Chapter-8: Summary of the study, Suggestions and Conclusion of the study

8.1 Summary of the study:

The present chapter seeks to make a summary of the findings of the study and identify the conclusion that may be derived from the study. The chapter also points out the suggestions of the study. The observations of the research study are spread over in Chapter-1 to Chapter-8.

The first chapter deals with the introduction to and rational of the study, objective, scope, data base and methodology, limitations of the study and scope of further research.

Chapter-2 has described the background of the selected public sector oil & gas companies in India, literature review of the study and identification of research gap.

Chapter-3 has presented the analysis of financial structure and long-term solvency positions of the selected public sector oil & gas companies in India for the study period from 2000-01 to 2011-12. In this chapter, attempts have been made to throw some light on the capital structure as well as implications of various leverage ratios on the overall financial performance of the selected public sector oil and gas companies in India during the given study period. It is seen that the employments of fixed capital and fixed financial charges vary for the selected public sector oil and gas companies in India during the study period. An attempt has been undertaken to measure the degrees of relationships between the degree of leverages (i.e. DOL, DFL and DTL) and measure of profitability (i.e. ROE) of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12, for which correlation analysis has been applied taking into account their magnitudes by Pearson’s simple correlation coefficient, for ranking of their magnitudes by Spearman’s rank correlation coefficient and for highlighting the nature of their associated changes by Kendall’s correlation coefficients. In order to examine whether the computed values of correlation coefficients between the measure of profitability and liquidity ratios are statistically significant or not, t-test has been applied. Table-3.7 highlights that the associations between DOL, DFL and DTL and ROE are statistically significant in case of the companies IOCL and GAIL under Spearman’s and Kendall’s measures, in case of BPCL and HPCL under all the three measures and in case of OIL the association between DOL and ROE is statistically significant under Pearson’s measure during the study period.
Table-3.8 shows that there are, on an average, downward movements in the levels of financial break-even points of ONGC during the study period from 2000-01 to 2011-12 except in 2007-08 and 2008-09; where there are slight upward movements in that levels. It signifies that there are decreasing trends in the use of external capital in the capital structure of ONGC during the study period, which means much more emphasis has been given on the internal sources of capital as compared to the external sources of capital in the current accounting years of the study period. Again, there are decreasing trends in the levels of financial break-even points of IOCL up to 2003-04 and then there are increasing trends in the levels of financial break-even points up to 2008-09 and thereafter these are decreasing and finally in 2011-12 there is an increasing trend in that level. So, it may conclude that there are, on an average, fluctuating trends in the levels of financial break-even points of IOCL during the given study period. Similarly, there are, on an average, fluctuating trends in the levels of financial break-even points of OIL, which means the use of external capital in its capital structure is fluctuating in nature throughout the study period from 2000-01 to 2011-12. The financial break-even points are fluctuating in nature both in case of BPCL and HPCL throughout the entire study period, but for both there are, on an average, increasing trends in the levels of financial break-even points from 2004-05 to onwards, which means both are using more amounts of external capital in their capital structure from 2004-05 to onwards as compared to the previous accounting years of the study period. The financial break-even points of GAIL are on decreasing trends except in 2001-02, 2010-11 and 2011-12, which means it has a tendency to employ less amounts of external capital in the capital structure during the selected study period. But in 2011-12 it has a tendency to employ more amount of external capital in its capital structure as compared to the previous accounting years of the study period. A comparative study reveals that IOCL has the higher values of financial break-even points and OIL has the lower values of them as compared to other companies under study during the said study period, that mean management of IOCL uses more amounts of external capital and management of OIL employs lesser amounts of external capital in the capital structure as compared to other companies under study during the study period from 2000-01 to 2011-12.

It is reflected that the employments of external capital in the capital structure of ONGC are on decreasing trends in the very first three years of the study period and then there are upward movements and finally there are downward trends, so it may conclude that its debt-equity ratio is very much fluctuating in nature during the study period from 2000-01 to 2011-12. It is seen that
IOCL uses more amounts of debt capital in its capital structure as compared to equity during the first two years of the study period, i.e. from 2000-01 to 2001-02 and thereafter it uses nearabout 80% to 130% of debt to equity capital throughout the rest of the study period, i.e., from 2002-03 to 2011-12. It also reveals that OIL employs much lower amounts of external capital in its capital structure as compared to other companies under study, more specifically the percentages of debt to equity capital are within 10% during the selected study period. A comparative analysis reflects that both BPCL and IOCL are employing higher amounts of external capital and both ONGC and OIL are employing equity-oriented capital structure for the selected study period. The employments of external capital in the capital structure of HPCL are on decreasing trends during 2000-01 to 2002-03 and then these are increasing throughout the rest of the study periods except in 2009-10, more significantly it uses 212% and 227% of debt to equity capital in the financial years 2008-09 and 2011-12 respectively. There are, on an average, decreasing trends in the uses of external capital in the capital structure of GAIL during the study period from 2000-01 to 2011-12. In 2011-12 it employs conservative approach to frame the capital structure that means much emphasis has been given on shareholders’ fund neglecting the benefits of employing debt fund.

In this chapter an attempt has also been made to analyze the long-term solvency positions of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. Six long-term solvency indicating parameters that have been selected are proprietary ratio (PR), debt-equity ratio (DE), total debt-equity ratio (TDER), fixed assets to debt ratio (FADR), fixed assets to net worth ratio (FANWR) and interest coverage ratio (ICR). Considering proprietary ratio (PR) at Table-3.15, OIL has been assigned the highest rank for its highest average value and followed by ONGC, GAIL, IOCL, HPCL and BPCL securing 2nd, 3rd, 4th, 5th and 6th rank positions respectively during the study period. Based on the average values of debt-equity ratio (DE), it is revealed that OIL secures the first rank position for its lowest average value than others. GAIL, ONGC, BPCL, IOCL and HPCL respectively secure the other rank positions in sequence of their lowest average values. From the viewpoint of total debt-equity ratio (TDER), OIL again secures the top rank position for its lowest average value of TDER and other selected companies get the other rank positions based on their respective average values of TDER whereby ONGC, GAIL, IOCL secure 2nd, 3rd and 4th rank positions and BPCL and HPCL jointly hold 5.5th rank position for having same average values. Similarly,
considering fixed assets to debt ratio, it is revealed that its average value is highest for the company OIL and secures the first rank position followed by ONGC, GAIL, HPCL, IOCL and BPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Considering fixed assets to net worth ratio, it is highlighted that its average value is highest for the company HPCL and secures the first rank followed by BPCL, IOCL, GAIL, ONGC and OIL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Similarly, from the viewpoint of interest coverage ratio, it is viewed that its average value is highest for the company ONGC and secures the first rank followed by OIL, GAIL, HPCL, IOCL and BPCL respectively secure the other rank positions in sequence of their highest average values. Finally, based on the rank total of the selected companies (column g), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. Accordingly, OIL secures the first rank postion for its lowest rank total of 12 followed by ONGC, GAIL, HPCL, IOCL and BPCL occupying 2nd, 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 15, 18, 25.5, 26 and 29.5 during the study period from 2000-01 to 2011-12.

Chapter 4 presents the analysis of performance of liquidity management of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. Traditional measure of short-term liquidity reveals a mixed situation of the selected public sector oil & gas companies in India. The major liquidity ratios which have been selected in this study are current ratio, liquid ratio, current assets sales ratio and current assets to total assets ratio and performance indices which have been considered are performance index (PI), utilization index (UI) and efficiency index (EI). An attempt has been made to measure the efficiency in liquidity management on the overall financial performance of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. For comparative analysis purpose, four key working capital management ratios have been considered to give an eye view of the efficiency of liquidity management on the overall financial performance of the selected companies under study. The four key working capital management ratios which have been considered are current ratio (CR), quick ratio (QR), current assets to total assets ratio (CATAR) and current assets sales ratio (CASR). Considering current ratio (at Table-4.7), the efficiency of working capital management on financial performance is best for the company BPCL and secures the first rank followed by IOCL, HPCL, GAIL, ONGC and OIL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Based on quick ratio, the
efficiency of working capital management on financial performance is best for BPCL and secures the first rank followed by HPCL, IOCL, GAIL, ONGC and OIL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. From the viewpoint of current assets to total assets ratio, the efficiency in working capital management on financial performance is best jointly for ONGC and GAIL and secure jointly the 1.5 rank position followed by jointly HPCL and OIL hold the 3.5th rank position for their same values, IOCL and BPCL respectively securing 5th and 6th rank positions during the study period. Current assets sales ratio reveals that the efficiency in working capital management on financial performance is best for HPCL and secures the top rank followed by BPCL, IOCL, GAIL, OIL and ONGC respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Based on the rank total of the selected companies (column e), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. Accordingly, HPCL secures the first rank position for its lowest rank total of 9.5 followed by BPCL, IOCL, GAIL, ONGC and OIL occupying 2nd, 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 10, 13, 13.5, 17.5 and 20.5 during the study period from 2000-01 to 2011-12. An attempt has also been undertaken (at Table- 4.8) to measure the degrees of associations between the measure of profitability (i.e. ROCE) and the selected liquidity ratios (i.e. CR, QR, CATAR and CASR) of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12, for which correlation analysis has been applied taking into account their magnitudes by Pearson’s simple correlation coefficient, for ranking of their magnitudes by Spearman’s rank correlation coefficient and for highlighting the nature of their associated changes by Kendall’s correlation coefficients. In order to examine whether the computed values of correlation coefficients between the measure of profitability and liquidity ratios are statistically significant or not, t-test has been applied. It is revealed that the current ratios of all the companies under study except OIL (under all the three measures) have no significant influences on the returns of owners’ equity during the study period. The study also highlights that there are positive associations between QR and ROCE in case of the companies IOCL and GAIL (under all the three measures), ONGC (under Spearman’s and Kendall’s measures) and negative associations in case of OIL, BPCL and HPCL (under all the three measures) and ONGC (under Pearson’s measure) during the study period. It is again revealed that the quick ratios of all the companies under study have no significant influences on the returns of owners’ equity during the study
period. It is again explained that the current assets to total assets ratios of IOCL and HPCL (under Spearman’s and Kendall’s measures) and BPCL (under all the three measures) have no significant influences on the returns of owners’ equity during the study period. The study highlights that there are positive associations between CASR and ROCE in case of the companies ONGC, OIL and GAIL (under all the three measures) and HPCL (under Spearman’s and Kendall’s measures) and negative associations in case of IOCL and BPCL (under all the three measures) and HPCL (under Pearson’s measure) during the study period. It is again showed that the current assets sales ratios of all the companies under study (except GAIL under all the three measures) have no significant influences on the returns of owners’ equity during the study period.

It is seen that the PI of ONGC, OIL & HPCL are more than one in 8 accounting periods out of 12 accounting periods, that means the overall performance in working capital management reflects a good sign over the study period from 2000-01 to 2011-12. The PI of IOCL is more than one in 10 accounting periods which means the overall performance in working capital management reflects a very good sign over the given study period. The PI of BPCL & GAIL are more than one in 7 accounting periods that means overall performance in working capital management reflects a moderately good sign over the study period from 2000-01 to 2011-12.

It is again seen that the UI is more that one, in 6 accounting years out of total 12 accounting periods of OIL and BPCL, in 7 out of total 12 accounting periods of IOCL, in 5 out of 12 accounting periods of HPCL and GAIL and in 4 out of total 12 accounting periods of ONGC. So, the efficiency in utilizing the current assets are quite satisfactory in case of the companies IOCL, OIL and BPCL, but for others it is not satisfactory during the study period from 2000-01 to 2011-12.

It is concluded that the EI is more than one, in 9 out of total 12 accounting periods of IOCL, in 7 out of 12 accounting years of ONGC, BPCL and HPCL, in 6 out of 12 accounting periods of OIL and in 4 out of 12 accounting periods of GAIL. So, efficiency index reflects very good signs of IOCL, quite satisfactory of ONGC, BPCL and HPCL, satisfactory for OIL and not satisfactory for GAIL during the study period from 2000-01 to 2011-12.
In this chapter an attempt has been made to analyze the efficiency of selected performance indices of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. For comparative analysis purpose, three key performance indices have been considered to give an eye view on the efficiency of current assets management on financial performance of all the selected public sector oil and gas companies in India in the present competitive and changing environment. The three key performance indices which have been considered are performance index (PI), utilization index (UI) and efficiency index (EI). For computation purpose, the average values of all the selected performance indices are considered to give the rank to the selected companies under study during the study period. Considering performance index (at Table 4.15), the efficiency of current assets management on financial performance is best in case of the company BPCL and secures the first rank followed by HPCL, IOCL, OIL, ONGC and GAIL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. From the viewpoint of utilization index, the efficiency in utilizing the current assets in generating sales is best in case of the company ONGC and secures the top rank followed by IOCL, GAIL, OIL, BPCL and HPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Based on the average values of efficiency index, it is revealed that the overall efficiency in managing the current assets is best in case of the company BPCL and secures the first rank followed by IOCL, ONGC, OIL, HPCL and GAIL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Finally, based on the rank total of the selected companies (column d), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. Accordingly, IOCL and BPCL jointly secure the 1.5 rank position for their same lowest rank total of 7 followed by ONGC, OIL, HPCL and GAIL occupying 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 9, 12, 13 and 15 during the study period from 2000-01 to 2011-12.

Again, at Table 4.19 an attempt has been undertaken to measure the degrees of associations between the performance indices (i.e. PI, UI and EI) and measure of profitability (i.e., ROE) under Pearson’s simple correlation coefficient method, Speraman’s rank correlation method and Kendall’s correlation coefficient method of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. The study highlights that there are positive associations between PI and ROE in case of the companies ONGC and OIL (under all the three measures) and BPCL (under Kendall’s measure) and negative associations in
case of IOCL, HPCL and GAIL (under all the three measures) during the study period. It is revealed that the performance indices of all the companies under study have no significant influences on the returns of owners’ equity during the study period. The study also reveals that there are positive associations between UI and ROE in case of the companies ONGC and OIL (under all the three measures) and BPCL and HPCL (under Spearman’s and Kendall’s measures) and negative associations in case of IOCL and GAIL (under all the three measures) and BPCL and HPCL (under Pearson’s measure) during the study period. The study explains that the utilization indices of all the companies under study have no significant influences on the returns on equity during the study period. The study again highlights that the efficiency indices of all the companies under study (except IOCL under Pearson’s measure) have no significant influences towards the returns on equity during the study period.

It is observed at Table-4.26 that the working capital leverage (WCL) ratios of all the selected public sector oil and gas companies in India are fluctuating in nature during the study period from 2000-01 to 2011-12. It also reveals that the values of WCL of all the companies under study are always less than one (1) during the selected study period. It signifies that the increase in the rate of return on capital employed is less than the proportion to decrease in the level of working capital investment i.e. level of investment in current assets during the selected study period. In case of ONGC, it is highest (i.e. 0.94) in 2007-08 indicating that the maximum sensitivity of ROCE due to change in the level of investment in current assets during the period under study. In 2011-12, the WCL of ONGC Ltd. is found lowest which is computed at 0.24, showing the least responsiveness of ROCE for variability of the level of investment in current assets. Therefore, the variability in the level of investment in current assets is more helpful in 2007-08 and least supportive in 2011-12 for improving its overall profitability. In case of IOCL, it is highest (i.e. 0.83) in 2003-04 indicating that the maximum sensitivity of ROCE due to change in the level of investment in current assets during the period under study. In 2009-10, the WCL of IOCL is found lowest which is computed at 0.54, showing the least responsiveness of ROCE for variability of the level of investment in current assets. Therefore, the variability in the level of investment in current assets is more helpful in 2003-04 and least supportive in 2009-10 for improving its overall profitability. In case of OIL, it is highest (i.e. 0.80) in 2011-12 indicating that the maximum sensitivity of ROCE due to change in the level of investment in current assets during the period under study. In 2001-02, the WCL of OIL is found lowest which
is computed at 0.47, showing the least responsiveness of ROCE for variability of the level of investment in current assets. Therefore, the variability in the level of investment in current assets is more helpful in 2011-12 and least supportive in 2001-02 for improving its overall profitability. In case of BPCL, it is highest (i.e. 0.97) in 2003-04 indicating that the maximum sensitivity of ROCE due to change in the level of investment in current assets during the period under study. In 2008-09, the WCL of BPCL is found lowest which is computed at 0.53, showing the least responsiveness of ROCE for variability of the level of investment in current assets. Therefore, the variability in the level of investment in current assets is more helpful in 2003-04 and least supportive in 2008-09 for improving its overall profitability. In case of HPCL, it is highest (i.e. 0.91) in 2003-04 indicating that the maximum sensitivity of ROCE due to change in the level of investment in current assets during the period under study. In 2008-09, the WCL of BPCL is found lowest which is computed at 0.53, showing the least responsiveness of ROCE for variability of the level of investment in current assets. Therefore, the variability in the level of investment in current assets is more helpful in 2003-04 and least supportive in 2008-09 for improving its overall profitability. In case of GAIL, it is highest (i.e. 0.95) in 2006-07 indicating that the maximum sensitivity of ROCE due to change in the level of investment in current assets during the period under study. In 2011-12, the WCL of GAIL is found lowest which is computed at 0.34, showing the least responsiveness of ROCE for variability of the level of investment in current assets. Therefore, the variability in the level of investment in current assets is more helpful in 2006-07 and least supportive in 2011-12 for improving its overall profitability. It is recommended that the WCL ratios of all the companies under study should be more than or equal to one because the higher the WCL ratio, the higher is the risk and vice-versa. But at the same time it increases the possibility of higher return to capital employed. So, the management of all the companies under study should look into that matter. All the companies under study may increase their WCL ratios in future to enrich their returns on capital employed.

Again, an attempt has been made to analyze the liquidity management as suggested by Motaal for the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. For comparative analysis purpose, three key liquidity management ratios as suggested by Motaal have been considered to give an eye view of the efficiency of liquidity management on the overall financial performance of all the selected public sector oil and gas companies in India in the present scenario of pricing hike at oil and gas products in the
international market. The three key liquidity management ratios (as suggested by Motaal) which have been considered are working capital to current assets ratio (WC to CA Ratio), stock to current assets ratio (Stock to CA Ratio) and liquid ratio to current assets ratio (LR to CA Ratio). For computation purpose, the average values of all the ratios are considered to give the rank to the selected companies during the study period. Considering working capital to current assets ratio (at Table-4.33), the efficiency of liquidity management on financial performance is best for the company OIL and secures the first rank followed by ONGC, HPCL, IOCL, GAIL and BPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. From the viewpoint of stock to current assets ratio, the efficiency of inventory management on financial performance is best for the company GAIL for its lowest average value and secures the first rank followed by OIL, ONGC, IOCL, BPCL and HPCL respectively secure the other rank positions in sequence of their lowest average values. Based on the liquid assets to current assets ratio, GAIL again secures the top rank position for its highest average value and other selected companies get the other rank positions based on their respective average values whereby OIL, ONGC, IOCL, BPCL and HPCL secure 2nd, 3rd, 4th, 5th and 6th rank positions respectively. After considering the efficiency of all the selected liquidity management ratios, it is highlighted that the top position secures by OIL for its lowest rank total of 5 (column d) followed by GAIL, ONGC, IOCL, HPCL and BPCL occupying 2nd, 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 7, 8, 12, 15 and 16 during the study period from 2000-01 to 2011-12.

Chapter 5 deals with the comparative analysis of profitability of the selected public sector oil & gas companies in India and impact of total cost management on financial performance of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. An attempt has been made (at Table-5.7) to measure the degree of association between the CATA and ROCE under Perason’s simple correlation coefficient method, Speraman’s rank correlation method and Kendall’s correlation coefficient method of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. A careful examination reveals that out of 18 measures of correlation coefficients computed under three methods for the six selected public sector oil and gas companies in India, 9 correlation coefficients are found to be positive and 9 coefficients are negative. Out of the 9 positive correlation coefficients, 3 are found statistically significant at 1% level, 1 is found to be statistically significant at 5% level and the remaining 5 coefficients are proved to be statistically
insignificant. Out of 9 negative coefficients, all are found to be statistically insignificant during the study period. The study highlights that there are positive associations between CATA and ROCE in case of the companies ONGC, OIL and GAIL and negative associations in case of IOCL, BPCL and HPCL during the study period. It is also revealed that the current assets to total assets ratio in case of the company ONGC (under all the three methods) and GAIL (under Pearson’s method) have the significant influences on the overall corporate returns during the study period.

Again in Table-5.14 and Table-5.15 attempts have been made to measure the impact of total cost management on financial performance of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. For which six selected elements of cost to total costs have been selected, the selected ratios are Raw Materials cost to Total Cost (RMCTC), Power & Fuel Cost to Total Cost (PFCTC), Employee Cost to Total Cost (ECTC), Other Manufacturing Cost to Total Cost (OMCTC), Selling and Administration Cost to Total Cost (SACTC) and Miscellaneous Expenses to Total Cost (METC). In this chapter, the degrees of associations between the measure of profitability (i.e. ROCE) and the ratios highlighting the elements of cost to total costs (i.e. RMCTC, PFCTC, ECTC, OMCTC, SACTC and METC) have been analyzed for the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12, for which correlation analysis has been applied taking into account their magnitudes by Pearson’s simple correlation coefficient, for ranking of their magnitudes by Spearman’s rank correlation coefficient and for highlighting the nature of their associated changes by Kendall’s correlation coefficients. In order to examine whether the computed values of correlation coefficients between the measure of profitability and ratios highlighting the elements of cost to total costs are statistically significant or not, t-test has been applied. It is revealed that the raw materials cost to total costs, employee cost to total cost and miscellaneous expenses to total cost in case of all the companies under study have no significant influences on the overall corporate returns during the study period. The study highlights that the power and fuel cost to total cost of ONGC (under Spearman’s rank correlation method) have the significant influence on its overall corporate return during the study period. The study also reveals that the power and fuel cost to total cost in case of all the companies under study (except ONGC under Spearman’s measure) have no significant influences on the overall corporate returns during the study period. It is again highlighted that the other
manufacturing cost to total cost of IOCL (under Pearson’s measure), OIL (under all the three measures) and BPCL (under Spearman’s and Kendall’s measures) have the significant influences on the overall corporate returns. It is also revealed that the other manufacturing cost to total cost in case of ONGC, HPCL and GAIL (under all the three measures), IOCL (under Spearman’s and Kendall’s measures) and BPCL (under Pearson’s measure) have no significant influences on the overall corporate returns during the study period. The study also explains that the selling and administration cost to total cost in case of all the companies under study (except OIL under all the three measures) have no significant influences on the overall corporate returns during the study period.

Table-5.16 highlights that the gross profit ratios, operating profit ratios and net profit ratios of ONGC, IOCL, BPCL, HPCL and GAIL are very much fluctuating in nature during the study period from 2000-01 to 2011-12. More specifically, these ratios are increasing in nature for OIL during the selected study period. So, it may conclude that the profitability in relation to sales volume is stable and more reliable for OIL as compared to other companies under study during the study period. The profitability ratios are higher in case of ONGC and lower in case of IOCL, BPCL and HPCL as compared to other companies under study during the selected study period. These ratios are moderately high for OIL and GAIL during the study period. The differences between gross profit ratios and net profit ratios of ONGC are almost 50% of G. P., but for OIL these differences are only nearabout 25% of G. P. So, the percentages of indirect expenses to total expenses of ONGC are much higher as compared to OIL during the study period. So, it can be suggested that the management of ONGC should try to bring down its indirect expenses in future to compete with the other companies under study. Table-5.17 highlights that the returns on capital employed and returns on net worth of all the companies under study are very much fluctuating in nature during the study period. The returns on capital employed ‘on an average’ are higher for ONGC and lower for IOCL as compared to other companies under study during the study period. The earnings per share are higher for ONGC and lower for GAIL as compared to other companies under study during the given study period.

In this chapter an attempt has also been made (at Table-5.18) to analyze the overall profitability of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. For comparative analysis purpose, six key profitability indicating
parameters have been considered to give an eye view of the profitability position of the selected public sector oil and gas companies India during the selected study period. The six key profitability indicators which have been considered are Gross Profit Ratio (G.P.Ratio), Operating Profit Ratio (O.P.Ratio), Net Profit Ratio (N.P.Ratio), Return on Capital Employed (ROCE), Return on Net Worth (RONW) and Earning per Share (EPS). For computation purpose, the average values of all the selected parameters are considered to give the rank to the selected companies during the study period. Considering gross profit ratio, the gross earning capacity is best for the company ONGC and secures the first rank followed by OIL, GAIL, IOCL, HPCL and BPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. From the viewpoint of operating profit ratio, the efficiency in controlling the costs and expenses associated with the business operations, is again best for the company ONGC and occupies the first rank followed by OIL, GAIL, IOCL, BPCL and HPCL respectively secure the other rank positions in sequence of their highest average values. Based on the net profit ratio, the net earning capacity is best for the company OIL and occupies the first rank followed by ONGC, IOCL, GAIL, HPCL and BPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Considering return on capital employed, the efficiency in utilising long-term funds invested in the business is best for the company OIL and secures the first rank followed by ONGC, GAIL, IOCL, BPCL and HPCL respectively occupying the other rank positions in sequence of their highest average values. From the viewpoint of return on net worth, the efficiency in utilising the funds invested by owners is best for the company ONGC and occupies the first rank followed by OIL, GAIL, IOCL, BPCL and HPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Based on earning per share, the earning available per equity share is again best for the company ONGC and secures the first rank followed by IOCL, OIL, BPCL, HPCL and GAIL respectively secure the other rank positions in sequence of their highest average values. Finally, based on the rank total of the selected companies (column g), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. It is highlighted that the top rank occupied by ONGC for its lowest rank total of 8 rank points followed by OIL, IOCL, GAIL, BPCL and HPCL occupying 2nd, 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 11, 21, 22, 31 and 33 during the study period from 2000-01 to 2011-12.
Chapter-6 highlights the efficiency of asset management of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12. For comparative analysis purpose, six efficiency ratios have been considered to give an eye view of the efficiency of asset management of the selected public sector oil and gas companies in India. The six efficiency ratios which have been considered are fixed assets turnover ratio (FATR), total assets turnover ratio (TATR), working capital turnover ratio (WCTR), inventory turnover ratio (ITR), debtors turnover ratio (DTR) and cash turnover ratio (CTR). For computation purpose, the average values of all the selected ratios are considered to give the rank to the selected companies under study and highest rank has been given for the highest values of efficiency ratios during the study period. Considering fixed assets turnover ratio (at Table-6.7), it is seen that its average value is best for the company BPCL and secures the first rank followed by HPCL, IOCL, jointly OIL and GAIL for their respective same rank total, ONGC respectively occupying 2nd, 3rd, 4.5th and 6th rank positions during the study period. Based on total assets turnover ratio, it is highlighted that the average of total assets turnover ratio is again best for the company BPCL and occupies the first rank followed by HPCL, IOCL, GAIL, OIL and ONGC respectively secure the other rank positions in sequence of their highest average values. From the viewpoint of working capital turnover ratio, its average value is highest in case of IOCL and secures the first rank followed by ONGC, OIL, HPCL, GAIL and BPCL respectively occupying the 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Inventory turnover ratio highlights that its average value is best for the company GAIL and occupies the first rank followed by ONGC, OIL, BPCL, HPCL and IOCL respectively secure the other rank positions in sequence of their highest average values. Based on debtors turnover ratio, it is revealed that its average value is best for the company BPCL and occupies the first rank followed by HPCL, IOCL, GAIL, ONGC and OIL respectively securing the 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. From the viewpoint of cash turnover ratio, its average value is best for the company IOCL and secures the first rank followed by BPCL, HPCL, ONGC, OIL and GAIL respectively occupy the other rank positions in sequence of their highest average values. Finally, based on the rank total of the selected companies (column g), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. Accordingly, BPCL secures the top rank position for its lowest rank total of 15 followed by IOCL, HPCL, GAIL, ONGC and
OIL occupying the 2nd, 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 17, 18, 24.5, 25 and 26.5 during the study period from 2000-01 to 2011-12.

Tables-6.8 and 6.9 measure the degrees of associations between the measure of profitability (i.e. ROCE) and the selected ratios relating to efficiency in asset management (i.e. FATR, TATR, WCTR, ITR, DTR and CTR) of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12, for which correlation analysis has been applied taking into account their magnitudes by Pearson’s simple correlation coefficient, for ranking of their magnitudes by Spearman’s rank correlation coefficient and for highlighting the nature of their associated changes by Kendall’s correlation coefficients. In order to examine whether the computed values of correlation coefficients between the measure of profitability and ratios relating to efficiency in assets management are statistically significant or not, t-test has been applied. The study highlights that there are positive associations between FATR and ROCE in case of the companies ONGC and OIL and negative associations in case of IOCL, BPCL, HPCL and GAIL during the study period. It is revealed that the fixed assets turnover ratios in case of all the companies under study (except IOCL under all the three measures) have no significant influences on the overall corporate returns during the study period. Again, the study explains that the total assets turnover ratio of ONGC (under all the three measures) and HPCL (under Pearson’s measure) have the significant influences on the overall corporate returns during the study period. The study also reveals that the total assets turnover ratios in case of all the companies under study (except ONGC under all the three selected measures and HPCL under Pearson’s measure) have no significant influences on the overall corporate returns during the study period. The study highlights that the working capital turnover ratios of all the companies under study (except BPCL under Pearson’s measure) have no significant influences on the overall corporate returns during the study period. The study also reflects that there are positive associations between ITR and ROCE in case of the companies ONGC, OIL and HPCL (under all the three measures), IOCL and BPCL (under Spearman’s and Kendall’s measures) and negative associations in case of GAIL (under all the three measures) and IOCL and BPCL (under Pearson’s measure) during the study period. It is revealed that the inventory turnover ratios in case of all the companies under study (except ONGC under all the three measures) have no significant influences on the overall corporate returns during the study period. The study again reflects that the debtors turnover ratios are positive in case of the companies HPCL (under all the three
measures) and OIL (under Pearson’s and Spearman’s measures) and negative in case of ONGC, IOCL, BPCL and GAIL (under all the three measures) and OIL (under Kendall’s measure) during the study period. The study also reveals that the debtors turnover ratios in case of all the companies under study have no significant influences on the overall corporate returns during the study period. The study shows that the cash turnover ratios are positive in case of the companies ONGC and HPCL (under all the three measures) and OIL (under Kendall’s measure) and negative in case of IOCL, BPCL and GAIL (under all the three measures) and OIL (under Pearson’s and Spearman’s measures) during the study period. The study also reveals that the cash turnover ratios of all the companies under study (except BPCL under all the three measures) have no significant influences on the overall corporate returns during the study period from 2000-01 to 2011-12.

Chapter-7 deals with the comparative analysis of performance through internal resource generation, contribution to the central exchequer and value addition by the selected public sector oil & gas companies in India during the study period from 2000-01 to 2011-12. Table-7.7 highlights that ONGC, on an average, has the highest amount of generation of internal resource (i.e. Rs. 9529.60 crore) in the forms of depreciation, deferred revenue expenditure and retained profit and HPCL, on an average, has the least amount of generation of internal resource (i.e. Rs. 1605.92 crore) as compared to other companies under study during the said study period. Here, the highest amounts of generation of internal resource are Rs. 16096.53 crore for ONGC in 2011-12, Rs. 14187.52 crore for IOCL in 2011-12, Rs. 5101.86 crore for OIL in 2011-12, Rs. 2901.5 crore for BPCL in 2010-11, Rs. 2811.81 crore for HPCL in 2010-11 and Rs. 6443.58 crore for GAIL in 2011-12 respectively and the peak rates of annual growth in generation of internal resource (at Table-7.8) are 228.36 % for ONGC in 2001-02, 189.01 % for IOCL in 2009-10, 112.35 % for OIL in 2010-11, 123.68 % for BPCL in 2006-07, 68.57 % for HPCL in 2006-07 and 124.71 % for GAIL in 2010-11 during the given study period. The peak rate of annual growth is highest in case of ONGC and lowest in case of HPCL as compared to other companies under study over the study period from 2000-01 to 2011-12.

Table-7.15 highlights that BPCL, on an average, has contributed highest amount (i.e. Rupees 96155.23 crore) to central exchequer in the forms of corporate tax, excise duty and dividend and interest etc. and OIL, on an average, has contributed least amount (i.e. Rupees
to central exchequer as compared to other companies under study during the study period from 2000-01 to 2011-12. Here, the highest amounts of contribution to central exchequer are Rs. 16536.16 crore for ONGC in 2010-11, Rs. 32448.98 crore for IOCL in 2010-11, Rs. 23653.4 crore for OIL in 2011-12, Rs. 217446.29 crore for BPCL in 2011-12, Rs. 183363 crore for HPCL in 2011-12 and Rs. 50317.9 crore for GAIL in 2011-12 respectively and the peak rates of annual growth in contribution to central exchequer (at Table-7.16) are 87.16% for ONGC in 2002-03, 28.75 % for IOCL in 2005-06, 56.40 % for OIL in 2002-03, 38.16 % for BPCL in 2011-12, 30.36 % for HPCL in 2011-12 and 48.75 % for GAIL in 2010-11 during the said study period. The peak rate of annual growth is highest in case of the company ONGC and lowest in case of IOCL as compared to other companies under study over the study period.

At Table-7.17 it is seen that ONGC, on an average, has the highest amount of value addition (i.e., Rs. 23271.86 crore) in the forms of remuneration paid to employees, remuneration paid to capital providers, government taxes and amounts retained by the business enterprise for its maintenance and growth and HPCL, on an average, has the least amount of value addition (i.e., Rs. 7485.107 crore) as compared to other companies under study during the study period from 2000-01 to 2011-12. Here, the highest amounts of value addition are Rs. 33480.32 crore for ONGC in 2010-11, Rs. 21765.67 crore for IOCL in 2009-10, Rs. 19715.51 crore for OIL in 2011-12, Rs. 11252.51 crore for BPCL in 2006-07, Rs. 11502.83 crore for HPCL in 2003-04 and Rs. 21139.36 crore for GAIL in 2011-12 respectively and the peak rates of annual growth in value addition (at Table-7.18) are 59.79 % for ONGC in 2002-03, 48.59 % for IOCL in 2009-10, 60.34 % for OIL in 2005-06, 292.92 % for BPCL in 2006-07, 233.08 % for HPCL in 2006-07 and 33.09 % for GAIL in 2002-03 during the given study period. The peak rate of annual growth is best in case of the company BPCL and poorest in case of GAIL as compared to other companies under study over the study period. It is again revealed that there are clear increasing trends in the amounts of value addition by OIL and GAIL except in 2006-07 and there have been fluctuating trends in the amounts of value addition of the companies ONGC, IOCL, BPCL and HPCL during the study period. It can be recommended that the peak rate of value addition of GAIL is to be enhanced in the years to come to compete with the other companies under study.

In Table-7.19 an attempt has been made to measure the overall financial performance of the selected public sector oil and gas companies in India during the study period from 2000-01
to 2011-12. For comparative analysis purpose, three financial performance measuring parameters have been considered to give an eye view on the internal resource generation, contribution to the central exchequer and value addition by the selected public sector oil and gas companies in India. For computation purpose, the average values of all the selected parameters are considered to give the rank to the selected companies under study and highest rank has been given to the highest values of the three parameters during the study period. Based on internal resource generation, it is seen that its average value is highest in case of the company ONGC and secures the first rank followed by IOCL, GAIL, BPCL, OIL and HPCL respectively securing 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. From the viewpoint of contribution to the central exchequer, it is revealed that the average value of contribution to central exchequer is highest in case of the company BPCL and occupies the first rank followed by HPCL, IOCL, GAIL, ONGC and OIL respectively secure the other rank positions in sequence of their highest average values. Considering value addition, it is highlighted that the value addition, on an average, is again highest in case of the company ONGC and secures the first rank followed by GAIL, IOCL, OIL, BPCL and HPCL respectively occupying the 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Finally, based on the rank total of the selected companies (column d), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. Accordingly, ONGC secures the first rank position for its lowest rank total of 7 followed by IOCL, GAIL, BPCL, HPCL and OIL occupying 2nd, 3rd, 4th, 5th and 6th rank positions for their respective rank totals of 8, 9, 10, 14 and 15 during the study period from 2000-01 to 2011-12.

Again, in this chapter financial performance has been measured through three key value added ratios namely VA to CE ratio, VA to FA ratio and VA to RPE ratio. Considering value added to capital employed ratio (at Table 7.21), it is seen that its average value is highest in case of the company OIL and secures the first rank followed by GAIL, jointly ONGC and BPCL for their same average values, HPCL and IOCL respectively securing the 2nd, 3.5th, 5th and 6th rank positions during the study period from 2000-01 to 2011-12. Based on value added to fixed assets ratio, it is revealed that its average value is again highest in case of the company OIL and occupies the first rank followed by ONGC, GAIL, BPCL, HPCL and IOCL respectively secure the other rank positions in sequence of their highest average values. From the viewpoint of value added to remuneration paid to employees ratio, it is revealed that the average of the same is
highest in case of the company GAIL and occupies the first rank followed by HPCL, BPCL, OIL, ONGC and IOCL respectively securing the 2nd, 3rd, 4th, 5th and 6th rank positions during the study period. Finally, based on the rank total of the selected companies (column d), ultimate ranks have been computed for the companies by assigning highest rank for the lowest rank total. Accordingly, OIL and GAIL jointly secure the 1.5th rank postion for their same lowest rank total of 6 followed by jointly ONGC and BPCL securing the 3.5th rank position for their respective same rank total of 10.50, HPCL and IOCL occupying the 5th and 6th rank positions for their respective rank totals of 12 and 18 during the study period from 2000-01 to 2011-12. Considering all the value added ratios, the performance of the companies HPCL and IOCL are not good as compared to other companies under study so, it can be suggested that the management of the concerned companies should have to pay special attention in improving their amounts of value addition in the years to come to compete with the global counterparts as IOCL belongs to Global Fortune 500 Companies List-2011.

8.2 Suggestions of the study

On the basis of the findings as well as the information collected from secondary sources of data about the selected public sector oil and gas companies in India during the study period 2000-01 to 2011-12, the following suggestions may be forwarded:

1. The employments of long term external capital (i.e. debt capital) in the capital structure of the companies ONGC, OIL, BPCL, HPCL and GAIL are on an average fluctuating in nature or sometimes decreasing in nature during the study period from 2000-01 to 2011-12. So, the studying companies may have been using additional external long term capital (i.e. fixed charge bearing capital) in their capital structure in the years to come so that the benefit of trading on equity can be derived which will ultimately help to enhance the returns to the equity shareholders’ because it is known that the return to the external loan provider is tax deductible expenditure.

2. The liquidity measuring parameters like performance index (PI) and utilization index (UI) of all the studying companies and efficiency index (EI) of all the studying companies (except IOCL under Pearson’s measure) should have to be managed significantly in future so that they can contribute significantly towards the returns of owners’ equity in the years to come to make the shareholders’ happy regarding their financial performances of indices analysis.
3. The WCL ratios of the companies under study should be more than or equal to one because the higher the WCL ratio, the higher is the risk and vice-versa. But at the same time it increases the possibility of higher return to capital employed. So, management of all the companies under study should look into that matter. To enrich the return on capital employed, all the selected public sector oil and gas companies in India may have to increase the WCL ratios in future in order to survive and sustain in the present competitive and changing environment where the pricing hike at petroleum products is a regular and is an alarming phenomenon in the international market.

4. The liquidity management of ONGC (under Pearson’s, Spearman’s and Kendall’s measures) and GAIL (under Pearson’s Measure) have significant contributions towards their overall profitability during the study period from 2000-01 to 2011-12. Except these, the associations between CATA and ROCE for the remaining companies under study have no significant contributions towards their overall profitability during the study period. So, the liquidity management of the remaining companies under study should be more effective that can be able to contribute significantly towards their overall financial performance in future.

5. The power and fuel cost management of ONGC (under Spearman’s measure), other manufacturing cost management of IOCL (under Pearson’s measure), OIL (under Pearson, Spearman and Kendall’s measures) and BPCL (under Spearman and Kendall’s measures) and selling and administration cost management of OIL (under all the three said measures of correlation) have the significant contributions towards their overall financial performance during the study period from 2000-01 to 2011-12. So, the total cost management in other areas should be efficient and significant so that they can significantly contribute towards their overall financial performance in future that can boost the energy to gain competitive advantages with the global counterparts.

6. The FATR of ONGC, OIL, BPCL, HPCL and GAIL, TATR of IOCL, OIL, BPCL and GAIL, WCTR of ONGC, IOCL, OIL, HPCL and GAIL, ITR of IOCL, OIL, BPCL, HPCL and GAIL, DTR of all the companies under study and CTR of ONGC, IOCL, OIL, HPCL and GAIL should have to be significantly managed in future so that they can contribute significantly towards their overall profitability in future which will ultimately help to improve the financial as well as socio-economic performances of the companies under study
fetching the boost to gain competitive advantage in the present scenario of pricing hike at oil and gas products in the international market.

7. The management team of the companies OIL, BPCL, HPCL and GAIL should try to add more values in their internal resource generation in the forms of depreciation, deferred revenue expenditure and retained profit in the years to come to compete with the other companies under study in the present competitive and changing environment.

8. The management team of the companies ONGC, IOCL, OIL and GAIL have to pay special attention in improving the contributions to the central exchequer in the forms of excise duty, dividend and interest and corporate tax in future to increase the inflow of revenue into the Government exchequer to provide necessary fund for public expenditure programmes of the Government.

9. It can be recommended that the management of OIL, BPCL and HPCL should try to add more value in the forms of remuneration paid to employees, amount paid to capital providers, Government taxes and amount retained in the business for the maintenance and growth in the years to come to sustain and grow in the present scenario of pricing hike at oil and gas products in the international market. The peak rate of value addition of GAIL is to be enhanced in the years to come to compete with the other companies under study. The management of the companies ONGC, BPCL, HPCL and GAIL should be trying to enhance the rates of value addition and that should be stable in future so that they can be competitive with the global counterparts.

10. Considering the selected value added ratios the performances of the companies HPCL, ONGC and IOCL are not good as compared to other companies under study so, management of the concerned companies should have to pay special attention in improving the amounts of value addition in the years to come to compete with the global counterparts as both ONGC and IOCL belong to Global Fortune 500 Companies List-2011.
8.3 Conclusion of the study

Oil and gas companies play a vital role in the economic development of India. Since domestic production of crude oil and natural gas is low in comparison with the demand for oil and gas products, the country has to depend on the imported crude oil for meeting the ever-growing energy requirements to accelerate economic growth and rapid expansion of infrastructure facilities. Immediately after independence, the Government of India nationalized the oil and gas sector in the larger interest of the public. Keeping in view the needs of the society, the oil and gas sector was made open to the private participation following the announcement of the New Industrial Policy on 24th July 1991. However, it has been observed that the private participation has not been significant in this sector due to large capital outlay, long-gestation period and Government control over prices, etc. Accordingly, the study has been confined to the public sector oil & gas companies in India for the period from 2000-01 to 2011-12. At present, there are more than 12 companies in the public sector engaged mainly in producing, refining and selling oil & gas products in India. The oil & gas companies in India have been organized as Government Companies U/S 617 of the Companies Act 1956. Some of the companies are included in the list of Fortune-500 Companies list because of their capacity outlay, turnover and profit. Even after opening the oil & gas sector as private sector companies the Government of India has decided to retain the public sector oil & gas companies under its control in the larger national interest. Out of the oil & gas companies operating as PSEs in India, six companies have been selected for comparative study purpose after careful examinations of their operations, paid-up capital, organization structure, earning capability and market capitalization, etc. The six companies that have selected for the study are ONGC, IOCL, OIL, BPCL, HPCL and GAIL.

The study has been concentrated on the analysis of financial performance of the selected public sector oil and gas companies in India individually as well as comparative analysis has been done among the various selected companies regarding their financial performances in the areas of capital structure and leverage, liquidity management, profitability and efficiency in total cost management, efficiency in asset management, internal resource generation, contribution to the central exchequer and value addition, etc. In order to accomplish the objectives of the study,
a suitable research methodology has been worked out. The data which have been used in this study are collected from secondary sources i.e. the published annual reports of the selected companies under study, official sources pertaining to the Department of Public Enterprises, Government of India, New Delhi, Ministry of Petroleum and Natural Gas, Government of India, various reputed journals, e-journals from UGC-Inflibinet centre, various reputed books on finance, Government reports, and “Capitaline 2000” database have been used for procuring data. For the purpose of conducting the research work internet surfing has been used for obtaining latest and requisite information and SPSS statistical package has also been used for statistical computation purpose. For analyzing the data managerial tools like ratio analysis, percentages, averages, and statistical techniques like simple correlation analysis and rank correlation, etc. have been used. To test the significance of the results of the empirical study statistical test viz. ‘t’ test has been applied in appropriate places. The study has been organized in eight chapters highlighting the introduction, background of the companies under study and literature review, capital structure, leverage and their implications, short-term liquidity, profitability and impact of total cost management on financial performance, efficiency of asset management, contribution to the Central Exchequer, internal resource generation, value addition and overall financial performance, etc. of the selected public sector oil and gas companies in India during the study period from 2000-01 to 2011-12.

The study has highlighted some relevant issues, which can be used for formulation of appropriate policies and strategies in the light of the globalization and liberalization of the Indian economy. The findings in respect of capital structure, leverage and their implications show that the associations between DOL, DFL and DTL and ROE are statistically significant in case of the companies IOCL and GAIL (under Spearman’s and Kendall’s measures), in case of BPCL and HPCL (under all the three measures) and in case of OIL the association between DOL and ROE are statistically significant (under Pearson’s measure) during the study period from 2000-01 to 2011-12. The comparative study reveals that IOCL has the higher values of financial break-even points and OIL has the lower values of them as compared to other companies under study during the said study period, that mean management of IOCL uses more amounts of external capital and management of OIL employs lesser amounts of external capital in the capital structure as compared to other companies under study during the study period from 2000-01 to 2011-12. Again, the comparative analysis reflects that both BPCL and IOCL are employing higher
amounts of external capital and both ONGC and OIL are employing equity-oriented capital structure for the selected study period. As far as the performance of liquidity management is concerned, the study has highlighted that the associations between CATAR and ROCE in case of the companies ONGC (under all the three measures) at 1% level, IOCL (under Pearson’s measure) at 5% level, OIL (under Spearman’s and Kendall’s measures) at 5% level and at 1% level (under Pearson’s measure), HPCL (under Pearson’s measure) at 1% level and GAIL (under all the three measures) at 1% level have the significant influences on the returns on owners’ equity during the study period. The study also reveals that current ratio of OIL (under all the three measures) and CASR of GAIL (under all the three measures) have the significant influences on the returns of owners’ equity during the study period. The study of index analysis shows that the association between EI and ROE of IOCL (under Pearson’s measure) has the significant influence on the return of owners’ equity during the study period. The study of profitability and efficiency in total cost management has revealed that the current assets to total assets ratio in case of the company ONGC (under all the three methods) and GAIL (under Pearson’s method) have the significant influences on the overall corporate returns during the study period. It is revealed that the power and fuel cost management of ONGC (under Spearman’s measure) has the significant influence on the overall corporate return during the study period. This chapter also highlights that the other manufacturing cost management of IOCL (under Pearson’s measure), OIL (under all the three measures) and BPCL (under Spearman’s and Kendall’s measures) have the significant influences on the overall corporate returns during the study period. The selling and administration cost management of OIL (under all the three measures) has the significant influence on the overall corporate return during the study period. The study of efficiency in asset management reveals that fixed assets turnover ratio of IOCL (under all the three measures), total assets turnover ratio of ONGC (under all the three measures) and HPCL (under Pearson’s measure), working capital turnover ratio of BPCL (under Pearson’s measure), inventory turnover ratio of ONGC (under all the three measures) and cash turnover ratio of BPCL (under all the three measures) have the significant influences on the overall corporate returns during the study period. As far as the study of internal resource generation is concerned, it is revealed that ONGC, on an average, has the highest amount of generation of internal resource (i.e. Rs. 9529.60 crore) in the forms of depreciation, deferred revenue expenditure and retained profit and HPCL, on an average, has the least amount of
generation of internal resource (i.e. Rs. 1605.92 crore) as compared to other companies under study during the study period from 2000-01 to 2011-12. The study showing the amount contributed to the central exchequer highlights that BPCL, on an average, has contributed highest amount (i.e. Rupees 96155.23 crore) to the central exchequer in the forms of corporate tax, excise duty and dividend and interest, etc. and OIL, on an average has contributed least amount (i.e. Rupees 9391.68 crore) to the central exchequer as compared to other companies under study during the study period from 2000-01 to 2011-12. The study of value addition reflects that ONGC, on an average, has the highest amount of value addition (i.e., Rs. 23271.86 crore) in the forms of remuneration paid to employees, remuneration paid to capital providers, government taxes and amounts retained by the business enterprise for its maintenance and growth and HPCL, on an average, has the least amount of value addition (i.e., Rs. 7485.107 crore) as compared to other companies under study during the study period from 2000-01 to 2011-12.

It is thus observed that the selected public sector oil and gas companies in India have been rendering their commendable performances in the overall economic development of India to achieve self-reliant economy as far as possible. However, it is expected that the public sector oil and gas companies should run and operate their business activities in a more compact manner to significantly contribute to the central exchequer for raising necessary fund for public expenditure programmes to be undertaken by the Government of India to accelerate the pace of socio-economic growth process in the country to alleviate poverty and to eliminate the regional disparities in the economy, etc.