

RESEARCH BULLETIN



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

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The CMA professionals would ethically drive enterprises globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting.

The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally.

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FOREWORD

Greetings!!!

It is my pleasure to present before you the Research Bulletin, Vol.46 No. III & IV, October 2020 & January 2021 issue. It is an exemplary Research journal consisted of articles of blazing issues on Business and Financial Risks, Performance Management, Valuation of Intangibles, etc.

The post-Covid era would present an opportunity for companies to rethink their position in the market, revise goals and future plans, and motivate us into creating more tailored responses to workplace challenges, intending to shape the employee experience. Revising and restructuring certain employee policies like Performance Management becomes extremely important in order to adapt to the new world. This would aid in better management of the employees by developing a deep sense of understanding and trust amongst the employers and the employees.

Employee performance management isn't a new concept. Performance management has evolved in many ways over the twentieth and twenty-first centuries. Over the years, the focus has shifted from operational efficiency to personality-based performance appraisal to appraisals focused on goals and objectives (MBO) and continuous evolvement thereafter to meet the needs of the organization and industry at large. MBO at its core is a management practice which aims to increase organizational performance by aligning goals and subordinate objectives throughout the organization. As a concept, it is a strategic management model with the aim to improve organizational performance by clearly defining objectives that are set jointly after a thorough conversation agreed upon by both management and employees. Employees should be encouraged to set goals based on their areas of interest and improvement. This gives employees greater motivation since they have greater empowerment, therefore increasing the possibility of achieving larger organizational objectives.

Finally, my sincere gratitude to all the contributors for all their efforts made to publish this issue.

And now, I invite you to read take a glance you all enjoy through the pages of this Bulletin, and very much hope this reading.

Suggestions for making the book more expedient to a larger section of users are welcome.

CMA Biswarup Basu

President

The Institute of Cost Accountants of India

CHAIRMAN'S COMMUNIQUÉ

Greetings!!!

It gives me an immense pleasure to announce the release of Research Bulletin, Vol.46 No. III & IV, October 2020 & January 2021 issue. Our Research Bulletin mainly emphasizes on pragmatic research articles and has a much wider reader base consisting of academicians, researchers, professionals and practitioners. The strength of this book lies in its innovative approach in looking at issues in a comprehensive manner.

Unemployment has always been an insidious problem in India. The COVID-19 pandemic has had a devastating effect on several sectors of the economy and consequentially on the rate of employment. As of May 29, 2021, the rate of unemployment in India stands at 11.58% for the entire country as per the data released by the Centre for Monitoring Indian Economy (CMIE).

The consequences of unemployment are far-reaching as it not only adversely affects the economy and GDP growth, but also affects societal fabric. The ideal and long term solution to combat unemployment is the creation of an adequate number of jobs to absorb the workforce. However, in the absence of this long-term solution, the focus should be on alleviating the distress caused by unemployment. One way to do this is for the state to implement adequate financial schemes and programs that provide assistance to those who are unemployed due to minor factors and circumstances. Unemployment insurance is one of the ways of providing assistance to the unemployed and poor till they are once again gainfully employed to prevent unemployed individuals from falling into destitution and vagrancy.

Efforts made to publish this volume are deeply appreciated and gratefully acknowledged.

The readers are invited to put forward their valuable feedback towards enrichment of Research Bulletin.

Suggestions for improvement of this Bulletin shall be highly appreciated.

CMA (Dr.) K Ch. A V S N Murthy

Chairman

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The Institute of Cost Accountants of India

EDITOR'S NOTE

Greetings!!!

Over the past year, the business landscape has become much more precarious due to protracted insecurity and confusion in pandemic response approaches, the challenges of vaccine rollouts and emerging virus variants - and spillover effects into other risks. Businesses have had to manage dual economic and health crises, which have driven new employee and customer engagement protocols, remote working on an unprecedented scale, the re-engineering of supply chains, and numerous bankruptcies, consolidations and creative partnerships.

These developments and the long-term risk outlook have businesses wondering how to prepare for what may lie ahead. Foremost on their mind is their survival and building resilience. And not only in relation to ongoing pandemic impacts and their competitive positioning, but also recently unleashed cyber-attacks, catastrophic climate events and social unrest that demands workplace and community change. While many businesses have innovated and adapted to rapidly-changing circumstances - seizing market share in the process - not all have. Nor will all benefit from the expected economic recovery. Businesses must be ready for a disorderly shakeout during this volatile recovery period. And they will need to strengthen and constantly review their risk mitigation strategies to improve their resilience to future shocks.

However, India's prowess lies in that digitization has amped up, with businesses and industries embracing exponential technologies to deliver competent, optimized, and leaner outcomes. India's key strength also lies in having a large labour force. The Government has been investing in skill development, and when businesses and industries partner in this initiative with self-steps such as upskilling and re-skilling their workforce, India could become the thriving centre of talent. With 5G network slowly becoming a reality, it also ushers in a time of inventive connectivity and advances across sectors such as telemedicine, telelearning, entertainment and e-commerce. With the playing field gradually getting levelled, the focus across enterprises, SMBs, and startups should be on creating and delivering innovation with a self-confident, self-starter attitude. The philosophy behind *Aatmanirbhar Bharat* is essentially to dare to do. To regain any lost momentum with speed, skill, and scale. That is the pace India should set for itself to become a global economic powerhouse. The idea is to not only keep in mind the number of

USD 5 trillion but reinforce the real meaning behind it, which is all-round development of the nation and its people.

Our present volume of Research Bulletin, Vol.46, No. III & IV issue comprises of various blazing topics like, Business and Financial Risks, Performance Management, Valuation of Intangibles etc. would surely improve the knowledge base of readers.

We publish both theme based and non-theme based articles on the contemporary issues. Inputs are mainly received both from academicians and the corporate stalwarts. Our attempt is to draw attention towards environmental, social, economic and market-related issues, so that the researchers and decision-makers can enrich their knowledge base and can take strategic decisions deliberately.

We are extremely happy to convey that our next issue of *Research Bulletin, Vol.47 No. I* would be a non-theme one.

We look forward to constructive feedback from our readers on the articles and overall development of the Research Bulletin. Please send your mails at research.bulletin@icmai.in. We express thankfulness to all the contributors and reviewers of this important issue and wish our readers get requisite insight from the articles.

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Pradeep Kumar Singh



Business and Financial Risks in NTPC Ltd. during the Pre-Maharatna and Post-Maharatna Periods: A Comparative Analysis

Rupa Yadav

Debasish Sur

Abstract:

It is unanimously accepted that risk management is a very crucial aspect of a business firm in today's challenging and competitive business environment. Efficient management of risk management of the firm can be instrumental to ensure smooth running of its business wheel. In today's highly deregulated and globalized economy almost all companies are facing fierce challenges due to intensified competition at market place. So, an effective risk management has become the key to the survival of a firm. It ensures that risk remains within an acceptable range. Therefore, a business firm cannot successfully define its objectives without identifying risks and managing the risks within its risk appetites. An effective risk management also provides a competitive edge to the parties associated with the business. In the present paper, an attempt has been made to make a comparative analysis of the business and financial risks of NTPC Ltd. during the pre-Maharatna (2001-02 to 2009-10) and post-Maharatna (2010-11 to 2018-19) periods. Some selected ratios have been used in this study for measuring risks. While tackling the issues analyzed in this study, other relevant statistical tools and techniques have also been applied.

Key Words: Business Risk, Financial Risk, Pre-Maharatna, Post-Maharatna, Risk Analysis, Risk Management



Introduction

In today's climate of rapid change the management of risk is one of the most important issues for a business organization to alleviate instability in its earnings and to add to its shareholders' wealth. So, it is virtually indispensable to have a comprehensive risk management strategy to ensure the survival of the organization in such a challenging and competitive business environment. Business organizations operate in a dynamic world where they are exposed to various kinds of risks which can emanate from both internal and external sources. As risk management is the process of identifying, assessing and controlling threats to an organization's capital and earnings, it assists the organization to identify potential risks ahead of time. Risk management also allows a business firm to react accordingly and minimize or even prevent losses. As risk and return go hand in hand, a company cannot avoid the risks associated with it completely. So, a company cannot properly define its objectives without identifying and managing the risks associated with it. In fact, keeping risk within an acceptable range or more precisely within risk appetite of the company is an integral component of the overall corporate strategy to generate its shareholders' value.

The risk to which a company exposed while conducting its operations can be divided into two components- business risk and financial risk. Business risk (BR) associated

with a company is the risk arises out of the fluctuation in its operating profitability. It is caused by several factors which can be categorized into three groups - economy-specific factors, industry- specific factors and company-specific factors. Economy-specific factors affect all sectors of the economy, they are beyond the control of a corporate, such as fluctuation in the exchange rate, competition, concentration of economic power, inflation, imports, restrictive regulations, etc. Industry-specific factors influence all companies belonging to a particular industry which include special status enjoyed by the industry, growth prospect in the market for the output produced or service rendered by the industry, technological changes etc. Company-specific risk is gleaned from those factors which are specifically linked with the company concerned, such as human resource management, liquidity management, cost structure, culture, values, etc. 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 (Ghosh, 1997). These weaknesses lead to cost structure risk (CSR), capital productivity risk (CPR) and liquidity risk (LR) (Mallik and Sur, 2009). As economy- specific factors and industry-specific factors are beyond the control of a company, the BR associated with it remains largely uncontrollable. Financial risk (FR)



emanates from the financing decision or capital structure decision of the company. FR stems from the presence of fixed charge bearing capital in the capital structure of the company as it arises out of the possibility of failing to meet fixed commitment or contractual obligation and possibility of fluctuation in income available to owners' equity. As FR of a company depends upon its capital structure, the company can completely avoid or mitigate its FR by making appropriate changes in the capital structure. The theoretical arguments advocate a negative association between BR and FR i.e. a company facing high BR should maintain a low FR and vice-versa. But, some of the studies so far made in India in the recent past revealed completely reverse outcome (Sur, 2007; Gupta and Sur, 2013). It is also expected that there must be a high degree of positive relationship between risk and return i.e. high risk should be compensated by high return. No company can carry high risk - low return profile in the long run (Ghosh, 1997). But it is a controversial issue. In fact, on this debate, finance experts and researchers all are sharply divided into two schools of thought. One school of thought argues that risk and return are influenced by various industry conditions and business strategies but not by each other (Oviatt and Bauerschmidt, 1991) whereas the other school opines that there exists a negative relation between risk and return (Bettis and Mahajan 1985; Singh, 1986; Sur and Gupta, 2014).

NTPC Ltd., the best and the most consistent performer in the Indian power sector, was established by the Government of India in the year 1975. It has been making a significant contribution towards developing the Indian economy during the last forty five years. Presently, there are ten Maharatna central public sector enterprises (CPSE) in India and NTPC Ltd. is one of them. A CPSE satisfying the following criteria as laid down by the Government of India is eligible to be considered for grant of Maharatna status: (i) The CPSE must have Navratna status. (ii) It should be listed on Indian stock exchange with minimum prescribed public shareholding under SEBI regulations. (iii) Its average annual turnover should be greater Rs. 25,000 crore during the last 3 years. (iv) Its average annual net worth should be more than Rs. 15,000 crore during the last 3 years. (v) The CPSE should have significant global presence/international operations. NTPC Ltd. by fulfilling these eligibility criteria was conferred with the Maharatna status on 21st May, 2010. Since then NTPC Ltd., the only Maharatna CPSE in the Indian power generation sector has been enjoying certain financial and operational autonomy to enhance its business operations in both domestic and global markets. So, along with other aspects of corporate affairs, the earning trends and financing pattern of NTPC Ltd. have also changed notably during the post-Maharatna period. It is, therefore, expected that with these noticeable changes, certain changes in the pattern of BR as well as FR associated with the company would take place in the post-Maharatna era. In this

backdrop, the present paper attempts to make a comparative analysis of the business and financial risks in NTPC Ltd. during the pre-Maharatna and post-Maharatna periods.

Literature Review

The following paragraphs in this section present a brief description of some of the notable studies carried out in the recent past in India and abroad on the theme addressed in the present paper and the last paragraph in this section deals with the identification of the research gaps.

Mishra and Mishra (2007) conducted a study in which a thorough analysis of the status of risk and return of different sectors of Indian economy was made using both market based and accounting based information. The analysis of market based information showed that FMCG, health care and oil and gas sectors established themselves as the most defensive sectors in Indian economy and the metal and IT sectors were recognized as the most aggressive ones whereas the analysis of accounting information revealed that the BR was maximum in FMCG, metal and IT sectors and it was the least in technology, auto and public sector units.

The study carried out by **Mallik and Sur (2009)** attempted to evaluate the BR and FR in the Indian corporate sector during the period 1995-96 to 2006-07 using relevant statistical tools and techniques. While conducting this study 50 companies were selected by taking the top five companies

(based on net sales revenue) from each of the ten selected manufacturing industries. The study indicated no strong evidence of positive or negative relationship between business and financial risks associated with the selected companies during the period. The study also reflected that high risk was not at all compensated by high return in the selected companies during the period under study.

Sur and Mitra (2011) in their study analysed the BR of seventeen selected companies in Indian IT sector during the period 1999-2000 to 2008-09. In this study the BR and its company-specific components associated with the selected companies were measured by using Gini's coefficients of mean difference. A significant outcome of the study was that lack of uniformity in respect of risk-return trade-off among the selected IT companies was noticed during the study period. The study also revealed that high risk was not at all compensated by high risk premium i.e. high return in the companies under study during the study period though a high degree of positive relationship between risk and return is theoretically desirable.

The study conducted by **Dhanabhakym and Balasubramaniam (2012)** made an effort to analyse the BR and FR in three selected industries in India, namely, automobiles, refineries and steel industries. In this study the data of five selected companies of each of the selected industries for the period 1999-2000 to 2008-2009

were used. The study revealed that all the three industries under study could not maintain a 'high-low' combination of business and financial risks during the study period. Another major outcome of the study was that no strong evidence of positive association between risk and return of the companies under study was observed during the period under study.

While carrying out a comparative study on the BR of NTPC Ltd. in the pre-liberalization period (1984-85 to 1997-98) and the post-liberalization period (1998-99 to 2012) **Sur et.al. (2013)** applied some conventional statistical tools and techniques. The study revealed that as the NTPC Ltd. did not face any severe competition at all throughout the study period, the two major components of BR, such as economy risk and industry risk associated with the company did not step up during the post-liberalization era. Rather the BR gleaned from the company-specific factors i.e. company risk associated with the company downsized significantly during the same period.

The study conducted by **Gupta and Sur (2015)** measured the degree of BR of 100 companies which were chosen by taking 10 companies from each of the ten selected industries in India for the period 2001-02 to 2010-11. The study observed that FMCG industry faced the maximum BR while the least BR was enjoyed by textile industry during the period under study. The study also examined the relationship between BR and operating profitability which observed

strong evidence of negative relationship between them indicating that high BR was not at all compensated by high return in the selected companies during the study period.

Another study was carried out by **Gupta and Sur (2017)** in which the BR and FR associated with 20 top companies in Indian Steel Industry (based on net sales for the year ended 31 March, 2011) were assessed using Gini's coefficient of concentration during the period 2001-02 to 2010-11. The study revealed that the maximum BR was observed in the Jsw Ispat and Jindal Steel faced the minimum BR while the FR was the highest in Welspun Corp and it was the least in PSL. The study also observed that the outcomes derived from the analysis of the relationship between BR and FR and that between risk and return in the Indian Steel companies during the study period did not conform to the theoretical arguments.

Singh and Sur (2018) in their study analysed the company-specific components of business risk, such as liquidity risk, cost structure risk and capital productivity risk of the selected Indian manufacturing sectors during the period 1994-1995 to 2013-2014. The study was made on the basis of 100 companies which were selected by taking the top five companies from each of the 20 selected industries. The business risk and its company specific components associated with the selected companies were measured by using Gini's coefficient of concentration. Principal component analysis was applied in designing the 'business risk index'



(BRI) by taking into account the three company-specific components of business risk. Simple regression model was also adopted to investigate the effect of BRI on the return measured in terms of return on capital employed (ROCE) of the selected industries. The study revealed that based on the BRI values, eight industries were placed in the category of ‘above the Indian manufacturing industry average’ whereas the remaining twelve industries were able to find place in the category of ‘below the Indian manufacturing industry average’. The highest business risk arising out of fluctuations in company-specific factors was observed in paints and varnishes industry while it was the least in engineering-heavy industry during the study period. Another notable outcome of the study was that there was a significant positive influence of BRI on ROCE in the selected industries during the period under study.

Hang Thu et.al (2020) conducted a study in which they analyzed factors affecting enterprise’s financial risk listed on the Vietnam Stock Market. The data of the research sample for a period of eleven years, from 2009 to 2019 were collected from 524 non-financial enterprises listed on the Vietnam Stock Market. While analyzing the data, the Panel data analysis was made. The Generalized Least Square was employed to address econometric issues and to improve the accuracy of the regression coefficients. In this study, financial risk was measured by the Alexander Bathory Model. Relevant

ratios indicating debt structure, solvency, profitability, operational ability, capital structure were considered as independent variables in the study. Firm Size, firm age, growth rate were taken as control variables. The model results showed that in order to reduce the degree of financial risk associated with the sample companies listed on the Vietnam Stock Market, attention should be paid to variables reflecting liability structure ratio, quick ratio, return on assets, total asset turnover, accounts receivable turnover, net assets ratio and fixed assets ratio. The empirical results reflected that there were differences in the impact of these factors on the financial risk in state-owned enterprises and non-state enterprises listed on the Vietnam stock market.

Based on the above discussion, it is clear that several studies have been carried out for analyzing the different issues associated with BR and FR in corporate sector India during the last few years and a very few studies on the same theme have been conducted to make a comparison between the pre- liberalization and post-liberalization periods. Even a comparative study was made on the analysis of business and financial risks associated with NTPC Ltd. during the pre- liberalization and post-liberalization periods. But no study was carried out to address the issue relating to the status of business and financial risks of a Maharatna CPSE in the pre-and post-Maharatana periods. Against this backdrop,

the present study attempts to make a comparative analysis of the BR and FR in NTPC Ltd., the Maharatna CPSE in Indian power sector during the pre- and post-Maharatna periods.

Objectives of the study

The present study has the following objectives:

1. To analyze the BR, FR and total risk (TR) associated with the selected company.
2. To measure the company-specific components of BR associated with the company under study.
3. To assess the extent of relationship between BR and FR of the selected company.
4. To examine the nature and degree of association between risk and return of the company under study.
5. To make an overall comparison between the risk profile of the selected company in the pre-Maharatna period and that in the post-Maharatna period.

Methodology of the study

The data of NTPC Ltd. for the period 2001-02 to 2018-19 used in this study were taken from secondary sources i.e. Published Annual Reports of the company. As the company got 'Maharatna' status on 16th November, 2010, the period 2001-02 to 2009-10 was considered in this study as

the pre-Maharatna period and the period 2010-11 to 2018-19 was taken as the post-Maharatana period. For analyzing the data technique of ratio analysis, statistical tools like arithmetic mean, coefficient of variation, etc. and statistical techniques like Pearson's simple correlation analysis, Spearman's rank correlation analysis and Kendall's correlation analysis were used. A popular statistical test, namely t test was applied at appropriate places.

Results and Discussion

- A.** In Table I for assessing the degree of BR associated with NTPC Ltd., two most common measures, namely, fixed assets to total assets ratio (FATR) and degree of operating leverage (DOL) were used. In this table, for identifying trend in both FATR and DOL series during the pre-Maharatna and post-Maharatna periods linear trend equations were fitted and in order to examine whether the slopes of the trend lines were statistically significant or not, t test was used.

Table I shows that during the pre-Maharatna period under study (2001-02 to 2009-10) the FATR of NTPC Ltd. fluctuated between 0.29 in 2007-08 and 0.40 in 2002-03 while it varied between 0.29 in 2010-11 and 0.47 in 2017-18 during the post-Maharatna period under study (2010-11 to 2018-19). The mean FATR of the company for the entire

study period (2001-02 to 2018-19) was 0.37. In the pre-Maharatna and post-Maharatna periods the mean values of FATR were 0.34 and 0.39 respectively. It indicates that though the average proportion of investment in fixed assets to that in the total assets was higher marginally in the post-Maharatna period as compared to the pre-Maharatna period, no drastic change in the company's policy regarding its fixed assets investment was noticed throughout the study period.

The linear trend fitted to FATR series in the pre-Maharatna period exhibits a declining trend while that in the post-Maharatna period discloses an upward trend and the slopes in both the cases were found to be statistically significant at 1 per cent level. It indicates while there was a negative trend in the FATR of NTPC Ltd. during the pre-Maharatna period, a significant upward trend in the BR of company was observed during the post-Maharatna period.

Table 1 also depicts that the DOL of the NTPC Ltd. ranged between 1.14(2004-05) and 1.66(2002-03) during the pre-Maharatna period whereas it varied between 1.47(2012-13) and 2.07(2017-18) during the post-Maharatna period. The mean values of DOL were 1.35 and 1.78 in the pre-Maharatna and post-Maharatna periods respectively

and the average value of it for the entire period under study was 1.56. It implies that the degree of BR associated with the NTPC Ltd. increased in the post-Maharatna period vis-a vis the pre-Maharatna period under study.

The trend line fitted to the DOL series in the pre-Maharatna period witnesses a negative growth in the degree of business risk associated with the company and the growth rate was found to be statistically significant at 10 per cent level whereas the trend line fitted to the DOL series in the post-Maharatna period discloses an upward trend which was statistically significant at 1 per cent level. It also confirms a notable upward trend during the post-Maharatna era compared to be downward.

- B.** In Table 2 the BR of the NTPC Ltd. was also measured by coefficient of variation (CV) of operating profit ratio (OPR). In this table, three major company-specific components of BR, namely CPR, CSR and LR were also assessed by the CV of capital turnover ratio (CTR), that of cost to sales ratio (CTSR) and that of working capital ratio (WCR) respectively. Table 2 exhibits that the CV of OPR in the pre-Maharatna period was 0.23 while it was 0.12 in the post-Maharatna period. It indicates that the degree of BR associated with the NTPC Ltd. in the post-Maharatna period was

lower as compared to that in the pre-Maharatna period. This table also shows that the CV of CTR in the pre-Maharatna period was 0.14 and that in the post-Maharatna period was 0.07. It reflects that the company maintained a lower level of risk of not getting stable turnover by utilizing its average long-term funds in the post-Maharatna period. Table 2 reveals that the values of CV of CTSR of the company in the pre-Maharatna and post-Maharatna periods were 0.05 and 0.02 respectively. It indicates that lower volatility in the cost structure of the company was found during the post-Maharatna period. This table discloses that the CV of the WCR of NTPC Ltd. in the pre-Maharatna period (0.27) was lower than that in the post-Maharatna period (0.50). It implies that higher risk in respect of short-term debt paying capability of the company was observed in the post-Maharatna period as compared to the pre-Maharatna period during the period under study.

- C. For measuring the FR associated with the NTPC Ltd., two vital ratios, namely debt-equity ratio (DER) and degree of financial leverage (DFL) were computed in Table 3. In this table, for obtaining the nature of trend in both DER and DFL series during the pre-Maharatna and post-Maharatna periods, linear trend equations were fitted and in order to test whether the

regression coefficients of the FR on time were statistically significant or not, t test was applied.

Table 3 depicts that the DER of the NTPC Ltd. varied between 0.40 in 2001-02 and 0.61 in 2009-10 during the pre-Maharatna period while it ranged between 0.64 in 2001-02 and 1.17 in 2018-19 during the post-Maharatna period. On an average, it was 0.48 in the pre-Maharatna period and 0.92 in the post-Maharatna period. The mean DER of the company for the entire study period was 0.70. It indicates that the average value of DER of NTPC Ltd. in the post-Maharatna period was considerably higher as compared to that in the pre-Maharatna period. It reflects that there was a tendency of the company to shift to more external equity resulting in higher degree of FR during the post-Maharatna period.

The straight lines fitted to the DER series in the pre-Maharatna and that in the post-Maharatna period exhibit an increasing trend and the slopes in both the cases were found to be statistically significant at 1 per cent level. It confirms that the company increased its dependency on external equity in formulating capital structure reflecting higher degree of FR during the post-Maharatna period.

Table 3 also discloses that the DFL of the NTPC Ltd. fluctuated between

1.17 in 2009-10 and 1.57 in 2003-04 during the pre-Maharatna period while it varied between 1.13 in 2012-13 and 1.37 in 2018-19 during the post-Maharatna period. The average values of DFL were 1.27 and 1.25 in the pre-Maharatna and post-Maharatna periods respectively and the mean DFL of the company for the entire study period was 1.26. It implies that the company maintained lower degree of FR in the post-Maharatna period as compared to the pre-Maharatna period.

The trend line fitted to the DFL series in the pre-Maharatna period witnesses a negative growth in the degree of FR associated with the company although the growth rate was not found to be statistically significant even at 10 per cent level whereas the trend line fitted to the DFL series in the post-Maharatna period exhibits an upward trend which was found to be statistically significant at 1 per cent level. It confirms that the degree of FR associated with the company followed a significant upward trend during the post-Maharatna period.

- D.** For measuring the TR associated with the NTPC Ltd., degree of total leverage (DTL) was ascertained in Table 4. In this table, for identifying the nature of trend in DTL series during the pre-Maharatna period and that in the post-Maharatna period linear trend equations were fitted and the slopes of the equations were tested by test.

Table 4 shows that in the pre-Maharatna period the DTL of the company ranged between 1.43(2007-08) and 2.32(2003-04) and in the post-Maharatna period it varied between 1.66(2012-13) and 2.77(2018-19). The mean values of DTL were 1.71 and 2.24 in the pre-Maharatna and post-Maharatna periods respectively and the mean DTL of the company for the entire study period was 1.97. The linear trend fitted to the DTL series in the pre-Maharatna period witnesses a declining trend which was found to be statistically significant at 10 per cent level while the linear equation fitted in the post-Maharatna period exhibits an upward trend which was found to be statistically significant at 1 per cent level. The analysis of the DTL of the company reflects that though the degree of TR associated with the company followed a significant declining trend during the pre-Maharatna period, a strong evidence of upward trend in it was noticed in the post-Maharatna period. In Table 4 the total risk of NTPC Ltd. was also measured by the CV of return on equity (ROE). The difference between CV of ROE and that of OPR was worked out to measure the degree of FR associated with the company. This table discloses that the CV of ROE of the company in the pre-Maharatna period was 0.08 while it was 0.15 in the post-Maharatna period. It also confirms that the TR

associated with the company went up notably during the post-Maharatna period. Table 4 also depicts that the difference between the CV of ROE and that of OPR in the pre-Maharatna period was -0.15 and it was 0.03 in the post-Maharatna period. It reflects that the FR associated with NTPC Ltd. stepped up significantly during the post-Maharatna period.

- E.** In Table 5 an attempt was made to assess the degree of association between BR and FR in NTPC Ltd. through correlation coefficients between the selected measures of BR and FR taking into account their magnitudes (i.e. by Pearson's simple correlation coefficient), ranking 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 were tested by using t test.

Table 5 shows that six coefficients were negative and the remaining six were positive during the pre-Maharatna period out of the twelve correlation coefficients. Out of those six negative correlation coefficients, three coefficients were found to be statistically significant and out of those positive coefficients only two coefficients were found to be statistically significant while during the post-Maharatna period all the twelve

correlation coefficients were positive, out of which eleven coefficients were found to be statistically significant. It indicates that in the post-Maharatna period strong evidence of positive association between BR and FR in NTPC Ltd. was observed. It is well accepted that the BR of the company remains largely uncontrollable while FR is well within its control. As there is less scope to exercise greater control over BR, one should adopt suitable measure in regulating the degree of FR. So, it is expected that a company having high BR should maintain low FR by maintaining low value of external equity to capital employed ratio in order to keep its TR within a reasonable limit. Therefore, a high degree of negative association between BR and FR is theoretically desirable. But the correlation results found in this study reflect an absolutely reverse situation in the post-Maharatna period which mismatches with the theoretical argument.

- F.** In Table 6 it was attempted to evaluate the relationship between the operating profitability of the company and each of the selected BR measures and that between owners' profitability and each of the selected measures of FR by using three correlation measures, namely Pearson's simple correlation coefficient, Spearman's rank correlation coefficient and Kendall's

correlation coefficient. In order to check whether such coefficients were statistically significant or not t test was applied. For this purpose, the OPR and ROE were taken as the operating profitability measure and owners' profitability indicator respectively. Table 6 depicts that in the pre-Maharatna period all the six correlation coefficients between OPR and BR measures were negative, out of which three coefficients were found to be statistically significant at 1 per cent level and in the post-Maharatna period all the six correlation coefficients between OPR and BR were negative and out of these six negative coefficients three coefficients were found to be statistically significant at either 1 per cent level or 5 per cent level. Theoretically, it is expected that there should be a high degree of positive association between BR and operating profitability (Lev 1974). But the correlation coefficients found in this study reflect an absolutely opposite result in both the pre-Maharatna and post-Maharatna periods.

It is a generally accepted principle that FR and owners' return should maintain a high degree of positive association. Table 6 also discloses that during the pre-Maharatna period out of the six correlation coefficients between ROE and FR measures four correlation coefficients were positive

and two coefficients were negative but none of these six coefficients was found to be statistically significant even at 5 per cent level and in the post-Maharatna period all the six correlation coefficients were negative, out of which four coefficients were found to be statistically significant at 5 per cent level. Thus, in the pre-Maharatna period a notable degree of positive relationship between ROE and FR was absent while in the post-Maharatna period strong evidence of negative association between these two variables was noted. So, the net outcome derived from the analysis of interrelation between FR and owners' return as shown in Table 6 does not conform to the generally accepted principle. It reveals that high financial risk was not at all compensated by high risk premium i.e. high return throughout the period under study.

Concluding observations

Indian power sector has been undergoing rapid changes which have been insisting to redefine the industry outlook. Sustained economic growth continues to drive the electricity demand in India and the competitive intensity has also been stepping up at both the market and supply sides with the passage of time. So, NTPC Ltd., the largest power generating company in India, started facing increasingly severe

competition. As a result, the BR of NTPC Ltd. went up significantly during the post-Maharatna period. The analysis of the company-specific components of BR i.e. CPR, CSR and LR revealed that the risk in respect of short-term debt paying capability i.e. LR of the company made a notable contribution towards enhancing the BR associated with NTPC Ltd. during the post-Maharatna period. The company changed its financing policy by increasing its dependence on external equity resulting in higher degree of financial risk during the post-Maharatna period. The considerable upward trend in both the BR and FR associated with the company resulted in significant increase in its total risk profile during the post-Maharatna period. The study of the interrelation between the selected BR and FR measures provides strong evidence of positive association between BR and FR associated with the NTPC Ltd. in both the pre-Maharatna and post-Maharatna periods. It reflects that NTPC Ltd. maintained a high- high combination of BR and FR as against the theoretical norm of 'high-low' throughout the study period. Another notable outcome of this study is that although a high degree of positive association between risk and return is theoretically desirable, the analysis of correlation provides proof of negative association between them implying that high risk of NTPC Ltd. was not at all compensated by high risk premium i.e. high return during the period under study.

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Table I: Analysis of Business Risk of NTPC Ltd. for the period 2001-02 to 2018-19.

Year Pre-Maharatna Period	FATR (Times)	DOL (Times)	
2001-02	0.39	1.62	Average FATR = 0.34 Average DOL = 1.35
2002-03	0.40	1.66	
2003-04	0.36	1.48	
2004-05	0.34	1.14	
2005-06	0.32	1.21	FATR = 0.400 - 0.013t (31.218) (-5.486)***
2006-07	0.32	1.19	
2007-08	0.29	1.22	DOL = 1.575 - 0.045t (13.739) (-2.209)*
2008-09	0.31	1.29	
2009-10	0.31	1.34	
Post-Maharatana Period			
2010-11	0.29	1.55	Average FATR = 0.39 Average DOL = 1.78
2011-12	0.32	1.49	
2012-13	0.39	1.47	FATR = 0.303 + 0.018t (15.210) (5.183)***
2013-14	0.40	1.60	
2014-15	0.40	1.88	
2015-16	0.43	2.04	
2016-17	0.42	1.87	DOL = 1.372 + 0.081t (15.865) (5.272)***
2017-18	0.47	2.07	
2018-19	0.43	2.02	



For the whole period under study: Average FATR = 0.37

Average DOL = 1.56

Figures in the parentheses indicate t values.

*** Significant at 1 per cent level

**Significant at 5 per cent level

*Significant at 10 per cent level

Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the Years 2001-02 to 2018-19

Table II: Measurement of Company-specific Components of Business Risk of NTPC Ltd. for the period 2001-02 to 2018-19

Year	OPR	CTR	CTSR	WCR
Pre-Maharatna Period	(%)	(Times)	(%)	(Times)
2001-02	25.65	0.60	78.18	3.49
2002-03	25.34	0.55	78.88	4.23
2003-04	49.22	0.71	88.53	1.67
2004-05	34.44	0.79	78.89	1.91
2005-06	30.77	0.80	79.34	2.56
2006-07	33.00	0.80	75.55	3.16
2007-08	33.27	0.85	74.74	3.22
2008-09	27.43	0.79	80.58	2.89
2009-10	27.24	0.85	79.08	2.86
Post-Maharatna Period				



2010-11	22.89	0.89	81.73	2.71
2011-12	22.12	0.93	81.85	2.26
2012-13	25.56	0.81	79.11	1.82
2013-14	22.67	0.83	81.09	1.58
2014-15	17.69	0.85	84.74	1.22
2015-16	18.55	0.81	82.86	0.88
2016-17	20.99	0.85	80.37	0.79
2017-18	19.56	0.72	82.54	0.86
2018-19	19.26	0.80	82.82	0.76
Coefficient of variation (Standard deviation to arithmetic mean): Pre-Maharatana Period	0.23	0.14	0.05	0.27
Coefficient of variation (Standard deviation to arithmetic mean): Post-Maharatana Period	0.12	0.07	0.02	0.50
<i>Source:</i> Compiled and computed from Published Annual Reports of NTPC Ltd. for the Years 2001-02 to 2018-19				

Table III: Analysis of Financial Risk of NTPC Ltd. for the period 2001-02 to 2018-19

Year	DER (Times)	DFL (Times)	
Pre-Maharatna Period			
2001-02	0.40	1.23	Average DER = 0.48 Average DFL = 1.27
2002-03	0.42	1.26	
2003-04	0.43	1.57	DER = 0.345 + 0.028t (15.969) (7.169)***
2004-05	0.41	1.28	
2005-06	0.45	1.28	DFL = 1.369 - 0.021t (16.410) (-1.416)
2006-07	0.50	1.21	
2007-08	0.52	1.18	
2008-09	0.60	1.21	
2009-10	0.61	1.17	
Post-Maharatna Period			



2010-11	0.64	1.21	
2011-12	0.67	1.14	Average DER = 0.92
2012-13	0.71	1.13	Average DFL = 1.25
2013-14	0.78	1.17	
2014-15	1.10	1.27	DER = 0.551 + 0.073t
2015-16	1.01	1.33	(9.516) (7.125)***
2016-17	1.06	1.28	
2017-18	1.12	1.32	DFL = 1.110 + 0.027t
2018-19	1.17	1.37	(31.401) (4.351)***
For the whole period under study: Average DER = 0.70			
Average DFL = 1.26			
Figures in the parentheses indicate t values.			
*** Significant at 1 per cent level			
**Significant at 5 per cent level			
*Significant at 10 per cent level			
Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the Years 2001-02 to 2018-19			

Table IV: Analysis of Total Risk of NTPC Ltd. for the period 2001-02 to 2018-19

Year	DTL	ROE	
Pre-Maharatna Period	(Times)	(%)	
2001-02	2.00	12.35	Average DTL = 1.71
2002-03	2.09	11.45	
2003-04	2.32	14.80	DTL = 2.319 - 0.086t (11.618) (-2.618)*
2004-05	1.45	13.90	
2005-06	1.55	12.95	Total risk (TR)=CV of ROE = 0.08
2006-07	1.44	14.13	
2007-08	1.43	14.09	Business risk(BR)= CV of OPR = 0.23
2008-09	1.56	14.30	
2009-10	1.56	13.98	Financial risk(FR)= TR-BR =0.08-0.23 = -0.15
Post-Maharatna Period			

2010-11	1.87	13.41	
2011-12	1.70	12.59	
2012-13	1.66	15.70	Average DTL= 2.24
2013-14	1.88	12.79	DTL = 1.484 + 0.150
2014-15	2.39	12.60	(9.293) (5.293)***
2015-16	2.71	11.54	Total risk (TR) = CV of ROE = 0.15
2016-17	2.39	9.75	Business risk (BR) = CV of OPR = 0.12
2017-18	2.74	10.16	Financial risk (FR) = TR-BR= 0.15-0.12= 0.03
2018-19	2.77	10.94	
For the whole period under study: Average DTL = 1.97			
Figures in the parentheses indicate t values.			
*** Significant at 0.01 level			
**Significant at 0.05level			
*Significant at 0.10 level			
Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the Years 2001-02 to 2018-19			

Table V: Analysis of Correlation between Business and Financial Risks of NTPC Ltd. for the period 2001-02 to 2018-19

Correlation	Pre-Maharatna Period	Post-Maharatna Period
Pearson's simple correlation coefficient between:		
FATR and DER	-0.732*	0.826**
FATR and DFL	0.380	0.651
DOL and DER	-0.362	0.938**
DOL and DFL	0.260	0.961**

Spearman's rank correlation coefficient between:		
FATR and DER	-0.857**	0.866**
FATR and DFL	0.689*	0.815**
DOL and DER	-0.183	0.800**
DOL and DFL	0.025	0.900**
Kendall's correlation coefficient between:		
FATR and DER	-0.686*	0.743**
FATR and DFL	0.567*	0.629*
DOL and DER	-0.056	0.611*
DOL and DFL	0.029	0.722**
** Significant at 0.01 level		
*Significant at 0.05 level		
Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the Years 2001-02 to 2018-19		

Table VI: Analysis of Correlation between Risk and Return of NTPC Ltd. for the period 2001-02 to 2018-19

Correlation Measures	Correlation between BR and OPR		Correlation between FR and ROE	
	FATR	DOL	DER	DFL
Pre-Maharatna Period				
Pearson	-0.061	-0.923**	0.480	0.252
Kendall	-0.088	-0.915**	0.333	-0.029
Spearman	-0.225	-0.966**	0.533	-0.110



Post-Maharatna Period				
Pearson	-0.462	-0.842**	-0.739*	-0.761*
Kendall	-0.441	-0.572*	-0.500	-0.500
Spearman	-0.623	-0.790*	-0.683*	-0.733*
** Significant at 1 per cent level				
*Significant at 5 per cent level				
Source: Compiled and computed from Published Annual Reports of NTPC Ltd. for the Years 2001-02 to 2018-19				



Critical Review of Performance Management in Major PSUs & their Private Sector Peers

Padmanabhan Satyes Kumar

Abstract:

Recently the Indian Government has initiated a new public sector policy wherein PSUs would co-exist with private companies in the strategic sector while non strategic sector PSU would be privatized. Hence, it is important to review the Performance Management policy of the PSUs in order to compete with their private sector peers, motivate staff to perform better and also enable them to retain their exceptional talent. This will stop the talent drain since currently they tend to migrate to their competitors in the same sector under private ownership owing to the fact that these companies have better policy and flexibility to do so. Even the Companies Act 2013 and DPE guidelines should be in line with each other so that the current differential between the two do not impede the level playing field between the PSU and their private sector peer. Hence, PSUs needs to have much better Policy and flexibility in this regard.

Key Words: Performance Management, Performance Related Variable Pay, Public Sector Units, Human Resource Management

Introduction

Performance Management (PM) is basically implementation of those HRM practices and incentive schemes which motivates professional board, Key Management Personnel (KMPs) and other employees to achieve higher organizational goals and long-term enhancement of its network.

As human capital is that dynamic resource which optimizes the utilization of other resources, optimum PM determines not only long term success of the organization but also the long term dividend of competent human resource.

Major component of the PM is the incentive scheme commonly known as Performance Related Variable Pay (PRVP) which correlates the measurable performance of the human capital to PRVP directly or indirectly based on profit which motivates them to attain the targeted goals under the scheme.

Theme of This Research Study

The current research study is aimed at a critical evaluation of the correlation between the PRVP and the performance results of some major PSU companies vs. its Non PSU peer operating in the same sector in an effort to understand the efficacy of the currently followed practices particularly in PSUs. This will also determine the level playing field now assumed under the new PSU policy of Indian government aimed at

broader opening up of the sectors here-in-before reserved for PSUs.

PM practices and its impact in the following 4 pairs of companies are reviewed for this:

- (a) SAIL vs. Tata Steel.
- (b) ONGC & RIL.
- (c) BHEL & L&T.
- (d) NTPC & TATA POWER.

Research Methodology

Annual Reports of the selected 4 pairs of companies for the FY 2015-16 to 2018-19 is reviewed especially related to:

- (i) Operating Profit to Sales;
- (ii) Employee Cost per Employee;
- (iii) Productivity per Employee;
- (iv) Employee Cost to Sales;
- (v) Director's Commission to Profit;
- (vi) Director's Total Pay to Profit;

Above ratios are chosen since they are the best indicators of inter-firm performance and its correlation with Employee cost.

Apart from the figures and ratios the policy disclosures related to employee motivation is also referred mainly for Tata Steel to indicate the impact of holistic PM on the long term performance of a company.

However it may be noted that apart from the mandatory disclosure of compensation beyond the stipulated amount (currently



8.50 lakh per month) under the Companies Act 2013 **there is not clear disclosure of the PRVP paid to other employees due to which, the same could not be correlated.**

Some Relevant Literature on PRVP

Before we proceed with the detailed analysis of the selected companies, it would be imperative to note a few of the relevant literature on the subject, compiled as below, ***which will not only set the benchmark reference for the best possible PRVP schemes but also indicate the historical limitations of a government owned commercial entity to adopt the best practices of its non-governmental peers.***

1. OECD's Recommendations (R#1)

Basic Assumptions of ideal PRVP model:

- (i) It is Possible to accurately measure individual, team/unit's outputs;
- (ii) Such outputs contribute to better results for the organization;
- (iii) PVRA implemented in such a way that it capitalizes incentive value for the receiver.

Ingredients of Successful PRVP scheme:

- (i) ***The design of PRVP is a trade-off*** between options /background/ culture of each organization/country and the balance of individual and team during the design stage.

- (ii) ***The performance appraisal process is at the heart of the whole system.*** ***During*** Goal setting, **objectivity and flexibility** is crucial while **transparency** during ongoing dialogue/detailed feedback is most vital.
- (iii) ***Implementation problems need to be anticipated.*** Co-ordination with staff and unions, preparation of top and line management, clear anticipation of the budget/costs linked to, and of the ways of funding and time required for implementing the PRVP scheme.
- (iv) ***PRVP goes hand in hand with delegation*** due to the close link between goal-setting and PRVP. It is easier to articulate individual employees' objectives and those of their organization if the local management has a degree of autonomy to adapt the scheme to its own needs.
- (v) ***Evaluations need to be conducted regularly*** and a PRVP system needs to be modified from time to time to adjust to the emerging challenges of the organization.
- (vi) ***PRVP should be applied in an environment that maintains and supports a trust-based work relationship***-balance between formal and informal processes, with ongoing dialogue, information sharing, negotiation, mutual respect, and transparency being prioritized.

(vii) *PRVP should be used, above all, as a stimulus and a lever for the introduction of wider management and organizational change*, rather than solely as a motivational tool for staff.

2. MoU System in PSUs-Trends (R#2)

- (a) More than three-fourths of public enterprises assessed fall in the category of excellent or very good and none was categorized as poor though they fair very badly compared to their non PSU peers.
- (b) One view is that some enterprises may be showing profits in the short-run just to achieve MOU targets by sacrificing sustainable long term interests like investment in R&D.
- (c) There is limited evidence of improvement in the enterprise-government interface.
- (d) Efforts have not been made to drill down the accountability into the organization by encouraging the management to enter into similar agreements with workers.
- (e) In order to ensure that the MoU system succeeds, it is important that certain essential conditions are met. These include the following:
 - (i) High level political commitment: MoU system

reduces the power of technical ministries and provokes resistance, which can be overcome only with strong signals from the highest levels in the government.

- (ii) Coordination: There should be good coordination among the designers, implementers and policy makers, so that a consensus is generated on key issues.
- (iii) Institutional support: While the GOI monitors the performance of PSEs in terms of project implementation, there is no dedicated institution to monitor the contracts. The monitoring agency should be able to demand information and make binding recommendations.
- (iv) Incentives: Incentives or sanctions linked to results ought to be made part of the MoU system. While the system exists in few PSEs, most others stay clear of such arrangement fearing backlash from employees.

3. Forbe India study on “Performance Pay Paradox in PSUs” (R#3)– opines that PRP scheme in PSUs are better up to middle level executives but grossly

inadequate at higher levels as compared to the incentive scheme in Private companies. Further it notes that: *“In fact, the flaw lies elsewhere—two areas need a drastic relook. First, the fact that PSU compensation flattens after a point which creates a disincentive for good talent to join at mid-management levels. On the other hand, it provides an incentive for great internal talent at those levels to start looking at the private sector for better opportunities The second flaw lies in the way the entire PRP process is run in PSUs. Most PSUs (usually outside of the ‘Navaratnas’) do not have a structured approach towards setting annual MoUs (read annual targets) and end up setting goals that are quite unreachable for their levels of investments or market realities. PSU chiefs I have spoken to often complain about government satraps randomly adding another 10-15% to their targets. With targets not getting achieved, the incentives do not get paid out and given most of these companies have seen this happen for multiple years, the belief in the PRP system itself goes away. Downstream, employees and managers don’t set individual targets and goals seriously and randomness sets in to the entire process.*

4. Ideas/Feedback of Some PSUs (R#4)

- (a) In a presentation to SCOPE in 2016 the then CMD of HAL had mentioned the following basic objectives of a good PM scheme as under:
 - (i) **Improving-Efficiency & Productivity and Transparency & Accountability**
 - (ii) **Instilling Long-Term Continuity**
 - (iii) **Driving Results through Better Strategy Execution**
 - (iv) **Alignment of Budget & Resources optimally.**
- (b) **Drawback of PRVP Scheme Pointed by NTPC’s CMD to SCOPE in 2015**
 - (i) Present allowable variable pay at 5% of PBT has a restriction clause of 3% + 2% (i.e. 2% for incremental profit, subject to 10% increase from the last year’s profit) which is a disincentive for large organizations with huge denominator, resulting in employees of Maharatna companies getting paid less PRVP compared to small companies lower historical profit.
 - (ii) Board does not have autonomy to decide on



the distribution of the distributable profit so that organization specific, sector specific, location specific and job-design specific considerations can be addressed.

(iii) Disbursement of amount through 'Bell-Curve' mechanism is a demotivating factor because of the historic culture adopted in public sector companies. Hence, many of the companies are not able to give zero PRVP, **since they are considered 'State' under Article 12 of the Constitution of India. They need to be broken away from this and made into 'business entities'.**

(iv) Most of the large PSUs are operating in competition with the private sector companies which are offering wide range of incentives and performance related ESOP (to drain out good talent away from these PSUs).

(c) **Process of Cascading MoU Targets-BHEL's Presentation January 2015**

- Every year the Company prepares a Balanced

Scorecard (BSC) which includes all MoU parameters and initiatives flowing from the Company's Strategic Plan.

- The Company BSC is cascaded to all constituent Divisions of the Company, ensuring the relevant parameters of the MoU are included in their respective BSCs.
- Individual performance plans are prepared based on the BSCs thereby ensuring that the MOU targets are cascaded to the working levels.

While there seems to be clarity in HAL and BHEL on the concept and the process under PRVP scheme, NTPC presentation points to the practical limitation of the universal scheme for PSUs.

C1) TATA Steel vs. SAIL (R#5&6)

Though the capacity and sales revenue of the companies are almost in the same range the bottom line is significantly different.

The primary reason for much better performance of Tata Steel seems to be its inherent strength in the advantageous value chain through traditional ownership of captive mines and production of high value steel products as compared to SAIL which does not have such inherent assets.

However the issue of Manpower productivity and PRVP also seems to be a



major differential for Tata Steel being able to attain such a high ROCE compared to SAIL having similar installed capacity and

market revenue. This maybe noted from the relevant data based on the abstracts from their individual Annual reports:

	2015-16		2016-17		2017-18		2018-19	
	TATA	SAIL	TATA	SAIL	TATA	SAIL	TATA	SAIL
SALES (Rs.Crore)	42697	43294	53261	49180	60519	58297	70611	66267
Crude steel (Million MT)	9.96	14.279	11.68	14.496	12.48	15.02	13.23	16.266
Operating Profit (Rs. Cr)	7612	2204	11876	672	15779	5184	20563	10283
PBT (Rs Crore)	3193	-7008	6060	-4851	10005	-759	16341	3338
Employee Cost (Rs Cr)	4320	9715	4605	8948	4829	8850	5131	8830
Nos of Employees	35439	93352	34989	82934	34072	76870	32984	72339
Productivity (tcs/emp)	701	315	720	320	738	344	800	389
EC/Employee(lakh/pa)	12.19	10.41	13.16	10.79	14.17	11.51	15.56	12.21
ROCE (%)	8.79%	-13.60%	5.57%	-9.20%	9.80%	-1.30%	13.10%	5.00%
R&S (Rs. Crore)	10076	35065	12281	31879	18700	31583	27695	34021

Commission of KMP	9.50	0	10.64	0	12.50	0	15.25	0
Other remuneration	5.16	2.05	5.63	3.02	6.07	3.17	6.80	2.70
ID fees & Commission	7.02	0.27	7.38	0.39	7.70	0.47	7.35	0.41
Directors Total Pay	21.68	2.32	23.65	3.41	26.27	3.64	29.4	3.11
Operating Profit/Sales	17.83%	5.09%	22.30%	1.37%	26.07%	8.89%	29.12%	15.52%
Emp. Cost /Sales	10.12%	22.44%	8.65%	18.19%	7.98%	15.18%	7.27%	13.32%
Dr Total Pay/PBT	0.68%	-0.03%	0.39%	-0.07%	0.26%	-0.48%	0.18%	0.09%
Dr Total Pay /Emp. Cost	0.50%	0.02%	0.51%	0.04%	0.54%	0.04%	0.57%	0.04%
Commission/PBT	0.30%	0.00%	0.18%	0.00%	0.12%	0.00%	0.09%	0.00%



Apart from above ratio showing superior position of Tata Steel, the following salient differences were also noted:

- (a) Tata Steel gives yearly commission (Rs. 60 lakh to 200 lakh) to each of its Independent Directors, SAIL has no such provision.
- (b) Profit sharing bonus for key management persons (KMP) by Tata Steel is Rs. 25 crore as against the limit of 152 cr based on statutory limit of @ 1.5% of the PAT.
- (c) Apart from the CEO and the CFO, there are 87 top employees drawing a compensation of Rs. 102 lakh each per year in TATA Steel while in SAIL even the CMDs compensation is limited to below 50 lakh.
- (d) Overall Employee cost is aprox. Rs. 5000 crore for Tata Steel for aprox. 33000 employees while for SAIL it is aprox Rs. 8000 crore for nearly 80,000 employees.
- (e) Tata Steel's productivity improved from 776 tons of crude steel/per employee to 800 tons/due to reduction of manpower from 34072 to 32984 and PAT increased 150% from 4000 crore with just 6% increase in Employee cost from Rs. 4800 crore to Rs. 5100 crore.

- (e) *For SAIL, though the trend of manpower reduction over the last few years is a pointer to the rationalization efforts to trim the unproductive HR compared to Tata Steel their productivity is still very less.*
- (f) *But the fact remains that despite the very poor compensation package for the top management its overall manpower cost (for almost the similar level of financial turnover) is almost 60% more than TATA STEEL*

Remuneration Policy for the Board and Sr. Management Tata Steel

Through this it strives to ensure that:

- (i) The level and composition of remuneration is reasonable and sufficient to attract, retain and motivate Directors of the quality required to run the Company successfully;
- (ii) Relationship between remuneration and performance is clear and meets appropriate performance benchmarks; and
- (iii) Remuneration to Directors, KMP and Senior Management **involves a balance between fixed and incentive pay, reflecting short, medium and long-term performance objectives appropriate to the working of the Company and its goals.**



Total Pay of Top Management at Tata Steel (Rs. Lakh)

	2018-19	2017-18	Inc %	Ratio to average employee
ID 1	129	119	8%	13
ID2	190	180	6%	19
ID3	118	79	48%	12
ID4	95	84	12%	9
ID5	114	76	51%	11
CEO	1123	943	19%	112
CFO	1082	914	18%	108
KMP3	170	125		17

Median salary of all employees Rs. 9.98 lakh with 6% increase,

While the median salary in Tata Steel is much higher than that of SAIL even then the **ratio of highest salary to median salary in Tata Steel is 112 while hardly 10 in SAIL.**

In the broader perspective there are other elements of HR practices which is part of the PM in TATA such as:

- (1) Incentives for productivity.
- (2) Training and development.
- (3) SHE practices in hazardous companies;
- (4) Human Rights matters

Conclusion: Above policy differentials as well as the reflected payouts of PRVP in the two companies (working in the same sector with the similar volume of output as

well generating similar range of revenue) seems to be one of the major factors for the relatively much better performance of Tata Steel in comparison with SAIL reflecting the efficacy of its PRVP scheme as well as gross inadequacy of the PRVP scheme of SAIL.

C2) NTPC vs. TATA POWER (R#7 &8)

NTPC is the biggest power producer of India and perhaps the most professionally managed companies under the PSU segment. On the other hand Tata Power is the biggest private sector player in power generation though the installed capacity of Tata Power is hardly 50% that of NTPC. Both the companies have a very good track record of excellent business achievements as well as financial performance which is reflected from the following table:

**TATA Power vs. NTPC**

	2015-16		2016-17		2017-18		2018-19	
	TATA	NTPC	TATA	NTPC	TATA	NTPC	TATA	NTPC
SALES (Rs. Crore)	29501	69962	27898	77071	26430	81113	29493	89316
Operating Profit (Cr)	6172	19052	5237	22353	5977	23423	6498	24643
PBT (Rs Crore)	1378	10596	337	12388	1743	12339	1477	12673
Employee Cost (Rs Cr)	1227	3582	1296	4325	1382	4735	1339	4780
Nos of Employees	4254	20593	3136	21633	2871	19739	3248	18359
EC/Employee (lakh/pa)	28.84	17.39	41.33	19.99	48.14	23.99	41.23	26.04
ROCE%	9.01	14.56	10.02	13.59	10.02	11.52	11.01	12.51
R&S	11363	83048	11509	87986	14629	93532	16451	97514
Commission to KMP	5.40	0.85	6.60	0.65	8.40	0.85	4.75	1.80
Salary etc KMP	7.42	2.65	8.05	3.35	8.96	3.65	10.53	4.80
ID fees	0.40	0.14	0.51	0.20	0.52	0.32	0.40	0.75
ID Commission	4.75	0	3.60	0	3.30	0	3.50	0
Director Pay (DP)	17.97	3.64	18.76	4.2	21.18	4.82	19.18	7.35
OP/Sales	20.92%	27.23%	18.77%	29.00%	22.61%	28.88%	22.03%	27.59%
EC/Sales	4.16%	5.12%	4.65%	5.61%	5.23%	5.84%	4.54%	5.35%
DP/PBT	1.30%	0.03%	5.57%	0.03%	1.22%	0.04%	1.30%	0.06%
Commission/PBT	0.39%	0.01%	1.96%	0.01%	0.48%	0.01%	0.32%	0.01%

Important Observations:

- (a) Despite a massive reduction in PBT of 2016-17 from previous year the commission was increased.

Thus the ratio of Commission/PBT increased 400% from just 0.39% to 1.96%

- (b) With the new DPE formulae there is more than 100% increase in performance pay of NTPC from 85 lakh to Rs. 180 lakh in FY 18-19 but this is still only 40% of Tata Power's commission payout despite lower PBT.



- (c) **Employee cost per employee of NTPC is way below that of Tata Power reflecting a poor degree of PRVP despite better performance than Tata Power.**
- (d) **Despite doubling of salary of KMP over the last few years it is still way 60% lower than that at Tata Power.**

Conclusion:

It is clear from the above comparative analysis that despite producing better financial results than its private sector peers, the PRVP scheme in NTPC is still grossly inadequate and this may lead to possible talent drain from NTPC (as observed under Forbes analysis in B.3 above).

Also the opinion of NTPC CMD in its presentation to the SCOPE (see section B.4 above) that the general formulae for all PSUs must be relaxed for companies like NTPC so that they can have the flexibility of rewarding and retaining the specific technical personnel vital for their long term survival and growth seems to be well justified.

Tata Power's exceptionally high commission for its KMPs in 2016-17 indicate that such PVRA is not always based on the relative profit made but on some long term criterion.

C3) ONGC vs. RIL (R#9 &10)

Data of this two giants companies operating in the energy sector is as below:

RELIANCE INDUSTRIES vs. ONGC

	2015-16		2016-17		2017-18		2018-19	
	RIL	ONGC	RIL	ONGC	RIL	ONGC	RIL	ONGC
SALES (Rs.Crore)	251241	77742	265041	77908	315357	85004	401583	109655
Operating Profit (Rs.Cr)	47168	39249	51965	38627	59961	44871	67676	57977
PBT (Rs. Crore)	27384	23599	31425	25216	33612	28893	35163	40029
Employee Cost (Rs. Cr)	4260	8697	4434	11551	4740	11381	5834	12113
Nos of Employees	24121	33927	24167	33660	29533	32265	28967	31065
EC/Employee (lakh /pa)	17.67	25.63	18.35	34.32	16.05	35.27	20.14	38.99
EPS (Diluted)	84.6	12.58	96.9	13.95	53.1	15.54	55.5	20.9



ROCE%	17.2	21.9	25.4	20.87	28.7	27.04	24.9	36.1
R&S	250758	150443	285062	154452	308312	165394	398983	175429
Commission to KMP	32.73	0.55	38.22	2.54	38.33	4	38.33	1.54
Salary etc KMP	21.71	3.85	195.56	3.41	56.3	3.5	31.99	4.88
ID fees	1.37	0.35	1.56	0.82	1.71	1.15	1.92	0.8
ID Commission	10.56	0	12.15	0	13.5	0	14.85	0
Director Pay	66.37	4.75	247.49	6.77	109.84	8.65	87.09	7.22
OP/Sales	18.77%	50.49%	19.61%	49.58%	19.01%	52.79%	16.85%	52.87%
EC/Sales	1.70%	11.19%	1.67%	14.83%	1.50%	13.39%	1.45%	11.05%
DP/PBT	0.24%	0.02%	0.79%	0.03%	0.33%	0.03%	0.25%	0.02%
Commission/PBT	0.12%	0.00%	0.12%	0.01%	0.11%	0.01%	0.11%	0.00%

Key observations:

KMP Salary of Rs. 195 crore includes Rs.175 cr in the form of stock option- RIL 2016-17

Though authorized by the Board to draw Rs 40 crore per annum, the CMD of RIL has been voluntarily drawing only Rs 15 crore thus professing for moderation of KMP pay.

Unlike NTPC the commission paid to KMP in ONGC has not gone up substantially in 2018-19 despite relaxation of some sort under the new DPE guidelines.

Conclusion: Like NTPC, ONGC also seems to be a victim of generalized PRVP

regulations under PSU though its ROCE as well as other parameters are excellent compared to its private sector peers. Also the voluntary reduction in pay of CMD of RIL is noteworthy.

C4) BHEL vs, L&T (R#11&12)

Both the companies are engineering and construction giants though the L&T is more diversified which seems to enhance its bottom line. However despite a greater degree of manpower and cost BHEL fares very poorly on count of PVRP and the impact is quite evident as given in the next page:

**L&T vs. BHEL**

	2015-16		2016-17		2017-18		2018-19	
	L&T	BHEL	L&T	BHEL	L&T	BHEL	L&T	BHEL
SALES (Rs.Crore)	63813	25803	66301	28599	74612	28813	86988	30349
Operating Profit (Rs.Cr)	5829	-2136	6481	-138	7701	891	8684	1380
PBT (Rs Crore)	5000	-1164	5454	628	5387	1585	6678	2058
Employee Cost (Rs Cr)	4480	5380	5146	5395	5615	6067	6082	6261
Nos of Employees	43354	43730	41466	40850	42924	38930	44761	36560
EC/Employee (lakh/pa)	10.33	12.30	12.41	13.21	13.08	15.58	13.59	17.13
EPS (Diluted)	35.81	-1.93	39	1.35	38.46	2.2	47.63	3.35
ROCE%	12.39	-2.14	12.37	1.53	11.32	2.48	13.22	3.79
R&S	40532	31691	45826	31804	48894	31867	52270	30704
Commission to KMP	47.19	0.14	51.92	0	44.91	0	53.26	0
Salary etc KMP	140.14	3.8	92.26	2.2	172.83	3	60.27	4.4
ID fees	0.59	0.1	0.82	0.12	0.79	0.16	4.5	0.18
ID Commission	3.47	0	3.55	0	5.58	0	8.7	0
Directors	191.39	4.04	148.55	2.32	224.11	3.16	126.73	4.58
OP/Sales	9.13%	-8.28%	9.78%	-0.48%	10.32%	3.09%	9.98%	4.55%
EC/Sales	7.02%	20.85%	7.76%	18.86%	7.53%	21.06%	6.99%	20.63%
Dr/PBT	3.83%	-0.35%	2.72%	0.37%	4.16%	0.20%	1.90%	0.22%
Com/PBT	0.94%	-0.01%	0.95%	0.00%	0.83%	0.00%	0.80%	0.00%

FY 17-18 L&T includes exceptional one-time retirement benefit of 172.83 crore for the outgoing Chairman.

Despite an odd trend (as none of the other 3 PSUs in this study have higher than their peer) of BHEL's manpower cost per employee being higher than L&T all the business results are poor.

Conclusion: L&T vs. BHEL too points out the relative weak results of BHEL and the fact that unless there is revamp of the PRVP structure they will not be motivated to do

better and also BHEL needs to seriously review the odd high cost per employee.

Concluding Inferences/Suggestions

- (1) There seems to be a serious need to review the limitations posed by current PM practices in PSUs and adequately authorize them to adopt suitable policy within their means to enable fair competition.
- (2) PSU cap of 5% of PBT as per DPE guidelines seems inconsistent with the

limit of 11% under the Companies Act 2013 and hence needs to be done away with.

- (3) Moreover current mandate of Companies Act to link PRVP to current year profit alone disregards long term parameter which induces window dressing.

Contentious issues like off the balance sheet transactions have necessitated the **initiation of the claw-back clauses in the contracts of KMPs in the MNCs but seems to have been ignored by all 8 companies in this review.**

Suggested to have some with holding of gross yearly commission (may be paid 5 years after retirement) **to safeguard the off the balance sheet liabilities**

- (4) Profit linked commission to the Independent Directors though mandated under Companies Act may induce conflict of interest with their oversight role and hence needs to be replaced with some kind of statutory fees payable from investor protection funds created out of statutory deposit from the companies. This will enable some kind of assured compensation for Independent Directors for all the companies including those of PSUs as well as loss making companies linked with the oversight accountability of these IDs.
- (5) On a much broader perspective (as also pointed in OECD report) PM

should entail strategic HR practices like Talent Management, Succession Planning, Learning & Professional Development **in addition to PRVP as adopted by Tata Steel.**

- (6) Linking of individual goals to team's objectives & budget targets is key to planning phase **but actual convergence and fairness in setting of targets, measuring performance, continuous feedback and coaching etc.**
- (7) **Though disclosures in Tata Steel's top employees profile did not readily indicate any attrition from SAIL joining the company it was noted that some key functions of private sector company like Jindal Steel are being headed by ex SAIL employees as was disclosed in the profile of some GM ranked personnel in the Annual Report of Jindal Steel.**

This supports the assertion in Forbes 2016 study that there is a certain level of talent drain in PSUs at the top middle level probably due to inadequate PVRP scheme. This erosion of qualitative human capital is detrimental for sustainable growth of PSUs.

- (8) **While it is imperative to moderate the compensation limit for top management of private sector and spread the incentive more at the middle and lower levels it may needs to be rationalized the other way**



round in the PSUs so as to attract and retain the suitable talent in the upper middle levels and motivate them enough to truly compete with their non PSU peers as also to take a leadership resolve to preserve the net worth by being non compromising on the corrupt modes.

- (9) **KMP's ceiling for profit sharing bonus as per the currently applicable Company's Act 2013 is @1.5% of the PAT which is quite substantial for big companies who often use this cap to extra ordinary reward Board members related to owners and hence it is recommended to ceil this with some monetary limit.**
- (10) Though the latest DPE guidelines (Office Memorandum dated 3rd August 2017) seems to have factored the concerns of NTPC chairman presented to SCOPE in 2015 since the quantum jump in the PRP of some big PSUs like NTPC , ONGC etc. is a pointer in this direction, still a lot remains to be done to fully neutralize the differential on PRVP between the PSU and its non PSU peers.

Concluding Remarks:

The comparative study under this research establish that while companies like NTPC and ONGC who perform even better than their non PSU peers, the KMPs of these companies still are far behind in getting their logical PRVP.

On the other hand lack of adequate PRVP schemes in companies like BHEL and SAIL may be one of the key factors for their under- performance in sectors where their private sector peers are doing far better under the similar market conditions.

In view of all the above inferences it may be concluded that PSUs need a better PRVP scheme to effectively compete with their private sector peers for long term sustainable growth and development and retention of world class human capital.

At the same time there is also a dire need to rationalize overall manpower cost in the PSUs with the objective of obtaining the optimum productivity so that the Employee cost to Sales ratio remains healthy for sustainable competitive edge.

Ultimate objective should be to arrive at such a fine balance of fixed and variable pay which induces the HR to strive for company's best targets while aiming to maximize their own gains.

This would also ensure that the fixed cost on account of HR remains at manageable level to cover the risk of company going through difficult times due to external constraints and adequately compensating the competent HR to further grow as a sustainable organization.

Thus the autonomy to PSU management in designing PM especially PVRP should be utmost priority under the new PSU policy and company management



should rightly utilize such autonomy for enabling the company for suitable open competition.

Abbreviation Used

PM- Performance Management, PRVP- Performance Related Variable Pay

PSUs- Public Sector Units, HRM- Human Resource Management

SAIL-Steel Authority of India Limited, BHEL- Bharat Heavy Electricals Limited

RIL- Reliance India Limited. ONGC- Oil & Natural Gas Corporation

NTPC- National Thermal Power Corporation. L&T- Larsen & Toubro Limited

OECD- Organization of Economic Cooperation & Development

MoU- Memorandum Of Understanding (PSU with controlling Ministries)

CMD-Chairman & Managing Director, HAL- Hindustan Aeronautical Limited

ESOP- Employee Stock Option Plan, PRP- Performance Related Pay

ROCE- Return on Capital Employed. PBT- Profit Before Tax

CEO- Chief Executive Officer. CFO- Chief Financial Officer

References:

R#1- OECD Principles of “Performance Related Pay for Governmental Employees”

R#2- MoU Based Performance Management in CPSE

R#3-Forbe’s India Report July 2016-“Performance Pay Paradox in PSUs” by Anandrup Ghose

R#4- Presentation to SCOPE by HAL and NTPC in 2015; BHEL presentation to International Workshop in 2015

R#5- ARs of Tata Steel for the FYs 2015-16 to 2018-19

R#6- ARs of SAIL for the FYs 2015-16 to 2018-19

R#7- ARs of Tata Power for the FYs 2015-16 to 2018-19

R#8- ARs of NTPC for the FYs 2015-16 to 2018-19

R#9- ARs of RIL for the FYs 2015-16 to 2018-19

R#10- ARs of ONGC for the FYs 2015-16 to 2018-19

R#11- ARs of L&T for the FYs 2015-16 to 2018-19

R#12- ARs of BHEL for the FYs 2015-16 to 2018-19



Development, Growth, Performance and Closure of Telegraph Services – A case study of Indian Telegraph Service

D. Selvaraj

Abstract:

The first telegraph line was opened in India by the East India Company in 1851 for their use, and the service was made available for public traffic in 1855. Initially, the telegraph service functioned along with the Postal Department and it was under the control of PWD in 1851, Commerce and Industry Department in 1905, and back to PWD in 1914. Thereafter a combined P&T Department was formed in 1914 and a separate Telecom Department in 1985. Finally, it was converted as a Telecom Company, the BSNL in 2000. The service remained as an important mode of communication for more than one century to the pockets of the common man, lawyers, Jawans, and armed forces and the service run on welfare lines from the beginning. On the introduction of other latest modern telecom services, the demand for the service came down drastically after 2000. Faced with a huge shortfall in revenue the state run telecom firm, the BSNL discontinued the telegram service with effect from 15th July 2013. Telegrams have been of social and historical significance for 163 years in the country and the vacuum created by its closure cannot be filled in by any other mode of service.

Key Words: Indian Telegram Service, Indian Telegraph Service, Closure of Indian Telegram Service, Performance of Indian Telegraph Service, Growth and Development of Indian Telegraph Service



Introduction

An overview of Telegraph Services:

The telegraph service came to India, the same time as in other advanced countries. It was in 1850, by which time the telegraphy had made progress in Europe. The East India Company initiated the construction of a telegraph line in India in 1850 and opened the first telegraph line in 1851 primarily for official work. Thereafter, large-scale constructions of telegraph lines were started and the service made available for the public traffic in 1855.

The telegraph service had remained a natural government monopoly since its inception in India for more than a century till it was officially declared closed with effect from 15th July 2013, after its existence in the country for 163 years.

The telegraph service had undergone gradual technological advances and changes throughout the century. Consequent to the development and growth of telephone and other telecom services, the share of telegraph service in the overall telecom service started to decline for the last 3/4 decades. Further, with the development of telecom technologies - telephone, cellular mobile services, and Internet services, the uses of the telegraph service have completely become obsolete.

Every country in the world began to close telegraph services at the beginning of the

21st century. In line with the worldwide changes, the telegraph services in India were too closed in 2013

In keeping with all these developments, it is considered necessary for researchers to critically study all aspects related to telegraph service in India from its inception in 1850 until its closure in 2013.

Objective of the study

The main objective of the study is to analyze the development, growth, performance, and closure of telegraph service in India during the period of its existence for 163 years since 1850. The major objective of the study has been divided into four sub-objectives, which are explained below.

- To study the development of telegraph service since its inception, along with the legal framework covering the service in India.
- To study the growth of the telegraph service from time to time throughout its existence.
- To study the performances of the telegraph service - its financial performance and physical performance.
- To study the circumstances leading to the closure of service across the country.

As such, the purpose of the study is largely to attempt the following:

- Development of telegraph service .
- The organizational set up of the service from time to time.
- The legislative framework that covered the service in India.
- Financial performance of the service.
- Physical performance of the service.
- The circumstances which lead to the shutdown of the service in the country.

Scope and limitation of the study:

The telegraph service remained a monopoly of the State throughout its existence in India up to 2000 directly under the Government Department and thereafter as a fully owned company of the Government viz the Bharat Sanchar Nigam Limited, in short BSNL. Limited published documents and data that are available from government sources are taken into consideration for conducting the study.

Research Methodology:

The study adopted is descriptive and analytical. All the information relevant to the subject matter is considered.

Information and data sources:

All information and data sources are derived mainly from documents published by the government and, in very few cases, data generated for internal management

purposes by the Government Department are taken into consideration.

Development of telegraph service, a historical analysis:

Before going to analyze the subject matter of the study, it is necessary to see in brief the definition of the term “Telegraph” and “Telegram”. Telegraph is the means via which a telegram is sent, whereas telegram can be defined as the message that is encoded, decoded, or telegraphed in the form of the original message itself via radio or wire. Hence, the term “telegraph service” used widely in this study denotes in the simple sense “Telegrams service”.

The East India Company started construction of telegraph service in Nov 1850 and the first telegraph line was opened for traffic in 1851 primarily for official work of the Company in 1851. The year 1851 saw the beginning of large-scale construction of telegraph lines and in 1855 the service was made available to public traffic. Though the telegraph service was started in India almost simultaneously with the advanced countries of the world, the development of the pre-independence period remained very slow.

The position of the number of telegraph offices on the eve of Independence as on 14-08-1947 and in Independent India after partition as on 31-03-1948 is shown in the table below:

Table: 1 A table showing the position of Telegraph offices in the country on the eve of Independence and in the Independence India after Partition.

Sl.	Position as on	Departmental Telegraph offices	Combined offices	Railway and Canal licensed Telegraph offices	Total Number of Telegraph offices
1	Position on the eve of Independence as on 14-08-1947	83	4048	4891	9022
2	Position as on the Independent India after partition as on 31-03-1948	73	3251	4006	7330

Growth of Telegraph Services

Initially, the telegraph service functioned along with the Postal Department and the Posts and Telegraph Department occupied a small corner of the Public Works Department (PWD), in 1851. A regular separate telegraph department was opened around 1854 when the telegraph facilities were thrown open to the public. The Telegraph Department during 1854-57 comprised a superintendent of Telegraphs, with three superintendents at Bombay, Madras, and Pegu in Burma. There were inspectors at Indore, Agra, Kanpur, and Banaras and an operating and maintenance staff.

The Indo-European Telegraphs Department, which later came to be known as the Overseas Communications (OCS) was administered by a Director in Chief whose headquarters was in London. On the 15th

of February 1888, it was merged with the Director-General of the Indian Telegraph Department. The administration reports of the two Departments, Indian Telegraphs and the Indo-European Department were separated later on to show how the finances of the country were affected by each unit.

In 1888 the Posts and Telegraph Department was combined as a quasi-commercial unit. In 1905 the control of the Telegraph Department was transferred from PWD to Commerce and Industry Department. However, in 1914 amalgamations of Postal and Telegraphs Departments were made under a single Director-General and reversion of control of P&T again to PWD.

The operators of the two separate services, Post Office and Telegraph Department were developed side by side on the eve of World War-1. In 1914 the Postal Department and the Telegraph Department



were amalgamated under a single Director-General.

In 1925 a major reorganization of the department was made according to which the accounts of the Indian Posts and Telegraphs were reconstituted to examine the true fiscal profile of the department. This was made to find out how for each of the four constituent branches of the departments, the Postal, Telegraph, Telephone, and wireless were contributing to the fiscal profile of the department bringing in revenue to the exchequer. It was also examined at this time whether the rates charged from the public for the various services were inadequate or excessive.

From the beginning, the P&T setup was run on welfare lines. Profit was not the motto. The annual report of the Department for 1931 said "It is the accepted policy of the Government that the department should be neither any substantial profit nor any substantial loss on its working under normal conditions"

A scheme, called "Federal Financial Integration" was implemented from 1st April 1950, the administration of the entire network of telegraph and telephone system of the nation, including those that previously existed in the formerly princely states was amalgamated.

The accounts of the department initially were maintained by the Accountant General of the P&T. By April 1972, the telecommunications accounts were

separated and the Department started preparing the Balance sheet annually. Till 31st December 1984, the postal, telegraph, and telephone services were managed by the Posts and Telegraph Department. In January 1985, two separate departments for Posts and Telecommunications were created and Two large corporate entities were spun from the Department of Telecom viz Mahanagar Telephone Nigam (MTNL) for Delhi and Mumbai and Videsh Sanchar Nigam Limited (VSNL) for international services.

The Telecom Department consisted of a Telecom Board, the Secretary Telecom as the Chairman with 5 separate members for the services of Finance, Operations, Development, Personnel, and Technology. The Department in 1986 reorganized the Telecom Circles with the secondary switching areas as basic units and Bombay and Delhi Telephones were separated to create the new entity called Mahanagar Telecom Nigam Ltd (MTNL). A high powered Telecom Commission to direct telecom policies was set up in 1989 with the full power of the Government.

The business of telecom services which include telegraph service in the country was transferred to Bharat Sanchar Nigam Limited, in short BSNL with effect from 1st October 2000. By this time the Videsh Sanchar Nigam (VSNL), a Government company involved in the handling of international telegraph traffic was privatized.



Development of Telegraph Services

The Telegram is a common man's communication needs. The first telegraph message was transmitted live on Morse through electrical signals between Calcutta and Diamond Harbour, on 5th Nov 1850.

The telegraph service was opened to the public during February 1855 when the telegraph technologies developed in the world. India also had the benefit of incorporating such technologies, like Baudot System (1906) Radio Telegraphs (1927), Devanagiri Telegram (1949), and electro-mechanical Teleprinter system. (1954)

The concept of providing a telegraph facility through the Post Office came up during the British time and measure of the economy in early 1900. After India got independence, telegraph offices both at dedicated offices as well as on an agency basis through Post offices remained at the focal point of communication centres for the public.

At the time of independence, the number of telegrams booked stood at 1397 lakhs. The telegraph service was provided through 950 dedicated central and other telegraph offices (CTOs & DTOs) and 43543 combined P&T offices as in 1997 which is the highest number of the telegraph office the country ever got.

Unlike other telecom services like telephone and present-day cellular mobile services,

the telegraph services in independent India were slow. Being a non-real-time service, the demand for the service was confined only to an emergency purpose.

The telegraph service being labour- intensive service - manual booking, transmission, reception, and delivery of telegrams, the telegraph service had its own operational and management problems for a long time.

With the changing scenario of technology in the western world, the Indian telegraph network tried to imbibe the same in the form of the introduction of tape Relay Exchanges (TRX) in the early 1950s and subsequently strowger type Gentex switching systems in the mid-1970s.

Technology input to the service was not given importance because of the advent of Telex and it was assumed that with telex available in the country, the demand for telegrams will go down. However, in the decade of the 1970s and 1980s efforts were made to modernize the Telegraph services by the introduction of the following contemporary technologies.

- Automatic Message switching systems based on microprocessors and terminal devices to rejuvenate the telegraph service.
- Commissioning Store and Forward Telegraph system – commissioned in CTO Madras on 31st March 1982.

- A National Message Switching Network was introduced in 1986.
- The electronic and processor-based system was introduced for a fully developed automated network in 1998.
- Rural telegraphs services in several places were upgraded by providing processor-based Electronic Keyboard terminals and lower end concentrators.
- Computerization of booking and transmission of telegrams, operational/ Management functions, etc to modernize the telegraph network.

All these modernization of Telegraph Services introduced were followed in Central Telegraph Offices (CTOs) and Departmental Telegraph offices(DTOs). The service in Combined Post and Telegraph offices connected to CTOs/ DTOs solely remained the use of the Morse instrument for transmission and reception of Telegrams.

Legal Framework covering Telegraph Services

The Electric Telegraph Act 1854: The Government of the day, the East India Company decided that the telegraph services be managed on a public monopoly, and before opening the service to the public in 1855, it passed in 1854 the Electric Telegraph Act defines the privileges and powers of the Government and the allied

matters. The Act provided the exclusive authority to the Government for introducing the electric telegraph.

The Indian Telegraph Act 1885: A new Telegraph Act was enacted on 2nd July 1885. The Act conferred the exclusive privilege of the Central government for establishing, maintaining and working telegraphs including all forms of telecom services. The Act was promulgated as the Indian Telegraph Act 1885. This act was amended in 1888, 1914, and 1930 in the pre-independence era and in 1948,1957,1961,1971 and several times thereafter.

This Act provides the exclusive privilege to the Central Government for establishing, maintaining and working telegraph or to grant a license to establish, maintain or work a telegraph in such conditions and in consideration of such payments as the Central Government may think fit.

Indian Wireless Telegraph Act 1933: Towards the beginning of the twentieth-century wireless telegraphy was substantially developed by Marconi. In India, the wireless telegraphy was first introduced between Sagar Island and Sand heads in Diamond Harbour near Calcutta in 1902. The wireless telephone came to India in August 1921. The Radio broadcast system was introduced by Radio clubs in Madras, Calcutta, and Bombay. An Indian State

Broadcasting Service was introduced under the supervision of the P&T Department in March 1929. By the early thirties, the legislation called Indian Wireless Telegraph Act 1933 was enacted.

Performance of Telegraph Service

The performance of any sector/organization/department may be assessed using two sets of criteria:

- It's financial and physical performance.
- Its progress towards the accomplishment of various non monetary objectives, expected of them.

The sphere of the criteria set out in (b) above was not examined in detail in the study, although they are discussed as information in the course of the study.

The financial performance has been evaluated on the following criteria.

- Revenue from the telegraph service and its share in total telecommunications revenues.
- Revenue, operating expenses, and revenue surplus or shortfall per telegram booked.

Based on the major structural changes that had occurred in the Indian Telecom Department of the government, the whole

period of the post-independent era is divided into the following major sub-periods for the analysis.

- (a) 1947 to 1974,
- (b) 1974 to 1980,
- (c) 1980 to 2000.
- (d) 2000 to 2013.

The sub-periods confine to the major changes that have taken place during the period. The combined Posts and Telegraphs Depart (P&T) was separated at the circle level (equivalent to the political state) from 1974. Until then the administration of the entire P&T Department, including telecom wing at the circle level was headed by the Post Master Generals. After separation, the Telecom circles were headed by General Managers from Telecom Engineering stream. The telecom development took a speedier pace since 1980, which started providing an alternative mode of communications to the telegraph service. From 2000 onwards, the telecom service is managed by the BSNL, a fully owned Government Company.

Financial Performance

The table 2(a) & 2(b) present, the types of telecommunications revenues by source from 1981 to 2014.

**Table: 2 (a) Table showing Telecom Revenue by source. (Figures in Rs in Crores)**

Year ended 31st March	Telephone		Telegraph		Telex		Other Revenue	Total Telecom Revenue
	Revenue	Percentage to Total Revenue	Revenue	Percentage to Total Revenue	Revenue	Percentage to Total Revenue		
1981	564.74		51.69	7.9	56.13	8.5	-14.76	657.80
1982	659.36	85.7	58.55	7.6	70.92	9.2	-19.29	769.54
1983	806.56	86.0	74.99	8.0	82.08	8.8	-25.80	937.83
1984	920.07	84.7	85.12	7.8	84.06	7.7	-3.18	1086.07
1985	997.93	80.3	93.84	7.6	97.03	7.8	53.83	1242.63
1986	1103.55	84.4	94.21	7.2	114.91	8.8	-4.81	1307.86
1987	1051.00	84.9	126.64	10.2	66.62	5.4	-6.03	1238.23
1988	1486.07	89.6	119.41	7.2	73.93	4.5	-21.54	1657.87
1989	2094.95	88.8	101.30	4.3	106.24	4.5	56.10	2358.59
1990	2476.54	89.2	93.36	3.4	125.92	4.5	81.66	2777.48
1991	3049.52	88.2	81.44	2.4	139.31	4.0	188.66	3458.93
1992	3659.29	91.5	77.85	1.9	125.10	3.1	136.08	3998.32
1993	4369.38	93.1	66.86	1.4	126.99	2.7	130.59	4693.82
1994	5827.01	93.0	73.10	1.2	140.03	2.2	227.85	6267.99
1995	7274.41	95.0	71.69	0.9	126.27	1.6	181.35	7653.72
1996	9093.12	94.0	75.13	0.8	99.77	1.0	408.22	9676.24
1997	10935.01	89.7	66.04	0.5	73.11	0.6	1111.73	12185.89
1998	12970.37	88.9	60.14	0.4	149.03	1.0	1410.77	14590.31
1999	15329.55	86.9	71.43	0.4	59.12	0.3	2177.42	17637.52
2000	16491.11	88.5	58.60	0.3	30.25	0.2	2048.63	18628.59

The table 2(a) above indicates the earnings from telegraph service, which constitute nearly 7.9 percent of the total telecom

revenue in 1980 and it was going on reducing every year and stood at 0.3 percent in 2000.

Table: 2(b) Table showing the Telegraph and other Revenue to total Telecom Revenue by source in BSNL since 2001

(Figures in Rs in Crores)

Year ended 31st March	Telephone and other Revenue (Other than Telegram and Telex Revenue)	Percentage to Total Revenue	Telegraph Revenue (ie Telegram Revenue)	Percentage to Total Revenue	Telex Revenue	Telegraph Revenue (Total of Telegram and Telex Revenue)	Percentage to Total Revenue	Total Revenue
2001	11565.25	99.73	24.53	0.21	6.89	31.42	0.27	11596.67
2002	24242.81	99.78	41.55	0.17	12.85	54.40	0.22	24297.21
2003	25257.23	99.86	35.92	0.14	8.62	35.92	0.14	25293.15
2004	31366.12	99.89	..	..	..	33.22	0.11	31399.34
2005	33424.99	99.93	..	..	..	25.05	0.07	33450.04
2006	36115.14	99.93	..	..	..	23.79	0.07	36138.93
2007	34597.25	99.95	..	..	..	18.96	0.05	34616.21
2008	32341.17	99.94	..	..	..	18.36	0.06	32359.53
2009	30155.81	99.95	..	..	..	13.61	0.05	30169.42
2010	27898.40	99.95	..	..	..	15.04	0.05	27913.44
2011	27029.83	99.94	..	..	..	14.88	0.06	27044.71
2012	25875.43	99.95	..	..	..	13.07	0.05	25888.50
2013	24332.47	99.96	..	..	..	10.88	0.04	24343.35
2014	26149.27	99.98	..	..	..	3.99	0.02	26153.26
Separate figures on Telegram and Telex Revenue are not available from 2004								

Table 2(b) above, further shows that the share of revenue from the telegraph service, which includes revenues from the telex service, decreased to 0.27% in 2001 and further to 0.04% in 2013, at the time the service was closed in the country.

Income from operation per telegram

The data in Table 3 below show average revenue, average operating expenses per booked telegram, and the surplus of revenues over expenditures per telegram. The data collected is for two years, viz 1988-89 and 1998-99 with a gap of 10 years.

**Table No. 3 Table showing Circle wise Average Revenue per Telegram, Average operating expenses per Telegram and excess of income / loss per Telegram****(Figures in Rupees)**

Sl.	Name of the Circe	Average Revenue per Telegram booked	Average operating Expenses per Telegram	Excess of income over Expend per Telegram	Average Revenue per Telegram booked	Average operating Expenses per Telegram	Excess of income over Expenditure per Telegram
		1988-89			1998-99		
1	2	3	4	5	6	7	8
1	Andhra Pradesh	13.80	6.40	7.40	14.82	20.69	-5.87
2	Assam	15.30	5.10	10.20	17.38	57.84	-40.46
3	Bihar	15.50	4.40	11.10	15.07	30.68	-15.61
4	Gujarat	17.50	4.30	13.20	26.83	39.55	-12.72
5	Haryana	12.30	3.00	9.30	14.93	62.64	-47.71
6	Himachal Pradesh	9.90	2.20	7.70	19.73	34.41	-14.68
7	Jammu Kashmir	13.80	3.20	10.60	37.79	20.18	17.61
8	Karnataka	13.40	6.20	7.20	14.64	22.00	-7.36
9	Kerala	13.00	3.20	9.80	16.82	23.11	-6.29
10	Madhya Pradesh	13.50	4.00	9.50	29.55	43.42	-13.87
11	Maharashtra	17.00	5.10	11.90	17.11	33.31	-16.20
12	North East	18.20	5.80	12.40	23.38	36.45	-13.07
13	Orissa	16.60	3.90	12.70	10.82	28.01	-17.19
14	Punjab	13.90	3.50	10.40	20.23	27.53	-7.30
15	Rajasthan	11.20	3.00	8.20	18.16	24.86	-6.70
16	Tamilnadu	12.20	4.60	7.60	18.48	26.28	-7.80
17	Udhra Pradesh	9.40	9.30	0.10			
18	East			0.00	26.02	48.69	-22.67
19	West			0.00	16.49	24.2	-7.71
20	West Bengal	19.10	5.20	13.90	24.21	95.03	-70.82
21	Delhi Region	21.00	5.50	15.50	23.98	56.34	-32.36
Udhrapradesh Circle was divided into two Circle -East and West by 1998-99 The minus figures in column 8 denotes loss.							



The data in the above table show that the excess of income over operating expenditure per telegram booked vary considerably from circle to circle, the highest at Rs 15.50 in Delhi region and the low of Rs 0.10 in the UP circle in 1988-89. The position in 1998-99 shows a heavy loss per telegram in almost all circles. The loss of revenue in the above two circles is Rs.32.36 and Rs 22.67 respectively. The highest amount of loss is Rs 70.82 in West Bengal Circle and the lowest is Rs 6.29 in Kerala circle. In 1998-99, the average revenue per telegram recorded remained virtually unchanged, while operating expenditure increased significantly, resulting in loss.

The reason for the heavy loss in revenue per telegram booked is that the tariff/rate for

inland telegram remained unchanged since 1st March, 1983 the rate of Rs 3.50/- for 10 words and Rs 0.50 for every additional word. This rate was revised subsequently to Rs 27/- per telegram for 50 words in May 2011 after a long gap of 28 years.

Physical Performance

The physical performance of the telegraph service can be analyzed on the following parameters.

- No of telegraph offices in the country viz CTOs, DTOs, and combined offices.
- No. of telegrams booked.

The relevant data have been furnished in Table 4(a) for 1972 to 1990, in 4(b) for 1991 to 2000, and 4(c) for 2000 to 2009, below:

Table No.4(a) Number of Central Telegraph Offices (CTOs), Departmental Telegraph offices (DTOs), and Combined offices (Cos) and total number of Telegraph offices (TOs) from 1972 to 1990

Year ending	CTOs		COs		Total Telegraph of offices		Licensed			Total
	CTOs & DTOs	Percentage of increase/decrease	COs	Percentage of increase/decrease	Offices other than Licensed	Percentage of increase/decrease	Licensed offices	Licensed Railway & Canal	Telegraph offices	Percentage of annual increase/decrease
	Nos	%	Nos	%	Nos	%	Nos	Nos	Nos	%
31st March 1972	266		11622		11888		4080	3173	19141	
1974	291	9	13275	14	13566	12	3571	2245	19382	1
1976	306	5	16253	22	16559	18	3285	2611	22455	14



1978	334	9	19440	20	19774	16	2711	2568	25053	10
1980	369	10	26297	35	26666	26	2249	2614	31529	21
1982	426	15	30873	17	31299	15	2317	2675	36291	13
1984	492	15	33842	10	34334	9	2619	3033	39986	9
1986	588	20	36008	6	36596	6	1928	2893	41417	3
1988	688	17	37204	3	37892	3	2144	2041	42077	2
1990	788	15	39118	5	39906	5	2224	2184	44314	5

Abbreviation: CTOs-Central Telegraph offices / DTOs- Departmental Telegraph offices / COs Combined offices. / TOs –Total number of Telegraph offices (other than Licensed)

Table: 4(b) Number of Central Telegraph Offices, Departmental Telegraph offices, and Combined offices from 1991 to 2000

Year ending 31st March	CTOs & DTOs		COs		Total No of Telegraph offices in all	
	CTOs & DTOs	Percentage of increase or decrease	COs	Percentage of increase or decrease over previous year	CTOs & DTOs & COs	Percentage of annual increase or decrease
	Nos	%	Nos	%	Nos	%
1991	818		39259		40077	
1992	854	34	41368	5	42222	5
1993	898	42	42893	4	43791	4
1994	907	9	44054	3	41659	-5
1995	987	74	40752	-8	41739	0
1996	954	-34	43964	7	44918	7
1997	950	-4	43278	-2	44228	-2
1998	957	7	44622	3	45579	3
1999	974	17	43453	-3	44427	-3
2000	973	-1	42931	-1	43904	-1

**Table: 4(c) Number of Central Telegraph Offices, Departmental Telegraph offices, and Combined offices from 1991 to 2000**

Year ending 31 st March	CTOs		DTOs		COs		Total No of Telegraph offices in all	
	CTOs	Percentage of increase or decrease	DTOs	Percentage of increase or decrease	COs	Percentage of increase or decrease	CTOs & DTOs & COs	Percentage of annual increase or decrease
	Nos	%	Nos	%	Nos	%	Nos	%
2000	973		-		42931		43904	
2001	979	1	-		41754	-3	42733	-3
2002	115	-751	858		36622	-14	74298	14
2003	106	-8	867	1	31877	-15	65547	-14
2004	106	0	860	-1	30004	-6	61766	-6
2005	106	0	856	0	24857	-21	51422	-20
2006	107	1	854	0	11628	-114	24819	-150
2007	107	0	854	0	11628	0	24933	0
2008	NA	-	NA	-	NA	-	NA	
2009	87	-	169	-	416	-	841	-

The figures in the above table show that the total number of telegraph offices which stood at 19141 with a breakup of 266 CTOs and DTOs and 11622 combined offices in 1972 had gone up to 44314 telegraph offices with 788 CTO/DTOs and 39118 Combined offices in 1990. It is important to note that there is a constant increase in the total number of telegraph offices each year thereafter, however with the reduced percentage of the annual increase. The increase of 21 percent in 1980 has come down to 5 percent in 1990.

The position as in 2000 at the time of taking over of the service by BSNL is with a total number of TOs at 43904 with the breakup of 973 CTOs/DTOs and 42931 COs. By this time the annual increase started to decline from 5 percent in 1992 to -1 present in 2000. The corresponding position in the BSNL period in 2007 as in Table 2 (c) is 24933 with 854 CTO/DTO and 11628 COs. The final tally as in 2009 is with TOs of 841 with breakup of 256 CTO/DTOs and 416 COs. This is the number of TOs, which were in existence at the time of closure of Telegraph service on 15th July 2013.

**No. of Telegrams booked:**

The table 5 below shows the position of inland and international telegrams booked from 1972 to 2006. The whole performance

of telegraph service can be gauged from this indicator as all other indicators – number of telegraph offices, revenue from service etc follow this indicator.

Table No. 5 Table showing the number of Inland Telegrams and International Telegrams booked since 1972

(Figures in Lakhs)

Year ending 31st March	No of Inland Telegram booked	Percentage of increase or decrease over previous year	No of International Telegrams booked	Percentage of increase or decrease over previous year	Total No. of all Telegrams booked. (Inland plus International)	Percentage of increase or decrease over previous year
1972	548.42		35.75		584.17	
1974	614.78	10.79	35.40	-0.99	650.18	10.15
1976	635.01	3.19	42.00	15.71	677.01	3.96
1978	581.91	-9.13	47.00	10.64	628.91	-7.65
1980	672.96	13.53	46.60	-0.86	719.56	12.60
1982	759.00	11.34	-	-	759.00	5.20
1984	769.73	1.39	18.20	-	787.93	3.67
1986	760.45	-1.22	15.23	-19.50	775.68	-1.58
1988	735.14	-3.44	11.40	-33.60	746.54	-3.90
1990	704.50	-4.35	10.26	-11.11	714.76	-4.45
1991	640.99	-9.91	8.95	-14.64	649.94	-9.97
1992	651.45	1.61	8.49	-5.42	659.94	1.52
1993	645.84	-0.87	7.34	-15.67	653.18	-1.03
1994	605.55	-6.65	7.49	2.00	613.04	-6.55
1995	575.88	-5.15	6.76	-10.80	582.64	-5.22
1996	569.72	-1.08	5.78	-16.96	575.50	-1.24
1997	538.83	-5.73	5.11	-13.11	543.94	-5.80
1998	512.18	-5.20	4.68	-9.19	516.86	-5.24
1999	442.33	-15.79	3.98	-17.59	446.31	-15.81



2000	403.73	-9.56	2.41	-65.15	406.14	-9.89
2001	344.16	-17.31	1.61	-49.69	345.77	-17.46
2002	229.53	-49.94	1.14	-41.23	230.67	-49.90
2003	208.66	-10.00	0.70	-62.86	209.36	-10.18
2004	210.05	0.66	-	-	-	-
2005	151.33	-38.80	-	-	-	-
2006	113.92	-32.84	-	-	-	-
2007						
The information not available from 2007						

Table 5 above shows that 614.78 Lakhs inland telegrams and 35.40 lakhs international telegrams were booked in 1974 and it stood at 704.50 lakhs and 10.26 lakhs respectively in 1990. The figure has come down to 403 lakhs inland telegrams and 2.41 lakhs international telegrams in 2000. The final figure available as of 2006 is with inland telegrams of 113.92 lakhs in. The highest number of inland telegrams booked ever is 769.73 lakhs in 1984. It shows that from mid eighties the demand for the telegram service started to decline gradually.

It is concluded from the above that,

- Since 1980, the demand for service in the country has begun to come down with a gradual decrease in the number of telegrams booked, resulting in a decline in revenue from the service. The percentage of the decline in revenues has been gradually until 2000 and rapidly thereafter.

- During the period, the average revenue per telegram remained virtually unchanged, whereas there is a manifold increase in the average operating expenses per telegram resulting in an overall loss in the operation of the service.
- The rate of annual increase in the number of telegraph offices started to decline from 1990 onwards gradually, and at the increased rate after 2000. The same is the case with the number of telegrams booked. It shows clearly that the demand for the service started to decline rapidly from 2000.

Indian Telegraph Modernization

Enterprises have modernized for varying reasons having an accelerated growth in the last four decades. The compulsion is to make use of the latest techniques and technologies for its betterment. The telegraph service is no exception to this myth.



Whenever developments in telegraph technologies occurred in the western world, India has also had the advantage of incorporating such technologies into the telegraph network such as:

- Baudot System (1906).
- Radio Telegraph (1927).
- Devanagiri Telegram (1949).
- Introduction of Tape Relay Exchanges (TRX) in the early 1950s.
- Electromechanical Teleprinter System (1954).
- Strowger type Gentex switching systems in mid-1970.

In the seventies and eighties, efforts were made to modernize Indian telegraph services through the induction of contemporary technology into the telegraph network to rejuvenate service. The following are some of the contemporary technologies introduced into the telegraph network with the aim of upgrading the telegraph network.

- Automatic Message Switching systems based on Microprocessors and terminal services (1980).
- Providing Electronic Switch (1981-82).
- Store and Forward Telegraph System (1982).

- Online management information facilities in Electronic Message Switching system (the 1990s).
- National Message Switching automated Network ((1998).
- Providing Processor-based Electronic Keyboard terminals and lower-end concentrators to cater to the need of rural telegraph services. (1998).
- Computerization of booking and transmission of telegrams (1999).

Telegraph services had been under a decline from the late 1980s onwards, owing to the impact of other non-voice services and improvement in the density of telephones. Further, the quality of telegraph service was not up to the mark as new demands could not be generated. However, some attempts were made in the late 1990s to diversify the activities in the telegraph offices owing to the decline in demand for the telegram service which are:

- Bureacon Service (1990)
- Bureaufax Service (1990)
- Express Money Transfer Service (1994)

Telegraph service was a labour-intensive service – manual booking, manual transmission, manual reception, and manual delivery of telegrams. The telegraph service had its own operational and management



problems for a long time as it caters to the needs of the common people all over the country including the rural part.

The service was not run on a commercial basis from the beginning; the P&T set up was run on welfare lines with no profit motto because of its social relevance and historical importance and common man's means of urgent communications.

The telegraph Service was however under decline from the late 1980s onwards, owing to the advent of other voice and non-voice telecom services, which include data transmission, facsimile, mobile radio, radio paging, and leased line services, which have been provided to cater to a variety of needs of both residential and business customers.

Efforts were not taken to provide modern technological inputs to the telegraph service since the beginning of 2000, on the availability of other latest alternative telecom technologies like Cellular mobile services, internet and Broadband services etc., and on a general impression that with these services available in the country, the demand for telegraph service will do down.

Closure of Telegraph Service

The telegraph service remained as an important mode of communications for more than one century to the pockets of government administration, judicial

organizations, armed forces, and the common and rural citizenry of the state. During the first three decades of independence, there were no alternatives to telegrams. The demand for the service was, however, in decline since the end of 1980 on account of the impact of other non-voice telecommunications services and the improvement in telephone density in the country.

Driven by technology- SMS, E. Mail, Mobile phone, demand for the service gradually faded with fewer and fewer people taking advantage of it, even though it had social relevance and historical importance.

The State-run telecom firm, the BSNL decided to discontinue the telegrams as it faced a huge deficit in income from the service. In 2013, the percentage of revenue from the telegraph service, including telex, works out 0.04 percent of the total telecom revenue. The revenue from telegrams service was close to Rs. 75 lakhs per annum approximately compared to the cost of hundreds of crores of rupees to run the service.

Under these circumstances, the Government of India decided on 12th June 2013 to discontinue the telegraph service following which, the service which was in existence in the country for 163 years since its inception in 1850, was shut down on 15th July 2013 by the State-owned Telecom service provider, the BSNL.



Conclusion:

Telegrams have been of social and historical significance for more than a century and a half in the country. Despite availability of modern mode of telecom services in these days, its presence and importance to lawyers for vouching the telegrams under the Indian Evidence Act, Jawans, and armed forces for seeking leave or waiting for transfer or joining reports, for the working class to report about non receipts of salary and for the common people on their social presence on the days of family functions and ceremonies, etc have been lost. The vacuum created by Telegrams on its shutting down in the country cannot be filled in by other mode of service.

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Does Board Size Influence the Firm Performance? A Global Literature Review

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Abstract:

The objective of this paper is to analyse the findings of past empirical studies concerning the impact of board size on firm performance. Forty nine empirical papers from thirty one countries published in various reputed peer reviewed and indexed journals during the period of 1995 to 2020 have been reviewed in this study. It has been found from the review of these papers that there is mix impact (positive, negative and insignificant) of board size on firm performance. However, positive relation between board size and value measure of firm performance (Tobin q) and negative relation between board size and profitability measure of performance (Return on Assets) have been found in majority of the previous research work. Evidence of nonlinear relation between both of these variables has been also found, but its frequency is very less. This paper is very useful for doctoral candidates, researchers, academicians, policy makers and corporate managers.

Key Words: Board Size, Firm Performance, Board Characteristics, Board Structure, Corporate Governance

Introduction

Corporate governance issue highly attracted the academician, researchers and policymakers across the world after the many corporate scams like Enron, WorldCom, One.Tel, Tyco, Satyam and many more. Researcher's community greatly used the board characteristics and ownership structure as the proxy of corporate governance in their research. Board size, board composition, CEO duality, independent board and board meeting have been frequently used by them as board characteristics. It has been also found in recent studies that board diversity, busyness of board, board meeting attendance, number of board committees, features of audit committee, foreign directors on board, directors on board from academic background etc. used as board characteristics. Out of all of the above characteristics of board, number of directors on board (board size) gained more attention by the researchers. It has been used as either main independent variable or control variable in most of the past studies considering the relation between corporate governance and firm performance.

Different corporate theories support the relationship between board size and firm performance. Agency theory and resource dependent theory are in favor of large board size; on the other hand stewardship theory supports the small board size. As per agency theory board of directors are the representative of various shareholders and stakeholders. They control over the manager's activities as well as evaluate their performance. A larger number of directors work more effectively towards the interest of owners and other stakeholders

in monitoring and controlling, and thereby increasing the firm performance. Thus, agency theory believes that larger board size enhances the firm performance by better monitoring by a large group of people. Similarly, the resource dependency theory proposes that larger board possesses a wide variety of expertise, knowledge and connections in diverse fields. These characteristics of large board help the firms in boosting their performance. Taken together, both the agency theory and the resource dependency theory indicate the positive relationship between board size and firm performance. Contrast to agency and resource dependence theory, stewardship theory signifies the negative relationship between these two variables. As per this theory, managers are committed to attain high profits for the companies and high returns for the shareholders. Therefore, managers should not be subject to control and supervision from directors. Thus, as per stewardship theory a small board is more effective in ensuring that managers have enough authority and freedom to implement their jobs like good stewards of the firm.

Remainder of this paper explains about the review methodology, findings of review process and conclusion.

Review methodology

There are three popular methods for reviewing the past studies, namely, narrative review, systematic review and meta-analytic review. In this study systematic review has been used. Systematic review is the scientific process of review of literature. It involves various steps like *formulation of research question, determination of inclusion and exclusion criteria of papers, process and sources of searching previous research studies, refining of searched papers,*

extraction of important information, and tabulation of important information. Does board size affect the firm performance? It is the research question of this study. Only those papers have been included in this study which satisfy the following criteria - research paper should be empirical in nature, profitability and/or value measure of firm performance are/is used in these studies as dependent variables, research paper should be published or unpublished (like working papers, thesis, dissertation etc.), papers should be published in reputed peer reviewed journals and unpublished research work should be affiliated with reputed National or International Institutions, Universities and Government bodies and finally papers should be published or drafted during the period of 1995 to 2020. For searching the papers three online sources namely Google scholar, Social science research network (SSRN), and Google search engine have been used. Different keywords have been used to search the papers like board size, number

of directors on board, board characteristics, board structure, and corporate governance. After searching, these papers have been refined. Research papers which fulfilled the pre-determined inclusion criteria have been included in this study. Important information like year of publication, period of study, place of study, statistical method, definition of dependent variables, definition of independent variables and findings have been extracted from each of the selected papers. These set of information has been systematically tabulated in this study.

Findings of review process

This section describes the statistics of papers collected and selected for review as well as the summarized findings of selected papers.

Statistics of papers collected and selected:

Through searching with various keywords, numerous research papers have been collected in PDF form from the predefined online sources. Statistics of all these papers is given in following Table 1:

Table 1: Statistics of papers collected and selected for review

Types of literature	No of studies collected	Studies selected	
		Number	Percentage
Research Papers	158	44	28
Conference Proceedings	02	02	100
Working Paper	05	03	60
Doctoral Thesis	02	00	0
Master Thesis	06	00	0
Bachelor Thesis	01	00	0
Review Papers	28	00	0
Total	202	49	24
Source: Researcher’s compilation			



Above table shows that out of 202 papers only 49 papers are considered for review, which constitutes twenty four per cent of total available papers. Main reasons for rejection of papers are not published in reputed journals, review papers, missing of

clear explanation of statistical analysis and finally not related to theme.

Year-wise selection of papers for review:

This section describes the yearly statistics of research papers which are considered for review. Details are given in Table 2.

Table 2: Yearly statistics of selected empirical papers

Year	Number	% of Total Selected Papers
1995	0	00
1996	1	02
1997	0	00
1998	1	02
1999	1	02
2000	0	00
2001	0	00
2002	0	00
2003	1	02
2004	1	02
2005	3	06
2006	1	02
2007	3	06
2008	5	10
2009	4	08
2010	3	06
2011	0	00
2012	3	06
2013	3	06
2014	2	04
2015	5	10
2016	5	10
2017	1	02
2018	1	02



2019	3	06
2020	2	04
Total	49	100
Source: Researcher's compilation		

Country-wise selection of papers for review:

Table 3 shows that the selected papers are related from thirty one developed and

developing countries of the World. Out of forty nine studies, fourteen are form India. It is the highest number in comparison of the rest of thirty countries.

Table 3: Country-wise statistics of empirical studies undertaken for review

Name of Countries	No of Studies	Name of Countries	No of Studies
Australia	3	Kenya	1
Bangladesh	1	Luxembourg	1
Belgium	2	Malaysia	2
Canada	2	Netherland	1
China	1	New Zealand	1
Finland	1	Nigeria	4
France	4	Pakistan	1
Germany	3	Spain	3
Ghana	2	Switzerland	1
Holland	1	South Africa	2
India	14	Sri Lanka	2
Iran	1	Taiwan	1
Italy	5	Vietnam	2
Indonesia	1	UK	3
Ireland	1	USA	6
Japan	1		
Source: Researcher's compilation			

Summarized findings of previous empirical studies:

This section explains the relevant information about all the forty nine papers

reviewed. Name of authors, year of publication, period of study, sample size, place of study, statistical tools used and summarized findings of all these papers are presented in following table 4:

Table 4: Summary of Findings of Previous Empirical Studies

Author(s) / Year / Palace of study	Sample size / Period of study / Dependent variable / Analytical tool	Result
Adams & Mehran / 2012 / USA	35 Bank Holding Companies / 1986-99 / Tobin q & ROA / Fixed effect regression	Positive impact on Tobin q but there is insignificant result in case of ROA
Adhikary & Hoang / 2014 / Vietnam	58 listed companies / 2007-09 / ROA, ROE & Tobin q / Fixed effect, Random effect regression and Feasible generalized least squares	Positive impact on ROA & ROE but insignificant impact on Tobin q
Azzez / 2015 / Sri Lanka	100 listed companies / 2010-12 / EPS, ROA and ROE / OLS Regression	Study shows negative relation between board size and firm performance
Basyith et al. / 2015 / Indonesia	38 listed companies / 2010-14 / ROA / Tobit regression	They found negative relation between board size and firm performance
Bebeji et al. / 2015 / Nigeria	5 banks / 2005-15 / ROA and ROE / OLS regression	They found negative relation between board size and firm performance
Belkhir / 2009 / USA	174 banking companies / 1995-02 / Tobin q and ROA / Fixed effect regression	Positive relation between board size and firm performance has been observed in this study
Bermig & Frick / 2010 / Germany	294 listed companies / 1998-07 / Tobin q, Shareholder's return, ROE and ROCE / Fixed effect regression	Mix results have been found in this study. Results show positive relation between Tobin q and board size, however negative relation between shareholder return and board size and insignificant result in case of other two measures of firm performance

Bonn et al. / 2004 / Australia and Japan	169 Japanese listed companies and 104 Australian companies / 1999 / ROA and MBVR / OLS regression	They have found negative relation between board size and both the proxies of firm performance in case of Japanese firms. Result is insignificant in case of Australian firms
De Andres & Vallelado / 2008 / Canada, USA, UK, Spain, France and Italy	69 commercial banks / 1996-06 / Tobin q, ROA , Shareholder market return / System estimator regression	Nonlinear (inverted U shape) relation between board size and firm performance has been observed in this study
De Andres et al. / 2005 / Belgium, Canada, France, Germany, Holland, Italy, Spain, Switzerland, UK and USA	450 listed companies / 1996 / MBVR / OLS and 3SLS	Negative impact of board size on value of firm has been obtained in this study
Di Pietra et al. / 2008 / Italy	71 listed companies / 1993-00 / Market value of equity / Fixed effect regression	They have noted insignificant result
Dzingai & Fakoya / 2017 / South Africa	10 listed mining companies / 2010-15 / ROE / Random effect regression	Statistically insignificant negative relation between board size and ROE has been noted in this study
Eisenberg et al. / 1998 / Finland	879 listed and non listed companies / 1992-94 / ROA / OLS regression	Their finding shows negative relation between board size and ROA
Fauzi & Locke / 2012 / New Zealand	79 listed companies / 2007-11 / Tobin q and ROA / Generalised Linear Model Estimation regression	They have found positive relation between board size and both the measures of firm performance
Guest / 2009 / UK	2746 listed companies / 1981-02 / ROA, Tobin q and Annual share return / OLS, GMM and Fixed effect regression	Negative relation between board size and firm performance has been observed in this study.
Gull et al. / 2013 / Pakistan	160 listed companies / 2007-11 / Tobin q, MBVR, ROA and ROE / OLS regression	They have found positive relation between board size and firm performance
Haniffa & Hudaib / 2006 / Malaysia	347 listed companies / 1996-00 / Tobin q and ROA / OLS regression	Their study shows negative relation between firm value and board size, however positive relation between board size and ROA

Hemza / 2020 / France	40 listed companies / 2005-17 / ROA, ROE, Tobin q and MBVR / Fixed effect and Random effect regression	Results show positive impact of board size on firm performance
Horvath & Spirollari / 2012 / USA	136 listed companies / 2005-09 / MBVR / Fixed effect regression	They have found insignificant result
Kajola / 2008 / Nigeria	20 listed companies / 2000-06 / ROE and ROS / OLS regression	Result shows positive relation between board size and ROE
Kao et al. / 2019 / Taiwan	10151 firm year observation / 1997-2015 / Tobin q, MBVR, ROA and ROE / Fixed effect panel regression and 2SLS regression	There is negative relation between board size and profitability measures of performance (ROA and ROE). However, positive relation is found between board size and value measures (Tobin q and MBVR)
Kyereboah-Coleman / 2007 / Ghana, South Africa, Nigeria and Kenya	103 listed companies / 1997-01 / Tobin q and ROA / Arellano and Bond's (1991) GMM estimation	Positive relation between board size and Tobin q has been documented in this study. Result is statistically insignificant in case of ROA
Mashayekhi & B a z a z / 2008 / Iran	240 firm year observations / 2005-06 / EPS, ROA and ROE / OLS regression	Their study shows negative relation between board size and different measures of firm performance
Melville & Merendino / 2019 / Italy	65 listed companies / 2003-15 / ROA / GMM	Study shows that board size has positive impact on firm performance for lower levels of board size
O'Connell & Cramer / 2010 / Ireland	77 listed companies / 2001 / Stock return, Tobin q and ROA / OLS and 2SLS regression	They have observed negative relation between board size and two proxies of firm performance i.e. ROA and Tobin q
Pratheepkanth et al. / 2015 / Australia and Srilanka	100 Australian and 100 Sri Lankan listed companies / ROA and ROE / OLS regression	Study shows positive relation between ROA and Board size in case of Australian firms. Result is insignificant in case of other measure of performance as well as in case of Sri Lankan firms
Puni & Anlesinya / 2020 / Ghana	38 listed companies / 2006-18 / ROA, ROE, EPS and Tobin q / Fixed effect regression	Finding shows that board size has positive impact on firm performance



Rashid et al. / 2010 / Bangladesh	90 listed companies / 2005-09 / Tobin q and ROA / OLS regression	Their study shows negative relation between board size and ROA and positive between board size and Tobin q
Rodriguez-Fernandez / 2014 / Germany, Belgium, Spain, France, Italy, Netherlands, and Luxembourg	47 listed companies / 2010 / ROA, ROE and Tobin q / OLS regression	He has found insignificant relation between board size and different measures of firm performance
Sanda et al. / 2005 / Nigeria	93 listed companies / 1996-99 / ROA, ROE, Tobin q and PE ratio / OLS regression	They found nonlinear (inverted U shape) relation between board size and Tobin q. In the case of other measures of firm performance result is not significant
Setia-Atmaja / 2008 / Australia	316 listed companies / 2000-05 / Tobin q / Pooled Regression (Huber-White) estimations and Random effect regression	Result shows that board size has positive impact on value of firms, especially in case of big firms.
Shao / 2019 / China	2545 listed companies / 2001-15 / Tobin q / GMM	Finding indicates that there is insignificant relation between board size and firm performance.
Vo and Phan / 2013 / Vietnam	77 listed companies / 2006-11 / ROA / Flexible generalized least square regression	Result signifies negative relation between board size and ROA
Yermack / 1996 / USA	452 listed companies / 1984-91 / Tobin q, ROA, ROS and ATR / OLS and Fixed effect regression	Findings indicate the negative relation between board size and firm performance
Zabri et al. / 2016 / Malaysia	100 listed companies / 2008-12 / ROA and ROE / OLS regression	Result indicates negative relation between Board size and ROA and insignificant result in case of ROE
Arora and Sharma / 2016 / India	1922 listed companies / 2001-10 / ROA, ROE, ROS, Tobin q and Stock return / Fixed effect and System GMM	Positive relation between board size and Tobin q, however negative relation between Board size and ROA have been observed in this study

Berkman et al. / 2005 / India	271 Group A and 535 Group B listed companies classified by SEBI / 2001-03 / Tobin q / OLS regression	Study shows positive relation between board size and Tobin q on the basis of whole sample. In separate analysis, result in insignificant in case of Group A companies
Bhatt and Bhattacharya / 2015 / India	115 listed IT companies / 2006-12 / ROA, ROE and ROCE / Fixed effect regression	They observed positive relation between firm performance and board size
Singla / 2016 / India	101 listed companies / 2002-08 / Tobin q / Random effect regression	She has noted positive relation between board size and Tobin q
Garg / 2007 / India	200 listed companies / 1998-03 / Tobin q, ROA, ATR and Stock price return / OLS and Random effect regression	He has documented negative relation between board size and all the measures of firm performance except stock price return
Ghosh / 2003 / India	462 listed companies / 1997-02 / ROA and Tobin q / Fixed effect regression	Study shows nonlinear (inverted U shape) relation between board size and ROA. Insignificant result in case of Tobin q
Ghosh / 2007 / India	200 listed companies / 2005 / ROA and Tobin q / OLS regression	His study shows negative relation between board size and both the measures of firm performance
Jackling and Johl / 2009 / India	180 listed companies / 2006 / ROA and Tobin q / 3SLS regression	They have found positive relation between Board size and Tobin q. In case of ROA result is insignificant
Kalsie and Shrivastav / 2016 / India	145 listed companies / 2008-12 / Tobin q, MBVR, ROA and ROCE / Fixed effect model, Random effect model and Feasible generalised least square regression model	Their study shows positive relation between board size and different measures of firm performance

Kathuria and Das / 1999 / India	504 listed companies / 1995 / ROA / OLS regression	They have observed positive relation between board size and ROA
Manna et al. / 2016 / India	42 listed companies / 2009-13 / Tobin q, MVA, EPS and ROCE / Random effect model	Their result shows positive relation between Board size and Tobin q and ROCE. In case of other two measures of firm performance result is insignificant
Kumar and Singh / 2013 / India	176 listed companies / 2009 / Tobin q / OLS regression	They observed insignificant negative relation between board size and Tobin q
Saravanan / 2009 / India	771 listed companies / 2001-05 / Tobin q / OLS regression	In this study positive relation between board size and Tobin q has been observed
Sarkar and Sarkar / 2018 / India	46 scheduled commercial banks / 2003-12 / ROA and MBVR / OLS regression	They have noted insignificant relation between board size and both the measures of firm performance

Source: Author’s compilation

Above table shows that the mix results have been found, various performance measures have been used and different statistical tools have been applied in past studies. Table also shows the some limitations of these studies like less number of investigation is conducted to validate the nonlinear relation between both of these variables. Out of 49 selected studies, only in four papers i.e. De Andres & Vallelado (2008), Sanda (2005), Ghosh (2003) and Guest (2009),

nonlinear relation has been investigated. Other measures of firm performance like Economic Value Added (EVA), Market Value Added (MVA), Jensen’s Alpha etc. have been ignored in past studies. It has been also observed that in past studies only listed companies have been taken into consideration.

Frequency of different performance measures used in past studies as well the count of their relation with board size is presented in Table 5 for the convenience of the readers.

Table 5: Count of positive, negative, nonlinear and insignificant relation between board size and different measures of firm performance

Performance Measures	Frequency of use	Positive Relation	Negative Relation	Nonlinear Relation	Insignificant Relation
Tobin q	30	17	06	02	05
MBVR	09	04	02	00	03
Shareholder return	05	00	03	01	01
Market value of equity	01	00	00	00	01
ROA	35	11	16	02	06
ROE	17	06	04	00	07
ROCE	04	03	00	00	01
EPS	04	01	02	00	01
ROS	03	00	01	00	02
ATR	02	00	02	00	00
MVA	01	00	00	00	01
PER	01	00	00	00	01

Here, MBVR: Market to book value ratio, ROA: Return on assets, ROE: Return on equity, ROCE: Return on capital employed, EPS: Earning per share, ROS: Return on sales, ATR: Assets turnover ratio, MVA: Market to book value ratio, and PER: Price earnings ratio.

Source: Author’s compilation

Above table shows that twelve measures of firm performance have been used in these 49 empirical studies. Out of these 12 measures most frequently used measures of performance are ROA and Tobin q. ROE is the third most preferred measure of firm performance. Out of total selected papers, ROA has been used as performance measure in 71% papers, Tobin q has been used in 61% studies and in 35% studies ROE has been used. Percentage of use of other measure of performance is very less.

In case of Tobin q, out of 30 studies positive relation has been observed in majority of (57%) studies and negative in case of 20%. In case of ROA, out of 35 studies positive relation is found in case of nearly one third (31%) studies, however negative relation is found in case of nearly one half studies. In case of ROE positive relation is found in more than one third of studies and negative in nearly one fourth studies. Thus there is no conclusive relation has been found between both of these variables.

Conclusion:

In this paper theoretical approach (review of past empirical studies) has been applied to analyze the impact of board size on firm's financial performance. For this investigation, forty-nine empirical research papers from thirty-one developed and developing countries were considered, which were published in a variety of reputable national and international journals between 1995 to 2020. From the above review of literature, it has been observed that the relation between the two variables (i.e. board size and firm performance) is still ambiguous for the academicians, corporate managers and policy makers. Inconsistent result has been noted through the previous studies. Some of the studies supported the agency and resource dependence theory, whereas some of them were in favor of stewardship theory. On the other hand, few studies did not support any of these theories. In handful of the previous studies nonlinear relation was noticed between these two variables. Probable reasons of inconsistent findings from past studies may include age, size, ownership structure, group affiliation, group size, group diversification, industrial affiliation, capital structure, country of operation, different measures of firm performance, outside directorship of the board of directors, CEO duality, independent board etc of the sample firms.

The review of the literature indicates that prior studies were utilised secondary data for analysing the relation between board size and firm performance. It observed that

non-listed and service sector companies are not been used as a sample in any study. Limited number of studies was discussed about non-linear relationship between these two variables, moderating effect of firm age, firm size, ownership structure, group affiliation, group characteristics, CEO duality, outside directorship (busyness) of board members etc associated with the relation between board size and firm performance was not analysed. As a result there is still wider scope for both primary and secondary research in this area. Primary research can be conducted by incorporating questionnaire surveys regarding director's opinion on relation between these two variables.

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Management of Intangibles in Contemporary Environment – a Case Study of BSE listed Automobile Corporates in India

Pradeep Kumar Singh

Abstract:

Management of intangibles is new phenomenon in contemporary environment. It is comprehensive concept then knowledge management. Precisely management of intangibles concern with identification of intangibles within corporate, and how they are supporting to enhance present and future value of the firm, searching intangible activities and efficiently management of such activities so the value creation and management possible in optimistic way. In the process of management of intangibles three important steps under taken by the corporates such as identification of vital intangible assets associated with value creation, measurement of intangible by selected indicators and finally monitoring of intangibles.

Keeping all these factors in view an attempt is made by the researcher to analyze the value creation and generation of intangibles specific for automobile industry in India in two different time dimensions within a gape of one decade. For this purpose a quantitative data taken from financial year 2004-05 to 2009-10 and from 2014-15 to 2019-20 to find out creation of intangible, disclosed and undisclosed intangible during these two different period of time and any significant difference in the size and trend of the intangibles management. The qualitative data related to intangibles also analyze by the using tool content analysis; such as how many intangibles disclosed in annual reports, their nature and type and the way of reporting etc.

Finally researcher found that creation of intangibles by automobile corporates is 78.20% during 2015-2020 as compare to 2005-2010 was 64%. Similarly contribution of undisclosed intangibles in total intangibles is 97.23% which is higher and its affects the financial position of the companies. Major disclosed intangibles are in form of Technological know-how, Model fee/ Product designs and development, Brand license fee, Non-Compete Fees, and goodwill.

Key Words: Value Creation, Market Capitalization, Net Worth, Management of Intangibles

Part-I

Introduction

Management of intangibles is new phenomenon in contemporary environment. It is wider concept than knowledge management. It has two aspects; first one is creation of intangibles such as Brand value, various Commercial rights and unique power of resource (such as innovations) which leads to competitive advantage over other firms resulted enhancement of market share of the corporate. On the other side management of intangibles in such as way that earning capacity and uniqueness of product and brands stay alive in market in long run. Precisely management of intangibles concern with identification of intangibles within corporate and how they are going to enhance present and future value of the firm, searching intangible activities and efficiently management of such activities so the value creation and management possible in optimistic way.

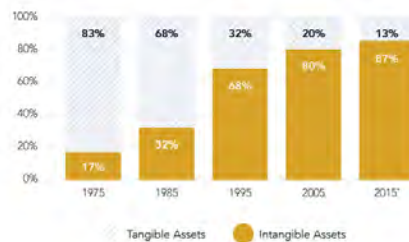
In current competitive environment firms primary focus on shareholders’ value creation which depends upon management of intangibles such as improvement of brand image, innovations, sustainable developments, and position of their product in market. In the process of management of intangibles three important steps under taken by the corporate such as identification of vital intangible assets associated with value creation, measurement of intangible

by selected indicators and monitoring of intangibles.

It is vital to explain the contribution of tangible and intangible components and their role in market share of the corporate. **Exhibit I** indicates contribution of tangible and intangible components in market value of leading companies. It shows in the year 1975 contribution of intangibles are only 17% of market value which was increases up to 80% in the year 2005 and further increases up to 87% in the year 2015. It indicates in the last three decades contribution of intangibles are significant for the value creation. However, in the long-run value of shares are only increases due to all such factors. So, we can say market capitalization covered all financial and non-financial factors in terms of money and critical activities which determine the value of a corporate.

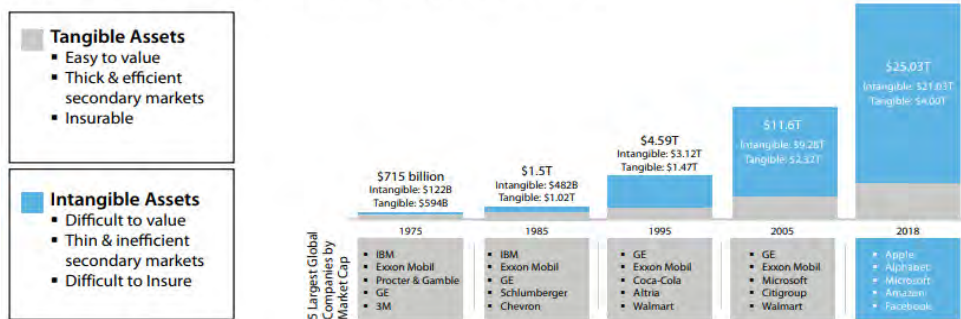
Exhibit I: Market Value and Tangible & Non-Tangible Components

COMPONENTS of S&P 500 MARKET VALUE



Source: Study on Market Value of S&P 500 Companies in 2015 by Ocean Tomo

Tangible Assets vs. Intangible Assets for S&P 500 Companies, 1975 – 2018



Intangibles Management- Needs

- Intangible assets surpass physical assets-both in value and growth.
- It provides unique feature to an enterprises-enhance the value of the firm.
- Intangibles need to be reported as information capable of making a difference in user’s decisions.
- Users of financial statement also indicate need for better information.
- Provide greater transparency and vital information before taking an investment decision.
- The values of intangibles are needed to understand and justify as investment.
- Information on intangibles can increase market value of shares.

Intangibles - Current Status

- Only purchased intangibles can be reported in financial statements under the head of Non-Current assets.
- Self generated intangibles cannot recognize and reported in the financial statements.
- Some companies are using voluntary reporting method as supplement statement for self generated intangibles.
- Depreciation is permissible @ 25% WDV on the acquisition value of the intangibles after 1.04.1998.
- There is no clear provision for depreciation on certain known intangible assets such as, Goodwill, employees’ contracts, vendor/customer contracts, distributorship rights, non-compete rights, customer lists, service process flows, knowledge databases, brands, etc.



- Research expenses cannot be capitalized as intangibles but certain development expenditure can be capitalized as intangibles for reporting point of view.

Intangible Assets under Revised Schedule VI (2013)

- Earlier intangibles assets are only a part of fixed assets with limited information's (such as goodwill, software's etc).
- In the revised schedules VI for intangibles, a comprehensive sub-heading - as Goodwill, Brands/

Trademarks/Computer Software/ Mastheads and publishing titles/ Mining rights/Copyrights/ Patents/Licenses, etc (individually).

- Some basic information such as opening balance of the assets, additions during the year, disposal or amortization of assets and final balance etc. are offered in the revised schedules VI.
- Similarly first time a new sub-heading is also introduced such as intangible assets under development—for widely recognition of research and developmental activities.

Categories of intangible asset under IFRS 3

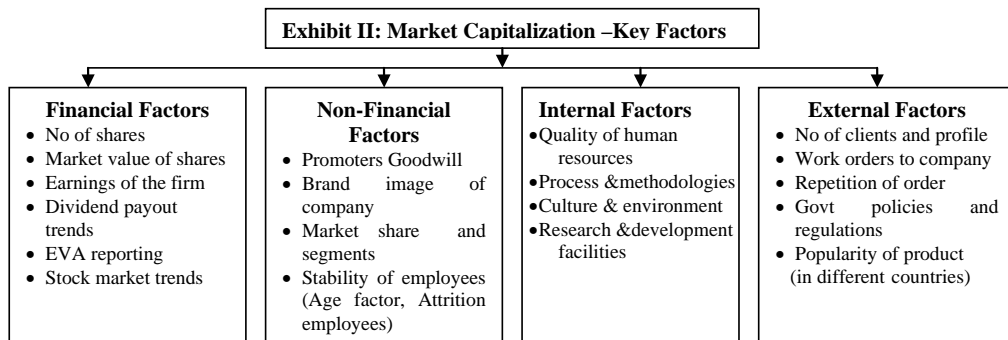
Marketing-Related Intangible Assets	Customer-Related Intangible Assets	Contract-Based Intangible Assets	Technology-Based Intangible Assets	Artistic-Related Intangible Assets
<ul style="list-style-type: none"> Trademarks, tradenames Service marks, collective marks, certification marks Trade dress (unique colour, shape, or package design) Newspapers Internet Domain Names Mastheads Non-competition agreements 	<ul style="list-style-type: none"> Customer lists Order or production backlog Customer contracts & related customer relationships Non-contractual customer relationships 	<ul style="list-style-type: none"> Licensing, royalty, standstill agreements Advertising, construction, management, service or supply contracts Lease agreements Construction permits Permits Franchise agreements Operating and broadcast rights Use rights such as drilling, water, air, mineral, timber cutting & route authorities Servicing contracts such as mortgage servicing contracts Employment contracts 	<ul style="list-style-type: none"> Patented technology Computer software and mask works Unpatented technology Databases Trade secrets, such as secret formulas, processes, recipes 	<ul style="list-style-type: none"> Plays, operas and ballets Books, magazines, newspapers and other literary works Musical works such as compositions, song lyrics and advertising jingles Pictures and photographs Video and audio-visual material, including films, music, videos etc.

Source: Global Intangible Finance Tracker (GIFT™) — an annual review of the world's intangible value November 2019, p 7

Value Creation and Intangible

Value creation is indicated as enhancement of market value of share of firm in particular time. More precisely market capitalization is one of the important indicators for value creation. Market capitalization is no thing, but it is market value of equity capital for a particular time based on demand and supply factors in stock market. Fundamentally, it is calculated by outstanding shares multiply by market value of shares on a particular date (normally end of the financial year). It represents tangible and intangible value

of a corporate in terms of money, which is affected by various financial, non-financial, internal and external factors (refer exhibit II). It is one of the important methods to measure shareholders value creation. As market capitalization increases day by day or year by year value of share and shareholders are gaining more importance (for their shares) in the stock market. Reputations and image of brand, product segment, earning capacity, dividend payout trends and economic situation etc, are the important factor which affects size of market capitalization of the firm.



Source: Authors own compilation from various sources.

Under this method initially market capitalization is calculated by multiplying the market value per share with number of outstanding shares, then deducted from the stockholders equity value, difference

will be treated as the value of intangibles. This intangibles are commonly represented the value for Human capital¹, Relationship capital² and Organizational (Structural)

¹ Human capital refers to Capability of a company to benefit from knowledge, skills and experience of employees, which immanently pertain to the latter Such as capability for innovations, creativity, know-how and experience, ability to work in a team, motivation, learning capability, educational and professional level and loyalty etc.

² Relationship Capital refers to capability of a company to benefit from resources connected with the company’s external relations (with customer, suppliers, and other counteragents) such as brands, suppliers, loyalty of the customers, distribution channels, business cooperation, alliances and partnerships, licensing agreements, franchising agreements etc.



Capital³, which exist in a particular firm to provide leverage for value creation.

Now the question arises why we need market capitalization and why Indian companies are focusing on determination and reporting of the various segment of market capitalization? Simple answer is market capitalization is one of the important base for measurement of shareholders value creation as well as most important method for determination of value for intangible assets, which are invisible but are contributing major role in the process of value creation. In the current knowledge and service oriented economy, contribution

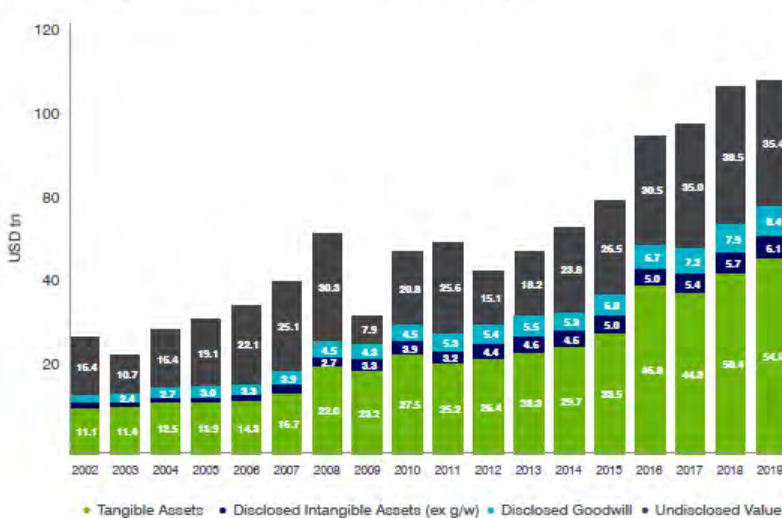
of intangible assets are more in the value creation process rather than tangible assets in terms of value and growth.

Intangibles –Global Scenario

At global level, India is the third largest country is having higher intangible assets in the market capitalization, among the European Union, G8, Organisation of Economic Co-operation & Development countries and even the BRIC grouping. At universal level when we analyze the disclosed and undisclosed proportion of intangibles, undisclosed intangible increases significantly (refer exhibit III).

Exhibit III

Global Enterprise Value - Absolute Breakdown (USD tn)



³ Organizational (Structural) Capital means capability of a company to benefit from attainments remaining inside the company such as Intellectual Property patents, trademarks, service marks, name of origin of goods, copyright etc. Infrastructural Assets corporate culture, internal administration of the work-flow, information systems, management philosophy, decision-making system etc.

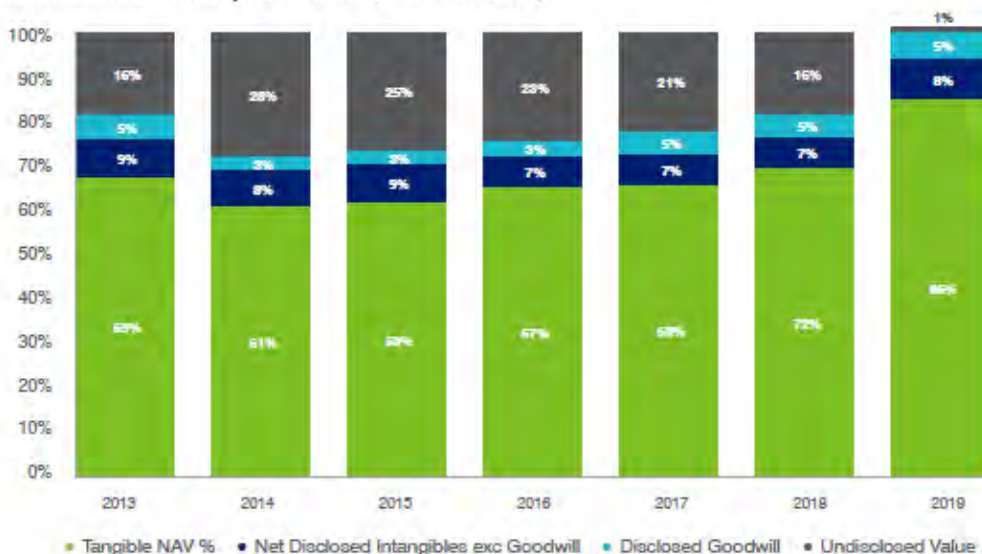


In the year 2002 it was 16.4 trillion USD and increases up to 35.4 trillion USD in the year 2019. Year over year value of value of undisclosed intangibles increases regular except in the year 2009 due to the global recession which largely affected business all over the world. Similarly proportion of disclosed intangible and Goodwill also increases in the same direction from 2002 (3 trillion USD) to (14.5 trillion USD) in the years 2019.

As far automobile sector is concern the position of automobile sector at global level is entirely different. As per Exhibit IV undisclosed value of intangibles decreases from 28% to 1 % between 2014 to 2019 and value of disclosed goodwill to 2019 and value of disclosed goodwill and other intangible follows a constant trend during the 2014 to 2019. At the same time proportion of tangible value increases from 69% to 86% between 2014 to 2019 respectively.

Exhibit IV

Automobiles – Enterprise Value Breakdown (%)



When we analyze the position of top ten global corporates and value of disclosed and undisclosed intangibles, researcher

finds that Microsoft corporation is leading globally with total intangible value 905bn USD in which disclosed value of



intangible including Goodwill was 44bn USD and value of undisclosed intangibles 860 bn USD. Second place secured by Amazon (Disclosed intangibles 44bn USD and Undisclosed 820 bn USD) and third place goes to Apple (Disclosed intangible Nil and undisclosed 675 bn USD) and

followed by others (refer exhibit V). One of the important observations that in top ten corporates at global level none of the automobile corporate secured any position in terms of creation of intangibles disclosed and undisclosed value etc.

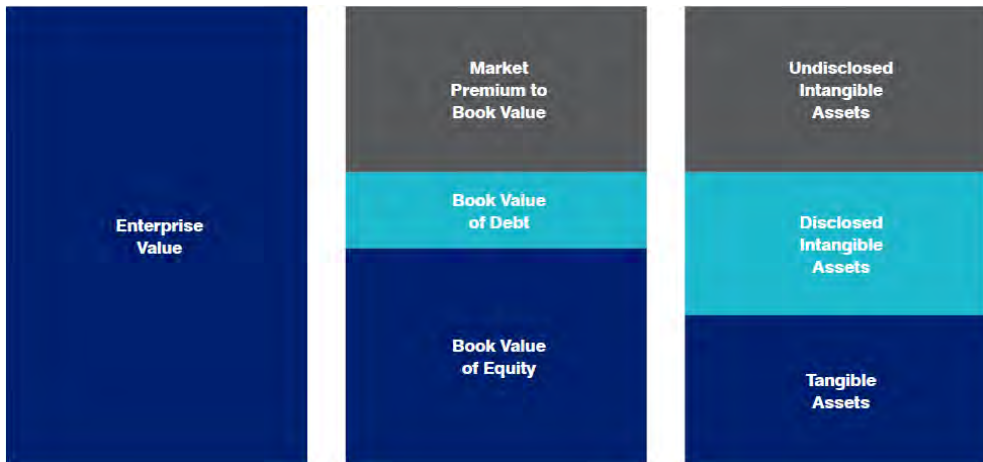
Exhibit V Top Ten Global Corporates and Intangibles Value (Disclosed and Undisclosed)

2019 Rank	2018 Rank	Company	Sector	Total Intangible Value (USD bn)	Total Intangible Value/ Enterprise Value (%)	Tangible Net Asset Value (USD bn)	Net Disclosed Intangibles (USD bn)	Disclosed Goodwill (USD bn)	Undisclosed Intangible Value (USD bn)	Enterprise Value (USD bn)
1	2	↑ Microsoft Corp	Internet & Software	\$904	90%	\$106	\$8	\$36	\$860	\$1,009
2	1	↓ Amazon.com Inc	Internet & Software	\$839	93%	\$65	\$4	\$15	\$820	\$903
3	3	← Apple Inc	Technology & IT	\$675	77%	\$199	\$0	\$0	\$675	\$874
4	4	← Alphabet Inc	Internet & Software	\$521	65%	\$279	\$2	\$18	\$501	\$800
5	6	↑ Facebook Inc	Internet & Software	\$409	79%	\$110	\$1	\$18	\$389	\$518
6	9	↑ AT&T Inc	Telecoms	\$371	84%	\$70	\$164	\$146	\$60	\$441
7	7	← Tencent Holdings Ltd	Internet & Software	\$365	88%	\$52	\$3	\$5	\$357	\$417
8	8	← Johnson & Johnson	Pharma	\$361	101%	-\$2	\$48	\$30	\$283	\$359
9	11	↑ Visa Inc	Banking	\$348	100%	-\$1	\$28	\$15	\$305	\$348
10	5	↓ Alibaba Group Holding	Internet & Software	\$344	86%	\$56	\$4	\$26	\$314	\$400

Exhibit VI exemplify how intangible value is having contribution of both disclosed and undisclosed value. Undisclosed intangible assets are having always more value then disclosed intangibles. It comprises of internally generated goodwill result of difference between the fair market value of

a business and value of identifiable tangible and intangibles. The moment contributions of disclosed and undisclosed intangibles are increases in the value of enterprises, more wealth creation for shareholders and finally leading by the corporate in the particular industry.

Exhibit VI: Breakdown of Corporate Assets Including Intangibles



Source: Global Intangible Finance Tracker (GIFT™) — an annual review of the world’s intangible value November 2019, p 6

Keeping all these factors in view an attempt is made by the researcher to analyze the Intangible management practices among the Indian automobile sector, how they are disclosing it in annual statement and how it affects shareholder value creation. For smooth and logical analysis, research paper is divided in to IV sections. **First Section** deals with introduction of topic, statement of the problem, rationale of study, and review of literature related for value creations and management of intangibles. **Second section** deals with research methodology including research questions, objectives, hypothesis and limitations of the study. **Third section**

deals with data analysis related to creation of intangible assets, discloser and management practices for Intangibles and current status and **fourth section** is for key observations, findings, suggestions and conclusion.

Review of Literature

A lot of national and international literature is available in the area of shareholder value creations and related issues. Some of the researches are very useful and significant in this regards. **Booth Laurence**⁴ explained various drivers of shareholder value creations with the focus that stock market values are driven by real corporate

⁴ Booth Laurence (1998): What Drives Shareholder Value? Presented at the Federated Press “Creating Shareholder Value” conference, October 28,

performance, as compared to market benchmarks. As ordinary managers are transformed themselves as value managers with the help of CSV model they more close to value creation process. This model emphasis enhancement of turnover ratios increases profit margins and as a result increases profitability. He also pointed that firm are facing critical decision is to adopt a value based managerial system or a particular set of decision tools. **Baruch Lev**⁵ examined the relationship of knowledge assets and shareholders' value creation. He focused that investors recognize the primacy of knowledge assets as value-creators, but don't count on capital markets to value properly in real time those assets. He bring to a close note that, companies urgently need to adopt new technologies, change organizational designs and invest in research and human resources. These companies encounter great difficulties doing so because of the high uncertainty associated with most knowledge assets, and investors' preference for quick gratification in the form of high corporate earnings.

Pablo Fernandez⁶ explained various aspect of shareholder value creation with help

of case study of General Electric between 1991-1999. To explain shareholders value creation he defines increases in equity market value, the shareholders added value, the shareholders returns and the required return to equity. He had also calculated creating shareholders value of 142 American companies during the eight year period 1992-99 and popularizes the concept of shareholder value creation.

Jhonny Di Giampaolo⁷ explains that intangibles play an important role as levers of value creation in many industries. Consequently, investors are strongly interested in obtaining information about the intangible asset stock of companies. Intangible assets are very relevant, particularly in highly innovative industries and, in general, in knowledge-intensive firms. In his research he analyzes the intangibles disclosure quality (IDQ) of pharmaceutical and biotechnology listed companies by applying the content analysis method to their annual reports.

B. Charumathi and Latha Ramesh⁸ focused the effects of voluntary disclosure practice and its impact on market value

⁵ Baruch Lev (2001): "Intangibles: Management, Measurement, and Reporting", Washington, D C: The Bookings Institution.

⁶ Pablo Fernandez (2002): Valuation Methods and Shareholder Value Creation, 2002 Academic Press, San Diego, CA.

⁷ "The disclosure of intangible assets in pharmaceutical and biotechnology listed companies", Università Politecnica delle Marche, Facoltà di Economia "G. Fuà" Dipartimento di Management e Organizzazione Industriale P.le Martelli, Ancona Italia

⁸ B. Charumathi and Latha Ramesh(2020), Impact of Voluntary Disclosure on Valuation of Firms: Evidence from Indian Companies, Vision, 24(2) 194–203



of firm. They used imperial test related to voluntary discloser practices using Corporate Voluntary Disclosure Index containing 81 items of both financial and non-financial information and finds that positive association between voluntary disclosers and market value for firm measured by Tobin's Q. They concluded that market is giving higher value for such companies disclosing information such as social and environmental, corporate governance information's as voluntary basis.

Madan Lal Bhasin⁹ attempts to provide a close view related to IC discloser adopted by the Indian companies. He made and exploratory study of IC disclosers and measurement of the eight Indian companies for a period of 5-year, adopting method of content analysis and market value added (MVA) as research methodologies. He concluded that sample companies are having positive IC and a significant correlation found between total assets and operating profit. At the same time he finds, low-level, wide-disparity and simply voluntary nature of the IC discloser practices and none reporting of IC related

information negatively affects the decision of the shareholders related to investment.

N Viswanadham and Poornima Luthra¹⁰ focused that to measure shareholder value the strategic profit model (SPM) and the economic value-added (EVA) are most appropriate. SPM measures the return on net worth (RONW) which is defined as the return on assets (ROA) multiplied by the financial leverage. EVA is defined as the firm's net operating profit after taxes (NOPAT) minus the capital charge. Their study is significant in extending the measurement of shareholder value using SPM and EVA to listed third party software providers. They concluded that reducing fixed assets, accounts receivables and operating expenditure have been identified as areas that require attention by the companies in this industry to enhance shareholders value.

Chakraborty P.K.¹¹ stated shareholders value creation is the top most priority for the corporate world today. This move has gained added momentum with the rising expectation of the shareholders for their value of money. He explained different facets and principles of shareholders value

⁹ Madan Lal Bhasin (2106), Management, Measurement and Disclosure of Intellectual Capital Information in Financial Statements: An Empirical Study of a Developing Economy, International Journal of Management Sciences and Business Research,5(11),46-63

¹⁰ Viswanadham N and Luthra Poornima (2005): "Models for measuring and predicting shareholder value: A study of third party software service providers", Sadhana Vol. 30, Parts 2 & 3, April/June pp. 475-498.

¹¹ Chakraborty P.K. (2006): "Shareholders Value Creation-The Pressing Corporate Agenda", The Chartered Accountant, Vol 54 No 11, May pp1647-50.

creation from professional perspective. He stressed brand management, cost control and cost reduction, employee’s interest and retention etc are an important area of value creation.

Mohanty B.K¹² focused on market capitalization by Indian corporate’s in the last one decade. His analysis is based in on different classification such as large cap, mid-cap and small-cap. He made a systematic analysis of top ten gains and looser and most wealth creators based on market capitalization and how management

should focus on different aspect of wealth creation practices.

All these researches are related to the various aspects of intangible discloser, value creation and analysis of different models, **but no one correlated creation of intangible assets by market capitalization method and how to manage intangibles which leads to enhancement of shareholders’ value in long run and what is the way to manage intangibles in contemporary environment.**

Part-II

RESEARCH METHODOLOGY AND DESIGN

This research study is a macro nature case study, based on the secondary source of data related to 08 leading Indian automobile corporate’s which are listed in BSE selected by listed in BSE by applying the technique of multi-stage sampling. Multi-stage non-random sampling technique is used and the different stages are followed:

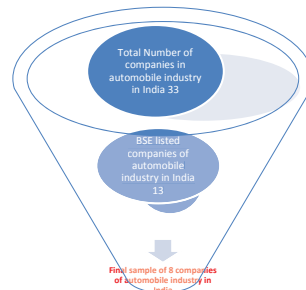
STAGE-I: Total Number of companies in automobile industry in India 33.

STAGE-II: BSE listed companies of automobile industry in India 13.

STAGE-III: Final sample of 8 companies of automobile industry in India (As per full-

fledged data availability for the study period from 2004-05 to 2009-10 and from 2014-15 to 2019-20).

Exhibit VII: Funnel Approach for Multi-stage Non-random Sampling



Most of the quantitative data’s related to market capitalization and value creation had

¹² Mohanty B.K (2008): “Market Capitalization: A Suitable Growth Approach for Share Holders’ Value Creation”, The Management Accountant, , Volume 43 No. 8, August pp 594-598.

been collected from their published annual reports and official websites of the sample companies related to financial year 2004-05 to 2009-10 and from 2014-15 to 2019-20 to find out creation of intangible, disclosed and undisclosed intangible during these two different time dimensions and try to find out any significant difference in the size and trend of the intangibles management. These years are important for the growth and development of Indian corporates as well as market capitalization practices.

For the analysis of collected data, the basic parameters are market capitalization, creation of intangible assets, percentage of intangible assets with market capitalization, relationship of market capitalization and shareholders' value creation and Disclosed & Undisclosed value of intangibles are considered for the sample companies. Statistical tool such as; Mean, Growth rate, coefficient of correlation and student t test are also used by the researcher in appropriate place. To evaluate the practices related to management of intangibles such as disclosed and undisclosed intangible and their qualitative aspect content analysis method was also adopted.

Research Questions: After the analysis of nature and significance of value creation and management of intangibles in the contemporary knowledge environment, it's important to examine the role of market capitalization method and creation of intangibles for value creation. It's equally important to examine the reporting

and disclosure methodology related to intangibles such as disclosed & undisclosed intangibles by Indian corporates. Based on such information's researcher has been trying to find out answer of the following questions.

- How Indian corporates are defining and examining intangible value?
- Is market capitalization is appropriate indicator for creation of intangible?
- How reporting for disclosed and undisclosed intangible assets affected by value creation process and enhancement of value in knowledge environment?

Objectives of the Study: Keeping the above research questions in mind, the purpose of this study is to examine value creation with the help of market capitalization. Further to evaluate contribution of market capitalization in the creation of intangibles and their management practices. Therefore; this study intends to deal with the following objectives:

- To understand the concept of value creation and impact of intangibles management.
- To understand creation of intangibles by market capitalization method.
- To find out reporting for disclosed and undisclosed intangible assets.
- To find out contemporary practices related to management of intangibles in general and automobile industry in particular in India.

Hypothesis of the study: In the light of above objectives the following hypotheses are framed for the present study.

NH0: Management of market capitalization is not significant for creation and management of intangibles

AH0: Management of market capitalization significantly leads to the creation and management of intangibles.

NH1: Intangible management and discloser practices adopted by automobile companies are not adequate in contemporary environment.

AH1: Intangible management and discloser practices adopted by automobile companies are adequate in contemporary environment

Limitations of the study: The following are the main limitations of the present study:

- This study is a macro nature case study; limited to 06 years (From 2004-05 to 2009-10 and 2014-15 to 2019-20) performance of the BSE listed automobile companies.
- To evaluate value creation, among the other methods market capitalization method has been used in this study.
- The data used in this study have been taken from published annual reports only (secondary source).

Part-III

VALUE CREATION & INDIAN CORPORATE'S

Value creation is one of the most important aspects of any firm in contemporary environment. For that, companies taking the advantage of innovation, brand value and use of all intangibles such a reputation, customer's loyalty, strong marketing network etc. Market capitalization is popular among the Indian companies since two decades to support and enhances value creation for the shareholders. To know the market capitalization and creation of intangible assets in automobile industry, an analysis is made by the researcher to

understand different factors, which are responsible for the creation of the shareholder value. In the last two decades automobile industry is having many advantageous and it became a strong industry in India in terms of profitability and value creation.

Value Creation - A Case Study of Automobile Industry

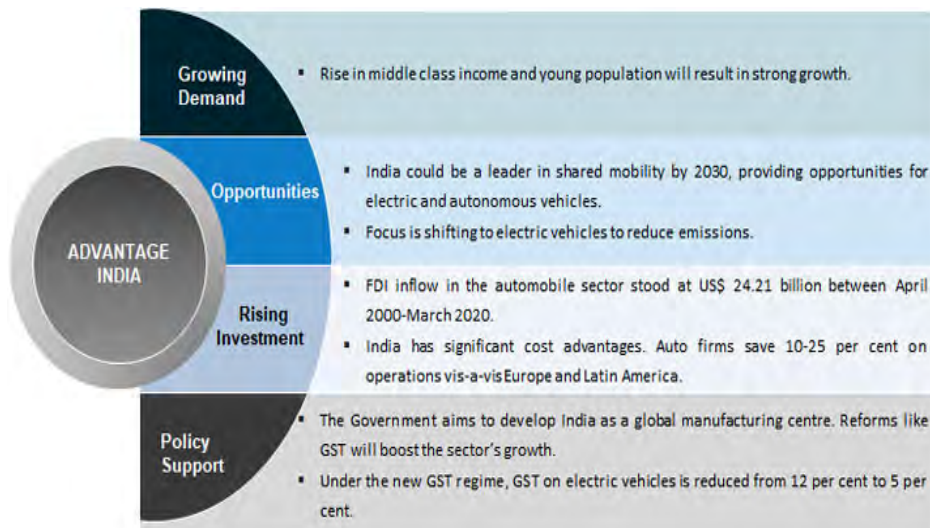
Automobile industry is the key driver of growing economy such as country like India. It plays a vital role in country's rapid economic and industrial development. In India, automobile is one of the largest industries showing impressive growth over the years and has been significantly making

increasing contribution to overall industrial development in the country. Presently, India is the world’s second largest manufacturer of two wheelers, fifth largest manufacturer of commercial vehicles as well as largest manufacturer of tractors. This sector has shown great advantages in terms of development, spread, absorption of newer technologies and flexibility in the wake of changing business scenario. Strength of this sector is as large domestic market, monetary assistance provided by Government for manufacturing units, reduced labour cost etc. (refer exhibit VIII).

The growth of Indian middle class, with increasing purchasing power, along with strong macro-economic fundamentals has

attracted the major auto manufacturers to Indian market. The market linked exchange rate, well established financial market, stable policy and availability of trained manpower have also shifted new capacities and flow of capital to the auto industry of India. All these have not only enhanced competition in automobile companies and resulted in multiple choices for Indian consumers at competitive costs, but have also ensured a remarkable improvement in the industry’s productivity, which is one of the highest in Indian manufacturing sector. Some important opportunities of this sector are reduction in excise duty, rising rural demand, and constantly increases of income level etc.

Exhibit VIII Automobile Industry and Advantage for India



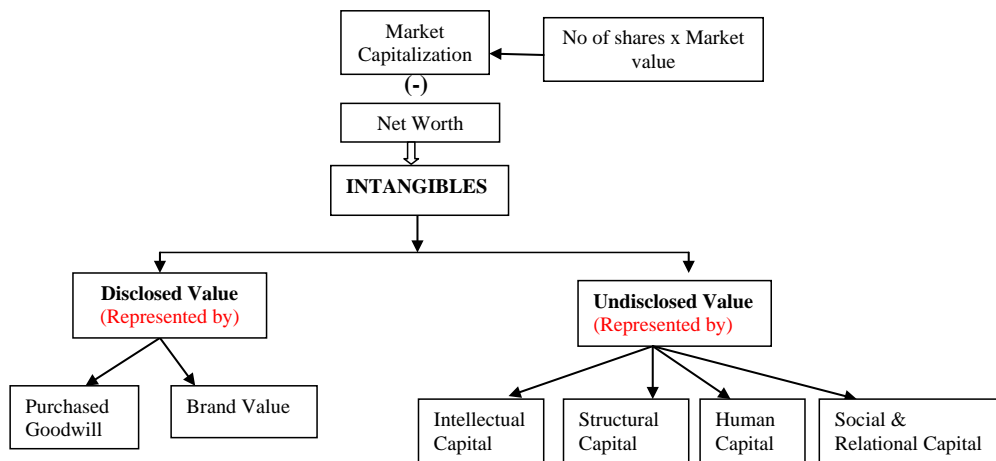


As we know automobile industry is one of the fast growing industries during the last two decades. **Automobile sector** is major sector in India; they are creating a huge market capitalization due to presence of various intangible assets. Maruti Suzuki, Bajaj Auto, Eicher, Tata Motors, Mahindra and Mahindra, Ashoka Leyland's, Hero Honda, and TVS, are the major contributor in the automobile firms taken as sample companies. They are creating huge market

capitalization due to the presence of patents, copyrights, license, technical know-how, non-compete fees, brand image and human capital. To determine market capitalization under this method initially multiplying the market value per share with number of outstanding shares of a company. For determination of market capitalization, average of higher and lower value in the month of March every year taken as fair market value.

Exhibit IX: Process Model for Creation of Intangibles –

(Disclosed and Undisclosed Representation)



Recent Strategy by automobile corporates

Recently automobile companies had adopted two different strategic dimension related to innovation and development of brands as per the requirement of the

contemporary environment; development of small cars especially for big cities to tune with parking and traffic problems and development of electric cars to minimize fuel cost and environmental problems.

First one is development of Nano automobiles to fulfil the requirement of Niche market/customers for which appropriate innovations made by the Indian company Tata motors followed by others. It is based on disruptive technology that means scraping every things and developing every aspect, components as a new keeping in mind of strategic cost management. To focus on cost reduction strategy they adopted, Innovation and redesigning, Packaging design such as placement of engine below the rear seat-delivers cost and operational efficiency. They also adopted Outsourcing of components and more time on R&D to cut the cost and materialized for the dream car.

Innovation and creative disruption are the intangible component which create value for small car segment and fulfils the requirement of Niche segment of the society by and large not capture by the automobile industry so far.

Second which is most important Development and marketing of electrical automobiles which is a relevant strategic issue due to fluctuation in the prices of petrol and diesels which had affected the economy in general and balance of payment in particulars in a developing country like India? Strategic shifting of usual car to electric car is due to optimum fuel efficiency, ultra low emission (environmentally friendly product), low maintenance cost, Government intervention and policy (such as incentives

for customers etc), imaginative innovations etc are the reason which motivates automobile industry to shift in electric car technology.

Innovations and changing in the production technology are the key intangibles which lead to the value creation for future. Changing in the mind set of the customers (product positioning), government policies and incentives are the supporting intangibles which will create huge demand and shifting of buying habits towards electric cars.

Supply chain management: Supply chain management refers to the management of upstream and downstream relationship with supplier and customers to deliver superior customer value at less cost to the supply chain as whole. It includes procurement of inputs, manufacturing, assembling, transportation to warehouse, transportation from warehouse to retail outlet and finally transportation from retail outlets to the customers. On a strategic level, Supply Chain Network Design - locating plants, contract manufacturers, Distribution Centres and warehouses- is important because 70% of the cost of a supply chain is fixed at the design stage. Designing of tata Nano is also based on the efficient supply management. *Similarly electrical cars future also depends upon the efficient supply chain management such as supply of battery, transportation, showroom network, network of different servicing/ charging points, coordination with government agencies and policies.*

Data analysis and Interpretation

When we are analyzing market capitalization for automobile sector, Maruti Ltd is one of the leading performer with a market capitalization of worth Rs.1,71,642 crore on the average basis for the last six years and at the same time it created intangible assets worth Rs.134396 crore, similarly II

and III places are secured by Tata Motors and Bajaj Auto with a market capitalization Rs.1,12,137crore and Rs.74,747crore respectively. Then it was followed by M&M (Rs.72,505 crore), Hero Motors (Rs.55,494 crore), Eicher (Rs.55,228crore) Ashoka Leyland's (Rs. 26081crore), and TVS motors with (Rs.17,752crore) during the study period.

Exhibit X: Market Capitalization-Automobile Industry (During 2015 to 2020) (In crore)

Companies	Market Capitalization*	Net Worth*	Intangible Assets**	% of IA with Total Market Capitalization	Market Capitalization/ Net Worth (In times)	Ranking based on IA with Market capitalization
Tata Motors	112137	19853	92284	82.30	5.65	III
Hero Motors	55,494	10,560	44934	80.97	5.26	IV
Mahindra & Mahindra	72,505	27,846	44659	61.60	2.60	VIII
Bajaj Auto	74747	16805	57942	77.52	4.45	VI
Eicher Ltd	55228	6209	49019	88.76	8.90	I
Maruti Ltd	171,642	37,246	134396	78.30	4.61	V
TVS Motors	17752	2643	15109	85.09	6.72	II
Ashoka Leyland's	26081	6583	19498	74.76	3.96	VII
Average	73198	15968	57230	78.20		

Source: Calculated and compiled from the annual reports of automobile companies from 2014-15 to 2019-20. *Average of the last 6 years. ** Intangible Assets = Market Capitalization – Net Worth.

As far as intangible assets creation is concern, highest intangible assets are created by Maruti ltd worth Rs. 1,34,396 crore then second and third places are secured by Tata motors and Bajaj worth Rs. 92,284 crore and Rs. 57,942 crore

respectively. Then it is followed by Eicher Ltd, (Rs.49,019crore), HERO motors (Rs. 44,934crore) Mahindra and Mahindra (Rs. 44,659 crore), Ashoka Leyland's (Rs.19,498 crore) and TVS motors with Rs. 15109 crore. Almost market capitalization



and creation of intangible assets both are gone in to same direction in automobile industry.

When we are comparing contribution of Intangible assets in market capitalization, to understand the significance of intangible in market capitalization process, scenario is entirely different. In case of Eicher ltd contribution of Intangibles in the market capitalization is **88.76%** and secured 1st position in the process of market capitalization, second and third positions were secured by TVS motors and Tata motors with **85.09%** and **82.30%** respectively, then it is followed by Hero

Motors (**80.97%**), Maruti (**78.30%**), Bajaj Auto (**77.52%**) Ashoka Leyland (**74.76%**), Mahindra & Mahindra with **61.60%** during the study period.

When we are comparing market capitalization, intangible assets etc for one decade before during 2005 to 2010 situation were entirely different. As far as market capitalization is concern Tata Motors was leading with Rs. 25,438 crore followed by Maruthi Rs.24720 crore. In the case of creation of intangible assets Maruti ltd was leading with Rs.17,007 followed by Tata motors Rs16,843 crore and Hero motors Rs.16,667 crore.

Exhibit XI: Market Capitalization-Automobiles industry (During 2005 to 2010) (In crore Rs.)

Companies	Market Capitalization*	Net Worth*	Intangible Assets**	% of IA with Total Market Capitalization	Market Capitalization/ Net Worth (In times)	Ranking based on IA with Market capitalization
Tata Motors	25438	8595	16843	66.21%	2.95	V
Hero Motors	19371	2704	16667	86.04%	7.16	I
Mahindra & Mahindra	12656	3612	9044	71.46%	3.51	III
Bajaj auto	19869	3471	16398	82.53%	5.72	II
Eicher ltd	914	510	404	44.20%	1.79	VII
Maruti	24720	7713	17007	68.80%	3.20	IV
TVS Motors	1298	734	564	43.45%	1.76	VIII
Ashoka Leyland's	4455	2281	2194	49.25%	1.95	VI
Average	13590.13	3702.5	9890.13	64%	3.51	

*Source: Calculated and compiled from the annual reports of automobile companies from 2004-05 to 2009-10. *Average of the last 6 years. ** Intangible Assets = Market Capitalization – Net Worth.*

When we are comparing contribution of Intangible assets in market capitalization, to understand the significance of intangible in market capitalization process, scenario is entirely different. Hero Honda secured I place with 86.04% followed by Bajaj auto (82.53%) Mahindra & Mahindra (71.46%) and so on

One of the important observation in the last one decade Market Capitalization of Automobile Industry increases from Rs. 13590 crore to Rs. 73198 crore, (nearly 5 times) creation of Intangible Assets increases from Rs. 9890 crore to Rs. 57,230 crore, (nearly 6 times) and finally percentage of Intangible Assets with total market capitalization increases from 64% to 78.20% (increase 22% in the one decade).

In Automobile Industry, most of the value created by specific intangible assets such as Technical Know-how, Industrial designs, Models fees, Brand value, Product designs, and Strong service network etc. Overall creation of intangible assets by the automobile industry is 78.20% during the study period. A formal ranking is given by the researcher based on contribution of intangible assets in market capitalization. Based on this criterion among the sample companies 1st place is secured by the Eicher Ltd, second and third places are secured by TVS & Tata Motors respectively then followed by Hero motors, Maruti, Bajaj Auto Ashoka Leyland's, and Mahindra & Mahindra during the study period.

Trends of Creation of Intangible Assets

For the depth analysis of market capitalization, researcher analyzes

consistency in market capitalization, Net worth, and creation of intangible assets during the study period. The main purpose of this analysis is to find out the companies who's contribution is higher in terms of market capitalization and creation of intangible assets, further to identify that higher market capitalization companies are having higher intangible assets or some other trend is exist among the sample companies. Researcher find that companies such as Tata motors, Maruti Ltd, Bajaj Auto and Hero Honda are following same trends during the study period (higher market capitalization, higher net worth and higher intangible assets), it indicates that higher market capitalization creates higher intangibles.

Another trend observed by the researcher that many leading companies they are having higher market capitalization, but they are not creating higher intangible assets such as Tata Motor and Maruti etc. because of negative impact of higher net worth, their ranking for creation of intangible assets is below as the ranking of their market capitalization. One of the important intangible assets is the automobiles brands, which attract and retain many customers for long time, resulted higher market share, higher turnover, higher profitability and maximization of shareholders wealth.

For example according to top 50 brands in the year 2009¹³ our 6 sample companies secured their position in this list. Tata motors secured 5th position with the brand value of Rs. 14878 crore. Maruti Suzuki secured 17th, M&M 18th, Bajaj Auto 19th Hero Honda 20th position with brand

¹³ Ranking of 50 most valuable brands, *The Economic Times* dated November 21, 2009.



value worth Rs.6772 crore, Rs.6407 crore, Rs.4850 crore, Rs. 4125 crore respectively. And Ashoka Leyland secured 49th position with the brand value of Rs.1245 crore. It is clear from the above analysis that for automobile companies, brand value is most important intangible assets because customers will attract with brands related to the particular company.

According to BRANDZ top 75 most valuable Indian brands report 2020¹⁴ out of our 8 sample companies 5 companies and their brand secured place among the top 75 brands in 2020. Mruthi ltd secured 13 ranks with 3,926 million USD, Bajaj auto secured 24th rank with 2491 million USD, Hero motors secured 31st rank with 1872 million USD, Mahindra & Mahindra secured 62 with 832 million USD, and Royal Enfield Eicher secured 66 with 706 million USD

Reporting For Disclosed and Undisclosed Intangibles

An effort is made by the researcher to know the pattern of monetary value of disclosed intangible in annual reports adopting content analysis approach. The primary purpose of this analysis to know the position of disclosed value and undisclosed value of intangible among the various corporates and how it affects the financial performance of the industry. As far as Disclosed intangible assets are concern, Tata motor is leading with disclosed value of Rs. 8122 crore as a 8.80% share of total Intangible Assets, second and third place secured by Mahindra & Mahindra and ASHOKA LEYLAND'S with Rs.3269 crore (7.32%) and Rs.725 crore (3.72%) respectively.

Exhibit XII : Disclosed & undisclosed intangibles-Automobiles Industry (Rupees in crore.)

Companies	Intangible Assets**	Disclosed intangible assets*	undisclosed intangible assets*	Percentage of undisclosed intangible assets with Intangible Assets	Percentage of disclosed intangible assets with Intangible Assets	Ranking Percent- age of disclosed intangible assets with Intan- gible Assets
Tata Motors	92284	8122	84162	91.20	8.80	I
Hero Motors	44934	357	44577	99.21	0.79	IV
Mahindra & Mahindra	44659	3269	41390	92.68	7.32	II
Bajaj Auto	57942	84	57858	99.86	0.14	VIII
Eicher Ltd	49019	218	48801	99.56	0.44	VI
Maruti	134396	364	134032	99.73	0.27	VII
TVS Motors	15109	109	15000	99.28	0.72	V
Ashoka Leyland's	19498	725	18773	96.28	3.72	III
Average	57230	1656	55574	97.23	2.77	

Source: Calculated and compiled from the annual reports of automobile companies from 2014-15 to 2019-20. *Average of the last 6 years. ** Intangible Assets = Market Capitalization – Net Worth

¹⁴ BRANDZ top 75 most valuable Indian Brands report 2020pp 86-89

As far as undisclosed intangible is concern largest value is related to Maruti ltd worth Rs. 1,34,032 crore with the percentage of 99.73% of the total intangible value. Second and third place secured by Tata motors and Bajaj auto with Rs 84162 crore (91.20%) and Rs. 57858 crore (99.56%), then it is followed by Eicher Ltd (Rs.48801 crore), HERO motors (Rs.44577 crore). On average basis intangible assets disclosed by the sample companies is 2.77% and percentage of undisclosed intangible assets is 97.23% of the total value of intangibles.

Disclosed Specific Intangibles

In Automobile Industry, most of the value created by specific intangible assets such as Technical Know-how, Industrial designs, Models fees, Brand value, Product designs, and Strong service network etc. some corporates are including their websites as part of intangible (Mahindra & Mahindra) which is new trend. Overall creation of intangible assets by the automobile industry is 98.20% during the study period.

Exhibit XIII: Disclosed specific intangibles-Automobiles Industry

Companies	Specific Intangibles
Tata motors	Technological know-how ,Software , Patents and technological know how, Trademarks and brand, Product Development cost , Goodwill
Hero motors	Model fee/ Product designs and development, Computer software's Technical know-how/ export licences, Goodwill
Mahindra & Mahindra	Technical Knowhow, Brand license fee, Software Expenditure,Trademarks, Non-Compete Fees, Websites
Bajaj auto	Technical know-how acquired, Goodwill
Eicher ltd	Product designs, prototypes, etc computer and production software, Goodwill
Maruti	Lump sum royalty and engineering support fee.
TVS Motors	Design, Development and Technical knowhow, Goodwill, Software.
Ashoka Leyland's	Computer Software: Technical Knowhow

Source: Author's own findings and compilation based on content analysis of annual reports of sample Companies from 2014-15 to 2019-20.



Testing of Hypothesis

Without testing of hypothesis research study cannot be completed. In this research paper also, researcher is trying to test some hypothesis. For the testing of hypothesis statistical tool such as; coefficient of correlation and student t test are used by the researcher. A coefficient of correlation is calculated between two variables market capitalization (X) and value of IA(Y) for the automobile companies to find out whether value of intangibles are closely associated with market capitalization or some other

factors are responsible for it. Karl person's coefficient of correlations (r) is used by the researcher in this regard. Coefficient of correlation between market capitalization and intangible assets are **0.98**, it indicates both the variables are highly associated with each other. It signifies as market capitalization increases, value of intangible are also increases in the same direction. To find out whether this association is significant or not, student t test is also used by the researcher and same results are supported by student's t- test.

Exhibit XIV: ANALYSIS OF CORRELATION AND STUDENTS T- TEST

Companies	Correlation (r)	t- value	Table value	Level of significance	Significant
Correlation between Market Capitalization & Intangible Assets	0.98	12.20	2.31	5%	YES
Correlation between IA and disclosed IA	0.30	0.77	2.31	5%	No
Correlation between IA and Undisclosed IA	0.998	55.59	2.31	5%	YES

Source: Authors' own calculation based on the data form annual report of the sample companies.

Our one hypothesis that market capitalization significantly contributed in the creation of intangible assets is accepted by the researcher. Because our finding indicates that in automobile companies contribution of intangible assets is approx 78% in the market capitalization on average basis.

Another hypothesis that adequate reporting and disclosure by the Indian companies related to intangibles and market

capitalization partially proved. Because out of the 08 sample companies only 02 leading companies are directly reporting information about market capitalization and related areas in annual reports as voluntary basis. Similarly, some companies reporting about disclosed intangibles. There are many reasons for partial reporting and disclosure by Indian corporate's such as; reporting is not mandatory, lack of top level managerial support, lack of supporting provisions under Ind AS-38 etc.



Part-IV

FINDINGS AND AGENDA FOR ACTION

Findings: The following are the main findings of the present study:

- In Automobile Industry, most of the value created by specific intangible assets such as Technical Know-how, Industrial designs, Models fees, Brand value, Product designs, and Strong service Network etc their monitoring and reporting is important in contemporary environment.
- Automobiles Brands are attracting and retaining many customers, resulted higher market share, higher turnover, higher profitability and maximization of shareholders value.
- Models such as Market Capitalization, EVA are popular model related to value creation for the shareholders.
- Hero Motors is reporting about EVA and market capitalization to support and justify shareholders value creation and Eicher Ltd also reporting about market capitalization and its impact on shareholders' value creation.
- Tata motors, Maruti Ltd, Bajaj Auto and Hero Honda are having higher market capitalization, higher net worth and higher intangible assets; it indicates that higher market capitalization creates higher intangibles which ultimately enhance shareholders value in long run.
- Overall creation of intangible assets by the automobile industry is 64% during

2004-05 to 2009-10 and 78% during 2015 to 2020 (based on MCM).

- As far intangible assets creation is concern, highest intangible assets are created by Maruti Ltd worth Rs. 1,34,396 crore then second and third places are secured by Tata Motors and Bajaj Ltd worth Rs. 92,284 crore and Rs. 57,942 crore respectively.
- According to parameter of contribution of Intangible Assets in market capitalization, Eicher Ltd's contribution of Intangibles in the market capitalization is **88.76%** and secured 1st position, second and third positions were secured by TVS motors and Tata motors with **85.09%** and **82.30%** respectively.

Agenda for action:

- Many intangible assets are of unstable nature it's suggested that corporates should establish an effective internal monitoring system which will evaluate and safeguard intangibles in a positive manner.
- It's suggested to motivate corporates on more investment in R&D activities, because in knowledge economy R&D activities are the key factors for success and enhancement of value creations in the global competitive.
- Its counsel to Indian companies to adopt affordable and sustainable innovations to lead in the market, which will enhance earning capacity and creation

of intangibles in the succeeding years (Tata motor TATA NANO).

- In automobile companies their brand name's (intangible assets) are important to create value /enhancement market share of the product, but Indian companies are not valuing and monitoring it systematically.
- It is suggested to adopt cost control and cost management by adoption of kaizen costing for enhancing manufacturing innovation, use target costing for research & development innovation, and overall cost management during the production process. This will maximize value creation and earnings.

Conclusion:

Management of Intangibles are gaining more and more importance in the current environment because of optimum utilization of resources and better financial management practices. Market capitalization method is gradually accepted by all the stakeholders to know value creation or destruction by the corporates. Currently, innovations, brand value, image of corporate, skills and experience of employees—all are intangibles, directly or indirectly affecting market capitalization and shareholders' value creation in the competitive era in general and Model fees and Industrial & Product design, customers network in particular for automobile industry. As larger number of companies involved in production and distribution of electric cars more value creation for the shareholders. As intangible components are created and enhance by the automobile companies in their business

operations they can maximise value for shareholders positively. Along with that voluntary reporting by the corporates related to disclosed and undisclosed intangibles are equally important to understand value creation process and how it can be maximize in knowledge environment. Still in automobile corporates components of undisclosed intangibles are 97.23% which is higher and its affects the financial position of the companies.

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The Institute of Cost Accountants of India (ICAI) is a statutory body set up under an Act of Parliament in the year 1959. The Institute as a part of its obligation, regulates the profession of Cost and Management Accountancy, enrolls students for its courses, provides coaching facilities to the students, organizes professional development programmes for the members and undertakes research programmes in the field of Cost and Management Accountancy. The Institute pursues the vision of cost competitiveness, cost management, efficient use of resources and structured approach to cost accounting as the key drivers of the profession. In today's world, the profession of conventional accounting and auditing has taken a back seat and cost and management accountants increasingly contributing towards the management of scarce resources like funds, land and apply strategic decisions. This has opened up further scope and tremendous opportunities for cost accountants in India and abroad.

After an amendment passed by Parliament of India, the Institute is now renamed as "The Institute of Cost Accountants of India" from "The Institute of Cost and Works Accountants of India". This step is aimed towards synergizing with the global management accounting bodies, sharing

the best practices and it will be useful to large number of trans-national Indian companies operating from India and abroad to remain competitive. With the current emphasis on management of resources, the specialized knowledge of evaluating operating efficiency and strategic management the professionals are known as "Cost and Management Accountants (CMAs)". The Institute is the 2nd largest Cost & Management Accounting body in the world and the largest in Asia, having more than 5,00,000 students and 85,000 members all over the globe. The Institution operates through four regional councils at Kolkata, Delhi, Mumbai and Chennai and 111 Chapters situated at important cities in the country as well as 11 Overseas Centre headquartered at Kolkata. It is under the administrative control of Ministry of Corporate Affairs, Government of India.

Our Institute apart from being a member of International Federation of Accountants (IFAC), South-Asian Federation of Accountants (SAFA), Confederation of Asian & Pacific Accountants (CAPA), National Advisory Committee on Accounting Standards (NACAS), and National Foundation for Corporate Governance (NFCG) is also a member of Government Accounting Standards Advisory Board (GASAB).

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- The Research Bulletin (ISSN No. 2230-9241) is the official publication of The Institute of Cost Accountants of India.
 - The authors must declare that the article is the result of their faithful work.
 - The article should preferably be relating to the research work carried out during the last five years and not being considered for publication in any other research bulletin or journal.
 - The manuscript including figures, table & references should be preferably within 5000 words for Research Papers including an abstract, 2000 words for Case Studies and 1000 words for Book Reviews.
 - Soft Copy of the full paper should be submitted in double space, 12 fonts, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.
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 - An abstract of not more than 150 words should highlight the findings of the research work. It should be in clean and concise English. Abbreviations should be avoided in the abstract.
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Notes

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Call for Research Papers/Articles

We invite you to contribute research paper/article for “Research Bulletin”, a peer-reviewed Quarterly Journal of The Institute of Cost Accountants of India. The aim of this bulletin is to share innovative achievements and practical experiences from diverse domains of management, from researchers, practitioners, academicians and professionals. This bulletin is dedicated to publish high quality research papers providing meaningful insights into the management content both in Indian as well as global context.

Guidelines to submit full Paper

- ✓ Soft Copy of the full paper should be submitted in double space, 12 font size, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.
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Papers are invited on the following topics, but not limited to:

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Papers must be received within **31st May, 2021** in the following email id:

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