

# VALUE GENERATING CAPABILITY OF NTPC LIMITED IN THE PRE- AND POST- LIBERALIZATION PERIODS: A COMPARATIVE ANALYSIS

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*[The existence of Public Enterprises in the Indian economy is of paramount significance in order to realize the true economic goals of sustainable growth. Being a highly regulated sector, the power sector in India has been traditionally dominated by public sector companies under the Central Government as well as individual State Governments. NTPC Ltd. is playing an ever-increasing vital role in generating power and contributing to the Indian economy in many ways. Understanding the importance of such a 'Maharatna' company and its phenomenal performance, it is highly important to look into its financial performance both in the pre-liberalisation and post-liberalisation periods. In the present paper, a modest attempt was made to analyse the value generating capability of NTPC Ltd and to identify its determinants using the data from 1983-84 to 2012-13. The results obtained from the study revealed a significant improvement in the value generating capability of NTPC Ltd. during the post-liberalization period as compared to the pre-liberalization period. In fact, the company was able to adapt itself efficiently to withstand the turbulent conditions during the post-liberalization period.]*

**Keywords:** Public Enterprise, Pre-liberalisation and Post-liberalization Periods, Maharatna Company.]

## I. Backdrop

The importance of public enterprise (PEs) in the Indian economy can never be overemphasised. They have always played a dominant role in shaping the path of the country's economic development.

The PEs contribute more than 22 per cent of the India's GDP, account for around 6 per cent of the total employment in the organised sector and make a contribution of over 20 per cent to the national

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exchequer by the way of payment of direct and indirect taxes. With the economy embarking on the process of liberalization, privatization and globalization since the early-1990s, the role played by the PEs has subsequently undergone a rapid change. Integration of the domestic economy with the global market has thrown up a plethora of opportunities and challenges. The PEs in India have undertaken significant initiatives for up scaling technologies and capacities in order to operate at par with the private counterparts in the liberalised economy. With continued focused efforts towards achieving excellence, several of the PEs have become self-reliant and have continued to play a vital role in the growth of the Indian economy while some other PEs have either gone bankrupt or marginally survived owing to state-sponsored bail-outs.

Being a highly regulated sector, the power sector in India has been traditionally dominated by PEs under the Central Government as well as individual State Governments. The policy of liberalisation the Government of India announced in 1991 and consequent amendments in Electricity (Supply) Act have opened new vistas to involve private efforts and investments in the power sector. So, a considerable number of PEs in the Indian Power Sector which had grown exponentially over the years in a virtually non-competitive environment have started facing increasingly severe competition. As a result, there has been a noticeable change in the value/wealth generating capability of these enterprises.

The PEs in the Indian power sector have been forced to reorient their strategies for meeting the challenges thrown before them and managing business operation efficiently in the post-liberalization era. Some of them have been able to adapt themselves to the new environment while others have failed to do so.

During the last four decades, several studies have been conducted on the financial performance of the PEs in the Indian power sector in which different aspects of financial performance such as, liquidity, profitability, efficiency of asset management etc. have been thoroughly analysed. However, in these studies the value / wealth generating capability of these enterprises has not been addressed with due importance. Even in the post-liberalization period, no significant study has so far been made to deal with the issue associated with the PEs in the Indian power sector. In this backdrop, the present paper makes a comparative analysis of the value generating capability of NTPC Ltd. ,the only 'Maharatna' PE in the Indian power sector during the pre-liberalization and post-liberalization periods.

The remainder of the paper is structured as follows: Section II presents the objectives of the study. Section III narrates the methodology adopted in the study. Section IV deals with a brief profile of NTPC Ltd. In Section V the empirical results of the study are discussed. Section VI provides the concluding remarks.

## **II. Objectives of the Study**

The present study attempts to make a comparative analysis of the value

generating capability of NTPC Ltd. in the pre-liberalization and post-liberalization periods. More specifically, the objectives are:

- i. To analyse the value generating capability of NTPC Ltd. in the pre-liberalization and post-liberalization periods.
- ii. To examine the nature and extent of relationship between the value generating capability of NTPC Ltd. and its determinants in the pre-liberalization and post-liberalization periods.
- iii. To assess the joint effect of the determinants on the value generating capability of NTPC Ltd. in the pre-liberalization and post-liberalization periods.

### III. Methodology of the Study

- i. **Collection of Data:** The data of NTPC Ltd. for the period 1983-84 to 2012-13 used in the present study were collected from secondary sources i.e. Published Annual Reports of the company.
- ii. **Period of Study:** The Central Government initiated to adopt its economic liberalization measure during the financial year 1991-92. But it is obvious that the effect of such measures could not be reflected immediately after their adoption. Apart from that, several reform measures in the Indian power sector were taken after 1991-92, notable of which were the issues of policy guidelines for private sector

participation in the renovation and modernization of power plants in 1995, promulgation of the Electricity Regulatory Commission Act, 1998 for setting up of independent Regulatory bodies both at the Central and State levels, issue of the Electricity Laws (Amendment) Act, 1998 for making transmission as a separate activity and inviting greater participation in investment from both public and private sectors. Thus while carrying out the present study the financial years 1997-98 and 1998-99 were considered as the ultimate year of the pre-liberalization period and the initial year of the post-liberalization period respectively. The period from 1983-84 to 1997-98 and that from 1998-99 to 2012-13 were taken in this study as the pre-liberalization and post-liberalization periods respectively.

- iii. **Analysis of Data:** In this study 'value added to capital employed ratio' (VACE) was used in analysing the value generating capability of NTPC Ltd. and also taken as the dependent variable while ascertaining the effect of the determinants on the company's value generating capability. An enterprise usually utilises its funds in two ways: (a) by making investment in fixed assets and (b) by making investment in working capital. So, the value generating capability of the enterprise largely depends on the efficiency with which fixed assets and working capital are managed. Generally, in a manufacturing concern, inventory and receivables are

the two most vital components of working capital. The fixed assets turnover ratio (FATR), inventory turnover ratio (ITR) and receivables turnover ratio (RTR) are the most common measures of efficiency of fixed assets management, efficiency of inventory management and efficiency of receivables management respectively (Fairfield & Yohn, 2001). Therefore, in the present study it was assumed that  $VACE = f(FATR, ITR, RTR)$ . While analysing data in this study statistical tools like simple arithmetic mean (AM) and standard deviation (SD), statistical techniques like Pearson's simple correlation analysis, Spearman's rank correlation analysis, multiple correlation analysis, multiple regression analysis etc. and statistical tests, namely t-test and F-test were applied at appropriate places.

#### IV. A Brief Profile of NTPC Ltd.

NTPC Ltd., the largest company in Indian power sector, was established by the Central Government in the year 1975 for the purpose of accelerating power development in India. It is a diversified power major with presence in the entire value chain of the power generation business. The company proved itself as the best and the most consistent performer in the Indian power sector. As a result, it had been conferred 'Maharatna' status by the Government of India on 21<sup>st</sup> May, 2010. NTPC Ltd. ranked 384<sup>th</sup> in the '2013, Forbes Global 2000' ranking of the world's biggest companies. The company contributes around 28 per cent of the country's total power generation while its share of the

country's total installed capacity is only 18 per cent. With a current generating capacity of 43128 MW, NTPC Ltd. plans to become a 128000 MW company by 2032.

#### V. Empirical Results and Discussion

i) In Table I for measuring the value generating capability of NTPC Ltd. the VACE which is based on the concept of value added was used. The term 'value added' refers to the excess of turnover over the cost of bought in materials and services. It also represents the wealth that the company has been able to create on its own and by the efforts of its employees during a period. The measures for assessing the corporate performance are several, the most common ones being net profit ratio, return on investment, return on owners' equity etc. When the performance of the business firm is measured using any of these conventional yardsticks, the implied premise is that the firm exists, operates and grows only for its owners. But this concept does not match with the philosophy of the PEs. In fact, it has also now become an obsolete one for enterprises belonging to the private sector. The modern corporate philosophy is that the beneficiaries of a company's generated value / wealth are not only the shareholders but also the suppliers of finance and labour and the Government (Morley, 1978). Each and every company generates its value through collective efforts of owners (shareholders), human resources (employees), providers

of debt capital (lenders) and suppliers of infrastructural facilities (government). The contribution made by a business firm to the society and community cannot be assessed through the traditionally used accounting profit-based measures of financial performance. Thus, the net earning-based ratios, conventionally applied in performance evaluation, cannot be considered as the only dependable measure of value generating capability. Therefore, in this study in order to assess the value generating capability of NTPC Ltd., the concept of 'value added' was used. In Table I for analysing the value generating capability of the company more precisely both the average and consistency aspects of VACE were considered. In this table, the average VACE was ascertained applying the AM while the ratio of AM to SD was used in order to measure the consistency coefficient of VACE. Table I shows that the VACE of NTPC Ltd. varied between 13.72 per cent and 25.95 per cent in the pre-liberalization period while it fluctuated between 13.33 per cent and 31.03 per cent in the post-liberalization era. On an average, the VACE of the company for the study period was 23.02 per cent. The mean VACE of NTPC Ltd. in the pre-liberalization period was 19.23 per cent whereas it was 26.02 per cent in the post-liberalization period. The consistency coefficients of VACE of the company in the pre-liberalization period and in the post-liberalization

period were 3.80 and 3.93 respectively while it was 3.85 for the entire study period. The net outcome derived from the analysis of VACE reveals that NTPC Ltd. proved itself as a better as well as more consistent performer in terms of value generating capability in the post-liberalization period as compared to the pre-liberalization era. So, a considerable improvement in the company's efficiency in utilizing its capital funds during the post-liberalization period was noticed.

- ii) In Table II, an attempt was made to examine the nature and extent of relationship between the value generating capability of NTPC Ltd. and its determinants in both the pre-liberalization and post-liberalization periods through correlation coefficients between VACE and each of the selected measures relating to asset management efficiency taking into account their magnitudes (i.e. by Pearson's simple correlation coefficient) and rankings of their magnitudes (i.e. by Spearman's rank correlation coefficient). These coefficients were tested by t-test. Table II discloses that in the pre-liberalization period the only significant relationship was in between VACE and RTR. Both the Pearson correlation coefficient (0.81) and Spearman rank correlation coefficient (0.72) were positive and found to be statistically significant at 1 per cent level. It indicates that a notable degree of positive relationship

between the efficiency of receivables management of NTPC Ltd. and its value generating capability in the pre-liberalization period was observed. Table II also depicts that in the pre-liberalization period all the correlation coefficients between VACE and FATR and between VACE and ITR were positive but were not found to be statistically significant even at 5 per cent level. It implies that the fixed assets management and inventory management of the company did not make any significant contribution towards improving its value generating capability in the pre-liberalization period. Both the Pearson and Spearman correlation coefficients between VACE and RTR in the post-liberalization period were negative but none of them was found to be statistically significant even at 5 per cent level. So, no strong evidence of negative relationship between value generating capability of NTPC Ltd. and the efficiency of its receivable management was observed during the post-liberalization period. However, in the post-liberalization period the Pearson correlation coefficient between VACE and FATR (0.83) and the Spearman rank correlation coefficient between them (0.75) were positive and found to be statistically significant at 1 per cent level. Theoretically it is argued that the higher the efficiency of fixed assets management, the higher is the company's ability to generate value. The results obtained from the analysis of correlation between VACE and

FATR of NTPC Ltd. in the post-liberalization period conforms to the theoretical argument. Similarly, both the simple correlation coefficient between VACE and ITR (0.61) and the rank correlation coefficient between them (0.58) were positive as well as found to be statistically significant at 5 per cent level. It is a theoretical argument that the efficient inventory management makes a positive contribution towards enhancing the company's capability of generating value. The net outcome derived from the analysis of correlation between VACE and ITR of NTPC Ltd. in the post-liberalization period corroborates the theoretical argument.

- iii) In Table III, it was attempted to identify the factors influencing the value generating capability of NTPC Ltd. in both the pre-liberalization and post-liberalization periods using multiple regression analysis and also to measure the joint effect of these influencing factors of the company on its value generating capability in the same periods applying the analysis of multiple correlation coefficient (R). In this study it was assumed that  $VACE = f(FATR, ITR, RTR)$ . The multiple regression equation which was fitted in this study is :  $VACE = \alpha + \beta_1 FATR + \beta_2 ITR + \beta_3 RTR + \phi$ , where  $\alpha$  is the intercept term,  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are the partial regression coefficients and  $\phi$  is the error term. The partial regression coefficients and multiple correlation coefficients were tested by t-test and

F-test respectively. Enough care was taken in choosing the independent variables (FATR, ITR and RTR) to estimate the dependent variable (VACE) so as to ensure that Multicollinearity was reduced to the minimum. Table III shows that when FATR increased by one unit, the VACE of NTPC Ltd. increased by 2.13 units in the pre-liberalization period which was not found to be statistically significant even at 5 per cent level but it stepped up by 5.03 units in the post-liberalization period which was found to be statistically significant at 5 per cent level. It confirms that the fixed assets management of NTPC Ltd. made a significant contribution towards improving its value generating capability in the post-liberalization period. For one unit increase in ITR, the VACE of the company increased by 1.05 units and 8.92 units in the pre-liberalization and post-liberalization periods respectively, of which only the later was found to be statistically significant at 1 per cent level. It again conforms to the theoretical argument that the higher the efficiency of inventory management, the higher is the company's value generating capability in the post-liberalization period. When RTR increased by one unit, the VACE of NTPC Ltd. stepped up by 4.02 units and 0.25 unit in the pre-liberalization and post-liberalization periods respectively but only the increment in the pre-liberalization period was found to be statistically significant at 5 per cent

level. It reveals that the receivables management of NTPC Ltd. in the post-liberalization period failed to make any notable contribution towards improving its value generating capability although a significant contribution of the same was noticed in the pre-liberalization era. The multiple correlation coefficients of VACE of NTPC Ltd. on its FATR, ITR and RTR in the pre-liberalization and post-liberalization periods were 0.42 and 0.87 respectively, of which only the coefficient in the post-liberalization period was found to be statistically significant at 1 per cent level. So only in the post-liberalization period the joint effect of the efficiency in the management of fixed assets, inventory and receivable of NTPC Ltd. on its value generating capability was noticeable. The coefficients of multiple determination ( $R^2$ ) as shown in Table III reveal that 18 per cent of the variation in VACE of the company in the pre-liberalization period was contributed by its FATR, ITR and RTR while in the post-liberalization period it was 76 per cent.

## VI. Concluding Remarks

A considerable improvement in the value generating capability of NTPC Ltd. during the post-liberalization period was observed. The company established itself as a better and more consistent performer in terms of generating wealth in the post-liberalization regime. So, it is clear that NTPC Ltd. adapted itself efficiently to withstand the turbulent conditions during the post-liberalization period. Only fixed

assets management and inventory management of the company played a significant role in enhancing its performance in respect of value generation in the post-liberalization period while its receivable management failed to do so in the same period. The net outcome derived

from the present study makes it clear that the company was able to improve notably its value generating capability in the post-liberalization era by tackling quite efficiently the obstacles stemmed from liberalization, globalization and privatization.

**Table I: Analysis of VACE of NTPC Ltd.**

Period	Maximum (%)	Minimum (%)	Average (%)	Consistency coefficient
Pre-liberalization	25.95	13.72	19.23	3.80
Post- liberalization	31.03	13.33	26.02	3.93
Entire study period	31.03	13.33	23.02	3.85

Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the period 1983-84 to 2012-13.

**Table II: Analysis of Relationship between VACE and its determinants of NTPC Ltd.**

Correlation between Correlation Measure	VACE and FATR		VACE and ITR		VACE and RTR	
	Pre-lib. period	Post-lib. period	Pre-lib. period	Post-lib. period	Pre-lib. period	Post-lib. period
Pearson	0.31	0.83**	0.03	0.61*	0.81**	-0.19
Spearman	0.27	0.75**	0.24	0.58*	0.72**	-0.17

\*Significant at 0.05 level

\*\* Significant at 0.01 level

Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the period 1983-84 to 2012-13.

**Table III: Analysis of Multiple Correlation and Multiple Regression of VACE on its determinants of NTPC Ltd.**

VACE= $\alpha$ + $\beta_1$ FATR+ $\beta_2$ ITR+ $\beta_3$ RTR+ $\phi$		
	Pre-liberalization period	Post-liberalization period
$\alpha$	27.21	32.85
$\beta_1$	2.13	5.03*
$\beta_2$	1.05	8.92**
$\beta_3$	4.02*	0.25
<b>R</b>	0.42	0.87
<b>R<sup>2</sup></b>	0.18	0.76**
*Significant at 0.05 level		
** Significant at 0.01 level		
Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the period 1983-84 to 2012-13.		

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