

**WORKING CAPITAL TRENDS IN HEAVY ELECTRICAL
INDUSTRIES: A CASE STUDY OF CROMPTON GREAVES AND
BHEL**

Vineet Singh,

Assistant Professor, Dept. of Commerce,
Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh.

ABSTRACT

The present study is an attempt to analyze the gross and net working capital of Bharat Heavy Electricals Limited (BHEL). For providing a better insight into the position a comparison is made between BHEL and Crompton Greaves (C.G).

Key words: BHEL, Crompton Greaves, Gross Working Capital, Net Working Capital

Introduction:

Gross working capital refers to the amount of funds invested in current assets in a firm. Current assets are those assets which can be converted into cash within one year such as cash, receivables, sundry debtors, short-term loans and advances, raw materials, work-in-progress etc. From the management point of view gross working capital deals with the problems of managing individual current assets in the day-to-day operations.

Net working capital is defined as the difference between current assets and current liabilities of a business. Current liabilities are those liabilities which are to be paid generally within one year such as bills payable, sundry creditors, short-term loans, dividends payable, bank overdraft etc. Net working capital may be positive or negative. When the current assets exceed the current liabilities the working capital is positive and the negative working capital results when the current liabilities are more than the current assets.

Heavy Electrical Industry includes power generation, distribution and utilization equipments, transportation, etc. These include boilers, turbo generators, various types of turbines, switchgears, transformers and other allied items. Majority of the products manufactured by heavy electrical industry in the country are used by all sectors of the Indian economy. Some key areas where heavy electrical equipments are used are the multi core

projects for power generation including nuclear power stations, petrochemical complexes, integrated steel plants, chemical plants, non-ferrous metal units, etc.

BHEL was established more than 40 years ago and is India largest engineering and manufacturing enterprise in the energy-related infrastructure sector. It has been earning profits continuously since 1971-72. BHEL is one of the very few companies in the world, which manufactures all major power generating equipment under one roof such as Turbines and Generator Sets, Boilers, Transformers, Switchgear and Control Gear, Electrical Furnace etc. BHEL is setting up a new benchmark in terms of productivity, quality and responsiveness. BHEL manufactures over 180 products under 30 major product groups and caters to core sectors of the Indian Economy viz., Power Generation & Transmission, Renewable Energy, Transportation, Telecommunication, etc.

REB Crompton in 1878 founded a business at Chelmsford, Essex, England under the name of REB Crompton & Co. to engage in the manufacture and contracting of electrical equipment.

REB Crompton & Co. merged with F&A Parkinson Limited thereby establishing Crompton Parkinson Limited (CPL) in England. In 1937 CPL established its wholly owned Indian subsidiary '*Crompton Parkinson Works Ltd.*', in Mumbai, along with a sales organization '*Greaves Cotton & Crompton Parkinson Ltd.*'

In the year 1947 the company was taken over by Lala Karamchand Thapar, who formed the Thapar Group. In 1966 Crompton Parkinson Works Ltd. and Greaves Cotton & Crompton Parkinson Ltd. merged to create Crompton Greaves Limited (CG).

Crompton Greaves is India's largest private sector enterprise which was established in 1937 in India. Crompton Greaves is currently engaged itself in designing, manufacturing and marketing technologically sophisticated electrical products and services, which are mainly concerned with power generation, transmission and distribution, in addition executing turn-key projects to make it available ready-to-use condition. Crompton Greaves has three important strategic business areas which includes Power systems, Industrial systems and Consumer products. The company is the single largest source for a wide variety of electrical equipments and products and is customer-centric in nature.

Objective of Study:

- (i) To find out gross and net working capital in BHEL and C.G during 2002-2003 to 2011-2012.
- (ii) To find out the changes in gross and net working capital in BHEL and C.G during 2002-2003 to 2011-2012.
- (iii) To compare the gross and net working capital position of BHEL and C.G.

Research Methodology:

The analysis is carried out through various statistical measures like percentage, average etc.

Analysis and Interpretation:

To make an analysis, inventory turnover ratio of BHEL and C.G has been calculated by following tables and graphical representation, followed by a comparative study.

Table 1: Working Capital (BHEL)

| Year | Total Cash and Bank Balance (BHEL) | Net Debtors (BHEL) | Total Inventories (BHEL) | Loans and Advances (BHEL) | Other current assets (BHEL) | Gross Working Capital (BHEL) | Current Liabilities (BHEL) | Provisions (BHEL) | Net Working Capital (BHEL) |
|-----------|------------------------------------|--------------------|--------------------------|---------------------------|-----------------------------|------------------------------|----------------------------|-------------------|----------------------------|
| 2002-2003 | 1320.91 | 4075.78 | 2001.06 | 949.65 | 1.00 | 8348.40 | 3949.60 | 806.46 | 3592.34 |
| 2003-2004 | 2659.64 | 4608.48 | 2103.88 | 1039.19 | 13.51 | 10424.70 | 5196.91 | 1139.94 | 4087.85 |
| 2004-2005 | 3177.86 | 5972.14 | 2916.11 | 1229.69 | 47.18 | 13342.98 | 7120.44 | 1325.45 | 4897.09 |
| 2005-2006 | 4133.97 | 7168.07 | 3744.37 | 1199.87 | 84.50 | 16330.78 | 8807.74 | 1512.28 | 6010.76 |
| 2006-2007 | 5808.91 | 9695.82 | 4217.67 | 1140.87 | 199.70 | 21062.97 | 11897.87 | 2522.24 | 6642.86 |
| 2007-2008 | 8386.02 | 11974.87 | 5736.40 | 1186.34 | 421.09 | 27704.72 | 16576.45 | 3244.39 | 7883.88 |
| 2008-2009 | 10314.67 | 15975.50 | 7837.02 | 2423.67 | 350.21 | 36901.07 | 23357.32 | 4975.58 | 8568.17 |
| 2009-2010 | 9790.08 | 20688.75 | 9235.46 | 2813.67 | 406.85 | 42934.81 | 28023.74 | 4417.98 | 10493.09 |
| 2010-2011 | 9630.15 | 27354.62 | 10963.03 | 3237.31 | 309.63 | 51494.74 | 31346.57 | 7596.8 | 12551.37 |
| 2011-2012 | 6671.98 | 26336.13 | 13444.50 | 2111.72 | 150.61 | 48714.94 | 26087.24 | 2635.69 | 19992.01 |
| Average | 6189.42 | 13385.02 | 6219.95 | 1733.20 | 198.43 | 27726.01 | 16236.39 | 3017.68 | 8471.94 |

Table 1.1: Gross and Net Working Capital (BHEL)

| Year | Gross Working Capital (BHEL) | % Change in Gross Working Capital (BHEL) | Net Working Capital (BHEL) | % Change in Net Working Capital (BHEL) |
|-----------|------------------------------|--|----------------------------|--|
| 2002-2003 | 8348.40 | -- | 3592.34 | -- |
| 2003-2004 | 10424.70 | 24.87 | 4087.85 | 13.79 |
| 2004-2005 | 13342.98 | 27.99 | 4897.09 | 19.80 |
| 2005-2006 | 16330.78 | 22.39 | 6010.76 | 22.74 |
| 2006-2007 | 21062.97 | 28.98 | 6642.86 | 10.52 |
| 2007-2008 | 27704.72 | 31.53 | 7883.88 | 18.68 |
| 2008-2009 | 36901.07 | 33.19 | 8568.17 | 8.68 |
| 2009-2010 | 42934.81 | 16.35 | 10493.09 | 22.47 |
| 2010-2011 | 51494.74 | 19.94 | 12551.37 | 19.62 |
| 2011-2012 | 48714.94 | -5.40 | 19992.01 | 59.28 |
| Average | 27726.01 | 22.21 | 8471.94 | 21.73 |

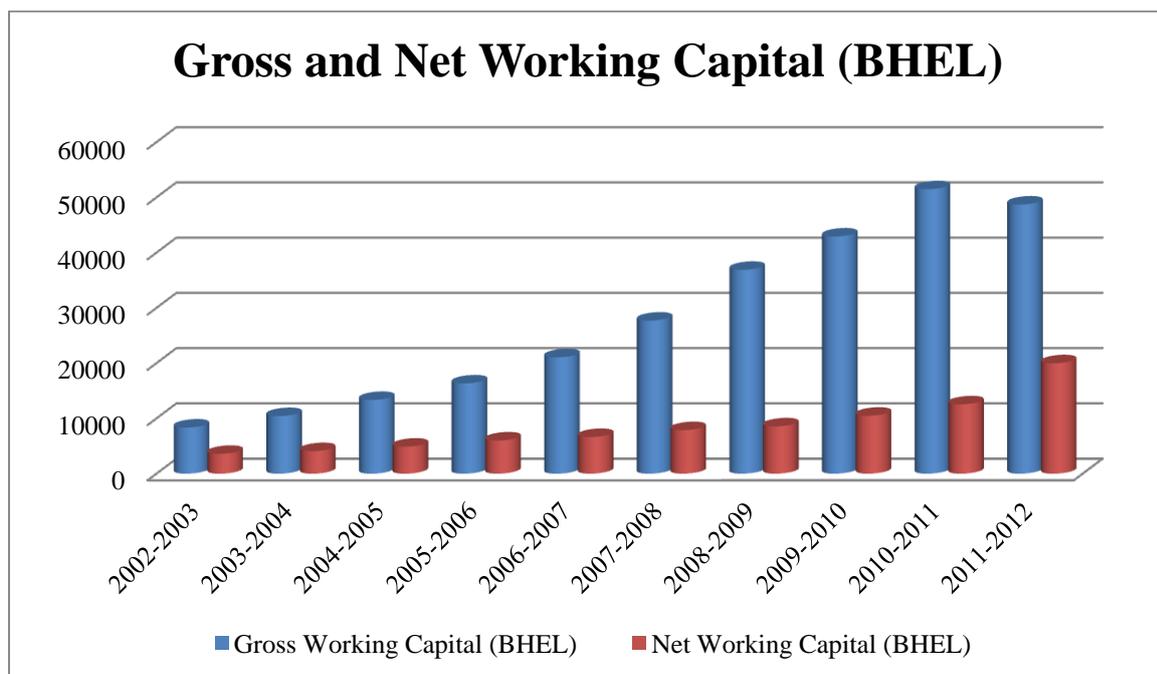


Fig. 1: Gross and Net Working Capital (BHEL)

Table 1 and 1.1 exhibits gross and net working capital in BHEL. Gross working capital in BHEL stood at an average of Rs. 27726.01 crores during the study period. Gross working capital has shown an increasing trend from 2002-2003 to 2010-2011 and a decreasing trend in 2011-2012. Net working capital in BHEL stood at an average of Rs. 8471.94 crores and has shown an increasing trend during the study period. In the year 2002-2003 Gross working capital amounted to Rs. 8348.40 crores and Net working capital

amounted to Rs. 3592.34 crores. In the year 2003-2004 Gross working capital amounted to Rs. 10424.70 crores and Net working capital amounted to Rs. 4087.85 crores. In 2003-2004 Gross working capital has registered an increase of 24.87% from its previous year's balance where as Net working capital has registered an increase of 13.79% from its previous year's balance. In the year 2004-2005 Gross working capital amounted to Rs. 13342.98 crores and Net working capital amounted to Rs. 4897.09 crores. In the year 2005-2006 Gross working capital amounted to Rs. 16330.78 crores and Net working capital amounted to Rs. 6010.76 crores. In 2005-2006 Gross working capital has registered an increase of 22.39% from its previous year's balance where as Net working capital has shown an increase of 22.74% from its previous year's balance. In the year 2006-2007 Gross working capital amounted to Rs. 21062.97 crores and Net working capital amounted to Rs. 6642.86 crores. In 2006-2007 Gross working capital has registered an increase of 28.98% from its previous year's balance where as Net working capital has registered an increase of 10.52% from its previous year's balance. In the year 2007-2008 Gross working capital amounted to Rs. 27704.72 crores and Net working capital amounted to Rs. 7883.88 crores. In 2007-2008 Gross working capital has registered an increase of 31.53% where as Net working capital has registered an increase of 18.68% from its previous year's balance. In the year 2008-2009 Gross working capital amounted to Rs. 36901.07 crores and Net working capital amounted to Rs. 8568.17 crores. In 2008-2009 Gross working capital has registered an increase of 33.19% from its previous year's balance where as Net working capital has registered an increase of 8.68% from its previous year's balance. In the year 2009-2010 Gross working capital amounted to Rs. 42934.81 crores and Net working capital amounted to Rs. 10493.09 crores. In 2009-2010 Gross working capital has registered an increase of 16.35% from its previous year's balance where as Net working capital has registered an increase of 22.47% from its previous year's balance. In the year 2010-2011 Gross working capital amounted to Rs. 51494.74 crores and Net working capital amounted to Rs. 12551.37 crores. In 2010-2011 Gross working capital has registered an increase of 19.94% from its previous year's balance where as Net working capital has registered an increase of 19.62% from its previous year's balance. In the year 2011-2012 Gross working capital amounted to Rs. 48714.94 crores and Net working capital amounted to Rs. 19992.01 crores. In 2011-2012 Gross working capital has registered a decrease of 5.40% from its previous year's balance where as Net working capital has

registered an increase of 59.28% from its previous year's balance. Gross and Net working capital of BHEL has also been shown with the help of Figure 1.

Table 2: Working Capital (C.G)

| Year | Total Cash and Bank Balances (C.G) | Net Debtors (C.G) | Total Inventories (C.G) | Loans and Advances (C.G) | Other current assets (C.G) | Gross Working Capital (C.G) | Current Liabilities (C.G) | Provisions (C.G) | Net Working Capital (C.G) |
|-----------|------------------------------------|-------------------|-------------------------|--------------------------|----------------------------|-----------------------------|---------------------------|------------------|---------------------------|
| 2002-2003 | 54.74 | 475.06 | 193.15 | 133.48 | 0.00 | 856.43 | 560.88 | 13.03 | 282.52 |
| 2003-2004 | 76.15 | 526.85 | 174.26 | 117.00 | 0.00 | 894.26 | 610.39 | 37.86 | 246.01 |
| 2004-2005 | 73.42 | 541.08 | 177.09 | 99.24 | 0.00 | 890.83 | 571.56 | 15.67 | 303.60 |
| 2005-2006 | 125.13 | 659.64 | 191.81 | 157.11 | 0.00 | 1133.69 | 742.38 | 59.99 | 331.32 |
| 2006-2007 | 173.57 | 803.89 | 247.01 | 236.37 | 0.00 | 1460.84 | 889.38 | 158.04 | 413.42 |
| 2007-2008 | 157.65 | 956.22 | 262.95 | 279.41 | 0.00 | 1656.23 | 1041.20 | 254.10 | 360.93 |
| 2008-2009 | 472.51 | 1012.26 | 281.32 | 319.90 | 0.00 | 2085.99 | 1187.67 | 328.02 | 570.30 |
| 2009-2010 | 548.50 | 1212.79 | 303.53 | 155.37 | 0.00 | 2220.19 | 1446.6 | 153.57 | 620.02 |
| 2010-2011 | 150.89 | 1510.18 | 405.72 | 317.34 | 0.86 | 2384.99 | 1529.34 | 169.28 | 686.37 |
| 2011-2012 | 321.10 | 1735.62 | 449.60 | 263.19 | 48.88 | 2818.39 | 1665.88 | 138.32 | 1014.19 |
| Average | 215.37 | 943.36 | 268.64 | 207.84 | 4.97 | 1640.18 | 1024.53 | 132.79 | 482.87 |

Table 2.2: Gross and Net Working Capital (C.G)

| Year | Gross Working Capital (C.G) | % Change in Gross Working Capital (C.G) | Net Working Capital (C.G) | % Change in Net Working Capital (C.G) |
|-----------|-----------------------------|---|---------------------------|---------------------------------------|
| 2002-2003 | 856.43 | -- | 282.52 | -- |
| 2003-2004 | 894.26 | 4.42 | 246.01 | -12.92 |
| 2004-2005 | 890.83 | -0.38 | 303.6 | 23.41 |
| 2005-2006 | 1133.69 | 27.26 | 331.32 | 9.13 |
| 2006-2007 | 1460.84 | 28.86 | 413.42 | 24.78 |
| 2007-2008 | 1656.23 | 13.38 | 360.93 | -12.70 |
| 2008-2009 | 2085.99 | 25.95 | 570.3 | 58.01 |
| 2009-2010 | 2220.19 | 6.43 | 620.02 | 8.72 |
| 2010-2011 | 2384.99 | 7.42 | 686.37 | 10.70 |
| 2011-2012 | 2818.39 | 18.17 | 1014.19 | 47.76 |
| Average | 1640.18 | 14.61 | 482.87 | 17.43 |

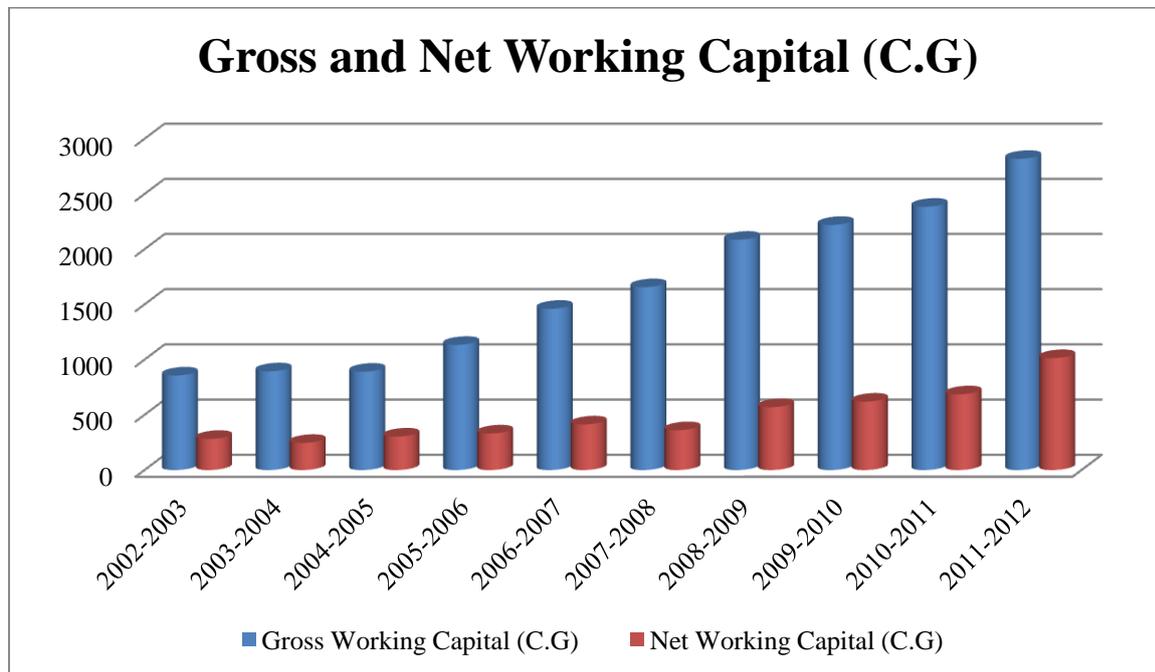


Fig. 2: Gross and Net Working Capital (C.G)

Table 2 and 2.2 reveals Gross and Net working capital in Crompton Greaves. Gross working capital in C.G stood at an average of Rs. 1640.18 crores and has shown a mixed trend of increase and decrease during the study period. Net working capital in C.G stood at an average of Rs. 482.87 crores and has shown a mixed trend of increase and decrease during the study period. In the year 2002-2003 Gross working capital amounted to Rs. 856.43 crores and Net working capital amounted to Rs. 282.52 crores. In the year 2003-2004 Gross working capital amounted to Rs. 894.26 crores and Net working capital amounted to Rs. 246.01 crores. In 2003-2004 Gross working capital has registered an increase of 4.42% from its previous year's balance where as Net working capital has registered a decrease of 12.92% from its previous year's balance. In the year 2004-2005 Gross working capital amounted to Rs. 890.83 crores and Net working capital amounted to Rs. 303.6 crores. In 2004-2005 Gross working capital has registered a decrease of 0.38% from its previous year's balance where as Net working capital has registered an increase of 23.41% from its previous year's balance. In the year 2005-2006 Gross working capital amounted to Rs. 1133.69 crores and Net working

capital amounted to Rs. 331.32 crores. In 2005-2006 Gross working capital has registered an increase of 27.26% from its previous year's balance where as Net working capital has registered an increase of 9.13% from its previous year's balance. In the year 2006-2007 Gross working capital amounted to Rs. 1460.84 crores and Net working capital amounted to Rs. 413.42 crores. In 2006-2007 Gross working capital has registered an increase of 28.86% from its previous year's balance where as Net working capital has registered an increase of 24.78% from its previous year's balance. In 2007-2008 Gross working capital amounted to Rs. 1656.23 crores and Net working capital amounted to Rs. 360.93 crores. In 2007-2008 Gross working capital has registered an increase of 13.38% from its previous year's balance where as Net working capital has registered a decrease of 12.70% from its previous year's balance. In 2008-2009 Gross working capital amounted to Rs. 2085.99 crores and Net working capital amounted to Rs. 570.3 crores. In 2008-2009 Gross working capital has registered an increase of 25.95% from its previous year's balance where as Net working capital has registered an increase of 58.01% from its previous year's balance. In the year 2009-2010 Gross working capital amounted to Rs. 2220.19 crores and Net working capital amounted to Rs. 620.02 crores. In 2009-2010 Gross working capital has registered an increase of 6.43% from its previous year's balance where as Net working capital has registered an increase of 8.72% from its previous year's balance. In the year 2010-2011 Gross working capital amounted to Rs. 2384.99 crores and Net working capital amounted to Rs. 686.37 crores. In 2010-2011 Gross working capital has registered an increase of 7.42% from its previous year's balance where as Net working capital has registered an increase of 10.70% from its previous year's balance. In the year 2011-2012 Gross working capital amounted to Rs. 2818.39 crores and Net working capital amounted to Rs. 1014.19 crores. In 2011-2012 Gross working capital has registered an increase of 18.17% from its previous year's balance where as Net working capital has registered an increase of 47.76% from its previous year balance. Gross and Net working capital in C.G. has also been shown with the help of Figure 2.

Table 3: Gross Working Capital (BHEL and C.G)

| Year | Gross Working Capital (BHEL) | Gross Working Capital (C.G) |
|-----------|------------------------------|-----------------------------|
| 2002-2003 | 8348.40 | 856.43 |
| 2003-2004 | 10424.70 | 894.26 |
| 2004-2005 | 13342.98 | 890.83 |

| | | |
|-----------|----------|---------|
| 2005-2006 | 16330.78 | 1133.69 |
| 2006-2007 | 21062.97 | 1460.84 |
| 2007-2008 | 27704.72 | 1656.23 |
| 2008-2009 | 36901.07 | 2085.99 |
| 2009-2010 | 42934.81 | 2220.19 |
| 2010-2011 | 51494.74 | 2384.99 |
| 2011-2012 | 48714.94 | 2818.39 |
| Average | 27726.01 | 1640.18 |

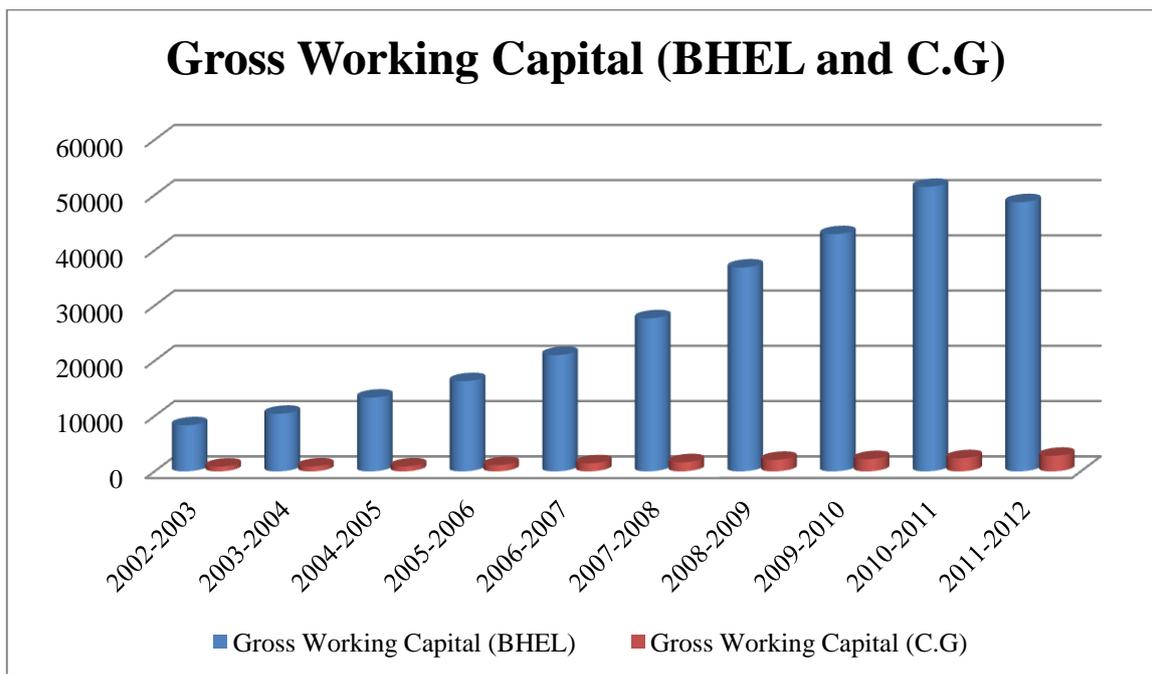


Fig. 3: Gross Working Capital (BHEL and C.G)

Table 3 exhibits Gross working capital in BHEL and C.G which stood at an average of Rs. 27726.01 crores and Rs. 1640.18 crores respectively. In the year 2002-2003 BHEL has a balance of Rs. 8348.40 crores as gross working capital where as Crompton Greaves has a balance of Rs. 856.43 crores as gross working capital. In the year 2003-2004 the balance of gross working capital in BHEL and Crompton Greaves stood at Rs. 10424.70 crores and Rs. 894.26 crores respectively. BHEL has a balance of Rs. 13342.98 crores as gross working capital in 2004-2005 where as Crompton Greaves has a balance of Rs. 890.83 crores as gross working capital in 2004-2005. In the year 2005-2006 the balance of gross working capital in BHEL amounted to Rs. 16330.78 crores where as the balance of gross working capital in Crompton Greaves amounted to Rs. 1133.69 crores. In the year 2006-2007 BHEL has a balance of Rs. 21062.97 crores as gross working capital where as Crompton Greaves has a balance of Rs. 1460.84 crores as gross working capital. Further in the year 2007-2008 the balance of gross working capital in BHEL and Crompton Greaves stood at Rs. 27704.72

crores and Rs. 1656.23 crores respectively. BHEL has a balance of Rs. 36901.07 crores as gross working capital in 2008-2009 where as Crompton Greaves has a balance of Rs. 2085.99 crores as gross working capital in 2008-2009. In the year 2009-2010 the balance of gross working capital in BHEL amounted to Rs. 42934.81 crores where as the balance of gross working capital in Crompton Greaves amounted to Rs. 2220.19 crores. In the year 2010-2011 BHEL has a balance of Rs. 51494.74 crores as gross working capital where as Crompton Greaves has a balance of Rs. 2384.99 crores as gross working capital. In the year 2011-2012 the balance of gross working capital in BHEL and Crompton Greaves stood at Rs. 48714.94 crores and Rs. 2818.39 crores respectively. Gross working capital in BHEL and C.G. has also been shown with the help of Figure 3.

Table 4: Net Working Capital (BHEL and C.G)

| Year | Net Working Capital (BHEL) | Net Working Capital (C.G) |
|-----------|----------------------------|---------------------------|
| 2002-2003 | 3592.34 | 282.52 |
| 2003-2004 | 4087.85 | 246.01 |
| 2004-2005 | 4897.09 | 303.60 |
| 2005-2006 | 6010.76 | 331.32 |
| 2006-2007 | 6642.86 | 413.42 |
| 2007-2008 | 7883.88 | 360.93 |
| 2008-2009 | 8568.17 | 570.30 |
| 2009-2010 | 10493.09 | 620.02 |
| 2010-2011 | 12551.37 | 686.37 |
| 2011-2012 | 19992.01 | 1014.19 |
| Average | 8471.94 | 482.87 |

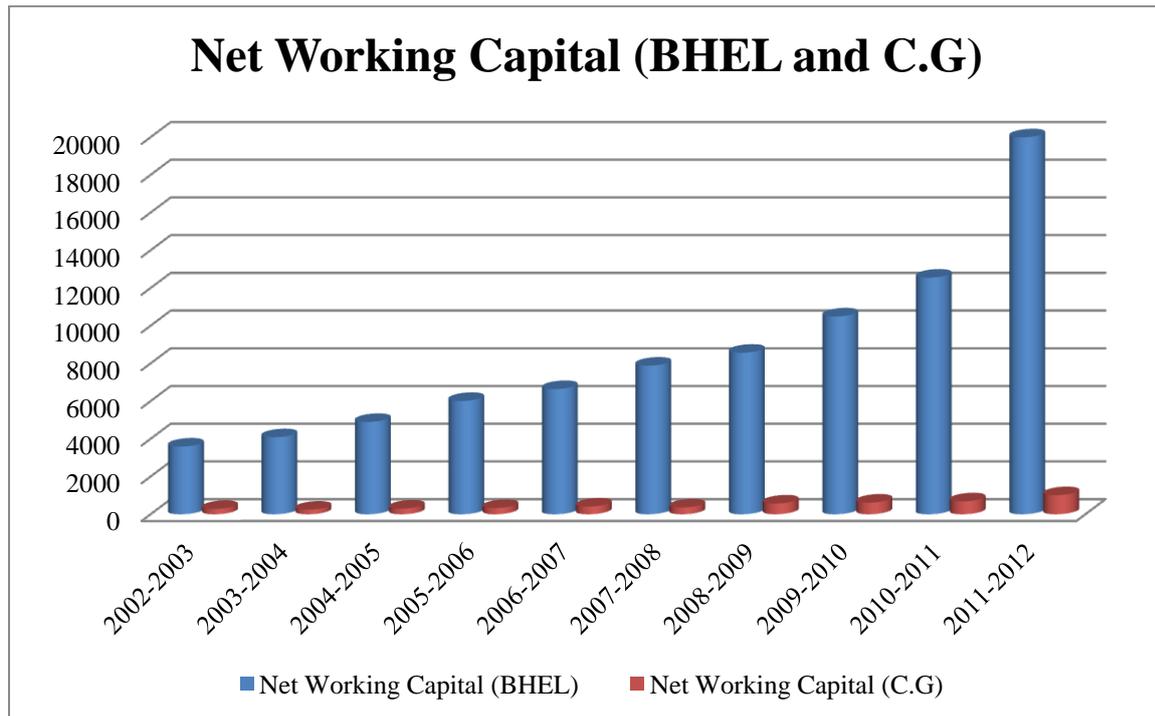


Fig. 4: Net Working Capital (BHEL and C.G)

Table 4 reveals Net working capital in BHEL and C.G which stood at an average of Rs. 8471.94 crores and Rs. 482.87 crores respectively. In the year 2002-2003 BHEL has a balance of Rs. 3592.34 crores as net working capital where as Crompton Greaves has a balance of Rs. 282.52 crores as net working capital. In the year 2003-2004 the balance of net working capital in BHEL and Crompton Greaves stood at Rs. 4087.85 crores and Rs. 246.01 crores respectively. BHEL has a balance of Rs. 4897.09 crores as net working capital in 2004-2005 where as Crompton Greaves has a balance of Rs. 303.60 crores as net working capital in 2004-2005. In the year 2005-2006 the balance of net working capital in BHEL amounted to Rs. 6010.76 crores where as the balance of net working capital in Crompton Greaves amounted to Rs. 331.32 crores. In the year 2006-2007 BHEL has a balance of Rs. 6642.86 crores as net working capital where as Crompton Greaves has a balance of Rs. 413.42 crores as net working capital. Further in the year 2007-2008 the balance of net working capital in BHEL and Crompton Greaves stood at Rs. 7883.88 crores and Rs. 360.93 crores respectively. BHEL has a balance of Rs. 8568.17 crores as net working capital in 2008-2009 where as Crompton Greaves has a balance of Rs. 570.30 crores as net working capital in 2008-2009. In the year 2009-2010 the balance of net working capital in BHEL amounted to Rs. 10493.09 crores where as the balance of net working capital in Crompton Greaves amounted to Rs. 620.02 crores. In the year 2010-2011 BHEL has a balance of Rs. 12551.37 crores as net working capital where as Crompton Greaves has a balance of Rs. 686.37 crores as net working capital. In the year 2011-2012 the balance of net working capital in BHEL and Crompton Greaves stood at Rs. 19992.01 crores and Rs. 1014.19 crores

respectively. Net working capital of BHEL and C.G. has also been shown with the help of Figure 4.

Conclusion:

On the basis of above analysis it can be concluded that that BHEL is maintaining an average of Rs. 27726.01 crores as gross working capital where as C.G is maintaining an average of Rs. 1640.18 crores as gross working capital during the study period of 2002-2003 to 2011-2012. In addition the above analysis also reveals that gross working capital of BHEL has shown an increasing trend from 2003-2004 to 2010-2011 and a decreasing trend in 2011-2012. Gross working capital of C.G has shown a decreasing trend only in the year 2004-2005 and an increasing trend in rest of the years during the study period.

On the basis of above analysis it can be concluded that that BHEL is maintaining an average of Rs. 8471.94 crores as net working capital where as C.G is maintaining an average of Rs. 482.87 crores as net working capital during the study period of 2002-2003 to 2011-2012. In addition the above analysis also reveals that net working capital of BHEL has shown an increasing trend during the study period, where as net working capital of C.G has shown a decreasing trend in the year 2003-2004 and 2007-2008. In rest of the years during the study period net working capital of C.G has shown an increasing trend.

References:

- (i) Annual Reports of Bharat Heavy Electricals Limited (BHEL) 2002-03 to 2011-12
- (ii) Annual Reports of Crompton Greaves (C.G) 2002-03 to 2011-12
- (iii) <http://www.bhel.com/home.php>
- (iv) <http://www.cgglobal.com/>
- (v) Bhattacharya, H., 'Working Capital Management: Strategies and Techniques', Prentice-Hall of India Private Limited, New Delhi, 2005.
- (vi) James, C. Van Horne, 'Financial Management and Policy', Prentice-Hall of India Pvt. Ltd, New Delhi, 2008
- (vii) Financial Management (Shashi K. Gupta, R. K. Sharma)
- (viii) Management Accounting Principles and Practice (Shashi K. Gupta, R. K. Sharma)
- (ix) Khan, M. Y. and Jain, P. K., 'Financial Management: Text and Problems', Tata McGraw-Hill Publication Company Limited, New Delhi, 2010.