulative variance is 64.86 percent and annual growth rate is at -14.30 percent.

Test for mean score analysis between Indian Airlines Air India regarding cash to current assets ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of cash to current assets ratio of Indian Airlines and Air India. The results are given in table 4.7.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the cash to current assets ratio.

Table 4.7.1

Test for mean score analysis regarding cash to current assets ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	7.09	2.48	0.64	4.358	0.00**
Air India	26.96	17.49	4.52		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is less than 0.01, it shows that there is a highly significant difference in the mean scores between Indian Airlines and Air India regarding the cash to current assets ratio.

4.2.8 Cash to current liabilities ratio of Indian Airlines and Air India

Cash to current liabilities ratio indicates the relationship between net cash and current liabilities. This will give a better understanding of the actual liquidity position than the traditional current and quick ratios. In this context, the range of current liabilities, and the ratio has to be computed which takes into account turnover rate of current liabilities and cash. Cash to current liabilities ratio is calculated as a proportion of cash to current liabilities by using this formula.

$$\text{Ratio of cash to current liabilities} = \frac{\text{Cash}}{\text{Current liabilities}}$$

Table 4.8 shows the cash to current liabilities ratio of Indian Airlines and Air India.

Table 4.8

Cash to current liabilities ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Cash	Current liabilities	Ratio	Cash	Current liabilities	Ratio
1992-93	69.4	772.8	0.09	1294.2	925.2	1.40
1993-94	108.0	769.1	0.14	1169.2	1025.2	1.14
1994-95	79.2	961.1	0.08	966.5	1373.0	0.70
1995-96	76.7	1055.3	0.07	490.6	1651.3	0.30
1996-97	105.6	1402.7	0.08	418.5	2182.9	0.19
1997-98	67.2	1391.7	0.05	826.0	2020.0	0.41
1998-99	67.5	1469.5	0.05	513.3	2133.5	0.24
1999-00	71.8	1586.9	0.05	996.6	2244.2	0.44
2000-01	61.5	1676.1	0.04	622.3	1982.7	0.31
2001-02	102.6	1994.9	0.05	471.0	1826.5	0.26
2002-03	117.0	2105.9	0.06	189.3	2134.8	0.09
2003-04	73.2	2237.1	0.03	187.3	2451.2	0.08
2004-05	101.3	2279.4	0.04	231.8	2519.0	0.09
2005-06	82.9	2375.4	0.03	187.9	2105.6	0.09
2006-07	309.3	2410.4	0.13	305.4	1538.4	0.20
Mean			**0.07**			**0.40**
SD			**0.03**			**0.39**
CV (%)			**50.34**			**99.63**
AGR (%)			**-9.18**			**-15.61**

Source: Annual Reports

Indian Airlines

Table 4.8 shows the cash to current liabilities ratio of Indian Airlines. In the beginning of the year 1992-93 it stands at 0.09 percent. But after 1992-93 to 2006-07, the ratio shows a fluctuating trend. This ratio fluctuated between 0.03 percent and 0.14 percent during the study period. The average of the ratio for Indian Airlines during the study period stands at 0.7 percent. The cumulative variance and annual growth rate are 50.34 percent and -9.18 percent respectively.

Air India

The table 4.8 shows that cash to current liabilities ratio for Air India varied between 0.08 percent and 1.40 percent. In this group, this ratio is minimum (0.08 percent) during 2003-04 and maximum (1.40 percent) during 1993-94. The average of the ratio works out to 0.40percent during the period of study. The cumulative variance and annual growth rate are as 99.63 percent and -15.61 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding cash to current liabilities ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of cash to current liabilities ratio of Indian Airlines and Air India. The results are given in table 4.8.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the cash to current liabilities ratio.

Table 4.8.1

Test for mean score analysis regarding Cash to Current Liabilities Ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.07	0.03	0.01	3.229	0.003**
Air India	0.40	0.39	0.10		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is less than 0.0,1 it shows that there is a highly significant difference in the mean scores between Indian Airlines and Air India regarding the cash to current liabilities ratio.

4.3 ANALYSIS OF PROFITABILITY

Profits are the measure of overall efficiency of a business. The primary objective of a business undertaking is to earn profits. The higher the profits the more efficient is the business considered. In the words of Lord Keynes, "Profit is the engine that drives the business enterprise". A business needs profits not only for its existence but also for expansion and diversification.

The following are the ratios used to analyze the profitability of Indian Airlines and Air India

1. Gross profit ratio
2. Net profit ratio
3. Operating profit ratio
4. Return on shareholder's investment (ROI)
5. Return on capital employed
6. Capital turnover ratio

4.3.1 Gross profit ratio of Indian Airlines and Air India

Gross profit ratio indicates the relationship between the gross profit and the net sales. An analysis has been made to find out the gross profit ratio during the study period. It can be used as an indicator of the efficiency of the production operation and the relation between production costs and selling price. This ratio serves as an important tool in shaping the pricing policy of the firm. It is the ratio of gross profit to net sales, which is calculated by dividing the gross profit by sales.

$$\text{Gross profit ratio} = \frac{\text{Gross profit}}{\text{Sales}} \times 100$$

Table 4.9 shows the Gross profit ratio of Indian Airlines and Air India.

Table 4.9

Gross profit ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Gross profit	Sales	Ratio	Gross profit	Sales	Ratio
1992-93	-13.5	1434.5	-0.94	436.9	2233.4	19.56
1993-94	-36.1	1675.9	-2.16	308.0	2371.4	12.99
1994-95	62.1	1894.8	3.28	210.1	2734.3	7.68
1995-96	178.5	2289.2	7.80	-95.6	2907.4	-3.29
1996-97	230.1	2637.0	8.73	-136.3	2964.4	-4.60
1997-98	308.0	3001.7	10.26	175.3	3906.7	4.49
1998-99	312.2	3243.5	9.63	188.2	4200.2	4.48
1999-00	301.2	3423.6	8.80	339.1	4642.9	7.30
2000-01	339.9	3549.2	9.58	365.9	5132.3	7.13
2001-02	134.7	3793.3	3.55	460.7	4962.5	9.28
2002-03	54.7	3769.9	1.45	603.6	5527.4	10.92
2003-04	121.4	4101.5	2.96	537.0	6147.5	8.73
2004-05	354.3	4649.8	7.62	476.0	7588.2	6.27
2005-06	371.5	5333.1	6.97	418.5	8833.7	4.74
2006-07	372.9	5766.0	6.47	-142.7	8438.9	-1.69
Mean			**5.60**			**6.27**
SD			**3.98**			**6.23**
CV (%)			**71.13**			**99.46**
AGR (%)			**4.88**			**-5.49**

Source: Annual Reports

Indian Airlines

The table 4.9 shows the evaluation of gross profit ratio. For the year 1992-93 and 1993-94 it shows a loss of -0.94 percent and -2.16 percent respectively. From 1994-95 it shows a positive trend between 1.45 percent and 10.26 percent. The average gross profit ratio is 5.60 percent. The cumulative variance and annual growth rate ratio of Indian Airlines stand at 71.13 percent and 4.88 percent respectively.

Air India

Table 4.9 shows that in the year 1992-93 the gross profit ratio of Air India stands at the peak position of 19.56 percent. But in the subsequent years 1993-94 to 1998-99 it shows a decreasing trend. This ratio fluctuates between -4.60 per cent in 1996-97 and 19.56 per cent in 1992-93. The average of gross profit ratio for Air India during the study period stands at 6.27 per cent. The cumulative variance and annual growth rate ratio of Air India are 99.46 percent and -5.49 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding gross profit ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of gross profit ratio of Indian Airlines and Air India. The results are given in table 4.9.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the gross profit ratio.

Table 4.9.1

Test for mean score analysis regarding gross profit ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.90	0.20	0.05	0.349	0.73_{NS}
Air India	1.37	0.63	0.16		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the gross profit ratio.

4.3.2 Net profit ratio of Indian Airlines and Air India

Net profit is obtained when operating expenses, interest and taxes are subtracted from the gross profit. The net profit ratio is measured by dividing profit after tax by sales. This ratio establishes the relationship between net profit and sales and indicates management's efficiency in manufacturing, administering and selling the products. This ratio is the overall measure of the company's ability to turn each rupee sales into net profit. Higher the ratio better is the profitability of the organization. The ratio is calculated as follows

$$\text{Net profit ratio} = \frac{\text{Profit after Tax}}{\text{Sales}} \times 100$$

Table 4.10 shows the gross profit ratio of Indian Airlines and Air India.

Table 4.10

Net profit ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Net profit	Sales	Ratio	Net profit	Sales	Ratio
1992-93	-195.2	1434.5	-13.60	333.1	2233.4	14.92
1993-94	-258.5	1675.9	-15.42	201.9	2371.4	8.51
1994-95	-188.7	1894.8	-9.96	40.8	2734.3	1.49
1995-96	-110.0	2289.2	-4.80	-271.8	2907.4	-9.35
1996-97	-14.6	2637.0	-0.55	-296.9	2964.4	-10.02
1997-98	47.3	3001.7	1.57	-181.0	3906.7	-4.63
1998-99	13.1	3243.5	0.40	-174.5	4200.2	-4.15
1999-00	45.3	3423.6	1.32	-37.6	4642.9	-0.81
2000-01	-159.2	3549.2	-4.48	-44.4	5132.3	-0.87
2001-02	-246.8	3793.3	-6.50	15.4	4962.5	0.31
2002-03	-196.6	3769.9	-5.21	134.1	5527.4	2.43
2003-04	44.2	4101.5	1.08	92.5	6147.5	1.51
2004-05	65.6	4649.8	1.41	96.4	7588.2	1.27
2005-06	49.5	5333.1	0.93	14.9	8833.7	0.17
2006-07	32.7	5766.0	0.57	-447.9	8438.9	-5.31
Mean			**-3.55**			**-0.30**
SD			**5.70**			**6.33**
CV (%)			**-160.50**			**-2095.30**
AGR (%)			**-14.20**			**-16.38**

Source: Annual Reports

Indian Airlines

Table 4.10 shows that in the year 1997-98 the net profit ratio stands at the peak position 1.57 percent. This ratio fluctuates between -13.60 per cent in 1992-93 and 0.57 per cent in 2006-07. The average net profit ratio for Indian Airlines during the study period stands at -3.55 per cent. The net profit ratio of cumulative variance and annual growth rate of Indian Airlines are -160.50 percent and -14.20 percent respectively.

Air India

Table 4.10 shows that net profit ratio for Air India ratio varies between 14.92 per cent in 1992-93 and -5.31 per cent in 2006-07. The average of net profit ratio works out to -0.3 per cent over the period of study. In this group, this ratio was minimum (-10.02 per cent) during 1996-97 and maximum (2.95percent) at the beginning 1992-93. The net profit ratio of cumulative variance and annual growth rate of Air India are -2095.30 percent and -16.38 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding net profit ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compares mean scores of net profit ratio for Indian Airlines and Air India. The results are given in table 4.10.1.The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean scores regarding the net profit ratio.

TABLE 4.10.1

Test for mean score analysis regarding net profit ratio

Airlines	Mean	SD	SE	t	P
Indian Airlines	3.55	5.70	1.47	1.476	0.151_{NS}
Air India	0.30	6.34	1.64		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the net profit ratio.

4.3.3 Operating profit ratio of Indian Airlines and Air India

Operating profit ratio is calculated by divided operating profit by sales. This ratio indicates the relationship between the operating profit and sales. Higher the ratio measures the better the operational efficiency. Lower ratio indicates that the operational efficiency of the company is not satisfactory.

Operating Profit = Sales – Operating Expenses

The following is the formula to calculate the operating profit ratio

$$\text{Operating profit ratio} = \frac{\text{Operating profit}}{\text{Sales}} \times 100$$

Table 4.11 shows the operating profit ratio of Indian Airlines and Air India.

Table 4.11

Operating profit ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Operating profit	Sales	Ratio	Operating profit	Sales	Ratio
1992-93	168.1	1434.5	11.71	583.1	2233.4	26.11
1993-94	185.7	1675.9	11.08	455.9	2371.4	19.22
1994-95	312.7	1894.8	16.50	386.5	2734.3	14.14
1995-96	467.0	2289.2	20.40	89.3	2907.4	3.07
1996-97	475.0	2637.0	18.01	71.9	2964.4	2.43
1997-98	568.8	3001.7	18.95	290.1	3906.7	7.43
1998-99	574.0	3243.5	17.70	448.6	4200.2	10.68
1999-00	534.5	3423.6	15.61	574.4	4642.9	12.37
2000-01	517.4	3549.2	14.58	613.8	5132.3	11.96
2001-02	285.9	3793.3	7.54	618.3	4962.5	12.46
2002-03	180.3	3769.9	4.78	678.2	5527.4	12.27
2003-04	228.0	4101.5	5.56	576.6	6147.5	9.38
2004-05	425.9	4649.8	9.16	508.4	7588.2	6.70
2005-06	408.5	5333.1	7.66	502.4	8833.7	5.69
2006-07	399.6	5766.0	6.93	96.8	8438.9	1.15
Mean			**12.41**			**10.34**
SD			**5.29**			**6.55**
CV (%)			**42.63**			**63.41**
AGR (%)			**-6.93**			**-7.68**

Source: Annual Reports

Indian Airlines

From the table 4.11, it is seen that this ratio fluctuates between 11.71 per cent in 1992-93 and 6.93 per cent in 2006 -07. Table 4.11 shows that in the year 1992-93 the operating profit ratio stands at 11.71 and shows an increasing trend up to 1995-96 and reaches the peak position 20.4 percent. After 1995-96 it shows decreasing trend till the end of the study period. The mean ratio for Indian Airlines during the study period stood at 12.41 per cent. The annual growth rate and cumulative variance ratio of Indian Airlines are -6.93 percent and 42.63 percent respectively.

Air India

Table 4.11 reveals that the ratio for Air India group varied between 26.11 per cent in 1992-93 and 1.15 per cent in 2006 - 2007.The operating profit ratio shows a fluctuating trend during the study period. The average of this ratio works out at to 10.34 per cent over the period of study. In this group, this ratio was minimum (2.43 per cent) during 1996-97and maximum (26.11 per cent) for during 1992-93. The annual growth rate and cumulative variance ratio of Air India are -7.68 percent and 63.41 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding operating profit ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compares mean scores of operating profit ratio for Indian Airlines and Air India. The results are given in table 4.11.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the operating profit ratio.

Table 4.11.1

Test for mean score analysis regarding operating profit ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	12.41	5.29	1.37	0.954	0.348_{NS}
Air India	10.34	6.55	1.69		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the operating profit ratio.

4.3.4 Return on shareholder's fund ratio of Indian Airlines and Air India (ROI)

Return on shareholders investment (ROI) is the ratio which indicates the relationship between net profits after tax and the proprietor's funds. It shows the relationship between the net profit and the proprietor's funds. It is one of the most important ratios used for measuring the overall efficiency of a company. This ratio is of great importance to the present and prospective shareholders as well as the management of the company. It reveals how well the resources of company are being used. The higher the ratio, the better are the results. The following is the formula to calculate the ratio.

$$\text{Return on Shareholders' Funds} = \frac{\text{Net profit}}{\text{Shareholders' Funds}} \times 100$$

Table 4.12 shows the return on investment ratio of Indian Airlines and Air India.

Table 4.12

Return on shareholder's fund ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Net Profit	Share holder's Fund	Ratio	Net Profit	Share holder's Fund	Ratio
1992-93	-195.2	373.7	-52.23	333.1	1086.8	30.65
1993-94	-258.5	585.0	-44.18	201.9	1320.5	15.29
1994-95	-188.7	607.6	-31.06	40.8	1388.1	2.94
1995-96	-110.0	641.8	-17.14	-271.8	1057.6	-25.70
1996-97	-14.6	687.6	-2.12	-296.9	666.6	-44.54
1997-98	47.3	716.8	6.59	-181.0	632.7	-28.61
1998-99	13.1	79.8	16.45	-174.5	458.2	-38.08
1999-00	45.3	94.4	47.95	-37.6	420.6	-8.95
2000-01	-159.2	142.5	-111.67	-44.4	376.2	-11.80
2001-02	-246.8	-103.3	238.98	15.4	391.7	3.94
2002-03	-196.6	-255.4	76.95	134.1	153.5	87.33
2003-04	44.2	-446.9	-9.88	92.5	245.9	37.64
2004-05	65.6	-399.1	-16.44	96.4	325.0	29.65
2005-06	49.5	-333.7	-14.84	14.9	339.8	4.40
2006-07	32.7	43.4	75.35	-447.9	-108.1	414.25
Mean			**10.85**			**31.23**
SD			**79.53**			**111.24**
CV (%)			**733.18**			**356.23**
AGR (%)			**3.82**			**7.68**

Source: Annual Reports

Indian Airlines

Table 4.12 shows that in the year 2001-02 the return on shareholder's fund stands at the peak position of 238.98 percent. But most of the years the ratio shows a negative trend. This ratio fluctuates between -52.23 per cent in 1992-93 and 75.35 per cent in 2006 - 2007. The average of this ratio for Indian Airlines during the study period stands 3.82 per cent. The cumulative variance stands at 733.18 percent and annual growth rate at 3.82 percent.

Air India

Table 4.12 reveals that the Return on Shareholder's fund ratio for Air India group varies between 30.65 per cent in 1992-93 and 414.25 per cent in 2006 - 2007. The mean average of this ratio works out at 31.23 over the period of study. In this group, this ratio is minimum (-44.54 per cent) during 1996-94 and maximum (414.25 per cent) during 2006-07.The cumulative variance stands at 356.23 percent and annual growth rate at 7.68 percent.

Test for mean score analysis between Indian Airlines and Air India regarding Return On shareholder's fund (average score analysis) - Student's independent t test

The independent-samples t test procedure is used to compare mean scores of Return on shareholder's fund of Indian Airlines and Air India. The results are given in table 4.12.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the Return on shareholder's fund.

Table 4.12.1

Test for mean score analysis regarding return on shareholder's fund

Airlines	Mean	SD	SE	t	p
Indian Airlines	10.85	79.53	20.54	0.577	0.568_{NS}
Air India	31.23	111.24	28.72		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the Return on shareholder's fund.

4.3.5 Return on capital employed ratio of Indian Airlines and Air India

Return on capital employed establishes the relationship between profits and the capital employed. It is widely used to measure the overall profitability and efficiency of the business. The amount of capital employed is computed by using the formula

Net capital employed = Total assets – Current liabilities

The following is the formula to calculate the ratio

$$\text{Return on Capital Employed} = \frac{\text{Net Profit}}{\text{Capital Employed}} \times 100$$

Table 4.13 shows the Return on capital employed ratio of Indian Airlines and Air India.

Table 4.13

Return on capital employed of the Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Net Profit	Capital Employed	Ratio	Net Profit	Capital Employed	Ratio
1992-93	-195.2	2374.3	-8.22	333.1	2250.9	14.80
1993-94	-258.5	2778.6	-9.30	201.9	2924.7	6.90
1994-95	-188.7	3082.3	-6.12	40.8	2766.5	1.47
1995-96	-110.0	2967.1	-3.71	-271.8	2766.8	-9.83
1996-97	-14.6	2652.3	-0.55	-296.9	3308.4	-8.98
1997-98	47.3	2522.8	1.87	-181.0	3792.0	-4.77
1998-99	13.1	2219.8	0.59	-174.5	3590.7	-4.86
1999-00	45.3	1784.1	2.54	-37.6	3404.5	-1.11
2000-01	-159.2	1565.1	-10.17	-44.4	3350.9	-1.33
2001-02	-246.8	1482.5	-16.64	15.4	3063.8	0.50
2002-03	-196.6	1272.8	-15.44	134.1	2322.4	5.77
2003-04	44.2	797.9	5.53	92.5	1632.4	5.67
2004-05	65.6	539.1	12.17	96.4	1415.5	6.81
2005-06	49.5	771.6	6.42	14.9	3775.8	0.40
2006-07	32.7	620.2	5.27	-447.9	7818.9	-5.73
Mean			**-2.38**			**0.38**
SD			**8.44**			**6.75**
CV (%)			**-353.9**			**1766.2**
AGR (%)			**6.26**			**-8.69**

Source: Annual Reports

Indian Airlines

Table 4.13 shows that return on capital employed fluctuates between positive and negative ratios during the study period. The ratio shows the peak position of 12.17 percent in 2004-05, and a low of -16.64 in the year 2001-02. This ratio fluctuates between 7.08 per cent in 1992-93 and 5.27 per cent in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 28.49 percent. The cumulative variance and annual growth rate of the ratio stand at -353.9 percent and 6.26 percent respectively.

Air India

Table 4.13 shows that return on capital employed for Air India varies between 25.90 in 1992-93 and 1.24 in 2006 - 2007. The average of this ratio works out to 0.78 per cent over the period of study. In this group, this ratio was minimum (1.24) during 2006-07 and maximum (35.91) for during 2004-05. The cumulative variance and annual growth rate of the ratio stand at 1766.2 percent and -8.69 percent respectively.

Test for Mean score analysis between Indian Airlines and Air India regarding return on capital employed (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of return on capital employed for Indian Airlines and Air India. The results are given in table 4.13.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the Return on capital employed.

Table 4.13.1

Test for mean score analysis regarding return on capital employed

Airlines	Mean	SD	SE	t	P
Indian Airlines	-2.384	8.438	2.178	-0.91	0.378_{NS}
Air India	0.381	6.752	1.743		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the return on capital employed.

4.3.6 Capital turnover ratio of Indian Airlines and Air India

Capital turnover ratio is the relationship between cost of goods sold and the capital employed. This ratio is calculated to measure the efficiency or effectiveness with which a firm utilizes its resources of capital employed. The capital invested in a business to earn the profits. This ratio is a good indicator of overall profitability of a concern. The following will be the formula to calculate the ratio

$$\text{Capital Turnover Ratio} = \frac{\text{Sales}}{\text{Capital Employed}}$$

Table 4.14 shows the capital turnover ratio of Indian Airlines and Air India.

Table 4.14

Capital turnover ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Sales	Capital employed	Ratio	Sales	Capital employed	Ratio
1992-93	1434.5	2374.3	0.60	2233.4	2250.9	0.99
1993-94	1675.9	2778.6	0.60	2371.4	2924.7	0.81
1994-95	1894.8	3082.3	0.61	2734.3	2766.5	0.99
1995-96	2289.2	2967.1	0.77	2907.4	2766.8	1.05
1996-97	2637.0	2652.3	0.99	2964.4	3308.4	0.90
1997-98	3001.7	2522.8	1.19	3906.7	3792.0	1.03
1998-99	3243.5	2219.8	1.46	4200.2	3590.7	1.17
1999-00	3423.6	1784.1	1.92	4642.9	3404.5	1.36
2000-01	3549.2	1565.1	2.27	5132.3	3350.9	1.53
2001-02	3793.3	1482.5	2.56	4962.5	3063.8	1.62
2002-03	3769.9	1272.8	2.96	5527.4	2322.4	2.38
2003-04	4101.5	797.9	5.14	6147.5	1632.4	3.77
2004-05	4649.8	539.1	8.62	7588.2	1415.5	5.36
2005-06	5333.1	771.6	6.91	8833.7	3775.8	2.34
2006-07	5766.0	620.2	9.30	8438.9	7818.9	1.08
Mean			**3.06**			**1.76**
SD			**2.99**			**1.27**
CV (%)			**97.54**			**72.28**
AGR (%)			**23.81**			**9.19**

Source: Annual Reports

Indian Airlines

Table 4.14 shows that capital turnover ratio of Indian Airlines in the year 2006-07. The ratio stands at the peak position of 9.3 percent. But from 1992-93 to 2004 -05 it shows an increasing trend and decrease in ratio it observed during 2005-06. This ratio fluctuates in between 0.6 percent in 1992-93 and 9.3 per cent in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 3.06 percent. The cumulative variance and annual growth rate of the ratio stand at 97.54 percent and 23.81 percent respectively.

Air India

Table 4.14 shows that capital turnover ratio for Air India is 0.99 percent in 1992-93 and 1.08 percent in 2006-07. The average of this ratio works out to 1.76 per cent over the period of study. In this group, this ratio is minimum (0.81percent) during 1993-94 and maximum (5.36 percent) for 2004-05 and decrease in the ratio is observed during 2005-06 and 2006- 07. The cumulative variance and annual growth rate of the ratio stand at 72.28 percent and 9.19 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding capital turnover ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of capital turnover ratio for Indian Airlines and Air India. The results are given in table 4.14.1.The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the capital turnover Ratio.

Table 4.14.1

Test for mean score analysis regarding capital turnover ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	3.06	2.99	0.77	1.553	0.132_{NS}
Air India	1.76	1.27	0.33		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the capital turnover ratio.

4.4 Analysis of test of solvency or long term financial position

Analysis of long term solvency refers to the ability of a concern to meet its long term obligations. The long term indebtedness of a firm includes debenture holders, financial institutions providing medium and long term loan and other creditors selling goods on installment basis. The long term solvency ratio indicates a firm's ability to meet the fixed interest and costs and repayment schedules associated with its long term borrowings.

Financing the firm's assets is a very crucial problem in every business and a general rule should be proper mix of debt and equity capital in financing the firm's assets.

The following are the ratios used to analyse the Long term solvency of the Indian Airlines and Air India.

1. Debt-equity ratio
2. Funded debt to total capitalisation ratio
3. Proprietory ratio
4. Interest coverage ratio
5. Fixed assets ratio

6. Fixed assets turnover ratio

7. Fixed assets to net worth ratio

4.4.1 Debt equity ratio of Indian Airlines and Air India

The debt equity ratio is the measure of the relative claims of creditors and owners against the firm's assets. It is an important measure of solvency that indicates the extent to which the firm is trading on the equity and the amount of financial leverage used. The debt equity ratio is computed by dividing long-term debts or total debts by the shareholders' fund. The total debt consists of fixed deposits and long-term loans from shareholders, directors, public and commercial banks and financial institutions. Shareholders' fund comprises of ordinary share capital, preference share capital and reserves and surpluses.

Generally a low ratio is considered favourable from the long term creditor's point of view because a high proportion of owner's funds provide a larger margin of safety for them. A high ratio indicates that the claims of outsiders are greater than those of owners may not be considered by the creditors .Standard ratio is 1:1. The following is the formula to calculate the ratio.

$$\text{Debt-equity Ratio} = \frac{\text{Total debt}}{\text{Shareholders' fund}}$$

Table 4.15 shows the detail of debt equity ratio of Indian Airlines and Air India.

Table 4.15

Debt – equity ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Debt	**Equity**	**Ratio**	**Debt**	**Equity**	**Ratio**
1992-93	2319.2	373.7	6.21	2171.5	1086.8	2.00
1993-94	2723.4	585.0	4.66	2845.2	1320.5	2.15
1994-95	3027.1	607.6	4.98	2612.6	1388.1	1.88
1995-96	2861.9	641.8	4.46	2613.0	1057.6	2.47
1996-97	2547.1	687.6	3.70	3154.5	666.6	4.73
1997-98	2417.6	716.8	3.37	3638.2	632.7	5.75
1998-99	2114.6	79.8	26.52	3436.9	458.2	7.50
1999-00	1678.9	94.4	17.78	3250.7	420.6	7.73
2000-01	1459.9	142.5	10.24	3197.1	376.2	8.50
2001-02	1377.3	-103.3	-13.34	2910.0	391.7	7.43
2002-03	1165.7	-255.4	-4.56	2168.6	153.5	14.13
2003-04	690.8	-446.9	-1.55	1478.6	245.9	6.01
2004-05	432.0	-399.1	-1.08	1261.7	325.0	3.88
2005-06	339.4	-333.7	-1.02	3621.9	339.8	10.66
2006-07	221.6	43.4	5.11	7665.1	-108.1	-70.89
Mean			**4.37**			**0.93**
SD			**9.25**			**20.17**
CV (%)			**211.90**			**2170.21**
AGR (%)			**-6.87**			**17.72**

Source: Annual Reports

Indian Airlines

The table 4.15 shows that the debt-equity ratio of Indian Airlines stands at the peak position of 26.52 percent. But in the subsequent years from 1998-99 to 2006-07 the ratio shows a decreasing trend. This ratio fluctuates between 6.21 percent in 1992-93 and 5.11 percent in 2006-07. The mean ratio for Indian Airlines during the study period stands at 4.37 percent. The cumulative variance and annual growth rate of the ratio stand at 211.0 percent and -6.87 percent respectively.

Air India

Table 4.15 reveals that the debt-equity ratio of Air India group varies between 2 per cent in 1992-93 and -70.89 per cent in 2006-07. The mean average of this ratio worked out to 0.93 percent over the period of study. In this group, this ratio is minimum (-70.89 percent) during 2006-07 and maximum (14.13 percent) for during 2002-03. The cumulative variance and annual growth rate of the ratio stand at 2170.21 percent and 17.72 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding debt-equity ratio (average score analysis) - Student's independent t test

The independent-samples t test procedure is used to compare mean scores of debt-equity ratio for Indian Airlines and Air India and the results are given in Table 4.15.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the Debt-Equity ratio.

Table 4.15.1

Test for mean score analysis regarding debt-equity ratios

Airlines	Mean	SD	SE	t	p
Indian Airlines	4.37	9.25	2.39	0.60	0.55_{NS}
Air India	0.93	20.17	5.21		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores regarding the debt-equity ratio with respect to Indian Airlines and Air India.

4.4.2 Funded debt to total capitalization ratio of Indian Airlines and Air India

Funded debt to total capitalisation ratio establishes a link between long–term funds raised from outsiders and total capitalization. The two variables used in this ratio are funded debt and total capitalization. Funded debt is that part of total capitalization which is financed by outsiders

Funded debt - Debentures +mortgage loans + long term loans

Total capitalization - Share capital + reserves + long term debt

Though there is no 'rule of thumb', still the lesser the reliance on outsiders the better it will be. If this ratio is smaller, better will be long term financial position. 50 to 55 percent may be considered as reasonable, higher ratio denotes more debt than the internal fund. The following is the formula to calculate the ratio.

$$\text{Funded debt to total Capitalization ratio} = \frac{\text{Funded debt}}{\text{Total capitalisation}}$$

Table 4.16 shows the ratio of funded debt to total capitalization ratio of Indian Airlines and Air India.

Table 4.16

Funded debt to total capitalization ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Funded debt	Total capitalization	Ratio	Funded debt	Total capitalization	Ratio
1992-93	2319.2	3247.5	0.71	2171.5	3336.9	0.65
1993-94	2723.4	3363.0	0.81	2845.2	4244.4	0.67
1994-95	3027.1	3689.4	0.82	2612.6	4153.1	0.63
1995-96	2861.9	3607.9	0.79	2613.0	3822.9	0.68
1996-97	2547.1	3338.9	0.76	3154.5	3973.4	0.79
1997-98	2417.6	3238.6	0.75	3638.2	4270.9	0.85
1998-99	2114.6	2497.4	0.85	3436.9	3895.1	0.88
1999-00	1678.9	2209.1	0.76	3250.7	3671.3	0.89
2000-01	1459.9	1821.5	0.80	3197.1	3573.3	0.89
2001-02	1377.3	1446.6	0.95	2910.0	3301.6	0.88
2002-03	1165.7	1121.9	1.04	2168.6	2322.1	0.93
2003-04	690.8	718.7	0.96	1478.6	1724.4	0.86
2004-05	432.0	291.7	1.48	1261.7	1586.7	0.80
2005-06	339.4	98.3	3.45	3621.9	3961.7	0.91
2006-07	221.6	382.8	0.58	7665.1	7557.0	1.01
Mean			**1.03**			**0.82**
SD			**0.70**			**0.12**
CV (%)			**67.57**			**14.05**
AGR (%)			**4.49**			**2.76**

Source: Annual Reports

Indian Airlines

Table 4.16 shows that the ratio fluctuates between 0.71 percent in 1992-93 and 0.58 percent in 2006-07. The funded debt to total capitalization ratio of Indian Airline stands at the peak position during 2005-06 (3.45 percent). The average of the ratio for Indian Airlines during the study period stands at 1.03 percent. The cumulative variance and annual growth rate of the ratio stand at 67.57 percent and 4.49 percent respectively.

Air India

The table 4.16 shows that funded debt to total capitalization ratio for Air India varies between 0.65 in 1992-93 and 1.01 percent in 2006-07. The average of this ratio works out to 0.82 percent over the period of study. In this group, this ratio is minimum (0.77 percent) during 2003-04 and maximum (2.95 percent) for during 2006-07. The cumulative variance and annual growth rate of the ratio stand at 14.05 percent and 2.76 percent respectively.

Test for mean score analysis Indian Airlines and Air India regarding funded debt to total capitalization ratio (average score analysis) - Student's independent t test

The independent-samples t test procedure is used to compare mean scores of funded debt to total capitalization ratio for Indian Airlines and Air India. The results are given in table 4.16.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the funded debt to total capitalization ratio.

TABLE 4.16.1

Test for mean score analysis regarding funded debt to total capitalization ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	1.03	0.70	0.18	1.163	0.255_{NS}
Air India	0.82	0.11	0.03		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the funded debt to total capitalization ratio.

4.4.3 Proprietary ratio of Indian Airlines and Air India

Proprietary ratio establishes relationship between the proprietors or shareholders' fund and the total assets. It focuses the general financial strength of the business enterprise. A high proprietary ratio will indicate relatively less danger to the creditors. Low proprietary ratio indicates greater risk to the creditors. Hence the ratio should be 1:2. Assets include both the fixed assets and current assets, and shareholders' funds include equity capital, reserves and surplus less loss. The ratio is calculated as follows:

$$\text{Proprietary Ratio} = \frac{\text{Shareholder's funds}}{\text{Total assets}}$$

Table 4.17 shows the proprietary ratio of Indian Airlines and Air India.

Table 4.17

Proprietary ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Share holders' Fund	Total assets	Ratio	Share holders' Fund	Total assets	Ratio
1992-93	373.7	2747.5	0.14	1086.8	3336.9	0.33
1993-94	585.0	3363.0	0.17	1320.5	4244.4	0.31
1994-95	607.6	3689.4	0.16	1388.1	4153.1	0.33
1995-96	641.8	3607.9	0.18	1057.6	3822.9	0.28
1996-97	687.6	3338.9	0.21	666.6	3973.4	0.17
1997-98	716.8	3238.6	0.22	632.7	4352.8	0.15
1998-99	79.8	2497.4	0.03	458.2	3895.1	0.12
1999-00	94.4	2209.1	0.04	420.6	3671.3	0.11
2000-01	142.5	1821.5	0.08	376.2	3573.3	0.11
2001-02	-103.3	1446.6	-0.07	391.7	3301.6	0.12
2002-03	-255.4	1121.9	-0.23	153.5	2322.1	0.07
2003-04	-446.9	718.7	-0.62	245.9	1724.4	0.14
2004-05	-399.1	291.7	-1.37	325.0	1586.7	0.20
2005-06	-333.7	98.3	-3.39	339.8	3961.7	0.09
2006-07	43.4	382.8	0.11	-108.1	7557.0	-0.01
Mean			**-0.29**			**0.17**
SD			**0.96**			**0.10**
CV (%)			**-330.74**			**61.94**
AGR (%)			**11.74**			**-12.70**

Source: Annual Reports

Indian Airlines

Table 4.17 shows that proprietary ratio of Indian Airlines stands at the peak position of 0.22 percent. But from 1992-93 to 1996-97, it shows an increasing trend and negative trend is observed from 2002-03 to 2005-06. This ratio fluctuates between 0.14 percent in 1992-93 and 0.11 percent in 2006-07. The average of this ratio for Indian Airlines during the study period stands at -0.29 percent. The cumulative variance and annual growth rate of the ratio stand at -330.74 percent and 11.74 percent respectively.

Air India

Table 4.17 also reveals that the proprietary ratio for Air India group varies between 0.33 percent in 1992-93 and -0.01 in 2006-07. The mean average of this ratio works out at 0.17 percent over the period of study. In this group, this ratio is minimum (-0.01 percent) during 2006-07 and maximum (3.22 percent) for during 1992–93 and1994-95. The cumulative variance and annual growth rate of the ratio stand at 61.94 percent and -12.70 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding Proprietary Ratio (Average score analysis) - Student's independent t test

The independent-samples t test procedure is used to compare mean scores of proprietary ratio for Indian Airlines and Air India. The results are given in Table 4.17.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the proprietary ratio.

Table 4.17.1

Test for mean score analysis regarding proprietary ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.29	0.96	0.25	1.844	0.076_{NS}
Air India	0.17	0.10	0.03		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the proprietary ratio.

4.4.4 Interest coverage ratio of Indian Airlines and Air India

Interest coverage ratio is one of the most conventional coverage ratios used to meet the firm's debt servicing capacity. It indicates how many times the interest charges are covered by the funds that are ordinarily available to pay the interest charges. It also indicates the extent to which the earnings may fall without causing any embarrassment to the firm regarding the repayment of interest charges. The ratio is computed as follows

$$\text{Interest Coverage Ratio} = \frac{\text{Net profit}}{\text{Fixed interest charges}}$$

Table 4.18 shows interest coverage ratio of Indian Airlines and Air India.

Table 4.18

Interest coverage ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Net Profit	Interest	Ratio	Net Profit	Interest	Ratio
1992-93	-195.1	181.6	1.07	333.3	103.6	3.22
1993-94	-258.0	221.8	-1.16	202.4	105.6	1.92
1994-95	-188.5	250.6	-0.75	41.3	168.8	0.24
1995-96	-110.0	288.5	-0.38	-271.2	175.7	-1.54
1996-97	-14.6	244.7	-0.06	-296.5	160.2	-1.85
1997-98	47.3	261.8	0.18	-181.0	237.5	-0.76
1998-99	14.2	233.3	0.06	-174.5	260.4	-0.67
1999-00	51.4	177.5	0.29	-37.6	235.4	-0.16
2000-01	-159.2	151.1	-1.05	-44.4	247.9	-0.18
2001-02	-246.8	125.5	-1.97	16.7	157.6	0.11
2002-03	-196.6	106.7	-1.84	144.1	74.7	1.93
2003-04	48.2	71.5	0.67	93.7	39.6	2.36
2004-05	71.6	37.0	1.93	50.0	32.4	1.54
2005-06	63.0	26.7	2.36	12.3	83.9	0.15
2006-07	58.1	20.3	2.86	-541.4	239.4	-2.26
Mean			**0.15**			**0.27**
SD			**1.45**			**1.62**
CV (%)			**980.00**			**601.51**
AGR (%)			**13.73**			**-4.24**

Source: Annual Reports

Indian Airlines

Table 4.18 shows that interest coverage ratio of Indian Airlines stands at the peak position of 2.86 percent. But from 1992-93 to 2005-06 it shows a fluctuating trend. This ratio fluctuates in between 1.07 percent in 1992-93 and 2.36 in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 0.15 percent. The cumulative variance and annual growth rate of the ratio stand at 980.00 percent and 13.73 percent respectively.

Air India

Table 4.18 also shows that interest coverage ratio for Air India varies between 3.22 percent in 1992-93 and -2.26 percent in 2006-07. The mean average of this ratio works out to 0.27 percent over the period of study. In this group, this ratio is minimum (-2.26 percent) during 2006-07 and maximum (3.22 percent) during 1992-93. The cumulative variance and annual growth rate of the ratio stand at 601.51 percent and -4.24 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding interest coverage ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of interest coverage ratio for Indian Airlines and Air India. The results are given in table 4.18.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the interest coverage ratio.

Table 4.18.1

Test for mean score analysis regarding interest coverage ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	0.15	1.45	0.37	0.219	0.828_{NS}
Air India	0.27	1.62	0.42		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the interest coverage ratio.

4.4.5 Fixed assets ratio of Indian Airlines and Air India

The fixed assets measures the relationship between the fixed assets and the long term funds. It helps to analyse the company's solvency. Asset coverage is one of the important factors in evaluating long-term solvency. Assets provide protection to creditors because of their earning power and liquidation value. Assets represent the base a company relies on additional financing requirements. This ratio is calculated as follows:

$$\text{Fixed Assets Ratio} = \frac{\text{Fixed assets}}{\text{Long term funds}}$$

If the ratio is less than 1, it shows that part of the working capital has been financed through long term funds. The ratio should be more than1. The ideal ratio is 0.67.

Table 4.19 shows fixed assets ratio of Indian Airlines and Air India.

Table 4.19

Fixed assets ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Fixed assets	Long term funds	Ratio	Fixed assets	Long term funds	Ratio
1992-93	2324.9	2319.2	1.00	2047.5	2171.5	0.94
1993-94	2744.7	2723.4	1.01	2946.8	2845.2	1.04
1994-95	3218.8	3027.1	1.06	3100.1	2612.6	1.19
1995-96	3160.9	2861.9	1.10	3408.4	2613.0	1.30
1996-97	3067.8	2547.1	1.20	4001.7	3154.5	1.27
1997-98	3031.1	2417.6	1.25	3984.3	3638.2	1.10
1998-99	3026.6	2114.6	1.43	3895.0	3436.9	1.13
1999-00	2909.8	1678.9	1.73	3659.0	3250.7	1.13
2000-01	2709.4	1459.9	1.86	3737.7	3197.1	1.17
2001-02	2550.9	1377.3	1.85	3445.6	2910.0	1.18
2002-03	2371.0	1165.7	2.03	3275.4	2168.6	1.51
2003-04	2091.5	690.8	3.03	2837.4	1478.6	1.92
2004-05	1792.9	432.0	4.15	2480.4	1261.7	1.97
2005-06	1565.2	339.4	4.61	2195.5	3621.9	0.61
2006-07	1293.7	221.6	5.84	2104.4	7665.1	0.27
Mean			2.21			1.18
SD			1.51			0.43
CV (%)			68.20			36.02
AGR (%)			13.32			-2.52

Source : Annual Reports

Indian Airlines

Table 4.19 shows that Fixed assets ratio of Indian Airlines starts with 0.98 percent during 1992-93 and keeps on increasing till 2004-05 and reaches at the peak position during 2004-05 (3.33percent). But after 2004-05 it shows a decreasing trend and increases slightly thereafter. This ratio fluctuates between 0.98 percent in 1992-93 and 2.09 per cent in 2006-07. The average of this ratio for Indian Airlines during the study period stands at 1.65 percent. The cumulative variance and annual growth rate of the ratio stand at 68.20 percent and 13.32 percent respectively.

Air India

Table 4.19 shows that fixed assets ratio for Air India varied between 0.91 in 1992-93 and 0.27 percent in 2006-07. The average of this ratio works out to 1.11 percent over the period of study. In this group, this ratio is minimum (0.27 percent) during 2006-07 and maximum (1.75 percent) for during 2004-05. The cumulative variance and annual growth rate of the ratio stand at 36.02 percent and -2.52 percent respectively.

Test for mean score analysis between Indian Airlines and Air India regarding fixed assets ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of fixed assets ratio for the two groups of Indian Airlines and Air India. The results are given in Table 4.19.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the fixed assets ratio.

Table 4.19.1

Test for mean score analysis regarding fixed assets ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	2.210	1.509	0.389	2.389	0.032*
Air India	1.182	0.426	0.110		

** - Significant at 1% level, * - Significant at 5% level,
NS – Not Significant

Since the P value is less than 0.05, it shows that there is a significant difference in the mean scores between Indian Airlines and Air India regarding the fixed assets ratio.

4.4.6 Fixed assets turnover ratio of Indian Airlines and Air India

Fixed assets turnover ratio is used to measure the efficiency with which fixed assets are employed. A high ratio indicates a high degree of efficiency in assets utilisation and a low ratio reflects inefficient use of assets.

Fixed assets turnover ratio is the ratio of sales to net fixed assets. It is calculated by dividing the sales by fixed assets.

$$\text{Fixed Assets Turnover} = \frac{\text{Sales}}{\text{Fixed Assets}}$$

Table 4.20 shows the fixed assets turnover ratio of Indian Airlines and Air India.

Table 4.20

Fixed assets turnover ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Sales	Fixed Assets	Ratio	Sales	Fixed Assets	Ratio
1992-93	1434.5	2324.9	0.62	2233.4	2047.5	1.09
1993-94	1675.9	2744.7	0.61	2371.4	2946.8	0.80
1994-95	1894.8	3218.8	0.59	2734.3	3100.1	0.88
1995-96	2289.2	3160.9	0.72	2907.4	3408.4	0.85
1996-97	2637.0	3067.8	0.86	2964.4	4001.7	0.74
1997-98	3001.7	3031.1	0.99	3906.7	3984.3	0.98
1998-99	3243.5	3026.6	1.07	4200.2	3895.0	1.08
1999-00	3423.6	2909.8	1.18	4642.9	3659.0	1.27
2000-01	3549.2	2709.4	1.31	5132.3	3737.7	1.37
2001-02	3793.3	2550.9	1.49	4962.5	3445.6	1.44
2002-03	3769.9	2371.0	1.59	5527.4	3275.4	1.69
2003-04	4101.5	2091.5	1.96	6147.5	2837.4	2.17
2004-05	4649.8	1792.9	2.59	7588.2	2480.4	3.06
2005-06	5333.1	1565.2	3.41	8833.7	2195.5	4.02
2006-07	5766.0	1293.7	4.46	8438.9	2104.4	4.01
Mean			**1.56**			**1.70**
SD			**1.13**			**1.12**
CV (%)			**72.01**			**65.95**
AGR (%)			**14.70**			**12.18**

Source: Annual Reports

Indian Airlines

Table 4.20 shows that fixed assets turnover ratio of Indian Airline starts with 0.62 percent, during 1992-93 and keeps on increasing till 2006-07 and reaches the peak position during 2006-07 (4.46 percent). The average ratio of Indian Airlines during the study period stands at 1.56 percent. The cumulative variance and annual growth rate of the ratio stand at 72.01 percent and 14.70 percent respectively.

Air India

Table 4.20 shows the fixed assets turnover ratio of Air India registers an increasing trend except the starting period of 1992-93. The average of this ratio works out to 1.7 percent over the period of study. In this group, this ratio is minimum (0.8 percent) during 1993-94 and maximum (4.01 percent) for during 2006-07. The cumulative variance and annual growth rate of the ratio stand at 65.95 percent and 12.18 percent respectively.

Test for Mean score analysis between Indian Airlines and Air India regarding fixed assets turnover ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of fixed assets turnover ratio for Indian Airlines and Air India. The results are given in table 4.20.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the fixed assets turnover ratio.

Table 4.20.1

Test for mean score analysis regarding fixed assets turnover ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	1.56	1.13	0.29	0.325	0.747_{NS}
Air India	1.70	1.12	0.29		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the fixed assets turnover ratio.

4.4.7 Fixed assets to net worth ratio of Indian Airlines and Air India

Fixed assets to net worth ratio establish the relationship between fixed assets and share holder's funds or net worth. Generally the purchase of fixed assets should be financed by shareholders equity including reserves, surpluses and retained earnings. If the ratio is less than 100percent it implies that owner's funds are more than total fixed assets and a part of the working capital provided by the shareholders. When the ratio is more than 100 percent it implies that owner's funds are not sufficient to finance the fixed assets and firm has to depend upon outsiders to finance the fixed assets. There is no rule of thumb to interpret this ratio but 60 to 65 percent is considered to be satisfactory ratio in case of industrial undertakings. The ratio is calculated as follows

$$\textbf{Fixed assets to net worth ratio} = \frac{\text{Fixed assets}}{\text{Net worth}}$$

Table 4.21 shows fixed assets to net worth ratio of Indian Airlines and Air India.

Table 4.21

Fixed assets to net worth ratio of Indian Airlines and Air India

(Rs. in Crores)

Year	Indian Airlines			Air India		
	Fixed assets	Net worth	Ratio	Fixed assets	Net worth	Ratio
1992-93	2324.9	1974.65	1.18	2047.5	2411.74	0.85
1993-94	2744.7	2593.98	1.06	2946.8	3219.22	0.92
1994-95	3218.8	2728.25	1.18	3100.1	2780.11	1.12
1995-96	3160.9	2552.61	1.24	3408.4	2171.62	1.57
1996-97	3067.8	1936.13	1.58	4001.7	1790.44	2.24
1997-98	3031.1	1846.84	1.64	3984.3	2332.77	1.71
1998-99	3026.6	1027.82	2.94	3895.0	1761.68	2.21
1999-00	2909.8	622.19	4.68	3659.0	1427.08	2.56
2000-01	2709.4	145.38	18.64	3737.7	1590.57	2.35
2001-02	2550.9	-548.28	-4.65	3445.6	1475.13	2.34
2002-03	2371.0	-984.08	-2.41	3275.4	187.30	17.49
2003-04	2091.5	-1518.42	-1.38	2837.4	-726.80	-3.90
2004-05	1792.9	-1987.62	-0.90	2480.4	-932.34	-2.66
2005-06	1565.2	-2277.02	-0.69	2195.5	1856.14	1.18
2006-07	1293.7	-2027.60	-0.64	2104.4	6018.56	0.35
Mean			**1.56**			**2.02**
SD			**5.23**			**4.66**
CV (%)			**334.20**			**230.64**
AGR (%)			**-0.91**			**3.65**

Source: Annual Reports

Indian Airlines

Table 4.21 shows that fixed assets to net worth ratio of Indian Airlines starts with 1.18 percent during 1992-93 and keeps on increasing till 2000-01 and reaches at the peak position during 2000-01 (18.64 percent) and shows a negative trend thereafter. The average of this ratio for Indian Airlines during the study period stands at 1.56 percent. The cumulative variance and annual growth rate of the ratio stand at 334.20 percent and -0.91 percent respectively.

Air India

Table 4.21 shows increasing trend regarding fixed assets to net worth ratio of Air India except in the year 1995-96 and 1997-98.The ratio showed a maximum of 17.49 in the year 2002-03 and the ratio becomes negative in 2003-04 and 2004-05. The average of this ratio works out to 2.02 percent over the period of study. In this group, this ratio is minimum (-3.9 percent) during 2003-04 and maximum (17.49 percent) for during 2002-03. The cumulative variance and annual growth rate of the ratio stand at 230.64 percent and 3.65 percent respectively.

Test for Mean score analysis between Indian Airlines and Air India regarding fixed assets to net worth ratio (average score analysis) - Student's independent t test

The Independent-samples t test procedure is used to compare mean scores of fixed assets to net worth ratio for Indian Airlines and Air India. The results are given in Table 4.21.1. The procedure assumes that the variances of the two groups are equal and it is tested with Levene's test statistics.

Null Hypothesis: H_0: There is no significant difference between the mean score regarding the fixed assets to net worth ratio.

Table 4.21.1

Test for mean score analysis regarding fixed assets to net worth ratio

Airlines	Mean	SD	SE	t	p
Indian Airlines	1.56	5.23	1.35	0.253	0.802_{NS}
Air India	2.02	4.66	1.20		

** - Significant at 1% level, * - Significant at 5% level, NS – Not Significant

Since the P value is greater than 0.05, it shows that there is no significant difference in the mean scores between Indian Airlines and Air India regarding the fixed assets to net worth ratio.

CHAPTER - V

STATISTICAL ANALYSIS OF INDIAN AIRLINES AND AIR INDIA