

ANALYSIS OF INVENTORY TURNOVER RATIO IN BHEL: A COMPARATIVE STUDY WITH CROMPTON GREAVES

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ABSTRACT

The present study is an attempt to analyze the inventory turnover ratio of Bharat Heavy Electricals Limited (BHEL). Inventory Turnover Ratio indicates the relationship between the cost of goods sold and average stock kept during the year. A lower inventory turnover ratio indicates poor sales whereas a higher ratio implies strong sales. In order to provide a better insight into the study a comparison is made between inventory turnover ratio of BHEL and Crompton Greaves (C.G). In addition, t-test is applied in order to find out that whether there is a significant difference between inventory turnover ratio of BHEL and C.G or not.

Key words: BHEL, Crompton Greaves, Inventory Turnover Ratio.

INTRODUCTION

Inventory Turnover Ratio indicates the relationship between the cost of goods sold during the year and average stock kept during the year. This indicates whether stock has been efficiently used or not. The higher the ratio, the better it is, since it indicates that stock is selling quickly.

Today, BHEL is India largest engineering and manufacturing enterprise in the energy-related infrastructure sector. BHEL was established more than 40 years ago and has been earning profits continuously since. BHEL manufactures a number of Heavy Electrical Equipment like Turbines and Generator Sets, Boilers, Transformers, Switchgear and Control Gear, Electrical Furnace, Shunting Locomotives etc. BHEL is one of the very few companies in the world, which manufactures all major power generating equipment under one roof.

Crompton Greaves is India's largest private sector enterprise today. Crompton Greaves (CG) is part of the US\$ 3 bn Avantha Group and was established in 1937 in India, and since then the company has retained its leadership position in the application and management of electrical energy. In 1875, a Crompton 'dynamo' powered the world's very

first electricity-lit house in Colchester, Essex, U.K. 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 distribution, and execution of turn-key projects. Crompton Greaves has three important strategic business areas which includes Power systems, Industrial systems and Consumer products.

OBJECTIVE OF STUDY

- (i) To estimate the inventory turnover ratio of BHEL during 2002-2003 to 2011-2012.
- (ii) To estimate the inventory turnover ratio of C.G during 2002-2003 to 2011-2012.
- (iii) To compare the inventory turnover ratio of BHEL and C.G during 2002-2003 to 2011-2012.
- (iv) To test whether there is a significant difference between inventory turnover ratio of BHEL and C.G with the help of *t test* during 2002-2003 to 2011-2012.

RESEARCH METHODOLOGY

The study is primarily based on secondary data. The relevant information in this regard has been collected from various sources like annual reports of BHEL and Crompton Greaves for the research year 2002-2003 to 2011-2012 and websites. In addition reference books have been referred from libraries, materials from journal articles, textbooks, working papers are also put into consideration. Thus, various sources have been used to collect the relevant data. The analysis is mainly carried out through various statistical measures like percentage, average, *t test* 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: Inventory Turnover Ratio (BHEL)

Year	Cost of Goods Sold (BHEL)	Average Inventory (BHEL)	Inventory Turnover Ratio (BHEL)
2002-2003	6073.30	1997.65	3.04
2003-2004	6945.03	2052.47	3.38
2004-2005	7864.14	2510.00	3.13
2005-2006	10751.03	3330.24	3.23
2006-2007	13458.53	3981.02	3.38
2007-2008	14838.64	4977.04	2.98
2008-2009	21332.33	6786.71	3.14
2009-2010	26237.44	8536.24	3.07
2010-2011	32506.13	10099.25	3.22
2011-2012	36874.86	12203.77	3.02
Average	17688.14	5647.44	3.16

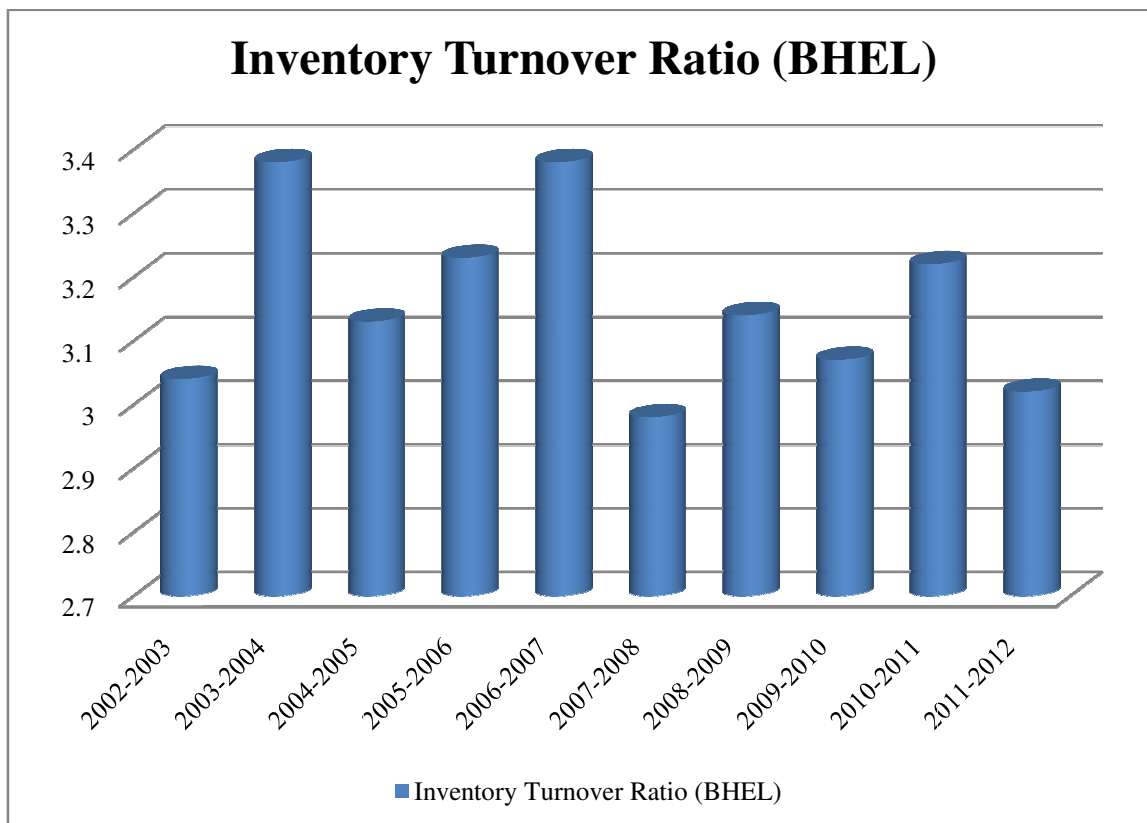


Fig. 1: Inventory Turnover Ratio (BHEL)

Table 1 reveals inventory turnover ratio in BHEL which stood at an average of 3.16:1 during the study period. In the year 2002-2003 the cost of goods sold in BHEL amounted to Rs. 6073.30 crores and average inventory amounted to Rs. 1997.65 crores which has resulted in inventory turnover ratio of 3.04:1. In 2003-2004 cost of goods sold stood at Rs. 6945.03 crores and average inventory amounted to Rs. 2052.47 crores which has resulted in inventory turnover ratio of 3.38:1. In 2004-2005 the inventory turnover ratio of BHEL stood at 3.13:1. In the same year cost of goods sold of BHEL amounted to Rs. 7864.14 crores and average inventory amounted to Rs. 2510.00 crores. In the year 2005-2006 the cost of goods sold amounted to Rs. 10751.03 crores and average inventory amounted to Rs. 3330.24 crores which has resulted in inventory turnover ratio of 3.23:1. In the year 2006-2007 the inventory turnover ratio stood at 3.38:1. In the same year the cost of goods sold amounted to Rs. 13458.53 crores and average inventory amounted to Rs. 3981.02 crores. Further in the year 2007-2008 the cost of goods sold in BHEL amounted to Rs. 14839.64 crores and average inventory amounted to Rs. 4977.04 crores which has resulted in inventory turnover ratio of 2.98:1. In 2008-2009 cost of goods sold stood at Rs. 21332.33 crores and average inventory amounted to Rs. 6786.71 crores which has resulted in inventory turnover ratio of 3.14:1. In 2009-2010 the inventory turnover ratio of BHEL stood at 3.07:1. The cost of goods sold of BHEL amounted to Rs. 26237.44 crores and average inventory amounted to Rs. 8536.24 crores in the year 2009-2010. In the year 2010-2011 the cost of goods sold amounted to Rs. 32506.13 crores and average inventory amounted to Rs. 10099.25 crores which has resulted in inventory turnover ratio of 3.22:1. In the year 2011-2012 the inventory turnover ratio of BHEL stood at 3.02:1. In the same year the cost of goods sold of BHEL amounted to Rs. 36874.86 crores and average inventory amounted to Rs. 12203.77 crores. Inventory turnover ratio of BHEL has also been shown with the help of Figure 1.

Table 2: Inventory Turnover Ratio (C.G)

Year	Cost of Goods Sold (C.G)	Average Inventory (C.G)	Inventory Turnover Ratio (C.G)
2002-2003	1485.39	185.70	8.00
2003-2004	1583.32	183.71	8.62
2004-2005	1824.62	175.68	10.39
2005-2006	2299.42	184.45	12.47
2006-2007	3030.25	219.41	13.81
2007-2008	3363.00	254.98	13.19
2008-2009	3967.84	272.14	14.58
2009-2010	4393.73	292.43	15.03
2010-2011	5003.77	354.63	14.11
2011-2012	5781.02	427.66	13.52
Average	3273.24	255.08	12.37

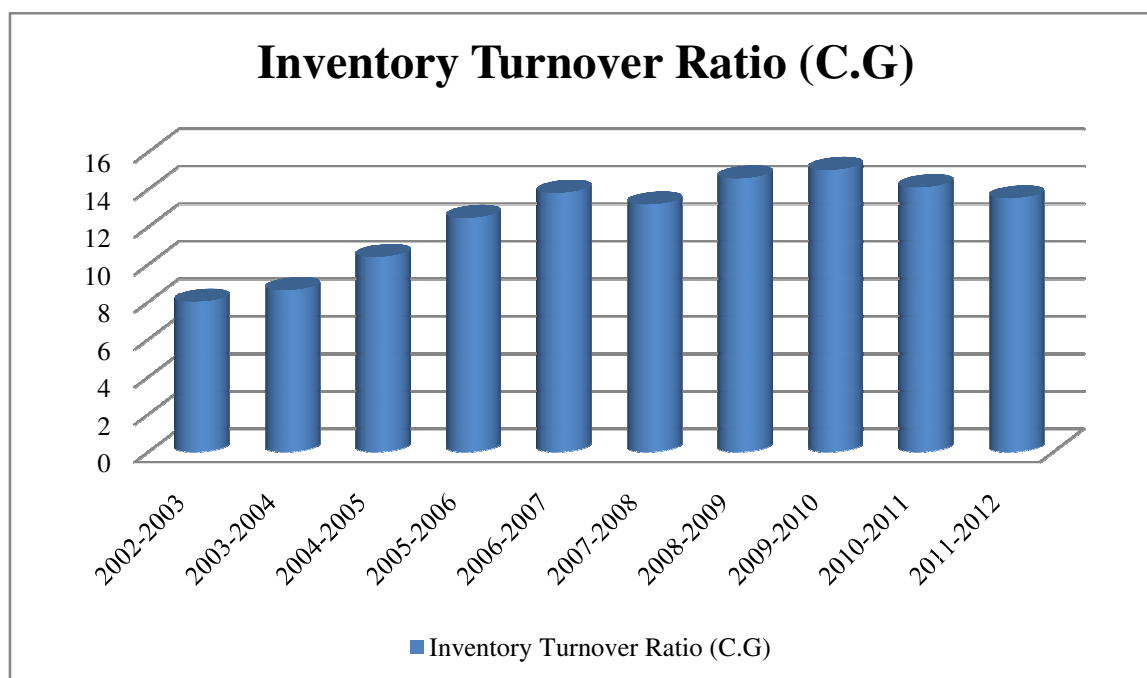


Fig. 2: Inventory Turnover Ratio (C.G)

Table 2 exhibits inventory turnover ratio in C.G which stood at an average of 12.37:1 during the study period. In the year 2002-2003 the cost of goods sold in C.G amounted to Rs. 1485.39 crores and average inventory amounted to Rs. 185.70 crores which has resulted in inventory turnover ratio of 8.00:1. In 2003-2004 cost of goods sold stood at Rs. 1583.32 crores and average inventory amounted to Rs. 183.71 crores which has resulted in inventory turnover ratio of 8.62:1. In 2004-2005 the inventory turnover ratio of C.G stood at 10.39:1. In the year 2005-2006 the cost of goods sold amounted to Rs. 2299.42 crores and average inventory amounted to Rs. 184.45 crores which has resulted in inventory turnover ratio of 12.47:1. In the year 2006-2007 the inventory turnover ratio stood at 13.81:1. In the same year the cost of goods sold amounted to Rs. 3030.25 crores and average inventory amounted to Rs. 219.41 crores. Further in the year 2007-2008 the cost of goods sold in C.G amounted to Rs.

3363.00 crores and average inventory amounted to Rs. 254.98 crores which has resulted in inventory turnover ratio of 13.19:1. In 2008-2009 cost of goods sold stood at Rs. 3967.84 crores and average inventory amounted to Rs. 272.14 crores which has resulted in inventory turnover ratio of 14.58:1. In 2009-2010 the inventory turnover ratio of C.G stood at 15.03:1. In the year 2010-2011 the cost of goods sold amounted to Rs. 5003.77 crores and average inventory amounted to Rs. 354.63 crores which has resulted in inventory turnover ratio of 14.11:1. In the year 2011-2012 the inventory turnover ratio of C.G stood at 13.52:1. The cost of goods sold of C.G amounted to Rs. 5781.02 crores and average inventory amounted to Rs. 427.66 crores in the year 2011-2012. Inventory turnover ratio of C.G. has also been shown with the help of Figure 2.

Table 3: Inventory Turnover Ratio (BHEL and C.G)

Year	Inventory Turnover Ratio (BHEL)	Inventory Turnover Ratio (C.G)
2002-2003	3.04	8.00
2003-2004	3.38	8.62
2004-2005	3.13	10.39
2005-2006	3.23	12.47
2006-2007	3.38	13.81
2007-2008	2.98	13.19
2008-2009	3.14	14.58
2009-2010	3.07	15.03
2010-2011	3.22	14.11
2011-2012	3.02	13.52
Average	3.16	12.37

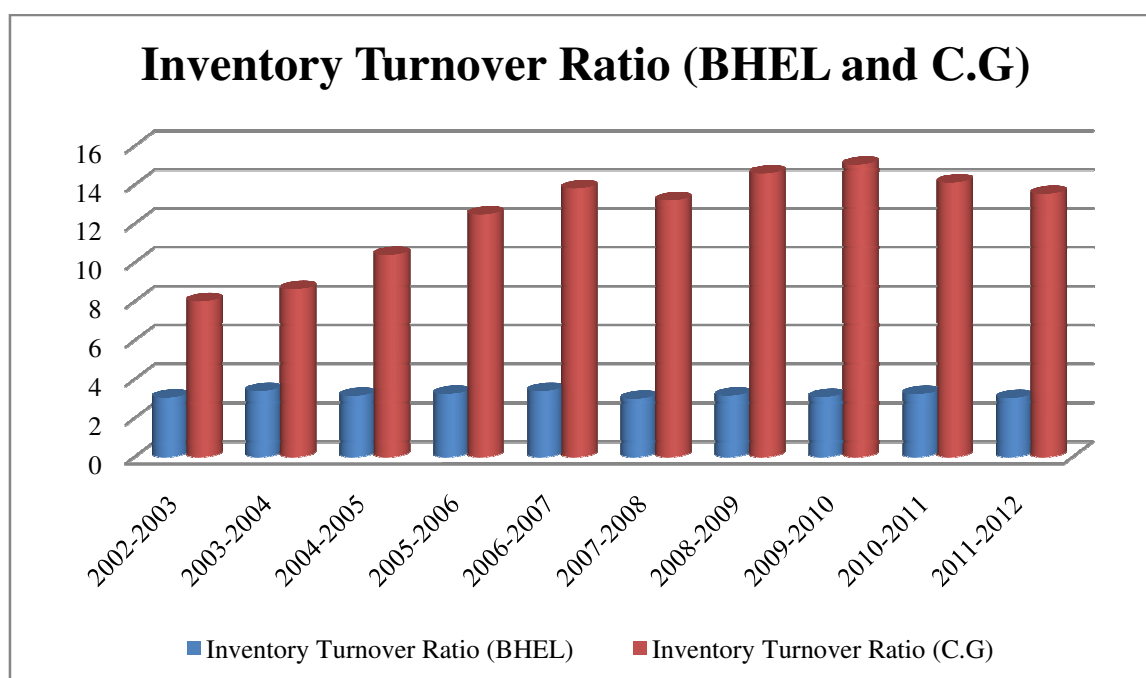


Fig. 3: Inventory Turnover Ratio (BHEL and C.G)

Table 3 reveals inventory turnover ratio in BHEL and C.G which stood at an average of 3.16:1 and 12.37:1 respectively during the study period of 2002-2003 to 2011-2012. In the year 2002-2003 the inventory turnover ratio of BHEL stood at 3.04:1 where as the inventory turnover ratio of Crompton Greaves stood at 8.00:1. In the year 2003-2004 the inventory turnover ratio of BHEL and Crompton Greaves stood at 3.38:1 and 8.62:1 respectively. BHEL has an inventory turnover ratio of 3.13:1 where as Crompton Greaves has an inventory turnover ratio of 10.39:1 in 2004-2005. In the year 2005-2006 the inventory turnover ratio of BHEL stood at 3.23:1 where as the inventory turnover ratio of Crompton Greaves stood at 12.47:1. In the year 2006-2007 BHEL has an inventory turnover ratio of 3.38:1 where as Crompton Greaves has inventory turnover ratio of 13.81:1. Further in the year 2007-2008 the inventory turnover ratio of BHEL and Crompton Greaves stood at 2.98:1 and 13.19:1 respectively. BHEL has an inventory turnover ratio of 3.14:1 where as Crompton Greaves has an inventory turnover ratio of 14.58:1 in 2008-2009. In the year 2009-2010 the inventory turnover ratio of BHEL stood at 3.07:1 where as the inventory turnover ratio of Crompton Greaves stood at 15.03:1. In the year 2010-2011 BHEL has inventory turnover ratio of 3.22:1 where as Crompton Greaves has an inventory turnover ratio of 14.11:1. In the year 2011-2012 the inventory turnover ratio of BHEL and Crompton Greaves stood at 3.02:1 and 13.52:1 respectively. Inventory turnover ratio of BHEL and C.G. has also been shown with the help of Figure 3.

HYPOTHESIS TESTING ON INVENTORY TURNOVER RATIO (BHEL and C.G)

To test whether there is a significant difference between inventory turnover ratio of BHEL and C.G the following hypothesis is framed and tested through t-test at 95 % confidence level:

H_0 There is no significant difference between inventory turnover ratio of BHEL and C.G

H_1 There is a significant difference between inventory turnover ratio of BHEL and C.G

t-Test: Two-Sample Assuming Unequal Variances		
PARAMETERS	INVENTORY TURNOVER RATIO BHEL	INVENTORY TURNOVER RATIO C.G
Mean	3.160487333	12.37041607
Variance	0.020071114	6.238750318
Observations	10	10
Hypothesized Mean Difference	0	
df	9	
t Stat	-11.64152807	
P(T<=t) one-tail	4.98272E-07	
t Critical one-tail	1.833112923	
P(T<=t) two-tail	9.96544E-07	
t Critical two-tail	2.26157158	

Since the calculated value of t one tail at .05 level of significance is more than the table value of t, null hypothesis is rejected and alternative hypothesis is accepted that there is a significant difference between inventory turnover ratio of BHEL and C.G.

CONCLUSION

On the basis of above analysis it can be concluded that BHEL is maintaining inventory turnover ratio at an average of 3.16:1 where as C.G is maintaining inventory turnover ratio at an average of 12.37:1 during the study period of 2002-2003 to 2011-2012. Inventory Turnover Ratio indicates the relationship between the cost of goods sold during the year and average stock kept during the year. This indicates whether stock has been efficiently used or not. The higher the ratio, the better it is, since it indicates that stock is selling quickly. The above analysis reveals that C.G is able to maintain a higher inventory turnover ratio during the study period than BHEL, which means that C.G is able to use its stock more efficiently than C.G. In addition the above analysis also reveals that there is a significant difference between inventory turnover ratio of BHEL and Crompton Greaves.

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