

Analyzing the Profitability Trend of Maharatna CPSEs in India: An Application of DEA

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Abstract:

The Maharatna corporations are the lifeblood of developing nations like India. It is the key to achieving inclusive growth and sustainable development. The Government of India announced the Maharatna Program for the first time in February 2010 with the goal of achieving self-sufficiency in numerous essential areas. The main reason for implementing this scheme was to give autonomy to the identified large-scale Navaratna firms, allowing them to expand their economic activities on both domestic and international markets. Business efficiency is measured by profitability. In truth, profitability reveals the ultimate outcomes of the company's policies and decisions made in the usual course of commercial operations.

A PSE can do a better job of meeting its social responsibilities if it makes money. In this study, data envelopment analysis (DEA) was used to figure out how well Maharatna CPSEs could make money. The ratio of the mean to the standard deviation of the technical efficiency score (TES) was calculated so that companies could be compared in terms of how consistently they could make money. During the study, a linear trend equation was used to figure out how the TES of the selected companies were changing, and the t-test was applied to figure out significance of slope of the trend line was. TES scores vary widely among the study's companies. Based on the composite score, CIL obtain first place, while HPCL is at the bottom of the rankings.

Keywords: Profitability, Maharatna Companies, Discharge, Autonomy, Earning Capability

Introduction

The CPSEs under the control of the government have always played a significant role in India's economic development. Sustainable growth and development, as well as the creation of robust human capital and intellectual property rights, are all impossible to achieve without the participation of CPSEs. By creating and distributing high-quality goods to consumers at affordable costs, it contributes to societal well-being.

When India first gained its independence, the majority of its people still relied on agriculture for their livelihood. Our primary industry was farming, and most of the things we used daily had to be brought in from other, more developed countries. Given the current state of affairs, only government action can bring about the necessary changes, such as the establishment of a large-scale organisation that can achieve the economic goals of the country as a whole: faster economic growth, self-sufficiency in production of important products and services for the people, long-term positive balance of trade and balance of payment, price stability for commodities, and the establishment of price benchmarks for key items. At first, CPSEs were set up to help India become more economically independent by producing and supplying basic goods to the general public at affordable prices.

CPSEs always remain the backbone of a developing nation like Indian during pre and post-independence period. In the first five year plan which remains in force from 1951 to 1956, only 5 CPSEs were in operation, which operates in selected core sectors only with the total investment of Rs. 29 crores. During this plan several important reforms were taken by the concerned government to improve the condition of these CPSEs. Due to these reform measures of the Government CPSEs gained much importance in India economy and its importance in the society increased a lot. As per a report of department of public enterprises, total number of the CPSEs till March 2019 were 348 with an investment worth Rs. 26,33,956 crores (DPE survey 2018-2019). The GDP of the nation also showed a growth of 11.20 per cent at market price during this period. The total investment till 31st March 2019 in all CPSEs together stood at 16, 40,628 crores and recorded a growth of 11.71 per cent in GDP. The turnover of all the CPSEs in the year 2018-2019 were 25, 43,370 crore and till date more than 15 lakh employees were engaged in these CPSEs for earning their livelihood (Public Enterprise Survey: Volume -1).

The opening up of the economy due to adoption of globalization and liberalization policy allowed entry of private players in the market which helped a lot in changing the shape of the Indian economy and put emphasis on rapid industrialization. As a result of the entry of private entities in the market public companies have to compete with domestic as well as overseas companies to remain in existence in this severe competitive market. In order to survive in this competitive environment some CPSEs reoriented their business strategies as per the requirement of the hour and set a standard of their performance while few were not able to do so due

unknown problems. In order to empower some big profit making PSEs, Central Government granted operation and financial autonomy to them so that it could react positively to the market forces. Based on the outstanding performance of these large sized CPSEs in their fields and which fulfilled the selected criteria as laid down by the central Government, CPSEs were awarded with the status of 'Maharatna', 'Navaratna', 'Miniratna- Category-I' and 'Miniratna-Category-II' by the DPE, Government of India. In the year 2009 some CPSEs which satisfy the certain criteria as laid down for 'Maharatna' by the Govt. of India were awarded by 'Maharatna' status for the first time. The main purpose behind awarding this status is to empower mega CPSEs so that it could expand their operations in domestic as well as in foreign market and emerge as global giant and it could satisfy the needs of huge number of people worldwide.

A company must fulfill some mandatory criteria get the Maharatna status.

(I)The company should be a Navaratna company. (II) The business firm must trade it share through any Indian stock exchanges as per SEBI norms. (III) The company must achieve turnover of Rs. 20000 crores annually based on averages. (IV) The net worth of the company for last three years based on average should Rs.10000 crores. (V) The firm must earn net profit after based on average Rs. 2500 (VI) The company should remain globally present.

Presently there are 10 Maharatna CPSEs. They are Bharat Heavy Electricals Ltd. (BHEL), Bharat Petroleum Corporation Ltd. (BPCL), Coal India Ltd. (CIL), GAIL (India) Ltd. (GAIL), Hindustan Petroleum Corporation Ltd. (HPCL), Indian Oil Corporation Ltd. (IOCL), NTPC Ltd. (NTPC), Oil and Natural Gas Corporation Ltd. (ONGC), Power Grid Corporation of India Ltd. (POWERGRID) and Steel Authority of India Ltd. (SAIL).

The profitability is treated as basic measuring scale which is used to gauge its operating efficiency of a business firm. In fact, profitability earning capability of a firm shows the impact of various important decisions and policies which were adopted by the companies during its normal course of business operation. A PSE could discharge its social obligations better if it operates in a profitable manner. The most skillful utilization of available resources such as cash, inventories, debtors, fixed assets could contribute in maximization of overall profitability a company. Thus, we can say that profitability is the basic measures overall success of a company. Higher the profitability more the company is successful, grater the entrepreneur activity. Greater the profitability, larger the scopes of accumulation of capital and lower the company have to collect capital from open market, more will be the development in the technology and thereby overall development could be achieved. The profitability or earning capability of a business can be assessed by some important ratios. These profitability ratios can be sub-divided into twogroups 1. Profitability in ratio in relation of sales such as Gross Profit Ratio, Net Profit Ratio, Operating profit ratio 2. Profitability ratios in connection with capital employed of the firm like Return on capital employed (ROCE), Return on net worth (RONW). ROCE is most widely used measure of profitability. It is shows the relation of operating profit with long term investment

which made by the firm. It shows the overall earning capacity which firm can earn. Higher the ROCE, more efficiently the firm has utilized its assets which were employed in the business. In this study, the profit earning capability of the all ten Maharatna CPSEs was analyzed through Technical Efficiency Scores (TESs). The TES were derived using DEA (Data Envelopment Analysis) technique.

Review important selected Literatures

Review of selected literatures related to the issue addressed in the present study is important before moving into the empirical study. During last few years, several significant studies were made in India as well as in abroad on different aspects of CPSEs and especially on Maharatna companies. A good number of these studies were conducted in different periods for evaluation of financial health and performances of Indian Maharatna companies. Paragraph below provides a brief idea about some of the important studies so far made of this issue.

Mallik and Sur in the year 2004 made a comprehensive analysis of the financial performance of NTPC Ltd. which was related to pre and post-liberalization era. The years 1982-83 to 1990-91 were considered as the Pre-liberalization period while the years 1991-92 to 1999-2000 were taken as the post-liberalization period. The study inferred that the company was moving in the right direction of facing all challenges on account of liberalization. In fact, the company continued to maintain a very high profile regarding its financial performance in the post liberalization era. The study also revealed that the liberalization brought more opportunities than challenges for the company.

Jafar and Sur in 2006 tried to know how well the working capital is being managed by the NTPC Ltd. The result of the research shows that sample firm utilized its net current assets in most effective way to obtain more value for the organization by adapting themselves as per the need of new atmosphere that emanated due to the adoption globalization and liberalization and competitiveness policy by the Government of India. The study also showed that the competition arising out of globalization provides an opportunity to perform in well manner to survive in the competitive environment.

Singh and Paliwal in 2010 conducted a study between 1985 to 2005 to check and assess the impact of disinvestments of the firm on its performance of selected the PSEs which enjoy competitive advantage and the firm which have monopoly in the market. The study revealed that the performance as well as profitability of the competitive firm declined notably while the monopoly firm showed their efficiency in earning profit and cost control during post-disinvestment era.

Gupta et al.(2011) in their study tried to review the economic health of selected thirty-eight CPSEs which were operating in India (out of forty-four PSEs which adopted disinvestment strategy till March, 2008). The small amount of disinvestment did not make any significant changes in the overall financial performance of PSEs due its gigantic size, its worldwide presence and having huge market share, a small amount change in capital of the firms does not put any affect on overall performance.

Chakraborty in 2014 tried to identify the relationship between efficient management of assets and its impact on profitability of selected CPSEs in India which were under consideration during 1997-1998 to 2011-2013 by applying appropriate correlation and regression techniques. The research indicates that efficient administration of fixed assets and stocks made significant positive impact on overall profitability and earning capability of the selected firms which were taken into consideration for study.

Sur and Yadav in 2014 made a study to identify the trends in effective management of assets in Maharatna CPSEs by applying some important efficiency ratios. The research indicates that GAIL and IOCL jointly got first position in terms efficient management of their assets.

Apara in 2015 carried out a study on Steel Authority of India (SAIL) to analyze the impact of determinants such as size, growth, liquidity, leverage and productivity on the profitability and earning capacity of the company. The research discovered that size, leverage and productivity were not positively associated with profit earning capability while growth and liquidity were positively correlation with profitability. The regression analysis also showed that the productivity and size were established themselves as prominent variables in explaining the profitability of the SAIL in the study period.

The appraisal of the significant literatures so far made on the this topic which was addressed in the present research study reveals that most the these research studies were conducted to analyze and evaluate the economic strength of CPSEs in pre and post-disinvestment period and someresearch studies were deals with analyzing the profitability performance of CPSEs during the pre and post-disinvestment period. Moreover, no any study was conducted in recent past to review the earning capability and profitability considering all the factors and determinants which impacts the profitability or earning capability of a firm. In recent past only very few studies were conducted where one or two dimension of profitability were taken into consideration. Further, the Data Envelopment Analysis (DEA) was not used in these studies relating to the CPSEs except a very few. No significant study in which profitability of all the ‘Maharatna’ companies was analyzed considering all the major determinants of profitability was carried out by applying DEA. So in order to narrow this gap which remains till date this research was conducted to

analyze the profit earning capability of selected ten ‘Maharatna’ companies at a time by applying DEA along with the conventional ratio analysis technique.

Objectives

1. To evaluate the profitability performance of Maharatna firms using Technical Efficiency Scores (TES)
2. To determine more specifically the profitability position of the enterprises under consideration based on composite TES ranks.
3. To identify the nature of trends in the profitability of the selected enterprises in terms of TES during the research period.
4. To analyze the major factors which influence profitability of the Maharatna CPSEs.
5. To make suggestions for enhancing profitability of the Maharatna CPSEs.

Methodology

This research was based on primary data only where all ten the ‘Maharatna’ CPSEs in India were taken into consideration for conducting the study. Purposive sampling technique has been followed for selection of companies. In this study all ‘Maharatna’ CPSEs of India are taken as sample for the analysis. The data of the selected companies which were chosen as sample for the study for the period of 2003-2004 to 2020-2021 were derived from several secondary sources like from Capitaline Databases. Other several sources like journal, articles, books and other published reports were used for collection of important data.

India Government adopted liberalization scheme in 1991-1992 to make the whole world a common market where everyone can enter into the market for buying and selling of goods and services without any barrier. But it is quite normal that effects of any policy which were adopted by the Government could not be reflected instantly just after its implementation of the policy. So, in this paper year 2003-2004 were considered as base year for research analysis disclose the actual impact of the policies adopted in the year 1991. The data which were collected for the study from various sources were analyzed using simple mathematical tools like percentages, average, min, max and important ratios were applied as per requirement in appropriate places.

While analyzing the profit earning capability of the companies used as sample in this research, the key contributory factors which influence profit earning capability of a firm like efficiency in managing fixed assets of the selected companies, efficiency in managing inventory, efficiency in managing debtors and efficiency in managing cash were used.

The profitability of the selected companies were reviewed applying important profitability ratios, such as gross profit ratio (GPR), net profit ratio (NPR), operating profit ratio (OPR), cash profit

ratio (CPR), return on capital employed (ROCE), return on owners equity (ROE), earning per share (EPS), value added to capital employed ratio (VACE) etc. were used in this research in assessing the profitability of the selected firms. Usually, a company collects funds from various sources to create a pool of funds and utilizes these funds in two ways: (a) for acquiring fixed assets which required for the managing the whole business and (b) for smooth running of the business it deploys a portion the fund in working capital. As the total collected funds deployed in fixed assets as well as in working capital for smooth running of the business. As per the theoretical argument the profit earning capability of a company chiefly depends on how efficiently these assets are utilized in the production process. Inventory, debtors and cash are major components of working capital of a company. Thus, we can say that in this research study major factor which influences the profitability such as efficiency in fixed assets, inventory, debtors and cash management were taken into consideration and these factors were analyzed to know their impact on the profitability of the firm. Several important ratios like Fixed asset turnover ratio (FATR), inventory turnover ratio (ITR), debtors turnover ratio (DTR) and cash turnover ratio (CTR) were used in assessing the efficiency in managing fixed asset, inventory, debtors and cash of the Maharatna companies. The greater the turnover ratio, the better is the efficiency with which assets are utilized.

A company is said to be efficient when it produces maximum output by using minimum input or if it produces a maximum output by using fixed inputs. TES is a score which is calculated to identify the units which are efficient and utilizing their all resources in most efficiently resulting to which company could generate more values for the stakeholders. TES is calculated by dividing the observed output with the maximum output under the assumption of fixed input or in other way it can be calculated by dividing the observed input with minimum input under the assumption of fixed output. There are two ways to calculate TES, one is parametric approach and another is non-parametric approach. In this research study non-parametric approach which is based on DEA was applied in order to ascertain efficiency of in profitability performance of the selected Maharatna companies. Technical Efficiency Score (TES) was ascertained by taking into consideration those factors as input which influence and control the functioning of the companies under study.

Empirical Result and Discussion

Table 1 shows that BHEL obtained highest value of efficiency score 1.00 based on VACE in 2002-2003, 2003-2004, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2017-2018, 2018-2019, 2019-2020 and 2020-2021 while it was least (0.502) in 2016-2017. On an average, it was 0.974. The efficiency score of BPCL varied between 0.058 (2017-2018) and 1.00 (2002-2003 and 2020-2021). The mean TES of the company was 0.589. The TES of the CIL ranged between 0.753

(2017-2018) and 1.00 (2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2018-2019, 2019-2020 and 2020-2021). The average value of TES achieved by CIL was 0.987. The TES of GAIL varied between 0.067 (2017-2018) and 0.735 (2020-2021). On an average it was 0.452. The TES of the HPCL lies between .055 (2017-2018) to 1.000 (2018-2019). On an average it was 0.405. In IOCL the TES fluctuates between 0.107 (2017-2018) and 1.00 (2020-2021). The mean TES of the IOCL was 0.517 during the study. The maximum TES of NTPC was 1.000 in 2004-2005 while it was slightest in the year 2017-2018. The average TES of the NTPC was 0.498. The TES of the POWERGRID was 1.000 in the year 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2018-2019, 2019-2020 while it was the least (0.159) in 2017-2018. The mean TES of POWERGRID was 0.956 during the study. The TES of ONGC ranged between 1.00 (2002-2003, 2004-2005, 2018-2019, 2019-2020 and 2020-2021) and 0.085 (2017-2018). The mean TES of ONGC was 0.721 during the study. The TES of SAIL varied widely between 0.094 (2017-2018) to 1.00 (2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2013-2014, 2018-2019, 2019-2020 and 2020-2021). The average, TES of SAIL was 0.847 during the study. The consistency coefficients (C.C) of TES of Maharatna CPSEs (as disclosed in Table 2) were 8.523 (BHEL), 1.967 (BPCL), 17.418 (CIL), 2.424 (GAIL), 1.617 (HPCL), 1.856 (IOCL), 1.828 (NTPC), 4.954 (POWERGRID), 2.202 (ONGC) and 2.799 (SAIL). Based on average TES, CIL captured the highest rank, followed by BHEL, ONGC, SAIL, POWERGRID, BPCL, IOCL, NTPC, GAIL, and HPCL in that order while in respect of the consistency scores of TES, CIL established itself as the most consistent performer, followed by ONGC, BHEL, ONGC, SAIL, GAIL, POWERGRID, BPCL, IOCL, NTPC and HPCL in that order during the entire span study.

Table 1 also reveals that BHEL secured highest TES in eighteen years (2002-2003, 2003-2004, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2017-2018, 2018-2019, 2019-2020 and 2020-2021) throughout study while the highest score of efficiency was secured by BPCL in two years (2002-2003 and 2020-2021) and CIL, POWERGRID, HPCL, IOCL, NTPC, ONGC and SAIL also proved themselves as best performer in terms of value generating capability (as expressed by the TES) in eighteen years (2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2018-2019, 2019-2020 and 2020-2021), one year (2018-2019), one year (2020-2021), one year (2004-2005), five year (2002-2003, 2004-2005, 2018-2019, 2019-2020 and 2020-2021) thirteen years (2003-2004, 2004-2005, 2005-2006, 2006-2007, 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2013-2014, 2018-2019, 2019-2020 and 2020-2021)

respectively. Another remarkable conclusion of the study is that GAIL was placed in the last position terms of efficiency in value generating capability.

A wide variation in efficiency scores which were calculated during the study was noticed in the selected Maharatna CPSEs over the years during the study. The more the value of average efficiency scores, the more the company is generating value for by making proper utilization of its available resources. The study also reveals that during the entire research the maximum value of average efficiency score was noticed in CIL while the minimum value was obtained by HPCL. From the table it can be concluded that in most of the year under study CIL was able to enhance its value generating capability with the help of smaller turnover ratios. On the other hand HPCL was not able to enhance its value generating capability using higher turnover ratios.

Analysis of Rank with respect to Value Generating Capability

In order to analyze rank in respect of value generation capability of the Maharatna CPSEs a composite rank analysis was made in the Table 2 considering ranks both average and consistency of TES based on VACE of the selected firm for the study period. In this analysis, a composite rank was calculated to get a more inclusive measure of value generating capability in which the values of average efficiency and consistency of TES were combined together to obtain a composite score. The final value generating capability ranking was made based on sum of scores of each company's separate individual ranking under the mean efficiency and consistency of TES. The ultimate ranking was made based on the principle that lowers the composite score, the higher the value generating capability of the company and vice-versa.

Table 2 discloses that based on combined score as calculated during the research study, CIL secured the first place in respect of value generating capability followed by BHEL, ONGC, SAIL, POWERGRID, BPCL, GAIL, IOCL, NTPC and HPCL respectively in that order.

Analysis of Trend of TES

Table 3 discloses that the out of ten Maharatna companies, BHEL, GAIL, NTPC and SAIL showed a significant declining trend in TES in the profitability with the passage of time while a significant upward trend was observed in CIL and POWERGRID. The negative values of slope of the trend lines indicate negative relationship between technical efficiency and time while the notable positive value of the slope of the equations reflects positive association between technical efficiency and time. However the insignificant positive values of slopes of trend lines were observed in BPCL, HPCL and IOCL which imply that no definite trend in TES of these CPSEs was observed.

Conclusion

This research study deals with the aspect of technical efficiency with respect to the value generating capability in terms of VACE. The study showed extensive variation in the level of TES within the companies which were taken into consideration for the study. Based on average TES, CIL obtain top most position terms of average value generating capability while HPCL found place in last two positions. CIL go the status most consistent performer in terms of value generation as calculated through consistency coefficient of TES during the study whereas HPCL got the status of most inconsistent performer in terms of value generating capability.

The analysis of composite scores which were calculated by combining both the average and consistency rank of the TES of the Maharatna CPSEs under study reveals that CIL established themselves as the most excellent player among the Maharatna CPSEs in terms of value generating capability while HPCL found place in the last row in the same study period.

A significant declining trend in the value generating capability as reflected in the TES was observed in 30 % cases while in 20 % cases a significant upward trend was observed but in the remaining 50 % cases no noticeable trend in values generating capability was noticed.

On a whole, the empirical analysis as made in this study reflects managerial inefficiency in value generating capability in 50 per cent of the Maharatna companies in India during the period under study. This managerial inefficiency seems to be the outcome of excessive government interventions. In fact lack of complete autonomy in managing the business operations compelled the concerned managers to choose a second best alternative input mix rather than choosing the best allocation of resources. As a result, the managerial inefficiencies in business operations of the companies under study could not be removed.

Thus, a policy of decontrolling the Maharatna CPSEs by minimizing the government interference is suggested to improve their managerial efficiency.

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Tables

Table: 1 Company- wise Technical Efficiency Scores (TES) based on Value Added to Capital Employed (VACE) of Maharatna CPSEs

Year Company	BHEL	BPCL	CIL	GAIL	HPCL	IOCL	NTPC	POWERGRID	ONGC	SAIL
2003	1.000	1.000	1.000	0.557	0.667	0.809	0.638	1.000	1.000	0.915
2004	1.000	0.901	1.000	0.432	0.825	0.770	0.792	1.000	0.806	1.000
2005	1.000	0.373	1.000	0.539	0.332	0.509	1.000	1.000	1.000	1.000
2006	1.000	0.158	1.000	0.455	0.149	0.335	0.560	1.000	0.987	1.000
2007	1.000	0.802	1.000	0.689	0.361	0.594	0.696	1.000	0.986	1.000
2008	1.000	0.660	1.000	0.475	0.184	0.737	0.536	1.000	0.994	1.000
2009	1.000	0.954	1.000	0.497	0.295	0.620	0.536	1.000	0.956	1.000
2010	1.000	0.727	1.000	0.702	0.531	0.753	0.535	1.000	0.905	1.000
2011	1.000	0.631	1.000	0.667	0.607	0.692	0.723	1.000	0.768	1.000
2012	1.000	0.344	1.000	0.436	0.460	0.290	0.262	1.000	0.372	0.859
2013	1.000	0.342	1.000	0.392	0.343	0.195	0.218	1.000	0.414	1.000
2014	1.000	0.462	1.000	0.434	0.260	0.284	0.436	1.000	0.529	1.000
2015	1.000	0.626	1.000	0.339	0.162	0.244	0.250	1.000	0.431	0.741
2016	1.000	0.997	1.000	0.224	0.222	0.280	0.194	1.000	0.310	0.382
2017	0.502	0.321	1.000	0.079	0.315	0.136	0.097	1.000	0.158	0.094
2018	1.000	0.058	0.753	0.067	0.055	0.107	0.066	0.159	0.085	0.094
2019	1.000	0.525	1.000	0.406	1.000	0.935	0.305	1.000	1.000	1.000
2020	1.000	0.308	1.000	0.458	0.259	0.527	0.717	1.000	1.000	1.000
2021	1.000	1.000	1.000	0.735	0.660	1.000	0.901	1.000	1.000	1.000
Average	0.974	0.589	0.987	0.452	0.405	0.517	0.498	0.956	0.721	0.847
Maximum	1.000	1.000	1.000	0.735	1.000	1.000	1.000	1.000	1.000	1.000
Minimum	0.502	0.058	0.753	0.067	0.055	0.107	0.066	0.159	0.085	0.094
S.D	0.114	0.299	0.057	0.186	0.250	0.278	0.273	0.193	0.328	0.305
(C.C)	8.523	1.967	17.418	2.424	1.617	1.856	1.823	4.954	2.202	2.779

Source: Compiled and computed from Capitaline Corporate Database, Capital Market Publishers (India) Ltd. Mumbai.

Table: 2 Company –wise Composite Rank of Profitability of Maharatna CPSEs based on TES

Company	Mean Value	Rank	C.C	Rank of CC	Sum of the Ranks	Ultimate Rank
BHEL	0.974	2	8.523	2	4	2
BPCL	0.589	6	1.967	7	13	6
CIL	0.987	1	17.418	1	2	1
GAIL	0.452	9	2.424	5	14	7
HPCL	0.405	10	1.617	10	20	10
IOCL	0.517	7	1.856	8	15	8
NTPC	0.498	8	1.823	9	17	9
ONGC	0.956	3	4.954	3	6	3
POWERGRID	0.721	5	2.202	6	11	5
SAIL	0.847	4	2.779	4	8	4

Source: Compiled and computed from Capitaline Corporate Database, Capital Market Publishers (India) Ltd. Mumbai.

Table: 3Company –wise Trends in Profitability of Maharatna CPSEs

Company	Constant	 t value	Coefficient	 t value	R	F	R-Square
BHEL	.736**	7.835	-.020*	2.428	-.508	5.897	.258
BPCL	.288**	4.353	.008	1.320	.305	1.743	.093
CIL	-1.304	-1.040	.326**	2.964	.584	8.788	.341
GAIL	.361**	11.343	-.005*	1.784	.397	3.182	.158
HPCL	.331**	5.642	.002	.353	.085	.124	.007
IOCL	.311**	6.758	.001	.193	.047	.037	.002
NTPC	.315**	10.962	-.007**	2.876	.572	8.271	.327
ONGC	.818**	3.984	-.001	-.057	.014	.003	.000
POWERGRID	.124**	23.123	.003**	6.045	.826	36.538	.682
SAIL	.640**	7.492	-.020**	2.643	.540	6.984	.291

Source: Authors calculation

** Significant at 1 per cent level. * Significant at 5 per cent level.