



# Saurashtra University

Re – Accredited Grade 'B' by NAAC  
(CGPA 2.93)

Trivedi, Shilpa M., 2010, *An analysis of financial performance of State Road Transport Corporation in Gujarat*, thesis PhD, Saurashtra University

<http://etheses.saurashtrauniversity.edu/id/eprint/97>

Copyright and moral rights for this thesis are retained by the author

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the Author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the Author

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.

Saurashtra University Theses Service  
<http://etheses.saurashtrauniversity.edu>  
repository@sauuni.ernet.in

**THESIS**

On

**AN ANALYSIS OF FINANCIAL PERFORMANCE OF  
STATE ROAD TRANSPORT CORPORATION IN GUJARAT**

For the degree  
Of

**DOCTOR OF PHILOSOPHY**  
In

**MANAGEMENT**  
Under the Faculty of Commerce

**Submitted By**

**SHILPA M. TRIVEDI**  
Lecturer – Business Management  
JKM, Commerce and B.B.A. College  
Junagadh

**Submitted To**

Department of Business Management,  
**SAURASHTRA UNIVERSITY, RAJKOT**

**Guided By**

**Dr. PRATAPSIKH L. CHAUHAN**  
Professor, Head & Dean  
Department of Business Management  
(MBA Programme)  
Saurashtra University, Rajkot – 360005

**MARCH – 2010**

Ph.D. Registration No. 3801 Dt. 28/02/2008

## CERTIFICATE

*I hereby certify that the thesis entitled "AN ANALYSIS OF FINANCIAL PERFORMANCE OF STATE ROAD TRANSPORT CORPORATION IN GUJARAT" submitted by Trivedi Shilpa M. for the award of the Degree of Doctor of Philosophy in Commerce, is based on the research work carried out by her under my guidance and supervision and it is her original work. To the best of my knowledge, it has not been submitted for any other degree, diploma or distinction by either Saurashtra University or to any other University.*

*Place: Rajkot*

*Date :*

*Dr. Pratapsinh L. Chauhan,  
Professor, Head and Dean,  
Department of Business Management,  
MBA Program,  
Saurashtra University,  
Rajkot – 360 005*

## DECLARATION

*I hereby declare that the thesis entitled "AN ANALYSIS OF FINANCIAL PERFORMANCE OF STATE ROAD TRANSPORT CORPORATION IN GUJARAT" submitted by me for the award of the Degree of Doctor of Philosophy in Commerce, is my original work, and that it has not been submitted for any other degree, diploma or distinction by either Saurashtra University or any other University.*

*(Trivedi Shilpa M.)*



## CONTENTS

★	Preface	i
★	Acknowledgement	ii
★	List of Abbreviations	iii - iv
★	List of Tables	v - vi
★	List of Maps	vii
★	List of Charts	vii - viii

Chapter No.	Chapter Title	Page No.
1.	<b>Introduction</b>	<b>1 - 19</b>
2.	<b>Insight into Road Transportation</b>	<b>20 - 48</b>
3.	<b>Conceptual Framework</b>	<b>49 - 59</b>
4.	<b>Research Methodology</b>	<b>60 - 79</b>
5.	<b>Working Capital Analysis</b>	<b>80 - 129</b>
6.	<b>Financial Structure Analysis</b>	<b>130 - 185</b>
7.	<b>Activity Analysis</b>	<b>186 - 235</b>
8	<b>Profitability Analysis</b>	<b>236 - 271</b>
9.	<b>Summary, Findings and Suggestions</b>	<b>272 - 300</b>

★	<b>Bibliography</b>	
---	---------------------	--

## PREFACE

*From the beginning of Civilization, human sensitivity has revealed an urge for mobility leading to a measure of Society's progress. The history of this mobility or transport is the history of civilization. For any country to develop with right momentum, modern and efficient Transport as a basic infrastructure is a must. It has been seen throughout the history of any nation that a proper, extensive and efficient Road Transport has played a major role. 'Transporters' perform one of the most important activities, at every stage of advanced civilization. Where roads are considered as veins and arteries of a nation, passenger and goods transported are likened to blood in circulation. Passenger Road Transport Service (PRTS) is an essential connected to the economic development. Transport is the essential convenience with which people not just connect but progress also. Throughout history, people's progress has been sustained on the convenience, speed and safety of the modes of transport. Road transport occupies a primary place in to-day's world as it provides a reach unparalleled by any other contemporary mode of transport.*

*Gujarat State Road Transport Corporation has occupied the unique place in the map of world's transportation. GSRTC serves the role of lifeline across the state of Gujarat. GSRTC has tried to reconcile the twin objectives of community service and financial viability. It has brought transport service to the doorstep of villagers in most remote parts. But in recent years the popular expectations have soared. In the open market economy, the expectations of people with respect to frequency, quality and range of services have become substantially higher. A time has come when GSRTC have to take a serious look at the transportation needs of people and explore the way to fulfill the same.*

*The study, "**An Analysis of Financial Performance of State Road Transport Corporation in Gujarat,**" throws light on the financial condition and financial performance of GSRTC over a given period of time. The main motto behind this study is to contribute in this direction and create value for all stakeholders, public, employees, vendors, state government and fund providers.*

*Being a student of management, I was trying to analysed, reanalysed and comprehend the financial performance of GSRTC. My Honourable guide Dr. P. L. Chauhan Sir taught analysed and highlighted the complexities of financial performance in a very simple manner to enable me to grasp the design of the thesis.*

*All credit goes to Dr. P. L. Chauhan Sir.*

*(Trivedi Shilpa M.)*

## ACKNOWLEDGEMENT

*At the ends of the journey of this research produce, from the beginning till the date of finish, I have come across a number of people, variety of experiences and lot many efforts. Today I would like to mention the name of all those, who have been directly or indirectly, in the great support to me and my work,*

*I would like to express my gratitude especially to Dr. Pratapsinh Chauhan Sir, my guide, my mentor, without whom, I suspect I would not have come so far. I would also mention the name of Dr. D. G. Modi Sir, who has been the great source of inspiration to me. I thank him for his guidance, suggestions and undivided attention during the research period.*

*I must mention the name of my Parents, my in-laws, all of my siblings, my Life Mate-Sanjay and Devanshi-my loving daughter to support me all the time and co operate me by adjusting to my moods and requirements.*

*I will always remember the help and co-operation given with blessing during my research work by our President Sir Shri Nanjibhai Vekariya, Mr. Sahdevsinh Gohil, Mr. Bharat Pandya, Mrs. Minaxi Pandya, Mr. Navinchandra Trivedi and Dr. Pankaj Trivedi for providing the data for my database.*

*My special thanks go to Mr. Sanjay Joshi Sir, Divisional Controller, G.S.R.T.C., for devising all the information about his departmental know-how and operations. I am thanking Dr. R.L.Siyani Sir and Dr. D.M.Jethwa Sir, Agriculture University, Junagadh for giving me invaluable insight into the skill and style of writing this thesis.*

*I am very much thankful to Mrs. Bhagavati Parekh, my colleague and my friend, who has helped me in formatting and correcting the information and literature of this thesis to improve the accuracy. I am thankful to all my colleagues Mr. A.M. Gajera, Mr. Y.L. Thumer, Mr. Vimalsinh Gohil, Miss Komal Gadhiya and all other colleagues to provide a big helping hand during my research work. I must honour the scholarship of the sources and references quoted in this thesis.*

*At the end, I thank to the almighty who inspired, blessed and has always been with me when I needed HIM.*

Date: -03-2010

(Trivedi Shilpa M.)

## LIST OF ABBREVIATIONS

PRTS	: Passenger Road Transport Service
Km	: Kilo meter
Approx	: Approximate
IWAI	: Inland Waterways Authority of India
Etc.	: Etcetera
GDP	: Gross Domestic Product
BC	: Before Christ
AD	: Anno Domini
MPH	: Miles per Hour
TRTU	: Transfer red Road Transport Undertakings
Ltd.	: Limited
Schs.	: Schedules
No.	: Number
Pass.	: Passenger
GSRTC	: Gujarat State Road Transport Corporation
CVP	: Cost Volume Profit
PERT	: Programme Evaluation and Review Techniques
CPM	: Critical Path Method
CSTC	: Calcutta State Transport Corporation
STUs	: State Transport Undertakings

UPSRTC	: Uttar Pradesh State Road Transport Corporation
NTPC	: National Transport Policy Committee
CIRT	: Central Institute of Road Transport
Avg.	: Average
Rs.	: Rupees
&	: and
O/S	: Out Standing Debts
Diff.	: Difference
SD	: Standard Deviation
CV	: Coefficient of Variation
d.f.	: Degree of Freedom
ST	: State Transport
STF	: Short Term Fund
TA	: Total Asset
LTF	: Long Term Fund
Coeffi.	: Coefficient
EBIT	: Earning Before Interest and Tax
EPS	: Earning Per Share
EBT	: Earning Before Tax

## LIST OF TABLES

<b>NO.</b>	<b>Title</b>	<b>Page No.</b>
1.1	Stats of National Highways as on 31st March, 2008	8
1.2	Status of Indian Railways as on 31st March, 2007	11
1.3	Status of Indian Waterways as on 31st March, 2000	13
1.4	Share of Different Modes of Transport in GDP	18
2.1	Timeline of Transportation Technology	30
2.2	Commencement of State Road Transportation	39
2.3	Operations of Road Transport in India	41
2.4	Divisions, Depots and Schedules of GSRTC as on 31st March, 2006	44
2.5	Growth of Passenger Road Transport in Gujarat	46
5.1	Trend of Current Assets in GSRTC	84
5.2	Average Current Assets in GSRTC	87
5.3	Trend of Current Liabilities in GSRTC	89
5.4	Average Current Liabilities in GSRTC	92
5.5	Trend Of Working Capital In GSRTC	93
5.6	Working Capital Turn over Ratio	98
5.7	Debtors Turn over Ratio	101
5.8	Creditors Turn over Ratio	104
5.9	Current Ratio	109
5.11	Quick Ratio	114
5.13	Cash Ratio	118
5.14	Interval Measure Ratio	122
5.15	Cash Flow Coverage Ratio	126
6.1	Trend of Short Term Funds In GSRTC	135
6.2	Trend Of Long Term Fund In GSRTC	139
6.3	Quantum Of Long Term and Short Term Fund	143
6.4	Long Term Debt - Equity Ratio	150
6.6	Total Debt Equity Ratio	155
6.7	Total Debt - Total Assets Ratio	159
6.8	Proprietary Ratio	163

6.9	Interest Coverage Ratio	167
6.11	Financial Leverage Ratio	172
6.12	Capital Gearing Ratio	176
6.13	Net Fixed Assets - Net Worth Ratio	179
6.14	Fixed Assets - Long Term Debt Ratio	182
7.1	Growth of Activities on the Basis of Net Revenue	188
7.2	Straight Line Trend Analysis of Revenue	190
7.3	Total Assets Turn over Ratio	193
7.4	Regression Analysis of Revenue	196
7.5	Gross Fixed Assets Turn over Ratio	198
7.6	Net Fixed Assets Turn over Ratio	201
7.7	Current Assets Tern over Ratio	204
7.8	Operating Ratio	208
7.9	Stores to Net Revenue Ratio	211
7.11	Fuel to Net Revenue Ratio	215
7.13	Salary and Allowance to Net Revenue Ratio	219
7.15	Depreciation and Insurance to Net Revenue Ratio	223
7.17	General Charges to Net Revenue Ratio	227
7.19	Taxes to Net Revenue Ratio	231
8.1	Gross Profit Ratio	240
8.2	Regression Analysis of Gross Profit	243
8.4	Net Operating Profit Ratio	246
8.5	Regression Analysis of Net Operating Profit	249
8.7	Return on Capital Employed Ratio	252
8.8	Regression Analysis of Return on Capital Employed	255
8.10	Net Profit Ratio	259
8.11	Regression Analysis of Net Profit	262
8.13	Return on Owners' Equity Ratio	265
8.14	Regression Analysis of Return on Owners' Equity	268

### LIST OF MAPS

<b>No.</b>	<b>Title</b>	<b>Page No.</b>
1.1	Road Network in India	9
1.2	Rail Network in India	12
1.3	Water Network in India	14
1.4	Air Network in India	17
2.1	Evolution of the Major Roads in India	34
2.2	Road Network in Gujarat	45

### LIST OF CHARTS

<b>No.</b>	<b>Titles</b>	<b>Page No.</b>
1.1	Means of Transport	3
1.2	Means of Land Transport	4
1.3	Means of Water Transport	5
1.4	Means of Air Transport	7
2.1	Relative Share of Modes of Public Transport in India	40
5.1	Relative Share of Current Assets in GSRTC	85
5.2	Temporal Change in Current Assets of GSRTC	86
5.3	Relative Share of Current Liabilities in GSRTC	90
5.4	Temporal Change in Current Liabilities of GSRTC	91
5.5	Current Assets and Current Liabilities in GSRTC	94
5.6	Temporal Change in Working Capital of GSRTC	95
5.7	Working Capital Turn over Ratio	99
5.8	Debtors Turn over Ratio	102
5.9	Creditors Turn over Ratio	105
5.1	Current Ratio	110
5.11	Quick Ratio	115
5.12	Cash Ratio	119
5.13	Interval Measure Ratio	123
5.14	Cash Flow Coverage Ratio	127
6.1	Relative Share of Short Term Funds	136



6.2	Temporal Change in Short Term Fund of GSRTC	137
6.3	Relative Share of Long Term Funds	140
6.4	Temporal Change in Long Term Funds of GSRTC	141
6.5	Average Long Term and Short Term Funds	144
6.6	Temporal Change in Long Term and Short Term Funds	145
6.7	Long Term Debt - Equity Ratio	151
6.8	Total Debt Equity Ratio	156
6.9	Total Debt - Total Asset Ratio	160
6..10	Proprietary Ratio	164
6.11	Interest Coverage Ratio	168
6.12	Financial Leverage Ratio	173
6.13	Capital Gearing Ratio	177
6.14	Net Fixed Assets - Net Worth Ratio	180
6.15	Fixed Assets - Long Term Debt Ratio	183
7.1	Temporal Change in Revenue	189
7.2	Total Assets Turn over Ratio	194
7.3	Gross Fixed Assets Turn over Ratio	299
7.4	Net Fixed Assets Turn over Ratio	202
7.5	Current Assets Tern over Ratio	205
7.6	Operating Ratio	209
7.7	Stores to Net Revenue Ratio	212
7.8	Fuel to Net Revenue Ratio	216
7.9	Salary and Allowance to Net Revenue Ratio	220
7..10	Depreciation and Insurance to Net Revenue Ratio	224
7.11	General Charges to Net Revenue Ratio	228
7.12	Taxes to Net Revenue Ratio	232
8.1	Gross Profit Ratio	241
8.2	Net Operating Profit Ratio	247
8.3	Return On Capital Employed Ratio	253
8.4	Net Profit Ratio	260
8.5	Return On Owners' Equity Ratio	266

# INTRODUCTION

- **Introduction**
- **Concept of Transport**
- **Functions of Transport**
- **Means of Transport**
- **Transport in India**

## 1.1 INTRODUCTION

From the beginning of history, human sensitivity has revealed an urge for mobility leading to a measure of Society's progress. The history of this mobility or transport is the history of civilization. For any country to develop with right momentum modern and efficient Transport as a basic infrastructure is a must. It has been seen throughout the history of any nation that a proper, extensive and efficient Road Transport has played a major role. 'Transporters' perform one of the most important activities, at every stage of advanced civilization. Where roads are considered as veins and arteries of a nation, passenger and goods transported are likened to blood in circulation. Passenger Road Transport Service (PRTS) is an essential connected to the economic development. Transport is the essential convenience with which people not just connect but progress. Throughout history, people's progress has been sustained on the convenience, speed and safety of the modes of transport. Road transport occupies a primary place in to-day's world as it provides a reach unparalleled by any other contemporary mode of transport.

## 1.2 TRANSPORT

**Transport** (British English) or **transportation** (American English) is the movement of people and goods from one place to another. The term is derived from the Latin *trans* ("across") and *portare* ("to carry").

## 1.3 FUNCTIONS OF TRANSPORT

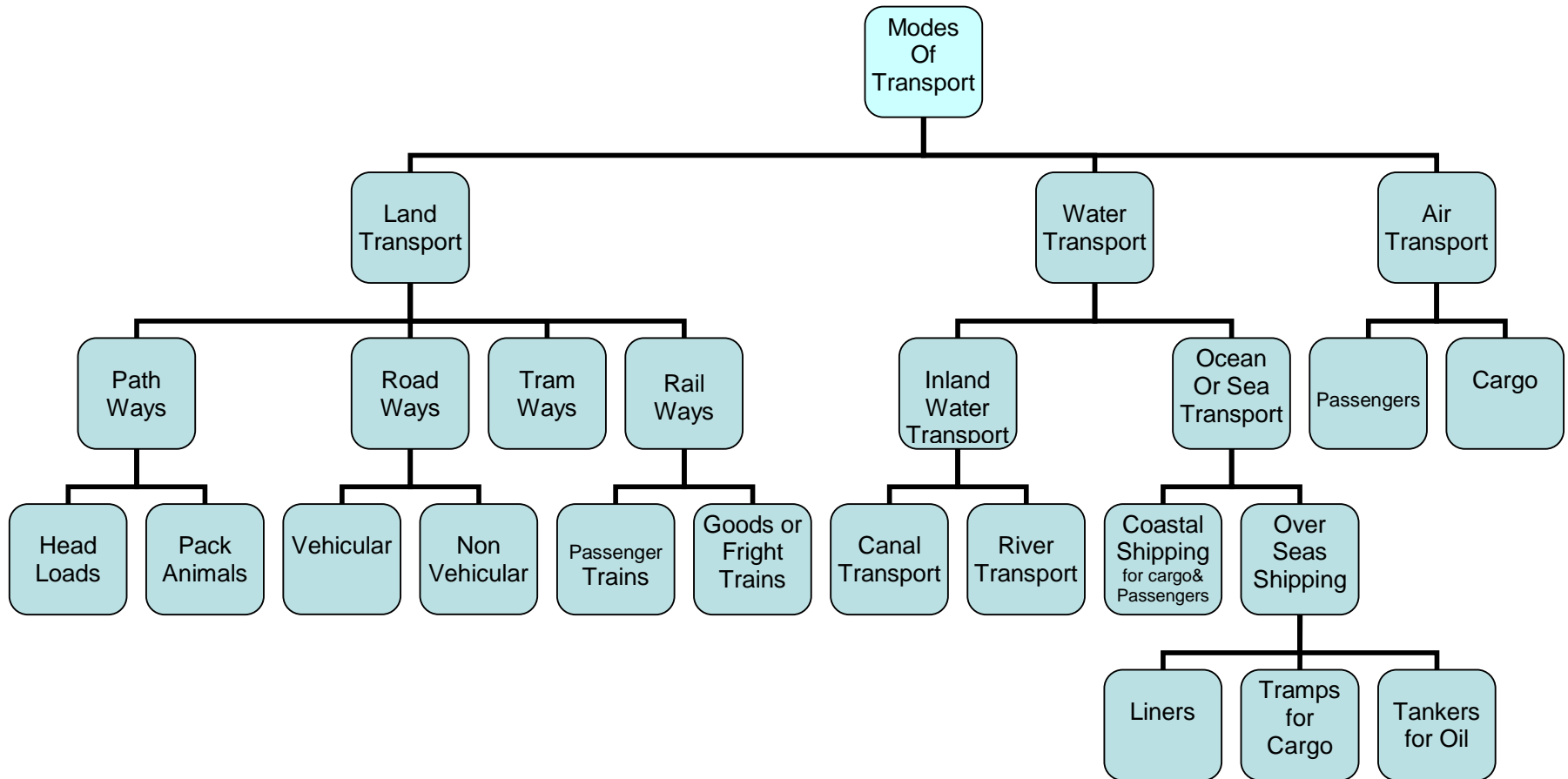
1. Transport contributes in **Growth of industries whose product requires quick marketing**. Perishable articles like fish and green vegetables are carried to various consumers quickly even in distant markets through transport.
2. Transport helps in **increase in the demand for goods**. Through transport newer customers in newer places can be easily contacted and products can be introduced to them. Today markets have become national or international only because of transport.

3. Transport **creates place utility**. Geographical and climatic factors force industries to be located in particular places far away from the markets and places where there may not be any demand for the products. Transport bridges the gap between production and consumption centers.
4. Transport **creates time utility**. Of late transport has started creating the time utility also. It has been made possible by virtue of the improvements in the speed of transport. It helps the product to be distributed in the minimum possible time.
5. Transport helps in **stabilization of price**. Transport exerts considerable influence upon the stabilization of the prices of several commodities by moving commodities from surplus to deficit areas. This equalizes the supply and demand factor and makes the price of commodities stable as well as equal.
6. Transport **ensures even flow of commodities** into the hands of the consumers through out the period of consumption.
7. Transport **enables the consumers to enjoy the benefits of goods not produced locally**. This increases the standard of living, an essential factor for further development of marketing and economy.
8. Transport **identifies competition, which** in turn, reduces prices. Prices are also reduced because of the facilities offered by transport for large-scale production. Advantages of large-scale production is possible only due to transport.
9. Transport **increases mobility of labor and capital**. It makes people of one place migrate to other places in search of jobs. Even capital, machineries and equipments are imported from foreign countries through transport alone.

#### **1.4 MEANS OF TRANSPORT**

The means of transport are classified on the basis of the way, the vehicle, the motive power used and terminals.

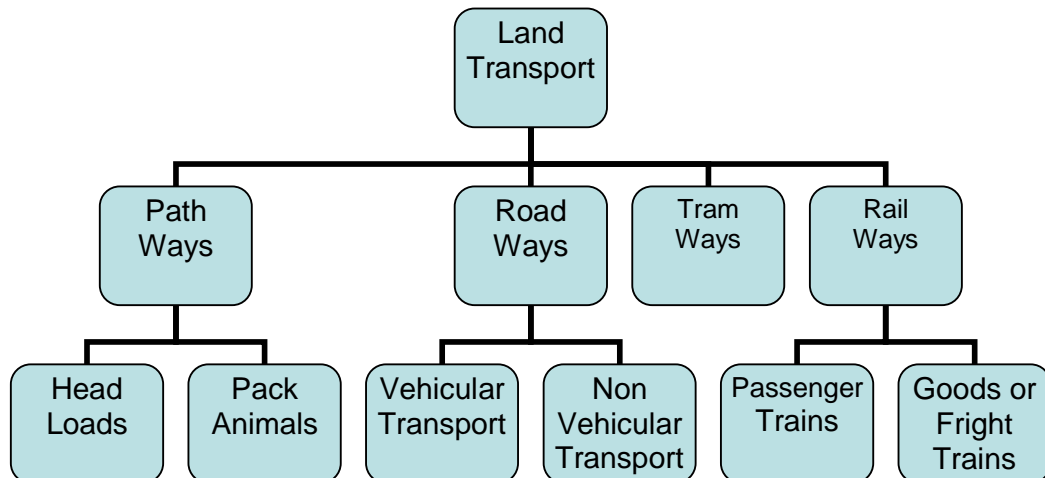
**Chart 1.1**  
**Means of Transport**



## 1. LAND TRANSPORT

Land Transport may be classified as

**Chart 1.2**  
**Modes of Land Transport**



### **Pathways:**

In remote villages, forest and hilly areas pathways are still an important amongst the different modes of transport. It further be subdivided into Head loads (is also known as human transport. It is used in the hilly areas where even animals cannot reach) and Pack animals (is also known as animal transport. It is used in the backward areas. The animals like horse, pony, donkey, ass, buffaloes, camel, elephant, yak, sheep etc. are used for this purpose.

### **Roadways:**

Road Transport is one of the most important modes of transport. The history of Road Transport started from ancient civilizations. Gradually it becomes more and more popular means of transport. Road Transport further subdivided into Vehicular Transport (Cars, Trucks, Buses, Lorries, Autoricksaws, Bullock Carts, Tongas, Tumtums, and Hand Carts etc.) and Non-vehicular Transport (Hamals, Animals like Camel, Dogs, Elephant, Horse, Mules etc.)

**Tramways:**

Tramway is one of the cheaper, longer, quicker and safer modes of Land Transport which is suitable in large cities. However due to certain limitations like slowly ness, huge investment, inflexibility etc. gradually it replaced by other means of Land Transport.

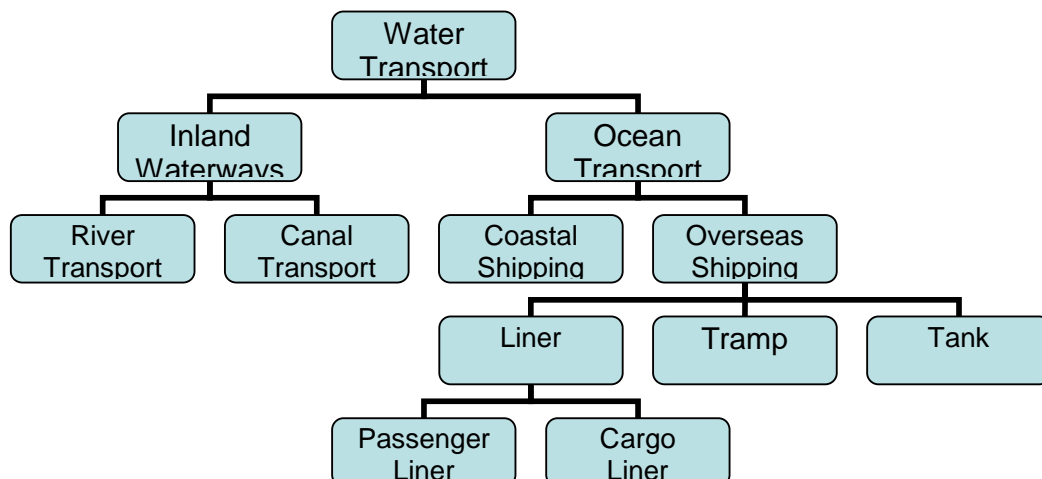
**Railways:**

Railway has been the pioneer of modern mechanical transport. It has brought the greatest revolution in transport. It accelerated commercial and industrial development of various countries. Until the introduction of Motor Transport, Railway had the monopoly as the Land Transport. In India, it is the principal means of transport. It carries over 80 per cent of goods traffic and over 70 per cent of passenger traffic. It provides for more than 60000 kilometers of railways all over the country.

**2. WATER TRANSPORT**

Water transport is the cheapest and the oldest form of transport for heavy goods and bulk cargoes. Waterways are the natural gifts, hence it does not required large amount of capital expenditure for the construction of road and railway tracks, except canal transport, as in the case of land transport. In addition to that the cost of running is also very less. Water transport may be classified as under:

**Chart 1.3**  
**Modes of Water Transport**



## **A INLAND WATERWAYS**

Inland waterways may be subdivided into

### **River Transport:**

Rivers are the water highways given by nature. River Transport is suitable for small boats and steamers. It was highly developed in the pre-railway days. But with the development of railways, river transport was neglected and decayed gradually.

### **Canal Transport:**

Canals are the artificial waterways constructed for the purpose of navigation and irrigation.

## **B OCEAN TRANSPORT**

Ocean Transport or shipping may be subdivided into

### **Coastal Shipping:**

Coastal shipping is a cheaper, speedy, flexible and economical form of transport for the movement of bulky and heavy cargoes. Usually coastal shipping trade is reserved for the national shipping. In India also from 1951 and onwards the coastal shipping trade is extremely reserved for the national ships.

### **Overseas Shipping:**

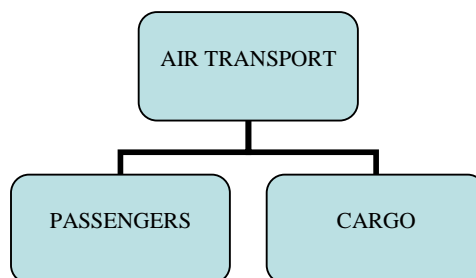
On the basis of their working, overseas shipping may be divided into The Liner (those ships which follow defined routes with fixed places and fixed time table), The Tramps (those ships which have no set routes or fixed time table) and The Oil Tanker (special sea carriers of crude oil in very large quantity). The Liners may again be subdivided into Passenger Liners and the Cargo Liners.

## **3. AIR TRANSPORT**

Air transport is the gift of twentieth century to the world. It is the latest means of transport. The first flight in the air was made in 1903 only for twelve seconds. Successfully it was used as a means of transport after the First World War (1914-1918). The first air service was started in 1919 between London and Paris. Since then it has made notable progress and provide tough competition to Railways. Air Transport can again be subdivided into passenger and cargo.



**Chart 1.4**  
**Means of Air Transport**



## **1.5 TRANSPORTATION IN INDIA**

A well-knit and coordinated system of transport plays an important role in the sustained economic growth of a country. The transport system in India comprises a number of distinct modes and services, notably railways, roads, road transport, ports, inland water transport, coastal shipping, airports, and airlines. Railways and roads are the dominant means of transport carrying more than 95% of total traffic generated in the country. Although other modes such as coastal shipping and inland water transport would play a greater role, the railways and roads would continue to dominate the transport landscape in the foreseeable future.

### **1. Road Transport in India**

A good road network is a critical infrastructure requirement for rapid growth. It provides connectivity to remote areas; provides accessibility to markets, schools, and hospitals; and opens up backward regions to trade and investment. Roads also play an important role in inter-modal transport development, establishing links with airports, railway stations, and ports.

India has one of the largest road networks in the world, of 33.14 lakh km, consisting of (i) national highways (NHs), (ii) State highways (SHs), (iii) major district roads (MDRs), and (iv) RRs that include other district roads and village roads. NHs with a length of 66590 km comprises only 2.0% of the road network but carry 40% of the road-based traffic. SHs with a length of about 137000 km and MDRs with a length of 300000 km together constitute the

secondary system of road transportation which contributes significantly to the development of the rural economy and industrial growth of the country. The secondary system also carries about 40% of the total road traffic, although it constitutes about 13% of the total road length. RRs, once adequately developed and maintained, hold the potential to provide rural connectivity vital for generating higher agricultural incomes and productive employment opportunities besides promoting access to economic and social services. The map follows:

**Table 1.1**  
**Status of National Highways as on 31<sup>st</sup> March, 2008**

No.	Roads/Ways	Length (Km.)
1	Expressways	200
2	National Highways	66,590
3	State Highways	1,31,899
4	Major District Roads	4,67,763
5	Rural and Other Roads	26,50,000
6	Single Lane/Intermediate Lane	32%
7	Double Lane	56%
8	Four or more Lanes	12%

Source: National Highways Authority of India

The transport demand for freight and passenger movement within the country is met mainly through road transport and railways. Between these two modes, road transport has steadily expanded its scope of operation and is now not merely a mode for the last haul but is also handling freight over long distances. It also plays a complementary role to railways in moving freight from and to railheads vis-à-vis the Origin-Destination movements of cargo. Its intermodal share in carrying freight, which was around 14% in 1950–51, had increased to around 61% in 2004–05. The share of road transport in passenger movement has also witnessed a quantum jump from 15% in 1950–51 to an estimated 87% of the total traffic by the end of the Tenth Plan.

## ROAD NETWORK IN INDIA



1

<sup>1</sup> www.mapsofindia.com

## **2. Rail transport in India:**

Railways are ideally suited for long distance travel and movement of bulk commodities. Regarded better than road transport in terms of energy efficiency, land use, environment impact and safety it is always in forefront during national emergency.

Indian Railways, a historical legacy, are a vital force in our economy. Spanning nearly two centuries Indian Railways has been serving the country with utmost pride. It was only in 1851 when the first train ran in the country for hauling construction material in Roorkee and by 16<sup>th</sup> April 1853 the first passenger train service became operational running between Bori Bunder, Bombay and Thane. Fourteen railway carriages carried about 400 guests from Bombay to Thane covering a distance of 21 miles, thus marking the formal birth of rail network in India. Since then there has been no looking back. It is interesting to note that though the railways were introduced to facilitate the commercial interest of the British it played an important role in unifying the country.

The **Railways in India** are the principal mode of transportation for freight and passengers. The railways have played an important role in the development of industries and agriculture. Indian railways consist of a vast network of 7031 stations spread over a route length of 63221 km, of this 13,000 km is electrified, with a fleet of 7817 locomotives, 5321 passenger service vehicles, 4904 other coaching vehicles and 228170 wagons 300 yards, 2300 goodsheds, 700 repair shops, and 1.54 million work force. Indian Railways runs around 11,000 trains everyday, of which 7,000 are passenger trains as on 31st March 2004.

Indian railways, the largest rail network in Asia and the world's second largest under one management are also credited with having a multi gauge and multi traction system. The track kilometers in broad gauge (1676 mm) are 86526

kms, meter gauge (1000 mm) are 18529 kms and narrow gauge (762/610 mm) are 3651 kms.

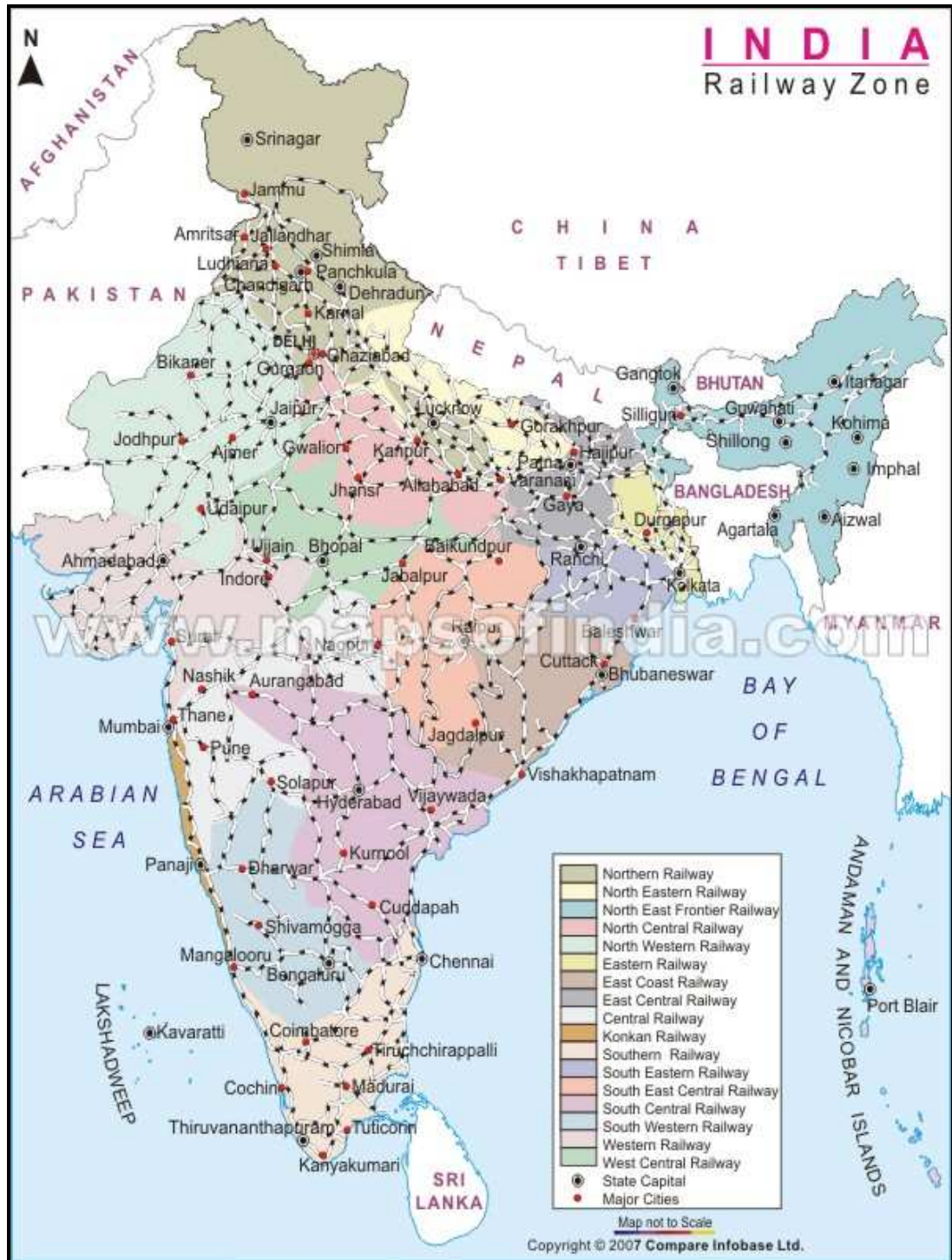
Indian Railway has the distinction of being one of the biggest and busiest rail networks in the world carrying more than 16 million passengers and 11 Lakh tones of goods on a daily basis. In terms of headcount again **Indian Railway** scores as it employs more than 1.6 million employees that are only second to the Chinese Army in terms of people employed.

The Indian Railways have been a great integrating force for more than 150 years. The **Indian Railways** network binds the social, cultural and economical fabric of the country and covers the whole of country ranging from north to south and east to west removing the distance barrier for its people. The railway network of India has brought together the whole of country hence creating a feeling of unity among the Indians. It has helped the economic life of the country and helped in accelerating the development of industry and agriculture. The map follows:

**Table 1.2**  
**Status of Indian Railway as on 31<sup>st</sup> March 2007**

<b>Indicators</b>	<b>Unit</b>	<b>Data</b>
<b>Total Route</b>	<b>km</b>	<b>63,327</b>
By Gauge	route-km	
Broad Gauge (1.676m)		49,819
Meter Gauge (1.000m)		10,622
Narrow Gauge (0.762)		2,886
By Type	route-km	
Single Track		45,961
Double Track		16,555.09
Electrified		17,786
Three/Multiple Tracks		810.73
<b>Total Track</b>	<b>km</b>	<b>109,996</b>

### RAIL NETWORK IN INDIA



### 3. Water Transport in India:

India has a long coastline, about 90% of sea borne trade is handled via major ports of Kandla, Mumbai , Nhava Sheva, Marmagao, Cochin, Tuticorin, Chennai, Vishakapatnam, Paradwip, Haldia, Goa and Kolkata.

India is bordered by Bay of Bengal, Arabian Sea and Indian Ocean and has a coastline of more than 7,000 kms. It has an extensive network of inland waterways and seaports. The inland waterways include rivers, canals, backwaters and creeks. The total navigable length of inland waterways is 14,500 km. Inland Waterways Authority of India (IWAI) is the statutory authority in charge of the waterways in India. There are three national waterways in India: Allahabad Haldia stretch of the Ganga Bhagirathi Hooghly river, Sadiya Dhubri stretch of the Brahmaputra river system and Kollam Kottapuram stretch of West Coast Canal along with Champakara canal and Udyogmandal canal. These waterways also attract tourists from all parts of the world, thus promoting Indian travel & Tourism. There are also many hotels and resorts in these areas to cater to the lodging needs of the tourists. There are 12 major ports and about 180 minor and intermediate ports in India. With the ports handling more than 95% of the trade in India, they act as the major gateway for trade. The major ports in India are Calcutta, Haldia, Paradip, Visakhapatanam, Ennore, Chennai, Tuticorin, Cochin, New Mangalore, Mormugao, JNPT, Mumbai and Kandla. The map follows

**Table 1.3**  
**Status of Indian Waterways as on 31<sup>st</sup> March 2000**

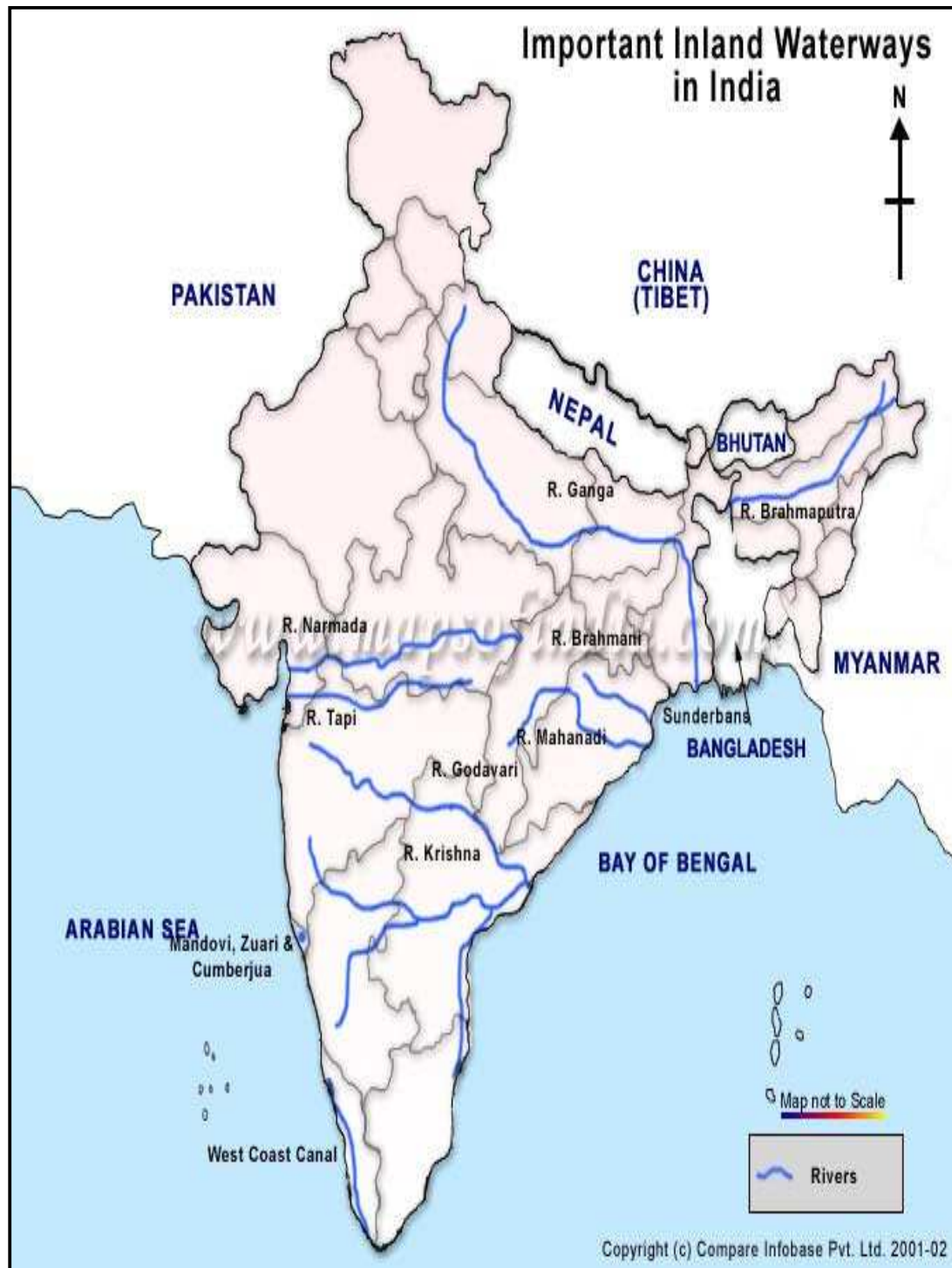
<b>National Waterways</b>	<b>Distance (kms.)</b>	<b>Cargo Moved (Lakh Tons)</b>
National Waterway 1	1620	7.31
National Waterway 2	891	0.06
National Waterway 3	205	11.12
<b>Total</b>	<b>2716</b>	<b>18.49</b>

**Source :** Inland Waterways Authority of India

**Note:** NW-1, Allahabad-Haldia stretch of the Ganga-Bhagirathi-Hooghly river system, NW-2, Sadiya-Dhubri stretch of the Brahmaputra river, NW-3, Kottapuram-Kollam stretch of the West Coast Canal along with Champakara Canal (23 kms) and Udyogmandal Canal (14 kms).



### WATER NETWORK IN INDIA



3

<sup>3</sup> [www.mapsofindia.com](http://www.mapsofindia.com)



#### **4. Air Transport in India:**

Air travel is a fastest means to reach in any part of the world. Domestic air services are looked after by Indian airlines and private airlines while the international airport service is looked after by Air India. Mumbai, Chennai, Kolkata and Delhi are the four major international airports of India

Air transport being the most modern and the quickest mode of transport has been gaining popularity. However, the exorbitant rates have made it the mode of travel of the rich or of the business community for whom time is more expensive than air travel. But the entry of private Airlines and their various schemes have reduced airfare drastically. The recent tax relaxation on air fuel and such sops will further make air travel within the reach of a greater section of the Indian Populace.

India had bilateral air services agreements with 93 countries as on May 31, 1999. Air India Limited is the major international carrier of the country. It operates services to USA Europe, the Russian Confederation, the Gulf/Middle East, East Asia, Far East and Africa. Air India owns a fleet of 26 aircraft consisting of six B-747-200, two B747-300 (Combi), seven B747-400, three A 300-B4 and eight A 310-300 aircraft. During 1998-99, Air India carried 3.15 million passengers as against 3.06 million in 1997-98.

Indian Airlines is the major domestic air carrier of the country. It operates to 57 domestic stations (including Alliance Air operations) and 17 international stations in 14 countries, viz., Pakistan, Maldives, Nepal, Sri Lanka, Malaysia, Bangladesh, Thailand, Singapore, UAE, Oman, Myanmar, Kuwait, Qatar and Bahrain. Its operations, including Alliance Air cover 76 destinations including 16 abroad. The Airlines owns a fleet of eleven A-300, thirty A-320, twelve B-737 and three Dornier -228 aircraft. All Boeing B-737 aircrafts are being operated by its wholly owned subsidiary Alliance Air.

The domestic scene is now dotted with private airlines as the government has now very wisely ended the monopoly of Indian Airlines. The International service is however, still the monopoly of Air India as the private operators are

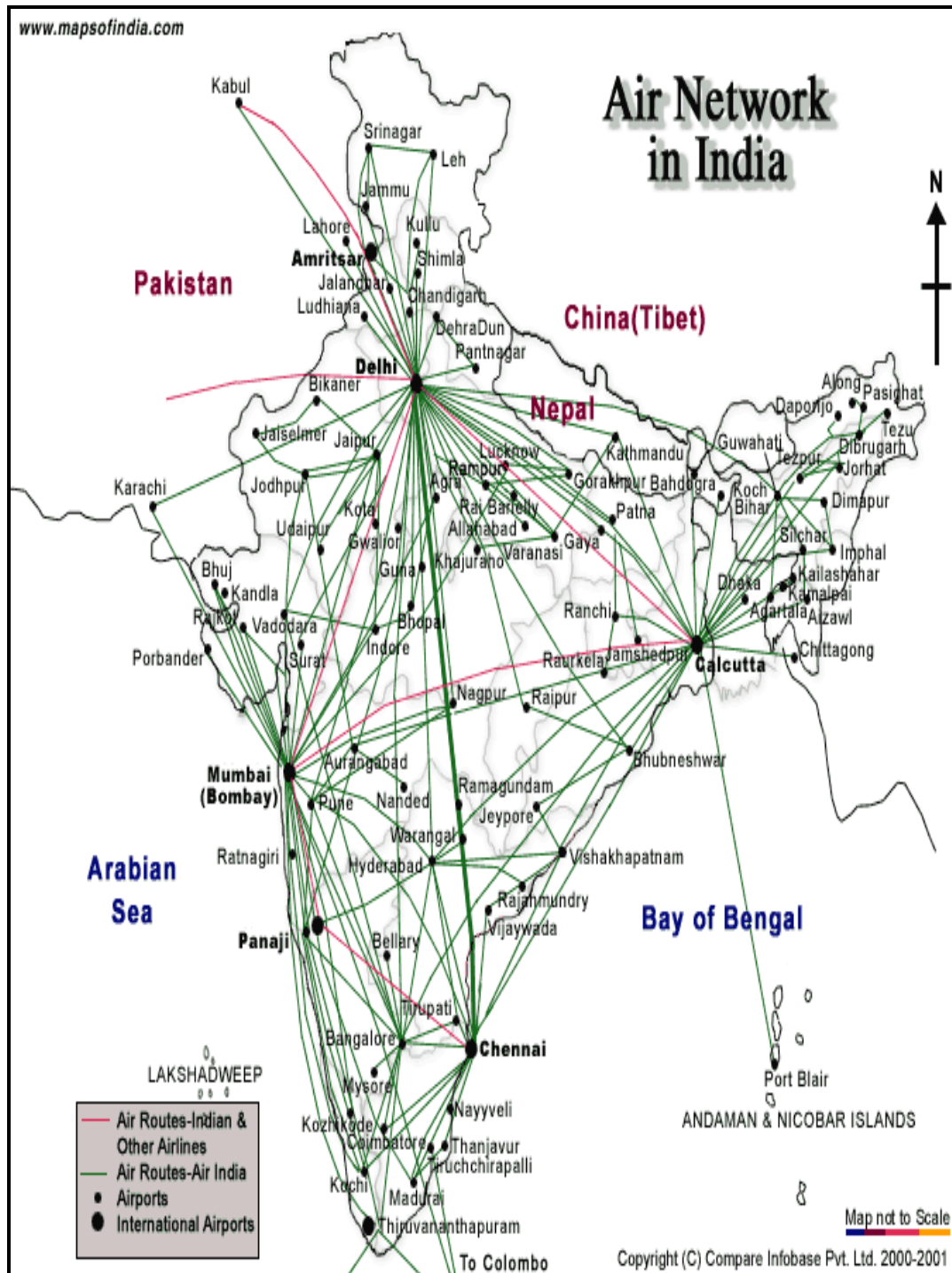
only allowed to operate within the country. Some of the leading domestic private airlines are Air Sahara, Jet Airways and Air Deccan. The government has been in the process of disinvestment of both Indian Airlines and Air India for the betterment of services.

Pawan Hans Helicopters Limited has been providing helicopter support services to the petroleum sector including ONGC, Oil India Limited and Hardy Exploration at Chennai. Apart from these, it also provides services to certain state governments and public sector undertakings and in the northeastern states.

Foreign airlines carrying international passenger traffic to and from India existed long before Independence. Their operations are governed by bilateral agreements signed from time to time between the Government of India and the governments of respective countries. In 1980-81, the number of such airlines was 35. It rose to 49 in 1996-97. The share of foreign airlines in India's scheduled international traffic has increased. In 1971, their share was 55.58 per cent, which went up to 65 per cent and declined to 58 per cent during 1972-75. It fell to 55.72 per cent in 1976 and further to 55.02 per cent in 1977. Between 1978 and 1990 it gradually increased and rose to 75.93 per cent. In 1996, the share was nearly 72 per cent.

The development of airports is no longer solely under the public sector; instead private participation is allowed and encouraged. An International green field airport has been developed in Cochin, Kerala, with contributions from NRIs and loans from financial institutions. Approval for the reconstruction of four Metro Airports ( Delhi, Mumbai, Kolkata and Chennai) has been given to make them world class. New International airports are to be set up in Bangalore, Hyderabad and Goa with the help of the private sector. In the past few years, several investments have been made in the Indian air industry to make use of its vast unutilized air transport network. Many low cost air carriers have also entered the Indian market in the past two to three years.

### AIR NETWORK IN INDIA



4

<sup>4</sup> [www.mapsofindia.com](http://www.mapsofindia.com)

Thus, Road transport is vital to the economic development and social integration of the country. Road transport fulfils a major role in the Indian economy involving a wide range of industries and services from vehicle manufacturers and suppliers to infrastructure builders, services, energy providers, public authorities, insurance and many others. Road transport, together with the other modes of transport, provides indispensable mobility for all citizens and goods and contributes to the economic prosperity of a nation. It is a key factor to social, regional and economic cohesion, including the development of rural areas. However, the impact of road transport on the environment and health remains a major challenge in many aspects. Easy accessibility, flexibility of operations, door-to-door service and reliability have earned road transport an increasingly higher share of both passenger and freight traffic vis-à-vis other transport modes. In addition to these factors, transit time, availability of capacity on alternative modes, quality and reliability of the service, associated costs like warehousing and demurrage etc. all influence the choice of the mode of transport. The alternative modes of transport viz. roadways, railways, waterways, airways, mass transit etc., each contribute to the transportation requirements of the economy. Transport sector accounts for a share of 6.4 per cent in India's Gross Domestic Product (GDP). The composition of various sub-sectors of the transport sector in terms of GDP is given in Table 1.4 as under:

**Table 1.4**  
**Share of Different Modes of Transport in GDP**

Sector	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
	<b>As percentage of GDP (at factor cost and constant prices)</b>							
Transport of which:	5.8	<b>6.0</b>	<b>5.9</b>	<b>6.2</b>	<b>6.3</b>	<b>6.6</b>	<b>6.5</b>	<b>6.4</b>
Railways	1.2	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>
Road Transport	3.8	<b>3.9</b>	<b>3.8</b>	<b>4.1</b>	<b>4.3</b>	<b>4.5</b>	<b>4.5</b>	<b>4.5</b>
Water Transport	0.2	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
Air Transport	0.2	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
Services	0.5	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>

**Source:** Central Statistical Organisation

## **REFERENCES**

1. Mathew M. O., "Rail and Road Transport in India – A Study in Optimum Size and Organisation", Book Agency, Calcutta, 1964.
2. Owes Wilfred, "Strategy for Mobility – Transportation for the Developing Countries", East West Centre Press, Honolulu, 1966.
3. Bhatnagar K. P., Satish Bahadur, Agarwal D. N., Gupta S. C., "Transport in Modern India", Kishor Publihsing House, Kanpur, 1971.
4. Peter F. Drucker, "Management; Tasks, Responsibilities, Practices", Allied Publishers, New Delhi, 1975.
5. Mridula Krishna, "Economics of Transport; A Trend Report", Survey of Research in Economics, ICSSR, New Delhi, 1975.
6. R. R. Khan, "Transport Management", Himalaya Publishing House, Bombay, 1980.
7. Dev, Arun (ed), "The Story of Civilisation, Vol. 1, NCCRT, ew Delhi, 1983.
8. Arora S. K., "Economics of Managemnet in Road Transport Industries", Deep & Deep Publications, New Delhi, 1988.
9. Venkattapa Rao G., "Transport and Highway Engineering", Tata Mc Graw Hill Publishing Company Limited, New Delhi, 1996.
10. Koteeswaram M., "Indian Journal of Transport Management", March 2000.
11. Road Transport Year Book (2006-07), Transport Research Wing, Ministry of Shipping, Road Transport & Highways, Government of India, New Delhi, 2009.

# INSIGHT INTO ROAD TRANSPORTATION

- **Introduction**
- **General Overview (World wide)**
- **Road Transportation In India**
- **Gujarat State Road Transport Corporation**

## **2.1 INTRODUCTION**

Road transport is a transport on roads that is the most popular means of transportation on land, which doesn't mean the rail transportation. In the wide sense, it includes every kind of transportation, which occurs on road.

In India, the road transport is a dominant mode of transport in the movement of goods and passengers. It is sole mechanized means of surface transport to serve the hilly, rural and backward areas not connected by railways. The freight traffic is generally owned and operated by private sector whereas both the private and public sectors share the passenger services.

## **2.2 GENERAL OVERVIEW (WORLD WIDE)**

The History of Transportation covers the entire history of man. Early Paleolithic and Neolithic man walked through his world on his own legs, and couldn't transport more than he was able to carry on his back. In the late Neolithic, Beasts of Burden began to be used after animal's domestication, but even then they could only carry what could be loaded or tied to animal's backs. After some times early man wanted to move large stones or other heavy objects and invented the log roller for this task. There is evidence that many cultures in many geographic areas used simple log roller technology, but dating this is difficult and extensively used log rollers eventually inspired the development of the wheel. A lot of the early information is theoretical and undocumentable for History as such, and is really more in the domain of Archeology or Anthropology, but is the preface to the History of Transportation.

The history of road transport started with the development of tracks by humans and their beasts of burden. Animal-drawn wheeled vehicles probably developed in the time of Sumer. The chronological development of transport can be classified in the following manner:

### **The Sledge: 7000-4000 BC**

From the beginning of human history people have dragged any load too heavy to be carried. But large objects are often of awkward shape and

texture, hence difficult to drag on rough ground. The natural solution is to move them on a platform with smooth runners known as a sledge.

Wooden sledges are first known by at least 7000 BC, among communities living by hunting and fishing in northern Europe, on the fringes of the Arctic. The domestication of cattle and more particularly the ox makes it possible that humans can transport heavier loads than before. This is done at first on sledges, which slither adequately over the dry grassland of southern Russia and on the dry earth of Mesopotamia. In both regions ox-drawn sledges are in use by the 4th millennium BC.

### **The Wagon: 3000 BC**

A wagon is used more than 5000 years ago, near what is now Zurich. It has two pairs of solid wooden wheels, each attached to an axle, which turns with them. The wagon is extremely heavy and if once it stuck in mud, it stays where it is. It is now one of the earliest known examples of wheeled transport.

Whether first developed as 'an invention' in one place, or re-invented in several wheels seem to have evolved as a natural solution to the problem of transport in areas where both oxen and wood are available. By 2000 BC heavy wheeled transport is in use in a region stretching from northern Europe to western Persia and Mesopotamia. For even greater glamour, and far greater speed, two new elements are needed - the horse and a spoke wheel.

### **Horse and Chariot: From 2000 BC**

The horse is available in Mesopotamia by about 2000 BC. Not much later a two-wheeled chariot is developed. Its superstructure is made of a lightwood, and its wheels are not solid; their rims are of bent wood, held in place by spokes. A horse can pull a chariot at a trot at up to 8 miles an hour - and at a gallop twice as fast.

In subsequent centuries, up to relatively recent times, travel improvements are mainly limited to transport on the sea. They are the result of larger ships and of better methods of navigation.



On land one large new beast of burden is domesticated - the camel. But the main improvement in classical times derives from the construction of roads, first in the Persian and then in the Roman Empire.

### **The Great Canal Of Darius I: 6<sup>th</sup> Century BC**

The cutting of canals for irrigation has been an essential part of the civilization of Mesopotamia, controlling the water of the Euphrates and the Tigris. Several canals link the two rivers, and small boats use these waterways. But the world's first canal created purely for water transport is an incomparably more ambitious affair.

Between about 520 and 510 BC the Persian emperor, Darius I, invests heavily in the economy of his newly conquered province of Egypt. He builds a canal linking the Nile and the Red Sea. Its access to the sea is close to modern Ismailia, which much later becomes the terminus of another great waterway, the Suez Canal.

### **Roman Roads: 2<sup>nd</sup> Century BC – 2<sup>nd</sup> Century AD**

The great network of Roman roads was the arterial system of the then empire. It is constructed largely by the soldiers of the legions, often with the assistance of prisoners of war or slave labor. As the amount of labor involved is vast, these highways are elaborate technological undertakings.

One of the important purposes of the Roman roads was speedy communication; there were post houses with fresh horses every 10 miles along the route and lodgings for travelers every 25 miles. By the 2<sup>nd</sup> century AD the network spreads all round the Mediterranean and throughout Europe up to the Danube, the Rhine and northern England, amounting in all to some 50,000 miles. However, even though the very impressive achievement of the Persian roads, travelers on foot or horseback have rarely been so well provided for.

For transport purposes these roads are less satisfactory, because of the straight-line results in some very steep hills. Anyone with a wagon and horse would prefer an attitude less severe than that of the Roman road engineer.

### **The Grand Canal: 3<sup>rd</sup> Century BC – 13<sup>th</sup> Century AD**

The Chinese, the greatest early builders of canals, undertake several major projects from the 3<sup>rd</sup> century BC onwards. These waterways combine the functions of irrigation and transport. Over the centuries more and more such canals are constructed. Finally, in the Sui dynasty (7<sup>th</sup> century AD), vast armies of laborers are marshaled for the task of joining many existing waterways into the famous Grand Canal. Barges can now travel all the way from the Yangtze to the Yellow River, and then on up the Wei to the western capital at Xi'an.

From the 13<sup>th</sup> century there is a new northern capital. Kublai Khan establishes himself at Beijing, which becomes the capital of the Mongol or Yüan dynasty. The Mongols extend the Grand Canal all the way north to join Beijing's river at T'ien-ching.

### **Junks and Caravels: 12<sup>th</sup> – 15<sup>th</sup> Century AD**

In both east and west the centuries known in Europe as the late Middle Ages and early Renaissance, see vast improvements in long-distance travel by sea. China is the pioneer. While Europeans are making ocean journeys in long narrow ships with a single square sail, the Chinese are improving the design of the junk.

From the 12<sup>th</sup> century junks grow in size, strengthened now by bulkheads. Soon they are steered and stabilized by an important innovation, the sternpost rudder. And they begin to be powered by sails on multiple masts.

The Portuguese successes depend, like the Chinese, on improvements in the design and construction of ships. The caravel is much smaller than the junk,

but it is better suited to sailing in violent oceans. With the caravel, travel becomes possible to any coast in the world other than the frozen Arctic and Antarctic. A caravel takes Magellan's crew on the first circumnavigation of the globe in 1519-1922.

### **Inca Roads: 15<sup>th</sup> Century AD**

The Inca roads, the arteries of an empire, amount in all to more than 14,000 miles. Neither they are paved in the way of Roman roads, nor much flattened. Hence, this empire contains no wheeled vehicle or any horses.

The Incas rule over massively varied land, made up of large areas of jungle, desert and rugged highlands. Their roads are in fact paths, kept clear in these difficult conditions. Suspension bridges span small ravine (narrow valley), enabling runners to hurry unimpeded with a message - or caravans of llamas to make slower but steady progress with bales of raw materials and precious fabrics.

### **European Canals: 12<sup>th</sup> - 17<sup>th</sup> Century AD**

In one area of Europe, the Netherlands, canal building is an integral part of economic development. The primary purpose is drainage; an efficient transport network is a welcome bonus. But in Italy, in the late 12<sup>th</sup> century, an ambitious canal is constructed without any subsidiary motive of drainage or even irrigation. The potential of canals is self-evident. It falls to Britain, in the next century, to construct the first integrated system of waterborne traffic.

### **Carriages: 17<sup>th</sup> Century AD**

Throughout the Middle Ages, when Europe's roads are little more than tracks, wheeled vehicles are used only for the laborious process of carting goods from place to place. When going on a journey, the able-bodied ride; the infirm are carried in a litter.

These changes in the 17<sup>th</sup> century, when there is some improvement in the paving of roads. Carriages are available for hire in the streets of London from 1605. By the second half of the century there are traffic jams. Samuel Pepys,

conscious of rising in the world, considers it embarrassing in 1667 to be seen in London in a common hackney carriage, which anyone can hire. The next year he happily acquires a coach and a liveried coachman of his own.

### **Bridgewater Canal: AD 1759-1761**

In 1759 a young self-taught engineer, James Brindley, is invited to visit the duke of Bridgewater. The duke is interested in improving the market for the coal from a local mine, which he owns. He believes his coal will find customers if he can get it more cheaply into Manchester. He wants Brindley to build him a canal with a series of locks to get barges down to the river Irwell, about three miles from the mine.

Brindley proposes a much bolder scheme, declared by some to be impossible but accepted by the duke. He will construct a more level canal, with less need for time-wasting locks. He will carry it on an aqueduct over the Irwell on a straight line to the heart of Manchester, ten miles away.

The Bridgewater canal is the first in Britain to run its entire length independently of any river. It is the start of the country's inland waterway system, for which Brindley himself will construct another 300 miles of canals.

### **Tracks and Trails: AD 1775**

In 1775 the first major effort is made by British colonists to build a road west through the Appalachians, so as to enable settlement of the land won from France (but not from its Indian inhabitants) in the French and Indian War. Until this time the only way of traveling in the interior of the continent is either along rivers or on the narrow trails used by the Indians. These are adequate for horsemen and fur-trappers, but not for the wagons required if a settlement is to have a chance of becoming permanent.

The Wilderness Road is the first example of American settlers blazing a trail (a blaze being a mark cut in the bark of a tree to show the way). The Sante Fe Trail and the Oregon Trail will be famous 19th-century examples but, they are preceded by the National Road.

### **The Balloon - Hot Air: AD 1783**

Although hydrogen has been isolated by Cavendish in the 1760s, and shown to be fourteen times lighter than air, it is not until the early 1780s that Europe's inventors are suddenly gripped with a feverish interest in using the concept to achieve a form of flight. In 1781-2 scientists in both England and Switzerland fill soap bubbles with hydrogen and see them rise rapidly to the ceiling, but similar experiments with animal bladders prove disappointing.

Full-fledged balloons were ready and required four hands to stoke the fire with bundles of straw. Pilâtre is joined by a fellow passenger, the marquis d'Arlandes.

### **The Balloon - Hydrogen: AD 1783**

Just as the hydrogen balloon is behind the hot-air version in the first ascent of any kind, so it is in the first manned ascent - but only by a very small margin. On December 1, ten days after the achievement of Pilâtre de Rozier, Charles and a colleague rise into the air from the circular pond in front of the Tuileries. After a trouble-free journey of more than two hours, the aeronauts land about twenty-seven miles from Paris.

The hydrogen balloon soon prevails over the hot-air variety, because of its greater sophistication in an age when heat depends on burning bales of straw. Magnificent feats are achieved, beginning with a flight in 1785 across the English Channel by Jean Pierre Blanchard and an American doctor, John Jeffries. They throw out every loose item in the gondola, including their own clothes, to stay aloft long enough to arrive naked in France.

Though these adventures are impressive, the basic problem remains that there is no way of guiding a balloon.

### **Mail Coach: AD 1784 - 1797**

The first mail coach runs from Bristol to London in 1784. It is so successful that by the autumn of the following year Palmer has launched services to sixteen other towns including Liverpool, Manchester, Leeds, Norwich, Dover,

Portsmouth, Hereford, Swansea and Holyhead. Edinburgh is added in 1786. By 1797 there are forty-two routes in operation.

### **The Roads of Telford and Mc Adam: AD 1803-1815**

In Britain, with the introduction of the mail coach in 1784, Improvement in the speed of coaches has been seen and is accompanied by similar advances in road technology. Travel in horse-drawn vehicles becomes increasingly sophisticated during a period of about fifty years, until the success of the railways, results once again in roads being neglected. The early decades of the 19th century are the great days of coaching, commemorated in many paintings and prints.

When tar is added to bind the top layer, later in the 19th century, the result is the tar macadam road - and eventually the trade name 'tarmac'.

### **The National Road: AD 1811-1852**

The settlement of the Ohio valley, and the admission of Ohio to the Union in 1803, prompts the construction of the USA's first great federal road project. In 1802 the government undertakes to link the Ohio valley with the Atlantic. Construction begins in 1811 at Cumberland in Maryland, which is already reached by a state road from Baltimore.

Built with a compacted stone surface, to the new standards pioneered in Britain by Mc Adam, the National Road has an immediate effect on the economy of the frontier regions.

When the road reaches Wheeling transportation times between the Ohio River and the eastern seaboard are halved, Grain, hemp and wool from the west, now easily reach to the eastern states where they find a ready market.

### **Transport in the 19<sup>th</sup> Century**

In the mid 19th century travel was revolutionized by railways. They made travel much faster and also removed the danger of highwaymen. The Stockton and Darlington railway opened in 1825. However the first major

railway was opened in 1825 from Liverpool to Manchester. In the 1840s there was a huge boom in building railways and most towns in Britain were connected. In the late 19th century many branch lines were built connecting many villages.

The first underground railway in Britain was built in London in 1863. Steam locomotives pulled the carriages. The first electric underground trains began running in London in 1890.

From 1829 horse drawn omnibuses began running in London. They soon followed in other towns. In the 1860s and 1870s horse drawn trams began running in many towns.

Karl Benz and Gottlieb Daimler made the first cars in 1885 and 1886.

Meanwhile at sea travel was revolutionized by the steam ship. By 1815 steamships were crossing the English Channel. Furthermore it used to take several weeks to cross the Atlantic. Then in 1838 a steam ship called the Sirius made the journey in 19 days. However steam did not completely replace sail until 1897 when Charles Parsons invented the steam turbine.

### **Transport in the 20<sup>th</sup> Century**

Although the first cars appeared at the end of the 19th century, after the First World War they became cheaper and more common. However in 1940 only about one in 10 families owned a car. They increased in number after World War II. By 1959 32% of households owned a car. Yet cars only became really common in the 1960s. By the 1970s the majority of families owned one.

In 1903 a speed limit of 20 MPH was introduced. It was abolished in 1930. However in 1934 a speed limit of 30 MPH in built-up areas was introduced. Meanwhile in 1926 the first traffic lights were installed in London. A driving test was introduced in 1934. Also in 1934 Percy Shaw invented the cat's eye.

The parking meter was invented by Carlton Magee. The first one was installed in the USA in 1935. In 1983 wearing a seat belt was made compulsory.

Meanwhile in 1936 Belisha Beacons were introduced to make road crossing safer. The first zebra crossing was introduced in 1951.

In 1931 an American called Rolla N. Harger invented the first breathalyser. It was first used in Indianapolis USA in 1939.

A Swede named Nils Bohlin developed the three-point seat belt in 1959.

Meanwhile in the late 19th century horse drawn trams ran in many towns. At the beginning of the 20th century they were electrified. However in most towns trams were phased out in the 1930s. They gave way to buses, either motorbuses or trolley buses, which ran on overhead wires. The trolleybuses, in turn were phased out in the 1950s. Ironically at the end of the 20th century some cities re-introduced light railways.

In the mid-20<sup>th</sup> century there was a large network of branch railways. However in 1963 a minister called Dr. Beeching closed many of them.

The first hovercraft was launched in 1959. The first hovercraft passenger service began in 1962.

In 1919 aeroplanes began carrying passengers between London and Paris. Jet passenger aircraft were introduced in 1949.

However in the early 20th century flight was a luxury few people could afford. Furthermore only a small minority could afford foreign travel. Foreign holidays only became common in the 1960s.

The Boeing 747, the first 'Jumbo jet' was introduced in 1970.

The Channel Tunnel opened in 1994.



**Table 2.1**

**Timeline of Transportation Technology**

<b>Before 18<sup>th</sup> Century</b>	
<b>Year</b>	<b>Particulars</b>
3500 BC	Wheeled cars are invented
3500 BC	River boats are invented
1200 BC	Horses are tamed and used for transport
1662	Pascal invents a horse-drawn public bus which has a regular route, schedule and fare system
1672	Ferdinand Verbiest built what may have been the first steam powered car
<b>18<sup>th</sup> Century</b>	
1740	Jacques he Vaucanson debuted his clockwork powered carriage
1769	Nicolas-Joseph Cugnot demonstrates his “steam weagon”, an early functional automobile
1783	Joshef Montgolfier and Etienne Montgolfier launch the first hot air balloons
1784	William Murdoch built a working model of a steam carriage in Redruth, England
<b>19<sup>th</sup> Century</b>	
1801	Richard Trevithick ran a full sized steam wagon on the road in Camborne, England
1803	Richard Trevithick built his 10-seater London steam carriage

<b>Year</b>	<b>Particulars</b>
1804	Richard Trevithick built a prototype steam powered railroad locomotive. Oliver Evans demonstrated a steam
1807	Issac de Rivas made a hydrogen gas powered vehicle
1814	George Stephenson built the first practical steam powered railroad locomotive
1816	The most likely originator of the bicycle is German Baron Karl von Drais, who road his 1816 machine while
1853	Sir George Cayley built and demonstrated the first heavier-than-air aircraft (a glider)
1862	Jean Lenoir made a gasoline-engine automobile
1868	George Westinghouse invented the compressed Air brake (rail) for railway trains.
<b>20<sup>th</sup> Century</b>	
1900	Ferdinand von Zeppelin builds the first successful airship
1903	Orville Wright and Wilbur Wright fly the first motor-driven airplane
1903	Small Diesel engine tested in a canal Boat by Rudolph Diesel, Aderin Bochet and Frederic Dyckhoff
1908	Henry Ford develops the assembly line method of automobile manufacturing
1911	Selandia launched, the first oceangoing, diesel engine driven ship
1926	Robert Goddard launches the first liquid-fluded rocket
1942	V2 rocket covers a distance of 200 km
1947	First supersonic flight

<b>Year</b>	<b>Particular</b>
1957	Sputnic 1, the first man-made satelolite to be launched into orbit
1961	Vostok 1, the first manned space mission, made 2 orbits around the earth.
1969	First manned Moon landing
1976	Concorde made the world's first commercial passenger supersonic flight
1981	First flight of the space shuttle
<b>21<sup>st</sup> Century</b>	
2003	Concorde made the world's last passenger carrying supersonic flight
2004	Space Ship One first commercial manned space flight.

### **2.3 ROAD TRANSPORT IN INDIA**

Roadways in India have come a long way. Starting from the pug dandies (a small path created naturally due to frequent walks) of earlier times to the present-day Rajpath of Delhi, the country has crossed many spheres of road travel. The 'thread that binds the nation together' is truly a deserving metaphor for a road network that is one of the largest in the world. Its grand system of national highways, state highways and the roads that run endlessly within cities are marvelous.

India has its well-connected transport network since the time people started keeping records. The great Indian epics the Ramayana and the Mahabharata mention chariots and carts embellished with various gems and precious metals. The Pushpak Vimana or the bejeweled chariot, which was in Lanka, the kingdom of Ravana, is described in detail in the Ramayana. Horses, asses, and mules were used to draw these carts.

Some 2,500-10,000 years ago, our ancestors traveled through woods on hunting sprees and left traces of their mud tracks known as pug dandies, the most ancient trace of roads. Harappan and Mohenjodaro civilization, which dates back circa fourth millennium BC, provides ample understanding of roads.

In the Atharva Veda, we find references to road construction and information on precautions to be taken. There is mention in Kautilya's Arthashastra about mechanism of roads for chariots and stresses upon the traffic rules and road safety. From the 6th century to 4th century BC, there was development of small independent states in several parts of India. With the development of culture and trade, cities like Vaishali, Sravasti, Rajagriha, Kurukshetra, and Ujjaini had roads to facilitate socio-economic intermingling. Ujjaini, capital of Avanti, was an important trade center and connected with northern trunk routes to modern Bharuch, an important seaport.

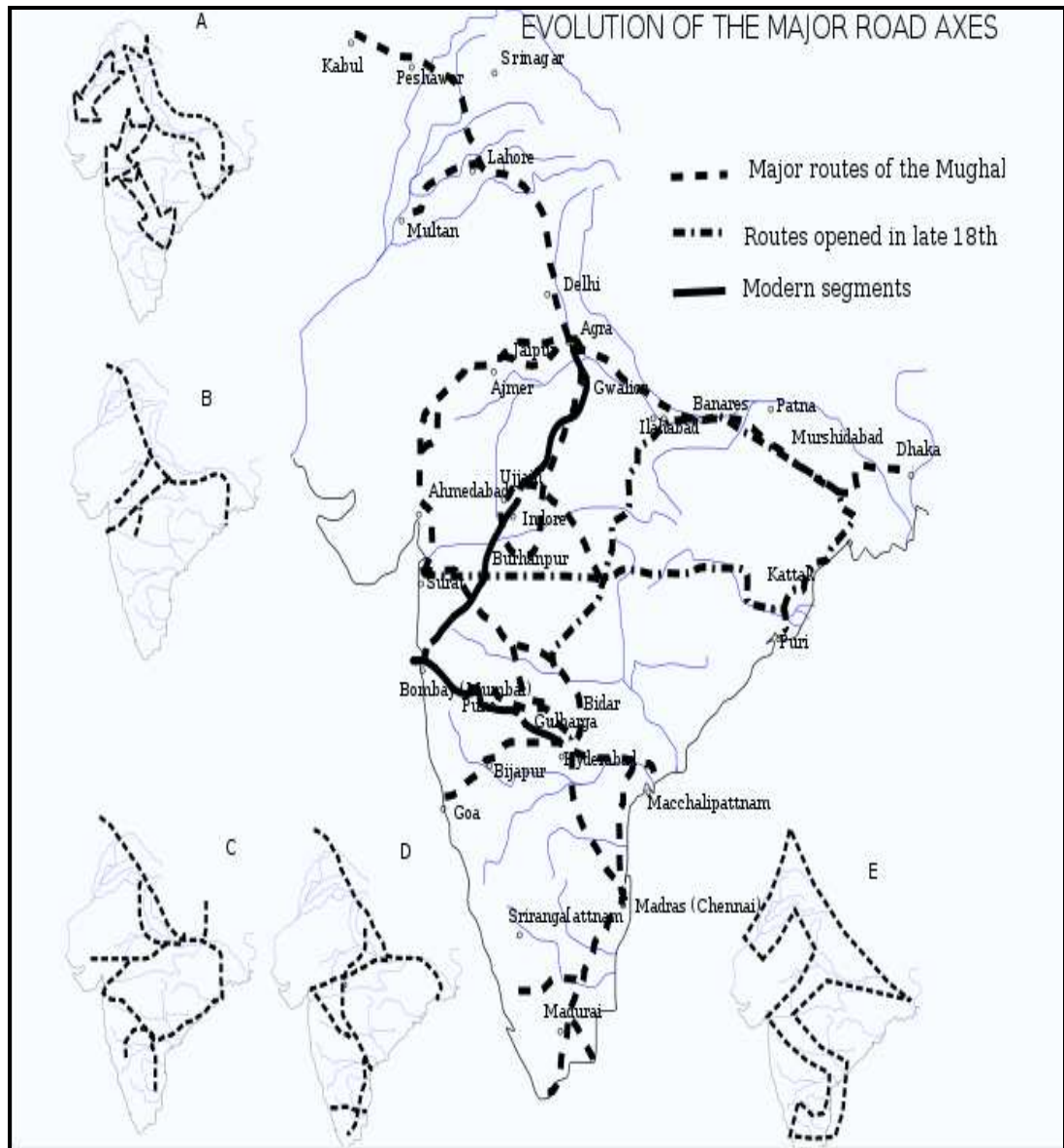
Development of roads took a new turn during Mauryan rule in the 4th century. The administration constructed Rajpath (high roads) and Banikpaths (merchant roads).

This tradition continued and Chandragupta's grandson, Ashoka, who was a great and compassionate ruler, strengthened the system immensely. In Mauryan day's, roads played a key role in military operations to keep the vast country united.

Records reveal that during the Gupta era there was also a road connection with South India. There were three major routes-one was a connection with Northeast India via Didisa, the other connected to the seaport of the Western coast and the third connected to Pratisthana, the capital of Satvahana Empire. There are also evidences of a route facilitating trade with Iran and China.

The Mughal era was the golden era for roads as the whole of India was effectively connected to control the vast empire. With the advent of the British, a new awakening dawned upon India. The East India Company revived ancient routes and renovation was initiated. The technology of the West came into play and linkages were well established which provided the British the inroad to rule India for over two hundred years. Thus, one can see that since ancient times roads were stressed upon.

## History



Evolution of Indian road network, the main map shows the routes since the Mughal times; Inset A shows the major cultural currents of the prehistorical period, B shows pre Mauryan Indian routes, C shows the Mauryan network, D shows the trade routes at the beginning of the Cristian era, and E shows the Indian 'Z'.

5

<sup>5</sup> Source: Road Network in India

### **Historical Background of Road Transport Initiated by Govt. or Ruler**

The scheme of nationalization of passenger transport services was started as early as in 1932 by the then Nizam government in Hyderabad. The Marathwada State Transport, with headquarters at Aurangabad, came into existence as a result of the trifurcation of the erstwhile Hyderabad State, which was one of the pioneers in the field of public road transport, first in collaboration with the railways and then as a separate government department. After the reorganization of States in November 1956, the operations in Marathwada were looked after by a separate department under the erstwhile Government of Bombay, called the "Transfer red Road Transport Undertakings Department". With effect from 1st July 1961, the T. R. T. U. Department was abolished and the Marathwada State Transport, along with the State Transport Services in the Vidarbha region, was amalgamated with the Bombay State Road Transport Corporation and the reorganized corporation was named as Maharashtra State Road Transport Corporation.

Road transport in India has a large and extensive transportation system. The country has one of the world's largest railway and roadway transporting millions of people every year. However, vast sections of the country's transportation network remain underdeveloped.

### **The beginning of public transport in India:**

Mechanized Road Transport in India really started with the commencement of the present century. The first motor vehicle was imported here in 1898. In the early years of this century, motor vehicles were few and their use and operation was governed by the then provincial enactments which were concerned with registration only.

### **Motor Vehicles Act, 1914 and growth of passenger transport:**

The (Indian) Motor Vehicle Act, 1914 was the first all India enactment dealing with control over operation of motor vehicles. Phenomenal growth of road

transport began in the early 1920's as result of the diversion of surplus army vehicles to civilian market after World War I. this also led to unhealthy competition and even a war of route cutting amongst operators. The motor Vehicle Act, 1914 had therefore to be supplemented in post war years by provincial act in order to introduce some measures for regulation and control. In the late 1920's the problem of unhealthy competition become still more acute and shrinkage pf traffic, accentuated by the world wide depreciation (and India was no exception), brought forth the need for regulation of this industry.

### **History and Development of State Road Transport Corporations in India**

Passenger transport services were regulated by the District level police authorities, prior to the coming in to force of the Motor Vehicles Act, 1939, by issue of permits, known as free permits, enabling bus operators to ply their vehicles in different directions in the District in a day wherever passenger roads were available.

This situation led to severe competition among owners leading to unruly scenes and untoward incidents. With the passing of the Motor Vehicles Act, 1939, passenger transport was sought to be controlled and regulated by various provisions of the Act and the rules made there under. Routes and areas were identified.

Permits were granted by the Regional Transport Authorities, imposing many conditions, the breach of which will entail penalties and even cancellation of permit.

During this period of 1952, the Fuel (Petrol) was in short supply and to be rationed. To obviate the difficulty, gas plant was invented by indigenous expertise - by M/s Simpson and Co. and T.V.Sundaram Iyengar and Sons. It was used as motive power.

With the ushering in of diesel engines in India, in the early 50's passenger

transport scene acquired a new dimension, with heavy vehicles of larger capacity coupled with permitted higher level of speed crisis crossing the Country.

### **Motor Vehicles Act, 1939 and growth of passenger transport**

On the basis of recommendations of the early Wedge Wood Committee Report in 1937, a comprehensive Motor Vehicle Act, 1939 was formulated to ensure the growth of road transport on the basis of healthy competition within the industry itself and with the Railways.

Corporate bodies and a few individuals were able to offer reliable, punctual and economical services in their area of operation. In the context of political awareness, Government issued guidelines to Transport Authorities to grant permits to new entrants and small operators. This has been vehemently resisted by the existing operators having recourse to the provisions of the Motor Vehicles Act, 1939. In the result it was found that the Act was restrictive in nature impeding growth of bus services and its expansion was not equal with the measure of demand for the service.

### **Nationalization**

As the existing services were found inadequate and few of them ill organized, Government considered nationalization of bus transport services as a means to ensure efficient, economical, adequate and properly co-ordinated services.

With these objectives in view, the Road Transport Corporation Act was passed in 1950.

In a number of major states of the Indian Union most of the stage carriage operations is in the public sector. With the growing requirement of Passenger Road Transport Services and the inability of the State owned Corporation to fulfill the need adequately, satisfactorily and economically, even after the lapse of 25 years after inception, a reassessment as to whether the policy of nationalization will meet the needs of the people, was necessitated.



### **Road Transport Corporation Act, 1950**

“The Road Transport Corporation Act, 1948(XXXII of 1948), was enacted with a view to enable the Provincial Governments, who may so desire, to establish Road Transport Corporation. This Act has been found defective because the provisions of sections 3(2), 4 and 5 of the Act, insofar as they require certain provisions to be made by a Provincial law, are ultra virus of the Government of India Act 1935, as adapted. Under the latter Act, the power to legislate in respect of trade and commerce is given to the provincial Legislature and the power to legislate for the incorporation of trading corporations is given to the Central legislature.

The creation of statutory transport corporations has been held as amounting to incorporation of trading corporations and such, ultra virus of the Provincial Legislature. In order to remove the above mentioned legal flaw, it is proposed to replace the existing Act, by a comprehensive Act, enabling such of the Provincial Government, who may so desire, to set up Transport Corporation, with the object of providing efficient, adequate, economical and properly coordinated system to road transport services.” – Gaz. Of India, 1949. Pt. V.P. 559

### **Amending Act 63 of 1982**

The Road Transport Corporation Act, 1950 was enacted to enable State Governments to set up Transport Corporations with the object of providing efficient, adequate, economical and properly co-coordinated system of road transport services. In the light of the changed circumstances, the suggestions that have been received from the State Governments, different Ministries of the Central Government and other agencies concerned, it is proposed to make certain amendment in the said Act with a view primarily to secure the better functioning of the Road Transport Corporation under the Act. The Act has been brought into force in the States mentioned below with effect from the dates noted against them:

**Table 2.2**  
**Commencement of State Road Transportation in State/Union Territories**

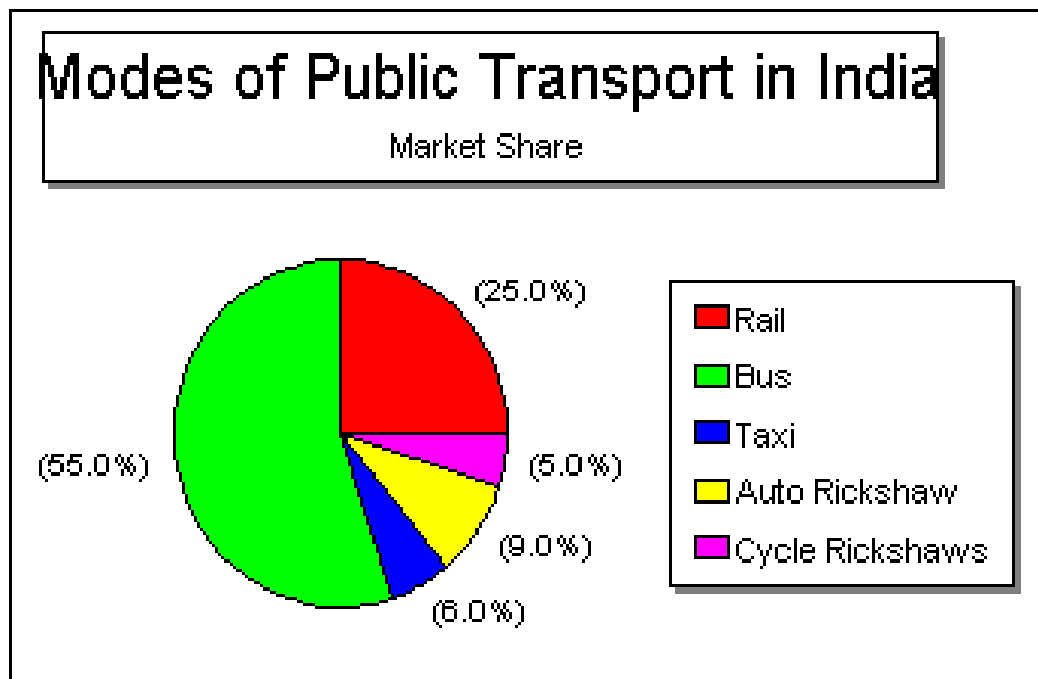
<b>SR. NO.</b>	<b>STATE /UNION TERRITORY</b>	<b>DATE OF COMMENCEMENT</b>
1	Bombay (Gujarat and Maharashtra)	06-12-1950
2	Bihar	01-09-1952
3	West Bengal	02-03-1953
4	Punjab (Haryana & Chandigarh)	10-08-1954
5	Orissa	01-06-1956
6	Andhra Pradesh	01-12-1957
7	Himachal Pradesh	28-03-1958
8	Mysore	01-08-1958
9	Tripura	01-03-1961
10	Madhaya Pradesh	01-04-1961
11	Rajasthan	05-09-1964
12	Kerala	01-01-1965
13	Assam	10-03-1970
14	Delhi	03-11-1971
15	Uttar Pradesh	01-04-1972
16	Jammu and Kashmir	01-04-1976

Today, India has a huge network of roads comprising of National Highways. India has a large and extensive transportation system. The country has one of the world's largest railway and roadway networks, transporting millions of people every year. However, vast sections of the country's transportation network remain underdeveloped. Highways, Major District Roads and Village and other roads .In fact, it is the third largest road network in the world covering a total length of 33, 00,000 km.

In India, where only 250,000 cars were sold in 1996, the vast majority of the urban population depends on public transport. Buses account for a majority of all passenger trips, and trains for a quarter. Taxis and rickshaws take a fifth of all passengers, providing employment and relieving the severely overcrowded buses and trains. See the following figure:<sup>6</sup>

**Chart 2.1**

**Relative Share of Different Modes of Public Transport in India**



<sup>6</sup> Source: Farokh Umrigar, Prabeer Sikdar, and Sudarshan Khanna. PRTC Education and Research Services, Urban Transport in Developing Countries.

**Table 2.3**  
**Operations of Road Transport in India from the Year 1950 To 2004**

No.	Particular/Year	1950-51	1960-61	1970-71	1980-81	1990-91	1995-96	1999-00	2000-01	2002-03	2003-04*
<b>1</b>	<b>Length of roads** (Thousand km)</b>										
	Total	400.0	524.5	915.0	1485.4	1998.2	2302.5	2416.1	2446.7	N.A.	N.A.
	Surfaced	157.0	263.0	398.0	684.0	1024.4	1263.4	1390.6	1414.6	N.A.	N.A.
<b>2</b>	<b>Length of national highways (Thousand km)</b>										
	Total	22.2	23.8	24.0	31.7	33.7	34.5	52.0	57.7	58.1	65.6
	Surfaced	19.8	21.0	23.3	31.5	33.4	34.3	52.0	57.7	58.0	N.A.
<b>3</b>	<b>Length of state highways (Thousand km)</b>										
	Total	N.A.	N.A.	56.8	94.4	127.3	135.2	132.8	132.1	N.A.	N.A.
	Surfaced	N.A.	N.A.	51.7	90.2	124.8	132.9	130.6	129.9	N.A.	N.A.
<b>4</b>	<b>Number of registered vehicles (Thousand)</b>										
	All vehicles	306.0	665.0	1865.0	5391.0	21374.0	33786.0	48857.8	54991.0	67007.0	72718.0
	Goods vehicles	82.0	168.0	343.0	554.0	1356.0	2031.0	2715.0	2948.0	3492.0	3748.0
	Buses	34.0	57.0	94.0	162.0	331.0	449.0	562.0***	634.0	721.0	768.0
<b>5</b>	<b>Revenue from road transport (Rs. Crore)</b>										
	Central	34.8	111.7	451.8	930.9	4596.0	8032.7	20952.5	23861.0	31132.4	35133.8
	States	12.6	55.2	231.4	750.4	3035.2	5834.0	12980.6	12901.7	17116.3	19295.6

\* Provisional

\*\* Excluding around 9 lakhs km of Rural Roads reported under JRY as on 31.3.1996.

\*\*\*Includes omni buses.

N.A.: Not Available.

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

## **2.4 GUJARAT STATE ROAD TRANSPORT CORPORATION**

### **Introduction**

The history of passenger transport in the Vidarbha region dates back to the year 1942 when M/s. Mechanical Transport Ltd. started transport of passengers. This company sponsored the Nagpur Omnibus Company in 1945 under its managing agency. In the subsequent years the name of the company was changed to the Provincial Transport Company Ltd. and M/s. Mechanical Transport continued to be the managing agent. However the Government assumed the managing agency rights of the M/s. Mechanical Transport and reorganized the Hoard of Directors. Up to 1955 the company functioned as a joint-stock company when the Government brought the same under its control and named it as "the Provincial Transport Services". In order to co-ordinate the activities of the three organizations viz., the Bombay State Road Transport Corporation, the Marathwada State Transport and the Provincial Transport Services were merged in 1961, into a single corporation viz the Maharashtra State Road Transport Corporation, Bombay.

For administrative convenience of operating the services the erstwhile Bombay State was originally divided into 16 viable units called divisions. After the Reorganization of the States in 1956, three units were transferred to Mysore State leaving 13 divisions. With the bifurcation of the bilingual Bombay State on May 1, 1960, five northern divisions were transferred to the Gujarat State leaving 8 divisions in the residual corporation in Maharashtra.

### **The Evolution of Gujarat State Road Transport Corporation**

At the time of evolution of Gujarat State Road Transport Corporation, private buses were providing transportation services to the public. The arrival and departure time for such buses was not fixed. They would start when they would be full. In addition, the route followed by the private bus service vendor was just the main route between two stations. Hence, those people who wanted to reach to the rural areas, the bus service available then was not

ample. Due to lack of competition, the quality of service was quite poor. The seating arrangement was on the wooden seats, and letter on coir (string or rope made of coconut fibers).

The Road Transport Corporation Act, 1950 was initially brought into force in Bombay (Gujarat and Maharashtra) on 6<sup>th</sup> December 1950. After the separation of Gujarat state and the Maharashtra state, Gujarat State Road Transport Corporation was brought into effect for the area of Gujarat state.

Gujarat State Road Transport Corporation (GSRTC) is a passenger transport corporation, providing bus services / public transits in Gujarat and neighborhood states of Rajasthan, Madhya Pradesh and Maharashtra. It also runs buses to the Union Territories of Daman & Diu. When it came into existence on 1st May 1960, it had 7 divisions, 76 depots and 7 divisional workshops and a fleet of 1767 buses.

The objective of GSRTC is “**One village one bus.**” Over last 40 years of its existence, it has proved to be a dependable mode of transportation in every nook and corner of the state. It provides services in almost all the areas of the state including rural areas. The corporation has completed 100% nationalization of passenger road transport services in Gujarat state since November 1969. It has covered up around 95.93% of villages and 99.33 % of population. It transports around 8502 lakhs (as on 31<sup>st</sup> March 2008) passengers daily by traveling over 318287 lakhs K.M. per day. Gujarat State Road Transport Corporation has played a pivotal role in the economic growth of the state by operating an extensive passenger transport network and reaching out to villages. Over last 40 years of its existence it has grown up into a huge organization, consisting 16 divisions, 132 depots, 7 tire retreading plants. It is now Asia’s biggest central workshop. It provides direct employment to approximately 44557 (as on 31<sup>st</sup> March 2008) people in the state.

**Table 2.4**

**Divisions, Depots, and Schedules of GSRTC as on 31/03/2006**

<b>Sr.No.</b>	<b>Division</b>	<b>Date of Establishment</b>	<b>Depots in the Division</b>	<b>Schedules of the Division</b>
1	Palanpur	27/11/1975	7	568
2	Mahesana	01/08/1954	11	648
3	Himatnagar	01/04/1967	10	564
4	Ahmedabad	01/03/1949	10	537
5	Nadiad	15/03/1945	12	706
6	Vadodara	01/10/1953	9	427
7	Godhara	01/11/1973	7	401
8	Bharuch	26/02/1989	5	241
9	Surat	01/02/1953	6	445
10	Valsad	01/10/1973	6	394
11	Rajkot	01/04/1956	9	466
12	Jamnagar	01/02/1997	5	205
13	Bhavnagar	01/11/1964	8	285
14	Amreli	10/10/1976	7	316
15	Junagadh	01/09/1962	9	473
16	Bhuj	01/12/1954	8	216
<b>TOTAL</b>			<b>129</b>	<b>6892</b>

Source: Annual Reports of GSRTC, Ahmedabad

### ROADNETWORK IN GUJARAT



7

<sup>7</sup> Mapsofindia.doc



**Table 2.5**

**Growth of Passenger Road Transport in Gujarat**

Year	No. of Schs. Operated as on last day of March	Index	No. of Vehicles as on last day of March	Index	No. of Pass. (in lacs)	Index	Pass.kms. Travelled by GSRTC buses (in lacs)	Index
1	2	3	4	5	6	7	8	9
1960-61	1334	100.00	1797	100.00	1517.14	100.00	22338	100.00
1970-71	3157	236.66	4057	225.77	5064.66	333.83	87738	392.77
1980-81	5074	380.36	6678	371.62	13344.65	879.59	254252	1138.20
1990-91	6770	507.49	8244	458.76	13123.73	865.03	316369	1416.28
2000-01	8473	635.16	10048	559.15	13134.81	865.76	370867	1660.25
2001-02	6777	508.80	9531	530.38	11885.33	783.40	327929	1468.03
2002-03	7835	587.73	9209	512.46	11235.11	740.45	310319	1389.20
2003-04	7422	556.37	8820	490.82	9966.91	656.95	293364	1313.30
2004-05	6898	517.09	8164	454.31	8341.54	549.82	272604	1222.36
2005-06	6892	516.64	8277	460.60	7897.56	520.56	265439	1054.56
Compound rate of increase per year (in %)		3.81		3.53		3.82		5.5

Source: Annual Reports and Accounts of GSRTC, Ahmedabad

## **Profile of Gujarat State Road Transport Corporation**

The GSRTC was awarded PCRA (Diesel Conservation) Trophy for the highest diesel K.M.P.L. achievement amongst STUs of the Country since last 21 consecutive years from 1981-82. The corporation grants concession in bus fares to students, competitors participating in sports, tournaments sponsored by the Government. It provides a variety of services as described below.

**Mofussil Services:** Connecting major cities, smaller towns and villages within Gujarat.

**Intercity bus services:** Connecting major cities - Ahmedabad, Vadodara (Baroda) and Rajkot.

**Interstate bus services:** Connecting various cities of Gujarat to the neighbouring states of Madhya Pradesh, Maharashtra and Rajasthan.

**City services:** Provides city bus services at Surat, Baroda, Rajkot, Gandhinagar-Ahmedabad within the state of Gujarat.

**Parcel Services:** For transporting goods.

Over and above these bus route services GSRTC also provides special bus route services for Festivals, Industrial zones, schools and colleges, pilgrim places. GSRTC buses are available to the public through contractual agreements special occasions. GSRTC also offers educational trips to the students. Bus service also has the "**Raise your hand and take a ride**" facility for so many routes

## REFERENCES

1. Truma C. Bigham and Merwill U. Roberts, "Transportations", Mc Graw Hill Book Company, New York, 1952.
2. Denys Munby (Ed.), "Transport", Penguin Books Ltd., England, 1968.
3. John Hibbs, "Transport to Passengers", The Institute of Economic Affairs, London, 1971.
4. Martin T. Farris & Forrest E. Harding, "Passenger Transportation", Prentice Hall, Englewoods Cliffs, New Jersey, 1976.
5. Srivastava, S. K., "Economics of Transport, with special reference to Transport Development in India", S Chand & Co., New Delhi, 1981.
6. Patankar, P. G., "Road Passenger Transport in India", CIRT, Pune, 1983.
7. Sudarshanam Padam, "Bus Transport in India", Ajanta Publications, Delhi, 1990.
8. Sudarsanam Padam, "Changing Imperatives of Human Resources Development: The Case of Passenger Road Transport Industry", Indian Journal of Transport Management, Vol. 18, February 1994.
9. Kulshreshta, D. K., "Management of State Road Transport in India", Mittal Publications, Delhi, 1994.
10. Jagadish Gandhi, P., "State Transport Undertakings, Structure, Growth, Performance", Deep & Deep Publications, New Delhi, 1998.
11. Road Transport Year Book (2006-07), Transport Research Wing, Ministry Of Shipping, Road Transport & Highways, Government Of India, New Delhi, March 2009.

# FINANCIAL PERFORMANCE ANALYSIS CONCEPTUAL FRAMEWORK

- **Financial Performance**
- **Financial Performance**
- **Areas of Financial Performance Analysis**
- **Significance of Financial Performance Analysis**
- **Types of Financial Performance Analysis**
- **Techniques for Financial Performance Analysis**

### **3.1 FINANCIAL PERFORMANCE**

The word 'Performance' is derived from the word 'performen', which means 'to do', 'to carry out' or 'to render'. It refers to the act of performing; execution, accomplishment, fulfillment, etc. In broader sense, performance refers to the accomplishment of a given task measured against preset standards of accuracy, completeness, cost, and speed. In other words, it refers to the degree to which an achievement is being or has been accomplished. In the words of Frich Kohlar "The performance is a general term applied to a part or to all the conducts of activities of an organization over a period of time often with reference to past or projected cost efficiency, management responsibility or accountability or the like. Thus, not just the presentation, but the quality of results achieved refers to the performance. Performance is used to indicate firm's success, conditions, and compliance.

Financial performance refers to the act of performing financial activity. In broader sense, financial performance refers to the degree to which financial objectives being or has been accomplished. It is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

### **3.2 FINANCIAL PERFORMANCE ANALYSIS**

In short, the firm itself as well as various interested groups such as managers, shareholders, creditors, tax authorities, and others seek answers to the following important questions:

- 1. What is the financial position of the firm at a given point of time?**
- 2. How is the Financial Performance of the firm over a given period of time?**

These questions can be answered with the help of financial analysis of a firm. Financial analysis involves the use of financial statements. A financial statement is an organized collection of data according to logical and

consistent accounting procedures. Its purpose is to convey an understanding of some financial aspects of a business firm. It may show a position at a moment of time as in the case of a Balance Sheet, or may reveal a series of activities over a given period of time, as in the case of an Income Statement. Thus, the term 'financial statements' generally refers to two basic statements: the Balance Sheet and the Income Statement.

The **Balance Sheet** shows the financial position (condition) of the firm at a given point of time. It provides a snapshot and may be regarded as a static picture.

"Balance sheet is a summary of a firm's financial position on a given date that shows Total assets = Total liabilities + Owner's equity."

The **income statement** (referred to in India as the profit and loss statement) reflects the performance of the firm over a period of time.

"Income statement is a summary of a firm's revenues and expenses over a specified period, ending with net income or loss for the period."

However, financial statements do not reveal all the information related to the financial operations of a firm, but they furnish some extremely useful information, which highlights two important factors profitability and financial soundness. Thus analysis of financial statements is an important aid to financial performance analysis. Financial performance analysis includes analysis and interpretation of financial statements in such a way that it undertakes full diagnosis of the profitability and financial soundness of the business.

"The analysis of financial statements is a process of evaluating the relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance."<sup>8</sup>

---

<sup>8</sup> Metcalf, R. W. and P. L. Titard, Principles of Accounting, W. B. Saunders, (Philadelphia)1976, P-157

The financial performance analysis identifies the financial strengths and weaknesses of the firm by properly establishing relationships between the items of the balance sheet and profit and loss account. The first task is to select the information relevant to the decision under consideration from the total information contained in the financial statements. The second is to arrange the information in a way to highlight significant relationships. The final is interpretation and drawing of inferences and conclusions. In short, “financial performance analysis is the process of selection, relation, and evaluation.”<sup>9</sup>

### **3.3 AREAS OF FINANCIAL PERFORMANCE ANALYSIS**

Financial analysts often assess firm's production and productivity performance, profitability performance, liquidity performance, working capital performance, fixed assets performance, fund flow performance and social performance. However in the present study financial health of GSRTC is measured from the following perspectives:

- 1. Working capital Analysis**
- 2. Financial structure Analysis**
- 3. Activity Analysis**
- 4. Profitability Analysis**

### **3.4 SIGNIFICANCE OF FINANCIAL PERFORMANCE ANALYSIS**

Interest of various related groups is affected by the financial performance of a firm. Therefore, these groups analyze the financial performance of the firm. The type of analysis varies according to the specific interest of the party involved.

**Trade creditors:** interested in the liquidity of the firm (appraisal of firm's liquidity)

**Bond holders:** interested in the cash-flow ability of the firm (appraisal of firm's capital structure, the major sources and uses of funds, profitability over time, and projection of future profitability)

---

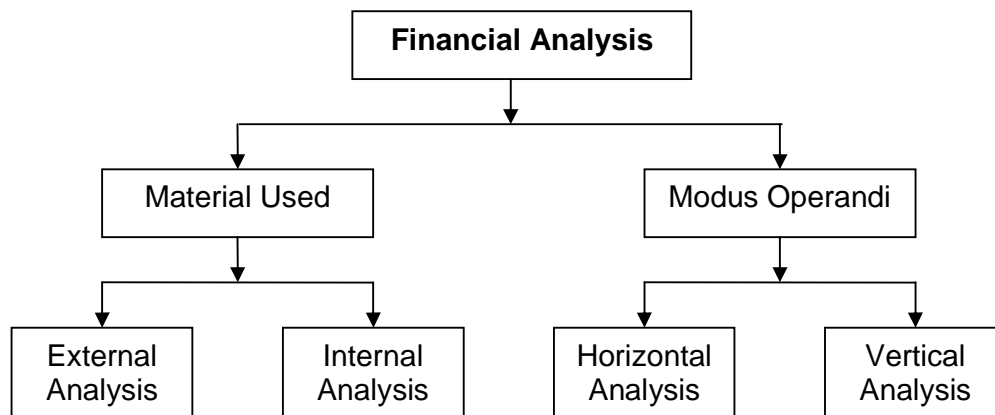
<sup>9</sup> Meigs, W. B. and others, Intermediate Accounting, McGraw – Hill, New York, 1978, P - 1049

**Investors:** interested in present and expected future earnings as well as stability of these earnings (appraisal of firm's profitability and financial condition)

**Management:** interested in internal control, better financial condition and better performance (appraisal of firm's present financial condition, evaluation of opportunities in relation to this current position, return on investment provided by various assets of the company, etc)

### 3.5 TYPES OF FINANCIAL PERFORMANCE ANALYSIS:

Financial performance analysis can be classified into different categories on the basis of material used and modes operandi as under:



**A Material used:** On the basis of material used financial performance can be analyzed in following two ways:

#### 1. External analysis

This analysis is undertaken by the outsiders of the business namely investors, credit agencies, government agencies, and other creditors who have no access to the internal records of the company. They mainly use published financial statements for the analysis and as it serves limited purposes.



## **2. Internal analysis**

This analysis is undertaken by the persons namely executives and employees of the organization or by the officers appointed by government or court who have access to the books of account and other information related to the business.

**B Modus operandi:** On the basis of modus operandi financial performance can be analyze in the following two ways:

### **1. Horizontal Analysis**

In this type of analysis financial statements for a number of years are reviewed and analyzed. The current year's figures are compared with the standard or base year and changes are shown usually in the form of percentage. This analysis helps the management to have an insight into levels and areas of strength and weaknesses. This analysis is also called Dynamic Analysis as it based on data from various years.

### **2. Vertical Analysis**

In this type of Analysis study is made of quantitative relationship of the various items of financial statements on a particular date. This analysis is useful in comparing the performance of several companies in the same group, or divisions or departments in the same company. This analysis is not much helpful in proper analysis of firm's financial position because it depends on the data for one period. This analysis is also called Static Analysis as it based on data from one date or for one accounting period.

## **3.6 TECHNIQUES/TOOLS OF FINANCIAL PERFORMANCE ANALYSIS:**

An analysis of financial performance can be possible through the use of one or more tools / techniques of financial analysis:

### **A ACCOUNTING TECHNIQUES**

It is also known as financial techniques. Various accounting techniques such as Comparative Financial Analysis, Common-size Financial Analysis, Trend Analysis, Fund Flow Analysis, Cash Flow Analysis, CVP Analysis, Ratio

Analysis, Value Added Analysis etc. may be used for the purpose of financial analysis. Some of the important techniques which are suitable for the financial analysis of GSRTC are discussed hereunder:

### **1. Ratio Analysis**

In order to evaluate financial condition and performance of a firm, the financial analyst needs certain tools to be applied on various financial aspects. One of the widely used and powerful tools is ratio or index. Ratios express the numerical relationship between two or more things. This relationship can be expressed as percentages (25% of revenue), fraction (one-fourth of revenue), or proportion of numbers (1:4). Accounting ratios are used to describe significant relationships, which exist between figures shown on a balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organization. Ratio analysis plays an important role in determining the financial strengths and weaknesses of a company relative to that of other companies in the same industry. The analysis also reveals whether the company's financial position has been improving or deteriorating over time. Ratios can be classified into four broad groups on the basis of items used: (1) Liquidity Ratio, (ii) Capital Structure/Leverage Ratios, (iii) Profitability Ratios, and (iv) Activity Ratios.

### **2. Common-Size Financial Analysis**

Common-size statement is also known as component percentage statement or vertical statement. In this technique net revenue, total assets or total liabilities is taken as 100 per cent and the percentage of individual items are calculated like wise. It highlights the relative change in each group of expenses, assets and liabilities.

### **3. Trend Analysis**

Trend analysis indicates changes in an item or a group of items over a period of time and helps to draw the conclusion regarding the changes in data. In this technique, a base year is chosen and the amount of item for that year is

taken as one hundred for that year. On the basis of that the index numbers for other years are calculated. It shows the direction in which concern is going.

## **B STATISTICAL TECHNIQUES**

Every analysis does involve the use of various statistical techniques. Some of the important statistical techniques which are suitable for the financial analysis of GSRTC are discussed herein:

### **Measures of Central Tendency**

Measures of central tendency are also known as statistical averages. It is the single value which represents the whole series and is contain its measure characteristics. The main objective is to give a brief picture of a large group, which it represents, and to give a basis of comparison with other groups.

Arithmetic mean, median, mode, geometric mean and harmonic mean are the main measures of tendency. Mean, also known as arithmetic average, is the most common measure of central tendency. It is defined as the value which obtained by dividing the total of the values of various given items in a series by the total number of items. It can be figured as:

$$\text{Mean (X)} = \frac{X_1 + X_2 + \dots + X_n}{n}$$

### **Measures of Dispersion**

Average is the central value which represents the entire series but it fails to give any idea about the scatter of the values of items of a series around the true value of average. In order to measure this scatter, measures of dispersion are calculated. Measures of dispersion, indicates the extent, to which the individual values fall away from the average or the central value. Range, mean deviation and standard deviation are the important measures of dispersion.

These measures can be stated in two ways. One method of statements shows the absolute amount of deviation, while the other presents the relative

amount of deviation. For purpose of comparison, the absolute amount of a measurement is not always as valuable as an expression of the relative amount. The measures of dispersion, which are expressed in terms of the original units of a series, are termed as 'absolute measure'. Relative measures of dispersion are obtained as ratios or percentages known as 'co-efficient' which are pure numbers independent of measurement. "Percentages of variation are known as co-efficient of dispersion or co-efficient of variation. They state the degree of variation." Therefore, for the purpose of comparison of variability the relative measures of dispersion should be computed.

### **1. Correlation and Regression Analysis**

Correlation is a statistical technique which measures degree and direction of relationship between the variables. It always lies between  $\pm 1$ . It is a relative measure. While regression measures the nature and extent of average relationship in terms of the original units of the data. If one of the regression coefficients is greater than unit the other must be less than unit. It is an absolute measure of relationship.

Correlation analysis is a method of determining whether two sets of data are related in a manner such that they increase together, if one increases, the other decreases. Regression analysis, on the other hand, hypothesizes a particular direction of the relationship. With regression one variable is determined by the others.

### **2. Analysis of Time Series**

The time series refers to the arrangement of statistical data in accordance with the time of its occurrence. It is dynamic distribution which reveals a good deal of variations over time. Various types of sources are at work to influence dynamic changes in a time series. It aims to find the pattern of change in statistical data over the regular interval of time and to arrive at an estimate with this pattern for business decision making.

The four component elements which bring variations in time series can be classified as secular variation (trend), cyclical variation (regular), seasonal

variation (regular) and erratic variation (irregular). The combined impact, either additive or multiplicative, of these components brings changes in statistical data. Thus original data can be represented as:

$$Y = T + S + C + I \text{ (Additive Model) \& } y = T \times S \times C \times I \text{ (Multiplicative Model)}$$

Where, Y = Original Data, T = Trend Value, S = Seasonal Component, C = Cyclical Component, I = Erratic Component. The analysis of time series intend to isolate and measure the separate effect of these components as they appears in a given series over a period of time.

### **3. Index Number**

According Lawrence J. Kaplan an index number is a statistical measure of fluctuations in a variable arranged in the form of a series and using a base for making comparison. The index number is used to represent diverse changes in a group of related variables. It represents changes in terms of rates, ratios or percentages called 'relatives' such as 'price relatives'(measures relative changes in prices), 'quantity relatives' (measures relative changes in quantity) etc. Since it represents an average of relative changes in a group of related variables relevant to a given phenomenon they are often described as 'barometers of economic change'.

### **4. t-test**

t-test applies only in case of small samples when population variance is unknown. It is based on t-distribution and is considered appropriate test for judging the significance of difference between the means of two samples in case of small sample(s) when population variance is not known. In case of two samples pared t-test is used for judging the significance of the mean of difference between the two related samples. it can also be used for judging the significance of the coefficients of simple and partial correlations.

the relevant test statistic, t, is calculated from the sample data and than compared with its probable value based on t-distribution (from the table) at a specific level of significance for concerning degrees of freedom for accepting or rejecting the null hypothesis

$$t = \frac{\bar{X} - \mu_{H_0}}{\sigma_s / \sqrt{n}}, \text{ Reject : } t > \text{Table value and Accept : } t \leq \text{Table value}$$

### 5. Chi-Square ( $X^2$ ) test

The chi-square test is an important test amongst the several tests of significance. It is one of the simplest and most widely used non-parametric statistical test. It is a statistical measure used in the context of sampling analysis to (i) test the goodness of fit; (ii) test the significance of association between two attributes; and (iii) test the homogeneity or the significance of population variance.

$$\text{Chi-Square} = \frac{(O-E)}{E}, \text{ Reject: } X^2 > \text{Table value \& Accept: } X^2 \leq \text{Table value}$$

Where, O = observed values and E = expected values. Chi-Square has an approximate Chi-Square distribution and critical values of Chi-Square are obtained from the table of Chi-Square distribution. The expected values will be calculated with the help of Regression Analysis and Time Series Analysis assuming that the data come from the hypothesised distribution.

### 6. Diagrams & Graphs

Diagrams and graphs are visual aids, which give a bird's eye view of a given set of numerical data. They present the data in simple readily comprehensible and intelligible form. Graphical presentation of statistical data gives a pictorial effect instead of just a mass of figures. They depict more information than the data shown in the table which through light on the existing trend and changes in the trend of the data.

### C Mathematical Techniques

Financial analysis also involves the use of certain mathematical tools such as Programme Evaluation and Review Techniques (PERT), Critical Path Method (CPM), and Linear Programming etc. However, they are not useful for the present study.

## **REFERENCES**

1. Sancheti D.C. & Kappoor V.K., "Statistics - Theory, Methods & Application, Sultan Chand & Sons, Educational Publisher, New Delhi, 1999.
2. Kothari C.R., "Research Methodology – Methods & Techniques, Wishawa Prakashan, New Delhi, 2003.
3. Webster's New Collegiate Dictionary, 8<sup>th</sup> Ed., Springfield, Mass:G & C, Merriam, 1975.
4. Lundberg, G. A., "Social Research", Longmans Green and Company, New York, 1982.
5. Levin Richard I., "Statistics for Management", Prantice Hall of India Pvt. Ltd., New Delhi, 1979.
6. Metcalf, R. W. and P. L. Titard, "Principles of Accounting", W. B. Saunders, (Philadelphia)1976.
7. Meigs, W. B. and others, "Intermediate Accounting", McGraw – Hill, New York, 1978.
8. Weessel Robert H., Willet Edward R., and Simone Albert J., "Statistics as Applied to Economics and Business", Kolt Rinehart and Winston, New York, 1965.
9. Goode William J. and Hart Paul K., "Methods in Social Research", McGraw Hill Book Company, New York, 1952.
10. Croxton Frederick E., Crowden Dudley J. and Klein Sidney, "Applied Genral Statistics", Prentice Hall Pvt. Ltd., New Delhi, 1969.

# RESEARCH METHODOLOGY

- **Problem Identification**
- **Rational of the Study**
- **Title of the Study**
- **Review of Literatures**
- **Objectives of the Study**
- **Hypothesis of the Study**
- **Data Collection & Data Analysis**
- **Period of the Study**
- **Tools and Techniques**
- **Chapter Plan**
- **Limitations of the Study**



#### **4.1 PROBLEM IDENTIFICATION**

Gujarat State Road Transport Corporation has occupied the unique place in the map of world's transportation. GSRTC serves the role of lifeline across the state of Gujarat. It has become a household term for transportation. Over past 40 years of its existence, it has proved to be a dependable mode of transportation in every nook and corner of the state. It is providing services in most of the rural areas of the state. It is the matter of pleasure that GSRTC transports around 2.4 million passengers daily, and has notched up a pace kilometer of over 2.5 million per day. Gujarat State Road Transport Corporation has played a pivotal role in the economic growth of the state through operating an extensive passenger transport network and reaching out to villages. In terms of managerial efficiency, over past 40 years it has developed 16 divisions, 132 depots, 7 tire retreading plants, and a central workshop. It is being considered as the largest of its kind in this continent. It provides direct employment to approximately 52000 people whose professional skills are kept in high regard even by people outside GSRTC. It has achieved remarkable performance in the face of heavy odds and its services are cost effective.

Thus, GSRTC has tried to reconcile the twin objectives of community service and financial viability. It has built up a large fund of goodwill from people of Gujarat. It has brought transport service to the doorstep of villagers in most remote parts. But in recent years the popular expectations have soared. In the open market economy, the expectations of people with respect to frequency, quality and range of services have become substantially higher. A time has come when GSRTC have to take a serious look at the transportation needs of people and explore the way to fulfill the same. The environment has thrown up to GSRTC the challenges like productivity improvement, mark orientation and financial engineering. GSRTC has been trying hard to face the new challenges through improving its management practices. GSRTC is vigorously pursuing a process of technical and managerial up gradation. But, financial viability has become a critical goal.

But since last few years, the existence of such an ideal and progressive Government venture is striving to sustain. It is passing through the critical financial condition, and is suffering from huge amount of losses.

It may please be noted that it is the only government corporation, which provides direct transportation service to the people. It is well aware about its social responsibilities and duties, following which It provides a number of other benefits to students, blinds, cancer patients, physically handicapped, freedom fighters, news reporters, etc. So, it is the moral duty of government, management and employees of GSRTC, and we all to improve the financial liquidity of the GSRTC by reducing amount of losses.

Various controllable and uncontrollable factors affect the profitability of the GSRTC. The profitability of GSRTC is quite low and unsatisfactory. It is hypothesized that by controlling at least controllable factors GSRTC can improve its financial position. The proposed study, "**An Analysis of Financial Performance of State Road Transport Corporation in Gujarat,**" throws light on the financial condition and financial performance of GSRTC over a given period of time. The main motto behind this study is to contribute in this direction and create value for all stakeholders, public, employees, vendors, state government and fund providers.

#### **4.2 RATIONALE OF THE STUDY:**

"The transport industry which undertakes nothing more than the mere movement of persons and things from one place to another, have constituted one of the most important activities of men in every stage of advanced civilization."

**Alfred Marshall**

The present study is significant from various points of view. The study would contribute to the society, GSRTC, employees of GSRTC, and knowledge in the following manner:

**Contribution to the society:** The present study would reveal the financial condition and facts to the society. It is aimed at throwing the light on the fact

that the Corporation is trying to do its best, even when it is suffering from a lot of financial problems.

**Contribution to the GSRTC:** The present study helps GSRTC in continuing its key objectives of customer service. It would remind the Corporation of moving further in the direction of improved service while still minimizing the cost factors.

**Contribution to the employees of the GSRTC:** GSRTC provides direct employment to approximately 52000 people. The present study will try to bring actual financial condition of GSRTC to the knowledge of the employees of GSRTC, hence making the employees aware of their own organization.

**Contribution to the knowledge / subject:** Every new research enriches the contents of the related subject. The proposed study would surely put an important brick in the build of the subject.

#### **4.3 TITLE OF THE STUDY:**

“An Analysis of Financial Performance of State Road Transport Corporation in Gujarat”

#### **4.4 REVIEW OF LITERATURES**

In spite of the fact that transportation plays an important role in the economic, cultural, social and industrial development of any nation, transport sector has not received due consideration of the researchers in the past. However, at present, Universities and various research institutes like Central Road Research Institute, Central Institute of Road Transport, Association of State Road Transport Undertakings, Special division of Planning Commission and Ministry of Surface Transport etc. have taken special interest for the researches in this sector. Several studies have paid attention to the Transport Industry. The existing literature related to present topic can be viewed from the different perspectives as Review of Literatures within India and Review of

Literatures abroad India. Some of the selected literatures are reviewed in the following pages:

**A Review of Literatures within India**

1. **M O Mathew** in his book on Rail and Road Transport in India emphasized that the efficiency of the transport Industry as a whole is determined by organizational considerations in the context of unit sizes. He also opined that transport, being a public utility industry, is regulated by Government policies in many ways, of which some have a direct or indirect impact on the evolution of size.

2. **Halder D. K.**, in his book titled “Urban Transport Problem: An Economic Investigation into Public Utilities in Calcutta”, extensively studied Calcutta’s traffic problem with focus on Calcutta State Transport Corporation (CSTC). He partly evaluated performance of CSTC for the period of 1964 – 65 to 1972 – 73. For the lower productivity of the CSTC, he held the following factors responsible:

- 1) Low fleet utilization (as a result of lack of proper preventive maintenance).
- 2) Higher absenteeism and
- 3) Evasion of fare.

However, his special contribution lied in applying Linear Programming (LP) Model to the problem of efficient allocation of buses on different routes.

3. **Kalyanaraman and Sehgal** have examined a few methods for estimating future road traffic. They advocate two methods, viz., mechanical and analytical. The mechanical methods simply project forwards the past trends assuming that future experience is direct function of past experience, whereas analytical methods classify and analyze the several related components or factors that have caused the historical trend pattern.

4. **Satyanarayana** has observed that the cost of service of road transport depend upon the size of the fleet, the vehicle condition and the length and road condition. His study attempts to find out the inter-relationship between these factors on the basis of the data collected from a reprehensive sample of motor vehicle operators in Andhra Pradesh. He has observed that the size of the motor transport unit has been a fundamental factor influencing the cost of operations of motor transport industry.
  
5. **Manjula Singh** has observed in her study that, I India, the operating ratio (revenue-expenditure) is always above 100 for rail and less than 80 for road transport. She recommends a well-coordinated road transportation system on the basis of such factors as assessment of demand for roads on vehicle requirement, distance from main roads, coordination of local bodies, land surfaces regional development and employment considerations.
  
6. **Sharma**, in one array of questions fundamental to effectiveness in any social service, probes the questions: what are we trying to do not only today but for tomorrow and next year and for the unforeseeable future? How do we best use the talents of our staff and how should they be rewarded? Instead of talking about our duty to the passenger, can we find out how to get him across Delhi at lowest costs in both time and money?
  
7. **R R Khan** presents a broad outline of the network of transport system in India. He covered a wide range of information falling within the broad sphere of the subject matter of transport management. Apart from continuing systems approach, a model to build up a comprehensive transport system and demographic data for transport planning, the book sets out benchmark data and provides an analytical study of several vital areas of transport management.

8. **Ali A. El-Mezawie**, as a part of ILO/UNDP project of Central Institute of Road Transport, Pune, namely “State Transport Undertakings in India: A Study of Performance, Problems and Prospects”, studied the problems and prospects of STUs in India. He studied 32 undertakings comprised of 18 corporations, 9 companies, and 5 departmental undertakings from 1975–76 to 1979 – 80 and concluded that the performance of company form of organization was better on almost all important counts. He recommended that immediate relief of at least 60% in tax, and provision for regular revision of fare at an interval of two years, failing which provision for subsidy.
9. **Patankar** has studied the Road Passenger Transport in different dimensions since 1950s and analysed the operational productivity and efficiency of STUs for the period 1973-74 to 19979-80. He opined that the future of road transport sector in India would brighten only with productivity oriented planning.
10. **Srivastava**, presented the historical development of various modes (air, water, road and railways) of transport in India. He has attempted to discuss various operating variables like rates, fares, low productivity, state regulations, administration, competition, financing, aspects of different modes of transport. He has analyzed the effect of efficient, cheap and well coordinated development of transport system on Indian economy.
11. **Bagade** has suggested a model for rational fare which is applicable in different operating conditions, constraints and limitations and takes care of economic viability of State Transport Undertakings and affordability of fare to common man.
12. **Kulkarni** has devoted his attention to the organizational and administrative aspects in road transport. He has also discussed the personnel and

administration, and after a detailed description, has given suggestions for bringing about improvements in the areas of recruitment, selection and training.

13. **Baig, Natees and Dr. Iqbal B.A.** in their book on Transport as a constraint for Agro – Industrial Development in Uttar Pradesh, have pointed out that transport provides both backward and forward linkages to the economy of a region or a state or a country. The dependence of India and more so of Uttar Pradesh on agriculture provides large scale opportunities for developing agro-based industries and the same requires adequate availability of transport infrastructure.

14. **Sudarshanam Padam** discussed in detail, the history of bus transport in India, various forms of organizations in State Transport Undertakings, its management and performance by way of comparison from 1970-1980 in Andhra Pradesh, Maharashtra, Gujarat and Karnataka State Road Transport Corporations. He also identified the problems in performance.

15. **Kulshrestha** selected a new area of study in the State Road Transport Undertakings. He explains that as the public sector transport has been facing competition with other means of transport and from the private operators, bus station management is important. He throws light on the bus station management and offers some practical ways and means to improve the conditions with special reference to UPSRTC.

16. **T.A.S. Vijayaraghavan** in his research paper “Strategic options for state road transport undertakings in India”, published in International Journal of Public Sector Management, has highlighted that the criticism of SRTUs has become more transparent with the recent policy changes. One of the major criticisms is that they are, by and large, operations-oriented rather than strategy-oriented. He shows that the SRTUs in India are not really

competing well in an industry, which is becoming more and more unstable. He suggests competitive types of strategies emphasizing the importance of service marketing approach.

17. **Rajeswari Gundam**, in her book titled “Public Sector Performance of State Road Transport Corporation: A Case Study of Andhra Pradesh”, examines both the financial and social performance of Andhra Pradesh State Road Transport Corporation both at the state and regional levels. Particularly she dealt with the pricing policies of the transport service as being implemented by the corporation. She described in detail the organizational set up of the corporation along with its various features like capital investment and staffing.

The Government of India appointed various Committees from time to time to study various aspects of passenger transport sector for the purpose of initiating policy measures based on the recommendation of such committees in order to strengthen and develop transport sector in the country.

18. The Indian Motor transport was put into the deep waters with the Second World War because of two reasons, the first being the import of motor vehicles was stopped during the war period and the other one is that the demand for motor transport increased enormously. To study the situation the Government of India setup the ‘**Post War Policy Committee**’ in 1943. The committee made a study and recommended to change the step motherly treatment by the Government with motor transport and to reduce the burden of tax on it, but the Government took no notice of these recommendations.

19. The **Planning Commission** appointed a Study Group in 1953 with the object to suggest ways and means for the development of transport as per requirements of passenger traffic in the country. The recommendations of the Study Group are: (1) to let the competition continue among different modes of transport for the proper development of motor; (2) to reduce the motor transport at least by 20 per cent; (3) to provide opportunity for the



development of weak units; (4) to relax the 'code of principles and practices' immediately and changing the zone limits from 75 miles to 150 miles. The Planning Commission accepted all the recommendations.

20. **The National Transport Policy Committee (NTPC)** studied on "Passenger Road Transport in India", taking the cross-sectional data of 31 undertakings for 1976 – 1977 and finds that the unit cost was mainly influenced by two variables namely fleet utilization and vehicle utilization. The Committee advocated for a direct exchequer subsidy to urban transport undertakings in view of the social benefits that they extend.

21. **Central Institute of Road Transport (CIRT), Pune**, contributed a paper to a seminar on "How to Make STUs Financially Viable?", held by Association of Road Transport Undertakings, New Delhi, identified the problems of interest burden, constraints on increasing fare, leakages of traffic revenue, and traffic management as major problems in the way of effective management of State Transport Undertakings and made some practicable suggestions.

#### **4.4.1 Studies Abroad India**

Fascinating studies on evolution of transportation system in different countries and the role they have played in the economic development of the respective nations provide rich insights in retrospect. Such studies are also of immense practical use in prospect since they form the basis for perspective planning in transportation and development efforts undertaken by the underdeveloped countries.

22. **Tripp Aiker H**, in his book on Road Traffic and its Control, examined the traffic problem and relation of Road to Rail. Sea and Air Transport and Science of Traffic Control to reduce accidents and smooth running of the traffic.

23. **Bonavia M.R.** highlighted the role and significance of transport system for the development of a country and discussed the utility of good transport system from industrial, political, social and cultural angles.
  
24. **Lowe**, has done a study on the development of transportation system in Japan. He has dealt with the transport and communication system during the Tokugawa Era (1600-1686) and has described the process of the development certain features which ultimately helped the establishment of modern transport in Japan.
  
25. A study made by the **Ministry of Transport**, Scottish Development Department highlighted that the free flow of traffic at reasonable speed requires planned improvement of urban road systems. The study also suggested constructing secondary means of access to enable goods and service vehicles to load and unload at the stops.
  
26. **John Hibbs**, explained various approaches to study the function of transport along with control aspects.
  
27. **Locklin**, concentrated on the study of rail-road systems. He opined that the Government ownership of transport system facilitates the planning and execution of transport system very effectively and the Government, in one way or the other is capable of providing necessary capital.
  
28. **Sharp C.N.** in his work on Transport Economics, examined the studies undertaken in the field of transport system of U.K. and studied a number of basic problems like transport economics, transport investment, transport pricing and reduction in accident rate.
  
29. **Payne**, tracing the history of development of transport in Europe suggests that the transportation facilities are established by the private sector on the basis of free competition and, therefore, the private sector should be

allowed to continue as such. He also discusses the implications of Treaty of Rome on transportation in Europe.

#### **4.5 OBJECTIVES OF THE STUDY**

The main motto behind analyzing Financial ***Performance of Gujarat State Road Transport Corporation*** is

- To analyze the financial position of GSRTC.
- To analyze liquidity position of GSRTC.
- To assess the financial strength of GSRTC.
- To analyze efficiency of GSRTC.
- To measure the profitability of GSRTC.
- To analyze revenue trend.
- To suggest an appropriate strategy for improvement of financial soundness of GSRTC.

#### **4.6 HYPOTHESIS OF THE STUDY**

According to William Emory, “A hypothesis refers to propositions formulated for empirical testing.” In almost the same words Goode and Hatt state that, “A hypothesis is a promotion, which can be put to test to determine its validity.”

G. A. Lund Berg corroborates that, “A hypothesis is a tentative generalization the validity of which remains to be tested. In its most elementary stage, the hypothesis may be any such, guess or imaginative idea, which becomes the basis for action or investigation.” The definition rightly specifies that the hypothesis provides the basis for the research work and the entire research work is oriented towards the hypothesis.

The following thought provocation hypotheses with balance coverage of the research study have been framed to materialize the objectives of the research study:

### **Hypotheses related to working capital analysis**

- There is no significance difference between current ratios of GSRTC over the time.
- There is no significance difference between liquid ratios of GSRTC over the time.

### **Hypotheses related to capital structure analysis**

- There is no significance difference between debt-equity ratios of GSRTC over the time.
- There is no significance difference between interest coverage ratios of GSRTC over the time.

### **Hypotheses related to activity analysis**

- Revenue Trend can be represented by the straight line trend based on least square.
- Revenue Trend can be represented by the straight line trend based on regression analysis.
- There is no significance difference between percentages of stores to net revenue ratio of GSRTC over the time.
- There is no significance difference between percentages of fuel to net revenue ratio of GSRTC over the time.
- There is no significance difference between percentages of salary & allowance to net revenue ratio of GSRTC over the time.
- There is no significance difference between percentages of depreciation & insurance to net revenue ratio of GSRTC over the time.
- There is no significance difference between percentages of general charges to net revenue ratio of GSRTC over the time.
- There is no significance difference between percentages of taxes to net revenue ratio of GSRTC over the time.

### **Hypotheses related to profitability analysis**

- Gross Profit Ratio can be represented by the straight line trend based on regression analysis.

- There is no significance difference between Gross Profit Ratios of GSRTC over the time.
- Net Operating Profit Ratio can be represented by the straight line trend based on regression analysis.
- There is no significance difference between Net Operating Profit Ratios of GSRTC over the time.
- Net Profit Ratio can be represented by the straight line trend based on regression analysis.
- There is no significance difference between Net Profit Ratios of GSRTC over the time.
- Return on Capital Employed Ratio can be represented by the straight line trend based on regression analysis.
- There is no significance difference between Return on Capital Employed Ratios of GSRTC over the time.
- Return on Owner's Equity Ratio can be represented by the straight line trend based on regression analysis.
- There is no significance difference between Return on Owner's Equity Ratios of GSRTC over the time.

#### **4.7 DATA COLLECTION AND DATA ANALYSIS**

The study is based on secondary data, which are derived from the published annual reports of GSRTC, which are collected from the registered office of GSRTC. In addition to published reports, other publications by GSRTC are also used. The information related to the transport industry is derived from various sources like articles, journals, periodicals, newspapers etc.

The collected data are duly edited, classified and analyzed using all type of relevant statistical techniques and employing the most appropriate parametric and non-parametric test. The data are presented through simple classification and with help of percentage, average, dispersion, correlation and association.

The hypotheses are tested at 5% level of significance with help of t-test, Chi-square test etc.

#### **4.8 PERIOD OF STUDY**

The study is made for the consecutive tenure of ten years from the accounting year 1996-1997 to 2005-2006.

#### **4.9 TOOLS AND TECHNIQUES**

Following are some of the important techniques which are being used in the present study for analyzing financial performance of GSRTC. These techniques have been discussed in detailed in the previous Chapter.

##### **(A) Accounting Techniques**

1. Ratio Analysis
2. Common-size Statement
3. Comparative Statement Analysis
4. Trend Analysis

##### **(B) Statistical Techniques**

1. Measures of Central Tendency
2. Measures of Dispersion
3. Correlation and Regression Analysis
4. Time Series Analysis
5. Analysis of Variance
6. Chi-Square Test
7. Index Number
8. Diagrammatic and Graphic Presentation of Data

##### **(C) Mathematical Techniques**

#### **4.10 CHAPTER PLAN**

The present study is divided into nine chapters, which are as under:

##### **Chapter – I**

##### **INTRODUCTION**

This chapter deals with the Introduction – Transport – Functions of Transport – Means of Transport (Land Transport, Water Transport and Air Transport) – Transportation in India (Road Transport, Rail Transport, Water Transport and Air Transport).

##### **Chapter – II**

##### **INSIGHT INTO ROAD TRANSPORTATION**

This chapter deals with the Introduction - General Overview-World Wide (history and Development of Transportation in the World) – Time Line of Transportation Technologies in the World – Road Transportation In India (History and Development of Road Transportation in India) – GSRTC (Introduction, Evolution and Development of GSRTC).

##### **Chapter – III**

##### **Financial Performance Analysis – The Conceptual Framework**

This chapter includes Financial Performance –Financial Performance Analysis – Areas of Financial Performance Analysis – Significance of Financial Performance Analysis – Types of Financial Performance Analysis - Techniques for Financial Performance Analysis (Accounting Techniques, Statistical Techniques and Mathematical techniques) – References.

##### **Chapter – IV**

##### **RESEARCH METHODOLOGY**

This chapter includes Problem Identification – Rational of the Study – Title of the Study – Review of Literatures – Objectives of the Study – Hypothesis of the Study – Data Collection and Data Analysis – Tools and Techniques – Chapter Plans - Limitations of the Study – References.

## **Chapter – V**

### **WORKING CAPITAL ANALYSIS**

This chapter deals with Introduction - Concept of Working Capital - Importance of Working Capital - Requirements of Working Capital - Working Capital Analysis of GSRTC (Analysis of Trend, Analysis of Efficiency and Analysis of Liquidity Position)

## **Chapter – VI**

### **FINANCIAL STRUCTURE ANALYSIS**

This chapter deals with Concept of Financial Structure - Factors Determining Financial Structure - Analysis of Financial Structure of GSRTC (Trend Analysis and Ratio Analysis).

## **Chapter – VII**

### **ACTIVITY ANALYSIS**

This chapter includes Introduction – Analysis of Activities of GSRTC in context of Growth of Activities – Analysis in Terms of Total Resources – Conduct of Activities with help of trend fitting, Chi-Square test and different ratios.

## **Chapter – VIII**

### **PROFITABILITY ANALYSIS**

This chapter includes Introduction – Concept of Profitability – Profit & Profitability – Analysis of Profitability of GSRTC in context of Management – Analysis of Profitability of GSRTC in context of Shareholders with help of trend fitting, Chi-Square test and different ratios.

## **Chapter – IX**

### **FINDINGS AND SUGGESTIONS**

This chapter includes Introduction – Summary of all nine chapters - Findings based on the Analysis - Suggestions for enhancing profitability, for financial soundness, for cost reduction and control and liquidity position.



#### **4.11 LIMITATIONS OF THE STUDY**

The research study has got the following limitations:

- This study is based on secondary data derived from published annual reports of GSRTC and as such its findings depends entirely on the accuracy of such data.
- There are many different approaches to analyze financial performance and experts are not unanimous regarding the approach.
- We know that ratio analysis has, like all other methods, limited value and application, it can not reveal exact picture of the financial performance and its conclusion are not always reliable, because use of heuristic and intuitive character, use of window dressing, misinterpretation of results etc. may practiced.
- This study is mainly based on ratio analysis, which has its own limitations.
- This study provide glimpse of the past performance and the future conclusion may not be correct since several other factors may affect the future operations.
- As this study is limited only to financial performance analysis of GSRTC, this study will not be relevant to other SRTC in India.
- This study based on external analyses only, being outsider inside views may not be duly considered.
- Researcher has tried best to remain faithful and kin. But after all being a human, physical constrains may affect the result and as such the result of the analysis may not be cent percent correct to be relied upon.

## **REFERENCES**

1. Mathew M.O., "Rail and Road Transport in India – A Study in Optimum Size and Organization", Book Agency, Culcutta, 1964.
2. Halder Dilip Kumar, "Public Undertakings in Road Transport in the City of Culcutta – An Economic Analysis and Programming Solutions, Gokhale Institute of Politics and Economics, Poona, 1967.
3. S.R. Kalyanraman & T.R. Sehgal, "Methods for Estimating Future Road Traffic", Journal of the Indian Roads Congress, Vol. XXXI-3, Oct. 1968.
4. J. Satyanarayana, "Cost Structure of Road Transport Industry", Transport Journal, Vol. XXI-3, Mach 1971.
5. Manjula Singh, "Road Transport in India", in D.M. Nanjundappa (ed.), Transport Planning and Finance, Karnatak University, Dharwar, 1973.
6. Santosh Sharma., "Productivity in Road Transport – A Study in Innovative Management", Association of State Road Transport Undertakings, Research Paper, New Delhi, 1976.
7. Khan R.R., "Transport Management, Himalaya Publishing House, Bombay, 1980.
8. ILO/UNDP project on STUs in India – A Study of Performance, Problems and prospects, CIRT, Pune, 1982.
9. Patankar P.G., "Road Passanger Transport in India", Central Institute of Road Transport, Pune, 1983.
10. Srivastva S.K., "Economics of Transport", S. Chand & Co., New Delhi, 1987.
11. Bagade M.V., Passenger Tax and Rational Fare Policy From STU's, Journal of Transport Management, Vol. 12, 1988.

12. Kulkarni P.V., "Recruitment, selection and placement in Road Transport", Journal of Transport Management, C.I.R.T., Pune, 1989.
13. Baig, Natees and Dr. Iqbal B.A., "Transport as a Constraint for Agro Industrial Development in U.P", Faculty of Commerce, Aligarh Muslim University Publications, Aligarh, 1990.
14. Sudarshanam Padam. "Bus Transport in India", Ajanta Publications, Delhi, 19990.
15. Kulshrestha D.K., "Transport Management in India", Mittal Publications, New Delhi, 1994.
16. T.A.S. Vijayaraghavan, "Strategic options for state road transport undertakings in India", International Journal of Public Sector Management, 1995.
17. Rajeswari Gundam, "Public Sector Performance of State Road Transport Corporation", APII Publishing Corporation, New Delhi, 1998.
18. The post—war policy Committee, Government of India, 1943.
19. The Study Grouo on Transport Planning, Planning Commission, Government of India, 1953.
20. Central Institute of Road Transport (CIRT), Pune.
21. The National Transport Policy Committee (NTPC), 1980.
22. Tripp Alker H., "Road Traffic and its Control, Adward Arnold Company, London,1938.
23. Bonavia M.R., "The Economics of Transport", James Nisbet & Company, Cambridge, 1954.

24. Edwin, Lowe, Nevile Jr., "The Development of Transportation in Japan – A case study of Okayama Ham, Ph.D. Thesis, University of Michigan, Ann Arbor, Michigan, 1959.
25. Ministry of Transport, Scottish Development Department, the Welsh Office, Roads in Urban Areas, Her Majesty's Stationery Office, London, 1966.
26. John Hibbs, "Transport Studies an introduction, John Beker Publishers Ltd., London, 1970.
27. Locklin D.P., "Economics of Transportation", Recharad D. Irwin, Inc., Hornewood, 1972.
28. Sharp C.N., "Transport Economics", Macmilan studies in Economics, Macmilan, London, 1973.
29. Payne I.S., "A European Transportation System", Transport Journal, 1975.

# WORKING CAPITAL ANALYSIS

- **Introduction**
- **Concept of Working Capital**
- **Importance of Working Capital**
- **Requirement of Working Capital**
- **Working Capital Analysis of GSRTC**

## **5.1 INTRODUCTION**

In financial management, two important decisions are very vital and crucial. They are decision regarding fixed assets/fixed capital and decision regarding working capital/current assets. Both are important and a firm always analyzes their effect to final impact upon profitability and risk.

Fixed capital refers to the funds invested in such fixed or permanent assets as land, building, and machinery etc. Whereas working capital refers to the funds locked up in materials, work in progress, finished goods, receivables, and cash etc.

Thus, in very simple words, working capital may be defined as “**capital invested in current assets.**” Here current assets are those assets, which can be converted into cash within a short period of time and the cash received is again invested into these assets. Thus, it is constantly receiving or circulating. Hence, working capital is also known as **circulating capital** or **floating capital**.

## **5.2 CONCEPT OF WORKING CAPITAL**

There are two concepts of working capital. These are:

### **1. Gross working capital: (Total Current Assets)**

The gross working capital, simply called as working capital refers to the firm’s investment in current assets. Current assets are the assets, which can be converted into cash within an accounting year or operating cycle. Thus, Gross working capital, is the total of all current assets. It includes

1. Inventories (Raw materials and Components, Work-in-Progress, Finished Goods, Others)
2. Trade Debtors
3. Loans and Advance
4. Cash and Bank Balances
5. Bills Receivables.
6. Short-term Investment

## **2. Net Working Capital: (Total Current Assets – Total Current Liabilities)**

Net working capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders, which are expected to mature for payment within an accounting year. Net working capital may be positive or negative. A positive net working capital will arise when current assets exceed current liabilities and a negative net working capital will arise when current liabilities exceed current assets i.e. there is no working capital, but there is a working capital deficit. It includes

1. Trade Creditors.
2. Bills Payable.
3. Accrued or Outstanding Expenses.
4. Trade Advances
5. Short Term Borrowings (Commercial Banks and Others)
6. Provisions
7. Bank Overdraft

“Working Capital represents the amount of current assets that have not been supplied by current, short term creditors.”<sup>10</sup>

“Gross working capital refers to the amount of funds invested in current assets that are employed in the business process while, Net Working Capital refers to the difference between current assets and current liabilities.”<sup>11</sup>

“Working Capital is the excess of current assets that has been supplied by the long-term creditors and the stockholders.”<sup>12</sup>

The two concepts of working capital, gross working capital and net working capital are exclusive. Both are equally important for the efficient management of working capital. The gross working capital focuses attention on two aspects How to optimize investment in current assets? and How should current assets be financed? While, net working capital concept is qualitative. It indicates the

---

<sup>10</sup> James C. Van Horne & John M. Wachowicz, Jr. – “Fundamentals of Financial Management”,

<sup>11</sup> M. Y. Khan & P K Jain, - “Financial Management – Text and Problems”,

<sup>12</sup> Prasanna Chandra – “Financial Management – Theory and Practice”

liquidity position of the firm and suggests the extent to which working capital needs may be financed by permanent sources of funds.

### **5.3 IMPORTANCE OF WORKING CAPITAL**

Working capital is one of the important measurements of the financial position. The words of H. G. Guthmann clearly explain the importance of working capital. *“Working Capital is the life-blood and nerve centre of the business.”* In the words of Walker, “A firm’s profitability is determined in part by the way its working capital is managed.” The object of working capital management is to manage firm’s current assets and liabilities in such a way that a satisfactory level of working capital is maintained. If the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy. Thus, need for working capital to run day-to-day business activities smoothly can’t be overemphasized.

### **5.4 REQUIREMENTS OF WORKING CAPITAL**

There are no set rules or formula to determine the working capital requirements of the firms. A large number of factors influence the working capital need of the firms. All factors are of different importance and also importance change for the firm over time. Therefore, an analysis of the relevant factors should be made in order to determine the total investment in working capital. Generally the following factors influence the working capital requirements of the firm:

- Nature and size of the business
- Seasonal fluctuations
- Production policy
- Taxation
- Depreciation policy
- Reserve policy
- Dividend policy
- Credit policy:
- Growth and expansion
- Price level changes
- Operating efficiency
- Profit margin and profit appropriation



## **5.5 WORKING CAPITAL ANALYSIS OF GSRTC**

With a view to appraise working capital and liquidity position of GSRTC, the analysis has been made from the point of view of short term creditors, efficiency in the use of working capital, and investment in working capital.

Short-term creditors are primarily interested in liquidity position or the short-term solvency of the firm while, the management is interested in efficient utilization of available working capital. The analysis throws the light on the following questions:

- 1. Will GSRTC be able to pay its current obligations promptly?**
- 2. Can GSRTC effectively utilize the capital available?**
- 3. Is the liquidity position of GSRTC improving?**

To evaluate the performance of working capital of GSRTC and answer above questions, three fold analyses are undertaken as shown under:

- A. An Analysis of Working Capital Trend in GSRTC**
- B. An Analysis of Working Capital Efficiency in GSRTC**
- C. An Analysis of Liquidity Position of GSRTC**

### **A. AN ANALYSIS OF WORKING CAPITAL TREND IN GSRTC**

The working capital trend analysis represents a picture of variations in current assets, current liabilities and working capital of GSRTC over a period of time. Trend Analysis is a tool of financial analysis where changes are compared to the base year, keeping the base year as 100. Such an analysis helps us to study upward / downward trends in current assets and current liabilities and its effect on working capital. The following analysis was carried out to find out working capital trend in GSRTC

- 1. Current Assets Trend Analysis**
- 2. Current Liabilities Trend Analysis**
- 3. Working Capital Trend Analysis**

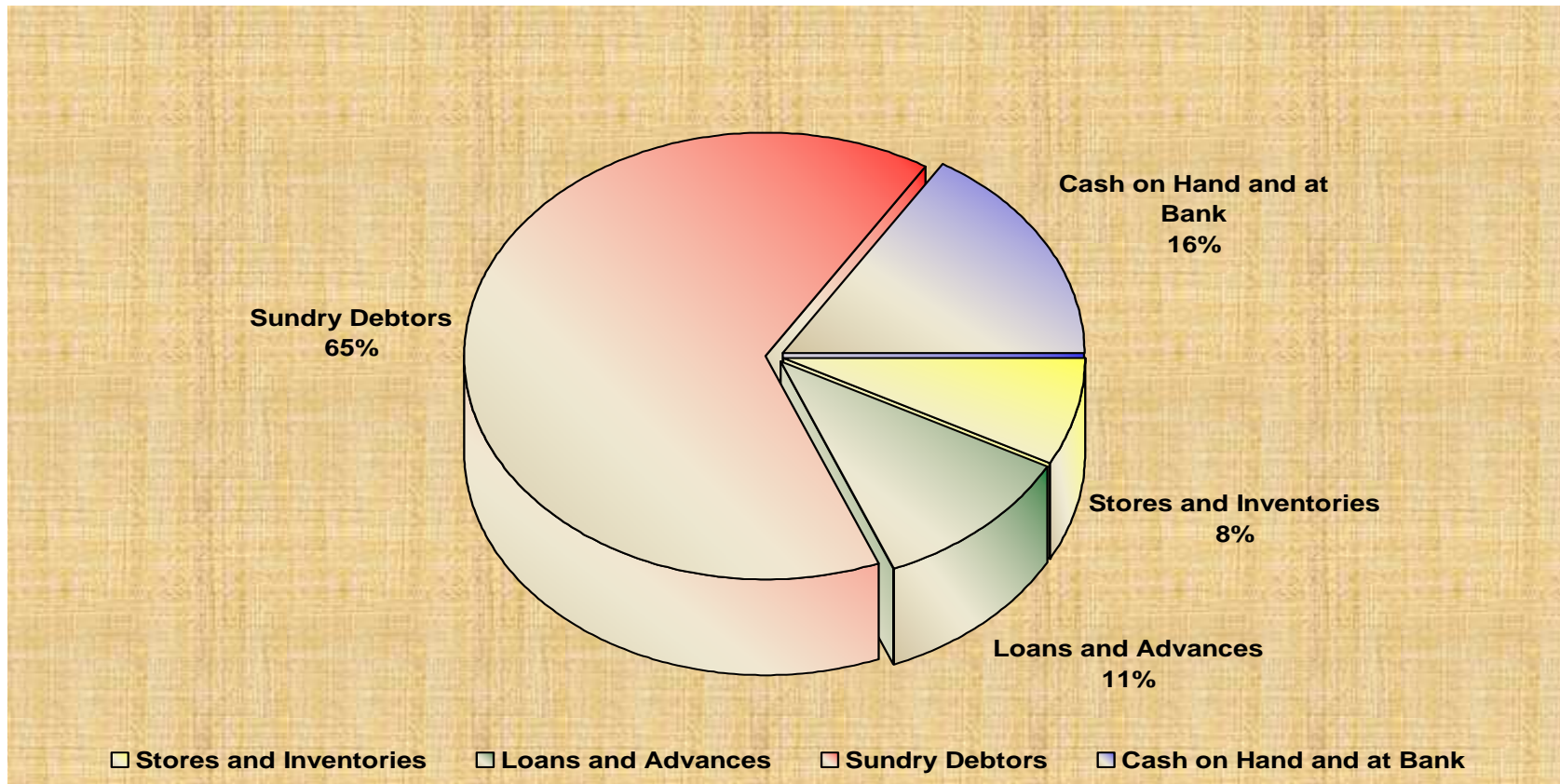
## 1. Current Assets Trend Analysis

**Table 5.1**  
**Trend of Current Assets (per cent) (Base Year 1996-97) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

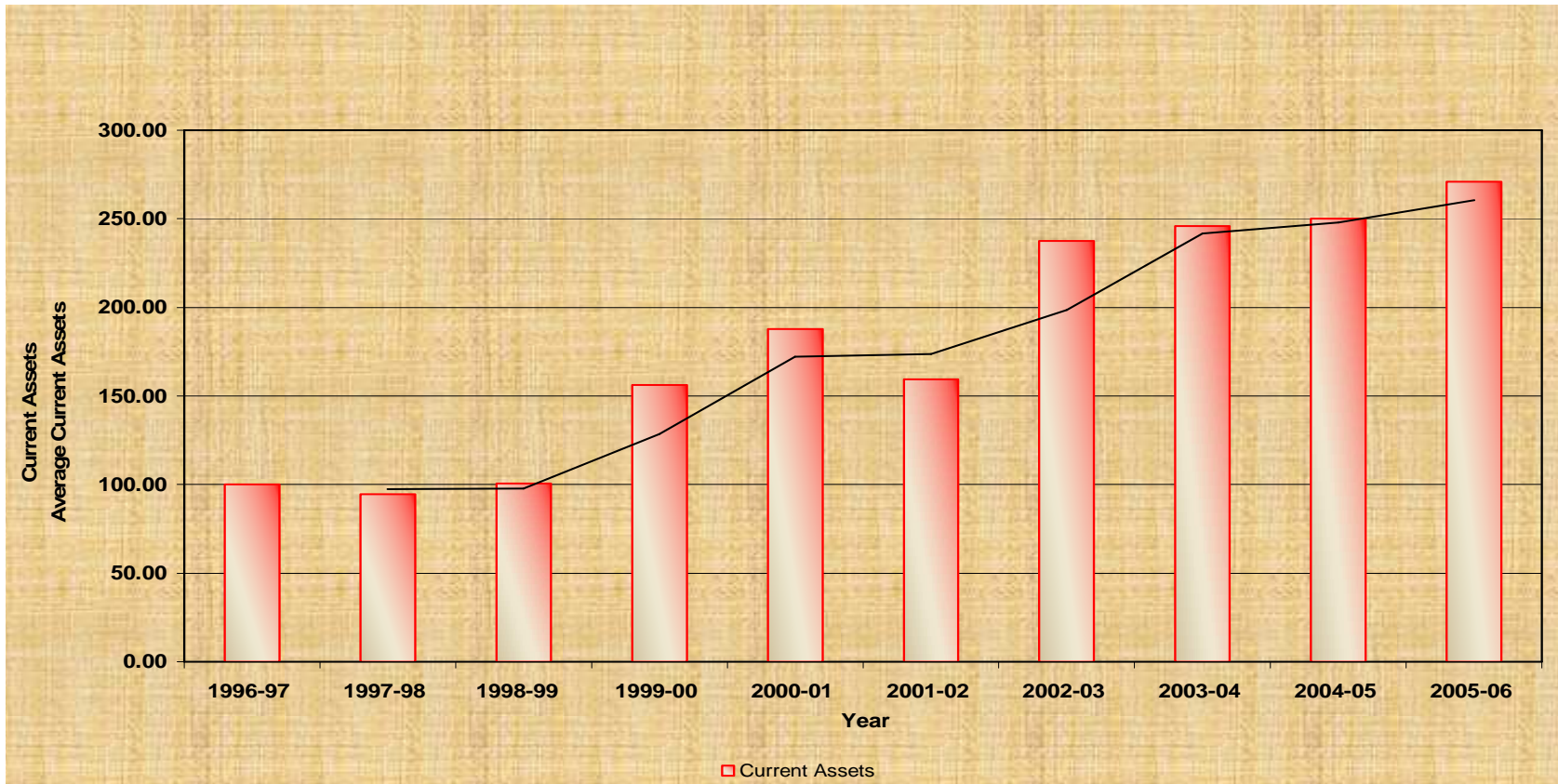
Sr. No.	Year	Stores & Inventories	Loans & Advances	Sundry Debtors	Cash on hand & at Bank	Current Assets	Trend
1	1996-97	3206.85	2772.65	6097.06	6097.17	18173.73	100.00
2	1997-98	3162.64	3123.76	6424.94	4506.41	17217.75	94.74
3	1998-99	2801.50	3561.50	7355.53	4587.83	18306.36	100.73
4	1999-00	3140.78	4974.60	8002.04	12270.22	28387.64	156.20
5	2000-01	2859.94	7191.54	19006.32	5102.46	34160.26	187.97
6	2001-02	2453.05	5285.94	18086.62	3154.23	28979.84	159.46
7	2002-03	1801.37	1733.60	37310.12	2324.75	43169.84	237.54
8	2003-04	1752.53	2017.35	37833.77	3096.64	44700.29	245.96
9	2004-05	1996.32	2080.23	36799.49	4551.09	45427.13	249.96
10	2005-06	2534.39	3920.73	36023.43	6782.38	49260.93	271.06

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

**Chart 5.1**  
**Relative Share of Current Assets in GSRTC**



**Chart 5.2**  
**Temporal Change in Current Assets of GSRTC**  
**From 1996-97 to 2005-06**



**Table 5.2**  
**Average Current Assets in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

No	Particular	Average Amount	Percentage
1	Stores and Inventories	2570.00	08
2	Loans and Advances	3666.20	11
3	Sundry Debtors	21293.93	65
4	Cash on Hand and at Bank	5247.32	16
<b>Total</b>		<b>32777.45</b>	<b>100</b>

Table 5.2 and Chart 5.1 reveal that current assets in GSRTC include four main components. From above data, it is apparent that stores and inventories (stock in hand, stores and loose parts, material adjustment ledger, work in progress etc.) have the minimum share of 8% in the current assets of the corporation, whereas, sundry debtors (income earned but not received, interest due but not received, debts from other corporations etc.) have the biggest contribution of around 65% to the current assets.

Thus, current assets of GSRTC mainly comprise of sundry debtors. As such, the trend of current assets is largely followed by the trend of sundry debtors in GSRTC.

Table 5.1 and Chart 5.2 reveal that current assets in GSRTC show an increasing trend except in the year 1997-98 and 2002-03. It ranged between 94.69 per cent in the year 1997-98 and 271.06 per cent in the year 2005-06 with an average trend of current assets to be 180.36.

Though, current assets in GSRTC show an increasing trend during the study period, it was lower than average trend in current assets up to the year

1999-00. Then after, it was higher than average current assets trend till the ending year of the study period.

As presented in Chart 5.3 a sudden hike in the current assets is encountered during the year 1999-00 (**39.68%** increase in the level of Loans and Advances and **167.45%** in Cash on Hand and at Bank in comparison to last year). The possible reasons behind these may be:

1. Excessive advanced payment of Income Tax around Rs. 2, 27,710 during the year.
2. An advanced payment made towards a number of purchase orders worth Rs. 3643.00 lacs placed during the year.
3. Security deposits (5% to 10% of amount of tender) received against limited and open tenders from various suppliers and manufacturers.
4. Cash received around Rs. 720.77 lacs from the sell of scrap vehicles and materials through a number of auctions done by central workshop, Ahmedabad.
5. An increase in the Equity Capital (around Rs. 2500 lacs), Loan (around Rs. 33244.53 lacs), Fund (around Rs. 5966.11 lacs), Provisions (around Rs. 5592.57 lacs) during the year.

As presented in Chart 5.2 a sudden hike in the current assets is also encountered during the year 2002-03 (**106.29%** increases in sundry debtors in comparison to last year). The possible reasons behind these may be:

1. During the year, provisions of reimbursement to be received from Government on account of loss due to Student Concession, un-economic routes, city services etc. worked out.
2. During the year the corporation has created casual contracts. However, casual contract kms. Operated decreased from lacs 67.14 to 65.03 lacs but the revenue increased by around Rs. 643.87 lacs due to the revised rates of casual contracts during the year.

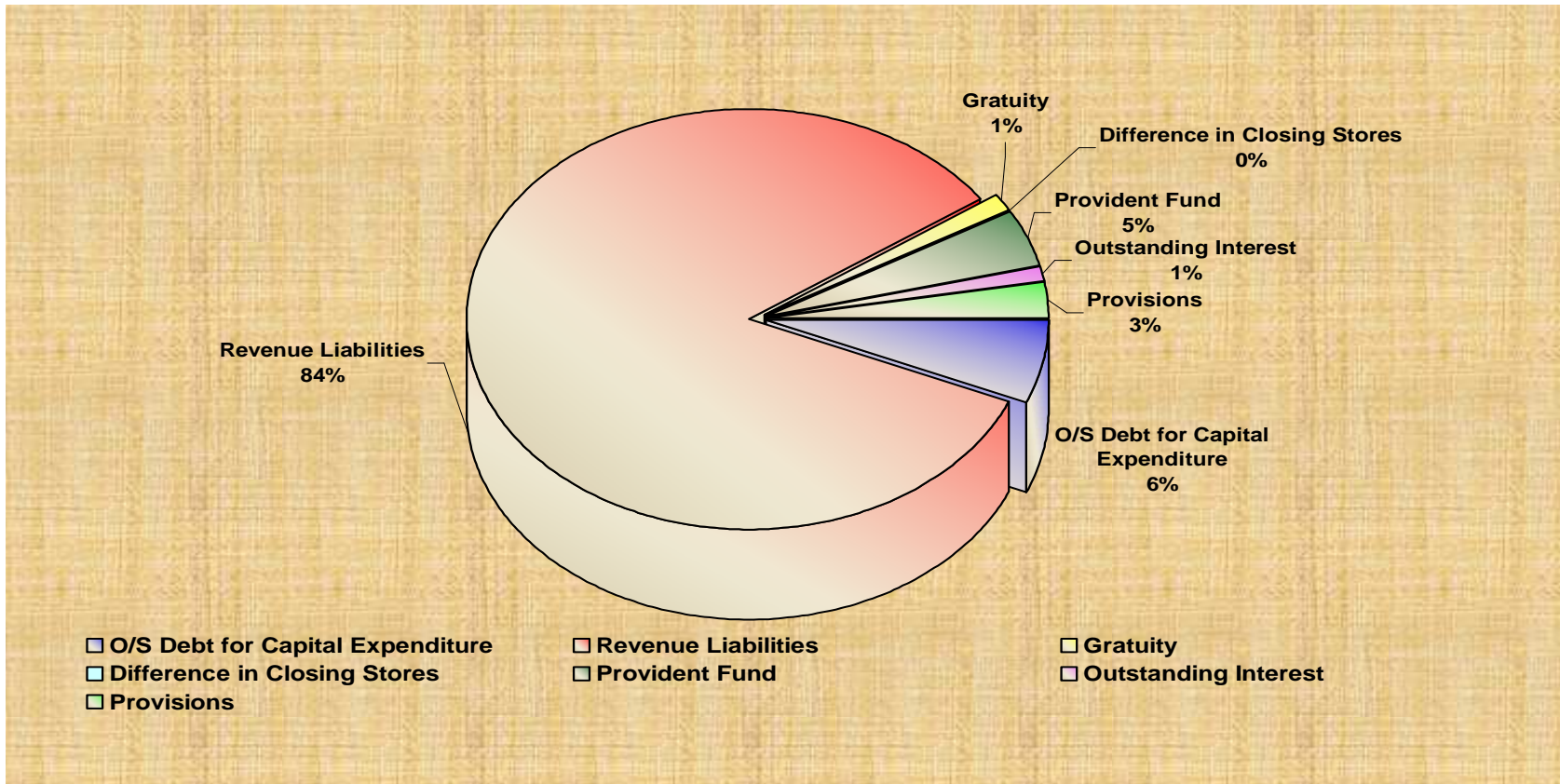
## 2. Current Liabilities Trend Analysis

**Table 5.3**  
**Trend of Current Liabilities (per cent) (Base Year 1996-97) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. No.	Year	O/S Debt for Capital Expenditure	Revenue Liabilities	Gratuity	Diff. In closing stores	Provident Fund	Outstanding Interest:	Provisions	Current Liability	Trend
1	1996-97	2519.05	24208.03	0.00	0.00	0.00	107.52	1651.68	28486.29	100.00
2	1997-98	3148.00	43132.21	0.00	56.81	0.00	201.50	2194.47	48733.00	171.08
3	1998-99	1807.11	52818.60	0.00	0.00	0.00	311.71	2554.79	57492.22	201.82
4	1999-00	1404.95	78488.14	9.48	0.00	0.00	423.36	3037.80	83363.73	292.65
5	2000-01	3543.96	106102.77	34.39	0.00	0.00	535.02	5405.75	115621.90	405.89
6	2001-02	1919.22	117768.47	0.63	0.00	308.01	646.67	3134.71	123777.72	434.52
7	2002-03	2684.10	27639.46	1873.51	40.41	3827.14	758.33	34.51	36857.45	129.39
8	2003-04	7553.50	24975.68	2466.53	30.47	1340.28	869.99	23.64	37260.09	130.80
9	2004-05	6860.79	26944.98	2831.17	0.00	5892.85	981.64	23.01	43534.44	152.83
10	2005-06	8472.94	30824.10	1954.14	0.00	17423.82	1093.24	57.99	59826.23	210.02

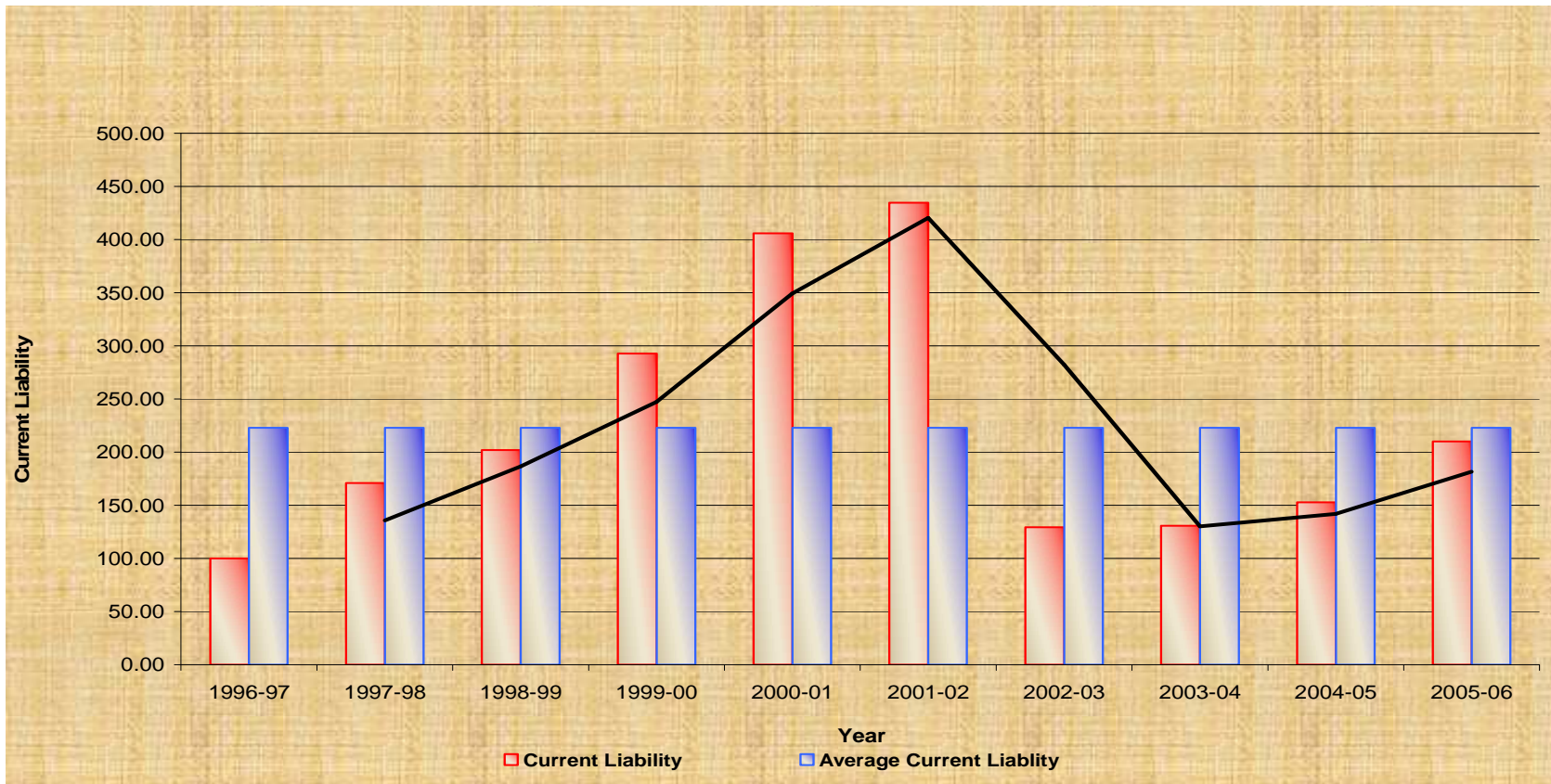
Source: Computed from the annual reports and accounts of the GSRTC, Ahmedabad

**Chart 5.3**  
**Relative Share of Current Liabilities in GSRTC**





**Chart 5.4**  
**Temporal Change in Current Liabilities of GSRTC**  
**From 1996-97 to 2005-06**



**Table 5.4**  
**Average Current Liabilities in GSRTC**  
**From 1996-97 to 2005-06 (Rs in lacs)**

No	Particular	Avg. Amount	Percentage
1	O/S Debt for Capital Expenditure	3991.36	06
2	Revenue Liabilities	53290.24	84
3	Gratuity	916.98	1
4	Difference in Closing Stores	12.77	0
5	Provident Fund	2879.21	5
6	Outstanding Interest	592.90	1
7	Provisions	1811.84	3
<b>Total</b>		<b>63495.31</b>	<b>100</b>

Table 5.4 and Chart 5.3 reveal that current liabilities in GSRTC include seven main components. From the above data, it is apparent that difference in closing stores is almost negligible in the current liabilities of the corporation, whereas, revenue liability has the biggest contribution of around 84% to the current liabilities. Thus, current liability of GSRTC mainly comprises of revenue liability. As such, the trend of current Liabilities is largely followed by the trend of revenue liabilities in GSRTC.

Table 5.3 and Chart 5.4 reveal that current liabilities in GSRTC show an increasing trend, except in the year 2002-03. It ranged between 100 per cent in the year 1996-97 and 434.52 per cent in the year 2001-02 with an average trend of current liabilities to be 222.90. Though, current liabilities in GSRTC show an increasing trend during the study period, it was lower than average trend in current liabilities except in the year 1999-00 to 2001-02.

As presented in Chart 5.4 current liabilities show a huge fall in the year 2002-03 because during the year corporation has decreased current liabilities, (**76.51%** decrease in the level of **revenue liabilities** around Rs. 90129.01 lacs as well as **98.90%** decrease in the **provisions** around Rs. 3100.20 lacs, in comparison to last year, this decrease may be due to decrease in staff cost & super annuation (as decrease in staff), taxes, depreciation, traffic, stationary, lease rent, uniform, electric power, clothing interest etc.

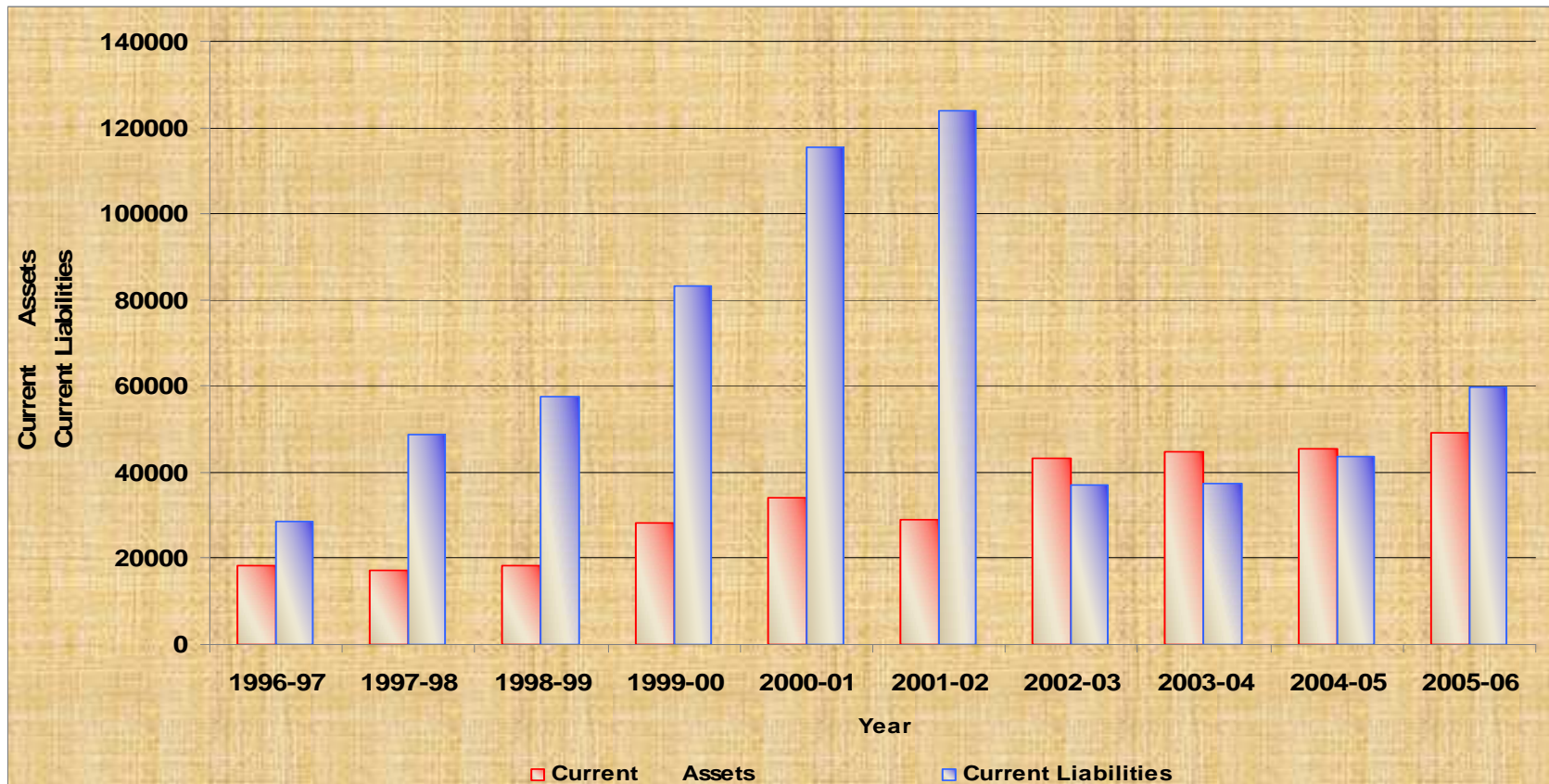
## 3. Working Capital Trend Analysis

**Table 5.5**  
**Trend of Working Capital (per cent) (Base Year 1996-97) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. No.	Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Adding Constant Value 94797.89	Working Capital Trend
1	1996-97	18173.74	28486.29	-10312.55	84485.34	100.00
2	1997-98	17208.37	48733.00	-31524.63	63273.26	74.89
3	1998-99	18306.37	57492.22	-39185.85	55612.04	65.82
4	1999-00	28387.64	83363.73	-54976.09	39821.80	47.13
5	2000-01	34160.26	115621.90	-81461.64	13336.25	15.79
6	2001-02	28979.83	123777.72	-94797.89	0.00	0.00
7	2002-03	43169.83	36857.45	6312.38	101110.27	119.68
8	2003-04	44700.29	37260.09	7440.20	102238.09	121.01
9	2004-05	45427.13	43534.44	1892.69	96690.58	114.45
10	2005-06	49261.00	59826.23	-10565.23	84232.66	99.70
<b>Average</b>		<b>32777.45</b>	<b>63495.31</b>	<b>-30717.86</b>	<b>94213.17</b>	<b>75.85</b>

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

**Chart 5.5**  
**Current Assets and Current Liabilities in GSRTC**  
**From 1996-97 to 2005-06**



**Chart 5.6**  
**Temporal Change in Working Capital of GSRTC**  
**From 1996-97 to 2005-06**

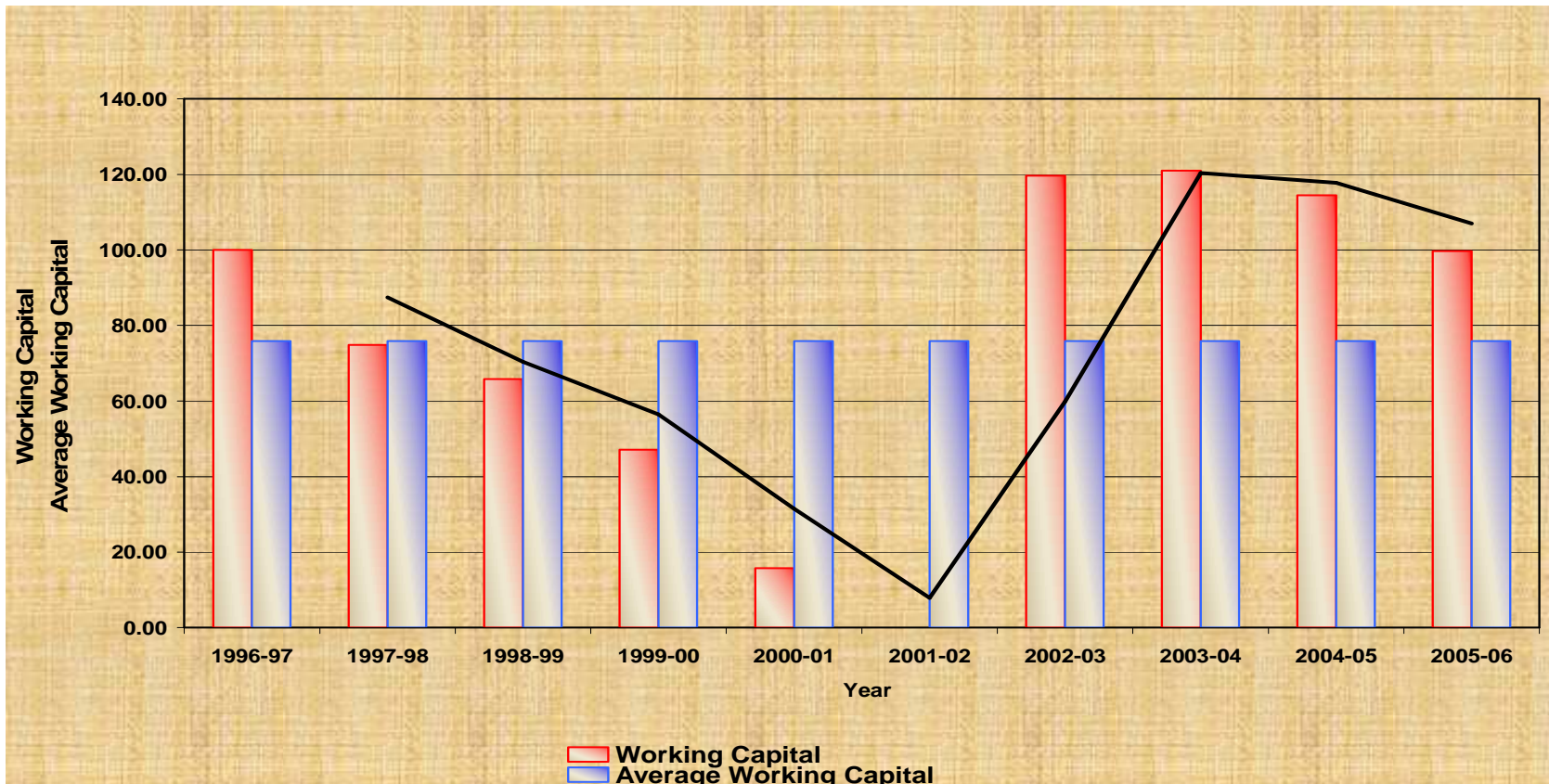


Chart 5.5 reveals that, in GSRTC, current liabilities are greater than current assets during the whole study period except in the year 2002-03, 2003-04 and 2004-05. From the data presented in Table 5.5, it is apparent that difference between current liabilities and current assets is minimum around **18.35%** (45427.13 – 43534.44) in the year 2004-05, whereas, highest around **919.25%** (28979.83 – 123777.72) in 2001-02.

Working capital is negative in major years of the study period except in the year 2002-03, 2003-04 and 2004-05. Thus, current Liability of GSRTC is normally higher than its current Assets.

Table 5.5 and Chart 5.6 indicate that working capital in GSRTC show decreasing trend except in the years 2002-03 and 2003-04. It ranged between –919.25 per cent in the year 2001-02 and 72.15 per cent in the year 2003-04 with an average trend of working capital -297.87.

Though, working capital in GSRTC show decreasing trend during the study period, it was higher than average trend except in the year 2002-03, 2003-04 and 2004-05.

As a whole, it may be concluded that **working capital trend is positive from the year 2002-03**, as current assets are higher than current liabilities from that year.

## **B. EFFICIENCY ANALYSIS OF GSRTC**

Efficiency analysis examines how efficiently different working capital components are used in an enterprise. Working capital may have various components. Efficient turnover of these components results into higher efficiency which in turn results into higher profitability. In GSRTC, to measure efficiency in the utilization of working capital following ratios have been calculated:

**1. Working Capital Turnover Ratio**

**2. Debtors Turnover Ratio**

**3. Creditors Turnover Ratio**

**1. Working Capital Turnover Ratio**

The working capital is required for the smooth running of day to day operations of the business. Hence, it has utmost importance in analysing business operation both internally and externally. Inadequacy or mismanagement of working capital leads towards business failure.

The working capital of a company is the life blood which flows through the veins and arteries of the structure. as like the lacking or slow down of blood results into a death, the lacking or slow down of working capital results into a death of financial body (brain - management and muscles – personnel) of a business and becomes just junk.

The Working Capital Turnover Ratio is one of the best measures to analyse the efficiency of a firm in managing its working capital. It is figured as shown below:

$$\text{Working Capital Turnover Ratio} = \frac{\text{Net Sales (Net Revenue)}}{\text{Working Capital}}$$

As GSRTC is a service sector, net sales is replaced by net revenue. Moreover, in the present study, working capital is taken as the excess of current assets over current liabilities.

The faster the working capital turnover, the lower is the total investment and is greater the profit. However, a very high turnover of working capital may, in some cases, denote deficiency of working funds for the given volume of business, which ultimately adversely affects the profitability.

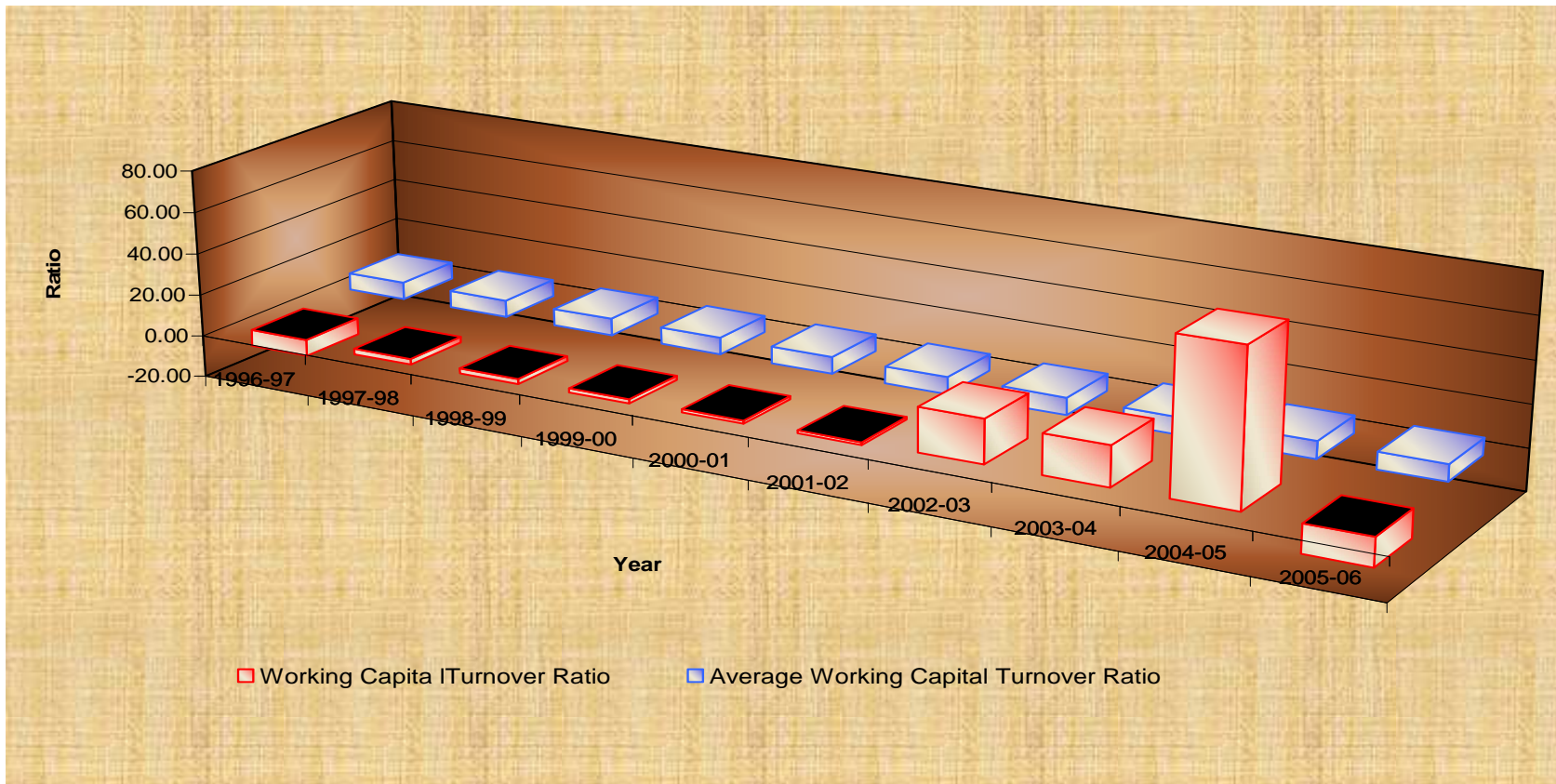
**Table 5.6**  
**Working Capital Turnover Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Net Revenue	Working Capital	Ratio
1	1996-97	80868.41	-10312.55	-7.84 : 1
2	1997-98	86208.27	-31524.63	-2.73 : 1
3	1998-99	94939.69	-39185.85	-2.42 : 1
4	1999-00	107233.27	-54976.09	-1.95 : 1
5	2000-01	124854.28	-81461.64	-1.53 : 1
6	2001-02	122666.38	-94797.89	-1.29 : 1
7	2002-03	130824.01	6312.38	20.72 : 1
8	2003-04	141540.43	7440.20	19.02 : 1
9	2004-05	137070.71	1892.69	72.42 : 1
10	2005-06	143016.76	-10565.23	-13.54 : 1
<b>Average</b>		116922.22	-30717.86	<b>8.09</b>
<b>S D</b>		23099.90	36598.77	<b>25.05</b>
<b>C V %</b>		19.76	-119.14	<b>309.83</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>5.61</b>

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



**Chart 5.7**  
**Working Capital Turnover Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Working Capital Turnover Ratio of GSRTC is presented in Table No. 5.6. In GSRTC, the ratio shows a fluctuating trend. It ranged between 72.46 times in the year 2004-2005 and -13.54 in the year 2005-2006 with an average ratio of 8.09 times.

As presented in the Chart 5.7 the ratio shows an increasing trend except in the year 2003-04 and 2005-06. Moreover, it was below the average ratio during the whole study period excluding in the year from 2002-03 to 2004-05

The coefficient variation in the ratio is 309.83, which indicates that there is very high dispersion in the ratio of GSRTC over the period.

It can also be concluded that over 10 years of study period from 1996-97 to 2005-06, the ratio has risen from -7.84 to 13.54. Its compound annual growth rate is 5.61%.

As a whole, from the Working Capital Turnover Ratio, it may be concluded that the working capital utilization is satisfactory during the years 2002-03 to 2004-05. However, it was very poor in the rest of the years.

## **2. Debtors Turnover Ratio**

The Debtors Turnover ratio is also termed as Debtors speed ratio. It indicates the quickness in realization of sundry debtors. The main object of this ratio is to know how much credit time is allowed and capital blocked in debtors. Debtors' turnover ratio also shows the effectiveness in collection of debts due. Generally, higher ratio is the indication of efficient management of liquidity. However, a firm should maintain a balance between the debtors outstanding and the amount of interest incurred on the blocked funds. It is figured as shown below:

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Sales (Net Revenue)}}{\text{Debtors}}$$

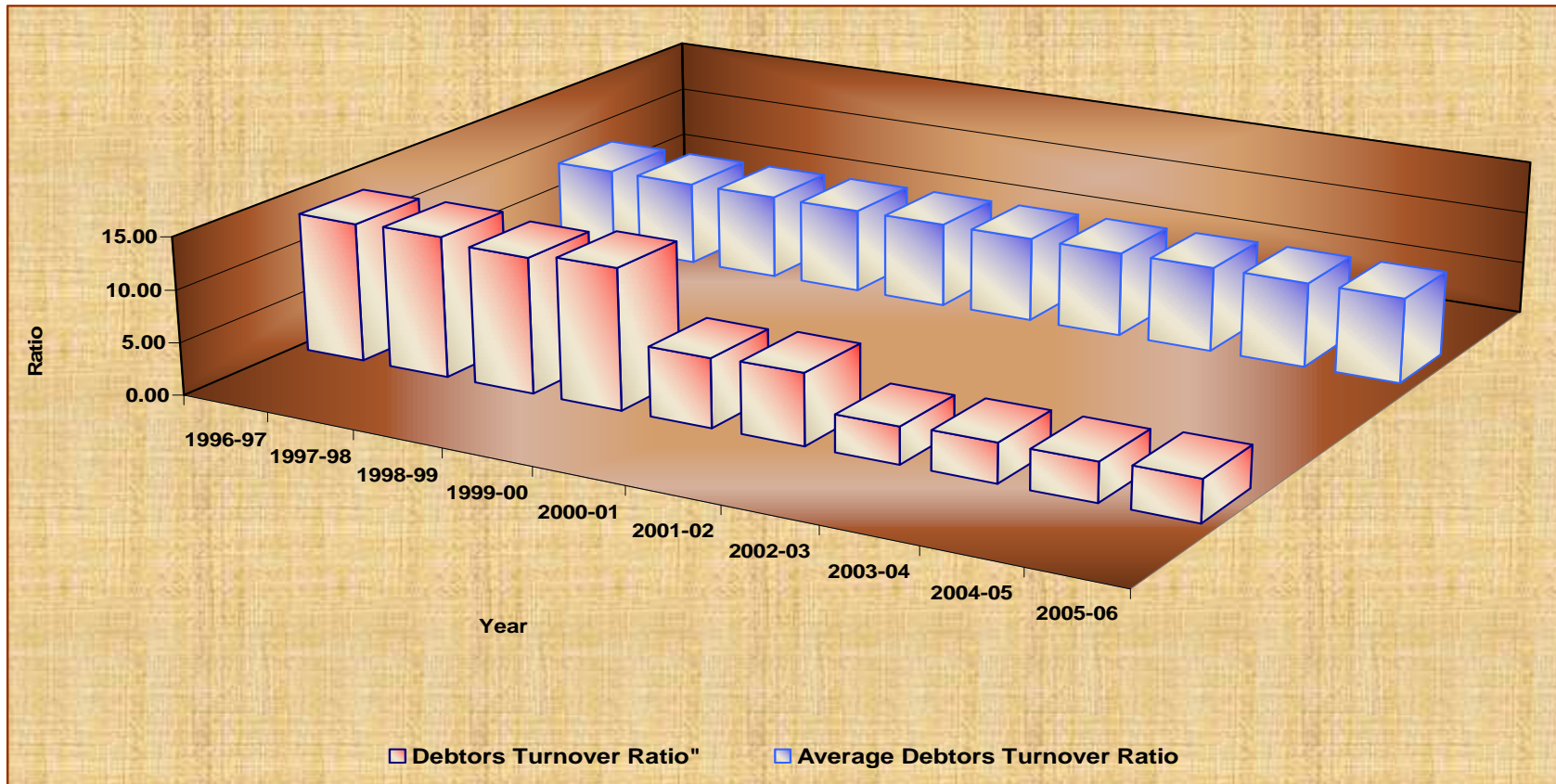
As in working capital turnover ratio, net sales are replaced by net revenue in debtors turnover ratio also.

**Table 5.7**  
**Debtors Turnover Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Net Revenue</b>	<b>Debtors</b>	<b>Ratio</b>
1	1996-97	80868.41	6097.06	13.26 : 1
2	1997-98	86208.27	6424.94	13.42 : 1
3	1998-99	94939.69	7355.53	12.91 : 1
4	1999-00	107233.27	8002.04	13.40 : 1
5	2000-01	124854.28	19006.32	6.57 : 1
6	2001-02	122666.38	18086.62	6.78 : 1
7	2002-03	130824.01	37310.12	3.51 : 1
8	2003-04	141540.43	37833.77	3.74 : 1
9	2004-05	137070.71	36799.49	3.72 : 1
10	2005-06	143016.76	36023.43	3.97 : 1
<b>Average</b>		116922.22	21293.93	<b>8.13</b>
<b>S D</b>		23099.90	14243.79	<b>4.55</b>
<b>C V %</b>		19.76	66.89	<b>56.01</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>-11.36</b>

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

**Chart 5.8**  
**Debtors Turnover Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The coefficient variation in the ratio is 56.01, which indicates that there is 56.01 per cent dispersion in the ratio of GSRTC over the period.

It can be seen that the Debtors Turnover Ratio of GSRTC has been presented in Table No. 5.7. In GSRTC, the ratio shows a fluctuating trend. It ranged between 5.67 times in the year 2003-04 and 1.04 in the year 2001-2002 with an average ratio of 3.08 times.

As presented in the Chart 5.8 though the ratio was decreasing, it shows a fluctuating trend during the whole study period. Moreover, it was too above the average ratio in the initial four years. Then after, it was below the average ratio till the ending year.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the ratio has fallen from 13.26 to 3.97. Hence, its compound annual growth rate is negative 11.36%.

As a whole, from the Debtors Turnover Ratio, it may be concluded that during the initial years the GSRTC was efficiently managing its liquidity and revenue. However, it continuously becomes worse over the time.

### **3. Creditors Turnover Ratio**

The Creditors Turnover ratio is also termed as Debtors speed ratio. It indicates the quickness in realization of sundry debtors. The main object of this ratio is to know how much credit time received by the firm from its trade creditors. Creditors' turnover ratio shows the breathing time received by the firm in terms of payment of credit purchase. Hence, the effectiveness lies in whether the firm is enjoying the actual credit period promised by suppliers. It is calculated by dividing the amount of purchases by creditors. Here it has been assumed that all of the purchases have been made as credit purchases. It is figured as shown below:

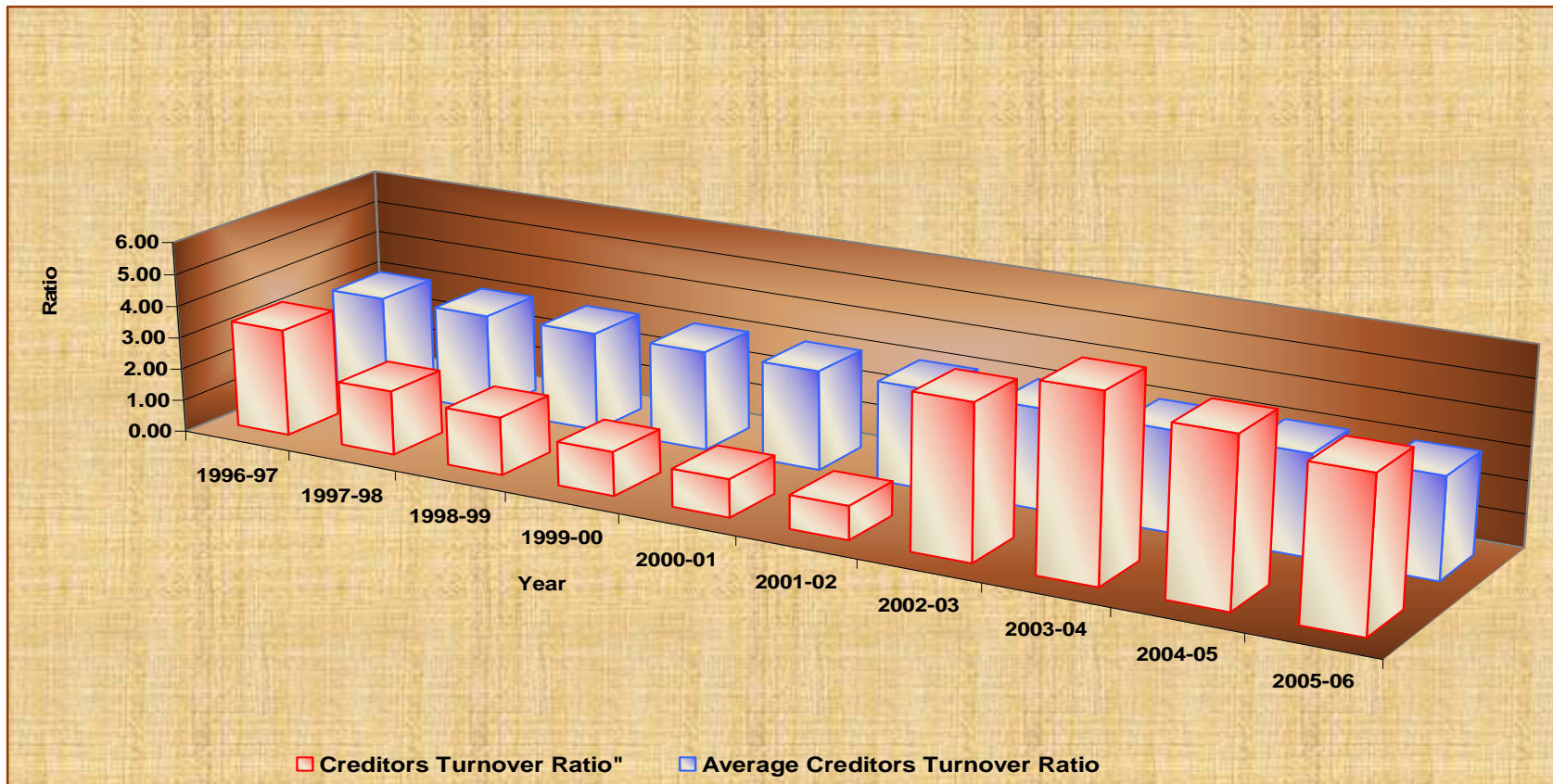
$$\text{Creditors Turnover Ratio} = \frac{\text{Net Sales (Net Revenue)}}{\text{Creditors}}$$

**Table 5.8**  
**Creditors Turnover Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Net Revenue	Creditors	Ratio
1	1996-97	80868.41	24208.03	3.34 :1
2	1997-98	86208.27	43132.21	2.00 : 1
3	1998-99	94939.69	52818.60	1.80 : 1
4	1999-00	107233.27	78488.14	1.37 : 1
5	2000-01	124854.28	106102.77	1.18 : 1
6	2001-02	122666.38	117768.47	1.04 : 1
7	2002-03	130824.01	27639.46	4.73 : 1
8	2003-04	141540.43	24975.68	5.67 :1
9	2004-05	137070.71	26944.98	5.09 : 1
10	2005-06	143016.76	30824.10	4.64 : 1
<b>Average</b>		116922.22	53290.24	<b>3.08</b>
<b>S D</b>		23099.90	35259.67	<b>1.81</b>
<b>C V %</b>		19.76	66.17	<b>58.67</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>3.34</b>

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

**Chart 5.9**  
**Creditors Turnover Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Creditors Turnover Ratio of GSRTC has been presented in Table No. 5.8. In GSRTC, the ratio shows decreasing trend. It ranged between 5.67 times in the year 2003-04 and 1.04 in the year 2001-2002 with an average ratio of 3.08 times.

As presented in the Chart 5.9 the ratio shows decreasing trend during the whole study period except in the year 2002-03 and 2003-04. Moreover, it was above and too above the average ratio in the first year and last four years respectively. It was below the average ratio in the rest of the years.

The coefficient variation in the ratio is 58.67, which indicates that there is 58.67 per cent dispersion in the 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 ratio has risen from 3.34 to 4.64. Hence, its compound annual growth rate is 3.34%.

As a whole, from the Creditors Turnover Ratio, it may be concluded that during the initial years the creditors' turnover was poor. However it was improving from the year 2002-03 till the ending year.

### **C. AN ANALYSIS OF LIQUIDITY POSITION OF GSRTC**

Liquidity is a prerequisite for the very survival of a firm. The short-term creditors of the firm are interested in the short-term solvency or liquidity of a firm. Liquidity means the ability of an asset to be converted into cash without a significant price concession. Liquidity has two dimensions: the time required for converting the asset into cash and the certainty of the price realized.

The liquidity ratios measure the ability of a firm to meet its short-term obligations and reflect the short-term financial strength/solvency of a firm. It is very important for a firm to meet its current obligations as they become due. Though, liquidity analysis is better understood by cash budget and cash flow



and fund flow statement, liquidity ratios give quick measures of liquidity. They do so by comparing cash and current assets to current obligations. From these ratios, much insight can be obtained into the present solvency of the firm and the firm's ability to remain solvent in the event of adversity.

Liquidity implies that funds are idle or they earn very little. A proper balance should be maintained between two contradictory requirements liquidity and prodigality. A firm suffers from lack of liquidity cannot meet its obligations in time, which results in poor creditworthiness, lack of creditor's confidence, closure of company due to legal tangles. If a firm keeps higher level of liquidity, the firms fund will be unnecessarily tied up in current assets, which earns nothing.

Therefore, a firm should maintain proper balance between lack of liquidity and high liquidity. For analyzing liquidity position of GSRTC, following ratios have been computed:

- Current Ratio
- Quick Ratio
- Cash Ratio / Super Quick Ratio
- Interval Measure Ratio / Defensive Interval Ratio
- Cash flow Coverage Ratio

#### **4. Current Ratio**

The Current Ratio is one of the best known measures of financial strength. It is figured as shown below:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The main question this ratio addresses is: "**Does the business have enough current assets to meet the payment schedule of its current debts with a**

**margin of safety for possible losses in current assets, such as inventory shrinkage or collectable accounts?"**

Thus, current ratio measures firm's short-term solvency. It indicates firm's ability to cover its current liabilities with its current assets. In a more specific manner, it indicates the availability of current assets in rupees for every one rupee of current liability. As such, higher the current ratio, the larger is the amount of rupees available per rupee of current liability, the more is the firm's ability to meet current obligations and greater is the safety of funds of short-term creditors. Thus, current ratio measures margin of safety to the short-term creditors.

The current ratio is calculated by dividing current assets by current liabilities. Current assets include cash and those assets, which can be converted into cash within one year such as marketable securities, debtors, inventories, and prepaid expenses. Current liabilities include all obligations those are matured within a year such as creditors, bills payable, accrued expenses, short-term bank loan, income tax liability and long-term debt maturing in the current year.

A current ratio of **2 : 1** or more is considered satisfactory. But, whether or not a specific ratio is satisfactory depends on the nature of the business and the characteristics of its current assets and liabilities. The minimum acceptable current ratio is obviously 1:1, but that relationship is usually playing it too close for comfort.

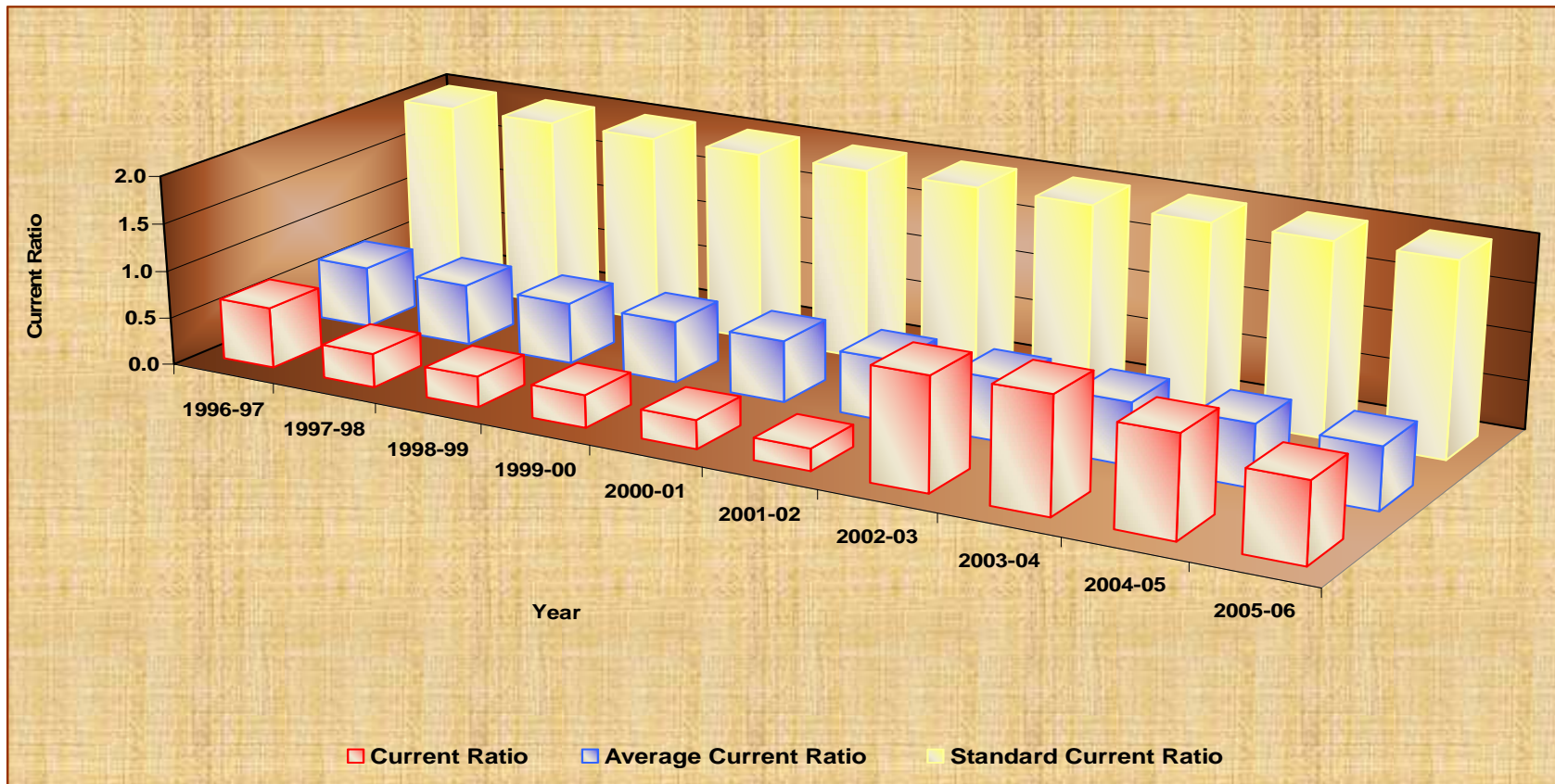
However, it may happen that the firm having higher current ratio may be struggling to meet its obligations and in reverse firms having lower current ratio may be doing well. This is because current ratio only measures total current assets and total current liabilities and does not measure qualities of current assets and current liabilities. So we cannot solely depend upon the current ratio. But at the same time we cannot ignore it because it is the crude-and-quick measure of the firm's liquidity.

**Table 5.9**  
**Current Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Current Assets	Current Liability	Ratio
1	1996-97	18173.74	28486.29	0.64 : 1
2	1997-98	17208.37	48733.00	0.35 : 1
3	1998-99	18306.37	57492.22	0.32 : 1
4	1999-00	28387.64	83363.73	0.34 : 1
5	2000-01	34160.26	115621.90	0.30 : 1
6	2001-02	28979.83	123777.72	0.23 : 1
7	2002-03	43169.83	36857.45	1.17 : 1
8	2003-04	44700.29	37260.09	1.20 : 1
9	2004-05	45427.13	43534.44	1.04 : 1
10	2005-06	49261.00	59826.23	0.82 : 1
<b>Average</b>		32777.45	63495.31	<b>0.64</b>
<b>S D</b>		12394.26	33392.05	<b>0.39</b>
<b>C V %</b>		37.81	52.59	<b>60.54</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>2.51</b>

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

**Chart 5.10**  
**Current Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Current Ratio of GSRTC has been presented in the Table No. 5.9. In GSRTC, the Current Ratio shows fluctuating trend. It ranged between 0.23 times in the year 2001-2002 and 1.20 times in the year 2003-2004 with an average ratio of 0.64 times.

The ratio shows decrease trend during the whole study period, except in the year 2002-2003 and 2003-2004. Moreover, the GSRTC had not maintained the standard ratio of **2:1** times during the whole study period.

Current ratio as presented in Chart 5.10 was below the average current ratio up to the year 2001-2002. From the year 2002-03, it was above the average current ratio till the end year. However, it was too below from standard current ratio during whole study period.

As shown in Chart 5.10 the current ratio show a huge jump in the year 2002-03 due to two fold reasons, current assets increased by **48.97%** and current liabilities decreased by **70.22%**. The possible reasons are discussed here before while explaining the trend of current assets and current liabilities.

### **Testing of Hypothesis**

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

**Null Hypothesis:** There is no significance difference between the current ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the current ratio of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

**Level of Significance:** 5 percent

**Critical Value:**  $\pm 2.262$

**Degree of Freedom:** 9

After making necessary calculation from the data given in Table 5.9, the t-test is presented in the following table.

**Table 5.10**  
**t - test**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
0.64	0.39	60.54	9	-2.938	$\pm 2.262$

Table 5.10 indicates that the observed value of t is  $-2.938$ , which is in the rejection region, as such  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, there is significant difference in the current ratio of GSRTC over the period.

The coefficient variation in current ratio is 60.54, which indicates that there is 60.54 per cent dispersion in the current 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 current ratio has risen from 0.64 to 0.82. Its compound annual growth rate is 2.51%.

**As a whole, from the current ratio, it may be concluded that:**

- The GSRTC has very few current assets against current liabilities (average current assets of Rs. 0.64 against current liabilities of Rs. 1.)
- The GSRTC does not have enough current assets to meet the payment schedule of its current debts.
- The margin of safety to the short-term creditors is lower around 39%, this situation is not advisable from the viewpoint of short-term creditors.
- The liquidity position of GSRTC is not Sound.
- The liquidity position of GSRTC is improving from the year 2002-03.
- The compound annual growth rate is 2.51%.

### 1. Acid-Test (Quick) Ratio

The Quick Ratio is sometimes called the "acid-test" ratio and is one of the best measures of liquidity. It is figured as shown below:

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

The quick ratio measures firm's current financial condition. It indicates a firm's ability to meet its current liabilities with its most liquid (quick) assets. The quick ratio is calculated by dividing quick assets (current assets – inventories) by current liabilities.

Quick assets are those current assets which can be converted into cash immediately or at a short notice without diminution of value such as cash, marketable securities, debtors, and bills receivables excluding inventories. This is so, because it requires some time for converting into cash, addedly their values tend to fluctuate.

Current liabilities include all obligations, which mature within a year such as creditors, bills payable, accrued expenses, short-term bank loan, income tax liability and long-term debt excluding bank overdraft, all of which quickly mature in the current year.

This ratio serves as a supplement to the current ratio in analyzing liquidity. This ratio is same as current ratio except it excludes inventories – presumably the least liquid portion of current assets. A quick ratio of **1 : 1** is considered as satisfactory.

The Quick Ratio is a much more exact measure than the Current Ratio. By excluding inventories, it concentrates on the really liquid assets, with value that is fairly certain. It helps answer the question: **"If all sales revenues should disappear, could the business meet its current obligations with the readily convertible 'quick' funds on hand?"**

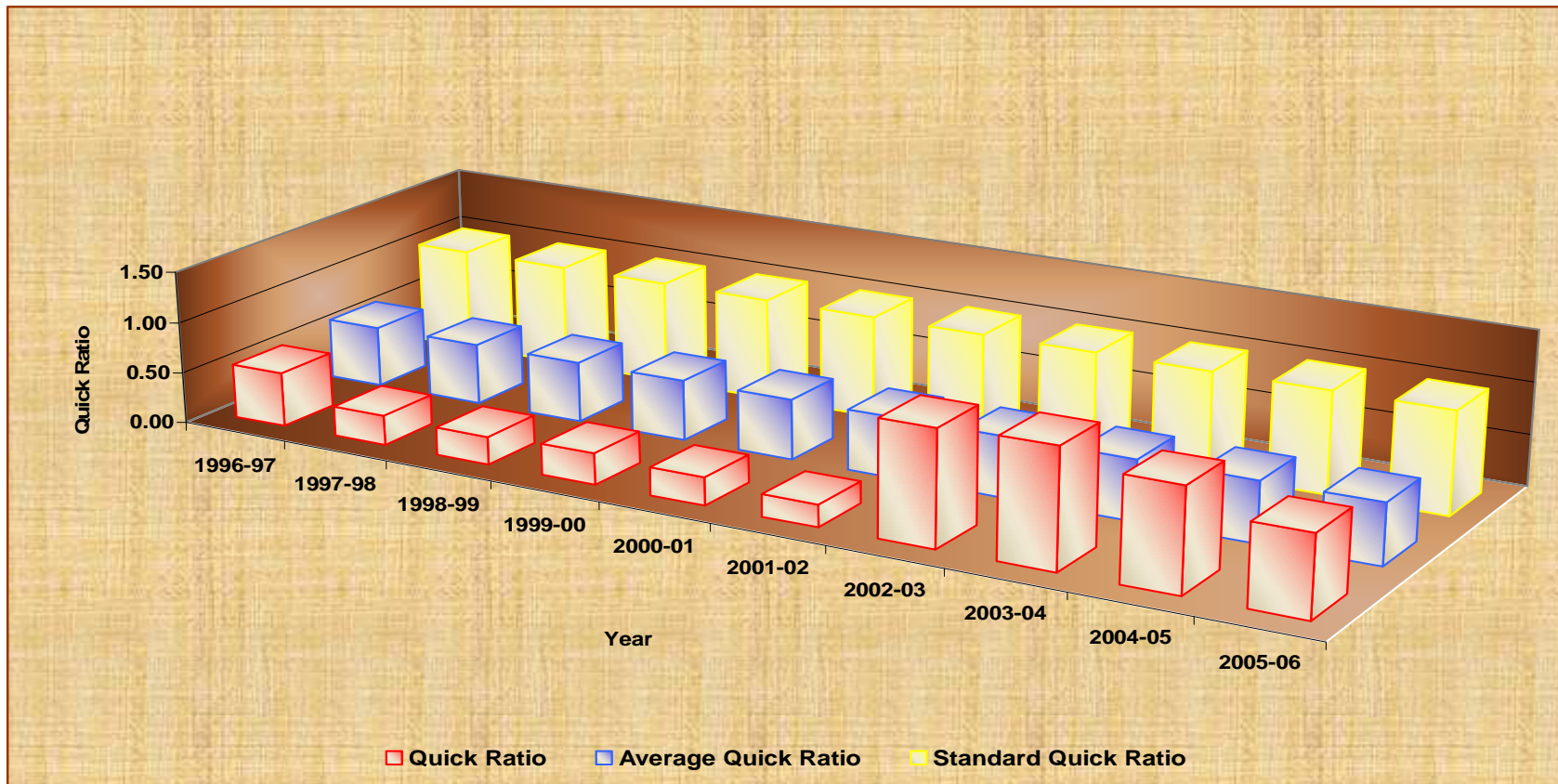
**Table 5.11**  
**Quick Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Current Assets	Inventory	Current Liabilities	Ratio
1	1996-97	18173.74	3118.25	28486.29	0.53 :1
2	1997-98	17208.37	3044.70	48733.00	0.29 : 1
3	1998-99	18306.37	2732.96	57492.22	0.27 : 1
4	1999-00	28387.64	3106.99	83363.73	0.30 : 1
5	2000-01	34160.26	2824.36	115621.90	0.27 : 1
6	2001-02	28979.83	2387.12	123777.72	0.21 : 1
7	2002-03	43169.83	1748.11	36857.45	1.12 : 1
8	2003-04	44700.29	1717.24	37260.09	1.15 : 1
9	2004-05	45427.13	1965.00	43534.44	1.00 : 1
10	2005-06	49261.00	2460.11	59826.23	0.78 : 1
<b>Average</b>		32777.45	2510.48	63495.31	<b>0.59</b>
<b>S D</b>		12394.26	546.13	33392.05	<b>0.38</b>
<b>C V %</b>		0.42	0.21	0.66	<b>64.65</b>
<b>Compound Annual Growth Rate %</b>		10.49	-2.34	7.70	<b>3.94</b>

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



Chart 5.11  
Quick Ratio in GSRTC  
From 1996-97 to 2005-06



Quick ratio as presented in Table 5.11 the Quick Ratio also shows fluctuating trend. It ranged between 0.21 times in the year 2001-2002 and 1.15 in the year 2003-2004 with an average ratio of 0.59 times.

The Ratio shows decreasing trend except in the year 1999-00, 2002-03 and 2003-04. Moreover, the GSRTC had maintained more than the standard ratio of **1:1** in the year 2002-2003, 2003-04 and equal to the standard Ratio in the year 2004-05.

Quick ratio as presented in the Chart 5.11 was below the average quick ratio up to the year 2001-02. From the year 2002-03, it was above the average quick ratio. However, it was too below from standard quick ratio during whole study period except in the year 2002-03 to 2004-05.

As shown in Chart 5.11 the quick ratio show a huge jump in the year 2002-03 due to two fold reasons: first, current assets increased by **48.97%** and second, current liabilities decreased by **70.22%**. The possible reasons are discussed in previous section while explaining the trend of current assets and current liabilities.

### **Testing of Hypothesis**

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

**Null Hypothesis:** There is no significance difference between the quick ratios of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative Hypothesis:** There is significance difference between the quick ratios of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 5.11 the t-test is presented in the following table”

**Table 5.12****t - test**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
0.59	0.38	64.65	9	-3.347	±2.262

Table 5.12 indicates that the observed value of t is -3.347, which is in the rejection region, as such  $H_0$  is not accepted at 5 per cent level of significance and we can conclude that there is significant difference in the quick ratio of GSRTC over the period.

The coefficient variation in quick ratio is 64.65, which indicates that there is 60.54 per cent dispersion in the quick 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 quick ratio has risen from 0.53 to 0.78. Its compound annual growth rate is 3.94%.

**As a whole, from the Quick ratio, it may be concluded that:**

- The GSRTC has very few Quick assets against current liabilities (average quick assets of Rs. 0.59 against current liabilities of Rs. 1).
- The GSRTC is not able to meet its current obligations with the readily convertible 'quick' assets.
- The short-term solvency of GSRTC is poor.

**2. Cash Ratio / Super Quick Ratio:**

The cash ratio measures firm's current financial condition. It indicates a firm's ability to meet its current liabilities with cash and those assets, which are equivalent to cash such as trade investment or marketable securities. This ratio is the variation of quick ratio. This ratio is most vigorous measure of liquidity position. However, it is not widely used in practice. The cash ratio is calculated by dividing (cash + marketable securities) by current liabilities. It is figured as shown below:

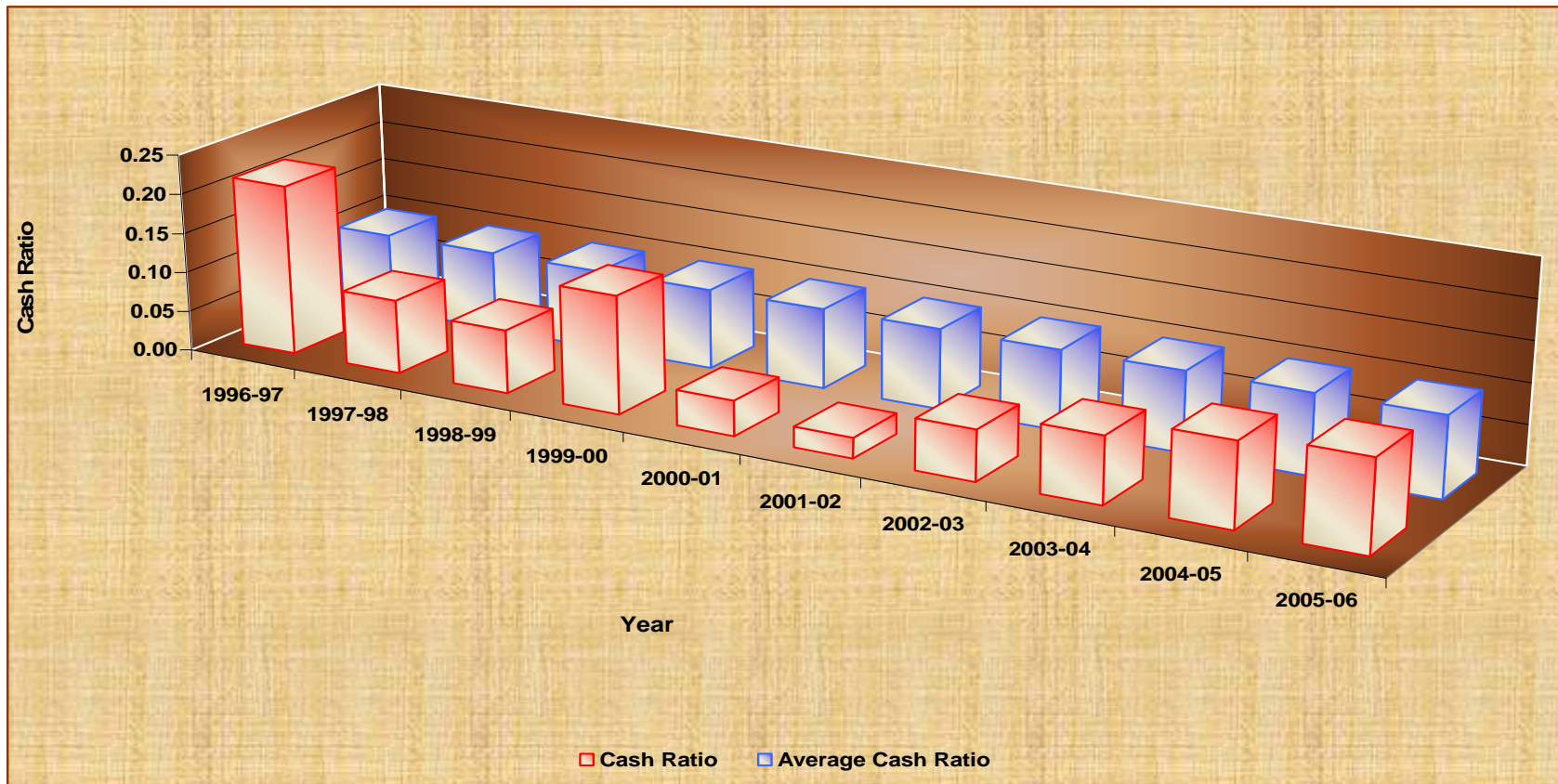
$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

**Table 5.13**  
**Cash Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr.no.</b>	<b>Year</b>	<b>Cash &amp; Marketable Securities</b>	<b>Current Liabilities</b>	<b>Ratio</b>
1	1996-97	6102.29	28486.29	0.21 : 1
2	1997-98	4511.53	48733.00	0.09 : 1
3	1998-99	4592.95	57492.22	0.08 : 1
4	1999-00	12270.34	83363.73	0.15 : 1
5	2000-01	5102.57	115621.90	0.04 : 1
6	2001-02	3154.23	123777.72	0.03 : 1
7	2002-03	2324.75	36857.45	0.06 : 1
8	2003-04	3096.64	37260.09	0.08 : 1
9	2004-05	4551.09	43534.44	0.10 : 1
10	2005-06	6782.38	59826.23	<b>0.11</b>
<b>Average</b>		5248.88	63495.31	<b>0.10</b>
<b>S D</b>		2817.27	33392.05	<b>0.05</b>
<b>CV %</b>		53.67	52.59	<b>50.00</b>
<b>Compound Annual Growth Rate %</b>		1.06	7.70	<b>-6.26</b>

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

**Chart 5.12**  
**Cash Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Cash Ratio of GSRTC has been presented in the table no 5.13 and Chart 5.12. In GSRTC the Cash Ratio ranged between 0.03 times in the year 2001-2002 and 0.21 in the year 1996-1997 with an average ratio of 0.10 times.

The Ratio shows fluctuating trend during the study period. It shows decreasing trend up to the year 2001-02 except in the year 1999-00, then after it shows increasing trend from the year 2002-03 onwards.

Cash ratio as presented in the chart 5.12 was below the average cash ratio during whole study period except in the year 1996-97, 1999-00 and 2005-06. It was near to the average cash ratio in the year 1997-98 and 2004-05. However, it has been continuously increasing from the year 20001-02 till the end year.

As shown in Chart 5.12, the inverse relationship of cash and current liabilities examined more inverse changes during the year 1997-98, 1999-00 and 2000-01.

1. The cash ratio show a huge fall in the year 1997-98 and 2000-01. The possible reasons may be:
  - Repayment of various term loans around Rs. 935.90 lacs and Rs. 726.16 lacs respectively.
  - Purchase of land, building, passenger vehicles, departmental vehicles, plant machinery and instruments etc. around Rs. 1275.32 lacs and Rs. 457.51 lacs respectively.
  - Increase in current liabilities due to various expenses around Rs. 19131.08 lacs.
  
2. On the contrary, Cash Ratio examines a sudden hype in the year 1999-00, as cash received around Rs. 700.65 lacs from the sell of scrap vehicles and materials through number of auctions done by central workshop, Ahmedabad.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, in GSRTC the cash ratio has fallen from 0.21 to 0.11. Hence, its compound annual growth rate is negative 6.26%

**As a whole, from the cash ratio, it may be concluded that:**

- The GSRTC has very few cash against current liabilities (average cash of Rs. 0.10 against current liabilities of Rs. 1).
- The GSRTC is not able to meet its current obligations with its super quick assets.
- The compound annual growth rate is negative (-6.26%).

**1. Interval Measure Ratio/Defensive Interval Ratio**

Current ratio, quick ratio and cash ratio throw light on the ability of a firm to pay its current liabilities. Interval Measure Ratio measures liquidity in terms of a firm's ability to meet its regular cash expenses from operations. It is calculated as shown below:

$$\text{Interval Measure Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Average Daily Operating Expenses}}$$

Where,

$$\text{Average Daily Operating Expenses} = \frac{\text{Total Operating Expenses}}{\text{Number of Days in a Year}}$$

It is calculated by dividing current assets excluding inventories by average daily operating expenses. Daily operating expense includes expenses such as selling administrative and general expenses, less depreciation and other non-cash expenditures. Average daily operating expenses are derived by dividing total operating expenses by number of days in the year (360).

Thus, Interval measure Ratio relates liquid assets to average daily operating cash outflows. This ratio measures the time span for which a firm can operate on present liquid assets without resorting to next year's income.

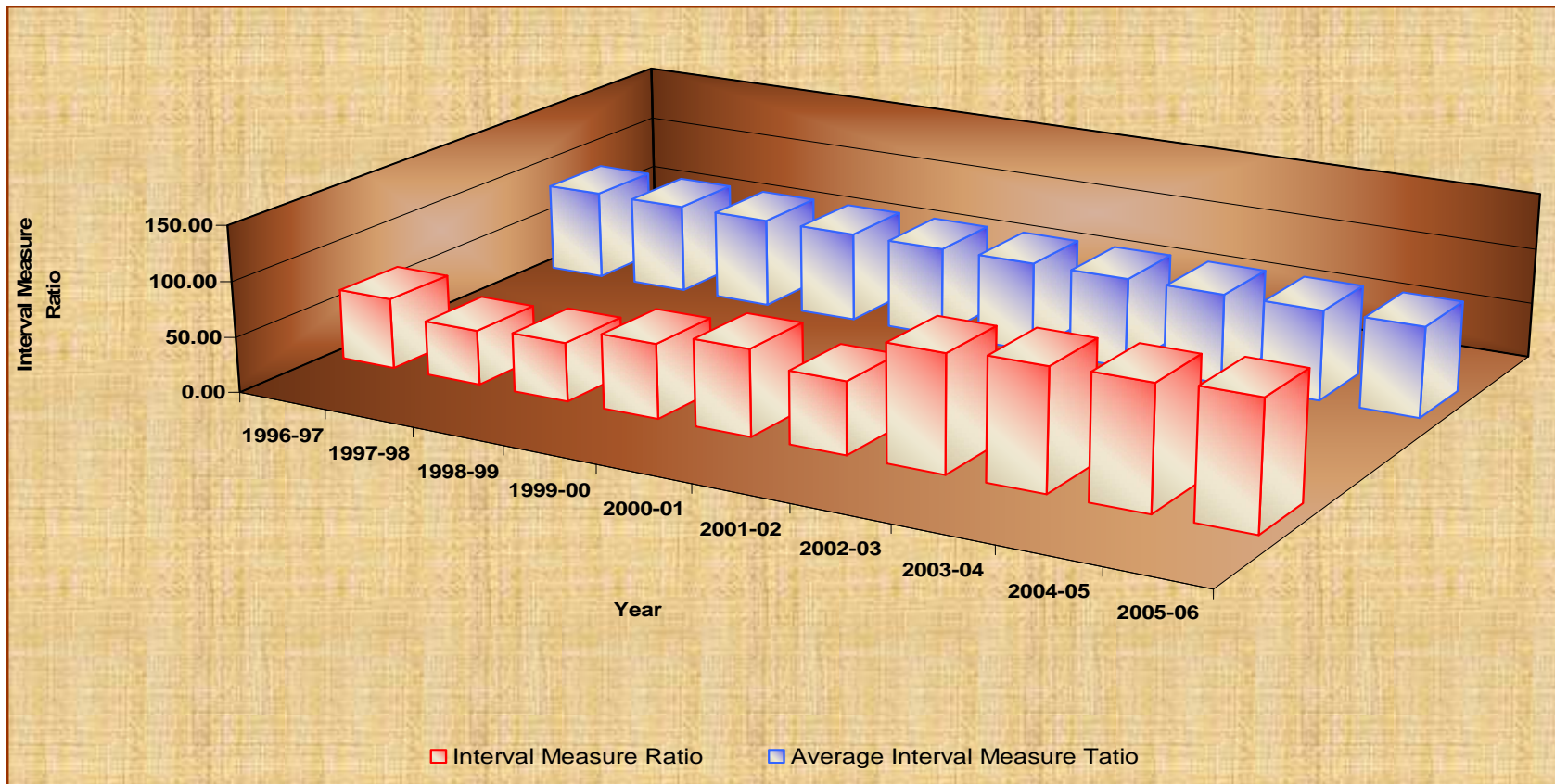
**Table 5.14**  
**Interval Measure Ratio (days) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

sr. no.	Year	Current Assets	Inventory	Daily Operating Expenses	Ratio
1	1996-97	18173.74	3118.25	85582.30	63.33
2	1997-98	17208.37	3044.7	103744.78	49.15
3	1998-99	18306.37	2732.96	105977.13	52.90
4	1999-00	28387.64	3106.99	136045.40	66.90
5	2000-01	34160.26	2824.36	145406.43	77.58
6	2001-02	28979.83	2387.12	147876.31	64.74
7	2002-03	43169.83	1748.11	143037.57	104.25
8	2003-04	44700.29	1717.24	142724.98	108.42
9	2004-05	45427.13	1965	142026.20	110.17
10	2005-06	49261.00	2460.11	148362.11	113.56
<b>Average</b>		32777.45	2510.48	130078.32	<b>81.10</b>
<b>S D</b>		12394.26	546.13	22721.68	<b>25.37</b>
<b>C V %</b>		37.81	21.75	17.47	<b>31.29</b>
<b>Compound Annual Growth Rate %</b>		10.49	-2.34	5.66	<b>6.01</b>

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



**Chart 5.13**  
**Interval Measure Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Interval Measure Ratio of GSRTC is presented in the Table No. 5.14. In GSRTC the Interval measure Ratio ranged between 49.15 days in the year 1997-98 and 113.56 days in the year 2005-2006 with an average ratio of 81.10 days.

The Interval Measure Ratio as shown in the table 5.14 indicates that in the year 1996-97 the firm has sufficient liquid assets to finance its operating expenses for 63.33 days. Then after, it was decreased to 49.15 and 52.90 days in the next years. In the year 1999-00, again it increases to 77.58 and with slight decrease 64.74 in the year 2001-02. From the year 2002-03 it was continuously increasing and stopped with the 113.56 days in the ending year.

Interval measure Ratio, as presented in the chart 5.13, shows increasing trend till the end year except in the year 1997-98 and 2001-02. however, it was below the average up to the year 2001-2002 and then after it was above the average ratio till the ending year.

As shown in Chart 5.13, the inverse relationship of current assets and daily operating expenses examined more inverse changes during the year 2002-03 because the reimbursement to be received from Government on account of loss due to Student Concession, un-economic routes, city services etc. worked out and at the same time the revenue from casual contracts increased by around Rs. 643.87 lacs due to the revised rates during the year.

On the contrary, daily operating expenses reduced to around Rs. 16441.02 lacs due to decrease in staff cost, super annuation, taxes, depreciation traffic, stationary, lease rent, uniform, electric power, clothing, interest etc. This reduced the ratio of interval measure.

The coefficient variation in interval measure ratio is 31.29, which indicates that there is 31.29 per cent dispersion in the interval measure 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 Interval Measure Ratio has risen from 63.33 to 113.56. Its compound annual growth rate is 6.01%

**As a whole, from the interval measure ratio, it may be concluded that:**

- The GSRTC can operate for average 81.10 days without resorting on next year's income.
- The compound annual growth rate is 6.01%.

## **2. Cash flow Coverage Ratio**

Conceptually the ability of the business to pay off its current obligations can be measured by calculating current, quick or cash ratio. But considering the real life scenario, current obligations are always met by using cash flow generated from business operations.

Hence, the actual liquidity and solvency should be measured on the basis of its cash flow. Cash flow Coverage Ratio measures the potentiality of the firm in meeting the current obligations on the basis of cash flow originating from the business operations. It is figured as shown below:

$$\text{Cash flow Coverage Ratio} = \frac{\text{Net Profit} + \text{Non Cash Expenses}}{\text{Current Liabilities}} \times 100$$

In GSRTC,

Net profit = EBT = EBIT - Depreciation & interest

Non Cash Expenses = Depreciation.

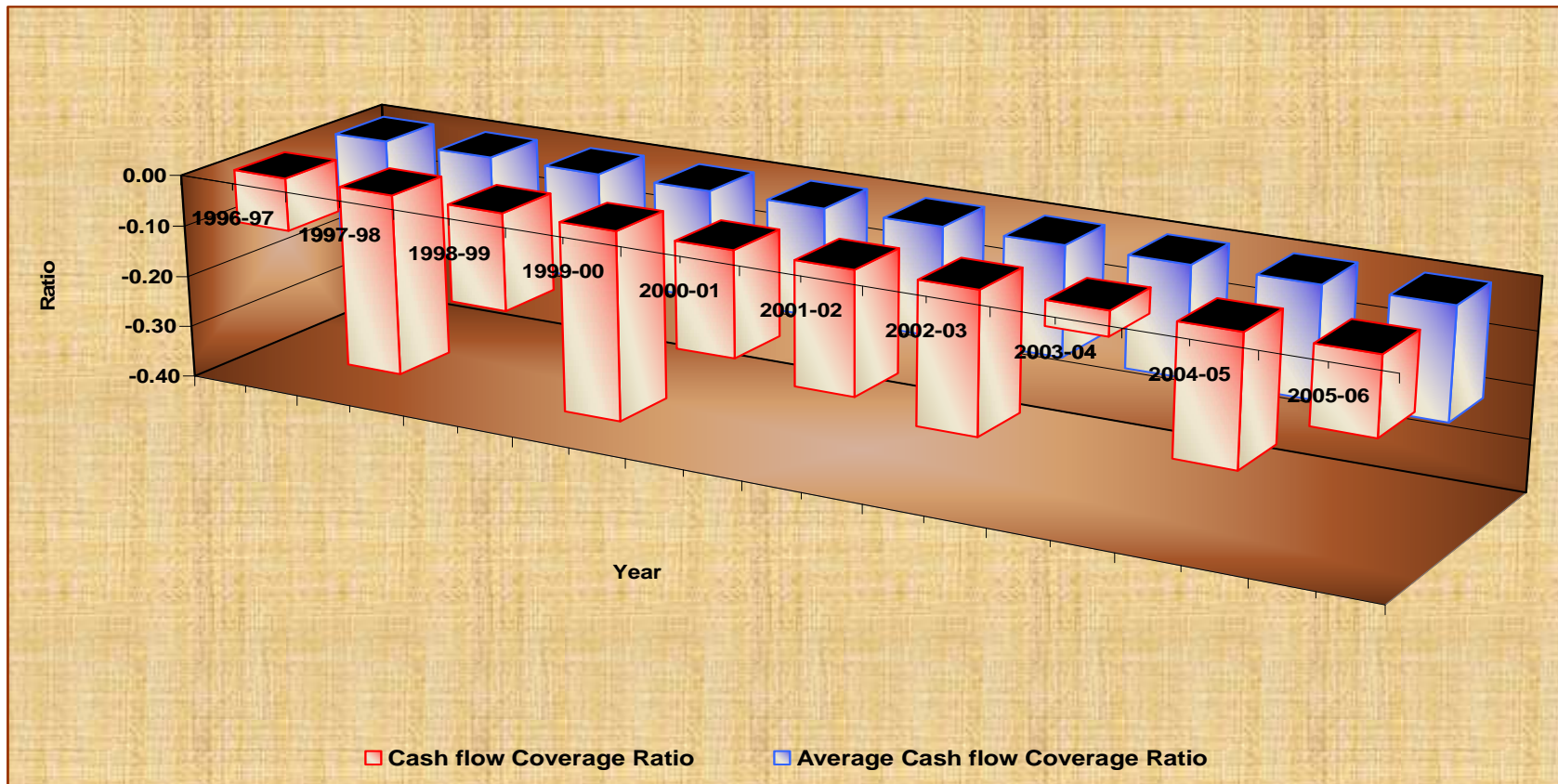
This is so because due to losses suffered by GSRTC, the amount of tax is absent during the tenure of study period.

**Table 5.15**  
**Cash flow Coverage Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Cash Flow</b>	<b>Current Liability</b>	<b>Ratio</b>
1	1996-97	-2925.63	28486.29	-10.27
2	1997-98	-17038.98	48733.00	-34.96
3	1998-99	-10775.52	57492.22	-18.74
4	1999-00	-30214.51	83363.73	-36.24
5	2000-01	-23348.18	115621.90	-20.19
6	2001-02	-29011.35	123777.72	-23.44
7	2002-03	-9875.22	36857.45	-26.79
8	2003-04	-1720.92	37260.09	-4.62
9	2004-05	-10619.60	43534.44	-24.39
10	2005-06	-8634.04	59826.23	-14.43
<b>Average</b>		-14416.40	63495.31	<b>-0.21</b>
<b>S D</b>		10133.50	33392.05	<b>0.10</b>
<b>C V %</b>		-70.29	52.59	<b>-46.94</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>-19.10</b>

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

**Chart 5.14**  
**Cash flow Coverage Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Cash flow Coverage Ratio of GSRTC is presented in Table No. 5.15. In GSRTC, the ratio shows a fluctuating trend. It ranged between -4.62 per cent in the year 2003-2004 and -36.24 per cent in the year 1999-00 with an average ratio of -21.41 per cent.

As presented in the Chart 5.14 the ratio shows fluctuating trend during the whole study period. Moreover, it was below the average ratio during the year 1997-98, 1999-00, 2001-02, 2002-03 and 2004-05 and above the average during rest of the years.

The coefficient variation in the ratio is -46.94, which indicates that there is around 47 % dispersion in the ratio of GSRTC over the period.

It can also be concluded that over the 10 years of study period from 1996-97 to 2005-06, the ratio has fallen from -10.27 to -14.43 per cent. Hence, Its compound annual growth rate is negative 19.10%.

As a whole, from the Cash flow Coverage Ratio, it may be concluded that the liquidity position of GSRTC is worst as it has negative cash flow during whole study period.

## **REFERENCES**

1. I. M. Pandey, "Financial Management", 2002, Vikas Publishing House Pvt. Ltd., New Delhi.
2. S. C. Kuchhal, "Financial Management – An Analytical and Conceptual Approach", Chaitanya Publishing House, Allahabad, 1993.
3. Dr. S. N. Maheshwari, "Principles of Management Accounting", Sultan Chand 7 Sons, New Delhi, 2001.
4. Charles T. Horngren, Gary L. Sudek, John A. Elliott, "Introduction to Financial Accounting", Eighth Edition Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2002.
5. Asish K. Bhattacharyya, "Financial Accounting for Business Managers", Prentice Hall of India Private Limited, Connaught Circus, New Delhi, 2007.
6. Poulke, Roy A – "Practical Financial Statement Analysis", Tata McGraw Hill Publishing Co. Ltd., New Delhi , Edition 1972.
7. James C. Van Horne & John M. Wachowicz, Jr., "Fundamentals of Financial Management", Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2005.
8. M. Y. Khan & P K Jain, "Financial Management – Text and Problems", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2003.
9. Prasanna Chandra, "Financial Management – Theory and Practice", Tata McGraw Hill Publishing Company Limited, New Delhi, 2002.
10. E. W. Walker, "Essentials of Financial Management", Prentice Hall Inc., New York, 1935.

# FINANCIAL STRUCTURE ANALYSIS

- **Concept of Financial Structure**
- **Factors Determining Financial Structure**
- **Financial Structure Analysis of GSRTC**
  - Trend Analysis**
  - Ratio Analysis**



## **6.1 CONCEPT OF FINANCIAL STRUCTURE**

The word 'structure', originated from the field of engineering, means different parts of a building. Similarly, financial structure consists of three elements namely assets, liabilities and capital.

**Financial structure** refers to the way; the firm's assets are financed. It is the entire left-hand side (liabilities plus equity) of the balance sheet which represents all the long-term and short term sources of capital.

**Capital structure** refers to the mix of long-term sources of funds, such as debentures, long-term debt, preference share capital and equity share capital including reserves and surpluses (i.e. retained earnings). It is only a part of financial structure. If short-term liabilities are added in capital structure, it becomes financial structure. Thus, capital structure refers to that part of the financial structure which represents long-term sources.

To confine the real area of the term 'capital structure', it is necessary to distinguish it from the term 'assets structure'. **Assets Structure** refers to the 'makeup' of total assets as represented by fixed assets and current assets. It is right hand side of the balance sheet which represents total capital employed in the business.

However it should be noted here, that Gerstenberg has used the term 'capital structure' and 'financial structure' interchangeably. According to him financial structure also refers to the make-up of the permanent capital of the firm.

Task of formatting financial structure involves the decisions regarding the type of securities to be issued and the relative proportion of each type of security namely shares, debentures, retained earnings etc. in the total capitalization. Each corporate security has got its own advantages and disadvantages. Hence, too much induction of one security in the capital structure may prove unprofitable or risky. For instance, if capital structure mainly comprises of equity capital and having inadequate debt capital, it may deprive of the

benefits of trading on equity and hence may not fulfill the objective of maximum return to its owners. On the other hand, if a company, with fluctuating income, has high capital leverage having greater risk, then such capital structure will maximize return to owners. However, in lean years the position of a firm may be very critical because the net income might not be enough to meet even the fixed charge obligations on preference shares or debentures.

There is not a single capital structure which is suitable to all types of business. Whether or not, a capital structure suitable for a particular business depends upon the circumstances and nature of business. The capital structure should frame in such a way that it maximise returns to its owners.

## **6.2 Factors Determining Financial Structure**

A firm requires capital to continuously run its business. Hence, the financial structure decision is continuous one and has to be taken whenever a firm needs additional finances. Number of factors should be considered whenever a financial structure decision has to be taken. Some of the important factors are as under:

1. Trading on Equity or Leverage
2. Capital Gearing
3. Cost of Capital
4. Maximum Control
5. Cash Flow Ability of the Company
6. Flexibility
7. Size of the Company

### **Trading on Equity or Leverage**

Financial leverage is an important consideration in planning the capital structure of a company because of its effects on the earning per share. The use of fixed cost sources of finance such as debt and preference capital to finance the assets of the company is known as financial leverage or trading on equity. The trading on equity is a device to earn higher earnings on the

share capital of a company. However, it is a double-edged sword. It has got tremendous acceleration or deceleration effect on EBIT as well as EPS. It may prove to be blessing if an enterprise uses borrowed capital and earn more on it than pays on it. On the other hand, it may prove a curse for an enterprise having high debt financing but low and uncertain cash flows to meet its debt obligations. The intensity of trading on equity can be measured by the debt-equity ratio or fixed charge ratio.

### **Capital Gearing**

The different forms and proportion of securities to be issued is decided on the basis of policy decision regarding capital gearing. The ratio of equity share capital to preference share capital and loan capital is described as the “capital gearing”. If equity share capital (including any reserves or undistributed profits which may be regarded as being part of the equity of the ordinary shareholders) is lower than the loan capital, the capital structure is said to be ‘high geared’. On the other hand, if the equity share capital is higher than the loan capital, the capital structure is said to be ‘low geared’. Thus, capital gearing is important not only to the company, but also to prospective investors. It must be carefully planned since it affects a great deal of the company’s capacity to maintain an even distribution policy in the face of any difficult trading periods which may occur. Remarkably, distribution policies and the building-up of reserves as well as an even dividend policy are all affected by the company’s “gear ratio”.

### **Cost of Capital**

The cost of capital is an important concept in formulating capital structure. The cost of a source of finance is the minimum return expected by its suppliers. The expected return depends on the degree of risk assumed by investors. Ignoring risk, debt is a cheaper source of funds than equity. The preference share capital is also cheaper than equity capital, but not as cheap as debt. The capital structure should frame in a way it kept the total cost of capital to the minimum. So it is necessary for alternative capital structures to be compared. The term ‘cost of capital’ includes the interest or dividend

payable plus the costs incurred in raising the capital such as legal and publicity costs etc.

### **Maximum Control**

Normally in business life different groups of shareholders are there. They may think in different ways' and due to difference of opinions all always try to keep maximum control in their hands. Certain securities have voting rights and therefore, through them control can be exercised. Hence, whenever requirement of additional funds are there, proper balance between the voting capital (the equity capital) and the non voting capital (retained earnings, preference shares, debentures, loans) should be kept so as to maintain proper control. However, it is difficult to determine the ideal ratio. Some accountants may take the view that the absence of loans is a sign of great strength while others may argue that the existence of loans is an indication of growth and profitability.

### **Cash Flow Ability of the Company**

One of the features of a sound capital structure is conservatism which does not mean employing no debt or small amount of debt. Conservatism is related to the fixed charges created by the use of debt or preference capital in the capital structure and firm's ability to generate cash to meet these fixed charges under any reasonably predictable adverse conditions. The fixed charges of a company include payment of interest, preference dividends and principal, and they depend on both the amount of loan securities and the terms of payment. Whenever a company thinks of raising additional debt, it should analyse its expected future cash flow to meet the fixed charges. Net cash inflows-fixed charges ratio (debt-servicing ratio) is one of the important ratios which should be examined at the time of planning the capital structure.

### **Flexibility**

A business cannot run in static affairs. When, the environment changes accordingly the company should change to survive. For this purpose flexibility in capital structure must be there. Here, flexibility means changing of mixture regarding capitals. Such flexibility depends upon certain important factors like

flexibility in service charges, restrictive clauses in loan agreements, process of redemption and debt capacity.

### **Scale of Company**

This is not an important factor and having lowest voice in formation of a capital structure. Normally a small-scale company can't attract and are non-favoured by the investors. These companies are compelled to take support of equity shares mostly while large-scale companies can always get favour from investors. Such companies always find leverage as additional advantage in their capital structure.

## **6.3 ANALYSIS OF FINANCIAL STRUCTURE OF GSRTC**

The overall financial structure of the GSRTC can be studied from the view point of time duration(short term and long term funds), ordinary shareholders(extent of capital gearing) and relative contribution of owners and creditors(trading on equity). The following analysis was carried out to analyze financial structure of GSRTC

- A. Trend Analysis
- B. Ratio Analysis

### **A. TREND ANALYSIS**

The financial structure can be analyzed from the quantum of long term and short-term funds as percentage of total assets of GSRTC. In GSRTC, long-term funds include equity capital, capital loan, loans & borrowings and funds. While short-term funds include provisions, deposits with S T, sundry creditors and accrued charges. The following analysis was carried out to find out working capital trend in GSRTC

1. Short Term Funds Trend Analysis
2. Long Term Funds Trend Analysis
3. Quantum of Short Term and Long Term Funds as percentage of Total Assets

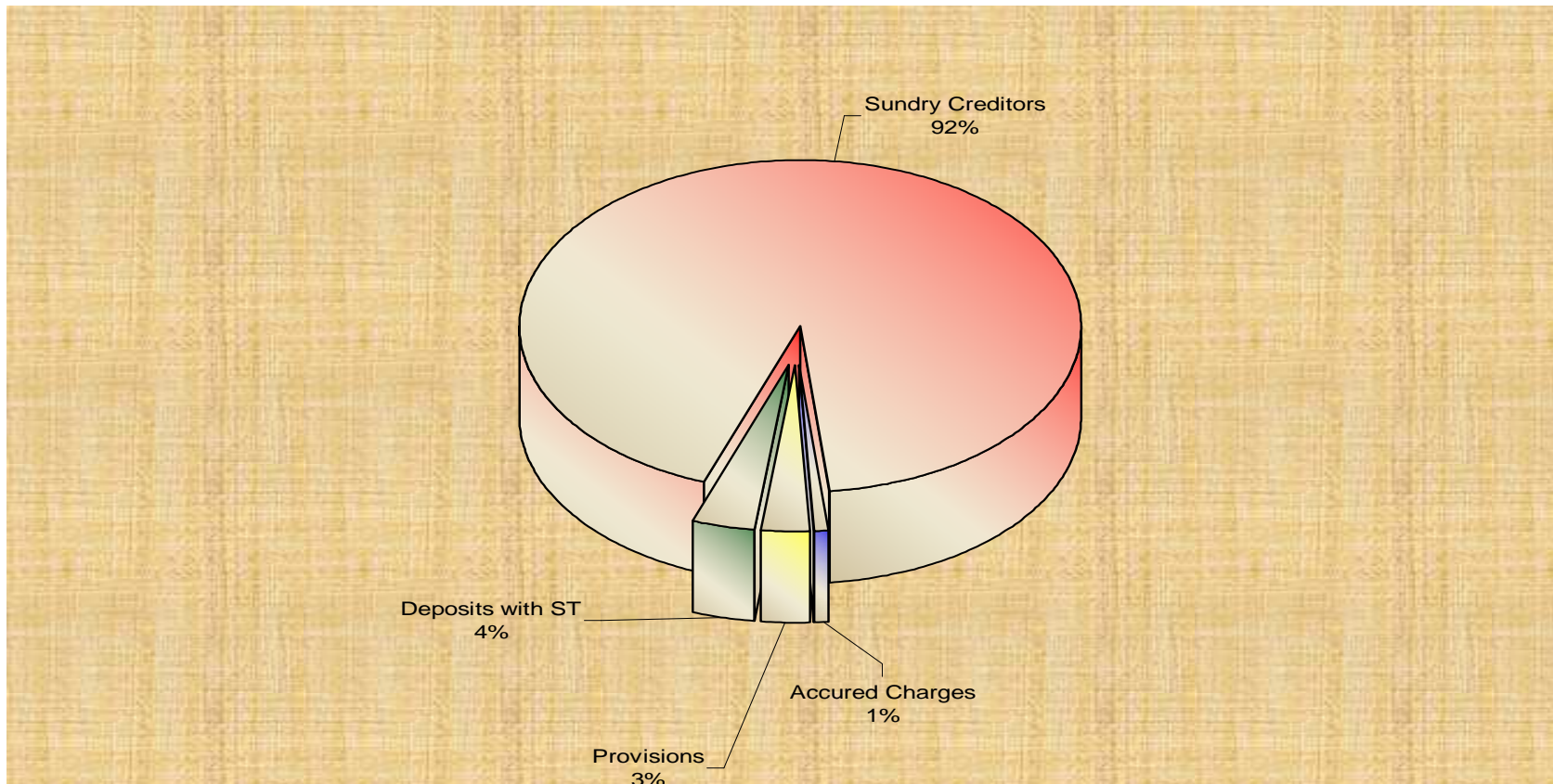
## 1. Short Term Funds Trend Analysis

**Table 6.1**  
**Trend of Short Term Fund (n Percentage) (Base Year 1996-97) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. No.	Year	Provisions	Deposits with ST	Sundry Creditors	Accrued Charges	Short Term Fund	Total Assets	SF as % of TA	Trend
1	1996-97	1651.68	1331.15	26727.08	107.52	29817.43	58562.66	50.92	100.00
2	1997-98	2194.47	1367.61	46337.02	201.5	50100.60	59197.19	84.63	166.22
3	1998-99	2554.79	1396.96	54625.72	311.71	58889.18	63097.09	93.33	183.31
4	1999-00	3037.80	1482.26	79902.56	423.36	84845.98	89065.26	95.26	187.10
5	2000-01	5405.75	1605.57	109681.13	535.02	117227.48	92655.60	126.52	248.49
6	2001-02	3134.71	2417.12	119996.33	646.67	126194.83	84240.78	149.80	294.22
7	2002-03	34.51	2263.55	36064.61	758.33	39121.00	98702.73	39.64	77.85
8	2003-04	23.64	3667.88	36366.46	869.99	40927.97	101153.52	40.46	79.47
9	2004-05	23.01	4308.48	42529.79	981.64	47842.92	102902.85	46.49	91.31
10	2005-06	57.99	4726.49	58675.00	1093.24	64552.72	118527.86	54.46	106.97
Average		1811.84	2456.71	61090.57	592.90	65952.01	86810.55	78.15	153.49

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

**Chart 6.1**  
**Relative Share of Short Term Funds in GSRTC**



**Chart 6.2**  
**Temporal Change in Song Term Funds (as % of Total Assets) of GSRTC**  
**From 1996-97 to 2005-06**

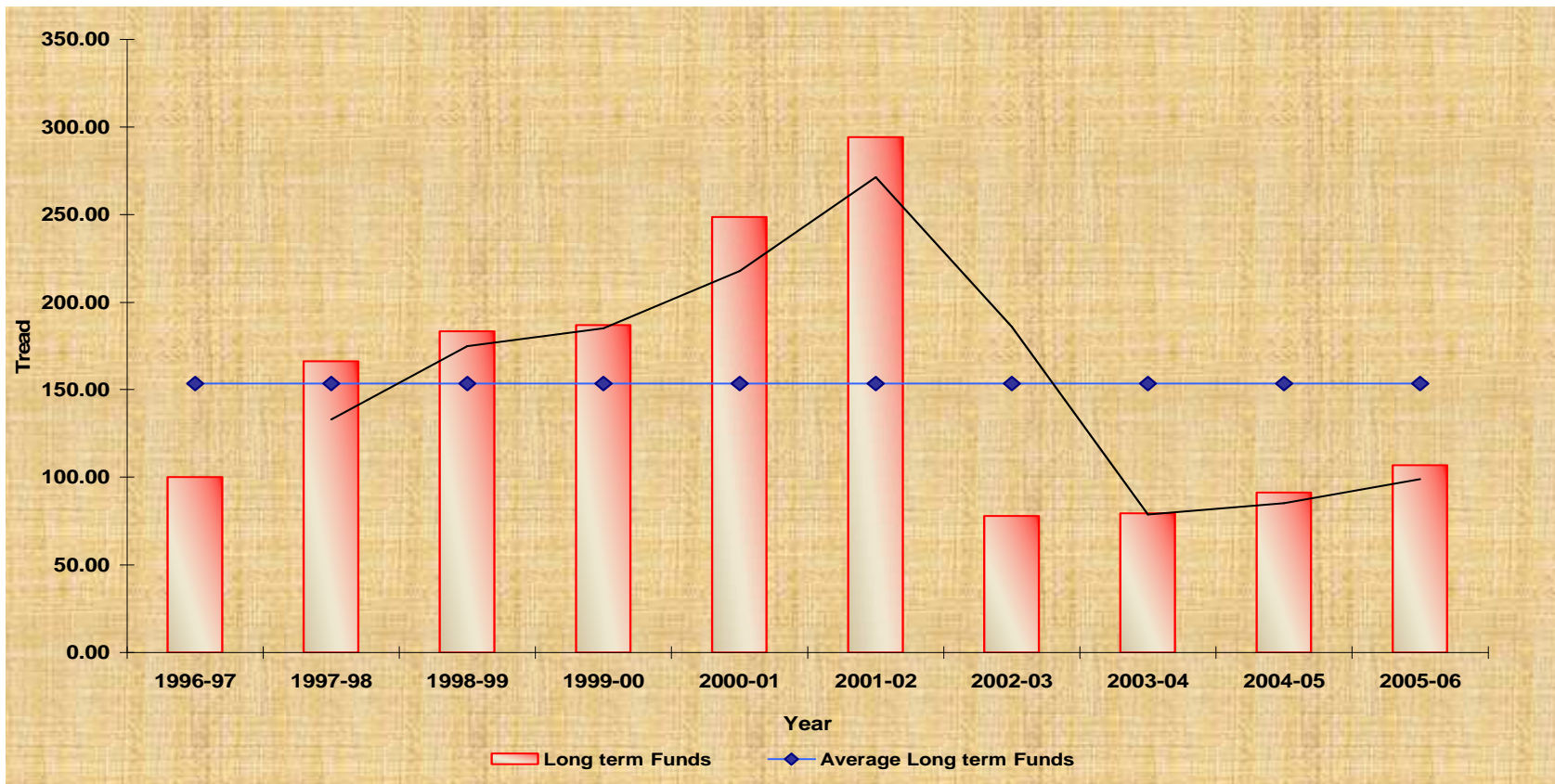




Table 6.1 and Chart 6.1 reveal that in GSRTC, short term funds include four main components. They are provisions, deposits with ST, sundry creditors and accrued charges.

From above data, it is apparent that accrued charges (stock in hand, stores and loose parts, material adjustment ledger, work in progress etc.) have the minimum share of 1% in the short term funds of the corporation, whereas, sundry creditors (income earned but not received, interest due but not received, debts from other corporations etc.) have the biggest contribution of around 92% to the short term funds.

Thus, short term funds of GSRTC mainly comprise of sundry creditors. As such, the trend of short term funds is largely followed by the trend of sundry creditors in GSRTC.

Table 6.1 and Chart 6.2 reveal that Short Term Fund in GSRTC shows increasing trend except in the year 2002-03. It ranged between 77.85 per cent in the year 2002-03 and 294.22 per cent in the year 2001-02 with an average trend to be 153.49 per cent.

Though, Short Term Fund in GSRTC shows increasing trend during the study period, it was lower than average in the year 1996-97 and last four years, from 2002-03 till the ending year of the study period.

As presented in Chart 6.2 a sudden fall in the Short Term Fund is encountered because during the year corporation has registered **76.51%** decrease in the level of **revenue liabilities** around Rs. 90129.01 lacs as well as **98.90%** decrease in the **provisions** around Rs. 3100.20 lacs, in comparison to last year, this decrease may have occurred due to decrease in staff cost & super annuation (as decrease in staff), taxes, depreciation, traffic, stationary, lease rent, uniform, electric power, clothing interest etc.

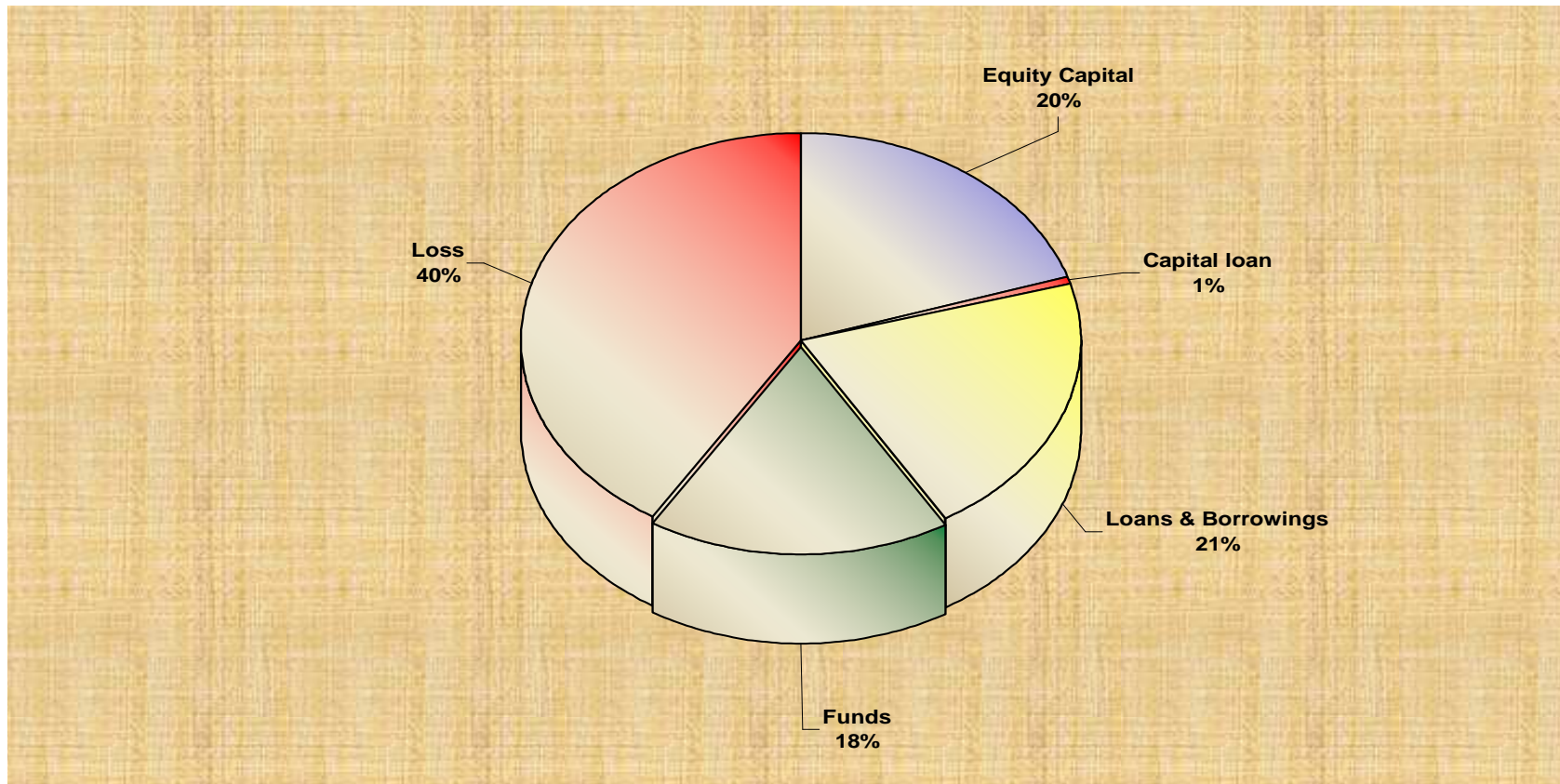
## 2. Long Term Funds Trend Analysis

**Table 6.2**  
**Trend of Long Term Fund (as % of Total Assets) (Base Year 1996-97) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. No.	Year	Equity Capital	Capital loan	Loans & Borrowings	Funds	Loss	Long Term Fund	Total Assets	LF as % of TA	Trend
1	1996-97	43734.64	1071.80	7085.14	28429.75	47227.59	33093.74	58562.66	56.51	100.00
2	1997-98	43734.64	1634.80	6102.04	29948.94	68299.88	13120.53	59197.19	22.16	39.22
3	1998-99	47234.64	1786.50	11514.42	32546.14	83973.24	9108.46	63097.09	14.44	25.55
4	1999-00	49734.64	1786.50	44757.31	33745.99	119996.45	10027.98	89065.26	11.26	19.92
5	2000-01	53895.39	1786.50	44031.14	35955.36	151792.25	-16123.86	92655.60	-17.40	-30.79
6	2001-02	55680.39	1786.50	59186.85	40719.94	190065.66	-32691.98	84240.78	-38.81	-68.67
7	2002-03	57085.13	1786.50	61298.84	48528.16	100266.91	68431.72	98702.73	69.33	122.69
8	2003-04	59096.13	1786.50	61785.35	54542.99	109344.74	67866.23	101153.52	67.09	118.73
9	2004-05	60865.13	1786.50	65407.38	55503.93	124233.68	59329.26	102902.85	57.66	102.03
10	2005-06	62634.13	1786.50	71598.00	56004.75	135457.94	56565.43	118527.86	47.72	84.45
<b>Average</b>		53369.49	1699.86	43276.65	41592.59	113065.84	26872.75	86810.55	29.00	51.31

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

**Chart 6.3**  
**Relative Share of Long Term Funds in GSRTC**



**Chart 6.4**  
**Temporal Change in Long Term Funds as % of Total Assets of GSRTC**  
**From 1996-97 to 2005-06**

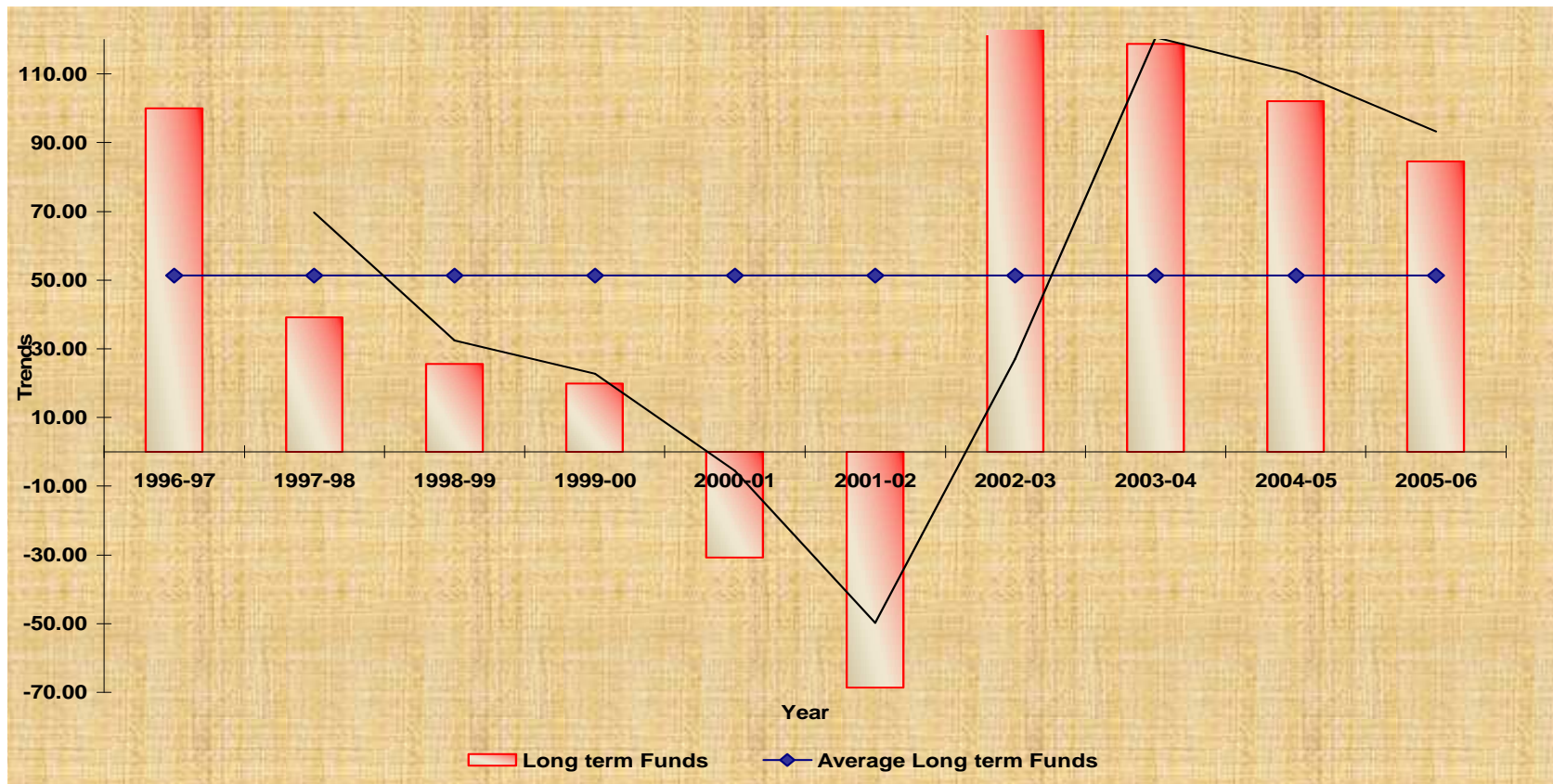


Table 6.2 and Chart 6.3 reveal that in GSRTC, long term funds include five main components. They are equity capital, capital loan, loans and borrowings, funds and losses.

From above data, it is apparent that capital loan (stock in hand, stores and loose parts, material adjustment ledger, work in progress etc.) have the minimum share of 1% in the long term funds of the corporation, whereas, loss have the biggest contribution of around 40% to the long term funds.

Thus, long term funds of GSRTC mainly comprise of loss. As such, the trend of long term funds is largely followed by the trend of loss in GSRTC.

Table 6.2 and Chart 6.4 reveal that Long Term Fund in GSRTC shows decreasing trend except in the year 2002-03. It ranged between – 68.67 per cent in the year 2001-02 and 122.69 per cent in the year 2002-03 with an average trend to be 51.31 per cent.

Though, Long Term Fund in GSRTC show decreasing trend during the study period, it was higher than average trend in the year 1996-97. Also it was higher than average from 2002-03 to till the ending year of the study period.

As presented in Chart 6.4 a sudden hype in the Long Term Fund is encountered during the year 2002-03. There was an increase in gross Revenue by Rs. 81.58 Crores and decrease in gross Expenditure by Rs. 113.90 Crores. Thus, the net loss of Rs. 382.73 Crores in the previous years decreased to Rs. 187.25 Crores in the current year. The margin has been reduced mainly due to effect of settlement of accounts between Government and Corporation for the period 1993-94 to 2002-03 and decision about interest.

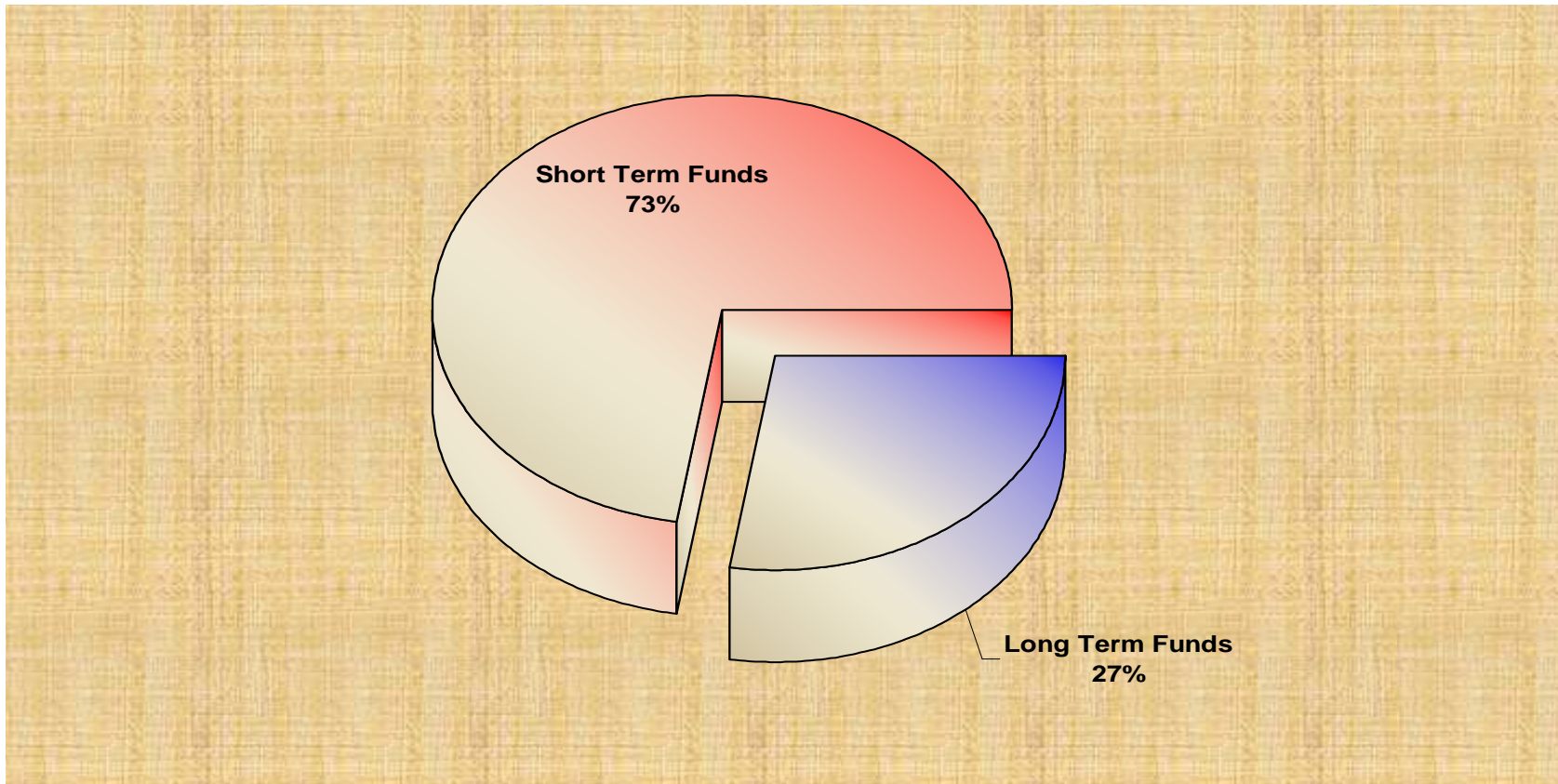
### 3. Quantum of Short Term and Long Term Funds as Percentage of Total Assets

**Table 6.3**  
**Quantum of Long Term and Short Term Fund (as % of Total Assets) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. No.	Year	Long term Funds	Short term Funds	Total Assets	LF as % of TA	SF as % of TA
1	1996-97	33093.74	29817.44	62911.18	52.60	47.40
2	1997-98	13120.53	50100.60	63230.52	20.75	79.23
3	1998-99	9108.46	58889.17	67994.93	13.40	86.61
4	1999-00	10027.98	84845.98	94873.97	10.57	89.43
5	2000-01	-16123.87	117227.47	101103.60	-15.95	115.95
6	2001-02	-32691.98	126194.83	93502.85	-34.96	134.96
7	2002-03	68431.71	39121.00	107552.71	63.63	36.37
8	2003-04	67866.23	40927.97	108510.45	62.54	37.72
9	2004-05	59329.26	47842.92	107172.18	55.36	44.64
10	2005-06	56565.43	64552.72	121118.09	46.70	53.30
<b>Average</b>		<b>26872.75</b>	<b>65952.01</b>	<b>92797.05</b>	<b>27.46</b>	<b>72.56</b>

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

**Chart 6.5**  
**Average Long Term and Short Term Funds (as % of Total Assets) in GSRTC**



**Chart 6.6**  
**Temporal Change in Long Term and Short Term Funds (as % of Total Assets) in GSRTC**  
**From 1996-97 to 2005-06**

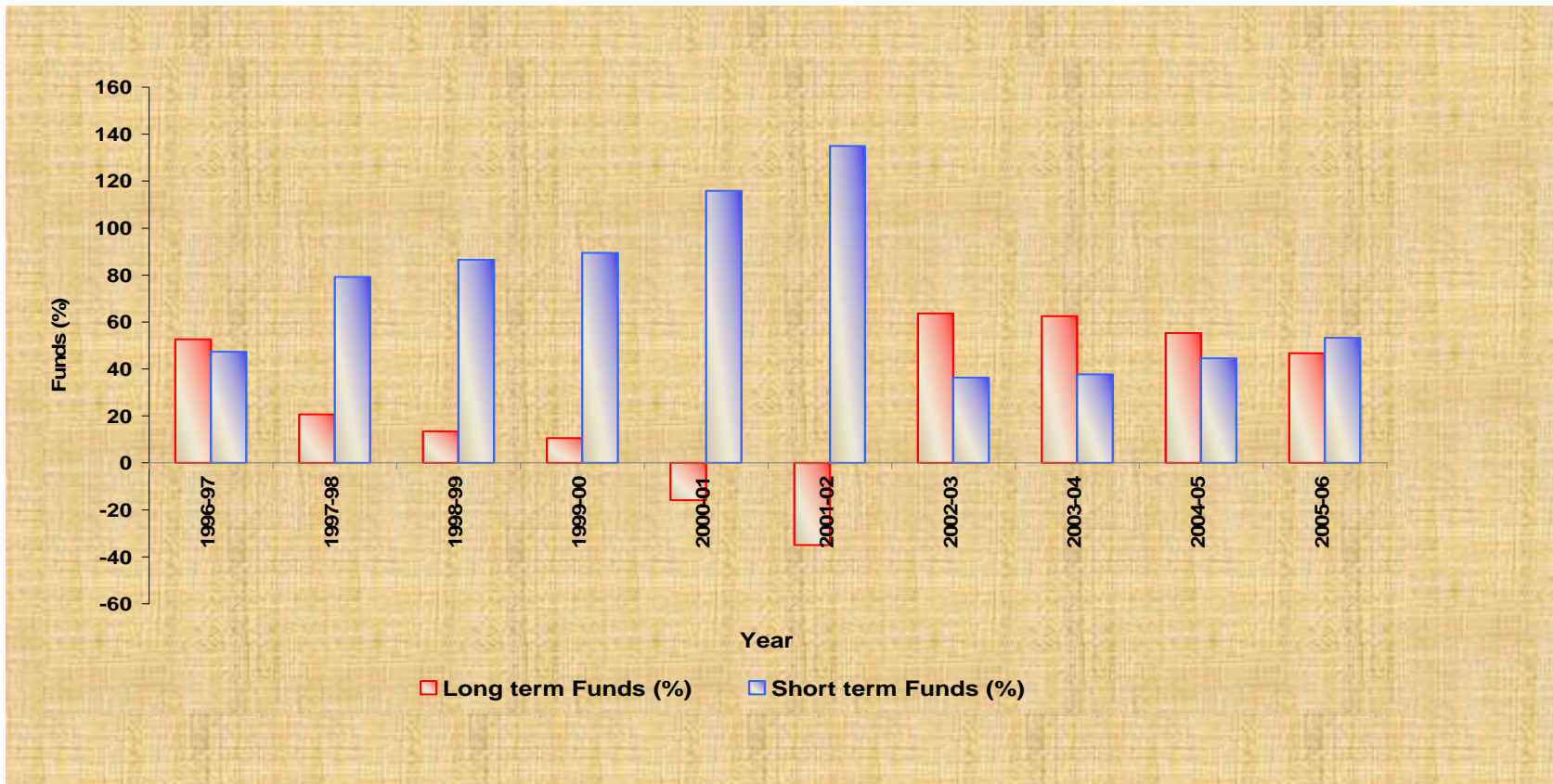




Table 6.3, Chart 6.5 and Chart 6.6 reveal that long term funds have the average share of 27% in the total assets of the corporation, whereas, short term funds have the biggest contribution of around 73% to the total assets. Thus, total assets of GSRTC mainly financed by short term funds. Major portion of long-term funds is utilized for adjusting heavy losses of the GSRTC.

## **B. RATIO ANALYSIS**

While the short-term creditors (Bankers, Suppliers of raw materials etc.) are interested in the short-term solvency or liquidity of a firm, long-term creditors (Debenture Holders, Financial Institutions etc.) are interested in the long-term financial strength of a firm. A firm should have a strong short as well as long-term financial position. We have analyzed short-term solvency of the firm in the preceding chapter. The long-term solvency of the firm can be judged with the help of leverage or capital structure ratios.

The capital structure ratios reflect the long-term financial strength/solvency of a firm. There are main two aspects of long term solvency of a firm vise (i) ability of a firm to repay the principal when due and (ii) regular payment of the interest which can be examined by structural and coverage ratios respectively.

Structural ratios are based on the relationship between borrowed fund and owner's capital. The important structural ratios are Debt-Equity Ratio, Debt-Assets Ratio and Equity-Assets Ratio.

Coverage ratios are based on relationship between debt servicing commitments and the sources for meeting these burdens. The important coverage ratios are Interest Coverage Ratio, Dividend Coverage Ratio, Total Fixed Charges Coverage Ratio, Cash Flow Coverage Ratio and Debt Services Coverage Ratio.

Several ratios may be used to analyze long-term solvency of a firm. Following are some of the important ratios calculated for analyzing capital structure of GSRTC:

### **Structural Ratios**

#### Debt-Equity Ratio

1. Long term Debt-Equity Ratio
2. Total Debt-Equity Ratio

#### Debt-Assets Ratio

3. Total Debt-Total Assets Ratio

#### Equity –Assets Ratio

4. Proprietary Ratio

### **Coverage Ratios**

5. Interest Coverage Ratio

### **Other Debt Ratios**

6. Financial Leverage Ratio
7. Capital Gearing Ratio
8. Net Fixed Assets-Net Worth Ratio
9. Fixed Assets-Long Term Debt Ratio

### **DEBT-EQUITY RATIO**

The Debt-Equity Ratio is one of the best known measures of long term financial solvency of a firm. It is also known as External-Internal Equity Ratio. These ratios show relationship between borrowed funds and owners' capital. It reflects relative claims of creditors and shareholders against the assets of the firm. In short, this ratio indicates lenders' contribution for each rupee of the owner's contribution. As, the relationship between outsider's claim and owner's capital can be shown in different ways, there are different variants of the debt-equity ratio as discussed under:

1. Long Term Debt – Equity Ratio
2. Total Debt – Equity Ratio

The difference between above two version of Debt/Equity Ratio is in the treatment of current liabilities. Whereas, first approach includes the current liabilities, letter excludes from the debt. There is controversy regarding whether or not to include current liabilities while calculating the amount of debt. Following are some of the reasons in favour of including current liabilities in debt.

1. Though, current liabilities are short term and may fluctuate widely, certain amount of it always in use. So in this sense it should be treated as long-term obligation.
2. Some current liabilities like bank credit etc. are renewed year after year and thus remain permanently in the business.
3. Just like long-term creditors, current liabilities have a prior right on the assets of the business and are paid along with long-term lenders at the time of liquidation of the firm.
4. Short-term creditors exercise as much pressure as long-term creditors on management.
5. The omission of current liabilities while calculating D/E Ratio may lead to misleading results.

It has important implications from the view point of the creditors, owners and the firm itself. This ratio determines soundness of long-term financial policy of a firm by throwing light on:

- 1. The relative contribution of creditors and owners of business in its financing; and**
- 2. Margin of safety to the creditors.**

Debt-Equity Ratio indicates margin of safety to the creditors. A high ratio indicates greater risk to creditors as owner's share is lower in comparison to that of creditors which is a danger signal to them.

On the other hand, lower ratio indicates higher degree of protection to creditors but the shareholders are deprived of benefits of trading on equity/leverage.

Thus, both low and high Debt-Equity Ratios are not desirable. There should be a proper balance between debt and equity. Generally, a Debt - Equity Ratio of **1: 1** is considered satisfactory.

But, whether or not a specific ratio is satisfactory depends upon nature and size of business, nature of the industry, degree of the risk involved etc. in short, other's money should be in reasonable proportion to owner's capital and owner should have sufficient stake in the fortunes of the enterprise.

#### **4. Long-term Debt-Equity Ratio**

This ratio is just another form of proprietary ratio. It establishes relationship between the outside long-term liabilities and owners' funds. It shows the proportion of long-term External Equities and Internal Equities i.e. proportion of funds provided by long-term creditors and that provided by shareholders or proprietors.

The Long-term Debt - Equity Ratio is calculated by dividing long-term debt by shareholders' equity. Long-term debt excludes current liabilities and shareholder's equity includes state and central government shares in case of GSRTC. It is figured as shown below:

$$\text{Long Term Debt -Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholders' Equity}}$$

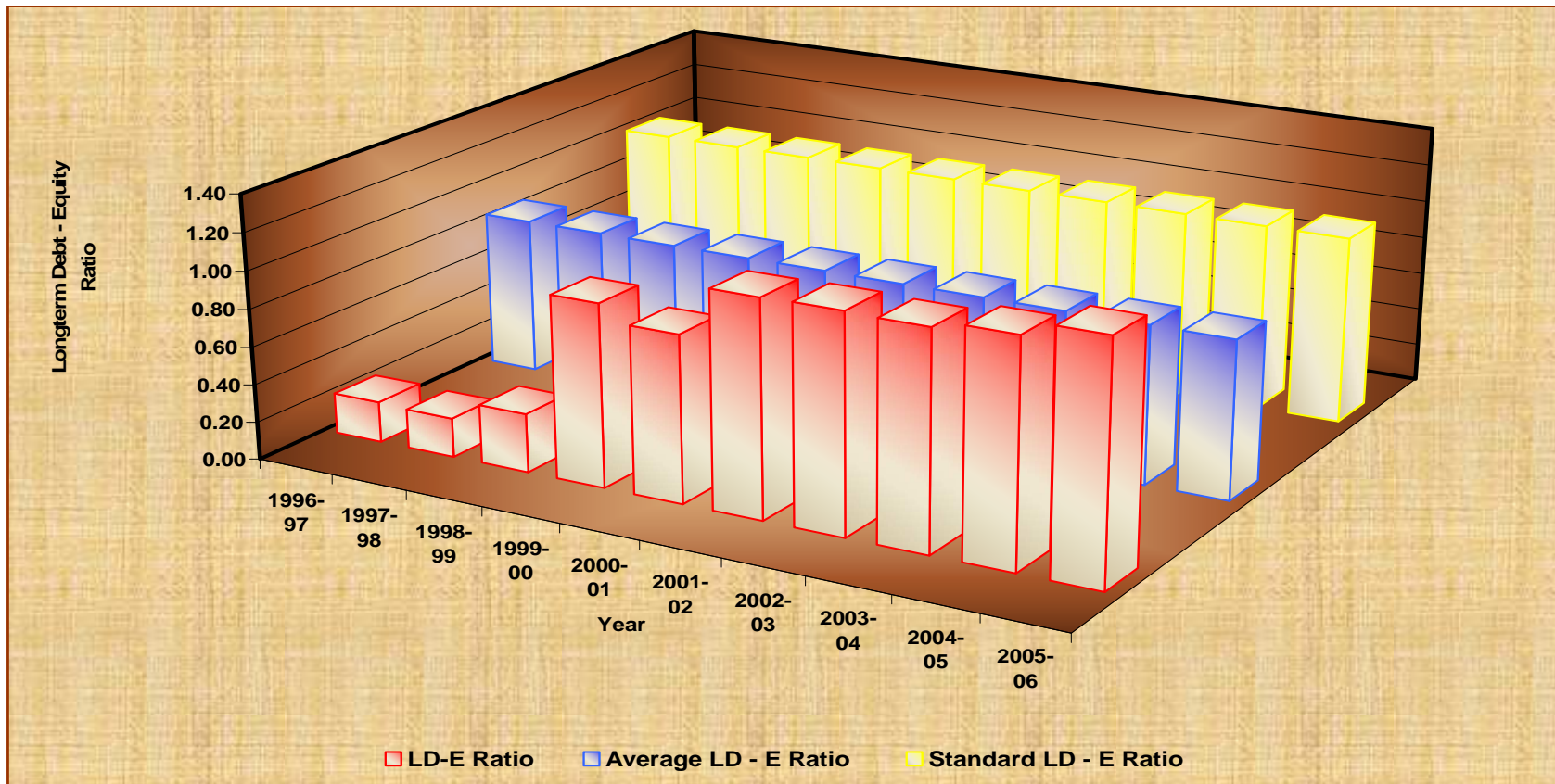
A higher ratio indicates that creditors have a larger claim than the owners of the business and firm will have to accept stricter conditions from the lenders, while borrowing money. On the contrary, lower ratio indicates that shareholders deprived of benefits of trading on equity.

**Table 6.4**  
**Long Term Debt - Equity Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Long Term Debt	Shareholder's Equity	Ratio
1	1996-97	9488.09	43734.64	0.22 : 1
2	1997-98	9104.44	43734.64	0.21 : 1
3	1998-99	14697.88	47234.64	0.31 : 1
4	1999-00	48026.06	49734.64	0.97 : 1
5	2000-01	47423.21	53895.39	0.88 : 1
6	2001-02	63390.47	55680.39	1.14 : 1
7	2002-03	65348.89	57085.13	1.14 : 1
8	2003-04	67239.73	59096.13	1.14 : 1
9	2004-05	71502.36	60865.13	1.17 : 1
10	2005-06	78110.99	62634.13	1.25 : 1
<b>Average</b>		47433.21	53369.49	<b>0.84</b>
<b>S D</b>		26810.52	6918.13	<b>0.43</b>
<b>C V %</b>		56.52	12.96	<b>50.71</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>19.11</b>
<b>Coeffi. of Correlation</b>		-	-	<b>0.97</b>

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

**Chart 6.7**  
**Long Term Debt - Equity Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Long-term Debt - Equity Ratio of GSRTC has been presented in the Table No 6.4. In GSRTC, the Long-term Debt - Equity Ratio shows increasing trend. It ranged between 0.21 times in the year 1997-98 and 1.25 times in the year 2005-2006 with an average ratio of 0.84 times.

The ratio shows increasing trend during the whole study period except in the year 1997-98 and 2000-01. Moreover the GSRTC had maintained more than standard ratio of **1:1** times from 2001-02 to onwards.

Long-term Debt - Equity Ratio as presented in Chart 6.7 was below the average Long-term Debt - Equity Ratio for the initial three years. From the year 1999-00, it was above the average Long-term Debt - Equity Ratio till the end year.

During the year the corporation issued the debenture bonds worth Rs. 35000 lacs to raise the funds for capital expenses. Also Rs. 1300 lacs loans were borrowed from the bank. Corporation paid off Rs. 3055 lacs back to LIC, Banks etc. as the settlement amount. So, in all the funds of Rs. 11512 lacs (as on 31<sup>st</sup> March, 1999) had a hype of 44757 lacs (as on 31<sup>st</sup> March, 2000)

The inverse relationship of debt and equity examined more inverse changes during the year ending at 31<sup>st</sup> March, 2001 because the repayment of various term loans around Rs. 726 lacs. On the contrary, the capital contribution of state government converted into share capital gave rise to the equity capital of the corporation. This reduced the ratio of Debt-Equity during the year 2000-01.

#### **t – test**

A study of the time wise variance of Long-term Debt - 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 Long-term Debt - Equity Ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the Long-term Debt - Equity Ratio of GSRTC over the time **H1:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 6.4, the t-test is presented in the following table.

**Table 6.5**  
**t - test**

<b>X</b>	<b><math>\sigma</math>s</b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>Table Value (at 10%level)</b>
0.84	0.43	50.71	9	-1.188	$\pm 2.262$

Table 6.5 indicates that the observed value of t is  $-1.188$  which is in the acceptance region, and as such,  $H_0$  is accepted at 5 per cent level of significance and we can conclude that there is no any significant difference between the long term debt-equity ratio of GSRTC over the period.

The coefficient of variation is 50.71 per cent which indicates that there is around 50.71 per cent dispersion in the Long-term Debt - 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 Long-term Debt - Equity Ratio grew from 0.22 to 1.25. Its compound annual growth rate is 19.11%.

In GSRTC, the variation in debt is more in comparison to that of equity. It increased its reliance on borrowed fund. The debt and equity having high degree of positive correlation at 0.97, reveals that it has been following a uniform policy for raising funds from borrowing as well as from owned capital. From the creditors point of view the long term financial performance of GSRTC was very sound.



**As a whole, from the Long Term Debt-Equity Ratio it may be concluded that:**

- In GSRTC, the owners' (state and central government) contribution was more than lenders' in initial five years period whereas; in last five years it was lesser.
- Increasing trend of ratio indicates that the GSRTC has been depending more and more on borrowed capital over the time.
- The average Long Term Debt-Equity Ratio of 0.84 times implies that for every 0.84 rupee of outside liability, the GSRTC has 1 rupee of owner's capital.
- Margin of safety to the creditors is sufficiently high. However, it is observed to have the decrement over the time. It is 81.97% and 44.44% in the first and last year respectively, with an average of 54.35%.
- The compound annual growth rate is 19.11%.
- The debt and equity having high degree of positive correlation at 0.97 reveals that In GSRTC the variation in debt is more in comparison to that of equity and it increased its reliance on borrowed fund.

## **5. Total Debt-Equity Ratio**

Total debt to equity ratio relates all recorded creditors claims on assets to the owners recorded claims. It is also known as external – internal equity ratio. The creditors includes all debts, whether long term or short term while the claims of the owner consists of preference shares, equity shares, capital reserves, retained earnings etc.

The Total Debt - Equity Ratio is calculated by dividing total debt by shareholder's equity. Total debt includes current liabilities and shareholder's equity includes state and central government shares in case of GSRTC. It is figured as shown below:

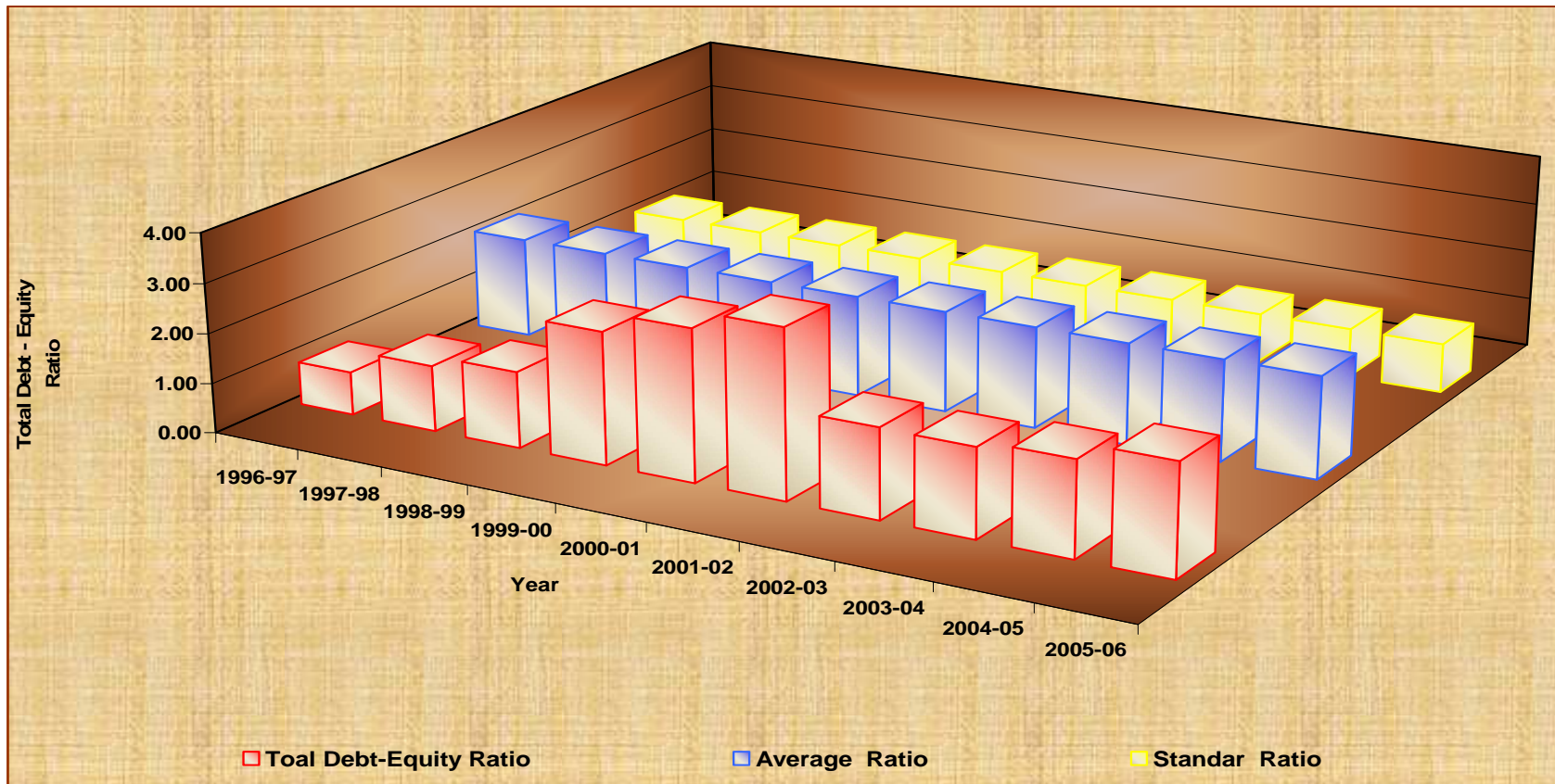
$$\text{Total Debt-Equity Ratio} = \frac{\text{Total Debts}}{\text{Owners' Equity}}$$

**Table 6.6**  
**Total Debt - Equity Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Total Debt</b>	<b>Shareholder's Equity</b>	<b>Ratio</b>
1	1996-97	37974.38	43734.64	0.87 : 1
2	1997-98	57837.44	43734.64	1.32 : 1
3	1998-99	72190.09	47234.64	1.53 : 1
4	1999-00	131389.79	49734.64	2.64 : 1
5	2000-01	163045.11	53895.39	3.03 : 1
6	2001-02	187168.18	55680.39	3.36 : 1
7	2002-03	102206.34	57085.13	1.79 : 1
8	2003-04	104499.82	59096.13	1.77 : 1
9	2004-05	115036.8	60865.13	1.84 : 1
10	2005-06	137937.22	62634.13	2.20 : 1
<b>Average</b>		110928.52	53369.49	<b>2.04</b>
<b>S D</b>		46490.95	6918.13	<b>0.78</b>
<b>C V %</b>		41.91	12.96	<b>38.24</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>9.75</b>
<b>Coeffi. of Corelation</b>		-	-	<b>0.62</b>

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

**Chart 6.8**  
**Total Debt - Equity Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Total Debt - Equity Ratio of GSRTC has been presented in the Table No 6.6. In GSRTC, the Total Debt - Equity Ratio shows increasing trend. It ranged between 0.87 times in the year 1996-97 and 3.36 times in the year 2005-2006 with an average ratio of 2.04 times.

The ratio shows increasing trend during the whole study period except in the year 2002-03 and 2003-04. Moreover the GSRTC had maintained more than standard ratio of 1:1 times from 1997-98 to onwards.

Total Debt - Equity Ratio as presented in Chart 6.8 was below the average Total Debt - Equity Ratio for the whole study period except for the years from 1999-00 to 2001-02 and 2005-06.

**The ratio registered a sudden fall during the year 2002-03. The possible reasons may be as follows:**

1. Current liabilities of Rs. 123777.72 lacs (as on 31<sup>st</sup> March, 2002) had a fall Rs. 36857.45 lacs because during the year corporation has decreased revenue liabilities of around Rs. 90129 lacs in comparison to last year. This decrease may be due to decrease in staff cost & super annuation (as decrease in staff), taxes, depreciation, traffic, stationary, lease rent, uniform, electric power, clothing, interest etc.
2. The capital contribution of state government converted into share capital gave rise to the equity capital (around Rs. 1404.74 lacs) of the corporation. This reduced the ratio of Debt-Equity during the year

We can conclude that there is around 38.24 per cent variation in the Total Debt-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 Total Debt - Equity Ratio grew from 0.87 to 2.20. Its compound annual growth rate is 9.75%.

**As a whole, from the Total Debt - Equity Ratio, it may be concluded that:**

- In GSRTC, the owners' (state and central government) contribution was more than lenders' in the first year whereas; it was lesser from the year 1997-98 to till the end year.
- Increasing trend of ratio indicates that, the GSRTC has been depending more and more on borrowed capital over the time.
- The average Total Debt-Equity Ratio of 2.04:1 implies that for every 2.04 rupee of outside liability, the GSRTC has 1 rupee of owner's capital.
- Margin of safety to the creditors is an average. However, it is observed to have the decrement over the time. It is 53.48% and 31.25% in the first and last year respectively, with an average of 32.89%.
- The compound annual growth rate is 9.75%.

## **6. Debt - Assets Ratio**

Another variant of Debt- Equity Ratio is Debt-Asset Ratio. The Debt-Asset Ratio Measures the extent to which borrowed funds support the assets of firm. There are various approaches for Debt-Asset Ratio. One of the important approaches relates total debt to the total assets of the firm. Where total debt comprises of long term debt plus current liabilities and total assets consists of permanent capital plus current liabilities. It measures **“the share of the total assets financed by outside funds.”** It is figured as shown below:

$$\text{Debt-Assets Ratio} = \frac{\text{Total Debts}}{\text{Total Assets}}$$

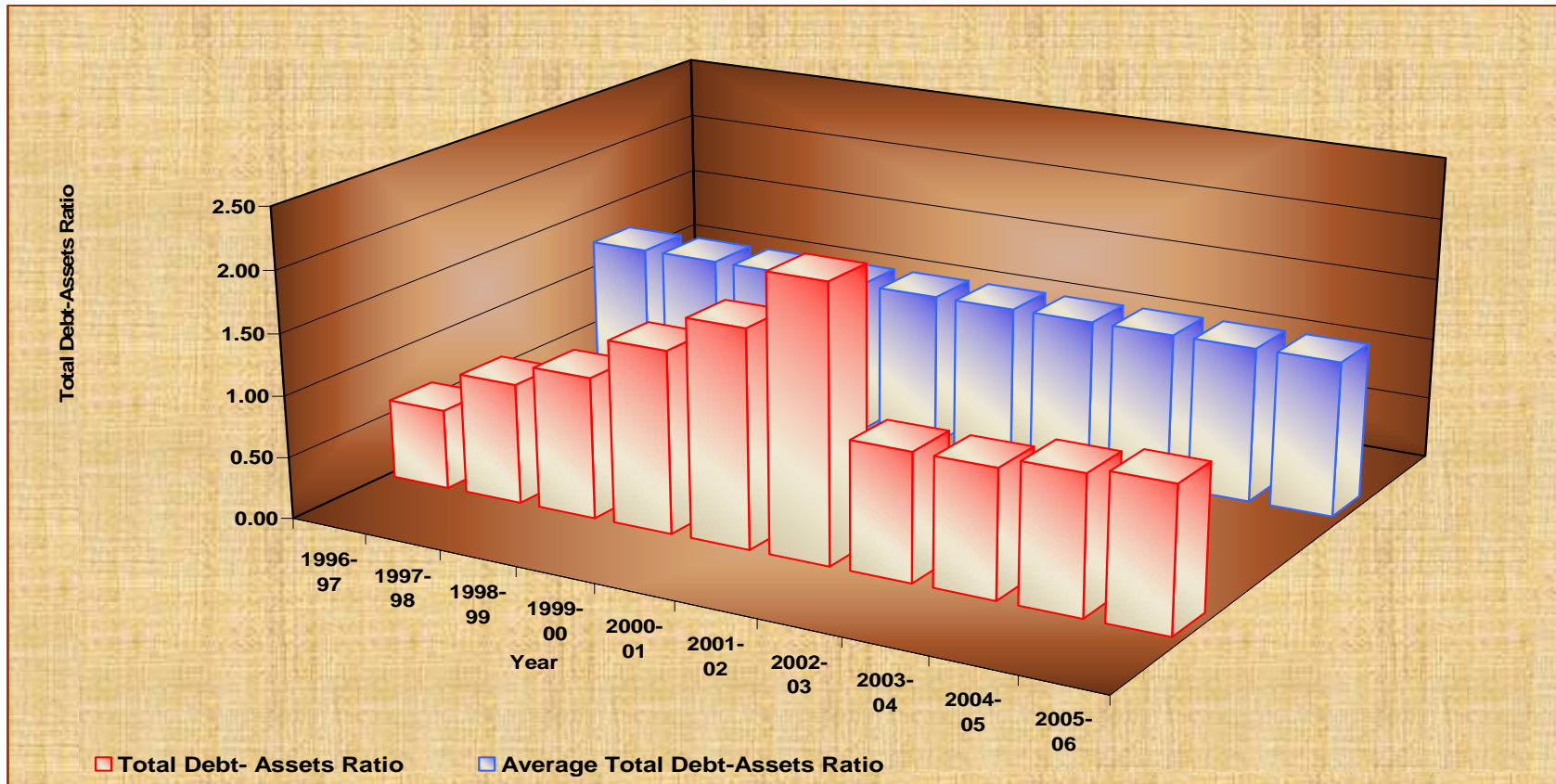
A lower Debt-Assets Ratio indicates sufficient margin of safety to creditors which is desirable for them. But shareholders are deprived of benefits of trading on equity, because the debt is not being exploited. On the other hand, high Debt-Assets Ratio exposed creditors to higher risk. But in the long run, position of the company is more stable because of the lower dependence on outside funds. Thus, a firm should neither have very high ratio, nor very low ratio.

**Table 6.7**  
**Total Debt – Total Assets Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Total Debt</b>	<b>Total Assets</b>	<b>Ratio</b>
1	1996-97	37974.38	58562.66	0.65 : 1
2	1997-98	57837.44	59197.19	0.98 : 1
3	1998-99	72190.09	63097.09	1.14 : 1
4	1999-00	131389.79	89065.26	1.48 : 1
5	2000-01	163045.11	92655.6	1.76 : 1
6	2001-02	187168.18	84240.78	2.22 : 1
7	2002-03	102206.34	98702.73	1.04 : 1
8	2003-04	104499.82	101153.52	1.03 : 1
9	2004-05	115036.8	102902.85	1.12 : 1
10	2005-06	137937.22	118527.86	1.16 : 1
<b>Average</b>		110928.52	86810.554	<b>1.26</b>
<b>S D</b>		46490.95	20495.84	<b>0.45</b>
<b>C V %</b>		41.91	23.61	<b>35.76</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>6.02</b>

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

**Chart 6.9**  
**Total Debt – Total Asset Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Debt – Asset Ratio of GSRTC has been presented in the Table No 6.7. In GSRTC, the Ratio shows increasing trend. It ranged between 0.65 times in the year 1996-97 and 1.76 times in the year 2001-2002 with an average ratio of 1.26 times.

The ratio shows increasing trend during the whole study period except in the year 2002-03. Total Debt – Total Assets Ratio as presented in Chart 6.9 was below the average for the whole study period except for the years from 1999-00 to 2001-02.

The inverse relationship of debt and asset examined more inverse changes during the year ending at 31<sup>st</sup> March, 2003 because during the year corporation has decreased revenue liabilities of around Rs. 90129 lacs in comparison to last year. On the contrary, the reimbursement to be received from Government on account of loss due to Student Concession, un-economic routes, city services etc. worked out and at the same time the revenue from casual contracts increased by around Rs. 643.87 lacs due to the revised rates during the year. This reduced the ratio of Debt-Asset during the year 2002-03.

The coefficient of variance is 35.76, indicates that there is around 35.76 per cent dispersion in Total-Debt Assets Ratio during the study period.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the Total Debt - Equity Ratio has risen from 0.65 to 1.16. Its compound annual growth rate is 6.02 per cent.

**As a whole, from the Total Debt-Total Asset Ratio, it may be concluded that:**



- The average Debt - Assets Ratio of 1.26, which indicates that in GSRTC debt, exceeds assets and for every 1.26 rupee of outside liability, the GSRTC has only 1 rupee of total asset.
- Increasing trend of ratio indicates that, the GSRTC has been financing more and more of its total assets from the outsiders fund over the time.
- The compound annual growth rate is 6.02%.
- Thus, the capital structure of the GSRTC is not sound and position is instable in the long run.

## **7. Proprietary Ratio**

It is also known as 'Equity-Asset Ratio'. It relates the owner's/proprietor's fund with total assets. It is calculated by dividing proprietor's fund by total assets. It indicates the extent of shareholders, funds in relation to total funds (shareholders' funds + liabilities). In other words, it indicates "**the proportion of total assets financed by owners.**" It is figured as shown below:

$$\text{Proprietor's Ratio} = \frac{\text{Owner's Funds (Net Worth)}}{\text{Total Assets}} \times 100$$

In GSRTC,

Net Worth = equity share of Central & State Govt. + fund - fictitious assets

Total Asset = fixed assets + Current Assets + Investments

A higher ratio indicates higher share of owners' and lesser dependence on outsiders' funds for financing its total assets. It indicates sound financial position of a firm and greater margin of safety to the creditors.

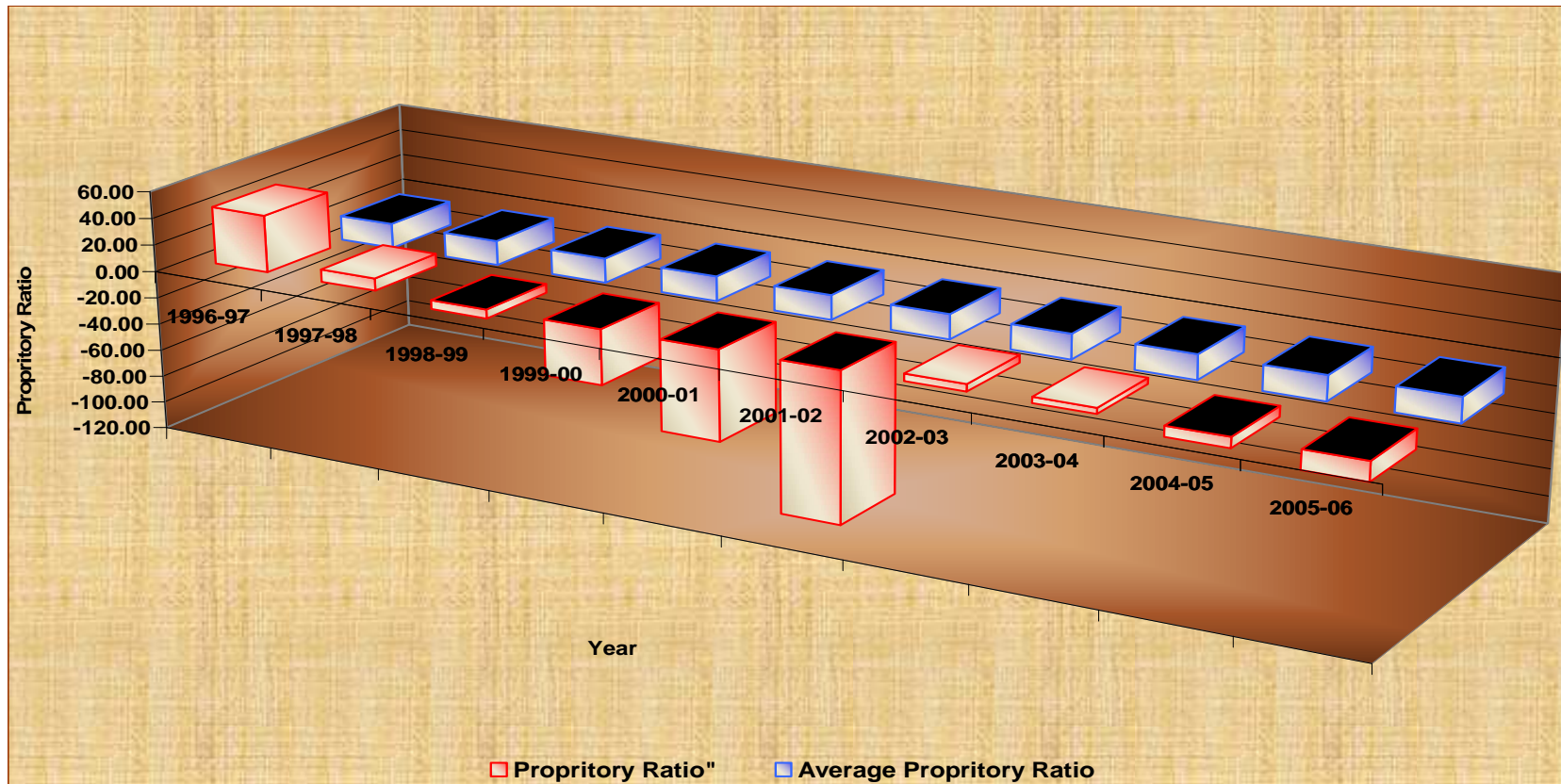
On the contrast, a lower ratio indicates lesser share of owners' and more dependence on outsiders' funds for financing its total assets and working capital. It indicates weak financial position of a firm and poor margin of safety to the creditors.

**Table 6.8**  
**Proprietary Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Owners' Fund (Net Worth)	Total Assets	Ratio
1	1996-97	24936.80	58562.66	42.58
2	1997-98	5383.69	59197.19	9.09
3	1998-99	-4192.46	63097.09	-6.64
4	1999-00	-36515.83	89065.26	-41.00
5	2000-01	-61941.51	92655.60	-66.85
6	2001-02	-93665.33	84240.78	-111.19
7	2002-03	5346.38	98702.73	5.42
8	2003-04	4294.37	101153.52	4.25
9	2004-05	-7864.62	102902.85	-7.64
10	2005-06	-16819.07	118527.86	-14.19
<b>Average</b>		-18103.76	107172.18	<b>-18.62</b>
<b>S D</b>		36095.6347	121118.09	<b>47.95</b>
<b>C V %</b>		-199.38	113.01	<b>-235.45</b>
<b>Compound Annual Growth Rate %</b>		<b>-41.99</b>	<b>7.31</b>	<b>-34.71</b>

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

Chart 6.10  
Proprietary Ratio in GSRTC  
From 1996-97 to 2005-06



The Proprietary Ratio of GSRTC has been presented in the Table No 6.8. In GSRTC, the Proprietary Ratio shows decreasing trend. It ranged between -11.19 per cent in the year 2001-02 and 42.58 per cent in the year 1996-97 with an average ratio of -18.62 per cent.

The ratio shows decreasing trend during the whole study period except in the year 2002-03.

Proprietary Ratio as presented in Chart 6.10 was more than average proprietary ratio of **-18.62** per cent during the whole study period except from the year 1990 to 2001-02.

The consequences discussed below resulted into a sudden hype in the Proprietary ratio during the year 2002-03:

1. The capital contribution of state government converted into share capital gave rise to the equity capital (around Rs. 1404.74 lacs) of the corporation.
2. Addition of Rs. 9297.88 lacs and debit of Rs. 1489.87 lacs during the year resulted into a hype of around Rs. 7808.41 lacs in the funds of corporation.
3. Increase in gross revenue around Rs. 8158 lacs and decrease in gross expenditure (mainly due to effect of settlement of accounts between Government and Corporation for the period 1993-94 to 2002-03) around Rs. 18725 lacs had registered a reduction in loss during the year of around Rs. 89798 lacs in comparison to last year.

The coefficient of variance is -235.45, indicates that there is around 235.45 per cent dispersion in Proprietary 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 Proprietary Ratio has fallen from 42.58 per cent to - 14.19 per cent hence, its compound annual growth rate is negative 34.71 %.

**As a whole, from the Proprietary Ratio, it may be concluded that:**

- In GSRTC, inspite of high contribution, the owners (state and central government) share in total assets is very negligible, as it largely utilizes for settlement of accumulated loss.
- The Proprietary Ratio is negative or less than 50% during whole study period which indicates utmost dependence on outside sources of fund in financing total assets.
- The Proprietary Ratio shows decreasing trend during the study period it indicates that the proprietorship of the owners on total assets was lower than that of the creditors; it was increasing from the year 2002-03.
- The average Proprietary Ratio of –18.62 times implies that for every 1 rupee of total assets, the GSRTC has -18.62 rupee of owner’s capital.
- The compound annual growth rate is negative 34.71%.
- Thus, the capital structure of the GSRTC is neither much sound, nor having stable position in the long run.

**8. Interest Coverage Ratio**

It is one of the convention ratio used to measure debt-servicing capacity of a firm. It is also known as ‘Time-Interest-Earned Ratio’. It indicates ‘the **number of times the interest charges are covered by funds that are ordinarily available for their payment**’. It is figured as shown below:

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

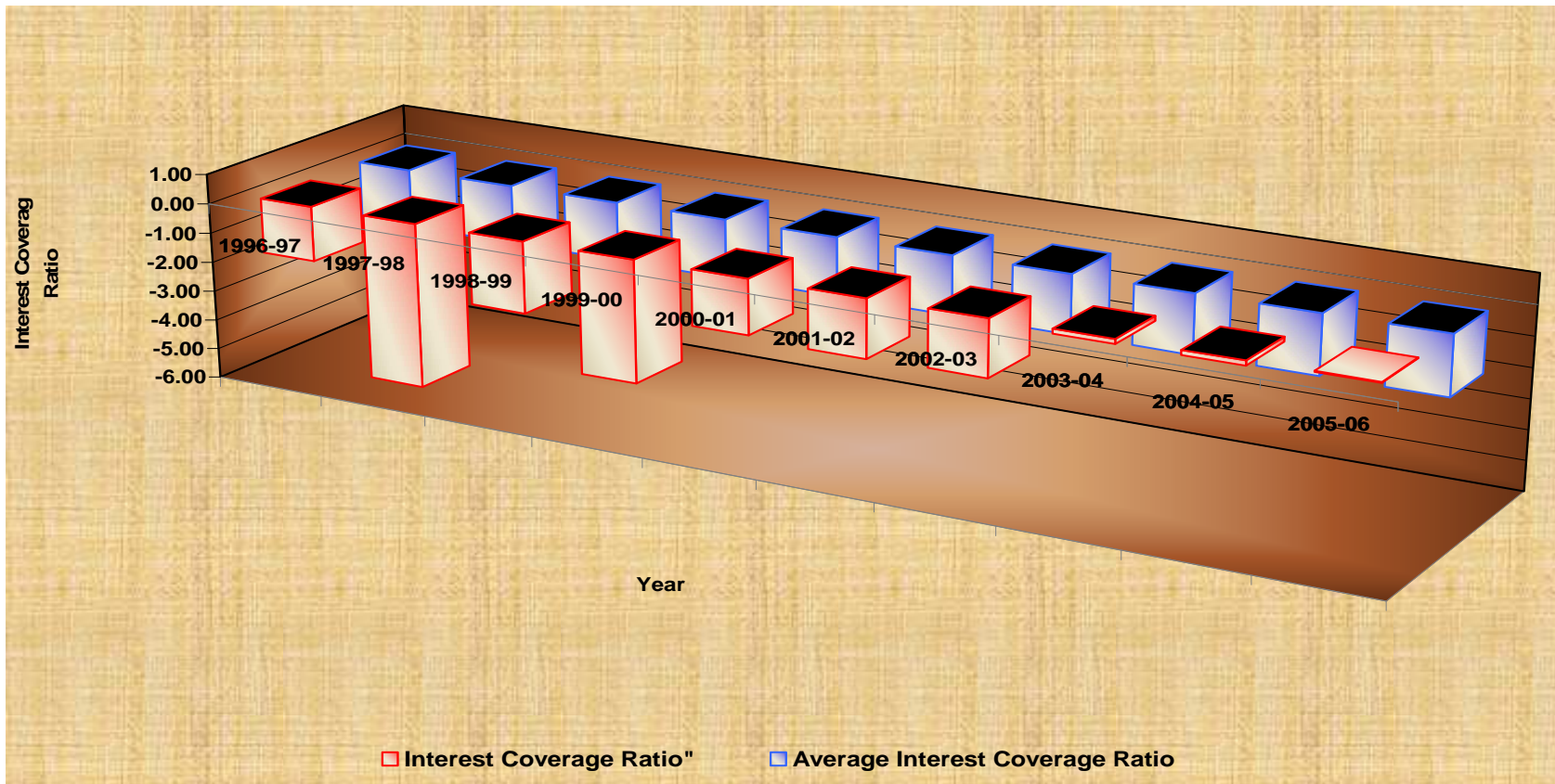
A higher ratio is desirable. It indicates greater ability of the firm to handle fixed charge liabilities and the more assured payment of interest to the creditors. However, too high ratio implies unused debt capacity. On the contrast, a lower ratio indicates excessive use of debt and the firm does not have the ability to offer assured payment of interest to the creditors, which is a danger signal to them. A firm should try to have comfortable coverage ratio.

**Table 6.9**  
**Interest Coverage Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	EBIT	Interest	Ratio
1	1996-97	-4729.27	2544.88	-1.86 :1
2	1997-98	-17857.41	3214.89	-5.55 : 1
3	1998-99	-11062.13	4611.23	-2.40 :1
4	1999-00	-28941.58	7081.63	-4.09 : 1
5	2000-01	-20587.6	11208.58	-1.84 : 1
6	2001-02	-25251.49	13021.93	-1.94 : 1
7	2002-03	-12243.19	6482.02	-1.89 :1
8	2003-04	-1226.93	7850.91	-0.16 : 1
9	2004-05	-1150.13	7500.4	-0.15 : 1
10	2005-06	164.87	5878.95	0.03 : 1
<b>Average</b>		-12288.49	6939.54	<b>-1.98</b>
<b>S D</b>		10569.39	3271.54	<b>1.77</b>
<b>C V %</b>		-86.01	47.14	<b>-89.09</b>
<b>Compound Annual Growth Rate %</b>		-103.49	8.73	<b>-165.75</b>

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

**Chart 6.11**  
**Interest Coverage Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Interest Coverage Ratio of GSRTC has been presented in the Table No 6.9. In GSRTC, the Interest Coverage Ratio shows fluctuating trend. It ranged between –5.55 times in the year 1997-98 and 0.03 times in the year 2005-06 with an average ratio of -1.98 times.

Though, the ratio shows fluctuating trend during the whole study period except from the year 2003-04, it was increasing.

Interest Coverage Ratio as presented in Chart 6.11 was more than average Interest Coverage ratio of -1.98 times during the whole study period except from the year 1997-98 to 1999-00.

The fluctuating trend of the Interest Coverage Ratio with its possible reasons is explained as below:

1. In the year 1997-98, 1999-00, there was an increase in gross revenue by around Rs. 5340 lacs and Rs. 12294 lacs respectively and increase in gross expenditure by around Rs. 19138 lacs and Rs. 32643 lacs respectively. Thus the loss of Rs. 7274 lacs and Rs. 15673 lacs in the previous year increased to Rs. 21072 lacs and Rs. 36023 lacs respectively in the current year. The margin has been reduced mainly due to uncontrollable factors like rise in prices of diesel and other items, increased rates of dearness allowance, payment of ex gratias, provisions for settlement arrears etc. On the contrary, interest on borrowing increased (around Rs.568.81 lacs and Rs. 2570.39 lacs respectively). This reduced the Interest Coverage Ratio during the year.
2. In the year 1998-99, 2000-01, there was an increase in gross revenue by around Rs. 8731 lacs, Rs. 17621 lacs respectively and increase in gross expenditure by around Rs. 3332 lacs and Rs. 13394 lacs respectively. Thus the loss of Rs. 21072 lacs and Rs. 36023 lacs in the previous year decreased to Rs. 15673 lacs and Rs. 31716 lacs respectively in the current year. The margin has been improved mainly due to reimbursement of student concession pass and increased rate



of rent from 1/1/99 and 28/12/2000 respectively. This increased the Interest Coverage Ratio during the year.

3. In the year 2003-04, there was an increase in gross revenue by around Rs. 10716.43 lacs and increase in gross expenditure by around Rs. 1069 lacs. Thus the loss of corporation was reduced by around Rs. 9648 lacs in comparison to previous year. The margin has been improved mainly due to reimbursement of student concession pass uneconomic routes, loss due to city services etc. and increased rate of rent and productivity on the one hand and ban on new appointments, and other alike measurements on the other hand.

**t – test**

A study of the time wise variance of Interest Coverage Ratio of GSRTC would be of interest. This may be studied by applying t-test.

**Null Hypothesis:** There is no significance difference between the Interest Coverage Ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the Interest Coverage Ratio of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 6.9, the t-test is presented in the following table.

**Table 6.10**  
**t - test**

X	$\sigma_s$	CV %	d.f.	't' Ratio Calculated Value	Table Value (at 10%level)
-1.98	1.77	-89.09	9	-5.338	±2.262

Table 6.10 indicates that the observed value of t is –5.338, which is in the rejection region, and as such,  $H_0$  is not accepted at 5 per cent level of significance and we can conclude that there is around 89.09 per cent dispersion in the Interest Coverage 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 Interest Coverage Ratio rise from –1.86 to 0.03 with its compound annual growth rate is 30.49%.

**As a whole, from the Interest Coverage Ratio, it may be concluded that:**

- The average Interest Coverage Ratio of –1.98 times implies that for every 1 rupee of interest to be paid, the GSRTC has deficiency of 1.98 rupee of funds for their payment.
- The compound annual growth rate is 40.46%.
- Thus, the overall position of the GSRTC is not satisfactory because the ratio is negative during whole study period. However, it was increasing and positive in the ending year, which is a good sign.

**9. Financial Leverage Ratio**

Financial leverage ratio measures ability of a firm in using debt capital for the benefits of its owners. Professor S. C. Kuchhal has defined financial leverage as “the firm’s ability to use fixed financial charges to magnify the effects of changes in EBIT (Earning before Interest and Tax) on the firm’s EPS (Earning per Share). The EBIT is derived by adding back the interest (interest on loan capital + interest on long-term loans + interest on other loans) and taxes to the amount of net profit. However, in GSRTC, due to losses, amount of taxation is absent.

Financial leverage, sometimes, also termed as trading on equity. Neither a very high leverage nor a very low leverage represents a sound picture. Financial leverage ratio is figured as shown below:

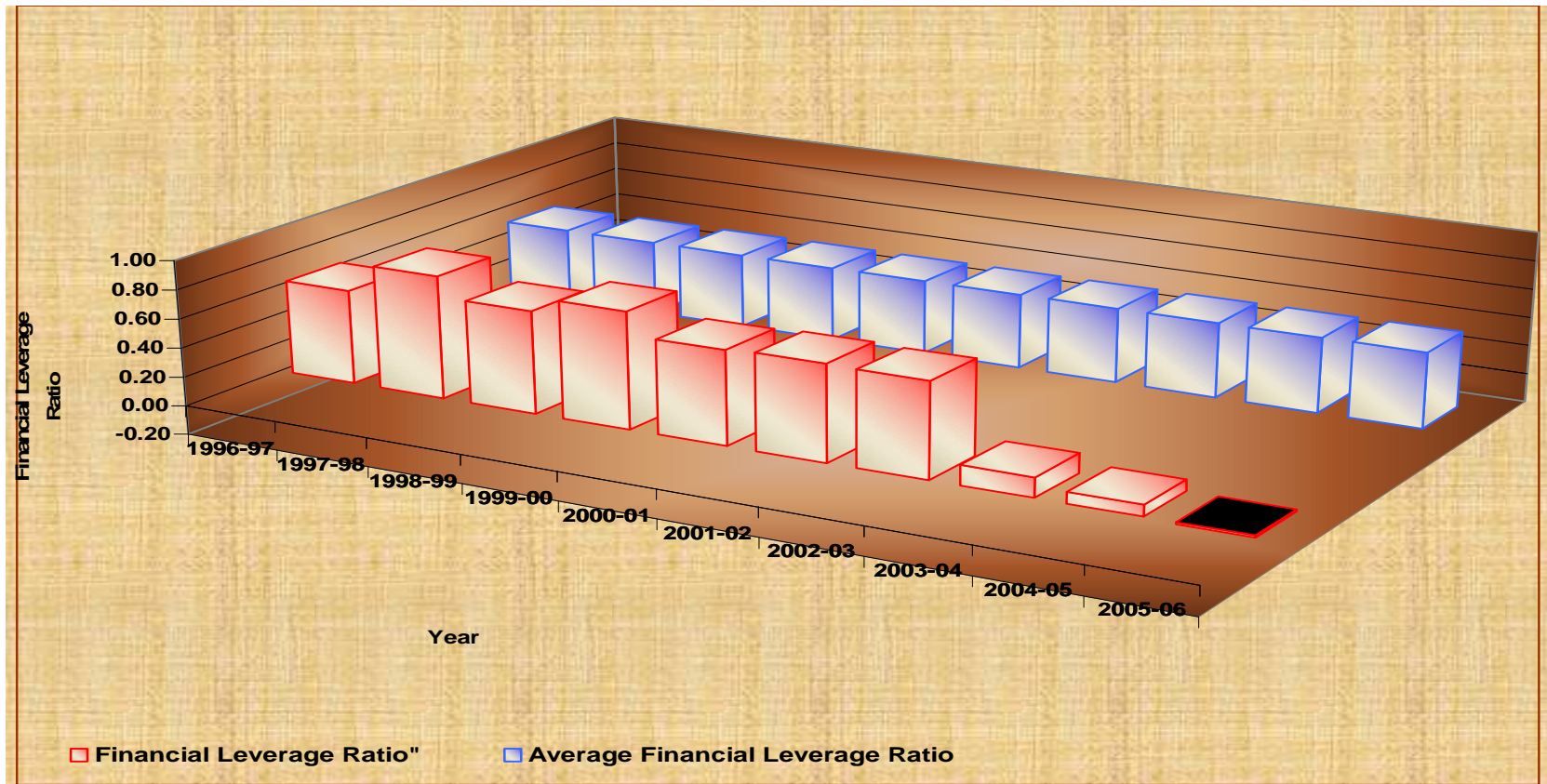
$$\text{Financial Leverage Ratio} = \frac{\text{Earning Before Interest and Taxes (EBIT)}}{\text{Earning Before Taxes(EBT)}}$$

**Table 6.11**  
**Financial Leverage Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>EBIT</b>	<b>EBT</b>	<b>Ratio</b>
1	1996-97	-4729.27	-7274.15	0.65 : 1
2	1997-98	-17857.41	-21072.3	0.85 : 1
3	1998-99	-11062.13	-15673.36	0.71 : 1
4	1999-00	-28941.58	-36023.21	0.80 : 1
5	2000-01	-20587.6	-31796.18	0.65 : 1
6	2001-02	-25251.49	-38273.42	0.66 : 1
7	2002-03	-12243.19	-18725.21	0.65 : 1
8	2003-04	-1226.93	-9077.84	0.14 : 1
9	2004-05	-1150.13	-14888.93	0.08 : 1
10	2005-06	164.87	-11224.26	-0.01 : 1
<b>Average</b>		-12288.49	-20402.89	<b>0.52</b>
<b>S D</b>		10569.39	11225.27	<b>0.32</b>
<b>C V %</b>		-86.01	-55.02	<b>61.54</b>
<b>Compound Annual Growth Rate %</b>		-171.49	4.43	<b>-128.51</b>

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

Chart 6.12  
Financial Leverage Ratio in GSRTC  
From 1996-97 to 2005-06



The Financial Leverage Ratio of GSRTC has been presented in the Table No 6.11. In GSRTC, the Financial Leverage Ratio shows decreasing trend. It ranged between -0.01 times in the year 2005-06 and 0.85 times in the year 1997-98 with an average ratio of 0.52 times.

The ratio shows decreasing trend during the whole study period except in the year 1997-98 and 1999-00. It was less than one during the whole study period. However, the Ratio as presented in Chart 6.12 was above average of 0.52 times except in the last three years.

The ratio registered a sudden fall in the year 2003-04.

The long term debt of corporation have hype of 61.44% (Rs. 5593.44 lacs) and on the other hand, net fixed assets of corporation has very negligible 6.70% increase (Rs.2811.29 lacs) in comparison to last year which results into a considerable fall in the ratio during the year 1998-99.

The long term debt of corporation have huge hype of 226.76% (Rs. 33328.18 lacs) and on the other hand, net fixed assets of corporation has only 35.48% increase (Rs.15891.90 lacs) in comparison to last year which results into a considerable fall in the ratio during the year 1999-00 also.

The coefficient of variation is 61.54 per cent which indicates that there is 61.54 per cent dispersion in financial leverage ratio 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 Financial Leverage Ratio is decreasing. It falls from 0.65 to -0.01. Hence, its compound annual growth rate is negative 128.51%.

As a whole, from the Financial Leverage Ratio, it may be concluded that in GSRTC, Financial Leverage Ratio was not much high, less than one, during whole study period. It indicates that the GSRTC has been enjoying the benefits of trading on equity and was improving over the time as the ratio is decreasing over the time.

## **10. Capital Gearing Ratio**

Capital gearing (leverage) refers to proportion of fixed cost capital (preference shares and debentures) to non-fixed cost capital (equity shares). a proper proportion between the two funds is necessary to keep the cost of capital at the minimum. This ratio indicates “**the extent of trading on equity and extra residual benefits accruing to the equity shareholders**”. It is figured as shown below:

$$\text{Capital Gearing Ratio} = \frac{\text{Loan Capital} + \text{Preference Capital}}{\text{Equity Capital}}$$

In case of GSRTC, only loan capital is used. There is no existence of preference share capital.

If equity share capital is lower than the loan capital, the capital structure is said to be ‘high geared’. on the other hand, if the equity share capital is higher than the loan capital, the capital structure is said to be ‘low geared’ and is said ‘even geared’ if both are same.

Low geared capital structure has minimum risk but it has low profit also. On the contrary high geared capital structure indicates higher risk but higher profit.

Hence, a proper balance between high and low geared capital structures should be worked out to have a sound capital structure. Whether or not, a gearing is optimum depends upon the nature of a business.

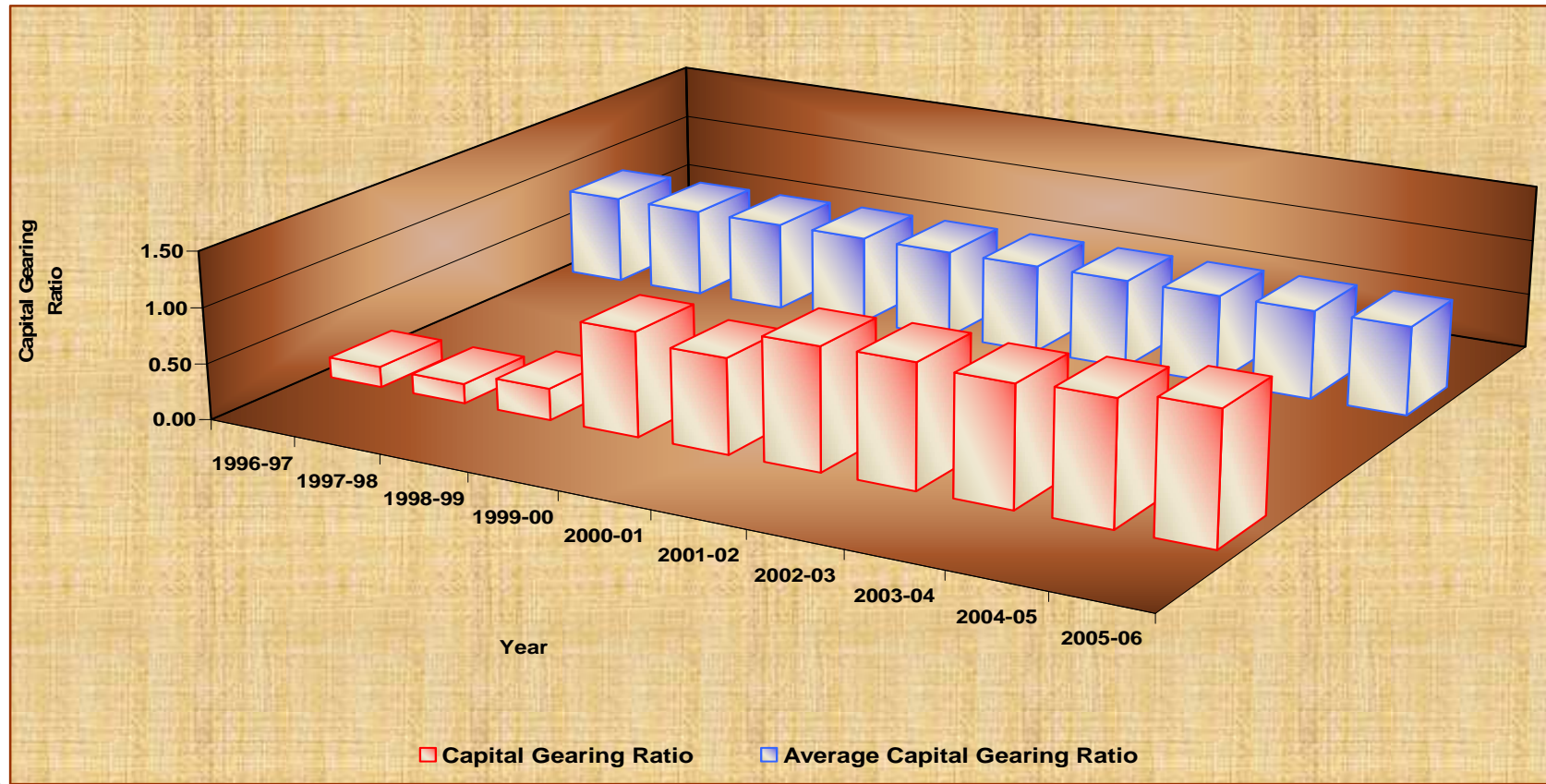
A company can use a successful blend of different sources, if it uses, proper gears which are desirable from the view point of investors, creditors and concern itself.

**Table 6.12**  
**Capital Gearing Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Loan Capital	Shareholder's Equity	Ratio
1	1996-97	8156.94	43734.64	0.19 : 1
2	1997-98	7736.84	43734.64	0.18 : 1
3	1998-99	13300.92	47234.64	0.28 : 1
4	1999-00	46543.81	49734.64	0.94 : 1
5	2000-01	45817.64	53895.39	0.85 : 1
6	2001-02	60973.35	55680.39	1.10 : 1
7	2002-03	63085.34	57085.13	1.11 : 1
8	2003-04	63571.85	59096.13	1.08 : 1
9	2004-05	67193.88	60865.13	1.10 : 1
10	2005-06	73384.5	62634.13	1.17 : 1
<b>Average</b>		44976.507	53369.49	<b>0.80</b>
<b>S D</b>		25775.14	6918.13	<b>0.41</b>
<b>C V %</b>		57.31	12.96	<b>51.84</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>20.17</b>

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

**Chart 6.13**  
**Capital Gearing Ratio in GSRTC**  
**From 1996-97 to 2005-**



06



The Capital Gearing Ratio, as presented in the Table 6.12. ranged between 0.18 times in the year 1997-98 and 1.17 times in the year 2005-06 with an average ratio of 0.80 times.

The ratio shows increasing trend during the whole study period except in the year 1997-98, 2000-01 and 2003-04. It was less than one during the initial five years however, was above average except in the first three years.

During the year, the corporation issued the debenture bonds worth Rs. 35000 lacs to raise the funds for capital expenses. Also Rs. 1300 lacs loans were borrowed from the bank. Corporation paid off Rs. 3055 lacs back to LIC, Banks etc. as the settlement amount. So, in all the funds of Rs. 11512 lacs (as on 31<sup>st</sup> March, 1999) had a hype of 44757 lacs (as on 31<sup>st</sup> March, 2000)

The coefficient of variation is 51.84 per cent which indicates that there is 51.84 per cent dispersion in capital gearing ratio over the period. Moreover, over the course of 10 years of study period the ratio has risen from 0.19 to 1.17. Hence, its compound annual growth rate is 20.17%.

As a whole, from the Capital Gearing Ratio, it may be concluded that in GSRTC, the capital structure is low geared in the initial three years and near to even geared in the next two succeeding years. However, it was high geared in the last five years.

#### **11. Net Fixed Asset-Net worth Ratio**

This ratio relates net fixed asset (gross block minus depreciation) to net worth. It indicates “**the extent to which owner’s capital is invested in net fixed asset.**” It is figured as shown below:

$$\text{Net Fixed Assets-Net worth Ratio} = \frac{\text{Net Fixed Assets}}{\text{Net Worth}}$$

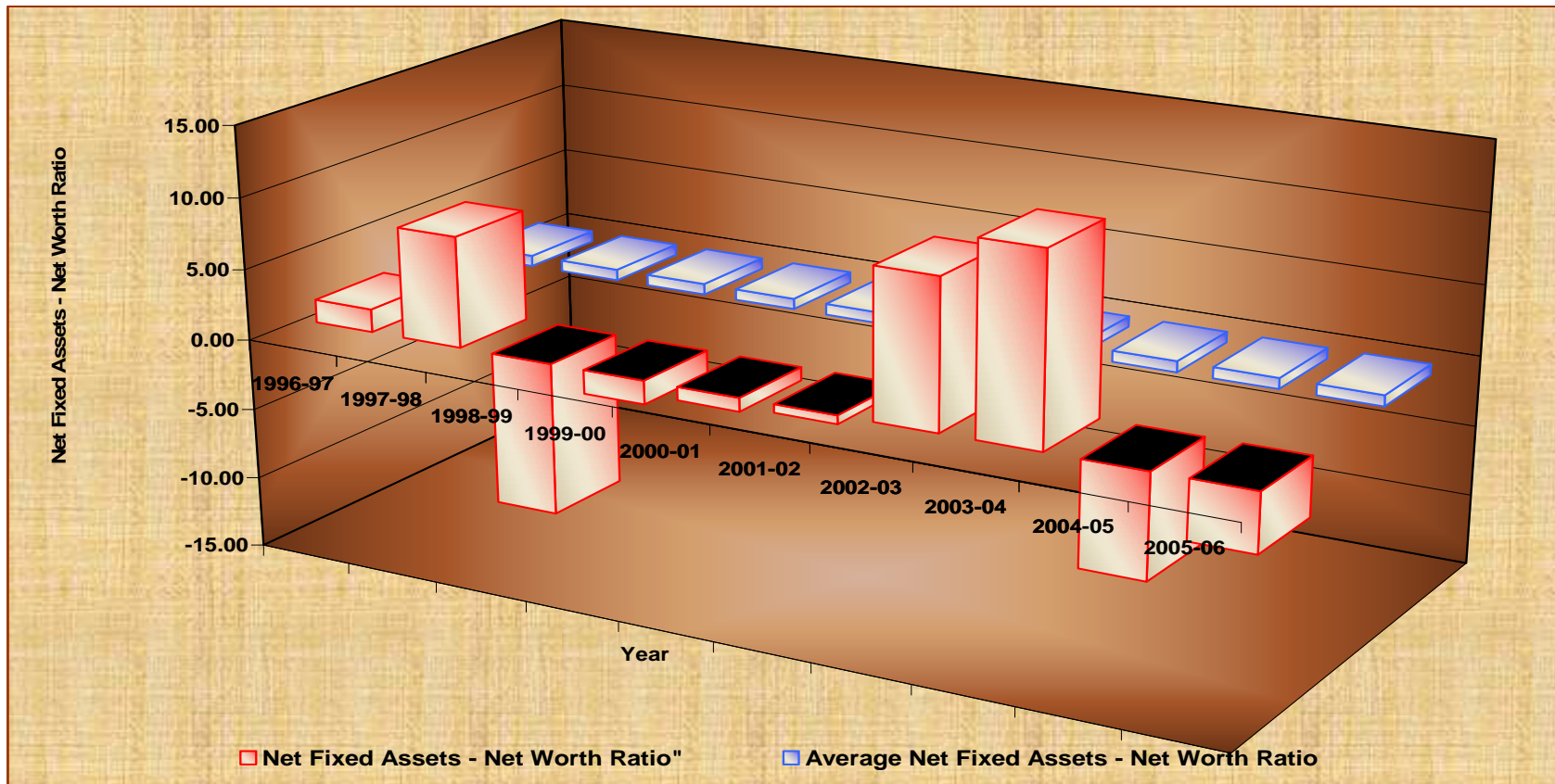
If Net Fixed Assets exceeds Net Worth, then it implies that the creditors have contributed towards large proportion of the Net Fixed Assets. On the contrary, if Net Worth exceeds Net Fixed Assets, then it implies that a part of the net working capital is provided by the shareholders.

**Table 6.13**  
**Net Fixed Assets - Net Worth Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Net Fixed Assets</b>	<b>Net Worth</b>	<b>Ratio</b>
1	1996-97	40383.81	24936.8	1.62 : 1
2	1997-98	41974.32	5383.69	7.80 : 1
3	1998-99	44785.61	-4192.46	-10.68 : 1
4	1999-00	60677.51	-36515.83	-1.66 : 1
5	2000-01	58495.22	-61941.51	-0.94 : 1
6	2001-02	55260.95	-93665.33	-0.59 : 1
7	2002-03	55532.89	5346.38	10.39 : 1
8	2003-04	56736.98	4294.37	13.21 : 1
9	2004-05	57475.71	-7864.62	-7.31 : 1
10	2005-06	69266.93	-16819.07	-4.12 : 1
<b>Average</b>		54058.99	107172.18	<b>0.77</b>
<b>S D</b>		9044.79	121118.09	<b>7.66</b>
<b>C V %</b>		16.73	113.01	<b>993.81</b>
<b>Compound Annual Growth Rate %</b>		5.54	0.40	<b>-18.26</b>
<b>Coefficient of Corelation</b>		-	-	<b>-0.43</b>

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

**Chart 6.14**  
**Net Fixed Assets-Net worth Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Net Fixed Assets-Net worth Ratio, as presented in the Table 6.13, ranged between –10.68 times in the year 1998-99 and 13.65 times in the year 2003-04 with an average ratio of 0.77 times.

The ratio shows increasing trend during the study period from 1998-99 to 2003-04. The ratio, as presented in Chart 6.14, was less than average except in the year 1996-97, 1997-98, 2002-03 and 2003-04.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the Ratio has fallen from 1.62 to -4.12. Hence, its compound annual growth rate is negative 18.26%.

In GSRTC the Net Fixed Assets and Net Worth having negative correlation at 0.47 reveals that it does not following uniform and well managed policy for raising fixed assets from borrowed as well as owned capital. From the creditors point of view the long-term financial performance of GSRTC was not that much sound.

As a whole, from the Net Fixed Assets-Net worth Ratio, it may be concluded that the Ratio is negative during the whole study period except in the year 1996-97, 1997-98 and 2002-03 due to negative net worth. It implies that the capital structure of the GSRTC is not sound and there is deficiency of owners' fund. It depends on outside funds for financing its fixed assets as most of the net worth is used for adjusting heavy losses suffered by the corporation.

## **12. Fixed Asset- Debt Ratio**

This ratio relates net fixed asset to long term debt. It indicates **“the extent to which outside liability is secured with fixed asset.”** It is figured as shown below:

$$\text{Fixed Assets - Debt Ratio} = \frac{\text{Net Fixed Assets}}{\text{Long Term Debt}}$$

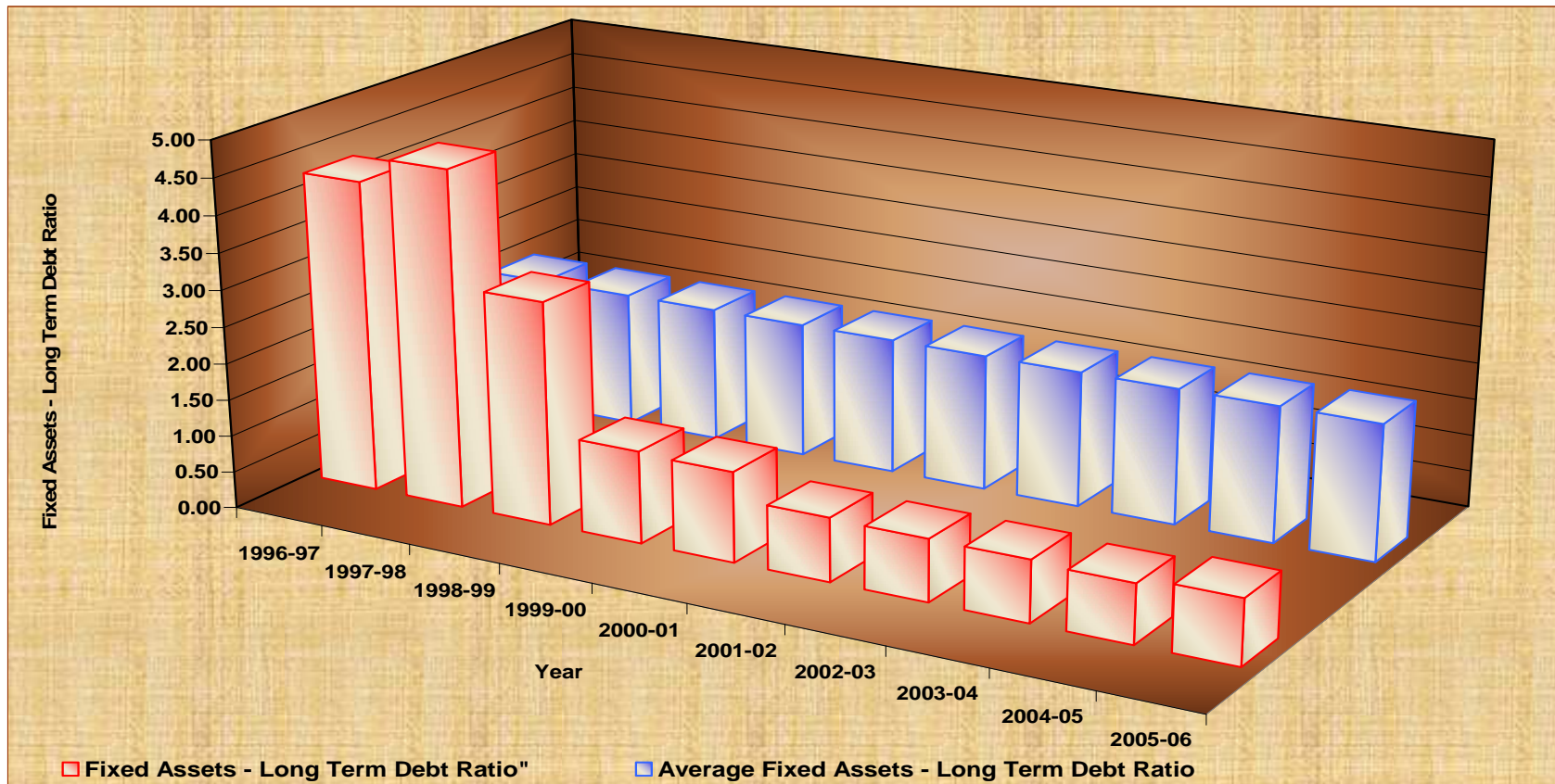
If Net Fixed Assets exceeds long term debt, it is a good sign for the long term creditors. On the contrary if long term debt exceeds Net Fixed Assets, it is a danger signal for them.

**Table 6.14**  
**Fixed Assets - Long Term Debt Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Net Fixed Assets</b>	<b>Long-term Debt</b>	<b>Ratio</b>
1	1996-97	40383.81	9488.09	4.26 : 1
2	1997-98	41974.32	9104.44	4.61 : 1
3	1998-99	44785.61	14697.88	3.05 : 1
4	1999-00	60677.51	48026.06	1.26 : 1
5	2000-01	58495.22	47423.21	1.23 : 1
6	2001-02	55260.95	63390.47	0.87 : 1
7	2002-03	55532.89	65348.89	0.85 : 1
8	2003-04	56736.98	67239.73	0.84 : 1
9	2004-05	57475.71	71502.36	0.80 : 1
10	2005-06	69266.93	78110.99	0.89 : 1
<b>Average</b>		54058.99	107172.18	<b>1.87</b>
<b>S D</b>		9044.79	121118.09	<b>1.51</b>
<b>C V %</b>		16.73	113.01	<b>80.96</b>
<b>Compound Annual Growth Rate %</b>		5.54	23.47	<b>-14.52</b>

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

**Chart 6.15**  
**Net Fixed Assets – Long term Debt Ratio (times) in GSRTC**  
**From 1996-97 to 2005-06**



The Fixed Assets-Debt Ratio, as presented in the Table 6.14. ranged between 0.80 times in the year 2004-05 and 4.61 times in the year 1997-98 with an average ratio of 1.87 times.

The ratio shows decreasing trend during the whole study period except in the year 1997-98 and 2005-06. It was more than one in the initial five years and was less than one from the year 2000-01 to till the ending year. However, the Ratio as presented in Chart 6.15 was less than average of 1.87 times except in the initial three years.

The ratio registered a sudden fall in couple of the year 1998-99 and 1999-00.

The long term debt of corporation have hype of 61.44% (Rs. 5593.44 lacs) and on the other hand, net fixed assets of corporation has very negligible 6.70% increase (Rs.2811.29 lacs) in comparison to last year which results into a considerable fall in the ratio during the year 1998-99.

The long term debt of corporation have huge hype of 226.76% (Rs. 33328.18 lacs) and on the other hand, net fixed assets of corporation has only 35.48% increase (Rs.15891.90 lacs) in comparison to last year which results into a considerable fall in the ratio during the year 1999-00 also.

It can also be concluded that over the course of 10 years of study period from 1996-97 to 2005-06, the Ratio falls from 4.25 to 0.89. Hence, its compound annual growth rate is negative 14.52%.

As a whole, from the Net Fixed Assets-Long-term Debt Ratio, it may be concluded that in GSRTC, Net Fixed Assets exceeds Long term Debt during first five years. It indicates that the fixed assets provided sufficient securities to long term fund and they can be said to be fully secured by the fixed assets of the GSRTC during that tenure. However, such is not the case in the last five years, as Long tem Debt exceeds Net Fixed Assets during that tenure. Thus, the long term fund is fully secured by the fixed assets in the initial years but it was decreasing over the time.

## **REFERENCES**

11. I. M. Pandey, "Financial Management", 2002, Vikas Publishing House Pvt. Ltd., New Delhi.
12. S. C. Kuchhal, "Financial Management – An Analytical and Conceptual Approach", Chaitanya Publishing House, Allahabad, 1993.
13. Dr. S. N. Maheshwari, "Principles of Management Accounting", Sultan Chand 7 Sons, New Delhi, 2001.
14. James C. Van Horne & John M. Wachowicz, Jr., "Fundamentals of Financial Management", Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2005.
15. M. Y. Khan & P K Jain, "Financial Management – Text and Problems", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2003.
16. Prasanna Chandra, "Financial Management – Theory and Practice", Tata McGraw Hill Publishing Company Limited, New Delhi, 2002.
17. Om Prakash, "Ratio Analysis for New Perspective", Himalaya Publishing House, Mumbai, 1983.
18. Kulshrestha, N. K., "Analysis of Financial Statements Indian Paper Industry", Aligarh, Nav Prakashan, 1972.
19. Brigham E.F., "Fundamentals of Financial Management", Dryden Press Hinsdale, Illinois, 1978.
20. Wesel H., "Principles of Financial Analysis", Macmillan, New York, 1961.
21. R. B. Mayer, "Contemporary Financial Management", West Publishing Co., 1980.



# ACTIVITY ANALYSIS

- **Introduction**
- **Analysis in Terms of Growth of Activity**
- **Analysis in terms of Total Resources**
- **Analysis in Terms of Conduct of Activity**

## **7.1 INTRODUCTION**

Passengers are the pivot around which all the operations of GSRTC cluster. The profit or loss of the corporation depends upon the revenue earned by the corporation which in turn depends upon the magnitude of passengers. Thus, passengers occupy the key position in GSRTC. The quality, quantity and regularity of flow of revenue income are the indicatives of the physical existence and financial condition of the corporation. It is but natural that with the large number of passengers, the corporation operates with greater profits and effectiveness and its operations boost up.

Thus, the effectiveness of activity of GSRTC can be measured in terms of its contribution in revenue income. This can be measured with help of activity ratios. Activity ratios also known as turnover ratios, measure the financial position of the corporation in terms of revenue income of the GSRTC. The activity analysis of GSRTC has been undertaken from the following perspectives:

1. The growth of activity and its measurement in terms of passengers travelled and revenue income.
2. Activity in relation to total resources
3. The conduct of activity and

## **7.2 GROWTH OF ACTIVITY**

### **A Growth of Activity in terms of Revenue**

The growth in the activity of the GSRTC has been measured in terms of the growth of average yearly revenue income over the study period. It can be figured as:

Growth of Average Yearly Revenue Income

$$\begin{aligned} &= \frac{\text{Absolute Revenue of 2005–06} - \text{Absolute Revenue of 1996–97}}{9 \text{ Years}} \\ &= \frac{1430.17 - 808.68}{9} \\ &= \mathbf{69.05} \end{aligned}$$

**B Growth of Activity in terms of Passengers Travelled**

The growth in the activity of the GSRTC has been measured in terms of the growth of average yearly revenue income over the study period. It can be figured as:

Growth of Average Yearly Passenger Travelled

$$\begin{aligned} &= \frac{\text{Absolute Passengers of 2005-06} - \text{Absolute Passengers of 1996-97}}{9 \text{ Years}} \\ &= \frac{7897.56 - 16472.24}{9} \\ &= \mathbf{-952.74} \end{aligned}$$

Thus, it seems that number of passengers of GSRTC has been decreasing. It was 16472.24 lacs in the year 1996-97. It declined and reached to 7897.56 in the year 2005-06. Hence, performance of GSRTC in terms of passengers travelled is not satisfactory and average yearly passengers travelled fall by 952.74 lacs.

Although, the passengers travelled falls over the time, the revenue income of GSRTC has been increasing. It was Rs. 808.68 lacs in the year 1996-97. It rises and reached to Rs. 1430.17 lacs in the year 2005-06. Hence, performance of GSRTC in terms of revenue income is satisfactory and average yearly revenue income raised by Rs. 69.05 lacs.

The better growth of the annual average revenue is due to changes in fares of bus services and applications of various fare schemes. The attitude of Government for provision of reimbursement on account of loss due to Student Concession, un-economic routes, city Services etc, was also having positive impact on revenue income of GSRTC.

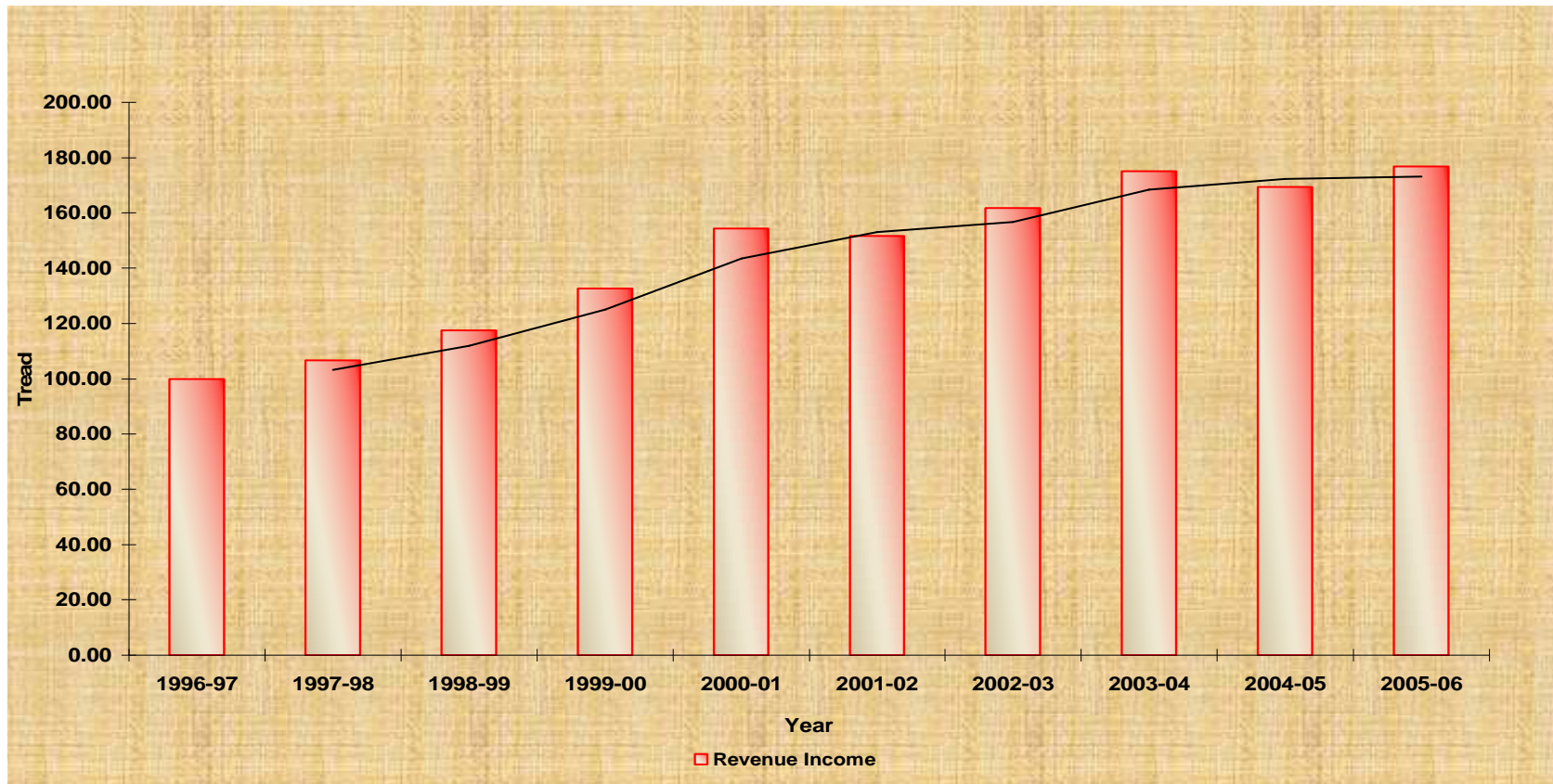
**C Time Series Analysis**

**Table 7.1**  
**Growth of Activities on the Basis of Net Revenue in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in crores)**

<b>Sr.no.</b>	<b>Year</b>	<b>Net Revenue</b>	<b>Index</b>
1	1996-97	808.68	100.00
2	1997-98	862.08	106.60
3	1998-99	949.40	117.40
4	1999-00	1072.33	132.60
5	2000-01	1248.54	154.39
6	2001-02	1226.66	151.69
7	2002-03	1308.24	161.77
8	2003-04	1415.40	175.03
9	2004-05	1370.71	169.50
10	2005-06	1430.17	176.85

Source: Annual Reports and Accounts of GSRTC, Ahmedabad

**Chart 7.1**  
**Temporal Change in Revenue in GSRTC**  
**From 1996-97 to 2005-06**



**Least Square Method and Testing of Hypothesis (Chi-Square Test)**

**Null Hypothesis:** Revenue trend can be represented by the straight line trend based on the least square.

**Alternative hypothesis:** Revenue trend 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 7.2**

**Straight Line Trend Analysis of Revenue and Chi-Square Test in GSRTC  
From 1996-97 to 2005-06 (Rs. In crores)**

Sr. no.	Year	Revenue (Actual)	Revenue (Computed)	Deviations
1	1996-97	808.68	837.3	-28.62
2	1997-98	862.08	911.06	-48.98
3	1998-99	949.4	984.82	-35.42
4	1999-00	1072.33	1058.58	13.75
5	2000-01	1248.54	1132.34	116.20
6	2001-02	1226.66	1206.1	20.56
7	2002-03	1308.24	1279.86	1.02
8	2003-04	1415.4	1353.62	1.05
9	2004-05	1370.71	1427.38	0.96
10	2005-06	1430.17	1501.14	0.95

**Calculated Value of Chi-square = 17.342**

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

**The Equation of Straight Line Trend of Revenue (Y) = 1169.22 +36.88x**

Table 7.2 indicates that the calculated value (17.342) of Chi-Square( $X^2$ ) is greater than its table value (16.919), this confirms the deviation in actual revenue and computed revenue was significant.

The computed value of  $X^2$  is 17.342, which is in the rejection region, and thus  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, the test of fitness is not held good. The growth of revenue is not as per expectation over the period.

### **7.3 ACTIVITY IN RELATION TO TOTAL RESOURCES**

In service sector, all the activities are performed for producing revenue. Revenue is affected by total resources available in the business. Efficient utilisation and rotation of total resources leads towards profitability. Therefore, a firm should manage its total resources efficiently to maximise profit. Here, total resources indicate total assets which are made up of fixed assets and current assets.

The relationship between revenue and various assets is called assets turnover. The assets turnover ratios are used to measure the efficiency with which assets of firm are being managed and utilised. In other words, they indicate the speed with which assets are being converted or turned over into revenue.

Higher the turnover ratio, more efficient is the management and utilisation of the assets while low turnover ratios are indicative of under utilisation of available resources and presence of idle capacity. In operational terms, it implies that the firm can expand its activity level without requiring additional capital investment.

Several assets turnover ratios can be calculated. Some of the important ratios which have been used in the study are:

### **1. Total Assets Turnover Ratio**

The Total Assets Turnover Ratio indicates the firm's ability in generating revenue from all financial resources committed to total assets. This is also termed as capital turnover ratio. This can be figured as:

$$\text{Total Assets Turnover Ratio} = \frac{\text{Net Revenue}}{\text{Total Assets}}$$

Generally, a high ratio indicates efficient utilization of total assets in generating revenue while a low ratio indicates inefficient management and utilization of total assets, i.e. the company has an excessive investment in total assets in comparison to the amount of revenue.

The total assets of an organization can be classified into fixed assets and current assets on the basis of the purpose for which they are used. The assets that are turned into finished products through the production process are generally known as current assets. Those assets, which help the current assets to move into the production process, are generally known as fixed assets. This classification of total assets into fixed assets and current assets is desired for the purpose of financial planning and control. It helps the management in timely procurement of funds and ensures their efficient utilization. It also ensures a fair rate of return on the funds employed through effective planning and implementation process.

In GSRTC, total asset is the blend of fixed assets, current assets and Investment. Land, Building, Passenger Vehicles, Departmental Vehicles, Plant, Machinery & Equipment etc. comprise fixed assets while stores & Inventories, loans & Advances, Sundry Debtors, Cash on Hand & at bank etc. comprise current assets of GSRTC. Investment includes Government and Semi Government Securities. Total assets are net of depreciation and are exclusive of fictitious assets like debit balance of profit and loss account and deferred expenditures and so on.

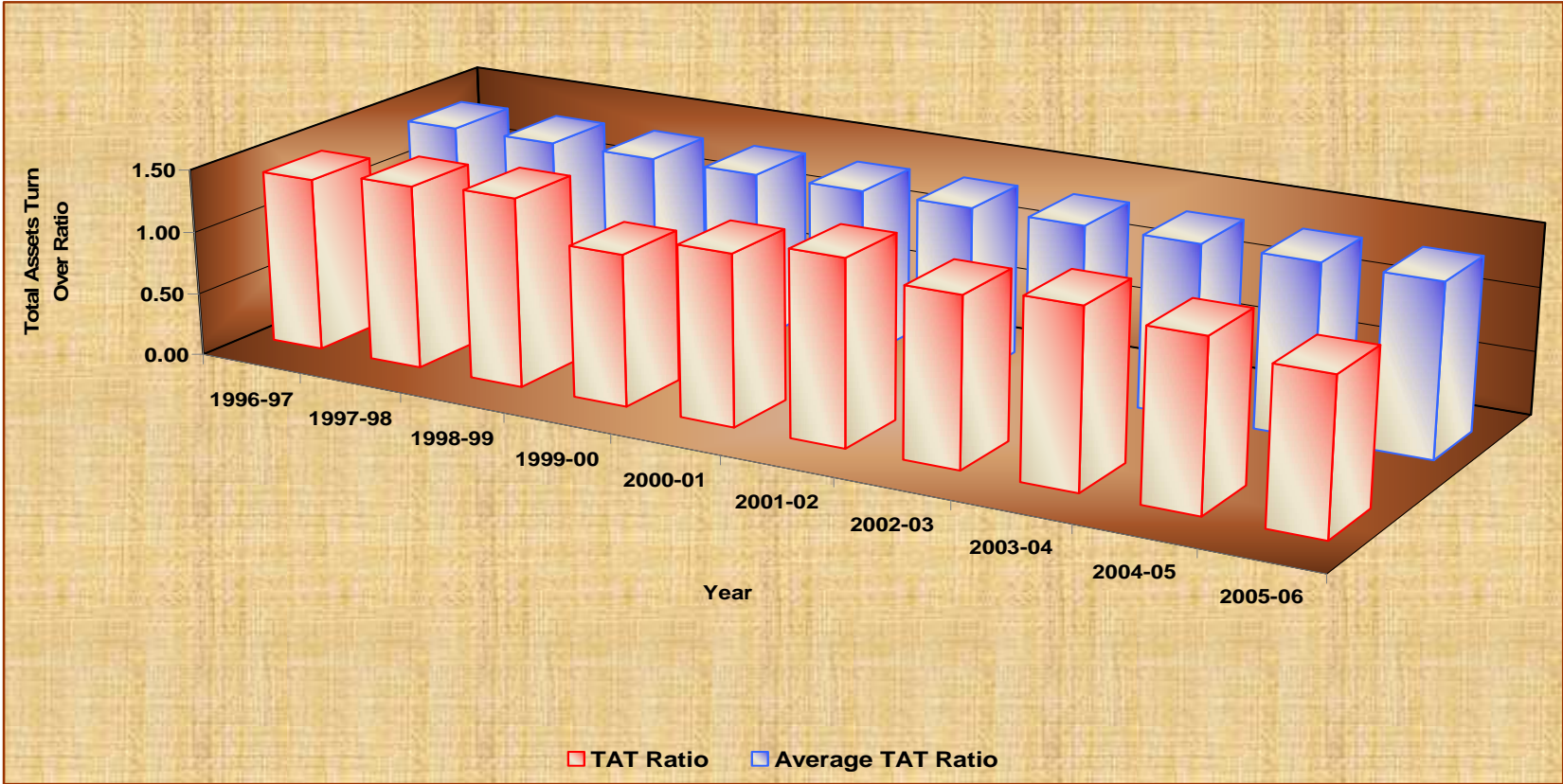


**Table 7.3**  
**Total Assets Turnover Ratio (times) in GSRTC**  
**From 1996-1997 to 2005-2006 (Rs. in lacs)**

Sr. no.	Year	Total Revenue	Total Assets	Ratio
1	1996-97	80868.41	58562.66	1.38 : 1
2	1997-98	86208.27	59197.19	1.46 : 1
3	1998-99	94939.69	63097.09	1.50 : 1
4	1999-00	107233.27	89065.26	1.20 : 1
5	2000-01	124854.28	92655.6	1.35 : 1
6	2001-02	122666.38	84240.78	1.46 : 1
7	2002-03	130824.01	98702.73	1.33 : 1
8	2003-04	141540.43	101153.52	1.40 : 1
9	2004-05	137070.71	102902.85	1.33 : 1
10	2005-06	143016.76	118527.86	1.21 : 1
<b>Average</b>		116922.22	86810.554	<b>1.36</b>
<b>S D</b>		23099.90	20495.84	<b>0.10</b>
<b>C V %</b>		19.76	23.61	<b>7.40</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>-1.34</b>

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

**Chart 7.2**  
**Total Assets Turn Over Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Total Assets Turn over Ratio of GSRTC has been presented in the Table No. 7.3. In GSRTC, the Total Assets Turn over Ratio shows fluctuating trend. It ranged between 1.50 times in the year 1998-99 and 1.20 times in the year 1999-00 with an average ratio of 1.36 times.

The ratio shows decreasing trend during the year 1999-00, 2002-2003, 2004-05 and 2005-2006 and increasing trend during the rest of the years.

Total Assets Turn over ratio as presented in Chart 7.2 was below the average in the year 1999-00, 2002-2003, 2004-05 and 2005-2006. It was above the average in the rest of the years.

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

A study of the time wise variance of Total Assets Turn over ratio of GSRTC would be of interest. This may be studied by applying Chi-Square test.

**Null Hypothesis:** Revenue trend can be represented by the straight line trend based on regression analysis.

**Alternative hypothesis:** Revenue trend 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 7.4 indicates that the calculated value (24.317) of Chi-Square( $X^2$ ) is greater than its table value (16.919), this confirms the deviation in actual revenue and computed revenue were significant and they could not be attributed to sampling rather they were due to the under utilization of total assets.

**Table 7.4**  
**Regression Analysis of Revenue and Chi-Square Test in GSRCT**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Revenue (Actual)	Revenue (Computed)	Deviations
1	1996-97	808.68	867.65	-58.97
2	1997-98	862.08	874.50	-12.42
3	1998-99	949.4	916.62	32.78
4	1999-00	1072.33	1197.07	-124.74
5	2000-01	1248.54	1235.85	12.69
6	2001-02	1226.66	1144.97	81.69
7	2002-03	1308.24	1301.16	1.01
8	2003-04	1415.4	1327.63	1.07
9	2004-05	1370.71	1346.52	1.02
10	2005-06	1430.17	1515.27	0.94

**Calculated Value of Chi-square = 24.317**

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

**Regression Line of Revenue (Y) on Total Assets (X) = 235.17 +1.08x**

The computed value of  $X^2$  is 24.317, which is in the rejection region, and thus  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, the test of fitness is not held good in GSRTC over the period. The performance of GSRTC was not satisfactory as regard to the use of total assets in the generation of revenue. It can be able to over utilize its total assets in generation of revenue.

The coefficient variation in Total Assets Turn Over ratio is 7.40, which indicates that there is 7.40 per cent dispersion in the Total Assets Turn over 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 Total Assets Turn over Ratio fall from 1.38 to 1.21. Hence, its compound annual growth rate is negative 1.34%.

**As a whole, from the Total Assets Turn over Ratio, it may be concluded that:**

- The GSRTC could not utilize its total assets efficiently in generation of revenue.
- The utilization is decreasing as its compound annual growth rate is negative 1.34%.
- The GSRTC is able to over utilize its total assets in generation of revenue.

## **2. Gross Fixed Assets Turnover Ratio**

The Gross Fixed Assets Turnover Ratio indicates the efficiency with which the firm is utilizing its investment in fixed assets. It also indicates the adequacy of sales in relation to the investment in fixed assets. It can be figured as:

$$\text{Gross Fixed Assets Turnover Ratio} = \frac{\text{Net Revenue}}{\text{Gross Fixed Assets}}$$

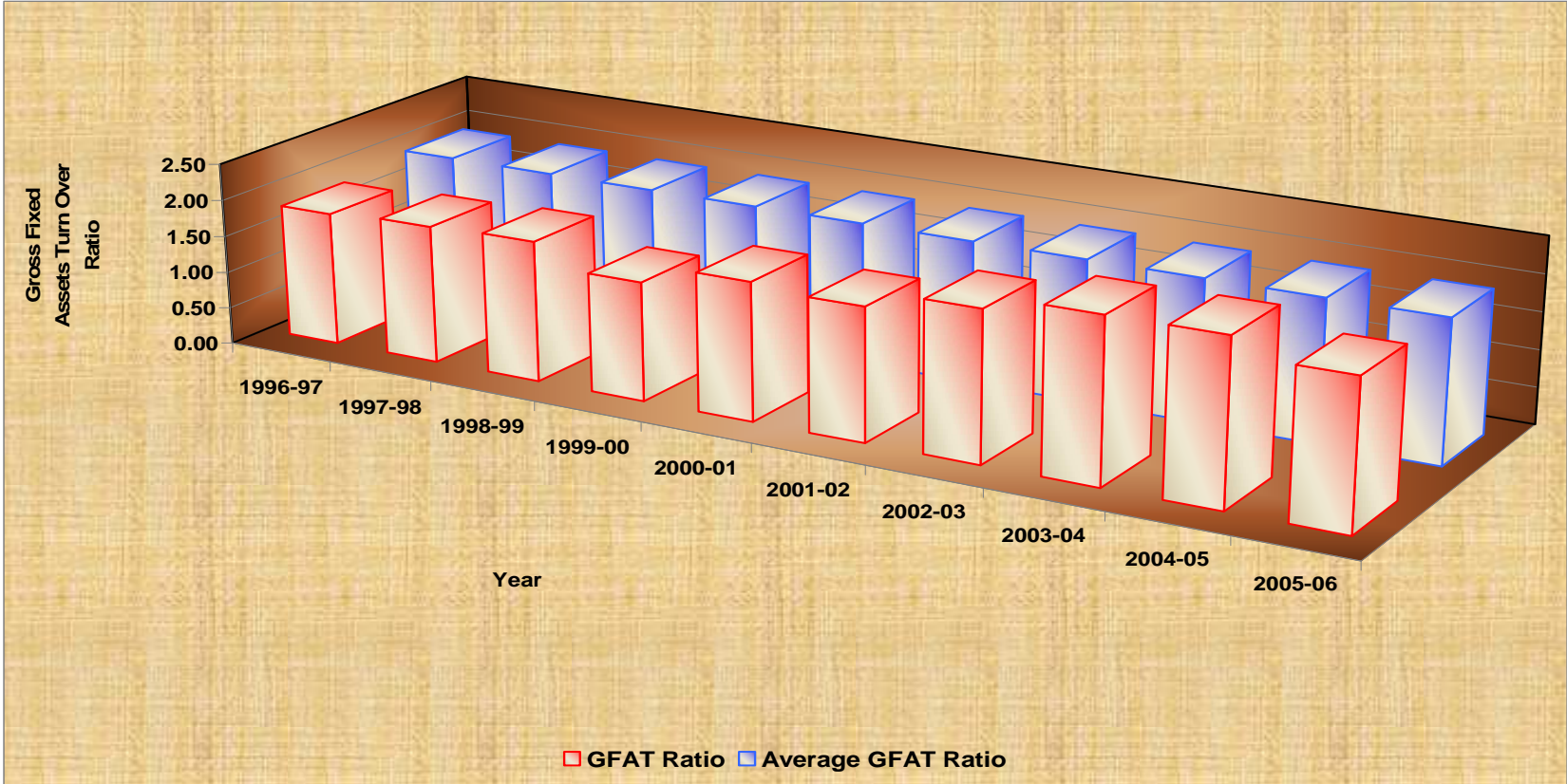
Generally, a high ratio indicates efficient utilization of fixed assets in generating revenue while a low ratio indicates inefficient management and utilization of fixed assets, i.e. the company has an excessive investment in fixed assets in comparison to the amount of revenue.

**Table 7.5**  
**Gross Fixed Assets Turnover Ratio (times) in GSRTC**  
**From 1996-1997 to 2005-2006 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Total Revenue</b>	<b>Gross Fixed Assets</b>	<b>Ratio</b>
1	1996-97	80868.41	44732.32	1.81 : 1
2	1997-98	86208.27	46007.64	1.87 : 1
3	1998-99	94939.69	49683.45	1.91 : 1
4	1999-00	107233.27	66482.65	1.61 : 1
5	2000-01	124854.28	66943.23	1.87 : 1
6	2001-02	122666.38	68302.82	1.80 : 1
7	2002-03	130824.01	64382.89	2.03 : 1
8	2003-04	141540.43	64093.91	2.21 : 1
9	2004-05	137070.71	61745.04	2.22 : 1
10	2005-06	143016.76	71857.15	1.99 : 1
<b>Average</b>		116922.22	60423.11	<b>1.93</b>
<b>S D</b>		23099.90	9844.94	<b>0.19</b>
<b>C V %</b>		19.76	16.29	<b>9.71</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>0.97</b>

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

**Chart 7.3**  
**Gross Fixed Assets Turn over Ratio in GSRTC**  
**From 1996-97 to 2005-06**



As presented in Table 7.5 the Gross Fixed Assets Turn over Ratio shows increasing trend during the whole study period except in the year 1999-00, 2001-2002, and 2005-2006. It ranged between 2.22 times in the year 2004-05 and 1.61 times in the year 1999-00 with an average ratio of 1.93 times.

Gross Fixed Assets Turn over ratio as presented in Chart 7.3 was below the average in the initial seven years. However it was above the average from the year 2002-03 to till the ending year.

The coefficient variation is 9.71, which indicates that there is 9.71 per cent dispersion in the Gross Fixed Assets Turn over 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 Fixed Assets Turn over Ratio has slightly risen from 1.81 to 1.99. Hence, its compound annual growth rate is 0.97%.

**As a whole, from the Gross Fixed Assets Turn over Ratio, it may be concluded that:**

- In GSRTC, though the ratio is increasing, the utilization of fixed assets in generation of revenue is not much satisfactory. However, it was improving from the year 2002-03.
- The utilization is slightly increasing as its compound annual growth rate is 0.97%.
- The GSRTC is able to over utilize its fixed assets in generation of revenue.

### **3. Net Fixed Assets Turnover Ratio**

The Ratio indicates the efficiency with which the firm is utilizing its fixed assets (gross fixed assets less depreciation). It also indicates the adequacy of sales in relation to the investment in fixed assets. It can be figured as:

$$\text{Net Fixed Assets Turnover Ratio} = \frac{\text{Net Revenue}}{\text{Net Fixed Assets}}$$

Generally, a high ratio indicates efficient utilization of fixed assets in generating revenue while a low ratio indicates inefficient management and utilization of fixed assets. It also indicates that the company has an excessive investment in fixed assets in comparison to the amount revenue.

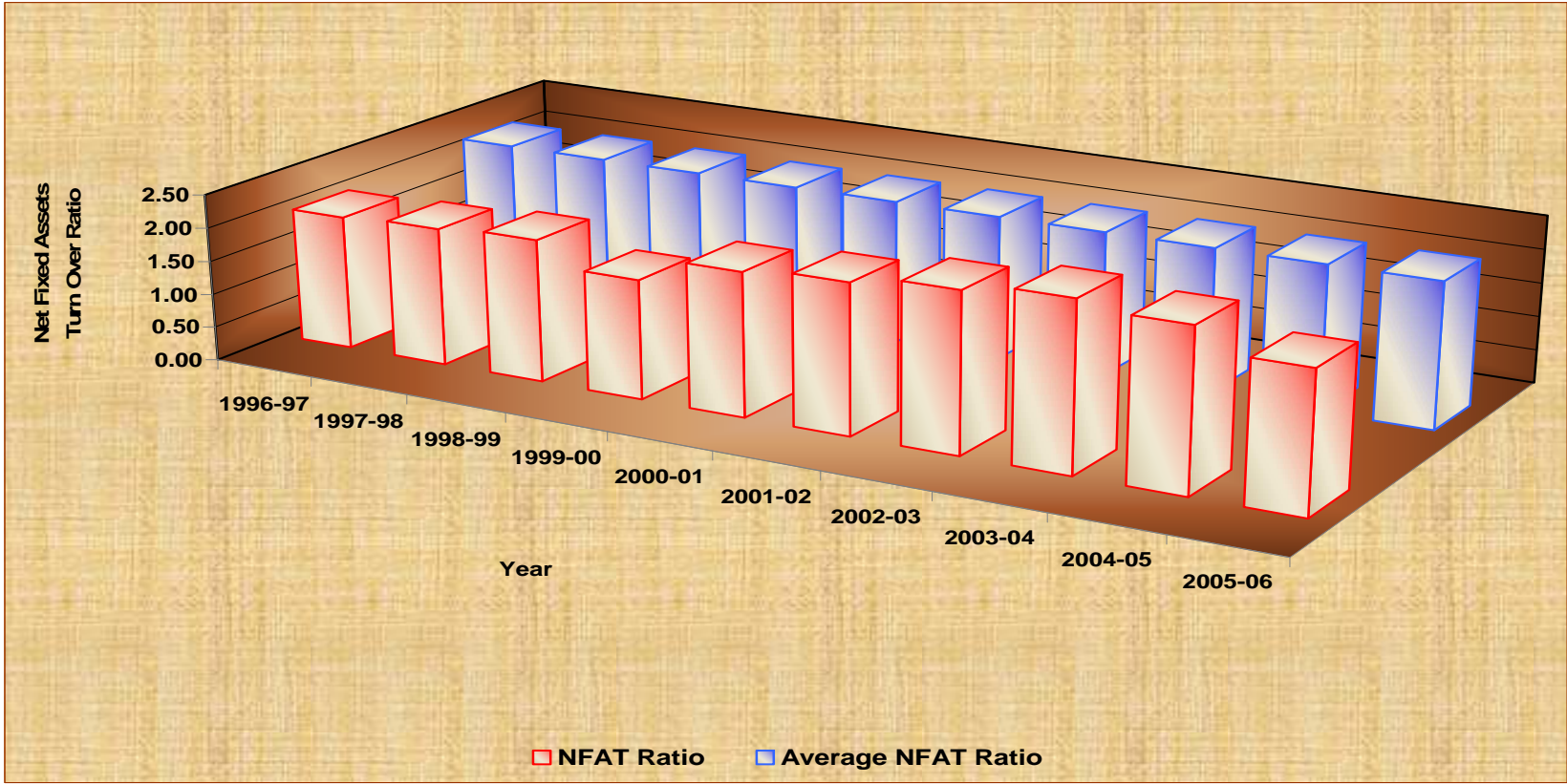


**Table – 7.6**  
**Net Fixed Assets Turnover Ratio (times) in GSRTC**  
**From 1996-1997 to 2005-2006 (Rs. In lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Total Revenue</b>	<b>Net Fixed Assets</b>	<b>Ratio</b>
1	1996-97	80868.41	40383.81	2.00 : 1
2	1997-98	86208.27	41974.32	2.05 : 1
3	1998-99	94939.69	44785.61	2.12 : 1
4	1999-00	107233.27	60677.51	1.77 : 1
5	2000-01	124854.28	58495.22	2.13 : 1
6	2001-02	122666.38	55260.95	2.22 : 1
7	2002-03	130824.01	55532.89	2.36 : 1
8	2003-04	141540.43	56736.98	2.49 : 1
9	2004-05	137070.71	57475.71	2.38 : 1
10	2005-06	143016.76	69266.93	2.06 : 1
<b>Average</b>		116922.22	54058.993	<b>2.16</b>
<b>S D</b>		23099.90	9044.79	<b>0.21</b>
<b>C V %</b>		19.76	16.73	<b>9.84</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>0.31</b>

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

**Chart 7.4**  
**Net Fixed Assets Turn Over Ratio in GSRTC**  
**From 1996-97 to 2005-06**



As presented in Table 7.6 the Net Fixed Assets Turn over Ratio shows increasing trend during the whole study period except in the year 1999-00, 2004-2005, and 2005-2006. It ranged between 2.49 times in the year 2003-04 and 1.77 times in the year 1999-00 with an average ratio of 2.16 times.

Net Fixed Assets Turn over ratio as presented in Chart 7.4 was below the average in the initial four years and ending year. However, it was considerably high than the average from the year 2002-03 to 2004-05.

The coefficient variation in Net Fixed Assets Turn Over ratio is 9.84, which indicates that there is 9.84 per cent dispersion in the Ratio 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 Fixed Assets Turn over Ratio slightly rise from 2.00 to 2.06. Hence, its compound annual growth rate is 0.31%.

As a whole, from the Net Fixed Assets Turn over Ratio, it may be concluded that: in GSRTC, the utilization of fixed assets in generation of revenue is somewhat satisfactory and also improving over the time. The utilization is slightly increasing as its compound annual growth rate is 0.31%. The GSRTC is able to over utilize its fixed assets in generation of revenue.

#### **4. Current Assets Turnover Ratio**

The Current Assets Turnover Ratio indicates the efficiency with which the firm is utilizing its current assets. It also indicates the adequacy of revenue in relation to the investment in current assets. It can be figured as:

$$\text{Current Assets Turnover Ratio} = \frac{\text{Net Revenue}}{\text{Current Assets}}$$

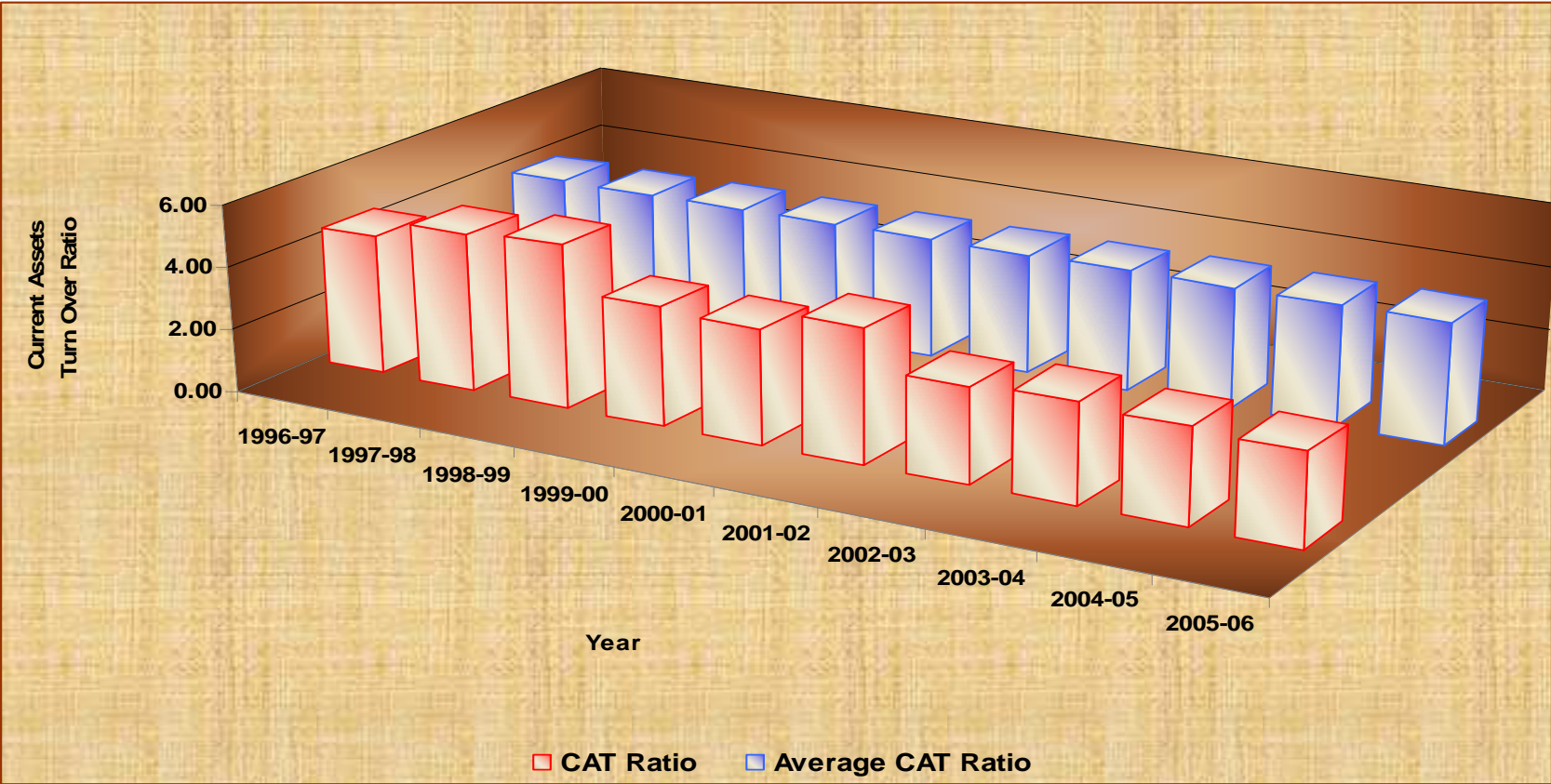
Generally, a high ratio indicates efficient utilization of current assets in generating revenue while a low ratio indicates inefficient management and utilization of current assets, i.e. the company has an excessive investment in current assets in comparison to the amount revenue.

**Table 7.7**  
**Current Assets Turnover Ratio (times) in GSRTC**  
**From 1996-1997 to 2005-2006 (Rs. In lacs)**

Sr. no.	Year	Total Revenue	Current Assets	Ratio
1	1996-97	80868.41	18173.74	4.45 : 1
2	1997-98	86208.27	17208.37	5.01 : 1
3	1998-99	94939.69	18306.37	5.19 : 1
4	1999-00	107233.27	28387.64	3.78 : 1
5	2000-01	124854.28	34160.26	3.65 : 1
6	2001-02	122666.38	28979.83	4.23 : 1
7	2002-03	130824.01	43169.83	3.03 :
8	2003-04	141540.43	44700.29	3.17 : 1
9	2004-05	137070.71	45427.13	3.02 : 1
10	2005-06	143016.76	49261	2.90 : 1
<b>Average</b>		116922.22	32777.446	<b>3.84</b>
<b>S D</b>		23099.90	12394.26	<b>0.84</b>
<b>C V %</b>		19.76	37.81	<b>21.96</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>-4.18</b>

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

**Chart 7.5**  
**Current Assets Turn over Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Current Assets Turn over Ratio of GSRTC has been presented in the Table No. 7.7. In GSRTC, the Ratio shows fluctuating trend. It ranged between 5.19 times in the year 1998-99 and 2.90 times in the year 2005-06 with an average ratio of 3.84 times. The ratio shows fluctuating trend, though it was decreasing during the whole study period.

Current Assets Turn over ratio as presented in Chart 7.5 was above the average in the initial three years and in the year 2001-02. It was below than the average from the year 2002-03 till the ending year.

The coefficient variation in Current Assets Turn Over ratio is 21.96, which indicates that there is 21.96 per cent dispersion in the Ratio 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 Current Assets Turn over Ratio fall from 4.45 to 2.90. Hence, its compound annual growth rate is negative 4.18%.

**As a whole, from the Current Assets Turn over Ratio, it may be concluded that:**

- In GSRTC the utilization of current assets in generation of revenue is not much satisfactory and also decreasing over the time.
- The utilization is also decreasing as its compound annual growth rate is negative.
- The GSRTC is able to over utilize its current assets in generation of revenue.

#### **7.4 ANALYSIS IN RELATION TO CONDUCT OF ACTIVITY**

Revenue is also affected by the firm's efficiency of conducting business operations. Efficiently performed business activities lead towards minimum

expenses which in turn results into profitability. Therefore, a firm should conduct all its activities efficiently to minimise expenses and maximise profit.

The relationship between revenue and operating expenses is called operating ratio. It is used to measure the efficiency with which activities of firm are being conducted. However, as operating expense comprise of different components, it indicate the portion of the revenue which is consumed by the various items of the operating cost.

A high operating ratio is considered unfavourable because it leaves a smaller margin of profit to meet non-operating expenses. On the other hand a lower operating ratio is considered a good sign. Thus, an increasing trend of the ratio denotes inefficiency while a declining trend shows efficiency in the conduct of business operations.

As operating expenses have number of components, several ratios can be calculated. Some of the important ratios which have been used in the study are:

### **5. Operating Expenses Ratio**

It is a ratio showing relationship between Operating expenses and Net Revenue. It shows the efficiency of the management. Higher the ratio, lower will be the margin available to proprietors. This ratio is also usually expressed as a percentage.

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

This ratio suggests that a particular share of revenue is absorbed by operating expenses and the remainder is left for the owners of the business. Hence, the higher this ratio, the less profitable it is, because it would prove insufficient to pay dividend and create necessary reserves.

The ratio Operating Costs to revenue is complementary to the Net Profit Ratio. This ratio indicates the operational efficiency with which the business is being carried out. The reasons for increases, if any, over the previous year should be critically gone into.

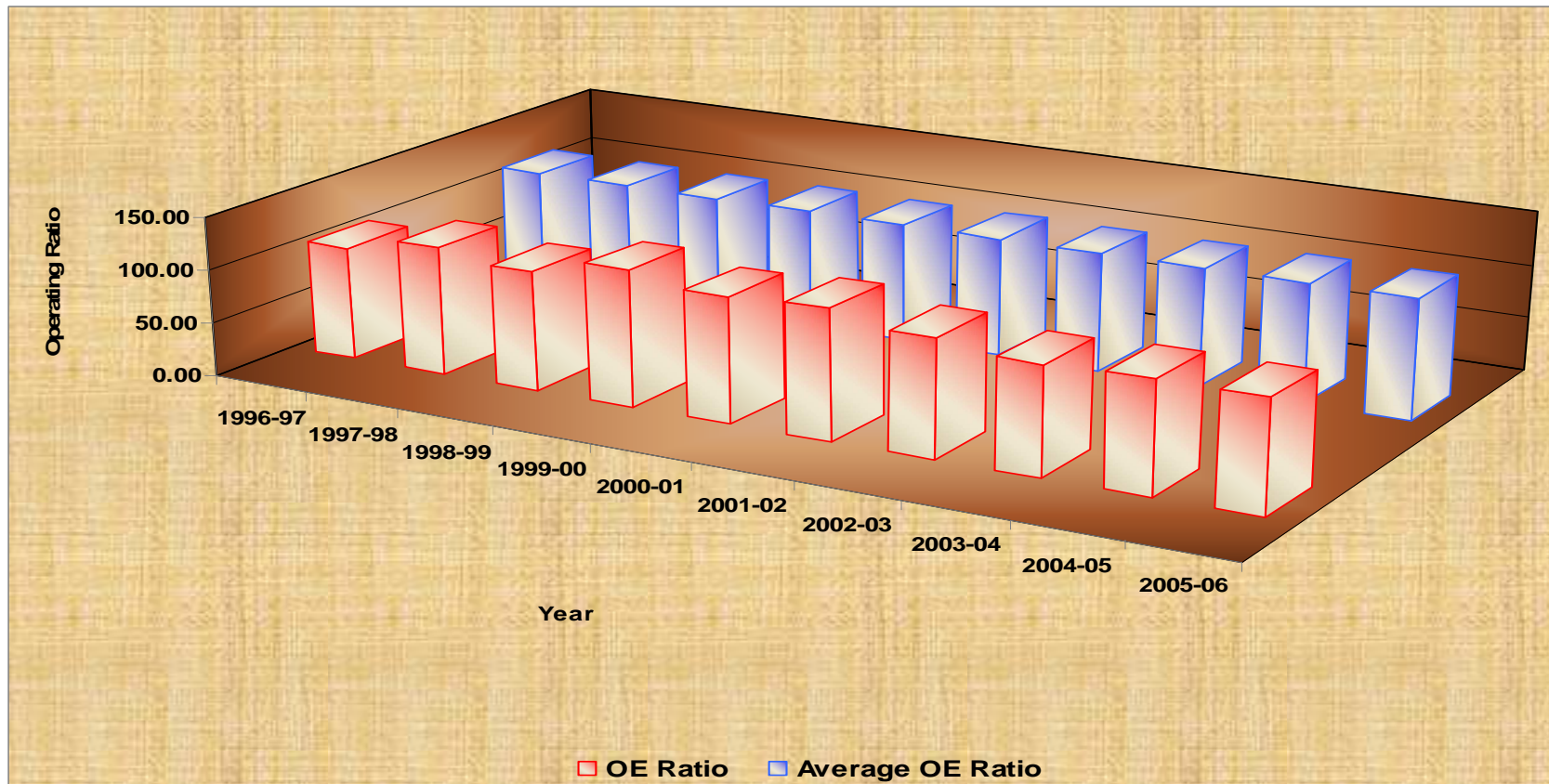
**Table 7.8**  
**Operating Ratio (percentages) in GSRTC**  
**From 1996-1997 to 2005-2006 (Rs. In lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Operating Expenses</b>	<b>Net Revenue</b>	<b>Ratio</b>
1	1996-97	85582.30	80868.41	105.83
2	1997-98	103744.78	86208.27	120.34
3	1998-99	105977.13	94939.69	111.63
4	1999-00	136045.40	107233.27	126.87
5	2000-01	145406.43	124854.28	116.46
6	2001-02	147876.31	122666.38	120.55
7	2002-03	143037.57	130824.01	109.34
8	2003-04	142724.98	141540.43	100.84
9	2004-05	142026.20	137070.71	103.62
10	2005-06	148362.11	143016.76	103.74
<b>Average</b>		130078.32	116922.22	<b>111.92</b>
<b>S D</b>		22721.68	23099.90	<b>8.77</b>
<b>C V %</b>		17.47	19.76	<b>7.84</b>
<b>Compound Annual Growth Rate %</b>		5.66	5.87	<b>-0.20</b>

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



**Chart 7.6**  
**Operating Ratio in GSRTC**  
**From 1996-97 to 2005-06**



As presented in Table 7.8 the Operating Ratio shows fluctuating trend, though it was more than 100 per cent during the whole study period. However, it was decreasing from the year 2002-03. It ranged between 1126.87 per cent in the year 1999-00 and 100.84 per cent in the year 2003-04 with an average ratio of 111.92 per cent.

Operating ratio as presented in Chart 7.6 was above the average from the year 1997-98 to 2001-02. It was below the average from the year 2002-03 till the ending year.

The coefficient variation in operation ratio is 104.65, which indicates that there is 104.65 per cent dispersion in the Ratio 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 Ratio slightly fall from 105.83 to 103.74. Hence, its compound annual growth rate is negative 0.20%.

**As a whole, from the Operating Ratio, it may be concluded that:**

- Operating efficiency of GSRTC was not satisfactory.
- The ratio was more than 100 per cent during whole study period which indicates net loss and lack of control over operating expenses.
- However, it was decreasing from the year 2001-02 and also below the average from the year 2002-03 till the ending year which is a good sign.
- For GSRTC, it is advisable to control operating ratio by reducing operating expenses, so as to improve profitability.

**6. Stores to Net Revenue Ratio**

In GSRTC, stores include items like spare parts, tyres & tubes, lubricants, batteries and other stores (electrical material, consumables, small tools and bus body components). Stores to Net Revenue Ratio indicate the relationship between the stores and the net revenue in GSRTC. It can be figured as:

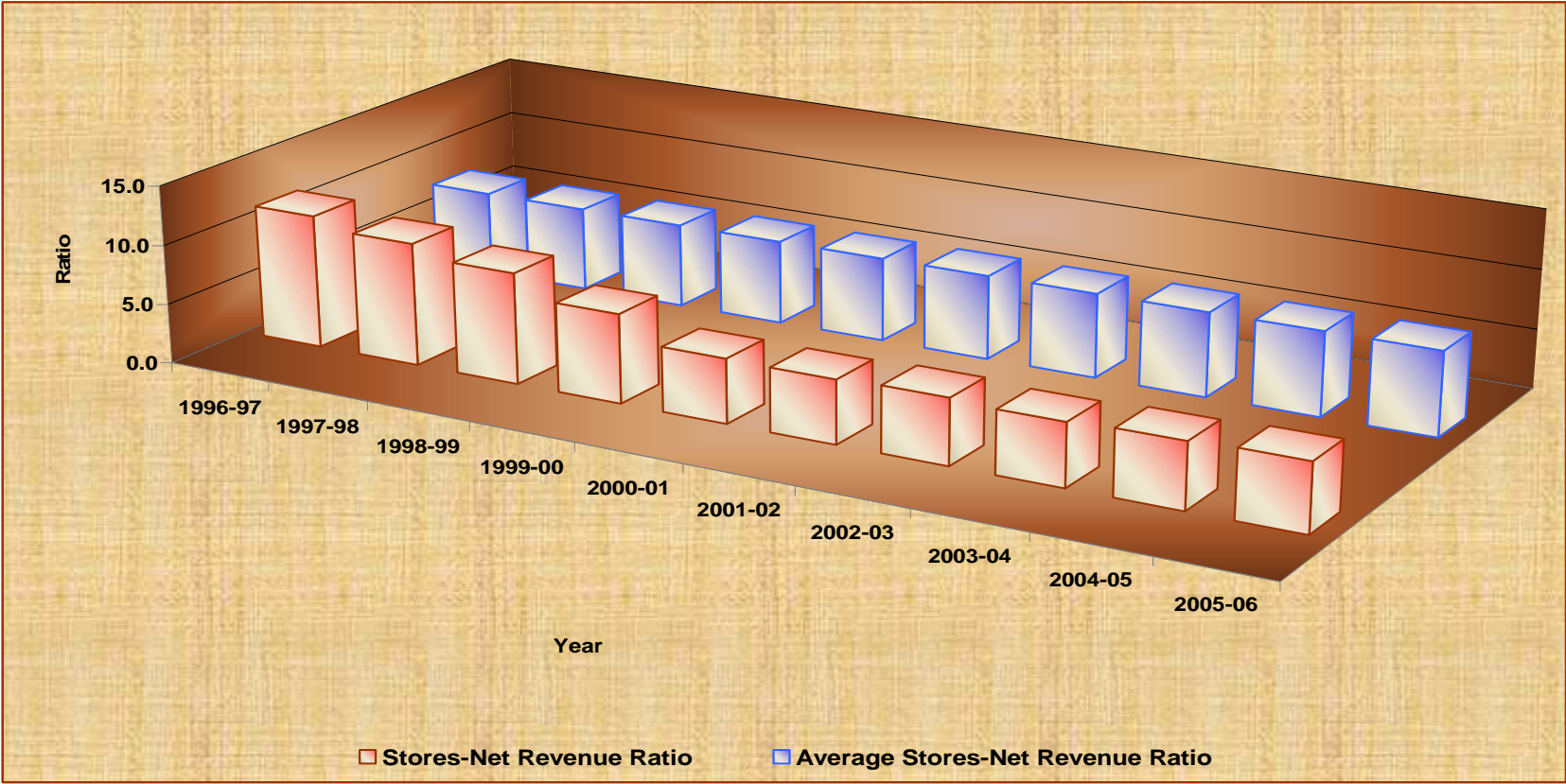
$$\text{Stores to Net Revenue} = \frac{\text{Stores}}{\text{Net Revenue}} \times 100$$

**Table 7.9**  
**Stores to Net Revenue Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. In lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Stores</b>	<b>Net Revenue</b>	<b>Ratio</b>
1	1996-97	9087.53	80868.41	11.24
2	1997-98	8904.27	86208.27	10.33
3	1998-99	8880.73	94939.69	9.35
4	1999-00	8026.41	107233.27	7.48
5	2000-01	6747.98	124854.28	5.40
6	2001-02	6545.90	122666.38	5.34
7	2002-03	7228.55	130824.01	5.53
8	2003-04	7491.13	141540.43	5.29
9	2004-05	7567.70	137070.71	5.52
10	2005-06	8171.13	143016.76	5.71
<b>Average</b>		7865.13	116922.22	<b>7.12</b>
<b>S D</b>		903.52	23099.90	<b>2.33</b>
<b>C V %</b>		11.49	19.76	<b>32.74</b>
<b>Compound Annual Growth Rate %</b>		-1.06	5.87	<b>-6.54</b>

**Sources:** Computed from the annual reports and accounts of the Automobile companies.

**Chart 7.7**  
**Stores Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The Stores Ratio of GSRTC has been presented in the Table No. 7.9. In GSRTC, the Stores Ratio shows decreasing trend in the initial six years and fluctuating trend in the last four years. It ranged between 5.29 per cent in the year 2003-2004 and 11.24 per cent in the year 1996-97 with an average ratio of 7.12 per cent.

The ratio shows decrease trend during the whole study period, except in the year 2002-2003 and 2005-2006. Moreover, Stores ratio as presented in Chart 7.7 was higher than the average ratio up to the year 1999-00. From the year 2000-01, it was above the average ratio till the end year.

### Testing of Hypothesis

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

**Null Hypothesis:** There is no significance difference between the Stores ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the Stores ratio of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 7.9, the t-test is presented in the following table.

**Table 7.10**  
**t - test**

X	$\sigma_s$	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
7.12	2.33	32.74	9	8.301	$\pm 2.262$

Table 7.10 indicates that the calculated value (8.301) of 't' is greater than its table value (2.262), this confirms the significant difference between the Stores ratio of GSRTC over the period.

The observed value of t is 8.301, which is in the rejection region, and thus  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, there is significant difference in the Stores ratio of GSRTC over the period.

The coefficient variation in current ratio is 32.64, which indicates that there is 32.64 per cent dispersion in the Stores 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 Stores ratio fall from 11.24 to 5.71. Hence, its compound annual growth rate is negative 6.54%.

As a whole, from the stores ratio, it may be concluded that the GSRTC kept very few stores, around average 7% against revenue income. The investment in stores is also decreasing due to various measures taken by the corporation. It was around 11% in the year 1996-97. It falls and reached to around 5% in the year 2005-06.

## **7. Fuel to Net Revenue Ratio**

In GSRTC, fuel is an essential requirement. Fuel to Net Revenue Ratio indicates the relationship between the fuel and the net revenue in GSRTC. It can be figured as:

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

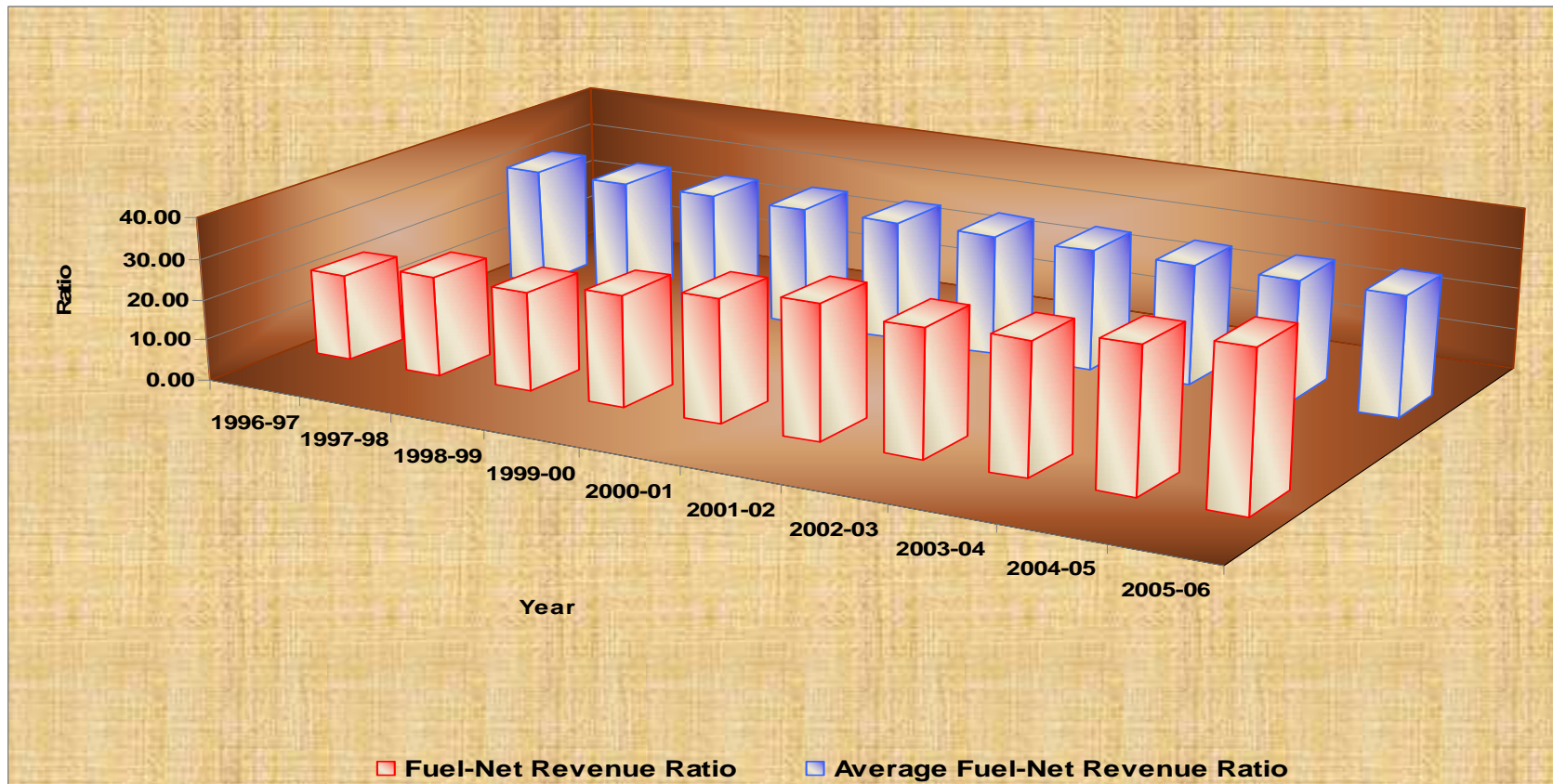
As presented in Table 7.11 the Fuel Ratio shows increasing trend during the whole study period except in the year 1998-99 and 2002-03. It ranged between 21.16 per cent in the year 1996-97 and 38.14 per cent in the year 2005-06 with an average ratio of 29.58 per cent.

**Table 7.11**  
**Fuel to Net Revenue Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Fuel</b>	<b>Net Revenue</b>	<b>Ratio</b>
1	1996-97	17110.71	80868.41	21.16
2	1997-98	21005.57	86208.27	24.37
3	1998-99	22937.80	94939.69	24.16
4	1999-00	29170.82	107233.27	27.20
5	2000-01	37708.71	124854.28	30.20
6	2001-02	40160.33	122666.38	32.74
7	2002-03	40701.61	130824.01	31.11
8	2003-04	45035.57	141540.43	31.82
9	2004-05	47803.30	137070.71	34.87
10	2005-06	54539.56	143016.76	38.14
<b>Average</b>		35617.40	116922.22	<b>29.58</b>
<b>S D</b>		12491.96	23099.90	<b>5.29</b>
<b>C V %</b>		35.07	19.76	<b>17.89</b>
<b>Compound Annual Growth Rate %</b>		12.29	5.87	<b>6.07</b>

Sources: Computed from the annual reports and accounts of the Automobile companies.

**Chart 7.8**  
**Fuel Ratio in GSRTC**  
**From 1996-97 to 2005-06**





Moreover, Fuel ratio as presented in Chart 7.8 was below the average ratio up to the year 1999-00. From the year 2000-01, it was above the average ratio till the ending year.

### Testing of Hypothesis

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

**Null Hypothesis:** There is no significance difference between the Fuel ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the Fuel ratio of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 7.11, the t-test is presented in the following table.

**Table 7.12**  
**t - test**

X	$\sigma_s$	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
29.58	5.29	17.89	9	17.075	$\pm 2.262$

Table 9.12 indicates that the calculated value (17.075) of 't' is greater than its table value (2.262), this confirms the significant difference between the Fuel ratio of GSRTC over the period.

The observed value of t is 17.075, which is in the rejection region, and thus H<sub>0</sub> is rejected at 5 per cent level of significance and we can conclude that, there is significant difference in the Fuel ratio of GSRTC over the period.

The coefficient variation in current ratio is 17.89, which indicates that there is 17.89 per cent dispersion in the Fuel 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 Fuel ratio rise from 21.16 to 38.14. Hence, its compound annual growth rate is 6.07%.

As a whole, from the fuel ratio, it may be concluded that the GSRTC kept considerable fuel, around average 29.58% against revenue income. The investment in fuel is also increasing. It was around 21.16% in the year 1996-97. It rise and reached to around 38.14% in the year 2005-06. The drives (implementation of incentive scheme, reuse of oil by refining it, use of solvent liquid in place of diesel for washing spare parts, training programmes for drivers etc.) for diesel KMPL improvement was continued during the study period as a result of which the Diesel KMPL achieved was improved. It was 4.96 in the year 1996-97 and was 5.20 in the year 2005-06 which was highest among all STUs. But at the same time price of diesel also shows increasing trend. It was Rs. 9.14 per Liter in the year and was Rs. 33.38 in 2005-06. As a result the investment in fuel against revenue income is increased over the period.

### **8. Salary and Allowances to Net Revenue Ratio**

Manpower is considered to be the backbone of any enterprise. Remuneration paid to them is called wages and salaries. It is one of the most important elements of cost as it constitutes subtle part of cost. Manpower is the active participant in total cost. Hence, it is rather difficult to apply control measures over cost incurred on them. In GSRTC, Salary and Allowances include items like salaries, allowances(dearness, compensatory local, house rent, tribal and dang, line, night out and out stay, , washing, machine, khansama, cash, Suez tanker, shoes, overtime, allowances to physically handicapped, allowances to traffic controller etc.), and welfare and super annuation (provident fund, service gratuity, group gratuity, group insurance etc). Salary and Allowances to Net Revenue Ratio indicate the relationship between the Salary and Allowances and the net revenue in GSRTC. It can be figured as:

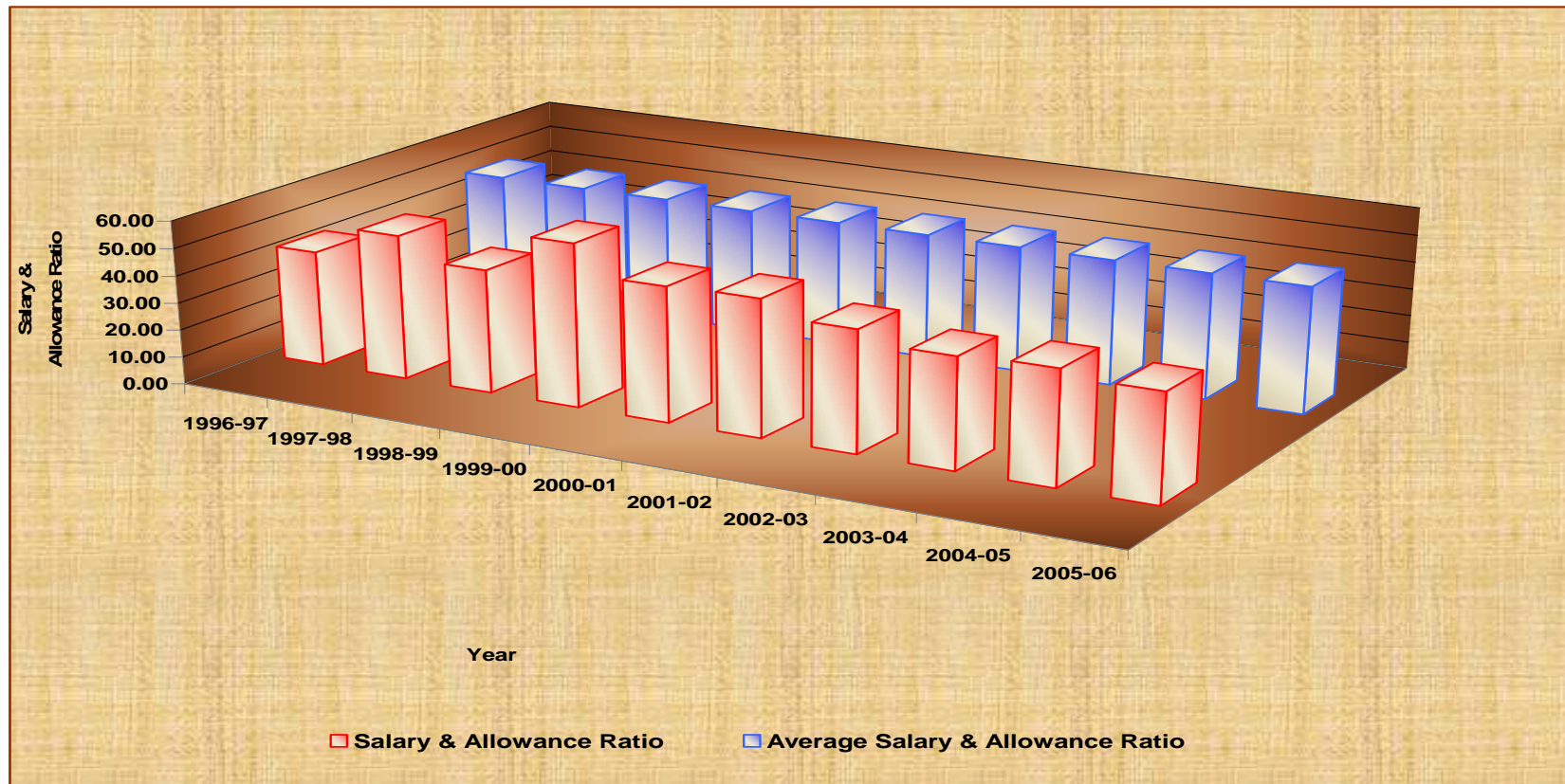
$$\text{Salary \& Allowances to Net Sales Ratio} = \frac{\text{Salary \& Allowances}}{\text{Net Revenue}} \times 100$$

**Table 7.13**  
**Salary & Allowance to Net Revenue Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>Salary &amp; Allowances</b>	<b>Net Revenue</b>	<b>Ratio</b>
1	1996-97	34190.81	80868.41	42.28
2	1997-98	45705.10	86208.27	53.02
3	1998-99	42805.06	94939.69	45.09
4	1999-00	63827.47	107233.27	59.52
5	2000-01	61175.71	124854.28	49.00
6	2001-02	60952.35	122666.38	49.69
7	2002-03	57650.84	130824.01	44.07
8	2003-04	56613.41	141540.43	40.00
9	2004-05	56381.26	137070.71	41.13
10	2005-06	55553.02	143016.76	38.84
<b>Average</b>		53485.50	116922.22	<b>46.26</b>
<b>S D</b>		9478.25	23099.90	<b>6.53</b>
<b>C V %</b>		17.72	19.76	<b>14.11</b>
<b>Compound Annual Growth Rate %</b>		4.97	5.87	<b>-0.84</b>

Sources: Computed from the annual reports and accounts of the Automobile companies.

**Chart 7.9**  
**Salary & Allowance Ratio in GSRTC**  
**From 1996-97 to 2005-06**



As presented in Table 7.13 the Salary and Allowances Ratio shows fluctuating trend during the whole study period except in the year 2003-04. It ranged between 38.84 per cent in the year 2005-06 and 59.52 per cent in the year 1999-00 with an average ratio of 46.26 per cent.

Moreover, the ratio as presented in Chart 7.9 was below the average ratio in the year 1996-97 as well last four years. From the year 2002-03, it was below the average ratio till the end year.

### Testing of Hypothesis

**Null Hypothesis:** There is no significance difference between the Salary and Allowances ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the Salary and Allowances ratio of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 7.13, the t-test is presented in the following table.

**Table 7.14**  
**t - test**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
46.26	6.53	14.11	9	21.932	$\pm 2.262$

Table 9.14 indicates that the calculated value (21.932) of 't' is greater than its table value (2.262), this confirms the significant difference between the Salary and Allowances ratio of GSRTC over the period.

The observed value of t is 21.932, which is in the rejection region, and thus H<sub>0</sub> is rejected at 5 per cent level of significance and we can conclude that, there

is significant difference in the Salary and Allowances ratio of GSRTC over the period.

The coefficient variation in Salary and Allowances ratio is 14.11, which indicates that there is 14.11 per cent dispersion in the Salary and Allowances 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 Salary and Allowances ratio has slightly fallen from 42.28 to 38.84. Hence, its compound annual growth rate is negative 0.84%.

As a whole, from the Salary and Allowances ratio, it may be concluded that in GSRTC wages and salaries constitutes measure portion around average 42% of revenue income. However, cost incurred on Salary and Allowances is also decreasing due to decrease in staff of the corporation. It was around 40% in the year 1996-97. It falls and reached to around 37% in the year 2005-06.

### **9. Depreciation & Insurance to Net Revenue Ratio**

The fixed assets help to generate income over a long period. To determine net income correctly, important part of costs, expired portion of an asset, and the cost related to the use of fixed assets must properly match against revenues. The cost of expired portion of original fixed assets is called depreciation, depletion or amortization. However, all these terms have the same meaning in accounting i.e., "Periodic charge of expenses." In GSRTC, fixed assets such as service vehicles, goods diesel, departmental vehicles, building & structures, plant, machinery & equipment, electrical equipment, office equipment, fire fighting equipment, medical equipment, photographic equipment, ticket machine and other equipments are depreciated at different rates. Insurance includes third party insurance and fire and other insurance. Depreciation & Insurance to Net Revenue Ratio indicate the relationship between the depreciation & insurance and the net revenue in GSRTC. It can be figured as:

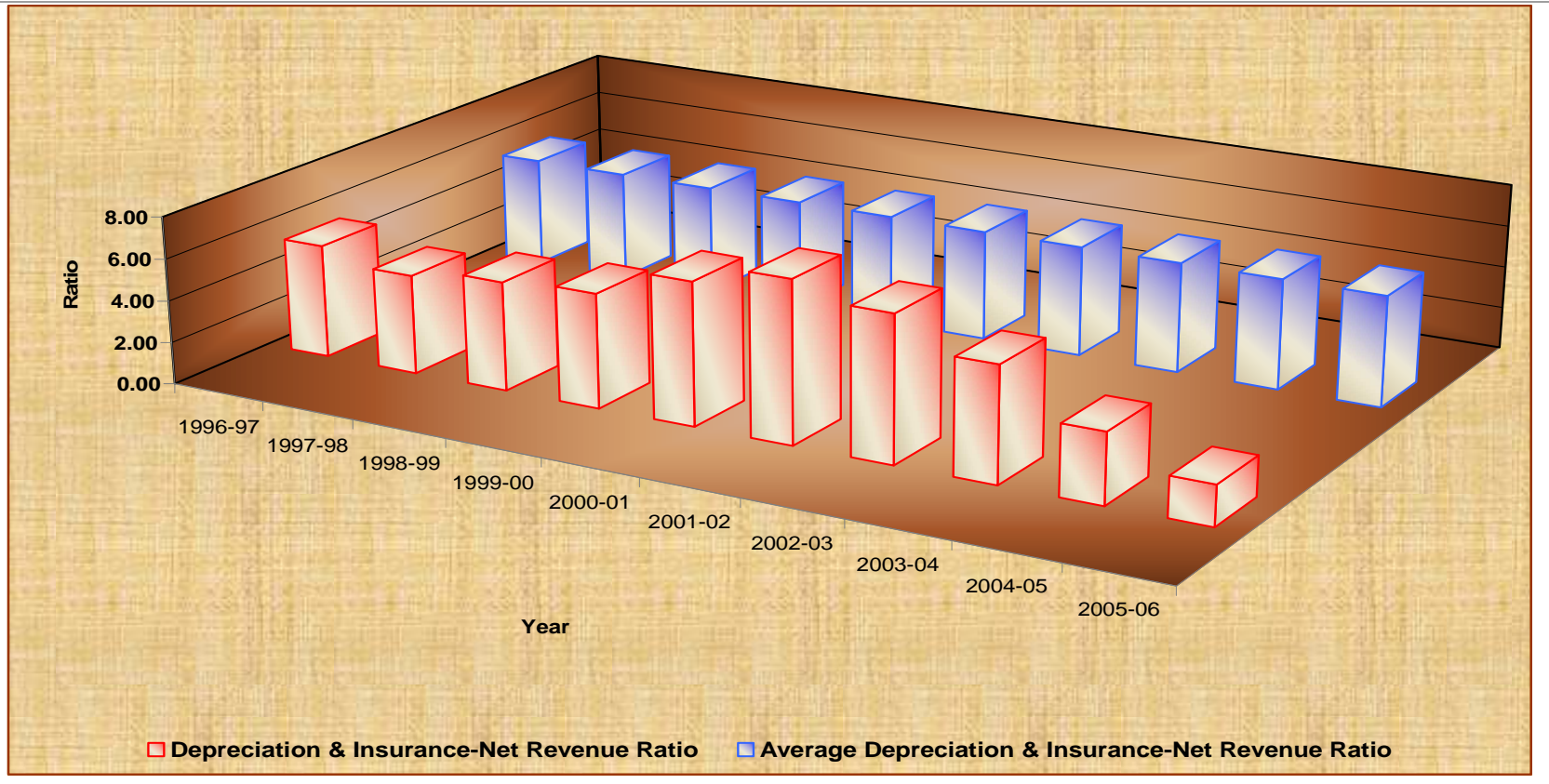
$$\text{Depreciation to Net Sales Ratio} = \frac{\text{Depreciation \& Insurance}}{\text{Net Revenue}} \times 100$$

**Table 7.15**  
**Depreciation & Insurance to Net Revenue Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Depreciation & Insurance	Net Revenue	Ratio
1	1996-97	4381.48	80868.41	5.42
2	1997-98	4082.56	86208.27	4.74
3	1998-99	4950.94	94939.69	5.21
4	1999-00	5858.95	107233.27	5.46
5	2000-01	8513.22	124854.28	6.82
6	2001-02	9457.73	122666.38	7.71
7	2002-03	9088.27	130824.01	6.95
8	2003-04	7768.57	141540.43	5.49
9	2004-05	4594.03	137070.71	3.35
10	2005-06	2734.94	143016.76	1.91
<b>Average</b>		6143.07	116922.22	<b>5.31</b>
<b>S D</b>		2375.49	23099.90	<b>1.72</b>
<b>C V %</b>		38.67	19.76	<b>32.34</b>
<b>Compound Annual Growth Rate %</b>		-4.60	5.87	<b>-9.89</b>

Sources: Computed from the annual reports and accounts of the Automobile companies.

**Chart 7.10**  
**Depreciation & Insurance Ratio in GSRTC**  
**From 1996-97 to 2005-06**





The Depreciation & Insurance Ratio of GSRTC has been presented in the Table No. 7.15. In GSRTC, the Depreciation & Insurance Ratio shows increasing trend up to the year 2001-02 and then after decreasing till the ending year of the study period. It ranged between 1.91 per cent in the year 2005-06 and 7.71 per cent in the year 2001-02 with an average ratio of 5.31 per cent.

The ratio shows decreasing trend during the whole study period, except in the year 1997-98 to 2001-02. Moreover, depreciation & insurance ratio as presented in Chart 7.10 was below the average ratio in the year 1997-98 as well last two years.

### Testing of Hypothesis

A study of the time wise variance of Depreciation & Insurance Ratio of GSRTC would be of interest. This may be studied by applying t-test.

**Null Hypothesis:** There is no significance difference between the Depreciation & Insurance ratio of GSRTC over the time **H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the Depreciation & Insurance ratio of GSRTC over the time **H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 7.15, the t-test is presented in the following table.

**Table 7.16**

**t - test**

X	$\sigma_s$	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
5.31	1.72	32.34	9	26.501	$\pm 2.262$

Table 7.16 indicates that the calculated value (26.501) of 't' is greater than its table value (2.262), this confirms the significant difference between the Depreciation & Insurance ratio of GSRTC over the period.

The observed value of t is 26.501, which is in the rejection region, and thus  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, there is significant difference in the Depreciation & Insurance ratio of GSRTC over the period.

The coefficient variation in Depreciation & Insurance ratio is 32.34, which indicates that there is 32.34 per cent dispersion in the Depreciation & Insurance 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 Depreciation & Insurance ratio falls from 5.42 to 1.91. Hence, its compound annual growth rate is negative 9.89%.

As a whole, from the Depreciation & Insurance ratio, it may be concluded that in GSRTC depreciation & insurance constitutes a very small portion around average 5% of revenue income. Besides, cost incurred on depreciation & insurance is also decreasing. It was around 5% in the year 1996-97. It falls and reached to around 1.91% in the year 2005-06.

#### **10. General Charges to Net Revenue Ratio**

The cost incurred on (1) traffic, stationary, uniform, printing tools, lease rent & other expenses, (2) electric power, repairs & maintenance, clothing, repairs by out side agencies, and miscellaneous charges, (3) temporary works, (4) civil engineering department, (5) departmental vehicles, (6) administrative & other miscellaneous expenses, and (7) reconditioning & repairs etc., are included in general charges. General Charges to Net Revenue Ratio indicate the relationship between the general charges and the net revenue in GSRTC. It can be figured as:

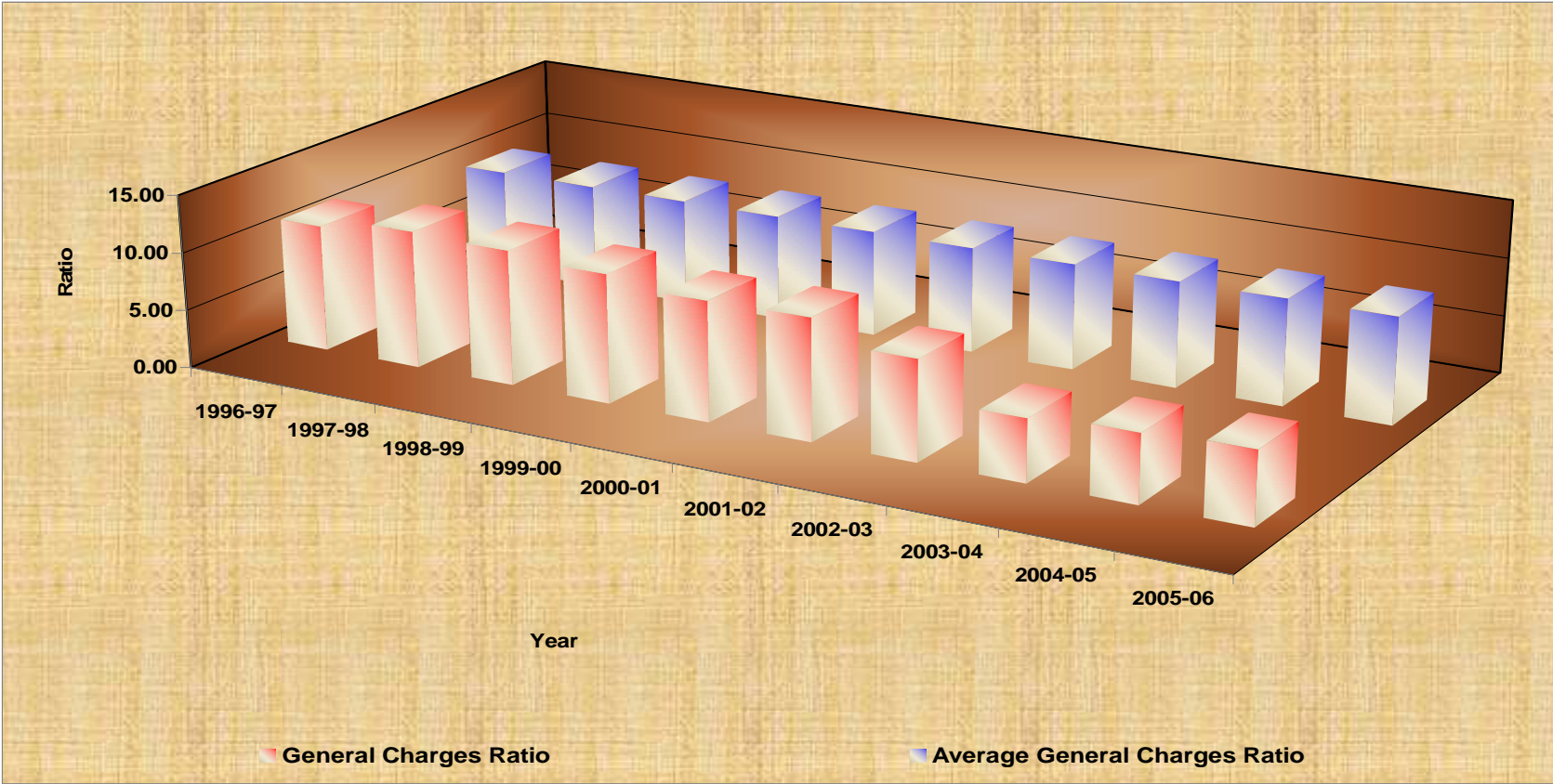
$$\text{General Charges to Net Sales Ratio} = \frac{\text{General Charges}}{\text{Net Revenue}} \times 100$$

**Table 7.17**  
**General Charges to Net Revenue Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

<b>Sr. no.</b>	<b>Year</b>	<b>General Expenses</b>	<b>Net Revenue</b>	<b>Ratio</b>
1	1996-97	8817.80	80868.41	10.90
2	1997-98	10180.54	86208.27	11.81
3	1998-99	11052.40	94939.69	11.64
4	1999-00	11879.58	107233.27	11.08
5	2000-01	12845.39	124854.28	10.29
6	2001-02	12762.30	122666.38	10.40
7	2002-03	11226.06	130824.01	8.58
8	2003-04	7585.43	141540.43	5.36
9	2004-05	8035.35	137070.71	5.86
10	2005-06	8882.36	143016.76	6.21
<b>Average</b>		10326.72	116922.22	<b>9.21</b>
<b>S D</b>		1919.84	23099.90	<b>2.52</b>
<b>C V %</b>		18.59	19.76	<b>27.32</b>
<b>Compound Annual Growth Rate %</b>		0.07	5.87	<b>-5.47</b>

Sources: Computed from the annual reports and accounts of the Automobile companies.

**Chart 7.11**  
**General Charges Ratio in GSRTC**  
**From 1996-97 to 2005-06**



The General Charges Ratio of GSRTC has been presented in the Table No. 7.17. In GSRTC, the General Charges Ratio shows fluctuating trend. It ranged between 5.36 per cent in the year 2003-04 and 11.81 per cent in the year 1997-98 with an average ratio of 9.21 per cent.

The ratio shows fluctuating trend during the whole study period. Moreover, General Charges ratio as presented in Chart 7.11 was above the average ratio in the year initial six years. From the year 2002-03, it was below the average ratio till the ending year.

### **Testing of Hypothesis**

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

**Null Hypothesis:** There is no significance difference between the General Charges ratio of GSRTC over the time  
**H<sub>0</sub>:  $\mu = 1$**

**Alternative hypothesis:** There is significance difference between the General Charges ratio of GSRTC over the time  
**H<sub>1</sub>:  $\mu \neq 1$**

After making necessary calculation from the data given in Table 7.17, the t-test is presented in the following table.

**Table 7.18**

**t - test**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
9.21	2.52	27.32	9	10.317	$\pm 2.262$

Table 7.18 indicates that the calculated value (10.317) of 't' is greater than its table value (2.262), this confirms the significant difference between the General Charges ratio of GSRTC over the period.

The observed value of t is 10.317, which is in the rejection region, and thus  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, there is significant difference in the General Charges ratio of GSRTC over the period.

The coefficient variation in Wages & Salaries ratio is 27.32, which indicates that there is 27.32 per cent dispersion in the General Charges 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 General Charges ratio falls from 10.90 to 6.21. Hence, its compound annual growth rate is negative 5.47%.

As a whole, from the general charges ratio, it may be concluded that in GSRTC wages and salaries constitutes considerable small portion around average 9.21% of revenue income. However, cost incurred on general charges is also decreasing. It was around 10% in the year 1996-97. It declined and reached to around 6% in the year 2005-06.

#### **11. Taxes to Net Revenue Ratio**

The corporation makes a sizeable contribution to the revenue of the State and Central Government and Municipal and Local Authorities also by way of direct and indirect taxes. In GSRTC, taxes include motor vehicles tax, passenger tax and sales tax. Taxes to Net Revenue Ratio indicate the relationship between the taxes and the net revenue in GSRTC. It can be figured as:

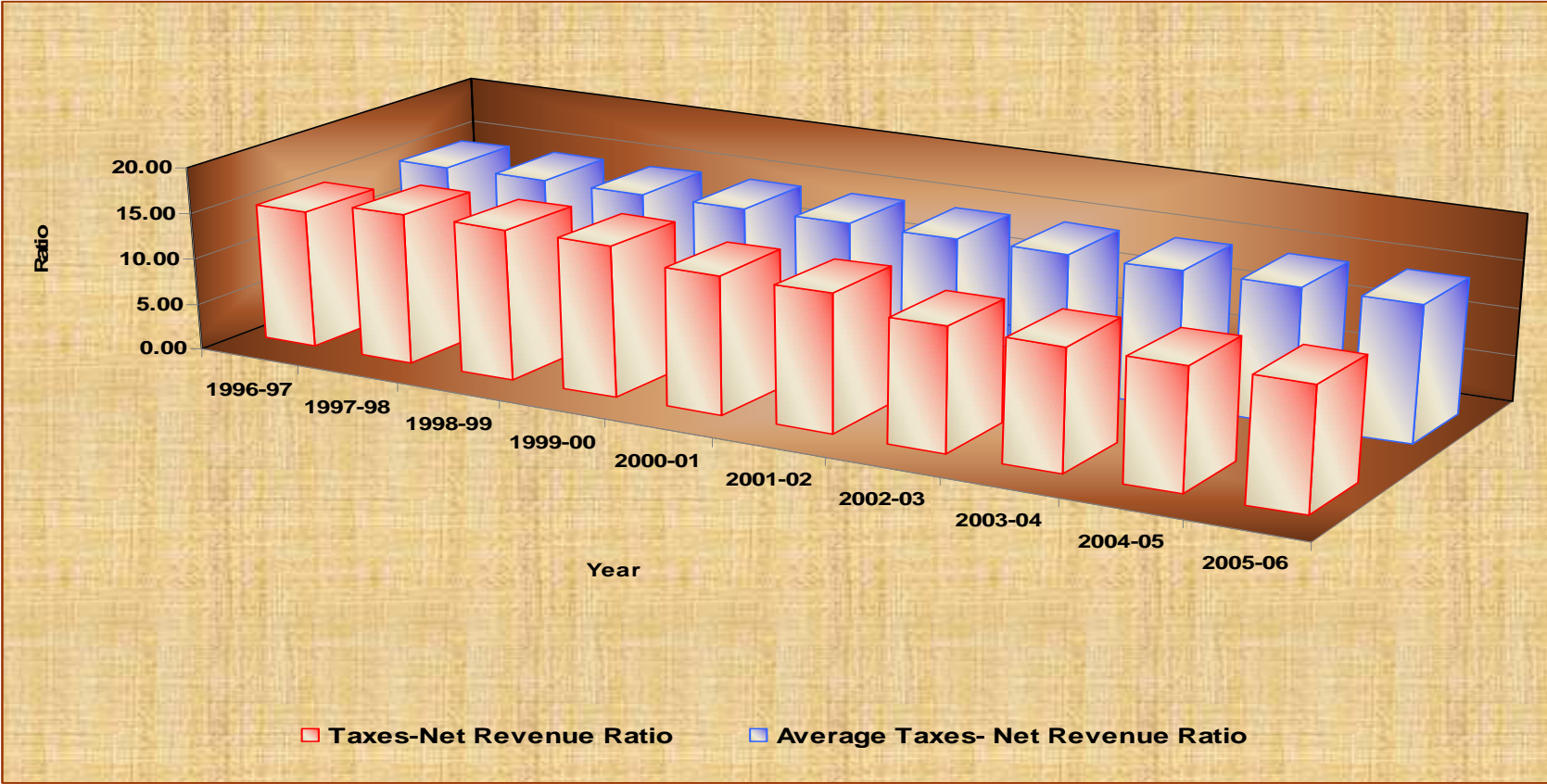
$$\text{Taxes to Net Sales Ratio} = \frac{\text{Taxes}}{\text{Net Revenue}} \times 100$$

**Table 7.19**  
**Taxes to Net Revenue Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

Sr. no.	Year	Taxes	Net Revenue	Ratio
1	1996-97	11993.96	80868.41	14.83
2	1997-98	13866.73	86208.27	16.09
3	1998-99	15350.20	94939.69	16.17
4	1999-00	17282.17	107233.27	16.12
5	2000-01	18415.42	124854.28	14.75
6	2001-02	17997.69	122666.38	14.67
7	2002-03	17142.23	130824.01	13.10
8	2003-04	18230.87	141540.43	12.88
9	2004-05	17644.56	137070.71	12.87
10	2005-06	18481.10	143016.76	12.92
<b>Average</b>		16640.49	116922.22	<b>14.44</b>
<b>S D</b>		2199.24	23099.90	<b>1.41</b>
<b>C V %</b>		13.22	19.76	<b>9.74</b>
<b>Compound Annual Growth Rate %</b>		4.42	5.87	<b>-1.37</b>

Sources: Computed from the annual reports and accounts of the Automobile companies.

**Chart 7.12**  
**Taxes Ratio in GSRTC**  
**From 1996-97 to 2005-06**





The Taxes Ratio of GSRTC has been presented in the Table No. 7.19. In GSRTC, the Taxes Ratio shows fluctuating trend. It ranged between 12.87 per cent in the year 2004-05 and 16.17 per cent in the year 1998-99 with an average ratio of 14.44 per cent.

The ratio shows fluctuating trend during the whole study period. Moreover, Taxes ratio as presented in Chart 7.12 was above the average ratio in the year 2001-02, initial six years. From the year 2002-03, it was below the average ratio till the end year.

**Testing of Hypothesis**

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

**Null Hypothesis:** There is no significance difference between the Taxes ratio of GSRTC over the time **H<sub>0</sub>: μ = 1**

**Alternative hypothesis:** There is significance difference between the Taxes s ratio of GSRTC over the time **H<sub>1</sub>: μ ≠ 1**

After making necessary calculation from the data given in Table 7.19, the t-test is presented in the following table.

**Table 7.20**  
**t - test**

<b>X</b>	<b>σ<sub>s</sub></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
14.44	1.41	9.74	9	30.239	±2.262

Table 7.20 indicates that the calculated value (30.239) of 't' is greater than its table value (2.262), this confirms the significant difference between the Taxes ratio of GSRTC over the period.

The observed value of  $t$  is 30.239, which is in the rejection region, and thus  $H_0$  is rejected at 5 per cent level of significance and we can conclude that, there is significant difference in the Taxes ratio of GSRTC over the period.

The coefficient variation in Wages & Salaries ratio is 14.11, which indicates that there is 14.11 per cent dispersion in the Wages & Salaries 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 Taxes ratio slightly fall from 14.83 to 12.92. Hence, its compound annual growth rate is negative 1.37%.

As a whole, from the taxes ratio, it may be concluded that in GSRTC taxes constitute considerable portion around average 13% of revenue income. However, cost incurred on taxes is also decreasing. It was around 14% in the year 1996-97. It falls and reached to around 12% in the year 2005-06.

**REFERENCES**

22. I. M. Pandey, "Financial Management", 2002, Vikas Publishing House Pvt. Ltd., New Delhi.
23. S. C. Kuchhal, "Financial Management – An Analytical and Conceptual Approach", Chaitanya Publishing House, Allahabad, 1993.
24. Dr. S. N. Maheshwari, "Principles of Management Accounting", Sultan Chand 7 Sons, New Delhi, 2001.
25. James C. Van Horne & John M. Wachowicz, Jr., "Fundamentals of Financial Management", Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2005.
26. M. Y. Khan & P K Jain, "Financial Management – Text and Problems", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2003.
27. Prasanna Chandra, "Financial Management – Theory and Practice", Tata McGraw Hill Publishing Company Limited, New Delhi, 2002.
28. S. B. Chowdhry, "Analysis of Company Financial Statement", Asia Publishing House, Bombay, 1964.
29. Foulke, R. A., "Practical Financial Statement Analysis", Tata McGraw Hill, New Delhi, 1976.
30. Guthmann, H. G., "Analysis of Financial Statements", New York, Prentice Hall Inc., 1953.
31. Myer, John N., "Financial Statement Analysis", Prentice-Hall of India, New Delhi, 1978.

# PROFITABILITY ANALYSIS

- **Introduction**
- **Concept of Profitability**
- **Profit and Profitability**
- **Analysis of Profitability - Management**
- **Analysis of Profitability - Shareholders**

## **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.

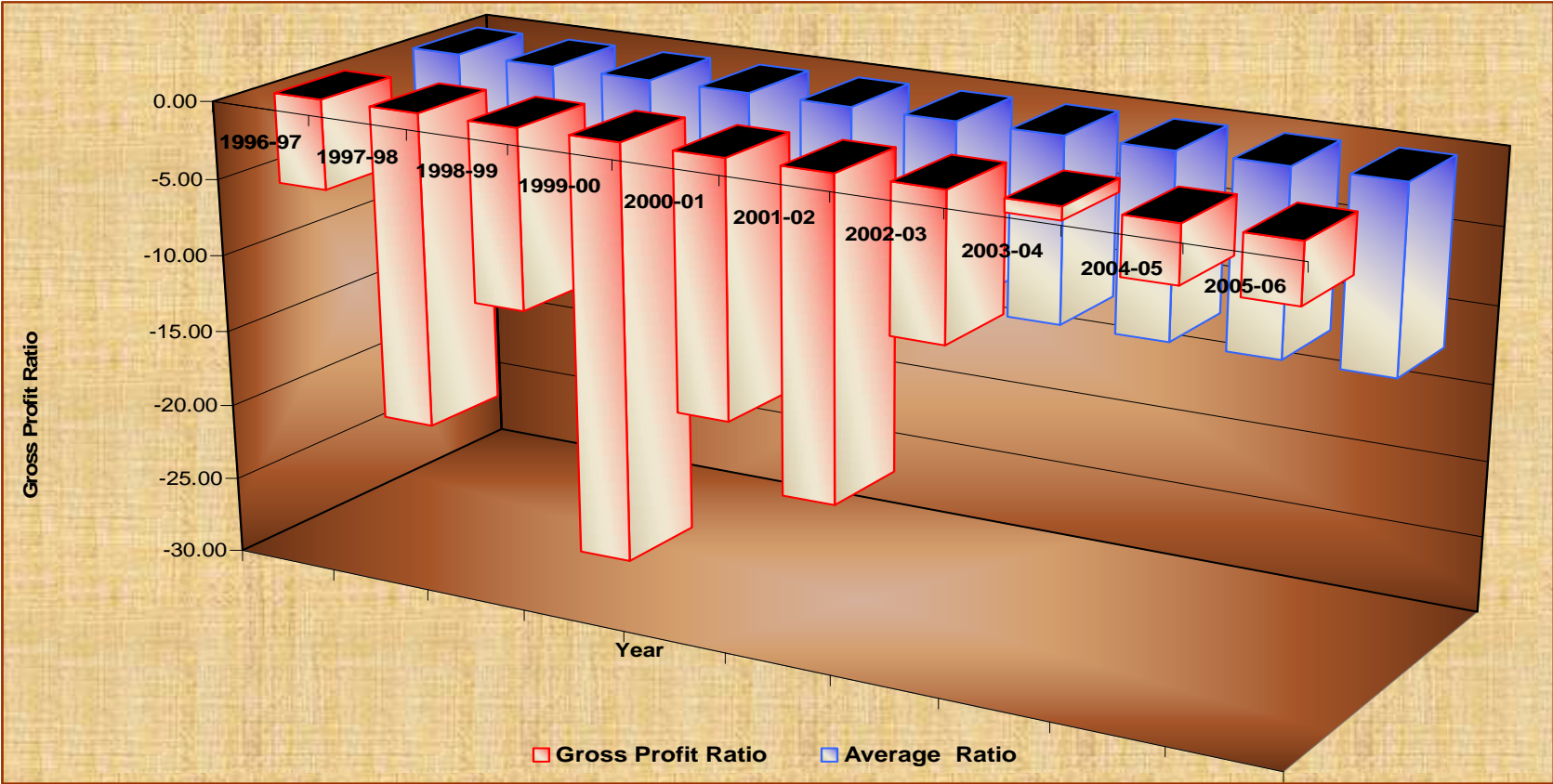


**Table 8.1**  
**Gross Profit Ratio (percentages) in GSRTC**  
**From 1996-97 to 2005-06 (Rs. in lacs)**

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
<b>Average</b>		-13156.10	116922.22	<b>-11.92</b>
<b>S D</b>		9501.58	23099.90	<b>8.77</b>
<b>C V %</b>		-72.22	19.76	<b>-73.57</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>29.53</b>

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.

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

<b>Sr. no.</b>	<b>Year</b>	<b>Gross Profit (Actual)</b>	<b>Gross Profit (Computed)</b>	<b>Deviations</b>
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:**  $\pm 2.262$

**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**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
-11.92	8.77	-73.57	9	-4.659	$\pm 2.262$

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:

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

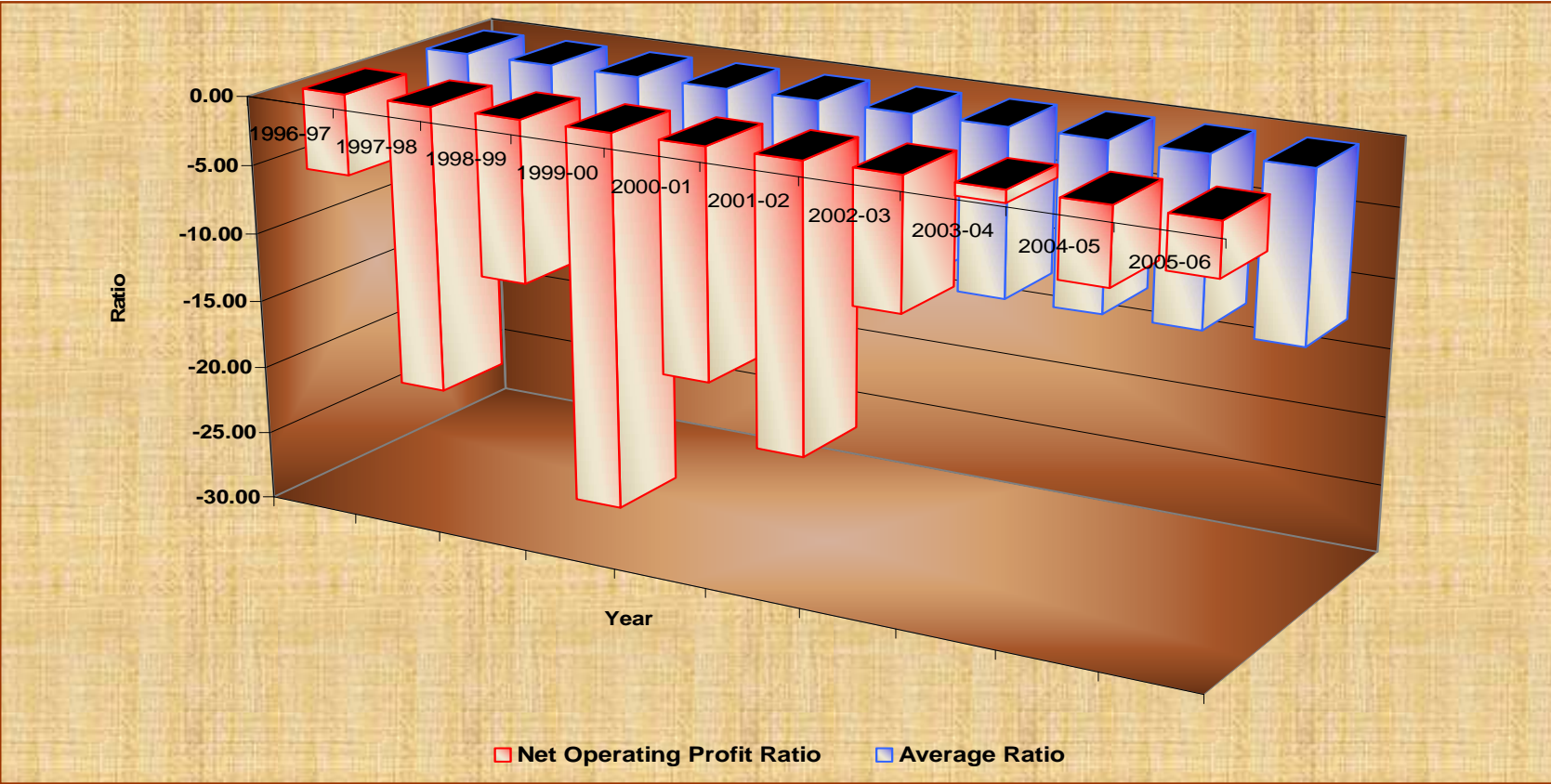
Net Operating Profit = Gross Profit - (Non Operating Expenses + Depreciation)

**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
<b>Average</b>		-13460.344	116922.22	<b>-12.16</b>
<b>S D</b>		9340.24	23099.90	<b>8.66</b>
<b>C V %</b>		-69.39	19.76	<b>-71.24</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>31.13</b>

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.

<b>Null Hypothesis:</b>	Net Operating Profit Ratio can be represented by the straight line trend based on regression analysis.
<b>Alternative hypothesis:</b>	Net Operating Profit Ratio can not be described by the line of the best fit.
<b>Level of Significance:</b>	5 percent
<b>Critical Value:</b>	16.919
<b>Degree of Freedom:</b>	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:**  $\pm 2.262$
- 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**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
-12.16	8.66	-71.24	9	-4.804	$\pm 2.262$

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:

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

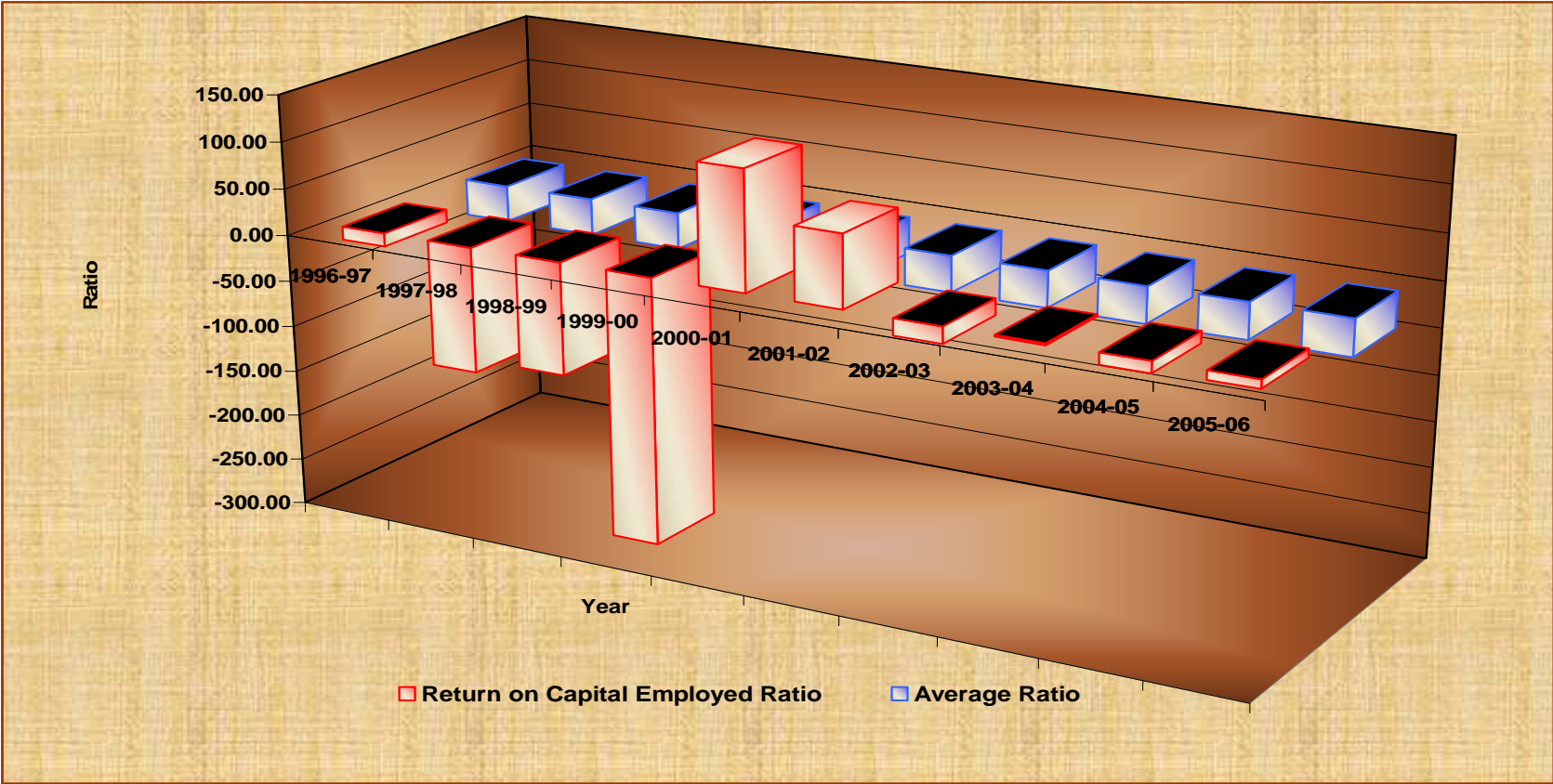
Net Capital Employed=Share Capital + Reserves + Long Term Loan - Losses  
A high ratio is a test of better performance and a low ratio is an indication of poor performance. Higher the ratio, more efficient the management is considered to have been using the funds available.

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

<b>Sr. no.</b>	<b>Year</b>	<b>EBIT</b>	<b>Capital Employed</b>	<b>Ratio</b>
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
<b>Average</b>		-13460.34	26872.75	<b>-39.71</b>
<b>S D</b>		9340.24	35849.22	<b>117.30</b>
<b>C V %</b>		-69.39	133.40	<b>-295.42</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>22.94</b>

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.

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

<b>Sr. no.</b>	<b>Year</b>	<b>EBIT (Actual)</b>	<b>EBIT (Computed)</b>	<b>Deviations</b>
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:**  $\pm 2.262$
- 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	$\sigma_s$	CV %	d.f.	't' Ratio Calculated Value	't' Ratio Table Value
-39.71	117.30	-295.42	9	-1.097	$\pm 2.262$

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.

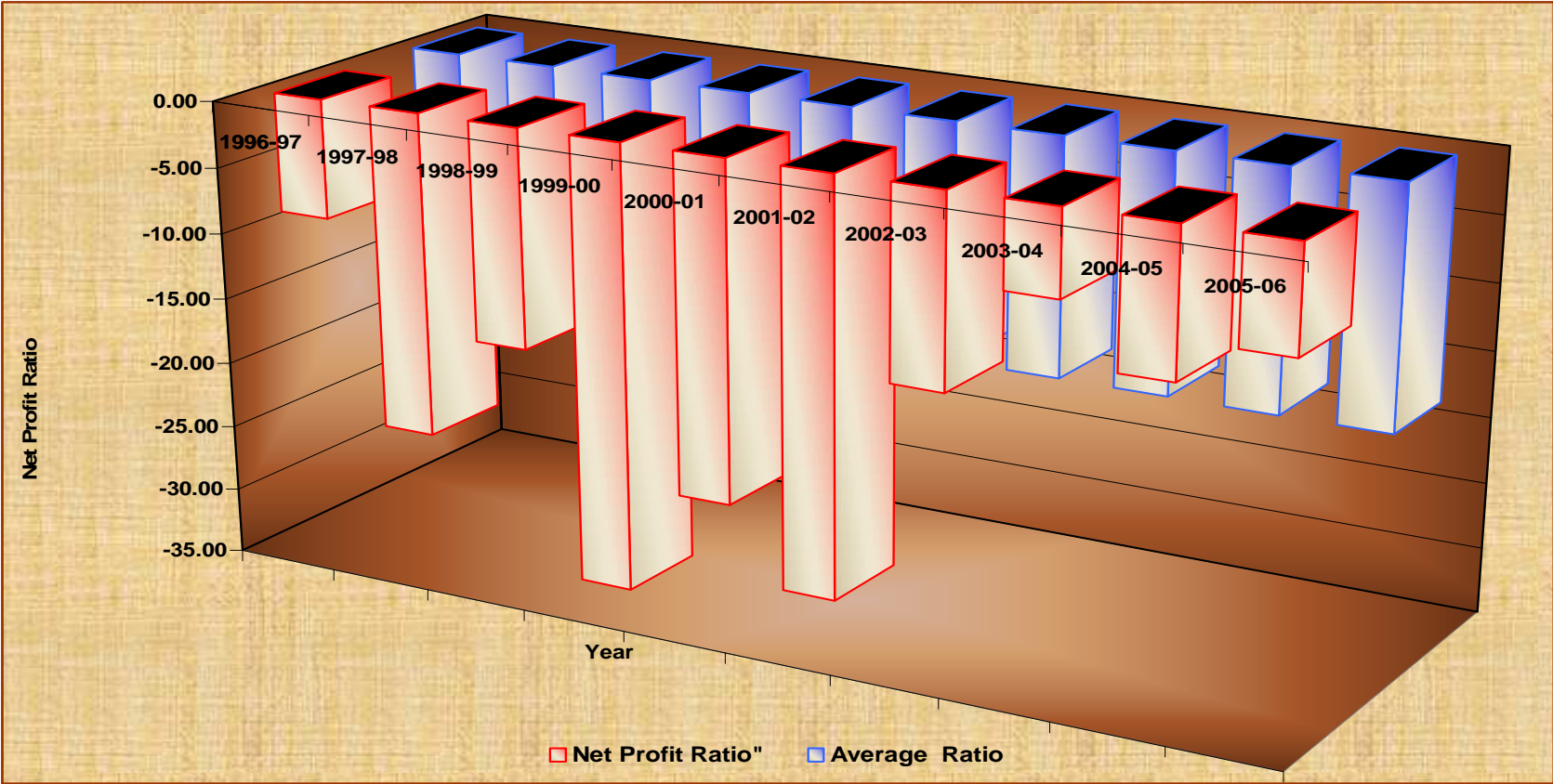
In order to have a better idea of profitability, the gross profit ratio and net profit ratio may be simultaneously considered. If the Gross profit is increasing over last five years, but the net profit is declining, it indicates that administrative expenses are slowly rising.

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

<b>Sr. no.</b>	<b>Year</b>	<b>Net Profit</b>	<b>Net Revenue</b>	<b>Ratio</b>
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
<b>Average</b>		-20402.89	116922.22	<b>-17.96</b>
<b>S D</b>		11225.27	23099.90	<b>10.00</b>
<b>C V %</b>		-55.02	19.76	<b>-55.66</b>
<b>Compound Annual Growth Rate %</b>		10.49	7.70	<b>-1.35</b>

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.

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

<b>Sr. no.</b>	<b>Year</b>	<b>Net Profit (Actual)</b>	<b>Net Profit (Computed)</b>	<b>Deviations</b>
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:**  $\pm 2.262$
- 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**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
-17.96	10.00	-55.66	9	-5.998	$\pm 2.262$

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:

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

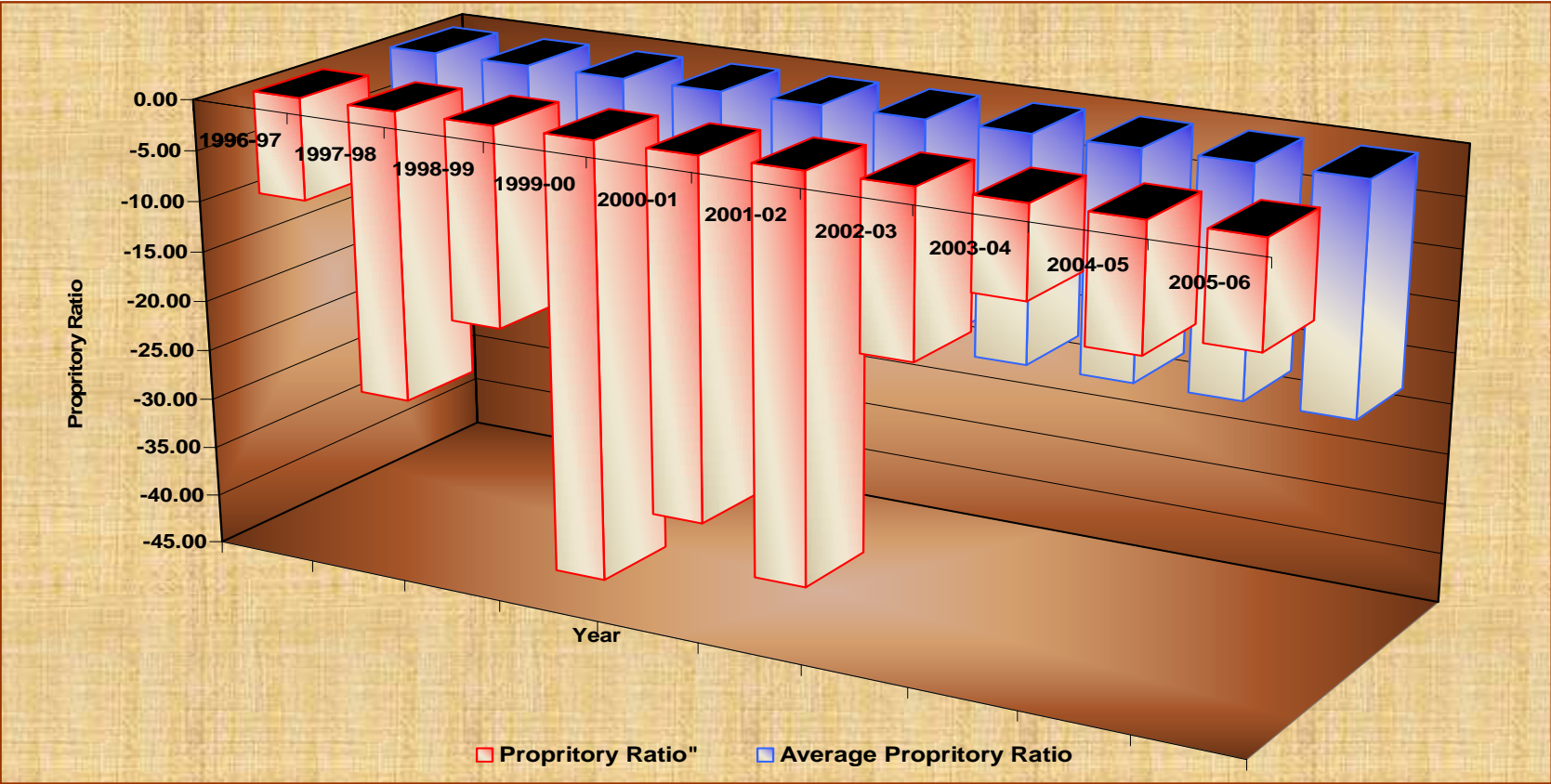
In order to judge the efficiency with which the proprietor's Funds are employed in business, this ratio is ascertained. In GSRTC, proprietor's fund or net worth is equal to equity share of Central and State Govt. plus fund minus fictitious assets, while net profit is equal to profit after depreciation 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
<b>Average</b>		-20402.89	107172.18	<b>-22.36</b>
<b>S D</b>		11225.26934	121118.09	<b>13.25</b>
<b>C V %</b>		-55.02	113.01	<b>-59.25</b>
<b>Compound Annual Growth Rate %</b>		4.43	4.45	<b>0.01</b>

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:**  $\pm 2.262$
- 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**

<b>X</b>	<b><math>\sigma_s</math></b>	<b>CV %</b>	<b>d.f.</b>	<b>'t' Ratio Calculated Value</b>	<b>'t' Ratio Table Value</b>
-22.36	13.25	-59.25	9	-5.576	$\pm 2.262$

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.

## **REFERENCES**

32. I. M. Pandey, "Financial Management", 2002, Vikas Publishing House Pvt. Ltd., New Delhi.
33. S. C. Kuchhal, "Financial Management – An Analytical and Conceptual Approach", Chaitanya Publishing House, Allahabad, 1993.
34. Dr. S. N. Maheshwari, "Principles of Management Accounting", Sultan Chand 7 Sons, New Delhi, 2001.
35. James C. Van Horne & John M. Wachowicz, Jr., "Fundamentals of Financial Management", Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2005.
36. M. Y. Khan & P K Jain, "Financial Management – Text and Problems", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2003.
37. Prasanna Chandra, "Financial Management – Theory and Practice", Tata McGraw Hill Publishing Company Limited, New Delhi, 2002.
38. Bradely, J. F., "Administrative Financial Management", Branves and Noble, New York, 1964.
39. Bierman Jr. H. & Drebin Allen Jr., "Financial Accounting – An Introduction", Macmillan, New York, 1965.
40. Harward & Upto, "Introduction to Business Finance", Mc Graw Hill, New York, 1961.
41. Murthy, V. S., "Management Finance", Vakils Feller and Simons Ltd., Bombay, 1978.
42. A. Tom Nelson, "Management Accounting", Macmilan, New York, 1970.



# SUMMERY FINDIGS & SUGGESTIONS

- **Introduction**
- **Summery**
- **Findings**
- **Suggestions**

## **9.1 INTRODUCTION**

Gujarat State Road Transport Corporation has occupied the unique place in the public transportation in Gujarat. It serves the role of lifeline across the state of Gujarat. GSRTC has tried to reconcile the twin objectives of community service and financial viability. The present study is an attempt to measure the financial viability by analyzing financial performance of GSRTC. During the journey of research, the performance is being analyzed, the results are being derived and the remedies are suggested which are presented in the following pages.

## **9.2 SUMMERY**

The present study is divided into nine chapters, which are summarized as under:

### **CHEPTER I**

#### **INTRODUCTION**

From the beginning of history, human sensitivity has revealed an urge for mobility leading to a measure of Society's progress. The history of this mobility or transport is the history of civilization. For any country to develop with right momentum modern and efficient Transport as a basic infrastructure is a must. It has been seen throughout the history of any nation that a proper, extensive and efficient Road Transport has played a major role. 'Transporters' perform one of the most important activities, at every stage of advanced civilization. Where roads are considered as veins and arteries of a nation, passenger and goods transported are likened to blood in circulation. Passenger Road Transport Service (PRTS) is an essential connected to the economic development. Transport is the essential convenience with which people not just connect but progress. Throughout history, people's progress has been sustained on the convenience, speed and safety of the modes of transport. Road transport occupies a primary place in to-day's world as it provides a reach unparallel by any other contemporary mode of transport.

## **CHEPTER II INSIGHT INTO ROAD TRANSPORTATION**

Road transport is a transport on roads that is the most popular means of transportation on land, which doesn't mean the rail transportation. In the wide sense, it includes every kind of transportation, which occurs on road.

In India, the road transport is a dominant mode of transport in the movement of goods and passengers. It is sole mechanized means of surface transport to serve the hilly, rural and backward areas not connected by railways. The freight traffic is generally owned and operated by private sector whereas both the private and public sectors share the passenger services.

## **CHEPTER III CONCEPTUAL FRAMEWORK**

Financial performance refers to the act of performing financial activity. In broader sense, financial performance refers to the degree to which financial objectives being or has been accomplished. It is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. In the present study financial health of GSRTC is measured from the working capital, financial structure, activity and profitability analysis. Various accounting, statistical and mathematical techniques are used for the analysis

## **CHEPTER IV RESEARCH METHODOLOGY**

Research methodology includes the assumptions and values, which are useful for interpreting data and reaching to conclusions. The study is based on secondary data, which are derived from the published annual reports of GSRTC, which are collected from the registered office of GSRTC. In addition to published reports, other publications by GSRTC are also used. The

information related to the transport industry is derived from various sources like articles, journals, periodicals, newspapers etc.

The collected data are duly edited, classified and analyzed using all type of relevant statistical techniques and employing the most appropriate parametric and non-parametric test. The data are presented through simple classification and with help of percentage, average, dispersion, correlation and association. The hypotheses are tested at 5% level of significance with help of t-test, Chi-square test etc.

## **CHEPTER V**

### **WORKING CAPITAL ANALYSIS**

Chapter titled “Working Capital Analysis” includes the analysis of trend and analysis of efficiency and liquidity position of GSRTC over the period. For that purpose eight different ratios are calculated and analyzed.

1. Current assets in GSRTC include four main components, stores and inventories, loans and advances, sundry debtors and cash on hand and at bank. Amongst them stores and inventories having the minimum share of 8% whereas, sundry debtors having the biggest contribution around 65% to the current assets.
2. The current assts in GSRTC showed an increasing trend except in the year 1997-98 and 2001-02. It was 100 % in the base year and 271.06 % in the end year with an average trend of 180.36 %. Moreover, it was above the average current assets trend from the year 2002-03.
3. Current liabilities in GSRTC include seven main components, out standing debt for capital expenditure, revenue liabilities, gratuity, difference in closing stores, provident fund, outstanding interest and provisions. Amongst them difference is closing stores having the minimum share of near about 0 % whereas, revenue liabilities having the biggest contribution around 84 % to the current liabilities.

4. The current liabilities in GSRTC showed an increasing trend except in the year 2002-03. It was 100 % in the base year and 210.02 % in the end year with an average trend of 222.90 %. Moreover, it was above the average current assets trend from the year 2002-03 and
5. The working capital as a whole in GSRTC showed an increasing trend except in the year 2002-03. It was 100 % in the base year and 102.45 % in the end year with an average trend of 297.87 %. In GSRTC, the working capital is negative during the whole study period except from the year 2003-04 to 2004-05. Moreover, it was above the average trend from the year 2002-03 and
6. Current Liabilities of GSRTC is normally higher than its current assets during the study period except from the year 2002-03 to 2004-05. The difference between current liabilities and current assets is minimum around 18.35% in the year 2004-05, whereas, highest around 919.25% in 2001-02.
7. Working capital turnover ratio shows a fluctuating trend. It ranged between 72.46 times in the year 2004-2005 and -13.54 in the year 2005-2006 with an average ratio of 8.09 times. The ratio was below the average ratio during the whole study period excluding in the year from 2002-03 to 2004-05.
8. Analysis of ratio reveals that the working capital utilization is satisfactory during the years 2002-03 to 2004-05. However, it was very poor in the rest of the years.
9. Debtor's turnover ratio shows fluctuating trend during the whole study period. Moreover, it was too above the average ratio in the initial four years. Then after, it was below the average ratio till the ending year.
10. Analysis of ratio reveals that during the initial years the ratio was more than 10 times which indicates that the GSRTC was efficiently managing its liquidity and revenue (Assets). However, it continuously becomes worse over the time.

11. Creditor's turnover ratio shows decreasing trend. It ranged between 5.67 times in the year 2003-04 and 1.04 in the year 2001-2002 with an average ratio of 3.08 times. It was above and too above the average ratio in the first year and last four years respectively. It was below the average ratio in the rest of the years.
12. Analysis of ratio reveals that during the initial years the creditors' turnover was poor. However it was improving from the year 2002-03 till the ending year.
13. The Current Ratio shows decrease trend during the whole study period, except in the year 2002-2003 and 2003-2004. It ranged between 0.23 times in the year 2001-2002 and 1.20 times in the year 2003-2004 with an average ratio of 0.64 times. Moreover, the GSRTC had not maintained the standard ratio of **2:1** times during the whole study period. It was below the average up to the year 2001-2002. From the year 2002-03, it was above the average current ratio till the end year. However, it was too below from standard current ratio during whole study period.
14. The application of 't' test reveals that the difference between the current ratio of GSRTC is significant at 5% level of significance over the period.
15. Analysis of ratio reveals that the GSRTC have fewer current assets in comparison to current liabilities. Therefore, it may be interpreted that the current position of GSRTC were not good. Compound annual growth rate of current Ratio is 2.51%.
16. The Quick Ratio of GSRTC ranged between 0.21 times and 1.15 times with an average ratio of 0.59 times which indicates very poor liquidity position of GSRTC. However, GSRTC had maintained more than the standard ratio of **1:1** from the year 2002-2003 onwards the liquidity position tends to be sound from that year. Compound annual growth rate of Quick Ratio is 3.94 %.

17. The application of 't' test reveals that the difference between the quick ratio of GSRTC is significant at 5% level of significance over the period.
18. The Cash Ratio shows fluctuating trend during the study period. It ranged between 0.03 times and 0.21 with an average ratio of 0.10 times. It was below the average during whole study period except in the year 1996-97, 1999-00 and 2005-06. It was near to the average in the year 1997-98 and 2004-05. However, it has been continuously increasing from the year 20001-02 till the ending year.
19. Analysis of ratio reveals that GSRTC carries a small amount of cash. Compound annual growth rate of Cash Ratio is negative, 6.26 %.
20. The Interval Measure Ratio shows increasing trend till the end year except in the year 1997-98 and 2001-02. It ranged between 49.15 days and 113.56 days with an average of 81.10 days. However, it was below the average up to the year 2001-2002 and then after it was above the average ratio till the ending year.
21. Interval measure Ratio is increasing in most of the year it means that the liquid assets are increasing in comparison to operating expenses. So, the GSRTC is able to finance its operating expenses for increasing number of days even if it does not receive any additional cash. Compound annual growth rate of Interval Measure Ratio is 6.01 %.
22. The Cash flow Coverage Ratio shows a fluctuating trend. It ranged between -4.62 per cent in the year 2003-2004 and -36.24 per cent in the year 1999-00 with an average ratio of -21.41 per cent.
23. Analysis of ratio reveals that this ratio also not satisfactory. The liquidity position of GSRTC is worst as it has negative cash flow during whole study period.

As a whole it may be concluded that working capital utilization in GSRTC is not satisfactory. Moreover, it has fewer current assets, quick assets and super quick assets in comparison to current liabilities which indicates that it is insufficiently liquid, so can not meet its currant obligations effectively and margin of safety for the short term creditors is also lower. However, liquidity position of GSRTC is improving from the year 2002-2003.

## **CHEPTER VI FINANCIAL STRUCUTRE ANALYSIS**

Chapter titled "Financial Structure Analysis" includes the analysis of trend and analysis of long term liquidity position of GSRTC over the period. For that purpose nine different ratios are calculated and analyzed.

1. Short term Funds in GSRTC include four main components, provisions, deposits with ST, Sundry creditors and accrued charges. Amongst them accrued charges having the minimum share of 1% whereas, sundry creditors having the biggest contribution around 92% to the short term funds.
2. The short term funds in GSRTC showed an increasing trend except in the year 2002-03. It was 77.85 per cent in the year 2002-03 and 294.22 per cent in the year 2001-02 with an average trend to be 153.49 per cent. Moreover, it was lower than average in the year 1996-97 and last four years, from 2002-03 till the ending year of the study period.
3. Long term Funds in GSRTC include five main components, equity capital, capital loan, loans and borrowings, funds and loss. Amongst them capital loan having the minimum share of near about 1% whereas, losses having the biggest contribution around 40 % to the Long term Funds.
4. The Long term Funds in GSRTC showed decreasing trend except in the year 2002-03. It was – 68.67 per cent in the year 2001-02 and 122.69 per cent in the year 2002-03 with an average trend to be 51.31 per cent.



Moreover, it was higher than average trend in the year 1996-97. Also it was higher than average from 2002-03 to till the ending year of the study period.

5. Long term funds have the average share of 27% in the total assets of the corporation, whereas, short term funds have the biggest contribution of around 73% to the total assets. Thus, total assets of GSRTC mainly financed by short term funds. Major portion of long-term funds is utilized for adjusting heavy losses of the GSRTC. It reveals that GSRTC relies more on short term funds and having poor long term strength which indicates poor financial management.
6. The long term debt equity ratio in GSRTC shows increasing trend. It ranged between 0.21 times in the year 1997-98 and 1.25 times in the year 2005-2006 with an average ratio to be 0.84 times. Moreover, it was higher than average trend in the year 1999-00 till the ending year. Also it was higher than standard ratio 1:1 from 2001-02 to onwards.
7. The application of t-test reveals that the difference between the long term debt-equity ratios of GSRTC is not significant at 5% level of significance over the period.
8. The total debt equity ratio in GSRTC shows increasing trend. It ranged between 0.87 times in the year 1996-97 and 3.36 times in the year 2005-2006 with an average ratio of 2.04 times. Moreover, it was higher than average trend from the year 1999-00 to 2001-02 and 2005-06. Also it was higher than standard ratio 1:1 from 1997-98 to onwards.
9. In GSRTC, the variation in debt is more in comparison to that of equity. It increased its reliance on borrowed fund over the time. The debt and equity has a high degree of positive correlation indicates that, it has been following a uniform policy for raising fund from borrowing as well as from owned capital, but it could not successfully adopt the policy of trading on

equity which resulted in a lower return to equity holders. The ratio is more than 1 in the last five years indicates inefficient financial management. However, from the creditors' point of view the long term financial performance of GSRTC was very sound.

10. The debt assets ratio in GSRTC shows increasing trend. It ranged between 0.65 times in the year 1996-97 and 1.76 times in the year 2001-2002 with an average ratio of 1.26 times. Moreover, it was lower than average trend except from the year 1999-00 to 2001-02.
11. The ratio is more than 1 in most of the years which indicates that in GSRTC, debt exceeds assets. It has been financing more and more of its total assets from the outsiders fund over the time. Thus, the capital structure of the GSRTC is not sound and is instable in the long run.
12. The proprietary ratio in GSRTC shows decreasing trend. It ranged between -1.11 times in the year 2001-02 and 0.43 times in the year 1996-97 with an average ratio of -0.19 times. Moreover, it was higher than average trend except from the year 1999-00 to 2001-02.
13. Analysis of proprietary ratio reveals that in spite of high contribution, the owners (state and central government) share in total assets is very negligible, as it largely utilize for settlement of accumulated loss. The performance of GSRTC is not satisfactory as the ratio is negative or less than 50% during whole study period. The owners' funds are not sufficient to acquire total assets. There is lack of owners' funds and utmost dependence on outside sources of fund in financing total assets which is the worst situation.
14. The Interest Coverage Ratio shows fluctuating trend. It ranged between -5.55 times in the year 1997-98 and 0.03 times in the year 2005-06 with an average ratio of -1.98 times. Though, the ratio shows fluctuating trend, it was increasing. Moreover, it was higher than average trend except from the year 1997-98 to 1999-00.

15. The application of t-test reveals that the difference between the interest coverage ratios of GSRTC is significant at 5% level of significance over the period.
16. The interest coverage ratio measures the interest paying capacity of the firm. The ratio indicates that the GSRTC is not in a position to pay off its obligations as ratio is negative during whole study period. However, it was increasing and positive in the ending year, which is a good sign.
17. The Financial Leverage Ratio shows decreasing trend. It ranged between - 0.01 times in the year 2005-06 and 0.85 times in the year 1997-98 with an average ratio of 0.52 times. Moreover, it was less than one during the whole study period. However, the Ratio was above average of 0.52 times except in the last three years.
18. The policy of debt financing has been adjusted through financial leverage. Analysis of financial leverage ratio reveals that in GSRTC, Financial Leverage Ratio was not much high, less than one, during whole study period. It indicates that the GSRTC has been enjoying the benefits of trading on equity and was improving over the time as the ratio is decreasing over the time.
19. The Capital Gearing Ratio shows increasing trend. It ranged between 0.18 times in the year 1997-98 and 1.17 times in the year 2005-06 with an average ratio of 0.80 times. Moreover, it was less than one during the initial five years. However, the Ratio was above average of 0.80 times except in the first three years.
20. Analysis of capital gearing ratio reveals that in GSRTC, the capital structure is low geared in the initial three years and near to even geared in the next two succeeding years. However, it was high geared in the last five years.

21. The Net Fixed Assets-Net worth Ratio shows fluctuating trend. It ranged between -10.68 times in the year 1998-99 and 13.65 times in the year 2003-04 with an average ratio of 0.77 times. Moreover, it was less than average of 0.58 times except in the year 1996-97, 1997-98, 2002-03 and 2003-04.
22. Fixed assets to net worth ratio measures the percentage of fixed assets financed by owners of the company. Analysis of ratio reveals that the ratio is negative during most of the years due to negative net worth. The capital structure of the GSRTC is not sound and there is deficiency of owner's fund. It depends on outside funds for financing its fixed assets as most of the net worth is used for adjusting heavy losses suffered by the corporation.
23. The negative correlation between fixed assets and net worth indicates that it does not following uniform and well managed policy for raising fixed assets from borrowed as well as owned capital. It relied more on borrowed funds. From the creditors point of view the long-term financial performance of GSRTC was not that much sound.
24. The Fixed Assets to Debt Ratio shows decreasing trend. It ranged between 0.80 times in the year 2004-05 and 4.61 times in the year 1997-98 with an average ratio of 1.87 times. Moreover, it was more than one in the initial five years and was less than one from the year 2000-01 to till the ending year. However, the Ratio was less than average except in the initial three years.
25. Analysis of ratio reveals that Net Fixed Assets exceeds Long Term Debt during first five years. It indicates that the fixed assets provided sufficient securities to long term fund and they can be said to be fully secured by the fixed assets of the GSRTC during that tenure. However, it is not such in the last five years as Long Term Debt exceeds Net Fixed Assets during that last five years tenure. Thus, the long term fund is fully secured by the fixed assets in the initial years but it was decreasing over the time.

As a whole it may be concluded that long term financial solvency in GSRTC is not satisfactory. It has utmost dependence on borrowed capital than owners' capital due to heavy losses suffered by the corporation. It can not meet its long term obligations effectively and margin of safety for the long term creditors is also lower.

## **CHEPTER VII**

### **ACTIVITY ANALYSIS**

Chapter titled "Activity Analysis" includes the analysis in terms of growth of activity, total resources and conduct of activity of GSRTC over the period. For that purpose nine different ratios are calculated and analyzed.

1. The growth of activity in terms of net revenue was positive in GSRTC. It was Rs. 808.68 lacs in the year 1996-97 and Rs. 1430.17 lacs in the year 2005-06. Hence, average yearly revenue income raised by Rs. 69.05 lacs.
2. The growth of activity in terms of passengers traveled was negative in GSRTC. It was 16472.24 lacs in the year 1996-97 and 7897.56 lacs in the year 2005-06. Hence, average yearly passengers travelled fall by 952.74 lacs.
3. The time series analysis of revenue and the application of chi-square test revel that the revenue in GSRTC did not increase as per expectations.
4. Analysis of ratio reveals that the utilization of fixed assets in generation of revenue is somewhat satisfactory and also improving over the time. The GSRTC is able to over utilize its fixed assets in generation of revenue.
5. The Current Assets Turnover Ratio shows fluctuating trend. It ranged between 5.19 times in the year 1998-99 and 2.90 times in the year 2005-06 with an average ratio of 3.84 times. The ratio was above the average in the initial three years and in the year 2001-02. it was below than the average from the year 2002-03 till the ending year.

6. Analysis of ratio reveals that the utilization of current assets in generation of revenue is not much satisfactory and also decreasing over the time. The GSRTC is able to over utilize its current assets in generation of revenue.
7. The Operating Ratio shows fluctuating trend. It ranged between 1126.87 per cent in the year 1999-00 and 100.84 per cent in the year 2003-04 with an average ratio of 111.92 per cent. The ratio was above the average from the year 1997-98 to 2001-02. It was below the average from the year 2002-03 till the ending year.
8. Analysis of ratio reveals that operating efficiency of GSRTC was not satisfactory. The ratio was more than 100 per cent during whole study period which indicates net loss and lack of control over operating expenses. However, it was decreasing from the year 2001-02 and also below the average from the year 2002-03 till the ending year which is a good sign.
9. The Stores Ratio shows decreasing trend in the initial six years and fluctuating trend in the last four years. It ranged between 5.29 per cent in the year 2003-2004 and 11.24 per cent in the year 1996-97 with an average ratio of 7.12 per cent. The ratio was higher than the average ratio up to the year 1999-00. From the year 2000-01, it was below the average ratio till the end year.
10. The application of 't' test reveals that the difference between the percentage of stores expense to net revenue is significant at 5% level of significance over the period.
11. Analysis of ratio reveals that that the GSRTC kept very few stores, around average 7% against revenue income. The investment in stores is also decreasing due to various measures taken by the corporation. It was around 11% in the year 1996-97. It falls and reached to around 5% in the year 2005-06.

12. The Fuel Ratio shows increasing trend. It ranged between 21.16 per cent in the year 1996-97 and 38.14 per cent in the year 2005-06 with an average ratio of 29.58 per cent. The ratio was below the average ratio up to the year 1999-00. From the year 2000-01, it was above the average ratio till the end year.
13. The application of 't' test reveals that the difference between the percentage of fuel expense to net revenue is significant at 5% level of significance over the period.
14. Analysis of ratio reveals that the GSRTC kept considerable fuel, around against revenue income. The investment in fuel is also increasing. The drives for diesel KMPL improvement were continued during the study period as a result of which the Diesel KMPL achieved was improved. But at the same time prices of diesel also shows increasing trend. As a result investment in fuel against revenue income is increased over the period.
15. The Salary & Allowances Ratio shows fluctuating trend. It ranged between 38.84 per cent in the year 2005-06 and 59.52 per cent in the year 1999-00 with an average ratio of 46.26 per cent. The ratio was below the average ratio in the year 1996-97 as well last four years. From the year 2002-03, it was below the average ratio till the end year.
16. The application of 't' test reveals that the difference between the percentage of salary & allowances to net revenue is significant at 5% level of significance over the period.
17. Analysis of ratio reveals that in GSRTC, salary & allowances constitutes measure portion around average 42% of revenue income. However, cost incurred on wages & salaries is also decreasing due to decrease in staff of the corporation.

The Depreciation & Insurance Ratio shows increasing trend up to the year 2001-02 and then after decreasing till the ending year of the study period. It ranged between 1.91 per cent in the year 2005-06 and 7.71 per cent in the year 2001-02 with an average ratio of 5.31 per cent. The ratio was below the average ratio in the year 1997-98 as well last two years.

18. The application of 't' test reveals that the difference between the percentage of depreciation & insurance to net revenue is significant at 5% level of significance over the period.

19. Analysis of ratio reveals that in GSRTC depreciation & insurance constitutes a very small portion around average 5% of revenue income. Besides, cost incurred on depreciation & insurance is also decreasing.

20. The General Charges Ratio shows fluctuating trend. It ranged between 5.36 per cent in the year 2003-04 and 11.81 per cent in the year 1997-98 with an average ratio of 9.21 per cent. The ratio was above the average ratio in the year initial six years. From the year 2002-03, it was below the average ratio till the ending year.

21. The application of 't' test reveals that the difference between the percentage of general charges to net revenue is significant at 5% level of significance over the period.

22. Analysis of ratio reveals that in GSRTC general charges constitutes considerably small portion around average 9.21% of revenue income. However, cost incurred on general charges is also decreasing.

23. The Taxes Ratio shows fluctuating trend. It ranged between 12.87 per cent in the year 2004-05 and 16.17 per cent in the year 1998-99 with an average ratio of 14.44 per cent. The ratio was above the average ratio in the year 2001-02, initial six years. From the year 2002-03, it was below the average ratio till the end year.



24. The application of 't' test reveals that the difference between the percentage of taxes to net revenue is significant at 5% level of significance over the period.

25. Analysis of ratio reveals that in GSRTC taxes constitutes considerable portion around average 13% of revenue income. However, cost incurred on taxes is also decreasing.

As a whole it may be concluded that GSRTC having inadequate growth of activity in terms of passengers traveled and revenue realized. An analysis reveals underutilization of current as well as fixed assets. Negative ratios indicate operational inefficiency in GSRTC.

## **CHEPTER VIII PROFITABILITY ANALYSIS**

Chapter titled "Profitability Analysis" includes the analysis in terms of profitability of GSRTC from the view point of management and shareholders over the period. For that purpose five different ratios are calculated and analyzed.

1. The Gross Profit Ratio shows fluctuating trend. It ranged between -26.87 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 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.
2. The regression analysis of gross profit based on total revenue and the application of chi-square test reveals that the difference between the actual gross profit and the computed gross profit is not significant at 5% level of significance over the period. In other wards, the test of fitness is held good in GSRTC over the period.

3. The application of 't' test reveals that the difference between the percentage of gross profit ratio is significant at 5% level of significance over the period.
4. Analysis of ratio reveals that the GSRTC could not convert revenue into gross profit. This may be due to under utilization of current as well as fixed assets. The ratio is negative during the whole study period. However, the ratio shows somewhat improvement from the year 2003-04.
5. 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 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.
6. The regression analysis of net operating profit based on total revenue and the application of chi-square test reveals that the difference between the actual net operating profit and the computed net operating profit is not significant at 5% level of significance over the period. In other wards, the test of fitness is held good in GSRTC over the period.
7. The application of 't' test reveals that the difference between the percentage of net operating profit ratio was not significant at 5% level of significance over the period.
8. Analysis of ratio reveals that the GSRTC could not convert revenue into net operating profit. This may be due to under utilization of current as well as fixed assets. The ratio is negative during the whole study period which indicates inefficiency in its operation. However, the ratio shows somewhat improvement from the year 2002-03 as the depreciation cost is decreasing.

9. 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 was above the average except in the years 1997-98 to 1999-00.
10. The regression analysis of capital employed based on total revenue and the application of chi-square test reveals that the difference between the actual capital employed and the computed capital employed is not significant at 5% level of significance over the period. In other words, the test of fitness is held good in GSRTC over the period.
11. The application of 't' test reveals that the difference between the percentage of return capital employed ratio is not significant at 5% level of significance over the period.
12. Analysis of ratio reveals that the GSRTC could not efficiently utilise the funds supplied by its creditors and owners. However, the ratio shows somewhat improvement from the year 2002-03.
13. 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 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.
14. The regression analysis of net profit based on total revenue and the application of chi-square test reveals that the difference between the actual net profit and the computed net profit is not significant at 5% level of significance over the period. In other words, the test of fitness is held good in GSRTC over the period.
15. The application of 't' test reveals that the difference between the percentage of net profit ratio is not significant at 5% level of significance over the period.

16. Analysis of ratio reveals that the management of GSRTC is not able to earn satisfactory return on owners' fund. However, the ratio shows somewhat improvement from the year 2002-03.
17. The Return on Owner's 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 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.
18. The regression analysis of return on owner's equity based on total revenue and the application of chi-square test reveals that the difference between the actual return on owner's equity and the computed return on owner's equity is not significant at 5% level of significance over the period. In other words, the test of fitness is held good in GSRTC over the period.
19. The application of 't' test reveals that the difference between the percentage of return on owners' equity ratio is significant at 5% level of significance over the period.
20. Analysis of 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 somewhat improvement from the year 2002-03. The return on net worth is not satisfactory.

As a whole it may be concluded that GSRTC having very poor profitability. Due to underutilization of current as well as fixed assets, the revenue is not sufficient to cover even gross profit. Negative ratios indicate inefficiency in its operation. Besides, GSRTC could not efficiently utilise the funds supplied by its creditors as well as owners. Moreover, it can not earn return on shareholder's fund but instead suffers heavy losses.

### **9.3 FINDINGS**

While going through the financial analysis and discussion about the performance with the officials of GSRTC, I have found that following factors which are the main causes of the heavy losses the GSRTC is suffering from.

#### **Scarcity of resources**

As, GSRTC offers passenger transport services, the efficiency lies in providing qualitative services in terms of safety and punctuality. The prime resource of GSRTC is its buses, so the proper upkeep and effective utilization of vehicles and efficiency in operations will increase revenue and control the cost of operations. Unfortunately, more than 52 per cent (as on 31<sup>st</sup> March 2008) of the fleet owned by GSRTC are over aged and due for replacement. However, scarcity of funds restricted the replacement of these vehicles. Aged fleet needs more resources (man and material) to operate, slow down operations due to frequent break-downs and reduced trips than planned. Consequently, number of passengers and employee and vehicle utilization goes down and as such, increased cost of operations and decreased profit together contributes to financial weakness of GSRTC.

#### **Unequal competition**

The GSRTC will have to compete with the private sector even though the former may continue to play a dominant role in terms of social obligations. The main point to be noted is the big difference between the environment where GSRTC and private operators have to perform. GSRTC is a government-run organization. Hence, all basic regulations of the government like providing minimum wages, appropriate employee benefits, and adherence to government demand on taxation, etc. are fully complied with. Also, it is constrained not to increase the prices based on market conditions. Several of these constraints, limitations, and compulsions are not applicable to private operators. Some of the important differences which result into an uneven competitive environment and unfair tax obligations to GSRTC are as under:

Firstly, The Government of Gujarat levies a passenger tax of 17.5 per cent (highest in the country) on passenger income since GSRTC is a stage carrier.

However, the private operators (who are supposed to operate as contract operators) pay a one-time yearly payment of Rs. 90,000 per bus. In practice they operate as a stage carrier.

Secondly, even the notification of the government protects the interest of the corporation by disallowing private operators operate anywhere around 100 meters of the ST depots, it is not being implemented. Private operators are making roaring business by picking up passengers right in front of the bus station while the authorities of GSRTC can do little about it due to legal handicaps. The mini buses can be seen in lines of two, three, or even four at times, and, as one bus gets full and departs, the other pulls up promptly. Passengers find it cheaper and faster to travel by these buses as the operators don't have to pay a passenger tax. Because of this parallel service, the GSRTC is making lose in huge amount.

Thirdly, GSRTC is seen by the government as an organization for employment generation. Consequently, the manpower cost is almost double the private operators. It increases the operational cost in GSRTC.

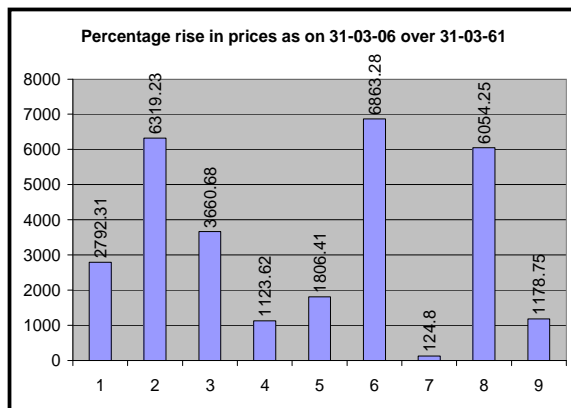
### **Operation on Uneconomic routes**

As a part of Government policy, the corporation has completed 100 per cent (around 58 per cent in other part of country) nationalization of passenger road transports service in Gujarat since November 1969. At present, corporation has provided direct service to 99.33 % population covering 95.93 % villages of state. Thus, GSRTC demonstrates its social responsibility by providing transportation connectivity to wider geographical area. This accused GSRTC for plying buses on routes which are economically not viable. Besides, the corporation has social obligation of running city services in some of the cities which may not profitable. But, GSRTC is not fully compensated for universal service obligation rendered in the form bus connectivity to remote areas.

### **Uneconomic fare structure**

Due to political compulsion GSRTC is not able to decide its fare structure in accordance with passenger traffic pattern, input cost and market conditions.

Besides, fare revisions are generally infrequent and inadequate to compensate for increases in input costs. These results into decreased revenue increased operating cost and ultimately reduced profit. It's difficult to cope up with such difference in operating cost and earnings without any government assistance. Series 1 to 9 represents percentage increase in the price of inputs namely vehicles, diesel, engine oil, tire tube & flap, battery, emolument per employee, motor vehicle tax, weighted average rise (1 to 7), net fare per passenger km. by GSRTC respectively.



The weighted average increase in the cost of operation (as on 31-03-06 as compared to 31-03-61) was 6054.25% while the increase in net fare charge was 1178.75% only.

### Concessions in fares

The corporation grants concession in bus fares to students, competitors participating in sports tournaments sponsored by the Govt., physically handicapped, blind persons, deaf & dumb, cancer patients, freedom fighters widow of the freedom fighters who were getting pension from the Govt., State Govt. awarded teachers. The facility of concession is also extended to the attendant of the widow of the freedom fighter. The Corporation grants concession to students in casual contracts also. However, GSRTC is not fully compensated for various concessional fares/exemptions (valued at Rs 35600 lakhs in 2005-06).

### High tax burden

Besides increasing input prices, increasing taxation also turns into rapidly rising cost of operation which is a major problem confronting the GSRTC. Inspire of bearing certain social obligations in terms of operating uneconomic routes, offering concessional fares to certain classes of users, etc.,

organization is subject to heavy taxation. Passenger tax of 17.5% levied in Gujarat is the highest in the country. In fact, it is approximately twice the rate charged in Andhra Pradesh and Karnataka. The estimated cost per km. on direct and indirect taxes which was 29.94 paise per km. in 1960-61 has rapidly increased to 429.47 paise per km. in 2005-06. Unlike state government vehicles which are exempted from paying toll taxes on privately-built roads, GSRTC has to pay every bit of it despite carrying out operations under social obligations in several districts. The Planning Commission study<sup>11</sup> noted that taxation has eroded the profitability of the unit, especially the passenger tax which is based on traffic earnings. It diminishes the impact of every fare rise since a sizable chunk of the additional revenue goes to the Government Exchequer and gives only part relief to the organization. It is evident that GSRTC has contributed to the government exchequer even though it has been making operational losses. Following table summarizes the losses incurred and tax paid by GSRTC.

**Government and GSRTC**

<b>Year</b>	<b>Profit/ Loss</b>	<b>Prof. Tax</b>	<b>MVT</b>	<b>Other Tax</b>	<b>Total</b>
1996-97	<b>-7274.15</b>	11136.51	470.94	321.39	<b>11928.84</b>
1997-98	<b>-21072.30</b>	12934.85	504.89	362.57	<b>13802.31</b>
1998-99	<b>-15673.34</b>	14454.97	509.44	336.38	<b>15300.79</b>
1999-00	<b>-36023.21</b>	16292.66	514.28	361.20	<b>17168.14</b>
2000-01	<b>-31796.18</b>	17343.70	505.89	504.59	<b>18354.18</b>
2001-02	<b>-38273.42</b>	16886.33	499.96	541.55	<b>17927.84</b>
2002-03	<b>-18725.21</b>	16104.19	475.90	488.52	<b>17068.61</b>
2003-04	<b>-9077.83</b>	16743.32	474.51	931.69	<b>18149.52</b>
2004-05	<b>-14888.93</b>	16075.99	356.96	1119.53	<b>17552.48</b>
2005-06	<b>-11224.26</b>	16626.79	398.01	1371.97	<b>18396.77</b>

Source: Computed from Annual Reports and Accounts of GSRTC, Ahmedabad



### **High staff bus ratio**

Over staffing is reflected in high staff to bus ratio. It has dropped from 7.11 (as on 2005-06) to 5.52 (as on 2007-08) and reached near to the optimum range of staff to bus ratio 5.5 to 6. But, is still much above than other SRTC, namely Orissa SRTC (4.36), Himachal RTC (4.37), Karnataka SRTC (4.38), Pepsu RTC (4.53), North East Karnataka (4.63), Uttar Pradesh SRTC (4.73), Rajasthan SRTC (4.74), North West Karnataka SRTC (5.10) and Bagalore Metropolitan TC (5.27) which points towards requirements for man power rationalization in GSRTC.

### **Huge debt & interest burden**

GSRTC has borrowed loans with high interest (from 24% to 36%) and also raised a high cost debt of 13% for purchaseing vehicles during the study period. Besides, due to operational inefficiencies these loans could not be repaid, which causes a huge debt and interest burden on GSRTC. The outstanding amount of loans and debts was Rs. 71598 lakhs (as on 31<sup>st</sup> March 2006).

### **Diverse objectives**

Being a public utility service, GSRTC expected to concentrate on service motive rather than profit motive. Diversed stakeholders are pushing the organization in different directions, viz. political representatives influencing the route mix with a bias towards servicing their constituencies, unions and staff demanding frequent wage revisions and strict working hours, passengers demanding for safe and punctual service at lower fare, lenders expect regular payment of interest, government expect, besides social obligations on behalf of them, regular payment of taxation etc., GSRTC having challenge to achieve goal congruence of various stakeholders.

### **Operational Productivity Parameters**

The common indicator of physical productivity include: (i) Fleet Utilization (the ratio of the buses on road to the average fleet held by an Undertaking) (ii) Vehicle Productivity (the average number of revenue earning km. performed by a bus per day) (iii) Fuel Efficiency (Average kilometer per liter of fuel) (iv)

Staff Productivity (the average revenue earnings km performed per staff per day) (v) Occupancy Ratio (the passenger kilometers performed to passenger kilometers offered). The productivity of the GSRTC in terms of the above mentioned parameters, for the year ending March, 2008 is given in the following table:

### Productivity Parameters in GSRTC

Sr. No.	Parameters	Average	Highest	Lowest	GSRTC	Rank
1	Fleet Utilization %	92.38	99.47	51.85	85.91	21
2	Occupancy Ratio %	69	92	47.23	63.18	27
3	Staff Productivity (km/staff/day)	46.83	78.41	4.33	61.14	14
4	Vehicle Productivity (km/bus/day)	270.3	585.95	35.43	337.59	9
5	Fuel Efficiency(KMPL)	5.22	5.41	2.92	5.37	3

Source: Computed from Annual Reports and Accounts of GSRTC, Ahmedabad

GSRTC has done good job in fuel efficiency but has to do more in the area of fleet utilization, occupancy and staff productivity.

#### 9.4 SUGGESTIONS

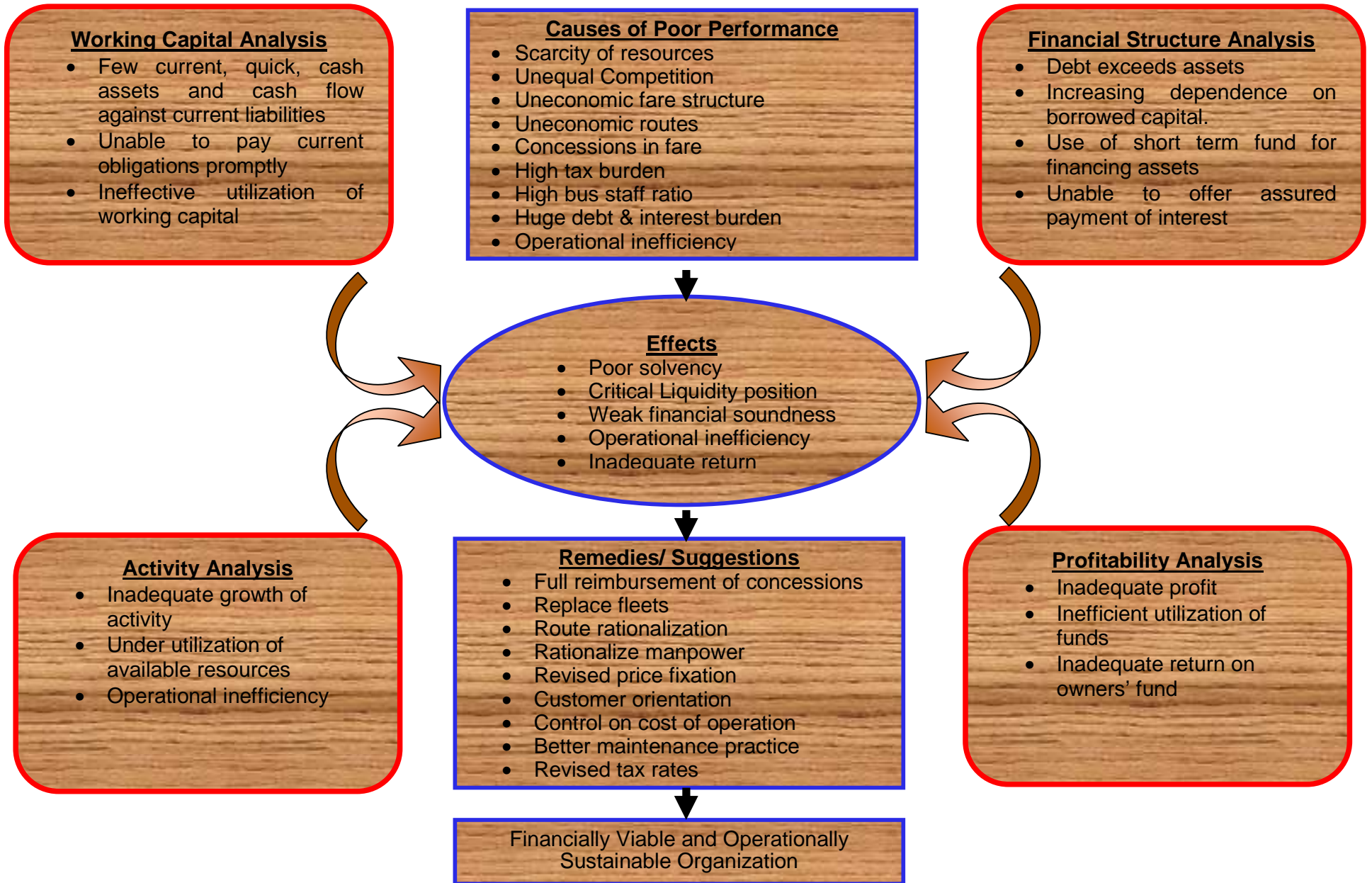
With a view to improve efficiency in the operation of GSRTC and to restore financial health of GSRTC, a number of measures have been suggested. Most of the measures are aimed at increasing revenue, controlling cost, and improving service quality. These initiatives are likely to have a positive impact on the performance of GSRTC. Important suggestions are:

1. The government should provide with adequate financial incentives so as to enable the GSRTC pay off outstanding debt (at least 50% outstanding loans) which improves financial viability of GSRTC. This will also help to

- improve services and infrastructures so as to compete with the private operators.
2. In fact, government should establish special institutional set up for funding GSRTC.
  3. The government should take complete measures to ensure that private operators pay the same registration fee like GSRTC for establishing fare, healthy and competitive environment for transport operators.
  4. Government should rationalize motor vehicle taxes (MVT) and the passenger taxes levied on GSRTC. The government may consider an overall reduction in passenger tax from 17.50 percent to 7.50 percent and Motor vehicle tax from about 11% of their turnover to a maximum of 5.5% (lifetime tax of about 10 % of the cost of bus would be desirable to promote GSRTC). It should also think about the excise exemption on chassis purchased by GSRTC for a stipulated period (say 5 years), uniform rate of sales tax/State Vat of 5 per cent on purchases of bus chassis spares parts by GSRTC, Reduction of 50 % of Sales tax currently levied on diesel and Provide a rebate of 50 % in the excise on diesel supplied to GSRTC.
  5. The government should impose the private operators for shared social obligations of connecting the rural areas with GSRTC. Otherwise, GSRTC should adequately reimburse for fulfillment of such obligations.
  6. The government should regularize the reimbursement of expenses incurred by the GSRTC in subsidizing the travel of students & other special categories, for operating non-economic routes etc. GSRTC should fully compensate by the government for such social service obligations.
  7. The government should allowed GSRTC to decide its service price based on market conditions rather than political and social conditions which helps GSRTC to achieve financial viability.

8. Management should achieve high operational efficiency by effectively utilizing available recourses, timely replacement of vehicles, and reduced breakdown by proper maintenance, appropriate route scheduling, punctuality and safety in operations.
9. Management should develop approach of customer orientation in terms of quality of service (punctuality and safety), appropriate pricing, and an enhanced service.
10. Management should develop strong monitoring mechanism for surprise checking.
11. The management should take strong actions for reducing operating expenses especially staff productivity, fleet utilization and occupancy ratio.
12. The management should adopt principles of scientific management. It should also render the services of experienced professionals for managing its operations or policy decisions if felt necessary.
13. The management should adopt scientific approach in major areas of Human Resource Management namely recruitment, training, goal setting, performance appraisal and incentives plan etc.
14. The employees should develop professional attitude, approach and action rather than traditional or biased one.
15. The employees should prepare themselves to cope up with changing environment. They should be prepared to change in terms of adopting new technologies, developing new skills, adopting a set of new performance measures, developing professional orientations to work, and innovating ways of conducting business, flexible working hours, variable compensation, customer focused actions, qualitative services etc.

16. The government needs to create an enabling environment in terms of reduced taxes, uniform requirements to serve rural areas, empowering GSRTC to decide the price of its services based on commercial considerations, transparent management systems, empowered employees, professional Board, friendly and pragmatic employee relations, and market-driven incentive systems.
  
17. To bring in efficiencies, the Government should encourage private participation through clearly defined service contracts especially when the economy is being liberalized. 100% nationalization of the road transport has restricted user's choice and thereby increases cost. In Britain, a combination of privatization and deregulation has softened the effects of subsidy cuts on users. In developing countries like Sri Lanka, privatization and deregulation have generated large service expansion with little or no fare increases even when public subsidies have been reduced if not withdrawn. At the present moment, the preferable policy approach would be to enhance healthy competition between public and private operators through deregulation rather than de-nationalization that may come at a later stage depending on the outcomes of this experiment.



## BIBLIOGRAPHY

### BOOKS

1. A. Tom Nelson, "Management Accounting", Macmillan, New York, 1970.
2. Arora S. K., "Economics of Management in Road Transport Industries", Deep & Deep Publications, New Delhi, 1988.
3. Asish K. Bhattacharyya, "Financial Accounting for Business Managers", Prentice Hall of India Private Limited, Connaught Circus, New Delhi, 2007.
4. Bagade M.V., Passenger Tax and Rational Fare Policy From STU's, Journal of Transport Management, Vol. 12, 1988.
5. Baig, Natees and Dr. Iqbal B.A., "Transport as a Constraint for Agro Industrial Development in U.P", Faculty of Commerce, Aligarh Muslim University Publications, Aligarh, 1990.
6. Bhatnagar K. P., Satish Bahadur, Agarwal D. N., Gupta S. C., "Transport in Modern India", Kishor Publishing House, Kanpur, 1971.
7. Bierman Jr. H. & Drebin Allen Jr., "Financial Accounting – An Introduction", Macmillan, New York, 1965.
8. Bonavia M.R., "The Economics of Transport", James Nisbet & Company, Cambridge, 1954.
9. Bradely, J. F., "Administrative Financial Management", Bravnes and Noble, New York, 1964.
10. Brigham E.F., "Fundamentals of Financial Management", Dryden Press Hinsdale, Illinois, 1978.
11. Central Institute of Road Transport (CIRT), Pune.
12. Charles T. Horngren, Gary L. Sudem, John A. Elliott, "Introduction to Financial Accounting", Eighth Edition Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2002.
13. Croxton Frederick E., Crowden Dudley J. and Klein Sidney, "Applied Genral Statistics", Prentice Hall Pvt. Ltd., New Delhi, 1969.
14. Denys Munby (Ed.), "Transport", Penguin Books Ltd., England, 1968.
15. Dev, Arun (ed), "The Story of Civilisation, Vol. 1, NCCRT, ew Delhi, 1983.
16. Dr. S. N. Maheshwari, "Principles of Management Accounting", Sultan Chand 7 Sons, New Delhi, 2001.

17. E. W. Walker, "Essentials of Financial Management", Prentice Hall Inc., New York, 1935.
18. Edwin, Lowe, Nevile Jr., "The Development of Transportation in Japan – A case study of Okayama Ham, Ph.D. Thesis, University of Michigan, Ann Arbor, Michigan, 1959.
19. Foulke, R. A., "Practical Financial Statement Analysis", Tata McGraw Hill, New Delhi, 1976.
20. Goode William J. and Hart Paul K., "Methods in Social Research", McGraw Hill Book Company, New York, 1952.
21. Guthmann, H. G., "Analysis of Financial Statements", New York, Prentice Hall Inc., 1953.
22. Halder Dilip Kumar, "Public Undertakings in Road Transport in the City of Calcutta – An Economic Analysis and Programming Solutions, Gokhale Institute of Politics and Economics, Poona, 1967.
23. Harward & Upto, "Introduction to Business Finance", Mc Graw Hill, New York, 1961.
24. I. M. Pandey, "Financial Management", 2002, Vikas Publishing House Pvt. Ltd., New Delhi.
25. ILO/UNDP project on STUs in India – A Study of Performance, Problems and prospects, CIRT, Pune, 1982.
26. J. Satyanarayana, "Cost Structure of Road Transport Industry", Transport Journal, Vol. XXI-3, March 1971.
27. Jagadish Gandhi, P., "State Transport Undertakings, Structure, Growth, Performance", Deep & Deep Publications, New Delhi, 1998.
28. James C. Van Horne & John M. Wachowicz, Jr., "Fundamentals of Financial Management", Pearson Education (Singapore) Pte. Ltd., Indian Branch, Delhi, 2005.
29. John Hibbs, "Transport Studies an introduction, John Beker Publishers Ltd., London, 1970.
30. John Hibbs, "Transport to Passengers", The Institute of Economic Affairs, London, 1971.
31. Khan R.R., "Transport Management, Himalaya Publishing House, Bombay, 1980.
32. Koteeswaram M., "Indian Journal of Transport Management", March 2000.



33. Kothari C.R., "Research Methodology – Methods & Techniques, Wishawa Prakashan, New Delhi, 2003.
34. Kulkarni P.V., "Recruitment, selection and placement in Road Transport", Journal of Transport Management, C.I.R.T., Pune, 1989.
35. Kulshreshtha, D. K., "Management of State Road Transport in India", Mittal Publications, Delhi, 1994.
36. Kulshreshtha D.K., "Transport Management in India", Mittal Publications, New Delhi, 1994.
37. Kulshreshtha, N. K., "Analysis of Financial Statements Indian Paper Industry", Aligarh, Nav Prakashan, 1972.
38. Levin Richard I., "Statistics for Management", Prantice Hall of India Pvt. Ltd., New Delhi, 1979.
39. Locklin D.P., "Economics of Transportation", Rechar D. Irwin, Inc., Hornewood, 1972.
  - a. London, 1938.
40. Lundberg, G. A., "Social Research", Longmans Green and Company, New York, 1982.
41. M. Y. Khan & P K Jain, "Financial Management – Text and Problems", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2003.
42. Manjula Singh, "Road Transport in India", in D.M. Nanjundappa (ed.), Transport Planning and Finance, Karnatak University, Dharwar, 1973.
43. Martin T. Farris & Frest E. Harding, "Passenge Transportation", Prentice Hall, Englewoods Cliffs, New Jersey, 1976.
44. Mathew M. O., "Rail and Road Transport in India – A Study in Optimum Size and Organisation", Book Agency, Culcutta, 1964.
45. Mathew M.O., "Rail and Road Transport in India – A Study in Optimum Size and Organization", Book Agency, Culcutta, 1964.
46. Meigs, W. B. and others, "Intermediate Accounting", McGraw – Hill, New York, 1978.
47. Metcalf, R. W. and P. L. Titard, "Principles of Accounting", W. B. Saunders, (Philadelphia) 1976.
48. Ministry of Transport, Scottish Development Department, the Welsh Office, Roads in Urban Areas, Her Majesty's Stationery Office, London, 1966.

49. Mridula Krishna, "Economics of Transport; A Trend Report", Survey of Research in Economics, ICSSR, New Delhi, 1975.
50. Murthy, V. S., "Management Finance", Vakils Feller and Simons Ltd., Bombay, 1978.
51. Myer, John N., "Financial Statement Analysis", Prentice-Hall of India, New Delhi, 1978.
52. Om Prakash, "Ratio Analysis for New Perspective", Himalaya Publishing House, Mumbai, 1983.
53. Owes Wilfred, "Strategy for Mobility – Transportation for the Developing Countries", East West Centre Press, Honolulu, 1966.
54. Patankar P.G., "Road Passenger Transport in India", Central Institute of Road Transport, Pune, 1983.
55. Patankar, P. G., "Road Passenger Transport in India", CIRT, Pune, 1983.
56. Payne I.S., "A European Transportation System", Transport Journal, 1975.
57. Peter F. Drucker, "Management; Tasks, Responsibilities, Practices", Allied Publishers, New Delhi, 1975.
58. Poulke, Roy A – "Practical Financial Statement Analysis", Tata McGraw Hill Publishing Co. Ltd., New Delhi, Edition 1972.
59. Prasanna Chandra, "Financial Management – Theory and Practice", Tata McGraw Hill Publishing Company Limited, New Delhi, 2002.
60. R. B. Mayer, "Contemporary Financial Management", West Publishing Co., 1980.
61. R. R. Khan, "Transport Management", Himalaya Publishing House, Bombay, 1980.
62. Rajeswari Gundam, "Public Sector Performance of State Road Transport Corporation", APII Publishing Corporation, New Delhi, 1998.
63. Road Transport Year Book (2006-07), Transport Research Wing, Ministry of Shipping, Road Transport & Highways, Government of India, New Delhi, 2009.
64. S. B. Chowdhry, "Analysis of Company Financial Statement", Asia Publishing House, Bombay, 1964.
65. S. C. Kuchhal, "Financial Management – An Analytical and Conceptual Approach", Chaitanya Publishing House, Allahabad, 1993.

66. S.R. Kalyanraman & T.R. Sehgal, "Methods for Estimating Future Road Traffic", Journal of the Indian Roads Congress, Vol. XXXI-3, Oct. 1968.
67. Sancheti D.C. & Kappoor V.K., "Statistics - Theory, Methods & Application, Sultan Chand & Sons, Educational Publisher, New Delhi, 1999.
68. Santosh Sharma., "Productivity in Road Transport – A Study in Innovative Management", Association of State Road Transport Undertakings, Research Paper, New Delhi, 1976.
69. Sharp C.N., "Transport Economics", Macmilan studies in Economics, Macmilan, London, 1973.
70. Srivastava, S. K., "Economics of Transport, with special reference to Transport Development in India", S Chand & Co., New Delhi, 1981.
71. Srivastva S.K., "Economics of Transport", S. Chand & Co., New Delhi, 1987.
72. Sudarsanam Padam, "Canging Imperatives of Human Resources Development: The Case of Passenger Road Transport Industry", Indian Journal of Transport Mmanagement, Vol. 18, February 1994.
73. Sudarshanam Padam, "Bus Transport in India", Ajanta Publications, Delhi, 1990.
74. Sudarshanam Padam. "Bus Transport in India", Ajanta Publications, Delhi, 19990.
75. T.A.S. Vijayaraghavan, "Strategic options for state road transport undertakings in India", International Journal of Public Sector Management, 1995.
76. The National Transport Policy Committee (NTPC), 1980.
77. The post—war policy Committee, Government of India, 1943.
78. The Study Grouo on Transport Planning, Planning Commission, Government of India, 1953.
79. Tripp Alker H., "Road Traffic and its Control, Adward Arnold Company,
80. Truma C. Bigham and Merwill U. Roberts, "Transportations", Mc Graw Hill Book Company, New York, 1952.
81. Venkattapa Rao G., "Transport and Highway Engineering", Tata Mc Graw Hill Publishing Company Limited, New Delhi, 1996.
82. Webster's New Collegiate Dictionary, 8th Ed., Springfield, Mass:G & C, Merriam, 1975.

83. Weessel Robert H., Willet Edward R., and Simone Albert J., "Statistics as Applied to Economics and Business", Kolt Rinehart and Winston, New York, 1965.

84. Wesel H., "Principles of Financial Analysis", Macmillan, New York, 1961.

### **PERIODICALS, JOURNALS, PUBLISHED REPORTS AND NEWS PAPERS**

85. Annual reports of GSRTC from 1996 – 1997 to 2005 – 2006

86. Business Today

87. Chartered Financial analyst

88. Economic Times

89. International Journal of Public Sector Management

90. The Chartered Accountant

91. The Financial Express

92. The Indian Express

93. The Indian Journal of Commerce

94. The Journal of Transport History

95. Times of India

96. Transport Statistics

### **WEB SITES**

97. [www.qlhs.org.uk/oracle/road transport/road transport.html](http://www.qlhs.org.uk/oracle/road%20transport/road%20transport.html)

98. [www.research and markets.com/reports/304418/India](http://www.researchandmarkets.com/reports/304418/India)

99. [www transportation info.com](http://www.transportationinfo.com)

100. [www.answer.com/topic/mode](http://www.answer.com/topic/mode) of transport

101. [www.cybersteering.com/cruise/feature/transport/transport2.tml](http://www.cybersteering.com/cruise/feature/transport/transport2.tml)

102. [www.transport](http://www.transport) and shipping ministry of india.com