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Analysis of Business Risk of NTPC Ltd. during the Pre-liberalization and Post-liberalization Periods

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Abstract: Business organizations are much of substance to us because they arrange to provide the means by which we realize our preferred ends. Our individual opportunities and achievements vis-à-vis the societal accomplishments largely depend on the efficient running of these organizations. Efficiency of business organizations basically refers to the earning capability and earning capability, by and large, depends upon the fact that in what way and in what pace the firm acclimatizes itself with its environment because environment dominates the operating activities of a firm, which in turn, affects its risk profile. Hence, it is not hard to understand that all firms are to face some form of risk at one time or other of earning stable returns at the backdrop of the ever-changing character of the environment where business operates and interacts. Considering the stiff competition that exists in the contemporary corporate world, understanding, analyzing and measuring business risk are immensely important to the corporate executives to instigate managerial efficiency and excellence. Business risk of a company stems from its business operations and is caused by a number of factors that are generally categorized as economy–specific, industry–specific and company–specific. It is, in fact, results from the precariousness of the company's competence of creating operating surplus. Economy risk, industry risk and company risk–these three components of business risk originate from economy–specific factors, industry–specific factors and company–specific factors respectively. The genesis of company risk lies in instability in company's one or more fronts, important of which are instability in cost behavior pattern, inconsistency in revenue generating capability using long term funds and instability in short term debt paying capability. These weaknesses lead to cost structure risk, capital productivity risk and liquidity risk. The economy risk and industry risk associated with a company remain largely irrepressible while it is, to some extent, possible for the company to exercise control over the risk distinctively connected with its company–specific components, i.e. capital productivity risk, cost structure risk and liquidity risk. The present study is an effort to assess the business risk along with its company-specific components associated with NTPC Ltd, the only Maharatna Company in the Indian public sector, and also to make a comparison of its risk-return status between two periods, i.e., the pre-liberalization period and the post-liberalization period.

Keywords – **Capital Productivity Risk, Cost Structure Risk, Liquidity Risk.**

I. Introduction

Business organizations are much of substance to us because they arrange to provide us the means by which we realize our chosen ends. Our individual opportunities and achievements vis-à-vis the societal accomplishments largely depend on the efficient running of these organizations. Business refers to the deliberate process of interacting with its environs continually for the purpose of realizing its value-making objectives. To make the process of interaction efficient and effective a firm should always accommodate to acclimatize itself with the way the environment changes. It may be in the economic, social, political and technological front or it may be in some other allied domain. Efficiency of business organizations basically refers to the earning capability and earning capability, by and large, depends upon the fact that in what way and in what pace the firm acclimatizes itself with its environment because environment dominates the operating activities of a firm, which in turn, affects its risk profile. Hence, it will not be hard to understand that all firms are to face some form of risk at one time or another of earning stable returns due to the ever-changing character of the environment where business operates and interacts. The contemporary era featured by free-market economy, ethical neutrality and callous competition as a natural corollary of globalization that took place at the last quarter of the yester century is evident of all-encompassing changes in each and every front of the global economy. In the context of Indian economy, the spectacular changes in the economic environment consequent upon economic liberalization initiated in 1991 caused a rapid transformation in the corporate scenario and in view of the changes in the economic state of affairs as an outcome of reforms, the earning patterns and the financing policies taken up by the Indian corporate players have also changed significantly, leading to notable changes in the pattern of business as well as financial risks associated with the corporates (Sur, 2007). Economic liberalization has forced the Indian enterprises to reorient their strategies for managing risks in a methodical way. Some enterprises have been able to adapt themselves to the new situation, while others do not (Mallik and Sur, 2009). Therefore, the application of an effective risk management system has become inevitable now-a-days for creating value for the shareholders and other legitimate stakeholders. Analyzing the impact of various risk factors is essential to predict the sustainability and stability of a company and in taking proper decisions (Ghosh, 1997).

II. Business Risk and its Components

Considering the stiff competition that exists in the contemporary corporate world, understanding, analyzing and measuring business risk are immensely important to the corporate executives to instigate managerial excellence by assessing the relative position of the company within the given pattern of industry risk which in turn reflects the capability to achieve stability and also for making risk-return trade off. Business risk of a company stems from its business operations and is caused by a number of factors that are generally categorized as economy–specific, industry–specific and company–specific. It is, in fact, results from the precariousness of the company's competence of creating operating surplus. Economy–specific factors, being macro in nature, affect all the industries of the economy, such as, fluctuations in foreign exchanges, inflation rate, import, concentration of economic power etc. Industry–specific factors influence only the industry to which the company belongs. Industry–specific factors included in this category are special status enjoyed by the concerned industry, growth prospects in the market of the output produced or service rendered by the industry etc. Company–specific factors are distinctively linked with the company concerned such as cost structure, liquidity, managerial efficiency, culture, values etc. Economy risk, industry risk and company risk – these three components of business risk originate from economy–specific factors, industry–specific factors and company–specific factors respectively. The genesis of company risk lies in instability in company's one or more fronts, important of which are instability in cost behaviour pattern, unpredictability in revenue generating capability using long term funds and instability in short term debt paying capability (Ghosh, 1997). These weaknesses lead to cost structure risk, capital productivity risk and liquidity risk (Sur, 2009). The economy risk and industry risk associated with a company remain largely uncontrollable while it is, to some extent, possible for the company to exercise control over the risk distinctively connected with its company–specific components, i.e. capital productivity risk, cost structure risk and liquidity risk. In theoretical terms, there is expected to be a high degree of positive association between risk and return and a company with high risk–low return profile is about to face immense difficulties to rotate its business wheel in the long run. However, the findings of several studies provide an absolutely reverse outcome which is in sharp contrast with the theoretical arguments as evident in the literature of risk management (Bettis and Mahajan, 1985; Singh, 1986; Oviatt and Bauerschmidt, 1991; Mallik and Sur, 2009).

The remainder of this paper is organized as follows. ***Section II*** narrates the objectives of the study. In ***Section III*** the methodology adopted in this study is explained. ***Section IV*** is all about a brief profile of the company under study. ***Section V*** is concerned with the empirical results and finally ***Section VI*** deals with the concluding observations.

III: Objectives of the Study

The present study has the following objectives:

i) To assess the business risk associated with the selected company during the pre-liberalization and post- liberalization periods.

ii) To analyze the company specific components of business risk of the company under study in the pre-liberalization and post-liberalization periods.

iii) To examine the relationship between business risk and return of the selected company during the pre-liberalization and post-liberalization periods.

iv) To make a comparison between the status of business risk associated with the company under study in the pre-liberalization and that in the post- liberalization era.

IV: Methodology of the study

The data of NTPC Ltd. for the period 1984-85 to 2011-12 used in the present study were collected from secondary sources i.e. Published Annual Reports of the company. As the economic liberalization process started in India during the financial year 1991-92, it is obvious that the effect of it could not be reflected immediately after its inception. Apart from that, several reform measures in the Indian power sector were undertaken after 1991-92, significant of which were the issue 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 for inviting greater participation in investment from both public and private sectors. Thus, in this study the financial year 1998-99 has been taken up as the initial year of the post-liberalization period. The periods from 1984-85 to 1997-98 and from 1998-99 to 2011-12 were taken in this study as the pre-liberalization and post-liberalization periods respectively. For measuring business risk and its company-specific components of the selected company appropriate measures of financial statement analysis as well as statistical measures were used. While making the analysis of the computed values of risks, statistical techniques like linear trend analysis, Pearson's simple correlation analysis, Spearman's rank correlation analysis, Kendall's correlation analysis etc. and statistical test, namely 't' test were applied at appropriate places.

V: 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. 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 May 21st, 2010. While as on March 31st, 2011, NTPC's share of the country's total installed capacity was 17.75 percent, it contributed 27.4 percent of the country's total power generation in the year 2010-11. At present, NTPC Ltd. has engaged itself not only in construction and operation of power generating plants but also in providing consultancy to power utilities in India and abroad.

VI: Finding of the Study

An attempt was made in Table I to assess the degree of business risk associated with NTPC Ltd. during the pre-liberalization and post- liberalization periods by using two most common measures, namely fixed assets to total assets ratio (FATA) and degree of operating leverage (DOL). In this table, for identifying the nature of the trend in both FATA and DOL series during the said periods linear trend equations were fitted and while examining whether the slopes of the trend lines were statistically significant or not, 't' test was applied. Table I shows that during the pre-liberalization period the FATA of NTPC Ltd. ranged between 0.26 in 1986-87 and 0.61 in 1996-97 while in the post-liberalization period it varied between 0.29 in 2007-08 and 0.44 in 1998-99. The mean values of FATA in the pre- liberalization and post- liberalization periods were 0.43 and 0.35 respectively. It indicates that the average risk associated with the business operations of NTPC Ltd. was lower in the post-liberalization period as compared to that in the pre-liberalization period. The linear trend equation fitted to the FATA series in the pre- liberalization period discloses an upward trend while that in the post-liberalization period witnesses a declining trend and the slopes in both the cases were found to be statistically significant at 0.01level. It reveals that although there was a significant increasing trend in the FATA of the company during the pre-liberalization period, a notable downward trend in the business risk associated with it was reflected in the post-liberalization period.

Table I also discloses that the DOL of NTPC Ltd. fluctuated between 1.13 (1987-88) and 1.52 (1996-97) during the pre-liberalization period whereas in the post- liberalization period it varied between 1.15 (2011-12) and 1.49 (1998-99). On an average, it was 1.29 in the pre-liberalization period while it was 1.27 during the post-liberalization period. The trend line fitted to the DOL series in the pre- liberalization period indicates a growth in the business risk associated with NTPC Ltd. during the pre-liberalization period whereas that in the post-Liberalization period it reflects a negative growth and the slopes of the trend lines were found to be statistically significant at 0.01 level. It also confirms that although there was a clear upward trend in the business risk associated with NTPC Ltd. during the pre- liberalization period, a strong evidence of negative trend in it during the post- liberalization period was noticed.

In Table II the business risk of NTPC Ltd. was also ascertained by using two statistical measures, namely Coefficient of variation (CV) and Ginni's coefficient of concentration (G). Both the CV of return on capital employed (ROCE) and G of ROCE were used as the measures of business risk in this study. Table II shows that the CV of ROCE in the pre-liberalization period was 0.09 while it was 0.07 in the post-liberalization period .It indicates that the business risk associated with NTPC Ltd. during the post–liberalization period was slightly lower as compared to that in the pre- liberalization period. Similarly, the G of ROCE in the post-liberalization period was 0.0422 whereas that in the pre-liberalization period was 0.0562. It again confirms that the degree of business risk associated with the company during the post-liberalization period was slightly lower as compared to that in the pre-liberalization period.

In Table II, three major components of company risks, namely capital productivity risk (CPR), cost structure risk (CSR) and liquidity risk (LR), were also measured by using CV and G. The CV of capital turnover ratio (CTR) and G of CTR were considered as the measures of CPR while the CV of cost to sales ratio (CTSR) and G of CTSR were used as the measures of CSR and the CV of current ratio (CR) and G of CR were taken as the measures of

LR in the present study. Table II shows that the values of CV of CTR in the pre-liberalization and post-liberalization periods were 0.28 and 0.19 respectively. Similarly, the G of CTR in the post- liberalization period (0.1079) was considerably lower than that in the pre- liberalization period (0.1511). The analysis of CPR indicates that NTPC Ltd. was able to maintain a lower level of risk of not getting a stable turnover by utilizing its capital base in the post-liberalization period as compared to the pre- liberalization period. Table II also depicts that the values of CV of CTSR of the company in the pre- liberalization and post- liberalization periods were 0.10 and 0.08 respectively and the values of G of CTSR of the company in these periods were 0.0637 and 0.0475 respectively. Thus the CSR associated with NTPC Ltd. in the post- liberalization period was lower reflecting higher stability in the cost structure of the company during the same period. Table II exhibits that the CV of CR of the company in the pre-liberalization period and that in the post- liberalization period were 0.40 and 0.22 respectively and the values of G of CR of the company in these periods were 0.2320 and 0.1272 respectively. It reveals that liquidity risk associated with the company under study in the post- liberalization period was significantly lower as compared to that in the pre-liberalization era.

In Table III it was attempted to assess the degree of association between the business risk associated with NTPC Ltd. and corporate performance (return) through correlation coefficients between the selected measures of business risks and the selected corporate performance (return) measure taking into account their magnitudes (i.e. by Pearson's simple correlation coefficient), rankings of their magnitudes (i.e. by Spearman's rank correlation coefficient) and the nature of their associated changes (i.e. by Kendall's correlation coefficient). These correlation coefficients have been tested by 't' test .

The measures for assessing corporate performance are several, the most common ones being net profit ratio, return on capital employed etc. When the performance of a business firm is measured using any one 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 public enterprises. The achievement of social objective, which is one of the major goals of business organizations particularly those belonging to the public sector, is not at all reflected in the accounting profit-based measures of financial performance. Thus, is this study value added to capital employed ratio (VACE) was taken as the corporate performance (return) measure at the time of ascertaining the degree of relationship between business risk and return of the selected company.

Table III shows that during the pre-liberalization period all the six correlation coefficients were positive, out of which four coefficients were found to be statistically significant either at 0.05 level or at 0.01 level and also during the post-liberalization period all the six correlation coefficients were positive, out of which four coefficients were found to be statistically significant either at 0.05 level or at 0.01 level. A high degree of positive association between business risk and VACE is theoretically desirable. The net outcome derived from the analysis of correlation between VACE and each of the selected business risk measures provided strong evidence of positive association between them. It indicates that high risk was well compensated by high risk premium i.e. high return throughout the period under study.

VII: Concluding Remarks

Investment in power sector is a must to enhance the infrastructural capacity of a country to sustain the process of its economic growth. The Government of India liberalized this sector and opened it before the foreign and private participants to raise adequate funds for the power sector. But, though the Indian Government started its liberalization process two decades back nevertheless it is amazing that the power sector in India still holds the status of a state monopoly. Despite the fact that the national Government has taken much initiative to liberalize this sector by amending the necessary acts and allied procedures yet too many roadblocks are still in the way. This implies that either the private players are not attracted by the problems and prospects of this sector or the Government lacks the right vision to invite them by providing a favorable ground to play. A quick view of the ownership pattern in this industry tells us that the State Government owned generating utilities accounted for 41.51 per cent of the total capacity, while the Central Government owned power utilities accounted for 29.67 per cent and private players accounted for only 28.82 per cent. Thus, NTPC Ltd, being a public sector enterprise, did not face any severe competition at all that was expected to emanate in the post-liberalization age as a natural outcome of liberalization. As a consequence to that, practically a little scope was there to result an increased business risk of the company stemmed from economy-specific and industry-specific factors during the said era. Rather the business risk which is gleaned from the company- specific factors as revealed in the analysis of business risk components was downsized during the post-reforms period which is indicative of lower volatility in the company's capital productivity, cost structure and liquidity in the same period. NTPC Ltd. launched in October 2004 its Initial Public Offering (IPO) consisting of 5.25 per cent as fresh issue and 5.25 per cent as offer for sale by the Government of India and in February 2010 the shareholding of the Government of India stepped down to 84.5 per cent through further Public Offer. It can be argued that though NTPC Ltd has made a shift in their economic philosophy by adopting the process of disinvestment but the amount they had disinvested is not at all significant and it is so trifling that the reform measures initiated by NTPC Ltd did not cast any significant impact on the instability in the company's liquidity, cost structure or capital productivity fronts. Theoretically, there should be a significant positive association between risk and return. The analysis of correlation gives proof of the positive relationship between them implying that high business risk was well compensated by high risk premium i.e. high return during the study period.

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Table I

Analysis of Business Risk of NTPC Ltd

Year	FATA (Times)	DOL (Times)	
Pre-liberalization Period			
1984-85	0.36	1.19	Average FATA = 0.43
1985-86	0.28	1.15	Average DOL = 1.29
1986-87	0.26	1.14	
1987-88	0.30	1.13	FATA = 0.266 + 0.2231t
1988-89	0.36	1.17	(7.496) (5.347)**
1989-90	0.46	1.17	
1990-91	0.50	1.21	DOL = 1.047 + 0.03218t
1991-92	0.53	1.23	(31.798) (8.318)**
1992-93	0.42	1.35	
1993-94	0.42	1.39	
1994-95	0.45	1.42	
1995-96	0.57	1.50	
1996-97	0.61	1.52	
1997-98	0.55	1.47	
Post-liberalization Period			
1998-99	0.44	1.49	Average FATA = 0.35
1999-00	0.42	1.45	Average DOL = 1.27
2000-01	0.43	1.44	
2001-02	0.38	1.29	FATA = 0.436 – 0.0113t
2002-03	0.40	1.37	(32.517) (-7.149)**
2003-04	0.35	1.17	
2004-05	0.34	1.18	DOL = 1.452 – 0.0242t
2005-06	0.32	1.28	(39.387) (-5.595)**
2006-07	0.31	1.19	
2007-08	0.29	1.20	
2008-09	0.31	1.21	
2009-10	0.30	1.20	
2010-11	0.31	1.16	
2011-12	0.32	1.15	

Figures in the parentheses indicate ‘t’ values
**Significant at 0.01 level
Source: Compiled and computed form Published Annual reports of NTPC Ltd. for the years 1984-85 to 2011-12.

Table - II
Analysis of Company Risk Components of NTPC Ltd

Year	ROCE (%)	CTR (Times)	CTSR (Times)	CR (Times)
Pre-liberalization Period				
1984-85	9.53	23.20	0.51	1.02
1985-86	13.30	28.90	0.46	1.62
1986-87	12.70	27.80	0.46	1.57
1987-88	12.11	26.20	0.42	1.68
1988-89	10.52	26.40	0.52	1.81
1989-90	10.21	26.00	0.53	1.78
1990-91	10.02	23.35	0.47	1.89
1991-92	11.04	27.92	0.50	1.53
1992-93	10.90	34.47	0.56	3.09
1993-94	11.51	42.42	0.60	3.19
1994-95	11.41	42.95	0.59	2.75
1995-96	11.79	45.85	0.58	3.93
1996-97	11.91	44.81	0.56	3.99
1997-98	12.36	49.15	0.58	2.80
Post-liberalization Period				
1998-99	13.37	51.76	0.57	2.57
1999-00	13.86	54.10	0.59	2.38
2000-01	13.63	57.63	0.61	2.30
2001-02	11.93	50.16	0.69	3.06
2002-03	10.88	50.25	0.67	4.23
2003-04	12.93	54.55	0.56	1.67
2004-05	12.77	49.79	0.63	1.91
2005-06	12.46	56.03	0.63	2.56
2006-07	13.89	62.08	0.64	3.16
2007-08	14.07	67.95	0.64	3.22
2008-09	14.29	70.47	0.69	2.89
2009-10	13.97	70.76	0.68	2.86
2010-11	14.30	80.42	0.71	2.70
2011-12	14.23	85.86	0.73	2.55
Pre- liberalization Period				
CV (%)	0.09	0.28	0.10	0.40
G	0.0562	0.1511	0.0637	0.2320
Post- liberalization Period				
CV (%)	0.07	0.19	0.08	0.22
G	0.0422	0.1079	0.0475	0.1272

Source: Compiled and computed form Published Annual reports of NTPC Ltd. for the years 1984-85 to 2011-12.

Table - III

Analysis of correlation between Business Risk and Return of NTPC Ltd.

Correlation Measure	Correlation between DOL and VACE	Correlation between FATA and VACE
Pre- liberalization Period		
Pearson	0.892**	0.547*
Kendall	0.486*	0.256
Spearman	0.656*	0.377
Post- liberalization Period		
Pearson	0.689**	0.581*
Kendall	0.420*	0.281
Spearman	0.572*	0.466

Source: Compiled and computed form Published Annual reports of NTPC Ltd. for the years 1984-85 to 2011-12.
** Significant at 0.01 level
* Significant at 0.05 level