

A CRITICAL STUDY OF FINANCIAL PERFORMANCE OF BHARAT HEAVY ELECTRICALS LIMITED (BHEL)

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Abstract:

BHEL is an integrated power plant equipment manufacturer and one of the largest engineering and manufacturing companies of its kind in India. The company is engaged in the design, engineering, manufacture, construction, testing, commissioning and servicing of a wide range of products and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable Energy, Oil & Gas and Defence with over 180 products offerings to meet the needs of these sectors. BHEL has been the solid bedrock of India's Heavy Electrical Equipment industry since its evolution in 1964. An effort is made in the present study to know more about achievements of BHEL in the past years. BHEL has contributed very well in the past towards the need of the nation and is still contributing at present as well. In the present study, the annual reports of BHEL from FY 2011 to 2016 have been used for analyzing the financial performance of the company, which disclosed that there is a sharp decline in the profitability position of the BHEL in past years. An effort is made to know causes of decline in the financial position of BHEL and suggestions are also made for the improvement.

INTRODUCTION:

BHEL is India's largest engineering and manufacturing enterprises. BHEL is one of the few companies in the world having the capability to manufacture the entire range of power plant equipment. It is established in 1964, since then, it has been playing an important role of India's Heavy Electrical Equipment Industry. BHEL is the only manufacturer of nuclear steam turbines in the country. The company has established the capability to deliver 20,000 MW p.a. of power equipment to address the growing demand for power generation equipment. The company's products cater to a wide spectrum of customers encompassing various fields of operation like: Fertilizers, Petrochemicals, Refineries, Oil Exploration and production of steel and metals, cement, sugar and paper plants, transportation and non-conventional energy sources, etc.

It has also been exporting its power and industry segment products and services for over 40 years. BHEL's global references are spread over 83 countries across all the six continents of the

world. BHEL has joined the elite club of selected global giants having installed base of over 150 GW of power generating equipment globally. BHEL has 55% share in India's total installed capacity and 62% share in the country's total generation from thermal utility sets as of march 31,2015 that stand as testimony to its valuable contribution toward nation building. BHEL has a widespread network of 16 manufacturing facilities, 2 repair units, 4 regional offices, 8 service centres, 1 subsidiary, 3 active joint ventures, 15 regional marketing centres, 3 overseas offices and current project execution at more than 150 project sites across India and abroad.

ROLE OF BHEL IN RAILWAY:

BHEL has been working very closely with the Indian Railways for the last six decades to meet their requirement of electric propulsion equipment for rolling stock and mainline electric locomotives. It has a share of over 50% of Railways requirement for electric propulsion equipment for rolling stock. The 6000 HP locomotive has been manufactured against a prestigious order from the Railway Board for 30 locomotives in 2018. It has augmented its capability to manufacture and supply around 100 loco per annum. BHEL has created a dedicated centre for research and development in transportation technology and manufacturing facilities at Bhopal, Jhansi and Bengaluru plants. The company keep on extending its offering in the transportation segment and providing various types of products, such as: first ever Air-conditioned AC EMU train for the Mumbai sub-urban region, with state-of-art IGBT based 3-phase drive propulsion equipment and many more. BHEL has been working on a development of a system introducing the regenerative braking concept that will be of great significance in saving of energy consumption for Indian Railways, especially in those locomotives where through dynamic braking, the energy generated during application of brakes gets wasted in the form of heat. BHEL has supplied more than 450 electric locomotives of various types to Indian Railways. It has been continuously working toward exploring new ways of limiting carbon emissions and also focusing on eco-friendly electric locomotives for industry to provide cleaner and alternative option to diesel electric locomotives.

ROLE OF BHEL IN DEFENCE AND AEROSPACE:

BHEL has a long and admirable track record of supporting Defence Forces. It has been in Defence business since over three decades with proven track record of being competitive, adherence to quality, reliable supplies and life time product support. BHEL is deeply aligned to

the vision of self-reliant India. It has Naval Gun facility at Haridwar, and Sole Production agency for 30mm Naval guns. Standardisation of these guns by the Indian Navy for all major warships has resulted in optimisation of cost and consolidation of expertise and self-reliance. BHEL is also working on an upgraded version of these guns, with enhanced range, to cater to future requirement of warships. BHEL has manufactured the compact heat exchangers for Tejas, the indigenously developed light compact aircraft inducted by the Indian Army.

BHEL has had a long association with ISRO and has earlier supplied several Space Grade Solar Panels and Space Quality Batteries to ISRO for use in their satellites. These panels are used to charge the batteries and provide electricity for various systems in the satellites. The Solar Panels are performing satisfactorily and ISRO has complimented the BHEL for the successful fabrication and supply of these panels, as per their requirement. BHEL, in collaboration with ISRO, has established state-of-the-art 10,000 clean room facilities at its Electronics Systems Division in Bangalore for the assembly and testing of Space Grade Solar Panels using high efficiency Solar Cells. For setting up the new facility, various equipment (both indigenous and imported) have been procured and are being commissioned. ISRO had provided all technical documentation for establishing the production plant as well as hands-on training in various production activities for BHEL staff. As per the technology transfer agreement, space-grade Li-ion cells manufactured by BHEL are meant for meeting India market requirements only.

BHEL AS A MAHARATNA:

In the year 2009, the government of India, decided to establish Maharatna status for the central public sector enterprises or commonly known as PSE. The allocation of status to these public sector enterprises is based on the performance and profit made by these Central Public Sector Enterprises. The objective of this scheme was to offer enhanced powers to the boards of some selected large-sized Navratna CPSEs to facilitate the expansion of their operations, both in domestic and global markets. Consistent high performance, while operating in a highly competitive environment and fulfillment of the required eligibility criteria has enabled Bharat Heavy Electricals Limited (BHEL) to attain the MAHARATNA status in 2013. A Maharatna firm can take investment decision of up to Rs 5,000 crore without going to the government. “Maharatna” status is granted to a company which has recorded more than Rs. 5,000 crore of net profit for three consecutive years, an average annual turnover of Rs. 25,000 crore for three years or should have an average annual net worth of Rs. 15,000 crore for three years. It should also

have global operations or footprints. The performance of Maharatna CPSE is revised annually by an inter-ministerial committee, thereafter by another apex committee. This apex committee decides on the continuation/disinvestment of Maharatna status. In case, the apex committee recommends disinvestment of Maharatna status of a PSE such recommendation is then placed before the Minister (Heavy Industry and Public Enterprises) for the final decision.

LIST OF SOME PROJECTS UNDERTAKEN BY BHEL:

2018	<p>BHEL announced that it has won an order for setting up a 75 MW Solar Photovoltaic (SPV) Power Plant on Engineering Procurement and Construction (EPC) basis in Gujarat. It is the BHEL's largest Solar PV project till date. BHEL also announced its foray into lake purification under Smart City segment by bagging a prestigious order for purification of Telibandhan Lake from Raipur Smart City Limited (RSCL) including Operation and Maintenance for five years thereafter. This the first ever order of its kind from the Smart Cities segment using Phytorid Technology developed by the National Environmental Engineering Research Institute (NEERI) under the Council of Scientific and Industrial Research (CSIR) which is an environment friendly technology.</p> <p>BHEL entry into new market segment by securing maiden order from Germany for motors from FIMA, Germany.</p> <p>It get its first ever order from Ministry of Defence, Oman for panels for DG set equipment.</p>
2017	<p>BHEL announced that it has entered into a Technology Collaboration Agreement with Kawasaki Heavy Industries Ltd. (KHI) Japan for the manufacture of stainless steel coaches and bogies for metros.</p> <p>BHEL received its largest ever export order valued at Rs. 10000 crore for setting up 1320MW, Maitree Super Thermal Power Project in Bangladesh.</p>
2016	<p>BHEL secured export order for supply of industrial motors to Togo and Benin. It has successfully commissioned the first 800 MW Supercritical thermal unit in Karnataka.</p>
2015	<p>The company bags contract for 1080 MW Manuguru Thermal Power Project from TSGENCO. The company has secured an order Rs. 5000 crore for setting up a 4*270 MW thermal power plant in the state of Telangana.</p>

AWARDS WON BY BHEL:

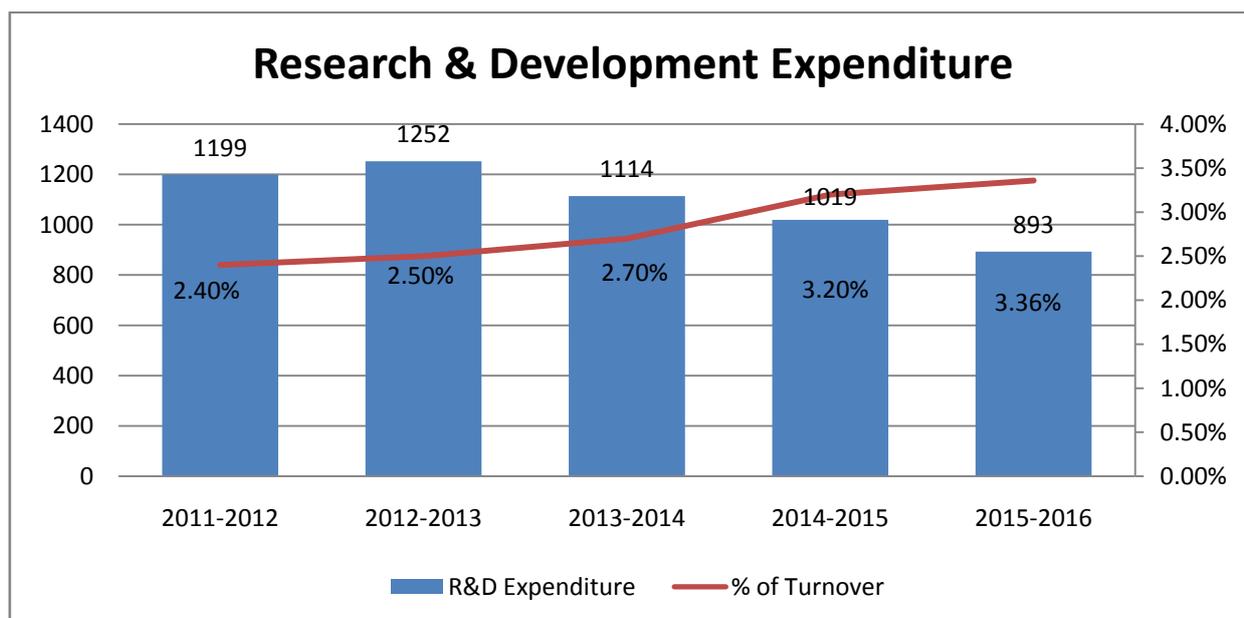
- BHEL has won 8 'National Safety Awards' for outstanding achievements in terms of the longest accident-free period and lowest accident frequency rate at its works.
- BHEL has been ranked the Ninth Most Innovative Company in the world by the renowned US business magazine Forbes in 2011
- BHEL wins ICWAI National Awards for Excellence in Cost Management for the sixth consecutive year; maximum number of awards conferred on BHEL among public and private sector companies.
- In 2010– BHEL bags EEPC's Top Export Award for the 20th consecutive year.
- The company won International Asia Pacific Quality Award (IAPQA 2005) from the International Asian Pacific Quality Organization for their Ranipet Unit.
- BHEL won FICCI Award for environment conservation and pollution control.
- BHEL is the first public sector company to receive the CII Exim Award.
- The company bags PSE Excellence Award, 2013 for R & D.
- BHEL also won India Pride Award 2013 for Excellence in Heavy Industries.
- The company won DSIJ Award 2013 for the Most Efficient Maharatna PSU.
- The company bags National Intellectual Property Award 2014.
- BHEL has won the prestigious Golden Peacock HR Excellence Award for 2016. EEPC India
- BHEL received Northern Region Award for Engineering Export Excellence in the category of Top Exporter for the years of 2013-14 & 2014-15 with the “Special Trophy for Excellence in Exports of High – Technology Products – Large Enterprise”.

QUALITY MANAGEMENT SYSTEM OF BHEL:

BHEL has well established Quality Management systems. All the entities of the company are accredited to ISO 9001:2015, BHEL have been upgraded from ISO 9001:2008 to ISO 9001:2015 version. During 2017-18, 22 BHEL's divisions were subjected to Quality Management Effectiveness Review. Its Product/ Process Quality Audit carried out at 16 Manufacturing Units and Field Quality audit at 23 project sites with an objective to enhance compliance level of Quality Management Systems and on the same year approximately 400 executives were trained in Quality Management topics conducted by Corporate Quality & Business Excellence function.

CONTRIBUTION OF BHEL IN RESEARCH AND DEVELOPMENT (R&D):

BHEL is one of the highest spenders on R&D and innovation in its field, with consistent expenditure of over 2.5% of its revenue over the past many years. As a result, BHEL's products have been in line with the latest technologies and consistently displayed high reliability, efficiency and cost-competitiveness. BHEL is one of the only four Indian companies and the only Indian Public Sector Enterprise figuring in 'The Global Innovation 1000' of Booz & Co., a list of 1,000 publicly traded companies which are the biggest spenders on R&D in the world. BHEL has 5 Specialized Research Institutes, namely Pollution Control & Research Institute (PCRI), Haridwar, Welding Research Institute (WRI), Trichy, Ceramic Technological Institute (CTI), Bengaluru, Centre for Electric Transportation (CET), Bhopal and Amorphous Silicon Solar Cell Plant (ASSCP), Gurugram. BHEL has partnered with leading academic and research institutions of the country including IITs, NITs, CSIR, ARAI, etc. for applied research in focus areas. The R&D set up is also working on development of ambitious future technologies like Hydrogen, clean coal, etc. to ensure the country's technology leadership in technologies of tomorrow. As a result of this, BHEL has for the first time designed & manufactured India's highest rating 500 MVA, 400/220/33 kV, 3-Phase Interconnecting Transformer (ICT), which has been successfully dynamic short circuit tested at NHPTL Bina.



ACHIEVEMENTS OF BHEL DURING RECENT YEARS:

- India's first air-conditioned AC EMU equipped with BHEL supplied propulsion equipment is operating successfully in Mumbai since December 2017.
- Light combat aircraft 'Tejas', designed indigenously for the Indian Airforce, uses BHEL make heat exchangers.
- BHEL has Successfully commissioned a floating solar plant at Ulsoor Lake, Bengaluru.
- BHEL signed Technology Transfer Agreement with Indian Space Research Organisation (ISRO) for manufacture of Space Grade Lithium-ion cells utilising the technology developed by ISRO at Vikram Sarabhai Space Centre (VSSC). Transfer of technology will enable BHEL to manufacture Lithium-ion cells and batteries in-house for ISRO and other suitable applications.
- Company has reinforced its leadership position by securing 100% of the market share in main plant equipment for thermal utility segment during FY 2017-18.

REVIEW OF LITERATURE:

Saigeetha & Surulivel (2017) in their research entitled “A study on financial performance using ratio analysis of bhel, trichy”, have enlightened the financial performance of the public sector undertaking that is, BHEL (Bharat Heavy Electricals Limited). Accounting ratios are calculated for a number of years which shows the trend for the change in financial position. In order to analyze the financial performance of BHEL the accounting ratios are used. The secondary data is used for the entire study. The financial information of BHEL has been collected from the annual reports of the company which is printed.

Paul (2011) has evaluated the Financial Performance by making a comparison between some of the selected NBFCs. In the study, five of the listed NBFCs are considered for analyzing the comparative financial performance. Different type of statistical tools, like standard deviation, arithmetic mean, correlation etc. are used extensively.

Christina (2011) reported on Financial Performance of Wheels India Ltd. Secondary data collection method is used for the analytical type of research design. Before conducting the study,

validity and reliability is checked for the past five years where the researcher used this for the purpose of study.

Jighyasu (2010) focuses on the measurement of financial performance of business group companies of nonmetallic mineral products industries of India. This study uses the 57 business group companies' financial data of nonmetallic mineral products industries of India such as glass, cement, jewellery and gems, ceramic tiles, refractories, etc.

Webb (2010) A financial ratio analysis of commercial bank performance in South Africa. This paper investigated the South Africa's performance of commercial banking sector period for 2005-2009. This financial ratio is used to measure the liquidity, profitability and credit quality performance of large five commercial banks of South Africa.

Kumar and Amitava (2009) study on the relationship of intellectual capital and finance performances for a period of 10 years from 1999 to 2008 of 70 Indian banks. The measurement of financial performance used in this analysis were return on equity, return on assets and assets turnover ratio of Indian Banks.

RESEARCH METHODOLOGY:

The present research design is descriptive in nature which is a fact finding approach. The data has been collected for 5 years from FY 2011-2012 to FY 2015-2016 from secondary sources like audited annual reports of Bharat Heavy Electricals Limited (BHEL) and its website. To analyse the financial performance of BHEL, the profitability position, i.e. Profit after tax and profit before tax, turnover and earning per share have been taken into consideration for 5 years. Moreover, orders received by BHEL in past years have also been analysed. The analysis and interpretation of the data have been done using the graphical representation.

FINANCIAL PERFORMANCE OF BHEL:

BHEL is a leading capital goods manufacturing PSU, with a proven track record of more than five decades, and vast asset base in the form of 16 technology intensive manufacturing establishments and a 32,000 strong pool of skilled and committed manpower. BHEL has well acclaimed track record of profits and dividends. The company has been earning profits since 1971-72 and paying dividend since 1976-77. An interim equity dividend of 40 per cent has been

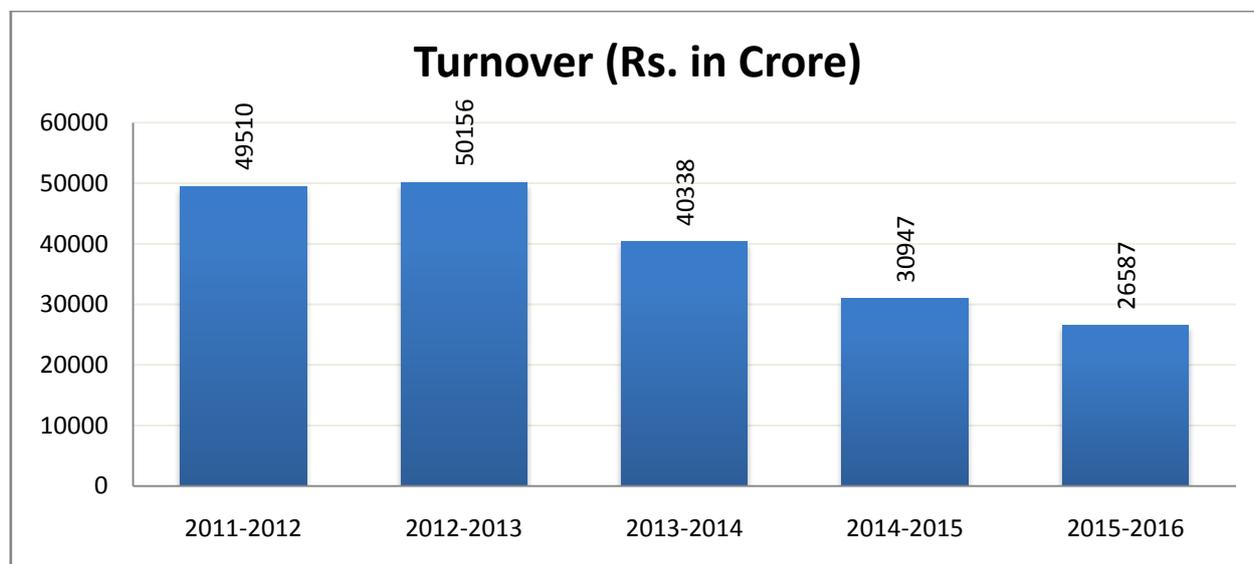
paid for 2016-17, maintaining the track record of paying dividends uninterruptedly since 1976-77. In addition, the company has recommended a final dividend of 39 per cent, subject to the approval of shareholders. With this, the total dividend for the year 2016-17 stands at 79 per cent. Between 1972 and 2016, it posted strong growth and remained one of India's top dividend payers. In 2013, the government even declared BHEL a Maharatna (a great jewel), allowing investments of up to 15% of the company's net worth without government approval. But on Aug. 09, 2017, BHEL was rapped by India's central auditor, the comptroller and auditor general (CAG), for its dismal performance in the last five years. Since 2012, revenues have fallen by over 40% and profits have plunged by 93%. The CAG has observed that its lack of diversification and inability to compete with Chinese competitors are dragging its performance. Government Initiatives, such as Make in India, has resulted in an overall improvement in BHEL's business, after the tough 3 years of losses incurred. India's growing shift towards renewable energy may have put the firm's order book under strain, but it is also a new opportunity. The country wants to install 175GW (1GW is 1,000MW) of renewable power in the next seven years. BHEL has been concentrating on solar modules and although it has been a bit late, the diversification could further help business to prosper.

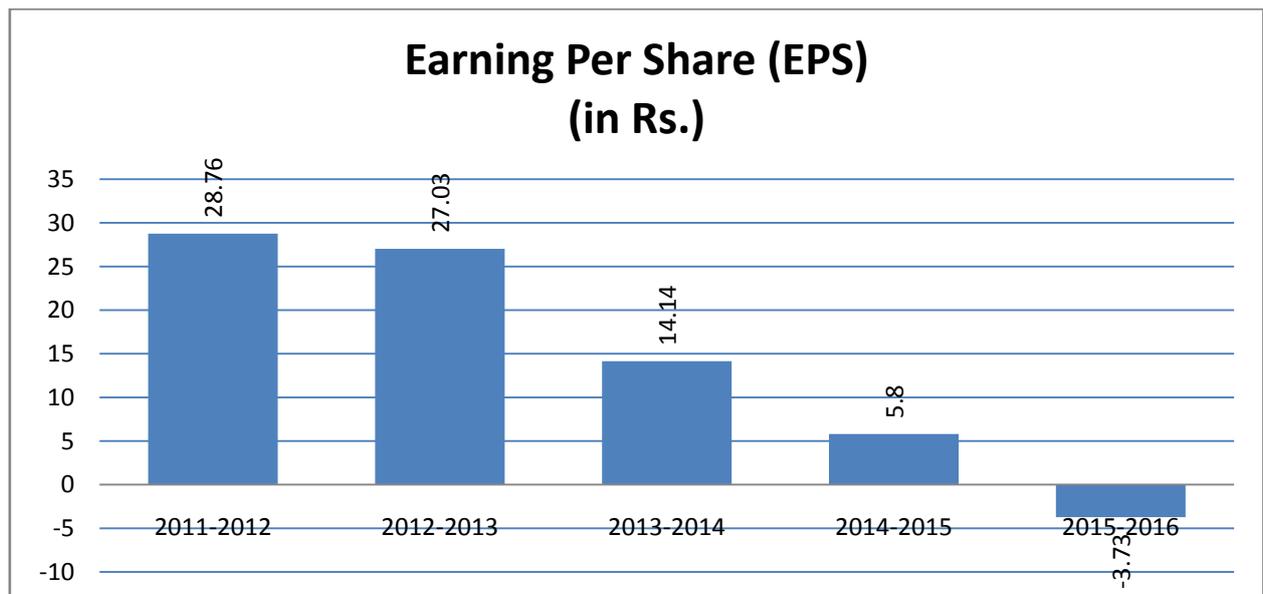
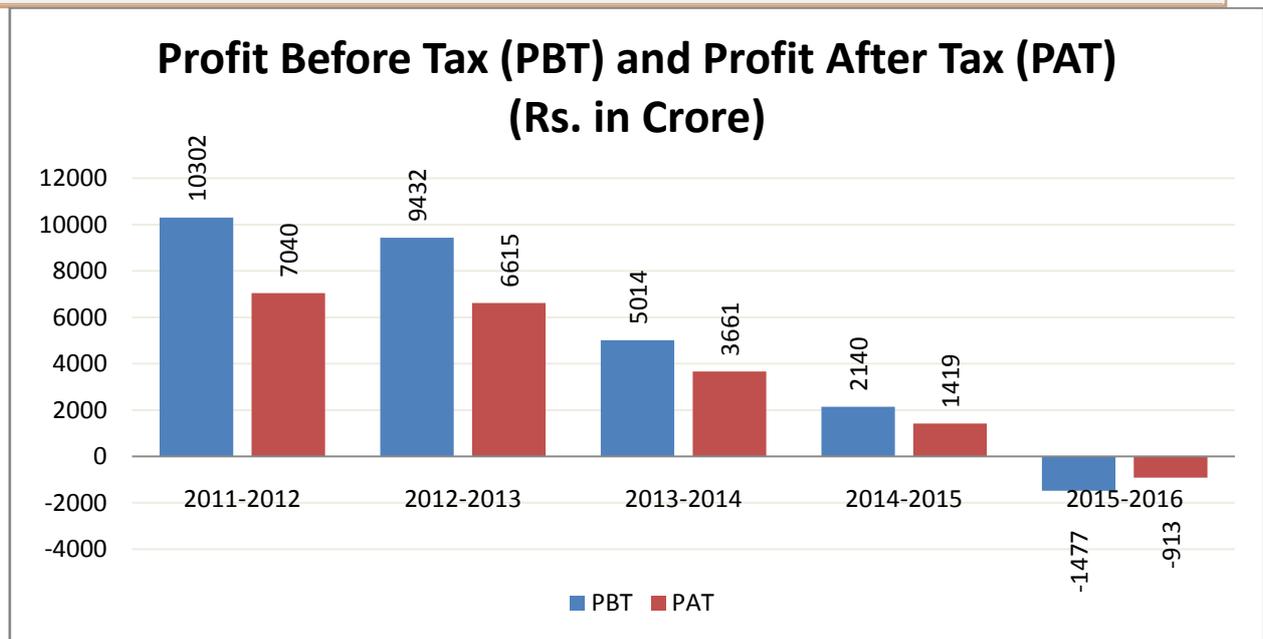
	March 31, 2017	March 31, 2018
Revenue from operations	28599	28813
Earnings Before Interest, Tax, Depreciation and Amortization (EBITDA)	1827	2626
Operational Earnings Before Interest, Tax, Depreciation and Amortization	1061	1933
Profit before tax	628	1585
Profit after tax	496	807

As a result of enhanced focus on increasing market share and diversification, the company secured orders worth ₹ 40,932 crore, a significant 74% rise over FY 2016-17. The company ended the year with a total order book of over ₹ 1,18,000 crore, the highest in the last five years. Net profit (PAT) stood at ₹ 807 crore in FY 2017-18, against ₹ 496 crore in FY 2016-17, a 63% jump. Company has delivered a significant improvement in operational EBITDA, which could be achieved through various cost reduction initiatives.

Financial Performance of BHEL from 2011 - 2015 (in crore):

	2011-12	2012-13	2013-14	2014-15	2015-16
Turnover (Gross)	49510	50156	40338	30947	26587
Revenue from operations (Net)	47228	47618	38389	29542	25138
Other Operational Income	751	807	720	700	492
Operating Expense	38092	39037	34595	28153	27595
Operating Profit	9887	9388	4514	2089	-1964
Add : Other Income	1266	1122	1616	1220	1450
Profit before depreciation, Finance Cost & Tax Expense	11153	10510	6130	3309	-514
Less : Depreciation	800	953	983	1077	936
Less : Finance Cost	51	125	133	92	27
Profit before Tax	10302	9432	5014	2140	-1477
Less : Tax	3262	2817	1553	721	563
Profit after Tax	7040	6615	3461	1419	-914

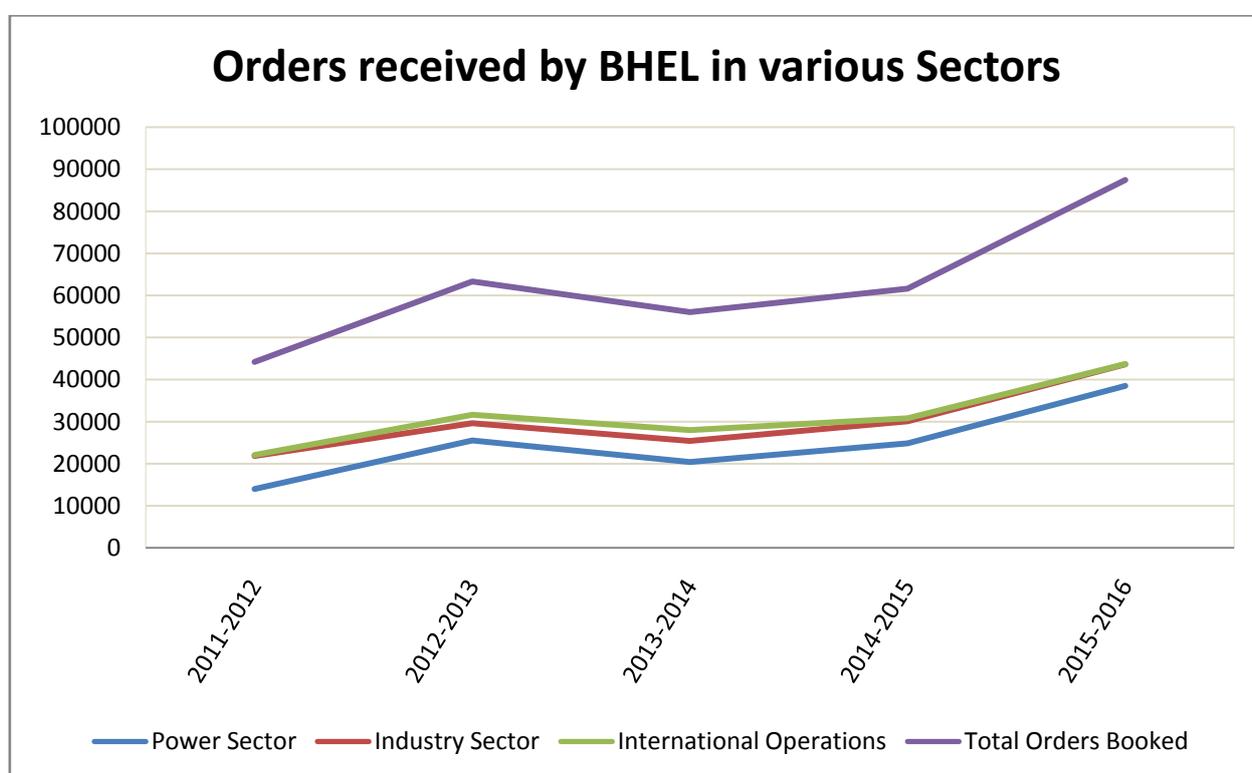




There is a drastic decrease in the company's PAT from 2011-12 to 2014-15. The company reported a loss for the first time in 2015-16. The report states that as BHEL had not effectively diversified into new business area. Coal scam is also considered one of the reasons for the slowdown of the industries. The CAG report tabled in Parliament shows BHEL's profit of Rs. 7400 crore in 2011-12 turned into a loss of Rs. 913 crore in 2015-16 and its turnover is declined by over 46. Despite operating in a subdued business environment, the company secured orders worth Rs. 43,727 Crore during the year 2015-2016, the highest in the last five years and 42% growth over 2014-15.

Orders received by the company in various sectors:

	2011-12	2012-13	2013-14	2014-15	2015-16
Power Sector	14012	25560	20433	24873	38529
Industry Sector	7850	4086	5007	5221	5125
International Operations	234	2004	2567	720	73
Total Orders Booked	22096	31650	28007	30814	43727



BHEL is continuously working to match with the current competition in the market through diversification of its portfolio in non-coal segments viz. Energy Storage, E-Mobility, Oil & Gas, Transportation, Defence and Aerospace, etc. With its vast experience of more than five decades of indigenized manufacturing, BHEL is geared to provide tailor-made solutions for Battery Energy Storage Systems to meet different kinds of customer requirements. BHEL has won a prestigious order for the supply of state-of-the-art Electric Buses along with charging infrastructure of these buses for Gorakhpur City, and it has also won its first commercial order for state-of-the-art Battery Energy Storage Systems from The Energy and Resource Institute (TERI).

BHEL is strengthening its internal process for high quality, cost effective and timely execution, it can be seen through its improving performance day by day. BHEL is continuing to work towards capitalising on the emerging opportunities for sustained growth, in the years to come. The company has been continuously expanding its overseas footprints, and has achieved yet another milestone in its international business by bagging a prestigious order for a Compressor Package from Iraq. BHEL will be a driving force towards the AatmaNirbhar Bharat Abhiyan of the Government of India. It is playing a very promising role for the future through its continuous effort of innovation and diversification in various fields. It has enough orders to get sufficient bread and butter. The company is steadily moving forward on its various initiatives despite the numerous challenges it faces. BHEL has sufficient autonomy and resources to invest. Therefore, it can enter into new business solutions and can untapped new business opportunities, which are out of reach for general business groups.

CONTRIBUTION OF BHEL IN CORPORATE SOCIAL RESPONSIBILITY:

BHEL's contribution towards Corporate Social Responsibility till date include adoption of villages, organizing free medical camps, supporting charitable dispensaries, schools for the underprivileged and handicapped children, providing aid during disaster/natural calamities and many more. The company successfully improved the sewage system at Haridwar, to supplement the requirement of Ganga Pollution Control Unit, Uttarakhand. As a part of major Environmental Improvement Projects during 2011-12 the company has planted 27,545 trees. BHEL organizes various programmes for talent upgradation of social and economically backward students for their empowerment in order to make them self-reliant. It is also promoting various Scholarship Programmes for the students to enable them pursue higher education. In 2013 an amount of Rs. 20 million has been contributed by BHEL to the Chief Minister's Relief Fund of Uttarakhand, and its employees have contributed one-day salary for the cause.

CAUSES OF POOR FINANCIAL PERFORMANCE OF BHEL:

BHEL has continuously been so promising company for its shareholders, and for the country from the date it established. As the time changes, it try to diversify its activity in various field so

as to keep itself competitive and match with the changing environment. From the last few years, BHEL is having a hard time as it is not been able to earn reasonable profit and continuously facing a loss. There are many reasons for the loss by the company such as: a lower demand situation in power sector, high receivables and huge employee cost, low capital expenditure and irregular receivables from state electricity boards. Management in the company attributed to the drop in sales to customer, delays in orders due to cash constraints and delays in receiving clearances for several orders. Many key clients such as: Bajaj Hindustan, Monnet power and Abhijeet Industries facing delays in receiving clearances for several orders. However, the company itself has also taken a more cautious stance and has suspended execution of orders due to non-payment of dues from customers. The problem is also due to the Chinese product in the market as most of the private projects have switch to the Chinese suppliers, because their equipment is a lot cheaper and most importantly, they deliver in about 30 months. On the other hand BHEL was blamed for overpromising and under-delivering due to which they lost so many project in hand.

Causes of poor financial performance can be summarized as under:

1. Change in business environment –

- a. Lower demand situation in power sector - Throughout the reviewed period, the majority of BHEL's revenue (between 76.46 and 80.53 percent) came from the power industry (2011-12 to 2015-16). The Company's turnover and profitability both drastically decreased with the slump in the power sector since it had not successfully diversified into new or less operating business areas. Turnover at BHEL fell from 49510 crores in 2011–12 to 26587 crores in 2015–16, and earnings of 7040 crores in 2011–12 were replaced by a loss of 913 crores.
- b. Climate Change –
 - i. With the increase in environmental concerns, the central electricity authority in November 2003 recommended adoption of large unit size having supercritical parameters to pace thermal capacity expansion and increase efficiency but BHEL was new and did not have any experience in supercritical technology. BHEL lost a huge amount of revenue during this time.
 - ii. At the same time, United Nations Framework Convention on Climate Change (UNFCCC) was adopted in June 2008 and subsequently National Action Plan on Climate Change (NAPCC) and

National Solar Mission was launched. They stressed to significantly increase the share of solar energy in total energy mix. Government of India launched in January 2010 Jawaharlal Nehru National Solar Mission (JNNSM) with ambitious target of adding 20000 MW solar power capacity by 2022. This target was subsequently enhanced (June 2015 to 100000 MW. Capacity of BHEL in the area of solar power was limited. Since the future was on the verge of revolution BHEL lost a huge opportunity which it could have capitalized and changed the course of company.

- iii. Increase in competition from private players – After CEA announcement and launch of National Solar Mission, many private players entered the market forming Joint Ventures with international companies, this led to increase in market competition further creating a financial challenge for BHEL

2. Business Management –

- a. Government support – Government provided support to BHEL by issuing advisory in February 2010 to incorporate the condition of setting up of phased indigenous manufacturing facilities in bids to be invited by Central/State sector Thermal Power Generating Companies. This reduced competition for BHEL from international power equipment manufacturers but BHEL was not able to fully commit and build on this opportunity
- b. BHEL had fixed Strategic Plan targets for the period 2012-17 with focus on diversification and innovation. However, BHEL did not set year wise milestones for implementation of the envisaged strategies. BHEL could not achieve any of the strategic plan targets till 2015-16; shortfall ranging between 23.33 and 113.91 percent against specific goals.
- c. Decrease in market share - In the core power sector, BHEL was the leader in the engineering and supply of Drum Type Boilers but with introduction of higher unit size / supercritical technology and enhanced competition (with Indian companies establishing manufacturing facilities in the country in association with supercritical technology providers), share of BHEL supplied sets witnessed a sustained decline from 64% at the end of X Five Year Plan to 59% at the end of XIth Five Year Plan . As on 31 March 2016, in the supercritical segment, against 33 units (including 10 units under four on-hold projects) under implementation by BHEL, 45 units were being implemented by its competitors which may further depress the share of BHEL in its core sector. This had a very huge negative impact on the financial performance of BHEL.

3. Diversification –

- a. BHEL established Strategic Plan targets for the period of 2012–17 with a focus on diversification and innovation because it accepted that the utility power plant business was hampered by sector-specific issues like inadequate coal linkages, mounting losses of state utilities, land issues, and financing. Therefore, BHEL's challenge was to not only protect its core business but also to concentrate on diversified areas like the defence, solar, wind, and water industries as well as to engage R&D to attempt ground-breaking developments.
- b. Failure to bridge technology gap - Leverage Engineering, Procurement, and Construction (EPC) expertise, notably in the Circulating Fluidized Bed Combustion (CFBC) area, and try new areas such as coal washery reject-based power plants. This led to a huge financial loss in terms of lost order value of ~ INR 300 crore
- c. Decrease in efficiency of products leading to loss of bids –
 - i. Efficiency of Frame 6 (Fr6) model of Gas Turbine offered by BHEL was 5 to 6 per cent lower than Siemens and Hitachi models, attracting substantial technical loading on BHEL. Due to lower efficiency of Fr6B GTG offered by BHEL, there was substantial technical loading (INR 114.64 crore) on BHEL, which rendered BHEL's offer uncompetitive.
 - ii. Efficiency of BHEL's Photovoltaic (PV) modules (15.20 per cent) was lower in comparison to that of its competitors (15.90 per cent). On account of this, BHEL lost (2013-14 and 2015-16) two orders for solar PV project, Belarus.
 - iii. The BHEL-Jhansi plant is capable of producing dead tank type CTs, which are more expensive than live tank CTs. In the period from 2012 to 2016, BHEL engaged in 63 orders for the supply of up to 220 kV CTs but lost almost all of them (60 orders) worth INR 87.15 crore.

- iv. BHEL produces Cast Resin Type Transformers, or "Dry Type Transformers" (DTT) are more expensive than Resin Impregnated DTTs. BHEL failed to win any of the ten tenders from 2012 to 2016 for the supply of DTT, worth INR 7.36 crore tenders.
- v. The use of 765 kV Gas Insulated Switchyard (GIS) is growing in popularity as a way to reduce the amount of right-of-way needed for transmission lines and get around land availability issues for substations. But BHEL has not been successful in creating 765 kV GIS technology.
- vi. Interconnecting Transformers (ICTs) of 500 MVA from BHEL were ineligible for substation installations because they had not undergone Dynamic Short Circuit testing. Only 31 (22.3%) of the 139 sub-station tenders with a capacity of 220 kV or above that were finalised from 2012–2013 to 2015–2016 involved BHEL, and of those, 19 (61.29%) orders were received.
- d. Lack of completion of business tie-up for R&M business: Due to its lower cost and quicker gestation period, renovation and modernization (R&M) was considered a cost-effective option for extra generation from the existing thermal power plants. In June 2012, the Management Committee (MC) expressed worry about BHEL's inability to carry out R&M projects, primarily because of a lack of a service engineering setup. (2012) Management was given a specific directive by MC to speed up business tie-up for service cooperation with a suitable partner for the R&M company, which has not yet been decided.

4. Late response to emerging opportunities –

The GoI started JNNSM in January 2010 with the goal of achieving a 20000 MW solar power capacity by the years 2021–2022. In June 2015, the goal was raised to 100,000 MW. BHEL has been involved in the renewable energy industry since 1983, but in comparison to these ambitious goals, its manufacturing capacity (8 MW for PV cells and 26 MW for PV modules) was negligible.

At its Electronic Division (EDN), Bengaluru, the Strategic Plan 2012–17 anticipated (November 2011) gradually increasing Photovoltaic (PV) module production capabilities to 100 MW by 2014–15; however, this project could not be finished until January 2017. The mission's initial phase required active participation from BHEL, however this was not possible due to a delayed expansion of production capacity. The Ministry of New and Renewable Energy also noted (in December 2012) that while many major and small organisations had contributed to the mission's initial phase, BHEL

had had a minimal impact. JNNSM added 7564.86 MW of solar power to the nation up until May 2016, whereas BHEL only put 105.5 MW (or 1.39%) into service during same time.

5. Delay in completion of R&D activities of mission projects –

There were 517 Research and Development (R&D) projects started under the 15 mission projects of BHEL. From 2011–12 to 2016–17, 492 R&D projects related to 12 mission projects¹⁷ were completed, of which 31.17 percent (156 projects) were unable to be finished on time. Out of these 156 projects, three were finished after more than three years of delay, 15 were finished after one to three years of delay, and 28 were finished after a delay of between six months and a year. Additionally, as of March 31, 2017, 25 R&D projects connected to five mission programmes were active. Low capex – MAHARATNA STAUS POINT, Phased indigenous manufacturing facilities .

6. Cost estimation –

- a. BHEL was unable to finish any of the performance projects in a timely manner, With delays ranging from three to 84 months, all 53 chosen projects were started. Due to this, consumers withheld INR 1966.07 crore in liquidated damages (LD) for 37 of these assignments.
 - b. To assure intended performance levels and avoid delays in erection and commissioning due to repairs or rework, BHEL production units must supply material and equipment that adheres to quality requirements. However, quality and workmanship problems were discovered throughout the project's execution, resulting in costs for rework of 138.44 crore for the Trichy and Haridwar units in the sample projects chosen for assessment by Audit.
 - c. To assure intended performance levels and avoid delays in erection and commissioning due to repairs or rework, BHEL production units must supply material and equipment that adheres to quality requirements. However, quality and workmanship problems were discovered throughout the project's execution, resulting for e.g. in costs for rework of INR 138.44 crore for the Trichy and Haridwar units.
7. **Project delivery** – BHEL engaged into contracts with eight commercial project developers that stipulated payments would be made available to BHEL via a Letter of Credit (LC). However, it was noted that BHEL did not assure adherence to this clause of the contract, and not only initiated supplies without establishment of LC but also continued supplying material even after recurrent failures of private developers. All Eight projects were later put on hold, and any unpaid fees for these

projects are still owed totalled to INR 2660.77 crore. Additionally, these projects have inventory worth INR 458.51 crore is lying in several BHEL facilities.

8. Trade receivables –

- a. Orders that BHEL has obtained for the execution of power projects provide that the remaining 5 to 10% of the contract sum will be released following the successful completion of Performance Guarantee (PG) tests and the fulfilment of outstanding work/punch points. Therefore, it was essential that BHEL run PG testing as after commissioning and resolve any outstanding issues. Only 18 of the 52 units in the 29 thermal power projects that were commissioned between 2011 and 2016 had their PG tests finished as of July 2016 due to lengthy delays of seven to 50 months following commissioning.
- b. PG testing for the remaining 34 units have not been finished, despite the fact that (as of July 2016) two to 70 months have passed since their commissioning. Loss of interest on the unrealized amounts that were due on this account as of March 31, 2016, came to INR 1457.11 crore.

IMPACT ON MARKET VALUATION OF BHEL:

The market valuation of BHEL, which was INR 97940.71 crore at the beginning of April 2011, was reduced to INR 37533.95 crore (as on 16 February 2017) representing a drop by 61.68 per cent. Consequently, the market value of GoI holding in BHEL also decreased by INR 38092.50 crore. During the above period, Bombay Stock Exchange (BSE) Capital Goods Index increased from 13255.14 to 15267.22 and BSE PSU index remained almost at the same level¹⁴, but BHEL's share price declined sharply from INR 412.17 per share to INR 153.35 per share.

RECOMMENDATIONS TO IMPROVE FINANCIAL PERFORMANCE OF BHEL:

1. Through R&D projects, BHEL must create its own products that outperform those of rivals. It is important to move quickly to establish technology partnerships in emerging economic sectors.
2. To improve procedures and systems and to increase cooperation amongst BHEL units, the "One BHEL" ERP system should be adopted quickly.

3. By using an open tender method, BHEL must complete more orders. To guarantee efficient and competitive input procurement, the cycle time from the purchase indent to the purchase order should be shortened.
4. Action plans must be created and put into place by BHEL within the allotted time frame in order to overcome the competitive disadvantages that were discovered through various consumer surveys.
5. In order to prevent equipment failure during commissioning and the warranty term, quality controls at both BHEL manufacturing facilities and vendor facilities may be improved.
6. Dispatches, especially to private parties, should be made subject to the formation of a Letter of Credit in order to protect BHEL's financial interests. It is crucial to guarantee the immediate completion of Performance Guarantee tests after commissioning and the timely completion of balance punch points in close cooperation with customers.
7. To guarantee prompt billing and revenue collection, revenue billing and debtor management systems need to be improved.

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