

PROFITABILITY ANALYSIS

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8.1 INTRODUCTION

Profit is an excess of revenues over associated expenses for an activity over a period of time. Terms with similar meanings include 'earnings', 'income', and 'margin'. Lord Keynes remarked that 'Profit is the engine that drives the business enterprise'. Every business should earn sufficient profits to survive and grow over a long period of time. It is the index to the economic progress, improved national income and rising standard of living. No doubt, profit is the legitimate object, but it should not be over emphasised. Management should try to maximise its profit keeping in mind the welfare of the society. Thus, profit is not just the reward to owners but it is also related with the interest of other segments of the society. Profit is the yardstick for judging not just the economic, but the managerial efficiency and social objectives also.

8.2 CONCEPT OF PROFITABILITY

Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. According to Harward & Upton, "profitability is the 'the ability of a given investment to earn a return from its use.'"

However, the term 'Profitability' is not synonymous to the term 'Efficiency'. Profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the extent of profitability cannot be taken as a final proof of efficiency. Sometimes satisfactory profits can mark inefficiency and conversely, a proper degree of efficiency can be accompanied by an absence of profit. The net profit figure simply reveals a satisfactory balance between the values receive and value given. The change in operational efficiency is merely one of the factors on which profitability of an enterprise largely depends. Moreover, there are many other factors besides efficiency, which affect the profitability.

8.3 PROFIT & PROFITABILITY

Sometimes, the terms 'Profit' and 'Profitability' are used interchangeably. But in real sense, there is a difference between the two. Profit is an absolute term, whereas, the profitability is a relative concept. However, they are closely related and mutually interdependent, having distinct roles in business.

Profit refers to the total income earned by the enterprise during the specified period of time, while profitability refers to the operating efficiency of the enterprise. It is the ability of the enterprise to make profit on sales. It is the ability of enterprise to get sufficient return on the capital and employees used in the business operation.

As Weston and Brigham rightly notes "to the financial management profit is the test of efficiency and a measure of control, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable capacity and a basis of legislative action and to the country profit is an index of economic progress, national income generated and the rise in the standard of living", while profitability is an outcome of profit. In other words, no profit drives towards profitability.

Firms having same amount of profit may vary in terms of profitability. That is why R. S. Kulshrestha has rightly stated, "Profit in two separate business concern may be identical, yet, many a times, it usually happens that their profitability varies when measured in terms of size of investment".

8.4 ANALYSIS OF PROFITABILITY OF GSRTC

Apart from the short term and long term creditors, owners and management or a company itself also interests in the soundness of a firm which can be measured by profitability ratios. Profitability ratios are of two types those showing profitability in relation to sales (revenue in case of GSRTC) and those showing profitability in relation to investment. Together, these ratios indicate firm's overall effectiveness of operation.

With a view to appraise profitability of GSRTC, the analysis has been made from the point of view of management and shareholders. The management of the firm is naturally eager to measure its operating efficiency. Similarly, the owners invest their funds in the expectation of reasonable returns. The operating efficiency of a firm and its ability to ensure adequate returns to its shareholders depends ultimately on the profits earned by it. The analysis throws the light on the following questions:

- 1. Is the profit earned by the firm adequate?**
- 2. What rate of return does it represent?**
- 3. What is the rate of profit for various segments of the firm?**
- 4. What is the rate of return to equity holders?**

To evaluate the profitability of GSRTC and answer above questions, two fold analyses is undertaken as shown under:

A Profitability Analysis from the View Point of Management

1. Gross Profit to Net Revenue Ratio
2. Net Operating Profit to Net Revenue Ratio
3. Return on Capital Employed Ratio

B Profitability Analysis from the View Point of Shareholders

4. Net Profit to Net Revenue Ratio
5. Return on Owners' Equity Ratio

A Profitability Analysis from the View Point of Management

In order to pin-point the causes which are responsible for low / high profitability, a financial manger should continuously evaluate the efficiency of a firm in terms of profit. The study of increase or decrease in retained earnings, various reserve and surplus will enable the financial manger to see whether the profitability has improved or not. An increase in the balance of these items is an indication of improvement in profitability, where as a decrease indicates a decline in profitability. Following ratios are calculated to analyse the profitability of GSRTC:

1. Gross Profit Ratio

Gross profit ratio is important for management because it highlights the efficiency of operation and also indicates the average spread between the operating cost and revenue. Any difference position in this ratio is the result of a change in the operating cost or revenue or both. The main objective of computing this ratio is to determine the efficiency with which operations are carried on.

The Gross Profit Ratio expresses the relationship between gross profit and net sales. As GSRTC is a service sector, net sales is replaced by net revenue. Moreover, in the present study, gross profit is taken as the excess of total revenue over operating expenses. It is figured as shown below:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Revenue}} \times 100$$

$$\text{Gross Profit} = \text{Total Revenue} - \text{Operating Expenses}$$

A high ratio of gross profit to revenue is a sign of good management as it implies that (i) the operating cost is relatively low; (ii) increase revenue income, operating cost remains constant; (iii) operating cost decline, revenue income remains the same.

On the contrary, a low gross profit to revenue is definitely a danger signal. It implies that (i) the profit is relatively low; (ii) the operating cost is relatively high (due to purchase of inputs on unfavourable terms, inefficient utilisation of current as well as fixed assets and so on); (iii) low revenue income (due to sever competition, inferior quality of services, lack of demand and so on).

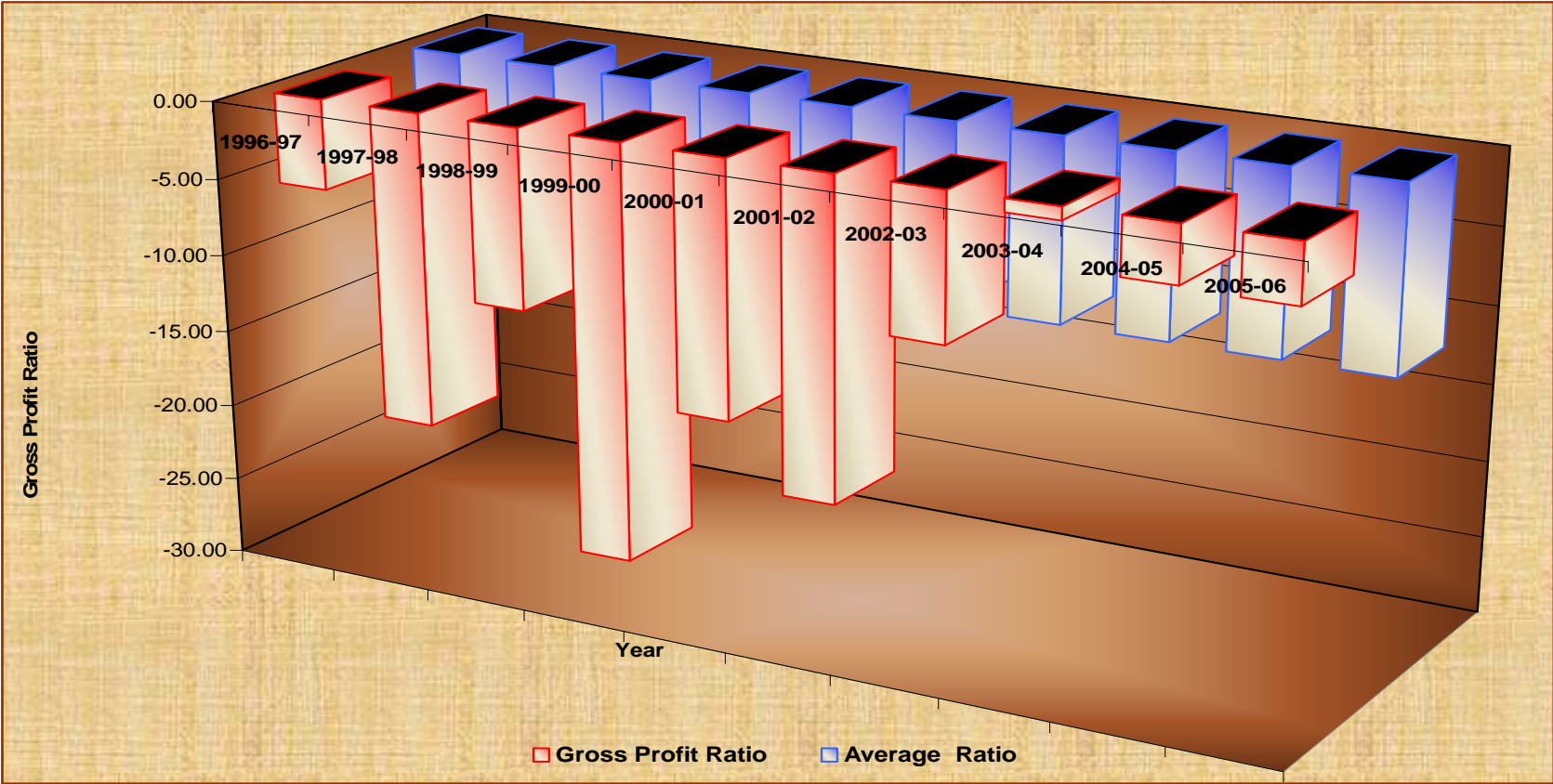
There is no standard showing reasonableness of gross profit ratio. However, it must be enough to cover its operating expenses.

Table 8.1
Gross Profit Ratio (percentages) in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Gross Profit	Net Revenue	Ratio
1	1996-97	-4713.89	80868.41	-5.83
2	1997-98	-17536.51	86208.27	-20.34
3	1998-99	-11037.44	94939.69	-11.63
4	1999-00	-28812.13	107233.27	-26.87
5	2000-01	-20552.15	124854.28	-16.46
6	2001-02	-25209.93	122666.38	-20.55
7	2002-03	-12213.56	130824.01	-9.34
8	2003-04	-1184.55	141540.43	-0.84
9	2004-05	-4955.49	137070.71	-3.62
10	2005-06	-5345.35	143016.76	-3.74
Average		-13156.10	116922.22	-11.92
S D		9501.58	23099.90	8.77
C V %		-72.22	19.76	-73.57
Compound Annual Growth Rate %		10.49	7.70	29.53

Source: Computed from the annual reports and accounts of the GSRTC, Ahmedabad

Chart 8.1
Gross Profit Ratio in GSRTC
From 1996-97 to 2005-06



The Gross Profit Ratio of GSRTC has been presented in the Table No. 8.1. In GSRTC, the Gross Profit Ratio shows fluctuating trend. It ranged between -6.87 per cent in the year 1999-00 and -0.84 per cent in the year 2003-04 with an average ratio of -11.92 per cent.

The ratio shows decreasing trend during the year 1997-98, 1999-00, 2001-2002, and 2004-05 and increasing trend during the rest of the years. Operating Profit ratio as presented in Chart 8.1 was above the average except in the years 1997-98, 1999-00 to 2001-02. It was above the average from 2002-3 to till the ending year.

Regression Analysis and Testing of Hypothesis (Chi-Square Test)

In order to establish the casual relationship between gross profit (Y) on revenue (X) regression analysis has been applied. A Chi-Square test has also been applied to judge whether the results are as per expectation or not.

Null Hypothesis:	Gross Profit Ratio can be represented by the straight line trend based on regression analysis.
Alternative hypothesis:	Gross Profit Ratio can not be described by the line of the best fit.
Level of Significance:	5 percent
Critical Value:	16.919
Degree of Freedom:	9

Table 8.2 Indicates that the calculated value (-57805.230) of Chi-Square(X^2) is less than its table value (16.919), this confirms the deviation in actual and computed gross profit is not significant and they could be attributed to sampling. The gross profit in GSRTC is negative during whole study period and in spite of having fluctuating trend it was increasing continuously especially from the year 2002-03. It reveals that gross loss of GSRTC is decreasing which is a good sign.

Table 8.2
Regression Analysis of Gross Profit and Chi-Square Test in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Gross Profit (Actual)	Gross Profit (Computed)	Deviations
1	1996-97	-4713.89	-16791.8	12077.91
2	1997-98	-17536.51	-16253.38	-1283.13
3	1998-99	-11037.44	-15372.99	4335.55
4	1999-00	-28812.13	-14133.43	-14678.70
5	2000-01	-20552.15	-12356.7	-8195.45
6	2001-02	-25209.93	-12577.31	-12632.62
7	2002-03	-12213.56	-11754.77	-458.79
8	2003-04	-1184.55	-10674.24	9489.69
9	2004-05	-4955.49	-11124.92	6169.43
10	2005-06	-5345.35	-10525.38	5180.03

Calculated Value of Chi-square = - 57805.230 consider as 0

Table Value of Chi-square = 16.919 at 5% level (d.f. = 9)

Regression Line of GP (Y) on NR (X) = -24945.75800 + 0.10083X

The computed value of X^2 is -57805.230 consider as '0', which is in the acceptance region, and thus H_0 is accepted at 5 per cent level of significance and we can conclude that, the test of fitness is held good in GSRTC over the period. The performance of GSRTC was improving as regard to the gross profit.

Gross Profit Ratio and 't' test

A study of the time wise variance of gross profit ratio of GSRTC would be of interest. This may be studied by applying t-test.

Null Hypothesis: There is no significance difference between the Gross Profit Ratio of GSRTC over the time
 $H_0: \mu = 1$

Alternative hypothesis: There is significance difference between the Gross Profit Ratio of GSRTC over the time
 $H_1: \mu \neq 1$

Level of Significance: 5 percent

Critical Value: ± 2.262

Degree of Freedom: 9

After making necessary calculation from the data given in Table 8.1, the t-test is presented in the following table.

Table 8.3
t - test

X	σ_s	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
-11.92	8.77	-73.57	9	-4.659	± 2.262

Table 8.3 indicates that the observed value of t is -4.659, which is in the rejection region, and thus H_0 is not accepted at 5 per cent level of significance

and we can conclude that, there is significant difference in the Gross Profit Ratio of GSRTC over the period.

The coefficient variation in Gross Profit ratio is -73.57, which indicates that there is 73.57 per cent dispersion in the Gross Profit ratio of GSRTC over the period.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the Gross Profit ratio has risen from -5.83 to -3.74. Hence, its compound annual growth rate is 29.53%.

As a whole, gross profit ratio reveals that all over position of GSRTC in terms of gross profit is critical as it is negative during the whole study period. Gross profit is not enough to cover even operating expenses, which is a danger signal. The ratio is negative during the whole study period which may be due to under utilization of current as well as fixed assets. However, the ratio shows some improvement from the year 2003-04.

2. Net Operating Profit Ratio

The Net Operating Profit Ratio expresses the relationship between net operating profit and net sales. As GSRTC is a service sector, net sales is replaced by net revenue. Moreover, in the present study, Net Operating profit is taken as the excess of gross profit over non operating expenses and depreciation. In other words we can say profit before interest and taxes (EBIT). This ratio helps to find out the profit arising out of the main business. In other words this ratio helps to determine the efficiency with which affairs of business are being managed. A high ratio indicates the improvement in the operational efficiency of the business and vice versa. It is figured as shown below:

$$\text{Net Operating Profit Ratio} = \frac{\text{Net Operating Profit}}{\text{Net Revenue}} \times 100$$

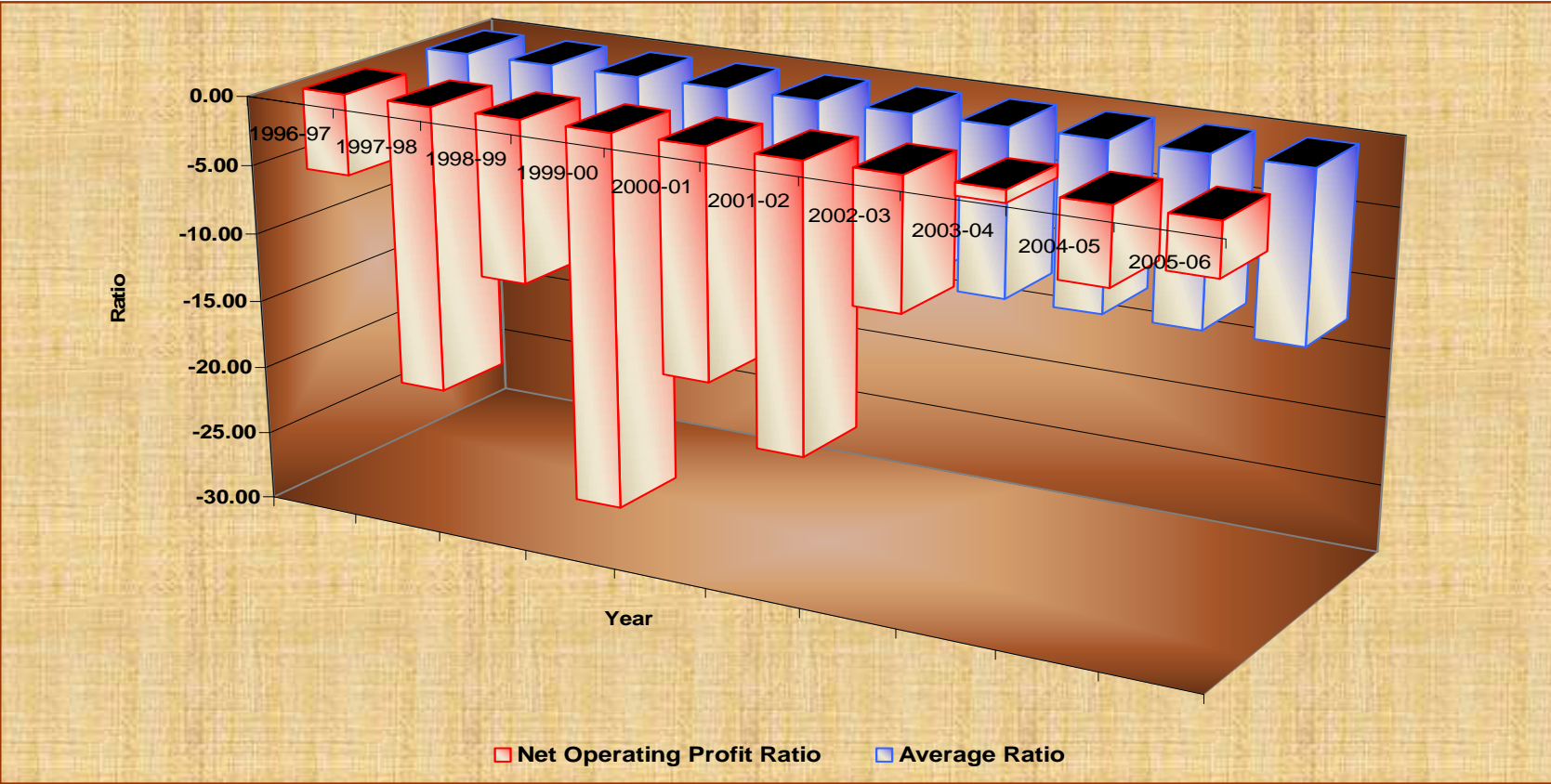
Net Operating Profit = Gross Profit - (Non Operating Expenses + Depreciation)

Table 8.4
Net Operating Profit Ratio (percentages) in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Net Operating Profit	Net Revenue	Ratio
1	1996-97	-4729.27	80868.41	-5.85
2	1997-98	-17857.41	86208.27	-20.71
3	1998-99	-11062.13	94939.69	-11.65
4	1999-00	-28941.58	107233.27	-26.99
5	2000-01	-20587.6	124854.28	-16.49
6	2001-02	-25251.49	122666.38	-20.59
7	2002-03	-12243.19	130824.01	-9.36
8	2003-04	-1226.93	141540.43	-0.87
9	2004-05	-7388.53	137070.71	-5.39
10	2005-06	-5315.31	143016.76	-3.72
Average		-13460.344	116922.22	-12.16
S D		9340.24	23099.90	8.66
C V %		-69.39	19.76	-71.24
Compound Annual Growth Rate %		10.49	7.70	31.13

Source: Computed from the annual reports and accounts of the GSRTC, Ahmedabad

Chart 8.2
Net Operating Profit Ratio in GSRTC
From 1996-97 to 2005-06



The Net Operating Profit Ratio of GSRTC has been presented in the Table No. 8.4. In GSRTC, the Net Operating Profit Ratio shows fluctuating trend till 2001-02 and increasing from 2002-03. It ranged between -26.99 per cent in the year 1999-00 and -0.87 per cent in the year 2005-06 with an average ratio of -12.16 per cent.

The ratio shows decreased trend during the years 1997-98, 1999-00, and 2001-2002 and 2004-05 and increasing trend during the rest of the years. Net Operating Profit ratio as presented in Chart 8.2 was above the average except in the years 1997-98, 1999-00 to 2001-02. It was above the average from 2002-03 to till the ending year.

Regression Analysis and Testing of Hypothesis (Chi-Square Test)

In order to establish the casual relationship between net operating profit (Y) on revenue (X) regression analysis has been applied. A Chi-Square test has also been applied to judge whether the results are as per expectation or not.

Null Hypothesis:	Net Operating Profit Ratio can be represented by the straight line trend based on regression analysis.
Alternative hypothesis:	Net Operating Profit Ratio can not be described by the line of the best fit.
Level of Significance:	5 percent
Critical Value:	16.919
Degree of Freedom:	9

Table 8.5 Indicates that the calculated value (-71141.431) of Chi-Square(X^2) is less than its table value (16.919), this confirms the deviation in actual and computed net operating profit is not significant and they could be attributed to sampling. The net operating profit in GSRTC is negative during whole study period and in spite of having fluctuating trend it was increasing continuously especially from the year 2002-03. It reveals that net operating loss of GSRTC is decreasing which is a good sign.

Table 8.5
Regression Analysis of Net Operating Profit and Chi-Square Test in
GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	NOP (Actual)	NOP (Computed)	Deviations
1	1996-97	-4729.27	-16810.41	12081.14
2	1997-98	-17857.41	-16314.23	-1543.18
3	1998-99	-11062.13	-15502.9	4440.77
4	1999-00	-28941.58	-14360.58	-14581.00
5	2000-01	-20587.6	-12723.24	-7864.36
6	2001-02	-25251.49	-12926.54	-12324.95
7	2002-03	-12243.19	-12168.53	-74.66
8	2003-04	-1226.93	-11172.76	9945.83
9	2004-05	-1150.13	-11588.09	10437.96
10	2005-06	164.87	-11035.58	11200.45

Calculated Value of Chi-square = - 71141.431 consider as 0

Table Value of Chi-square = 16.919 at 5% level (d.f. = 9)

Regression Line of OP (Y) on NR (X) = - 24324.69938 + 0.09292X

The computed value of X^2 is -71141.431 consider as '0', which is in the acceptance region, and thus H_0 is accepted at 5 per cent level of significance and we can conclude that, the test of fitness is held good in GSRTC over the period. The performance of GSRTC was improving as regard to the net operating profit.

Net Operating Profit Ratio and 't' test

A study of the time wise variance of net operating profit ratio of GSRTC would be of interest. This may be studied by applying t-test.

- Null Hypothesis:** There is no significance difference between the Net Operating Profit Ratio of GSRTC over the time **$H_0: \mu = 1$**
- Alternative hypothesis:** There is significance difference between the Net Operating Profit Ratio of GSRTC over the time **$H_1: \mu \neq 1$**
- Level of Significance:** 5 percent
- Critical Value:** ± 2.262
- Degree of Freedom:** 9

After making necessary calculation from the data given in Table 8.4, the t-test is presented in the following table.

Table 8.6
t - test

X	σ_s	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
-12.16	8.66	-71.24	9	-4.804	± 2.262

Table 8.6 indicates that the observed value of t is -4.804 which is in the rejection region, and thus H_0 is not accepted at 5 per cent level of significance and we can conclude that, there is significant difference in the Net Operating Profit Ratio of GSRTC over the period.

The coefficient variation in Net Operating Profit ratio is -71.24, which indicates that there is 71.24 per cent dispersion in the Net Operating Profit ratio of GSRTC over the period.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the Operating Profit ratio has risen from -5.85 to -3.72. Hence, its compound annual growth rate is 31.13%.

As a whole, net operating profit ratio reveals that all over position of GSRTC in terms of operating profit is not satisfactory as it is negative during the whole study period. It also indicates inefficiency in its operation. However, the ratio shows some improvement from the year 2002-03 as the depreciation cost is decreasing which is a good sign.

3. Return on Net Capital Employed Ratio

This is the most important ratio for testing profitability of a business. It measures satisfactorily the overall performance of a business in terms of profitability. This Ratio expresses the relationship between profit earned and capital employed to earn it. The term 'capital employed' refers to long-term funds supplied by the creditors and owners of the firm. The term 'return' signifies operating profit before interest and taxes (EBIT).

This ratio is more appropriate for evaluating the efficiency of internal management. It indicates how well the management has utilised the funds supplied by the owners and creditors. In other words, this ratio intends to measure the earning power of the net assets of the business. It is figured as shown below:

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

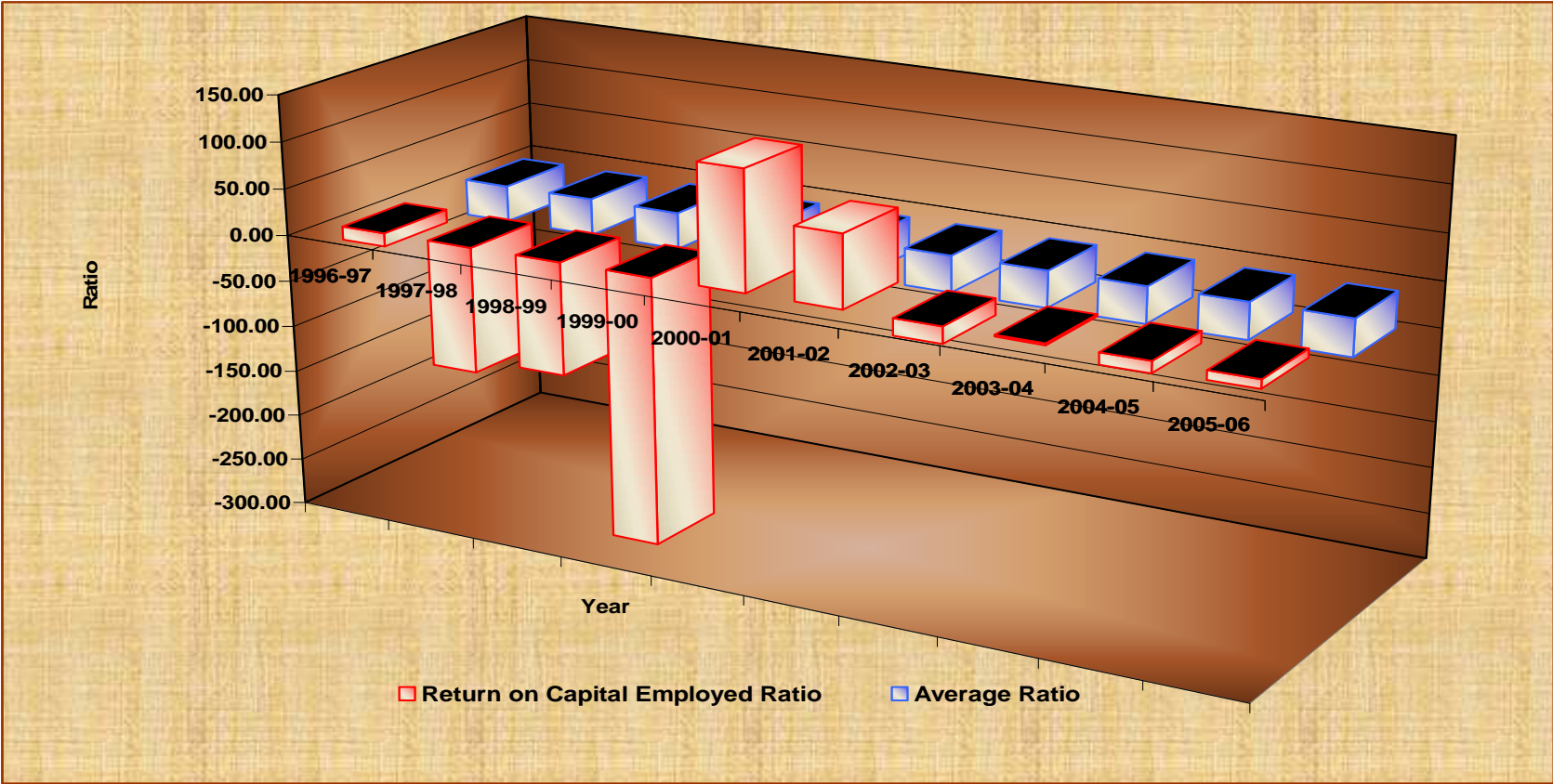
Net Capital Employed=Share Capital + Reserves + Long Term Loan - Losses
A high ratio is a test of better performance and a low ratio is an indication of poor performance. Higher the ratio, more efficient the management is considered to have been using the funds available.

Table 8.7
Return on Capital Employed Ratio (percentages) in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	EBIT	Capital Employed	Ratio
1	1996-97	-4729.27	33093.74	-14.29
2	1997-98	-17857.41	13120.53	-136.10
3	1998-99	-11062.13	9108.46	-121.45
4	1999-00	-28941.58	10027.98	-288.61
5	2000-01	-20587.6	-16123.87	127.68
6	2001-02	-25251.49	-32691.98	77.24
7	2002-03	-12243.19	68431.71	-17.89
8	2003-04	-1226.93	67866.23	-1.81
9	2004-05	-7388.53	59329.26	-12.45
10	2005-06	-5315.31	56565.43	-9.40
Average		-13460.34	26872.75	-39.71
S D		9340.24	35849.22	117.30
C V %		-69.39	133.40	-295.42
Compound Annual Growth Rate %		10.49	7.70	22.94

Source: Computed from the annual reports and accounts of the GSRTC, Ahmedabad

Chart 8.3
Return on Capital Employed Ratio in GSRTC
From 1996-97 to 2005-06



The Return on Capital Employed Ratio of GSRTC has been presented in the Table No. 8.7. In GSRTC, the Return on Capital Employed Ratio shows fluctuating trend. It ranged between -288.61 per cent in the year 1999-00 and 127.68 per cent in the year 2000-01 with an average ratio of -39.71 per cent.

The ratio shows decrease trend during the whole study period except in the year 1998-99, 2001, 2003-04 and 2005-06. Return on Capital Employed ratio as presented in Chart 8.3 was above the average except in the years 1997-98 to 1999-00.

Regression Analysis and Testing of Hypothesis (Chi-Square Test)

In order to establish the casual relationship between return on capital employed (Y) on revenue (X) regression analysis has been applied. A Chi-Square test has also been applied to judge whether the results are as per expectation or not.

Null Hypothesis:	Return on Capital Employed Ratio can be represented by the straight line trend based on regression analysis.
Alternative hypothesis:	Return on Capital Employed Ratio can not be described by the line of the best fit.
Level of Significance:	5 percent
Critical Value:	16.919
Degree of Freedom:	9

Table 8.8 Indicates that the calculated value (-29382.871) of Chi-Square(X^2) is less than its table value (16.919), this confirms the deviation in actual and computed EBIT is not significant and they could be attributed to sampling. The EBIT in GSRTC is negative during whole study period. Though, the ratio reveals that the return on capital employed is very poor however, it was improving from the year 2000-01 which is a good sign.

Table 8.8
Regression Analysis of Return on Capital Employed and Chi-Square
Test in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	EBIT (Actual)	EBIT (Computed)	Deviations
1	1996-97	-4729.27	-12205.71	7476.44
2	1997-98	-17857.41	-16333.9	-1523.51
3	1998-99	-11062.13	-17043.06	5980.93
4	1999-00	-28941.58	-16857.61	-12083.97
5	2000-01	-20587.6	-22131.91	1544.31
6	2001-02	-25251.49	-25473.37	221.88
7	2002-03	-12243.19	-5078.74	-7164.45
8	2003-04	-1226.93	-5192.79	3965.86
9	2004-05	-7388.53	-6914.53	-474.00
10	2005-06	-5315.31	-7471.94	2156.63

Calculated Value of Chi-square = - 29382.871 consider as 0

Table Value of Chi-square = 16.919 at 5% level (d.f. = 9)

Regression Line of NP (Y) on NR (X) = -18880.05152+ 0.20168X

The computed value of X^2 is -29382.871 consider as '0', which is in the acceptance region, and thus H_0 is accepted at 5 per cent level of significance and we can conclude that, the test of fitness is held good in GSRTC over the period. The performance of GSRTC was improving as regard to the return on capital employed.

Return on Capital Employed Ratio and 't' test

A study of the time wise variance of net profit ratio of GSRTC would be of interest. This may be studied by applying t-test.

- Null Hypothesis:** There is no significance difference between the Return on Capital Employed Ratio of GSRTC over the time $H_0: \mu = 1$
- Alternative hypothesis:** There is significance difference between the Return on Capital Employed Ratio of GSRTC over the time $H_1: \mu \neq 1$
- Level of Significance:** 5 percent
- Critical Value:** ± 2.262
- Degree of Freedom:** 9

After making necessary calculation from the data given in Table 8.7, the t-test is presented in the following table.

Table 8.9

t - test

X	σ_s	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
-39.71	117.30	-295.42	9	-1.097	± 2.262

Table 8.9 indicates that the observed value of t is -1.097 which is in the acceptance region, and thus H_0 is accepted at 5 per cent level of significance

and we can conclude that, there is no any significant difference in the Return on Capital Employed Ratio of GSRTC over the period.

The coefficient variation in Return on Capital Employed ratio is -295.42, which indicates that there is 295.42 per cent, very large dispersion in the Return on Capital Employed ratio of GSRTC over the period.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the return on capital employed ratio has slightly risen from -14.29 to -9.40. Hence, its compound annual growth rate is 22.94%.

As a whole, return on capital employed ratio reveals that all over position of GSRTC in terms of profit earned is not satisfactory. The management could not efficiently utilise the funds supplied by its creditors and owners. However, the ratio shows some improvement from the year 2002-03.

B Profitability from the View Point of Shareholders

Being the real owners of the business, the shareholders should continuously evaluate the efficiency of a firm in terms of profit because they have permanent stake in business. So, they are directly affected by the prosperity of higher profit and adversity of losses suffered by the business.

An increase in the net profit after tax is an indication of improvement in profitability and in turn improved financial welfare of the owners and larger the share of dividend to them and vice versa. Following ratios are calculated to analyse the profitability of GSRTC from the shareholders point of view:

- Net Profit Ratio
- Return on Owner' Equity Ratio

4. Net Profit Ratio

The net profit ratio indicates the ability of management to operate the business with sufficient success not only to recover from revenues of the period, all the expenses including depreciation and interest, but also to leave a margin of reasonable compensation to the owners for providing their capital at risk. In other words, this ratio is the overall measure of the firm's ability to turn each rupee of revenue into profit.

The Net Profit Ratio expresses the relationship between net profit and net sales. As GSRTC is a service sector, net sales is replaced by net revenue. Moreover, in the present study, net profit is taken as the excess of net operating profit over interest charges and there is no question for taxes due to heavy losses suffered by the GSRTC. It is the reserve of the operating Expenses ratio. It is figured as shown below:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Revenue}} \times 100$$

Net Profit (EBT) = Net Operating Profit – Interest Charges

A high ratio of net profit to revenue is a sign of good management as it ensures adequate return to the owners as well as enables a firm to withstand adverse economic conditions.

On the contrary, a low net profit to revenue is definitely a danger signal. It has the opposite implications. If this ratio is not adequate, the firm will fail to achieve satisfactory return on shareholder's funds.

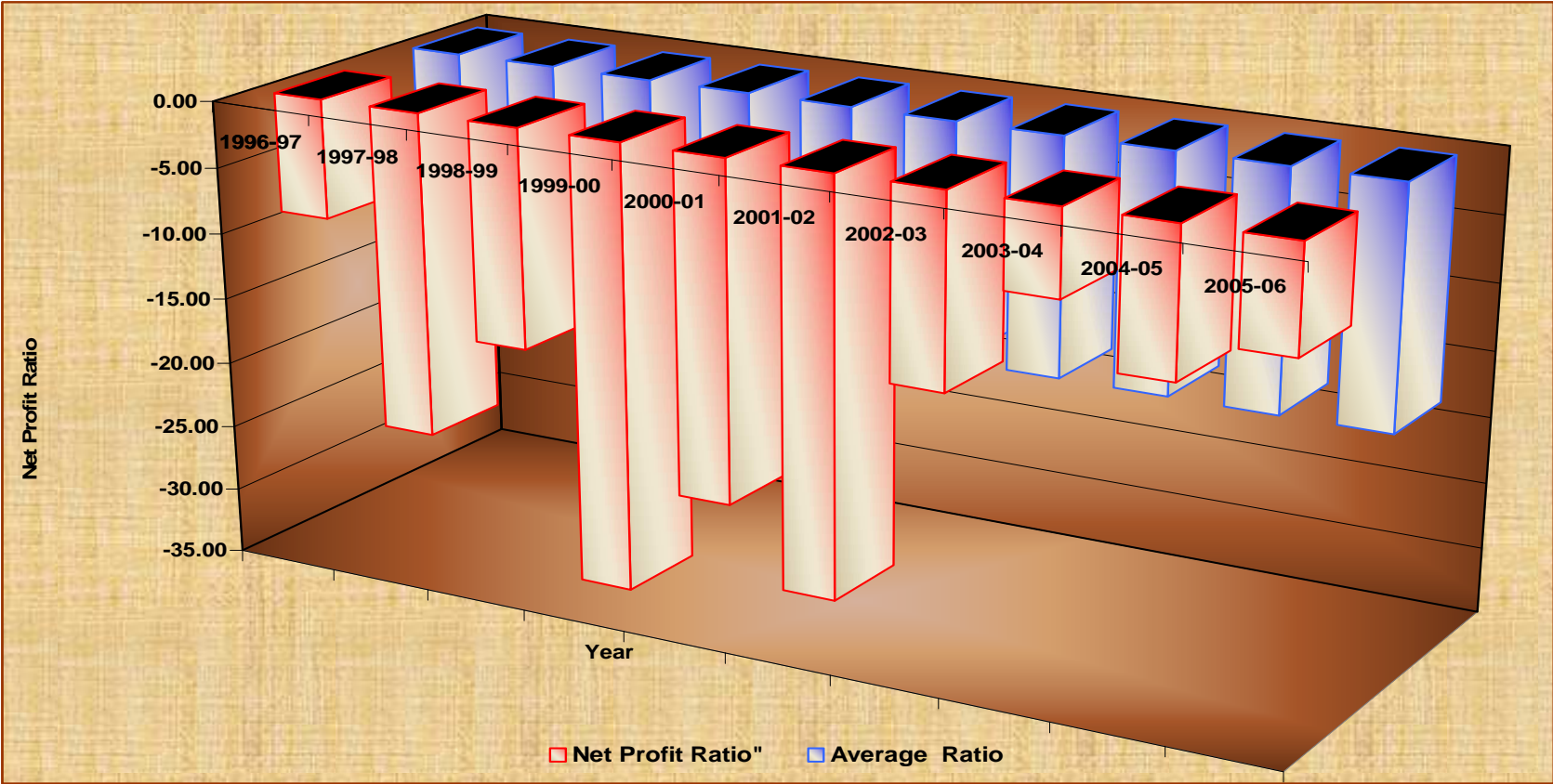
In order to have a better idea of profitability, the gross profit ratio and net profit ratio may be simultaneously considered. If the Gross profit is increasing over last five years, but the net profit is declining, it indicates that administrative expenses are slowly rising.

Table 8.10
Net Profit Ratio (percentages) in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Net Profit	Net Revenue	Ratio
1	1996-97	-7274.15	80868.41	-9.00
2	1997-98	-21072.3	86208.27	-24.44
3	1998-99	-15673.36	94939.69	-16.51
4	1999-00	-36023.21	107233.27	-33.59
5	2000-01	-31796.18	124854.28	-25.47
6	2001-02	-38273.42	122666.38	-31.20
7	2002-03	-18725.21	130824.01	-14.31
8	2003-04	-9077.84	141540.43	-6.41
9	2004-05	-14888.93	137070.71	-10.86
10	2005-06	-11224.26	143016.76	-7.85
Average		-20402.89	116922.22	-17.96
S D		11225.27	23099.90	10.00
C V %		-55.02	19.76	-55.66
Compound Annual Growth Rate %		10.49	7.70	-1.35

Source: Computed from the annual reports and accounts of the GSRTC, Ahmedabad

Chart 8.4
Net Profit Ratio in GSRTC
From 1996-97 to 2005-06



The Net Profit Ratio of GSRTC has been presented in the Table No. 8.10. In GSRTC, the Net Profit Ratio shows fluctuating trend. It ranged between -33.59 per cent in the year 1999-00 and -6.41 per cent in the year 2003-04 with an average ratio of -17.96 per cent.

The ratio shows decreasing trend during the years 1997-98, 1999-00, and 2001-2002, 2004-05 and increasing trend during the rest of the years. Net Profit ratio as presented in Chart 7.4 was above the average except in the years 1997-98, 1999-00 to 2001-02. It was above the average from 2002-3 to till the ending year.

Regression Analysis and Testing of Hypothesis (Chi-Square Test)

In order to establish the casual relationship between net profits (Y) on revenue (X) regression analysis has been applied. A Chi-Square test has also been applied to judge whether the results are as per expectation or not.

Null Hypothesis:	Net Profit Ratio can be represented by the straight line trend based on regression analysis.
Alternative hypothesis:	Net Profit Ratio can not be described by the line of the best fit.
Level of Significance:	5 percent
Critical Value:	16.919
Degree of Freedom:	9

Table 8.11 Indicates that the calculated value (-55534.804) of Chi-Square(X^2) is less than its table value (16.919), this confirms the deviation in actual and computed net profit is not significant and they could be attributed to sampling. The net profit in GSRTC is negative during whole study period and in spite of having fluctuating trend it was increasing continuously especially from the year 2002-03. It reveals that net loss of GSRTC is decreasing which is a good sign.

Table 8.11
Regression Analysis of Net Profit and Chi-Square Test in GSRCT
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Net Profit (Actual)	Net Profit (Computed)	Deviations
1	1996-97	-7274.15	-20810.48	13536.33
2	1997-98	-21072.3	-20750.09	-322.21
3	1998-99	-15673.36	-20651.33	4977.97
4	1999-00	-36023.21	-20512.29	-15510.92
5	2000-01	-31796.18	-20313.00	-11483.18
6	2001-02	-38273.42	-20337.74	-17935.68
7	2002-03	-18725.21	-20245.48	1520.27
8	2003-04	-9077.84	-20124.28	11046.44
9	2004-05	-14888.93	-20174.83	5285.90
10	2005-06	-11224.26	-20107.58	8883.32

Calculated Value of Chi-square = - 55534.804 consider as 0

Table Value of Chi-square = 16.919 at 5% level (d.f. = 9)

Regression Line of NP (Y) on NR (X) = -21725.10062 + 0.01131X

The computed value of X^2 is -55534.804 consider as '0', which is in the acceptance region, and thus H_0 is accepted at 5 per cent level of significance and we can conclude that, the test of fitness is held good in GSRTC over the period. The performance of GSRTC was improving as regard to the net profit.

Net Profit Ratio and 't' test

A study of the time wise variance of net profit ratio of GSRTC would be of interest. This may be studied by applying t-test.

- Null Hypothesis:** There is no significance difference between the Net Profit Ratio of GSRTC over the time
 $H_0: \mu = 1$
- Alternative hypothesis:** There is significance difference between the Net Profit Ratio of GSRTC over the time
 $H_1: \mu \neq 1$
- Level of Significance:** 5 percent
- Critical Value:** ± 2.262
- Degree of Freedom:** 9

After making necessary calculation from the data given in Table 8.10, the t-tet is presented in the following table.

Table 8.12

t - test

X	σ_s	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
-17.96	10.00	-55.66	9	-5.998	± 2.262

Table 8.12 indicates that the observed value of t is -5.998 which is in the rejection region, and thus H_0 is not accepted at 5 per cent level of significance and we can conclude that, there is significant difference in the Net Profit Ratio of GSRTC over the period.

The coefficient variation in Net Profit ratio is -55.66, which indicates that there is 55.66 per cent dispersion in the Net Operating Profit ratio of GSRTC over the period.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the Net Profit ratio has risen from -9.00 to -0.87. Hence, its compound annual growth rate is 7.96%.

As a whole, net profit ratio reveals that all over position of GSRTC in terms of net profit is not satisfactory as it is negative during the whole study period. The management of GSRTC is not able to earn satisfactory return on owner's fund. However, the ratio shows some improvement from the year 2002-03.

5. Return on Owner's Equity (Proprietary Ratio)

The ordinary shareholders, who bear all risks, participate in management and are entitled to all the profits remaining after outside claims, are the real owners of the business. Therefore, the profitability of a firm, from the owner's point of view should be assessed in terms of the return to the ordinary shareholders.

Return on Owner's Equity Ratio is a single most important ratio for judging the profitability of an organization in terms of return to the owners. This ratio reflects that how much the firm has earned on the funds invested by the shareholders (Either directly or through retained earnings). This ratio is expressed in the percentage form of net profit earned to the owner's equity. It is figured as shown below:

$$\text{Return on Owner's Equity} = \frac{\text{Net Profit}}{\text{Owners' Equity}} \times 100$$

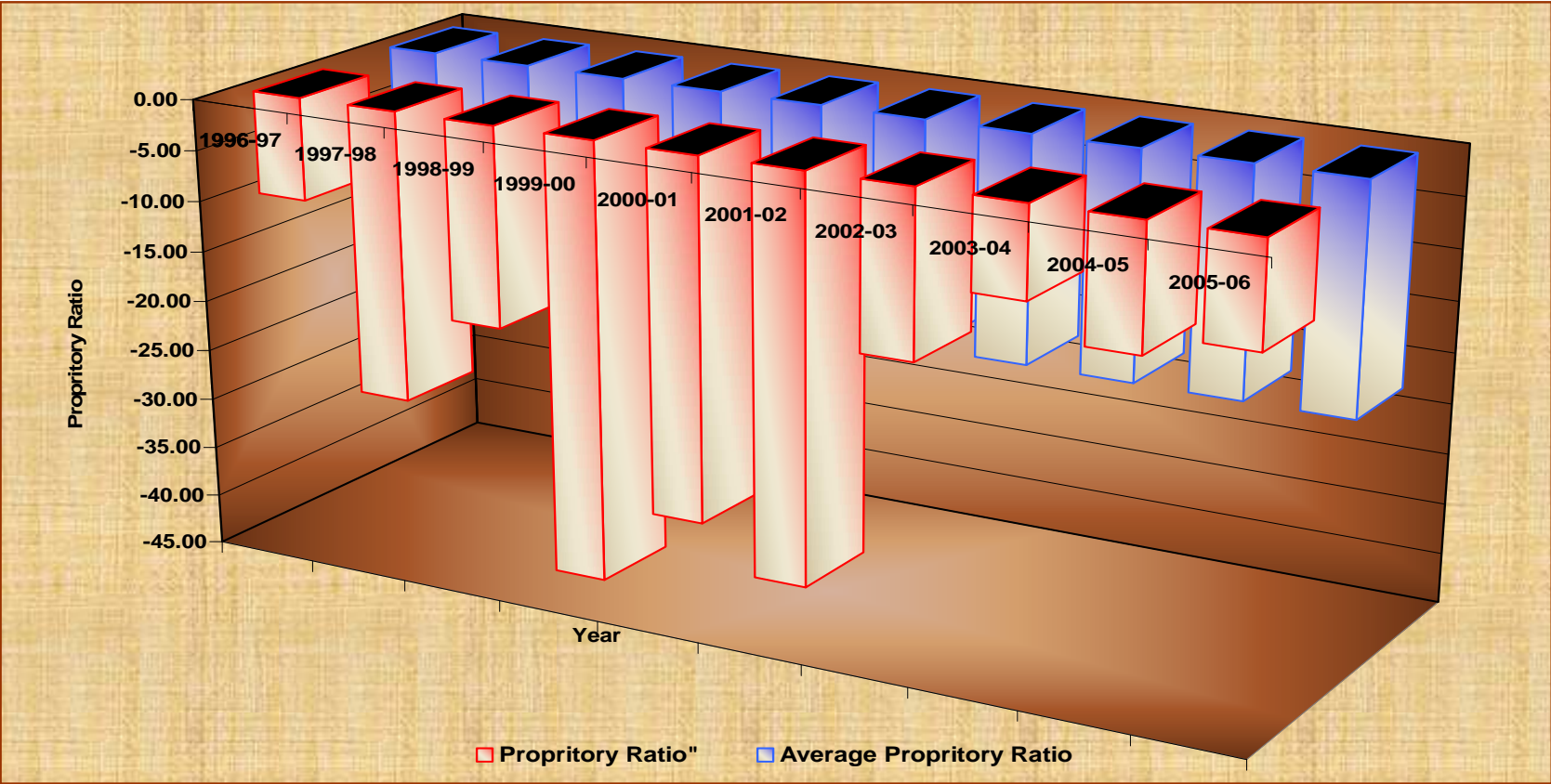
In order to judge the efficiency with which the proprietor's Funds are employed in business, this ratio is ascertained. In GSRTC, proprietor's fund or net worth is equal to equity share of Central and State Govt. plus fund minus fictitious assets, while net profit is equal to profit after depreciation and interest but before tax.

Table 8.13
Return on Owners' Equity Ratio (percentages) in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Net Profit	Owners' Fund	Ratio
1	1996-97	-7274.15	72164.39	-10.08
2	1997-98	-21072.3	73683.58	-28.60
3	1998-99	-15673.36	79780.78	-19.65
4	1999-00	-36023.21	83480.63	-43.15
5	2000-01	-31796.18	89850.74	-35.39
6	2001-02	-38273.42	96400.33	-39.70
7	2002-03	-18725.21	116181.25	-16.12
8	2003-04	-9077.84	103071.15	-8.81
9	2004-05	-14888.93	123499.25	-12.06
10	2005-06	-11224.26	111508.68	-10.07
Average		-20402.89	107172.18	-22.36
S D		11225.26934	121118.09	13.25
C V %		-55.02	113.01	-59.25
Compound Annual Growth Rate %		4.43	4.45	0.01

Source: Computed from the annual reports and accounts of the GSRTC, Ahmedabad

Chart 8.5
Return on Owners' Equity Ratio in GSRTC
From 1996-97 to 2005-06



The Return on Owner's Equity Ratio of GSRTC has been presented in the Table No. 8.13. In GSRTC, the Return on Owners' Equity Ratio shows fluctuating trend. It ranged between -43.15 per cent in the year 1999-00 and -8.81 per cent in the year 2003-04 with an average ratio of -22.36 per cent.

The ratio shows decreasing trend in the years 1997-98, 1999-00, 2001-02 and 2004-05 and increasing during rest of the years. Return on Owners' Equity ratio as presented in Chart 8.5 was above the average in first and last four years. It was below the average in the year 1997-98 and 1999-00 to 2001-02.

Regression Analysis and Testing of Hypothesis (Chi-Square Test)

In order to establish the casual relationship between owner's equity (Y) on revenue (X) regression analysis has been applied. A Chi-Square test has also been applied to judge whether the results are as per expectation or not.

Null Hypothesis: Return on Owners' Equity Ratio can be represented by the straight line trend based on regression analysis.

Alternative hypothesis: Return on Owners' Equity Ratio can not be described by the line of the best fit.

Level of Significance: 5 percent

Critical Value: 16.919

Degree of Freedom: 9

Table 8.15 Indicates that the calculated value (-52846.174) of Chi-Square(X^2) is less than its table value (16.919), this confirms the deviation in actual and computed net profit is not significant and they could be attributed to sampling. The net profit in GSRTC is negative during whole study period. Though, the ratio reveals that the return on owners' equity is very poor however, it was improving from the year 2000-03 which is a good sign.

Table 8.14
Regression Analysis of Return on Owners' Equity and Chi-Square Test
in GSRTC
From 1996-97 to 2005-06 (Rs. in lacs)

Sr. no.	Year	Net Profit (Actual)	Net Profit (Computed)	Deviations
1	1996-97	-7274.15	-22644.06	15369.91
2	1997-98	-21072.3	-22494.72	1422.42
3	1998-99	-15673.36	-21895.37	6222.01
4	1999-00	-36023.21	-21531.67	-14491.54
5	2000-01	-31796.18	-20905.49	-10890.69
6	2001-02	-38273.42	-20261.67	-18011.75
7	2002-03	-18725.21	-18317.2	-408.01
8	2003-04	-9077.84	-19605.93	10528.09
9	2004-05	-14888.93	-17597.84	2708.91
10	2005-06	-11224.26	-18776.52	7552.26

Calculated Value of Chi-square = - 52846.174 consider as 0

Table Value of Chi-square = 16.919 at 5% level (d.f. = 9)

Regression Line of NP (Y) on NR (X) = -29737.82075 + 0.09830X

The computed value of X^2 is -52846.174 consider as '0', which is in the acceptance region, and thus H_0 is accepted at 5 per cent level of significance and we can conclude that, the test of fitness is held good in GSRTC over the period. The performance of GSRTC was improving as regard to the return on owners' equity.

Return on Owner's Equity Ratio and 't' test

A study of the time wise variance of return owner's equity ratio of GSRTC would be of interest. This may be studied by applying t-test.

- Null Hypothesis:** There is no significance difference between the Return on Owners' Equity Ratio of GSRTC over the time $H_0: \mu = 1$
- Alternative hypothesis:** There is significance difference between the Return on Owners' Equity Ratio of GSRTC over the time $H_1: \mu \neq 1$
- Level of Significance:** 5 percent
- Critical Value:** ± 2.262
- Degree of Freedom:** 9

After making necessary calculation from the data given in Table 8.13, the t-test is presented in the following table.

Table 8.15
t - test

X	σ_s	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
-22.36	13.25	-59.25	9	-5.576	± 2.262

Table 8.15 indicates that the observed value of t is -5.576 which is in the rejection region, and thus H_0 is not accepted at 5 per cent level of significance and we can conclude that, there is significant difference in the Return on Owners' Equity Ratio of GSRTC over the period.

The coefficient variation in Return on Owners' Equity ratio is -59.25, which indicates that there is 59.25 per cent dispersion in the Return on Owners' Equity ratio of GSRTC over the period.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the return on capital employed ratio has slightly risen from -10.08 to -10.07. Hence, its compound annual growth rate is 0.01%.

As a whole, return on owner's equity ratio reveals that the GSRTC is not able to employed proprietors fund efficiently. Moreover, it can not earn return on shareholder's fund but instead suffers heavy losses. However, the ratio shows some improvement from the year 2002-03. The return on net worth is not satisfactory.

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