

# Working Capital Management Practices in Selected Indian Aluminium Companies - A Study

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**Abstract:** Working capital serves as a metric for how efficiently companies is operating and how financially stable it is in the short term. The study covers three Indian Aluminium Companies and the three selected Indian Aluminium companies are BALCO (Bharat Aluminium Company Ltd.), HINDALCO (Hindustan Aluminum Corporation), and NALCO (National Aluminium Company Limited). The top three large companies included in BSE SENSEX are selected based on their market capitalization. The study is based entirely on secondary data. The study covered a period of five years starting from 2015–2016 to 2019–2020. In this study, various ratios are used to measure the working capital management and profitability of the corporation. The data has been analyzed through appropriate statistical tools such as arithmetic mean and standard deviation and hypotheses are tested with the help of ANOVA. Further, to establish relationships between liquidity and profitability ratio, correlation analysis has been used.

**Keywords:** Working Capital, Working Capital Management, Liquidity

## 1. Introduction

Working capital management-defined as current assets minus current liabilities-is a business tool that helps companies effectively make use of current assets and maintain sufficient cash flow to meet short-term goals and obligations. By effectively managing working capital, companies can free up cash that would otherwise be trapped on their balance sheets. As a result, they may be able to reduce the need for external borrowing, expand their businesses, fund mergers or acquisitions, or invest in R&D.

### Brief Profile of the Sample Companies

#### • BALCO

**Bharat Aluminium Company Ltd. (BALCO)** was an Indian government-owned enterprise and an Aluminium company, under the Ministry of Mines. In 2000, the Government of India sold it to Vedanta Resources when Atal Bihari Vajpayee and Bharatiya Janta Party were in power. BALCO was incorporated in the year 1965 as a Public Sector Undertaking (PSU) and it was the Public sector until 2001 when it was taken over by Vedanta Resources, a company listed on the London Stock Exchange. The Company has been closely associated with the Indian Aluminium Industry, in a pivotal role. Mr. Abhijit Pati is the current CEO & Whole Time Director of the company.

#### • HINDALCO

**Hindalco Industries Limited** an Indian Aluminium and copper manufacturing company is a subsidiary of the Aditya Birla Group. Its headquarters are in Mumbai, Maharashtra, India. The Hindustan Aluminum Corporation Limited was established in 1958 by the Aditya Birla Group. In 1962 the company began production in Renukoot in Uttar Pradesh making 20 thousand metric tons per year of Aluminium metal and 40 thousand metric tons per year of alumina. In 1989 the company was restructured and renamed Hindalco.

#### • NALCO

**National Aluminium Company Limited**, abbreviated as NALCO, (incorporated in 1981) is a government company having integrated and diversified operations in mining, metal, and power under the ownership of the Ministry of Mines, Government of India. Presently, the Government of India holds a 51.5% equity in NALCO. It is one of the largest integrated Bauxite-Alumina-Aluminium-Power Complex in the country encompassing bauxite mining, alumina refining, Aluminium smelting and casting, power generation, rail and port operations

## 2. Review of Literature

Many researchers have studied working capital from a different point of view. The following study is very interesting and useful for this research:

**Dr. Suman Kalyan Chaudhury and Prof. Satya Narayan Pathi (2015)** in this paper highlighted that the working capital management in the Aluminium sector: A Case Study of NALCO, objectives of his study is to know the working capital position of the NALCO and understand the impact of various component of the current assets and current liabilities in working capital management of NALCO. It is found that Company has tried to improve the cash position during the period and simultaneously improving the debtor position. The financial statements as interpreted reinforce the validity of this result. The liquidity ratios are high; the collection period is short, and the cash cycle is not quite expansive.

**Dr. Suman Kalyan Chaudhury and Mr. Pramath Nath Acharya (2016)** in this paper highlighted that the Management Practices in Working Capital-A Comparative Study in NALCO Vs HINDALCO. The objectives of his study is to know the understand the role and significance of various ratios HINDALCO as the sample unit which is among the largest related to working capital, To determine whether there is any significant difference i. e.2004-05 to

2013-14. The collected was analyzed by in various ratios of working capital management using statistical tools in Ms-Excel such as Mean and between NALCO & HINDALCO. It is found that the Inventory turnover ratio of NALCO is higher than HINDALCO which proves that NALCO can convert the inventory into finished stock quickly. It can be concluded that NALCO can meet the current obligation comfortably.

**Dr. M. P. Singh and Dr. Shishir Pandey (2012)** this paper highlighted that the Management of Working Capital in National Aluminium Company Objectives of his study is to know the evaluating the management of cash in the company, analyzing the working capital performance of the company, and analyzing the effectiveness of working capital management in the profitability of the company. It is found that the cash and bank balance of the company is lower than the total operating expenses, but from the year 2005, it keeps bigger volume than operating expenses. The total size of receivables fluctuates throughout the study period. Usually, it is found that inventory keeps the larger proportion in the total current assets, which is near about half of the total assets, but in NALCO average inventory is just 28.88 percent.

#### Objectives of the Study

- To study the composition and structure of the working capital of the selected Indian Aluminium companies
- To study the working capital management practices of the selected Indian Aluminium Companies.

#### The hypothesis of the Study

For the present study, null hypotheses are formulated and tested to know the significant difference among the three companies of the selected ratios.

#### Data Sources and Methodology

The study covers three Indian Aluminium Companies and the three selected Indian Aluminium companies are BALCO (Bharat Aluminium Company Ltd.), HINDALCO (Hindustan Aluminum Corporation), and NALCO (National Aluminium Company Limited). The top three large companies included in BSE SENSEX are selected based on their market capitalization. The study is based entirely on secondary data. The study covered a period of five years

starting from 2015–2016 to 2019–2020. Besides, secondary data has also been collected from various sources viz., books, journals, websites, etc.

In this study, various ratios like current ratio, quick ratio, cash turnover ratio, debtor turnover ratio, inventory turnover ratio, net profit ratio, and return on investment are used to measure the working capital management and profitability of the corporation.

The data has been analyzed through appropriate statistical tools; interpretation of data is based on tabulation and analysis. A statistical method such as arithmetic mean and standard deviation has been used for data analysis. The hypotheses are tested with the help of ANOVA. Further, to establish relationships between liquidity ratios and profitability ratios, correlation analysis has been used. All the statistical computations have been done by SPSS 21.0.

### 3. Limitations of the Study

As the study is mainly based on secondary data; proper care has been taken to know the limitations of the study which are as follows:

- The working capital position of the companies is shown just for the last five years. Hence, any uneven trend before or beyond the study period is the limitation of the study.
- This analysis is based on only monetary information and non-monetary factors are ignored.
- The research study is based on secondary data only
- The study is based on consolidated financial statements, which may have some errors.

#### Working Capital Analysis

Table 1 exhibits the composition of gross working capital such as inventories, receivables, cash equivalent, and current assets of three companies. The Gross working capital of the three companies fluctuates during the selected period. This table also exhibits inventories have become one of the important components in gross working capital and all the companies have maintained less amount of cash and cash equivalent in their gross working capital.

**Table 1:** Composition of Gross Working Capital of BALCO, HINDALCO and NALCO (Rs. in Crore)

Years	companies	Inventories	Receivables	Cash Equivalent	Other CA	Total CA
2015-16	BALCO	611.49 (72.58)	44.74 (5.31)	10.53 (1.25)	175.75 (20.86)	842.51 (100.00)
	HINDALCO	8, 412.11 (69.03)	2, 018.52 (16.56)	222.63 (1.83)	1, 533.27 (12.54)	12, 186.53 (100.00)
	NALCO	1, 126.97 (43.16)	235.21 (9.01)	654.42 (25.06)	594.42 (22.77)	2, 611.02 (100.00)
2016-17	BALCO	661.88 (60.68)	63.66 (5.84)	9.36 (0.86)	355.95 (32.62)	1, 090.85 (100.00)
	HINDALCO	9, 268.03 (47.94)	1, 872.83 (9.69)	4, 307.42 (22.28)	3, 885.17 (20.09)	19, 333.45 (100.00)
	NALCO	1, 155.93 (59.43)	184.25 (9.47)	24.83 (1.28)	579.94 (29.82)	1, 944.95 (100)
2017-18	BALCO	1, 021.08 (56.78)	355.62 (19.78)	3.82 (0.21)	417.78 (23.23)	1, 798.3 (100.00)
	HINDALCO	10, 738.38 (65.68)	1, 737.25 (10.63)	1, 809.45 (11.07)	2, 064.73 (12.62)	16, 349.81 (100.00)
	NALCO	1, 194.08 (57.87)	258.13 (12.51)	25.35 (1.23)	585.81 (28.39)	2, 063.37 (100)
2018-19	BALCO	1, 370.51 (52.36)	496.92 (18.98)	336.11 (12.84)	414.18 (15.82)	2, 617.72 (100.00)
	HINDALCO	11, 394.46 (67.07)	2, 124.88 (12.51)	1, 514.68 (8.92)	1, 954.97 (11.50)	16, 988.99 (100.00)
	NALCO	1, 210.01 (57.16)	240.52 (11.36)	171.60 (8.11)	494.77 (23.37)	2, 116.9 (100.00)
2019-20	BALCO	1, 159.13 (48.96)	619.57 (26.17)	163.98 (6.93)	424.72 (17.94)	2, 367.4 (100.00)
	HINDALCO	11, 225 (60.97)	2093 (11.53)	3, 265 (17.73)	1, 799 (9.77)	18, 412 (100.00)
	NALCO	1, 696.90 (69.14)	140.09 (5.71)	18.47 (0.75)	598.84 (24.40)	2, 454.30 (100.00)

Source: Annual Reports of BALCO, HINDALCO and NALCO

Table 2 exhibits the structure of working capital such as gross working capital, current liabilities, and net working capital of three Indian Aluminium Companies. It has been found from the table that all companies have positive net working capital except in BALCO and average net working capital also shows in BALCO has negative working capital

which is a bad indication for that business as it adversely affects to maintain the solvency of the business by providing uninterrupted flow of production. Moreover, the networking capital of the three Indian Aluminium companies has been represented by a column diagram which is shown below.

**Table 2: Structure of Working Capital (Rs. in Crore)**

Years ↓ Corporation →	Gross Working Capital (Rs.)			Current Liabilities (Rs.)			Net Working Capital (Rs.)		
	BALCO	HINDALCO	NALCO	BALCO	HINDALCO	NALCO	BALCO	HINDALCO	NALCO
2015-16	848.44	24, 152.12	7, 343.65	5, 430.68	12, 351.71	1, 981.95	-4, 582.24	11, 800.41	5, 361.70
2016-17	1, 154.12	29, 508.25	5, 655.79	5, 688.79	18, 424.62	2, 651.93	-4, 534.67	11, 083.63	3, 003.86
2017-18	2, 020.70	21, 881.66	5, 613.90	4, 977.45	12, 949.69	2, 440.93	-2, 956.75	8, 931.97	3, 172.97
2018-19	2, 730.24	23, 442.58	5, 600.70	5, 923.40	14, 007.09	2, 905.12	-3, 192.70	9, 435.49	2, 695.58
2019-20	2, 721.66	24, 273	4, 557.80	6, 224.58	15, 414	2, 720.02	-3, 502.92	8, 859	1, 837.78
Average	1, 895.03	24, 651.52	5, 754.37	5, 648.98	14, 629.42	2, 539.99	-3, 753.86	10, 022.10	3, 214.38

Source: Annual Reports of BALCO, HINDALCO, and NALCO

It has been observed that the table 3 that all the selected seven ratios of the sample companies are fluctuating during the study period and A. M. of CR and QR of the sample companies are below ideal ratio 2: 1 and 1: 1 which indicates poor liquidity position of the companies. A. M. of debtors' turnover ratio of three companies is 54.94, 58.37, and 45.44 with S. D.42.75, 5.85, and 10.51 where it is the highest (58.37) in HINDALCO Aluminium companies and lowest in NALCO (45.44). Hence, it can be said that HINDALCO Aluminium is more efficient in managing debtors. A. M. of inventory turnover ratio of the selected companies is 2.58, 6.54, and 1.16 followed by S. D. with

0.66, 0.29, and 0.13. A. M. of net profit ratio of the three companies is 8.57%, 4.16%, and 12.83% with their S. D.7.69, 1.95, and 6.56 respectively. Net profit ratio is the highest (12.83%) in NALCO Aluminium and lowest (4.16%) in HINDALCO so profitability is better in NALCO Aluminium as compared to the rest of the two companies.

CR-Current Ratio, QR-Quick Ratio, CPR-Cash Position Ratio, DTR-Debtors Turnover Ratio, ITRInventory Turnover Ratio, NPR-Net Profit Ratio, ROI-Return on Investment.

**Table 3: Liquidity and Profitability Ratios**

Year	BALCO							HINDALCO							NALCO						
	CR	QR	CPR	DTR	ITR	NPR (%)	ROI (%)	CR	QR	CPR	DTR	ITR	NPR (%)	ROI (%)	CR	QR	CPR	DTR	ITR	NPR (%)	ROI (%)
2015-16	0.16	0.04	0.01	113.77	1.71	-13.19	-15.53	1.96	1.27	0.02	50.16	6.91	0.66	1.10	3.71	3.14	0.33	31.26	0.98	14.27	110.40
2016-17	0.20	0.09	0.01	99.91	1.85	-5.81	-30.47	1.60	1.10	0.23	55.39	6.30	3.23	108.12	2.13	1.70	0.01	45.91	1.02	11.88	129.74
2017-18	0.41	0.20	0.01	25.37	3.11	2.23	67.24	1.69	0.86	0.14	67.30	6.60	5.57	306.75	2.30	1.81	0.01	38.42	1.23	12.25	162.53
2018-19	0.46	0.23	0.06	21.23	3.26	1.94	651.23	3.96	0.86	0.11	61.97	6.85	6.14	138.25	1.93	1.51	0.06	49.17	1.59	23.17	205.44
2019-20	0.44	0.25	0.03	14.40	2.97	-2.30	-175.61	1.57	0.85	0.21	57.01	6.06	5.20	49.50	1.68	1.05	0.01	62.42	1.00	2.59	11.57
A. M.	0.33	0.16	0.24	54.94	2.58	8.57	99.37	2.16	0.99	0.142	58.366	6.544	4.16	120.144	2.35	1.842	0.084	45.436	1.164	12.832	123.936
S. D.	0.13	0.13	0.02	42.75	0.66	7.6860	286.79	0.29	0.20	0.08	5.85	0.2939	1.95	104.36	0.7107	0.70	0.13	10.51	0.13	6.5586	64.77

Source: Compiled from Annual Report of BALCO, HINDALCO and NALCO from 2015-16 to 2019-20

**Analysis through Testing Hypotheses Using One Way ANOVA**

Testing of the following hypothesis:

H01: There is no significant difference among working capital ratios of selected Aluminium companies in India.

**Table 4:** ANOVA Results of All Ratios among Sample Companies

Source of variation	SS	df	MS	F	P-value	F crit
Between Groups	202.12	1.00	101.05	0.76	0.47	3.54
Within Groups	2374.32	17.00	131.90			
Total	2576.45	19.00				

Source: Output Data from SPSS 2021

Since the calculated value (0.76) is smaller than the tabulated value (3.54) at a 5% level of significance then the null hypothesis is accepted. So it indicates that there is no significant difference among working capital ratios of selected Aluminium companies in India.

**Table 5:** ANOVA Results of Individual Ratios among Three Indian Aluminium Companies

	CR	QR	CPR	DTR	ITR	NPR	ROI
F-value	1.70	1.48	0.61	11.47	15.10	4.84	1.35
df	14	14	14	14	14	14	14
P-Value	0.21	0.25	0.54	0.01	0.02	0.02	0.29
F crit Value	3.88	3.88	3.88	3.88	3.88	3.88	3.88

Source: Output Data from SPSS 2021

H02: There is no significant difference in the current ratio of selected Aluminium companies in India. Since the calculated value (1.70) is smaller than the tabulated value (3.88) at a 5% level of significance then the null hypothesis is accepted. So it indicates that there is no significant difference in the current ratio of selected Aluminium companies in India.

H03: There is no significant difference in the quick ratio of selected Aluminium companies in India. Since the calculated value (1.48) is smaller than the tabulated value (3.88) at a 5% level of significance, so null hypothesis is accepted. It exhibits that there is no significant difference in the quick ratio of selected Aluminium companies in India.

H04: There is no significant difference in the cash position ratio of selected Aluminium companies in India. Since the calculated value (0.61) is smaller than the tabulated value (3.88) at a 5% level of significance then the null hypothesis is accepted. Thus it indicates that there is no significant difference in the cash position ratio of selected Aluminium companies in India.

H05: There is no significant difference in the debtor turnover ratio of selected Aluminium companies in India. Since the calculated value (11.47) is greater than the tabulated value (3.88) at a 5% level of significance therefore null hypothesis is rejected. So it displays that there is a significant difference in the debtor turnover ratio of selected Aluminium companies in India.

H06: There is no significant difference in the inventory turnover ratio of selected Aluminium companies in India. Since the calculated value (15.10) is greater than the tabulated value (3.88) at a 5% level of significance then the null hypothesis is rejected. So it shows that there is a significant difference in the inventory turnover ratio of selected Aluminium companies in India.

H07: There is no significant difference in the net profit ratio of selected Aluminium companies in India. Since the

calculated value (4.84) is greater than the tabulated value (3.88) at a 5% level of significance the null hypothesis is rejected. Thus it reveals that there is a significant difference in the net profit ratio of selected Aluminium companies in India.

H08: There is no significant difference in the return on investment ratio of selected Aluminium companies in India.

Since the calculated value (1.35) is smaller than the tabulated value (3.88) at a 5% level of significance then the null hypothesis is accepted. So it indicates that there is no significant difference in the return on investment ratio of selected Aluminium companies in India.

**Table 6:** Correlation Results

Ratios	BALCO Vs HINDALCO	HINDALCO Vs NALCO	BALCO Vs NALCO
CR	0.61	0.02	-0.54
QR	0.41	-0.43	-0.47
CPR	0.18	-0.49	-0.38
DTR	-0.53	0.78	-0.34
ITR	0.57	0.81	0.14
NPR	-0.82	-0.41	0.38
ROI	-0.73	-0.06	-0.03

Table 6 depicts the correlation between BALCO Vs HINDALCO, HINDALCO Vs NALCO, and BALCO Vs NALCO. It has been found that BALCO Vs HINDALCO has a high negative relation NPR (-0.82), moderate negative relation with DTR (-0.53), ROI (-0.73), and moderate positive relation with CR (0.61) and QR (0.41). Correlation between HINDALCO Vs NALCO exhibits that CR (0.02) has a very low positive relation and low negative relation with ROI (-0.06). Moreover, both companies have negative moderate relation with QR (-0.43) and CPR (-0.49). It has been observed that all ratios have negative moderate relation and negative low relation between BALCO Vs HINDALCO companies except ITR and NPR. Both these two companies have a very low negative relation with ROI (-0.03).

#### 4. Conclusion

Concerning the main objective, it may be concluded that the working capital management practices of Indian selected Aluminium companies are satisfactory during the study period. It has been found from the study that a major portion of the current assets are maintained in the form of stock or inventory and the structure of working capital exhibits that all companies have positive net working capital except in BALCO and average net working capital also shows BALCO has negative working capital which is a bad indication for that business need to maintain the solvency of the business by providing uninterrupted flow of production. On basis of the above analysis, we may further conclude that these results can be further strengthened if companies can manage their working capital in more effective ways. The management of working capital impacts liquidity, investment portfolio, and profitability. Working capital management is a significant issue in a firm's corporate financial decision-making process that needs careful consideration. All these three factors are decisive in the growth or failure of a business. Hence, good performances



in working capital management affect these decisive factors favorably and thus, contribute to the growth and success of the business. The company uses a long-term source of financing working capital; this may be the reason behind the insignificant result of the impact of working capital on profitability. Therefore the company should use a short-term source of financing working capital.

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