CHAPTER III

RESEARCH METHODOLOGY AND PROFILE OF THE PETROLEUM INDUSTRIES

3.1 INTRODUCTION

In research, the methodology needs to be cautiously designed to capitulate results that are as objective as realistic. An able-bodied comprehensible modus operandi empowers the new-fangled research investigator to re-examine the study milieu. Good methodology follows the standards of the established conventions. For the present study, a number of indispensable inimitabilities of the research methodology skirmishing the application magnitude and research rationalization of each one are defined here in this chapter.

The ensuing paragraphs in this chapter deal with the methodology adopted in selection and analysis of data for this study. It outlines the objective and scope of the study, procedure followed for selection of the sample and the collection of data, classification of the sample and the technique followed in analyzing the data for the period of study. Further, the hypotheses set and limitations of the study have also been dealt herein.

3.2 RESEARCH DESIGN

A research design is a definite plan for obtaining a sample from a given population. Research design means a sketch or a drawing of a research project's structure. It comprises a series of prior pronouncements that, taken together, provide a
roadmap for carrying out a research. The research design of the present study is outlined hereunder.

It is not possible in practice for an individual research worker to approach all the bits and pieces in the universe. Researcher selects only a small amount of bits and pieces from the universe for the purpose of the study on the basis of stratified sampling. The sample so selected constitutes the sample design for the purpose.

3.3 SELECTION OF SAMPLE

The study is Ex Post Facto based on survey method used. According to Prowess' corporate database developed by CMIE, (Centre for Monitoring Indian Economy) two hundred and twenty organized companies are operating in the Petroleum, Oil, Gas, Refineries (Refinery) Industry. These organized companies are classified into two sectors namely public and private under the petroleum (Refinery) Industry. In order to select the companies to fulfill the purpose of study, only three public and seven private companies have been selected, But, owing to several constraints such as non-availability of financial statements or non-working of a company in a particular year etc., it is compelled to restrict the number of sample companies to ten based on market share. The details of the companies are presented in Table 3.1.

Table 3.1

Selected number of companies in Indian Petroleum Industry

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Sectors</th>
<th>11 years data available companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Public sector</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Private sector</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>
For the purpose of the study all the two sectors have been selected. The selected both sectors include ten companies. Out of ten companies, three are under public sector and seven private sectors. Out of Ten companies of the selected sectors, eleven years data is available for ten companies only. Therefore, all the ten companies are included in the sample. The selected ten companies include three under public sector and seven under private sector. List of companies selected in Table 3.2

Table –3.2

List of sample companies included in the present study

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sectors/companies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Public sector (3)</strong></td>
</tr>
<tr>
<td>1.</td>
<td>Bharat Petroleum Corporation (BPCL)</td>
</tr>
<tr>
<td>2.</td>
<td>Hindustan Petroleum Corporation (HPCL)</td>
</tr>
<tr>
<td>3.</td>
<td>Indian Oil Corporation (IOCL)</td>
</tr>
<tr>
<td></td>
<td><strong>Private sector (7)</strong></td>
</tr>
<tr>
<td>4.</td>
<td>Essar Oil Limited (EOL)</td>
</tr>
<tr>
<td>5.</td>
<td>Tide water oil Corporation (TWOC)</td>
</tr>
<tr>
<td>6.</td>
<td>Gulf oil Corporation (GOC)</td>
</tr>
<tr>
<td>7.</td>
<td>Sah petroleum (SPL)</td>
</tr>
<tr>
<td>8.</td>
<td>Oil India Ltd (OIL)</td>
</tr>
<tr>
<td>9.</td>
<td>Castrol India LTD-CI Limited (CIL)</td>
</tr>
<tr>
<td>10.</td>
<td>Reliance Petroleum LTD-RI Limited (RPL)</td>
</tr>
</tbody>
</table>
3.4 DATA ANALYSIS

The role of statistical tools is important in analyzing the data and drawing inferences therefrom. In order to drive the open-handed results from the information collected through secondary data, various statistical tools namely, mean, standard deviation, variance, compound annual growth rate, regression, correlation, factor analysis tests of hypothesis both parametric and non-parametric have been accomplished through EXCEL and SPSS softwares. Some of the statistical techniques particularly Factor analysis, multiple regression, path analysis, ANOVA and trend analysis have been used to interpret the same of mathematical relationship amongst values of different variables so computed in the study.

3.5 MEASURING THE EXTENT OF FACTORS INFLUENCING PETROLEUM (REFINERY) INDUSTRIES

3.5.1 Financial Performance and Profitability Analysis

Apart from computing the profitability of petroleum (Refinery) companies, the study also attempts to analyse the various variables, which are expected to have influence over the profitability of petroleum (Refinery) companies. For this purpose, a multivariate approach viz., Correlation Analysis, Multiple Regression Analysis, Factor Analysis and Path Analysis have been adopted. The data of selected variable have been pooled for eleven years of time period namely 2000-01 to 2010-11.

The following factors / variables have been adopted in the multivariate technique:

Y - Ratio of Return on Total assets,

X₁ - Ratio of Equity dividend / PAT
\( X_2 \) - Ratio of Dividend tax / PAT

\( X_3 \) - Ratio of Retained profits / PAT

\( X_4 \) - Ratio of Total income / Avg. total assets

\( X_5 \) - Ratio of Total income / Compensation to employees

\( X_6 \) - Ratio of Sales / Avg. GFA (excl. reval. & WIP)

\( X_7 \) - Ratio of Sales / Avg. net fixed assets

\( X_8 \) - Ratio of Export / Sales

\( X_9 \) - Ratio of Total Forex earnings / Total income

\( X_{10} \) - Ratio of Raw material imports / Raw material purchases

\( X_{11} \) - Ratio of Quick ratio

\( X_{12} \) - Ratio of Current ratio

\( X_{13} \) - Ratio of Debt to equity ratio

\( X_{14} \) - Ratio of Interest cover

\( X_{15} \) - Ratio of Interest incidence

\( X_{16} \) - Ratio of PBDITA/Total income

\( X_{17} \) - Ratio of PBIT/Total income

\( X_{18} \) - Ratio of Cash profit/Total income

\( X_{19} \) - Ratio of PAT/Avg. capital employed

\( X_{20} \) - Ratio of PAT/Avg. total assets

\( X_{21} \) - Ratio of Raw material turnover

\( X_{22} \) - Ratio of Finished goods turnover

\( X_{23} \) - Ratio of Debtors turnover

\( X_{24} \) - Ratio of Creditors turnover
Out of the above-denoted factors, the variable Y is dependent variable and the variables $X_1$ to $X_{24}$ are independent variables.

### 3.5.2 Correlation Analysis

Correlation analysis attempts to study the relationship that exists between two variables. The correlation co-efficient of the selected independent variables with the petroleum (Refinery) companies profitability has been worked out in order to identify the most important variable, which have higher association with the dependent variable. Also, the correlation co-efficient among the different variables has been worked out so as to arrive at a correlation matrix, which incorporates correlation co-efficient of all the selected variable with the dependent variable, as well as correlation coefficients among different independent variables. The test of significance has also been applied in order to identify the variables, which have significant correlation.

### 3.5.3 Multiple Regression Analysis

Regression analysis attempts to study the functional relationship between the variables and provides a mechanism for prediction. As profitability of petroleum (Refinery) companies is the result of several variables, the impact of each selected variable on petroleum (Refinery) companies profitability has been studied individually through multiple regression analysis.

### 3.5.4 Factor Analysis

One of the major problems associated with regression analysis is that of multi co-linearity. The consequences of multi co-linearity are imprecise and unstable estimates. Usually, the problem of multi co-linearity is solved by selecting one or
more of the highly collinear variables. Hence, the technique of factor analysis is often applied to isolate the different factors.

The procedure of factor analysis attempts to estimate the value for the coefficients of regression when the variables are regressed upon the factors. These coefficients are referred to as ‘factor loading’. The matrix of factor loadings provides the basis for grouping the variables into common factors. Each variable is assigned to the factor, where it has the highest loading. The Varimax Rotation method was used in the factor analysis.

For example, there are k (I=1…k) variables, n (j=1…n) petroleum (Refinery) companies and m factors.

The factor analysis model, in the matrix notation then, may be written as follows:

\[ X_{(k \times n)} = A_{(k \times m)} \times Z_{(m \times n)} \]

Where:

\( X \) = the matrix of variables of order (k x n)
\( A \) = the matrix of factor loadings of order (k x m)
\( Z \) = the matrix of factors of order (m x n)

In the factor analysis, factors are formed in such a way that (i) those variables that are most clearly inter-correlated are combined within a single factor, (ii) the variables allocated to the given factor are those that are most nearly independent of the variables allocated to the other factors, (iii) the factors are derived in a manner that maximizes the percentage of the total variance attributable to each successive factor (given the inclusion of the preceding factors) and (iv) the factors are independent (uncorrelated with each other).
3.5.5. Path Analysis

The technique of path analysis is based on a series of multiple regression analyses with the added assumption of causal relationship between independent and dependent variables. The main principle of path analysis is that any correlation coefficient between two variables, or a gross or overall measure of empirical relationship can be decomposed into a series of parts: separate paths of influence leading through chronologically intermediate variable to which both correlated variables have links. The direct and indirect effect of independent variables on the dependent variable is calculated for petroleum (Refinery) companies for 2000-01-2010-11.

3.5.6 Growth Analysis

The growth pattern of the petroleum (Refinery) companies has been analysed by adopting the following techniques: Compound Growth Rate Technique (CGR), and Linear Trend Method.

3.5.7. Compound Growth Rate Technique and Linear Trend Method:

The general performance of the petroleum (Refinery) companies can be analysed more meaningfully and objectively for a given period of time by comparing their growth patterns over the period rather than on a year-to-year basis. The best measure available for such an exercise is the compound growth rates or exponential growth rates.

Since the growth curves for many of the variables were non-linear, the compound growth rates were estimated using the following equation.

Let,

\[ Y_t = Y_0 \ (1 + \frac{r}{100})^t \]
be the growth curve where $Y_0$ and $Y_t$ are the initial and the $t^{th}$ period value of $Y$ respectively and $r$ is the compound growth rate.

Taking logarithms on both sides,

$$\log Y_t = \log Y_0 + t \log (1 + r/100)$$

i.e., $\log Y_t = A + B_t$

where $B = \log [1 + (r/100)]$ and $A = \log Y_0$. Using the value of $B$, $r$ can be obtained from the following formula:

$$r = [\text{antilog (B)} - 1] \times 100$$

If $Y_t$ consist of random errors which follow the usual classical assumptions, $B$ can be estimated by the least square method i.e., $Yc = a + bx$.

3.6. HYPOTHESIS OF THE STUDY

Hypothesis means the researcher must select from the industry of observed events such considerable and pertinent facts that would most effectively elucidate the problem under study. It gives us an idea about indispensable associations, which exist between the different fundamentals within the complexity. Therefore, the hypothesis of the present study is:

1. There is no significant difference between actual sales and trend value of sales among different years in the selected petroleum (Refinery) companies in India.
2. There is no significant difference between actual total assets and trend value of total assets among different years in the selected petroleum (Refinery) companies in India.
3. There is no significant difference in short term financial ratios between years in the selected petroleum (Refinery) companies in India.

4. There is no significant difference in long term financial ratios between years in the selected sectors of petroleum (Refinery) companies in India.

5. There is no significant difference between actual inventory and trend value of inventory among different years in the selected petroleum (Refinery) companies in India.

6. There is no significant difference between actual net worth and trend value of net worth among different years in the selected petroleum (Refinery) companies in India.

7. The Interest incidence has a direct and positive impact on the profitability of selected petroleum (Refinery) companies in India.

8. The finished good turnover has a direct and positive impact on the profitability of selected petroleum (Refinery) companies in India.

9. The Debt to equity ratio has a direct and positive impact on the profitability of selected petroleum (Refinery) companies in India.

3.7 PERIOD OF STUDY

The period 2000-01 to 2010-11 is selected for this study of Indian petroleum industry. This eleven years period is chosen in order to have a fairly long, cyclically well balanced period, for which reasonably homogeneous, reliable and up-to-date financial data would be available. Further, the span chosen for the study is the beginning of liberalization measures introduced by the Government of India. Hence,
the period 2000-01 to 2010-11 is an era of growth of petroleum (Refinery) industry, and has got genuine economic significance of its own.

3.8 SOURCE OF DATA

The study is mainly based on secondary data. The major source of data analysed and interpreted in this study related to all those companies selected is collected from "PROWESS" database, which is the most reliable on the empowered corporate database of Centre for Monitoring Indian Economy (CMIE). It contains a highly normalized database built on a sound understanding of disclosure in India on around twelve thousand companies, which include public and private sector companies. The database provides financial statements, ratio analysis, funds flow, cash flow, product profiles, returns and risk on the stock market and so on. Besides prowess database, relevant secondary data have also been collected from BSE Stock Exchange Official Directory, CMIE Publications, Annual Survey of Industry, Business newspapers, Reports on Currency and Finance, Libraries of various Research Institutions, through Internet etc. The study required variety of data; therefore, websites like http://indiainfoline.com and www.indiastat.com have been comprehensively searched.

3.9 PROFILE OF THE COMPANY

3.9.1 Reliance Petroleum LTD

The Company was incorporated under the Companies Act, 1956 on October 24, 2005 as Reliance Petroleum Limited and obtained its certificate of commencement of business on November 7, 2005. The Company formed to set up a greenfield
petroleum refinery and polypropylene plant to be located in a Special Economic Zone in Jamnagar in the state of Gujarat in western India. The proposed refinery and polypropylene plant will be located adjacent to the existing refinery and petrochemical complex of the Promoter, Reliance Industries Limited ("RIL"), the largest private sector company in India with assets of over Rs.806 billion (approximately US$ 18 billion) as of March 31, RIL is the only private sector company from India to feature in the Fortune Global 500. Reliance Petroleum Ltd has informed that Mr. Michael Seymour Warwick has been appointed as an Additional Director of the Company. Reliance Petroleum Ltd has appointed Mr. Joffery Reney Pryor, Vice President Business Development- Chevron Corporation, as a nominee director of Chevron in place of Mr. Jagjeet Singh Bindra. Reliance Petroleum Ltd has informed that Mr. Pawan Kumar Kapil has been appointed as an Additional Director of the Company with effect from December 15, 2008. Reliance Industries Limited (RIL) (BSE: 500325, NSE: RELIANCE, LSE: RIGD) is an Indian conglomerate company headquartered in Mumbai, Maharashtra, India. The company operates through three business segments: petrochemicals, refining, and oil and gas, other segment of the company includes textile, retail business, special economic zone (SEZ) development and telecom/broadband business. RIL is the largest publicly traded company in India by market capitalization and is the second largest company in India by revenue behind Indian Oil. It is also India's largest private sector company by revenue and profit. The company is ranked 134th on Fortune Global 500 list in 2011.
3.9.2 Castrol India LTD

In 1910, Castrol India started importing certain automotive lubricants from C C Wakefield & Company made an entry in the Indian market. In 1979, CIL was incorporated under the name of Indrol Lubricants and Specialities Pvt Ltd. In was listed on BSE in 1982 and CIL was converted into a public limited company. CIL had formed a subsidiary Company in the year 1987 under the name of Indtech Speciality Chemicals, Ltd.

On 1 November 1990, The name of the company was changed from Indrol Lubricants & Specialities Ltd. to Castrol India Ltd. It helped to manufacture of Telephone cable jellies, pharmaceuticals jellies and industrial waxes in technical collaboration with Dussek Campbell, U.K.

- Industrial - Castrol metalworking fluids, cleaners, corrosion preventives and lubricants.
- Oils - Cylinder oils-crosshead, crancase oils-crosshead, truck piston engine oils, hydraulic oils, gear oils, compressor oils, turbine oils, refrigeration oils, emulsifiable oils, multi-grades, heat transfer oils, greases, and fishing

3.9.3 Tide Water Oil Co. LTD

Tide Water Oil Co. (I) Ltd., is a part of the multi divisional Andrew Yule group that has diverse interests in Engineering, Electrical, Tea Cultivation, Power Generation, Digital Communication Systems and Lubricants. Tide Water has been a pioneer of Automotive and Industrial lubricants in India since 1928 and has five plants at Howrah, Oragadam, Turbhe, Silvassa and Faridabad.
Its repertoire of automotive products includes engine oils for trucks, tractors, commercial vehicles, passenger cars and two/three wheelers. It also produces gear oils, transmission oils, coolants and greases for automobiles. For industrial application it manufactures industrial oils, greases and speciality products like metal working fluids, quenching oils and heat transfer oils. Tide Water has tie-ups for manufacture of genuine oils with a number of renowned OEMs in the automotive and industrial equipment segment. Quality has been key area focus and the company has continued to innovate with high performance products keeping pace with advancements in technology and market needs. It reaches out to its customers through its pan India distribution network with the popular Veedol range of products, widely accepted for their quality and excellence.

The company also has technical collaboration with JX Nippon Oil & Energy Corporation, the No.1 petroleum conglomerate in Japan. Superior quality lubricants under the brand name Eneos are manufactured and marketed in India by Tide Water Oil.

**3.9.4. Essar Oil LTD**

Essar Oil Limited was incorporated as a Public Limited Company under the Companies Act, 1956 on 12th September, with the main objective to provide Development, Exploration, Production and related Services in the oil & gas sector. The main promoters of Essar Oil Limited are Essar Investments Limited, Essar Shipping Limited, South India Shipping Company Limited, Essar Gujarat Limited and a foreign co-promoter, Prime Finance Company Limited, and other NRI's associates and friends. EOL was engaged in preliminary activities relating to bidding for oil &
gas fields as well as advising the Energy and Offshore divisions of Essar Gujarat Limited on technical matters relating to their operations. Essar Oil Ltd’s 10.5 million metric tonne refinery at Vadinar in Gujarat has achieved financial closure and is at an advanced stage of complying with certain pre-disbursement conditions stipulated by the financial institutions (FIs) and banks. Increase in authorised share capital from Rs 15000 million to Rs 20000 million. Issue/allotment of equity shares/FCCBs/and/or any other financial instrument convertible into equity shares to ABB Lummus and/or promoters on preferential issue basis for an amount not exceeding Rs 13000 million. Issue and allotment of equity/other financial instruments for an amount not exceeding US$ 250 Mn through Public/Euro issue. Voluntary delisting of equity shares from the DSE, CSE, MSE, ASE, VSE and SKSE.

3.9.5. Gulf Oil LTD

Gulf Oil is famous for being one of the original members of the seven sisters, the original American oil companies and continues to provide high quality products and services throughout the world. Gulf Oil was founded in 1901 at the time of the discovery of oil at Spindletop, Texas. Gulf promoted the idea of branded product sales by selling gasoline in containers and from pumps marked with the distinctive Orange Disk logo. The Gulf orange disk has grown to an iconic status since in creation, enjoying strong brand recognition with people from all parts of the world. Gulf Oil grew steadily in the inter-war years with the company being characterised by its vertically integrated business activities. Gulf was a strong oil company with operations including exploration, production, and transport, refining and marketing. It also involved itself in diversified industries such as petrochemicals and automobile
component manufacturing. Gulf has always been at the corner stone of commercial and technical innovations. One of Gulf's initial visionary steps was the introduction of the first drive-in service station in 1911. Other Gulf moves included introducing complimentary road maps, over-water drilling and catalytic cracking refineries. Such visionary thinking is essential and remains the corner stone for the growth of Gulf Oil. Gulf has experienced steady growth and continued to do so after the company was bought by Chevron for its US operations in 1984. In other parts of the world (non-US) Gulf Oil is widely recognized under the flagship - Gulf Oil International Ltd. The Hinduja Group, a private Indian family business acquired the rights to the Gulf brand after the company was acquired by Chevron in the US.

3.9.6. Sah Petroleum

In 1991, opening up of the petroleum sector to private enterprise spurred the company to expand with another plant put up in Daman to back up the plant in Vasai to meet increasing demands. Sah Petroleums Limited became a listed company in 2004 to further meet its expansion plans. The company made rapid strides into the Industrial & OEM lubricants, rubber process oils and export markets. In the year 2005 IPOL made a strong entry into the automotive lubricant retail markets, growing rapidly till date. IPOL has introduced several specialty products over the years. In 2008 Company joined hands with Navis Capital to further expand in the petroleum industry

Over the years, the IPOL brand logo has evolved in line with the dynamic growth of the company. The new brand logo represents the vibrant and friendly nature and the assurance IPOL brings to her customers. The upward arrow of IPOL is now
propelled by a vibrant vermillion which represents the energetic nature of the company, adding power to the efforts for betterment. The pure yellow is characteristic of the optimism the company generates for its customers. IPOL as a “Value for Money” brand reflects commitment & excellence in the design, manufacturing & marketing of “All Performance Level” Lubricants, Greases, Specialties and Oils. IPOL commands a spectable market share in the targeted Indian and Global Market segments. It represents ethos, values, ethic and the “Clean & Green” culture of Sah Petroleums Limited and makes positive & satisfying contributions to the lives & businesses of the customers, employees, vendors & all direct- indirect stakeholders. IPOL touches human lives every day in various forms through the products which cater to a spectrum of diverse industries. IPOL has one of the widest ranges of products carefully designed to suit various applications and deliver high performances. These are available in a variety of pack sizes as per market needs. The products have several latest national & international performance specifications & approvals to their credit such as API, JASO, ACEA etc., other than OEM credentials.

3.9.7 Oil India LTD

The story of Oil India Limited (OIL) traces and symbolises the development and growth of the Indian petroleum industry. From the discovery of crude oil in the far east of India at Digboi, Assam in 1889 to its present status as a fully integrated upstream petroleum company, OIL has come far, crossing many milestones. On February 18, 1959, Oil India Private Limited was incorporated to expand and develop the newly discovered oil fields of Naharkatiya and Moran in the Indian North East. In 1961, it became a joint venture company between the Indian Government and Burmah
Oil Company Limited, UK. In 1981, OIL became a wholly-owned Government of India enterprise. Today, OIL is a premier Indian National Oil Company engaged in the business of exploration, development and production of crude oil and natural gas, transportation of crude oil and production of LPG. OIL also provides various E&P related services and holds 26 per cent equity in Numaligarh Refinery Limited. The Authorized share capital of the Company is Rs. 500 Crores. The Issued, Subscribed and Paid share capital of the company is Rs. 240.45 Crores. At present, The Government of India, the Promoter of the Company is holding 78.43 per cent of the total Issued & Paid-up Capital of the Company. The balance 21.57 per cent of the Equity capital is held by others. OIL has over 1 lakh sq km of PEL/ML areas for its exploration and production activities, most of it in the Indian North East, which accounts for its entire crude oil production and majority of gas production. Rajasthan is the other producing area of OIL, contributing ten per cent of its total gas production. Additionally, OIL’s exploration activities are spread over onshore areas of Ganga Valley and Mahanadi. OIL also has participating interest in NELP exploration blocks in Mahanadi Offshore, Mumbai Deepwater, Krishna Godavari Deepwater, etc. as well as various overseas projects in Libya, Gabon, Iran, Nigeria and Sudan. In a recent CRISIL-India Today survey, OIL was adjudged as one of the five best major PSUs and one of three best energy sector PSUs in the country.

3.9.8. Bharat Petroleum LTD

Burmah-Shell Refineries Limited (BSR), was incorporated on 3.11.1952 as a Company under the Indian Companies Act, 1913, at Mumbai, with the Authorised Capital of Rs. 25 crore. A refinery was set up by this Company at Mahul, Mumbai.
Secondly, the Burmah-Shell Oil Storage & Distributing Company of India Ltd (BSM), a foreign Company, established in England in 1928, was carrying on in India the business of Distributing & Marketing petroleum products & for that purpose established places of business at Mumbai & other places in India. Pursuant to the agreement dated 23.12.1975 between the Government of India (GOI), the Burmah-Shell Oil Storage and Distributing Company of India Ltd. (BSM) and the Burmah Shell Refineries Ltd. (BSR), the GOI acquired 100 per cent equity share holding (paid up value Rs. 1453.83 lakhs) of BSR on 24.01.1976, for a consideration of Rs. 925 lakh. Simultaneously, through `The Burmah Shell acquisition of Undertakings in India Act, 1976, the GOI also acquired the right, title and interest and liabilities of BSM in relation to its undertakings in India for a consideration of Rs. 2775 lakhs and by notification dated 24.1.76, vested the same in BSR without any specific consideration payable by BSR. The name of BSR was changed to Bharat Refineries Limited (BRL) and subsequently to Bharat Petroleum Corporation Limited. Out of the total investment of Rs. 3700 lakhs (Rs.925 + 2775 lakhs) made by the GOI as stated above, the Government treated an amount of Rs. 1128 lakhs as a repayable loan to BPCL. The net investment made by the Government thus amounted to Rs. 2572 lakhs (Rs.3700 - 1128 lakhs). In January 1984, the GOI made further investment of Rs. 203.57 lakhs in BPCL towards payment of Partly Paid Equity Shares bringing the paid up capital to Rs. 1657.40 lakh (1453.83 + 203.57 lakhs). Subsequently, during 1985-86, the reserves of BPCL to the extent of Rs. 1127.94 lakhs were capitalised for making Partly Paid shares as Fully Paid shares, as also to Issue bonus shares to the GOI. Thus the paid up capital was increased to Rs. 2785.34 lakhs without further
investment by the GOI. Again in 1990, the Reserves of BPCL to the extent of Rs. 2214.66 lakhs were capitalised to issue Bonus Shares to the GOI and thereby increased Paid Up Capital to Rs. 50 Crores without further investment by the GOI. Thus, with the investment of Rs. 2775.57 lakhs (i.e. 2572 lakhs +203.57 lakhs), the GOIs holding in BPCL increased to Rs. 50 crores (i.e. 5 crores equity shares of Rs. 10/- each). Out of the above, the GOI sold 1.5 crores equity shares of Rs. 10/- each to Financial Institutions/Mutual Funds etc. during 1991-92 and 1992-93 and 18,99,990 equity shares to employees during 1993-94. For the above disinvestment the GOI received about Rs. 680 crores. As a result of the above disinvestments the Share holdings of the GOI in the Corporation was reduced to 3,31,00,010 shares (66.20%) as on 31.3.1994. During 1994, BPCL declared Bonus shares in the ratio of 2:1 by way of capitalisation of reserves to the extent of Rs. 100 crore. The GOI, therefore, received 6,62,00,020 Bonus Equity Shares of Rs. 10/- each. Accordingly, GOIs holding increased from 3,31,00,010 shares of Rs. 10 each to 9,93,00,030 equity shares of Rs. 10/- each amounting to Rs.99,30,00,300/-. During 2000-01, BPCL declared Bonus shares in the ratio of 1:1 by way of capitalisation of reserves to the extent of Rs. 150 crores. The GOI, therefore, received 9,93,00,030 Bonus Equity Shares of Rs. 10/- each. Accordingly, GOIs holding increased from 9,93,00,030 shares of Rs. 10 each to 19,86,00,060 equity shares of Rs. 10/- each amounting to Rs.198,60,00,600/- as on 31.3.2008. Pursuant to the merger of Kochi Refineries Ltd with BPCL, vide Order dated 18.8.2006 from Ministry of Company Affairs, the total paid up share capital of BPC had increased to 36,15,42,124 equity shares of Rs. 10 each and the percentage of shareholding of the GOI has reduced from 66.20 per cent to 54.93 per cent.
3.9.9. Hindustan Petroleum Corporation LTD

HPCL’s Mumbai refinery, one of the most complex refineries in the country, is constructed on an area of 321 acres. This versatile refinery which is the first of India’s modern refineries, symbolizes the country’s industrial strength and progress in the oil industry. Mumbai Refinery has grown over the years as the main hub of petroleum products. The refinery has reached to present level through several upgradation and restructuring processes. A chronological summary of the developments is provided below:

- M/s Esso commissioned in 1954 with a crude processing capacity of 1.25 MMTPA.
- Lube refinery, Lube India Ltd, was commissioned in 1969 with a capacity of 165 TMTPA of Lube Oil Base Stock (LOBS) production.
- Crude processing capacity increased to 3.5 MMTPA during 1969.
- Government of India took over Esso and Lube India and formed HPCL in 1974.
- Expansion of fuels block was carried out by installation of new 2 MMTPA crude units in 1985.
- Second expansion of Lube Refinery took place to increase the capacity of the refinery to 335 MMTPA, so far the largest in India.
- The current installed capacity of the refinery is 6.5 MMTPA.

The Visakh Refinery is also an important contributor to HPCL's Petroleum products requirements Visakha Refinery was commissioned with an installed capacity of 0.65 Million Metric Tonnes Per Annum (MMTPA) by Caltex Oil Refining (India) Ltd. in 1957. This was one of the first major industries of Visakhapatnam and first oil
refinery on the East Coast. After the nationalisation, HPCL has transformed itself into a mega Public Sector Undertaking and it is second largest integrated oil company in India. The summary of development of the refinery is given below:

- The first East Coast Oil refinery was commissioned as Caltex Oil Refining India Ltd. (CORIL) in 1957 with a crude processing capacity of 0.65 MMTPA.
- The refinery's crude refining capacity increased to 4.5 MMTPA during the first expansion in 1985.
- The refinery's crude refining capacity increased to a further 7.5 MMTPA during the second expansion in 1999 and is currently 8.3MMTPA effective April 2010.
- Diesel Hydro desulphurization (DHDS) project was commissioned in the year 2000 to meet BS-I/II specification of diesel. The facilities were further augmented in 2005 by addition of 2nd Reactor in DHDS unit for supplying BS-III grade diesel

3.9.10. Indian Oil Corporation LTD

Indian Oil Corporation Limited, together with its subsidiaries, engages in refining, transporting, and marketing petroleum products in India. It also involves in the exploration and production of crude oil and gas; and marketing of natural gas and petrochemicals. The company’s products include liquefied petroleum gas, natural gas, petrol/gasoline, diesel/gas oil, aviation turbine fuel/jet fuel, lubricants and greases, marine fuels, kerosene, bulk/industrial fuels, bitumen, petrochemicals, and crude oil. It also offers special products, such as carbon black feed stock, raw petroleum coke, sulphur, paraffin wax, jute batching oil, micro crystalline wax, mineral turpentine oil, LABFS, toluene, propylene, benzene, and petcoke. The company operates approximately 10 refineries; a network of 10,899 kilometers crude oil, product, and
gas pipelines; and 19,463 petrol and diesel stations, including 3517 Kisan Seva Kendras in the rural markets. Indian Oil Corporation’s exploration and production portfolio comprises 11 oil and gas blocks and 2 coal bed methane blocks in India; and 10 blocks in Libya, Iran, Gabon, Nigeria, Timor-Leste, and Yemen. In addition, it involves in the sale of imported crude oil; explosives and cryogenic businesses; wind mill power generation activities; lube blending and marketing of petroleum products; and plantation of Jatropha and extraction of oil for bio-diesels. The company also exports its products to 20 countries in 6 continents. It serves consumer, industrial, agricultural, marine, and defense sectors, as well as private airlines. The company was founded in 1958 and is based in New Delhi, India. Indian Oil is India’s flagship national oil company with business interests straddling the entire hydrocarbon value chain – from refining, pipeline transportation and marketing of petroleum products to exploration and production of crude oil & gas, marketing of natural gas, and petrochemicals. It is the leading Indian corporate in the Fortune 'Global 500' listing, ranked at the 98th position in the year 2011. At Indian Oil, the operations are strategically structured along business verticals - Refineries, Pipelines, Marketing, R&D Centre and Business Development – E&P, Petrochemicals and Natural Gas. Refineries, Pipelines, Marketing, R&D Centre and Business Development – E&P, Petrochemicals and Natural Gas.
IOC was the only Indian company to feature in Fortune’s Global listing of the world’s largest industrial and services companies. Amongst the oil and companies IOC ranked 16th in the world and eighth in Asia by sales. IOC was formed as Indian Oil co. Ltd. in 1959 and became a corporation in 1964 when Indian Refineries ltd. was merged with it consequent to privatization of the sector by the government. Till 1993, the Government of India wholly owned IOC. Subsequently the Government disinvested 11 present equity stake, of which 6 present was disinvested in the favor of employees with a three years lock in period and the rest with financial institutions and mutual funds. IOC was also a canalizing agency for import of crude oil, for the entire oil industry. IOC imported about 25mn ton of crude oil and 10mn ton of petroleum products annually. IOC’s joint ventures included Avi Oil Ltd, Indo Mobil Ltd, Petronet India Ltd; Indian Oil Tanking Ltd; Petronet VK Ltd; Petronet LNG Ltd; and Indian Oil Petronas Pvt Ltd.

IOC was the leader in the Indian petroleum refining and marketing sector. IOC had an installed capacity of 31.5mn tpa of refining capacity with six refineries at Guwahati, Barauni, Digboi, Koyali, Mathura, Haldia and Panipat and marketing setup with over 19,000 retail outlets, 185 bulk terminals and depots, 50 LPG bottling plants and 92 aviation fuel stations. It owned more than 82.5 percent of the total pipeline capacity, which was expected to play an important role post deregulation.