

## A Study of Working Capital Management of Flat Glass Industries in India

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### ABSTRACT

The major objective of this paper is to examine the impact of working capital soundness of the flat glass industries. This paper investigates the short term financial position by evaluating current Ratio, Liquid ratio, Inventory turnover ratio, Debtor turnover ratio and Average collection period.

In this study, selected Flat Glass companies are taken for analysis and are examined with the help of Average, S.D and C.V. it is concluded that selected flat glass industries are not equally financial sound. A general conclusion that could be made from the analysis is that, in all the measures, there was a significant improvement in the Indian Flat Glass industries from working Capital point of view. It is concluded that overall working Capital performance of flat glass industries are satisfactory but not equally sound.

### I. INTRODUCTION

Working capital management is a significant in financial management due to the fact that it plays a pivotal role in keeping the wheels of a business enterprises running. Working capital management is concerned with short-term financial decisions. Shortage of funds for working capital has caused many businesses to fail and in many cases, has retarded their growth. the working capital of a corporates can be said to be that portion of its total financial resources which is put for running of operation of business. There are two classifications. Viz. "Gross Working Capital" and "Net Working Capital" where the gross working capital is the total of all the current assets and net working capital means gross working capital minus current liabilities. The issues involved in managing working capital of any corporates are concerned with the management of the corporates inventory, cash, marketable securities, receivables and accounts payables. A well-designed and implemented working capital management must contribute positively to the creation of a corporates value.

Analysis of working capital performance has importance, both of way internal and external because it has close relationship with the current or day-to-day operation of business organization, Management to pay particular attention to the planning & control of working capital."

Glass is one of the commonest materials in our everyday lives. Its history, the method used in its manufacture, and the results of its scientific study all make fascinating reading.

The term 'flat glass' is applied to the glass used for windows and is of two kinds: Sheet glass and plate glass. The manufacture of sheet glass dates back to the earliest days of glassmaking, while the production of plate glass is a comparatively recent

development and has resulted largely from the introduction of mechanical methods into the industry. Although most sheet glass manufacture is now carried on by mechanical means the original hand processes are still employed. The hand processes are of two kinds, the English crown process and the cylinder process.

### II. SCOPE OF THE STUDY

The scope of the study of working Capital is limited to the Selected Units of Flat glass of India. The Researcher has selected major Nine companies of Flat glass of India for the study. The period of five years from 2006 to 2011 have been taken. But the companies with meager investments or very less market are excluded from the scope. Hence the selection was to be done from the public limited companies and closely held companies from the entire Flat glass industry.

There are further classifications in the public limited/closely held companies as those who are into business of:

1. Container glass
2. Flat glass
3. Table ware
4. Other segments

Hence the selection of the companies has been done from the Selected Flat glass companies in the Glass industry of India. In order to understand the pulse of Indian Flat glass Industry it was essential to select the major players of the Industry and as still the industry was driven by volumes it was imperative on the part of the researcher to select those companies which are having the highest market share in terms of volumes.

Sample has been selected after considering following factors.

- 1)The annual Report data available for the period of study i.e from 2006-07 to 2010-11.
- 2)The companies, which are engaged in the production of flat glass in India.
- 3)The company should be organized by Private sectors i.e Public ,Private or closely held.
- 4) the company should be incorporated in India.

### III. REVIEW OF LITERATURE

The study for Working Capital management of flat Glass Industry in India is a particular/Specific area of Research hence not a very popular matter to write on. There are number of articles and research papers published for Profitability of different Industry of India but nothing is specifically of relevance for the present study. The present study is a unique work of research which is for selected companies under study and for a specified period. Various national and international Flat glass manufacturing 'companies facing turbulent problem for Cheaper Import from China and other countries which needs immediate safeguard measures.

No body touched financial aspects of Flat glass Industries in Past research. This subject first time touched by research scholar. Research has been done in past on the subject of Financial performance, Profitability and Liquidity Analysis of different Industries but no research has been done in the Working Capita management of Flat Glass Industries. so it is great opportunity for researcher.

### IV. RESEARCH METHODOLOGY

#### Hypothesis

All the sample units of the Flat Glass industry are not equally sound with respect to working Capital Management.

### V. SOURCE OF INFORMATION

The study is based mainly on secondary data, which is supported by primary data. For this purpose, researcher has used the financial data of Major Flat glass industries of india for the period 2006-07 to 2010-11. The data has been published in annual reports of each company.

### VI. LIMITATION OF STUDY

The present study is based on Secondary data taken from published annual reports of the selected Flat glass company and all the conclusions and suggestions are given from the statistical analysis of the several ratios calculated.

The basic inherent limitations of figures, calculations, statistical analysis and human error are the limitations of the study. Much care and diligence have been exercised in making all the calculations, calculating various ratios for various companies for various years, statistical analysis and deriving conclusions.

The present study based on Ratio Analysis. It has its own limitation.

The study is carried out for limited number of companies only.The study is carried out for a period of 5(Five) years to derive conclusions about the performance of the companies and industry as a whole. But this number of years is not enough for a thorough understanding of business movements and their reactions to the changes of the economy.

In present research we have covered Major Flat Glass Industries of India but some of flat glass company producing other value added product apart from flat glass but same was collectively reflected in Published annual Reports. Another limitation is Results are calculated based on Historical Cost Published Annual report same was not considered inflation.

Table No.-1

CURRENT RATIO OF SELECTED FLAT GLASS INDUSTRIES IN INDIA FROM 2006-07TO 2010-11. (In Times)

COMPANY NAME						AVE.	S.D	C.V.	Min	Max
	2006-07	2007-08	2008-09	2009-10	2010-11					
ASHAHI INDIA GLASS LTD	2.07	3.03	2.36	2.88	2.57	2.58	0.35	13.47	2.07	3.03
BHARAT GLASS TUBE LTD	4.08	2.08	1.87	1.49	1.19	2.14	1.02	47.41	1.19	4.08
GOLD PLUS GLASS INDUSTRY LTD	0.24	0.84	0.71	1.50	1.36	0.93	0.46	49.26	0.24	1.50
GOPAL GLASS WORKS LTD	1.01	1.53	1.84	2.19	2.00	1.71	0.41	23.98	1.01	2.19
GUJARAT BOROSIL LTD	4.81	1.00	3.41	2.22	0.54	2.40	1.57	65.34	.54	4.81
GUJARAT GUARDIAN LTD	0.52	2.06	3.90	4.68	1.97	2.63	1.49	56.57	0.52	4.68
HNG FLOAT GLASS LTD	2.59	13.57	1.59	1.64	2.26	4.33	4.64	107.12	1.59	13.57
SAINT GOBAIN GLASS INDIA LTD	1.40	-	1.45	1.58	1.49	1.18	0.59	50.25	0.00	1.58
TRIVENI GLASS LTD	2.54	1.68	1.43	1.12	0.67	1.49	0.63	42.07	1.12	2.54
<b>AVERAGE</b>	2.14	2.87	2.06	2.15	1.56	2.15	0.42	19.34	2.06	2.87
<b>S.D.</b>	1.47	3.87	0.95	1.02	0.66			73.21	0.95	3.87

						1.59	1.17			
C.V.	68.50	135.03	46.30	47.78	42.05	67.93	34.77	51.19	46.30	135.03

Sources: Annual Reports from 2006-07 to 2010-11

The Current Ratio explains the relationship between the current assets and current liabilities. It gives a general picture of the adequacy of the working capital of the concern. It is an important tool for the judgment of short term liabilities and solvency of a corporates.

Table No.1 indicated current ratio for the year of 2006-07 to 2010-11. The ratio was in fluctuated trend over the 5 years in all selected flat glass industries.

From the analysis ,it was found that in Average (majority in number of years) Current ratio of M/S Ashahi India Glass Ltd, Bharat Glass Tubes Ltd, Gujarat Borosil Ltd, Gujarat Guardian Ltd, HNG Float Glass Ltd is higher than the norms of

2:1 during the study period. The Average (majority in number of years) Current Ratio Was found to be less than 2:1 in Gold Plus Glass Industry Ltd, Gopal Glass Works Ltd, Saint Gobain Glass India Ltd and Triveni Glass Ltd. The Higher Value of Current Ratio Indicates the better Short term liquidity position of the corporates.

**Table No.-2**

**LIQUID RATIO OF SELECTED FLAT GLASS INDUSTRIES IN INDIA FROM 2006-07 TO 2010-11. (In Times)**

COMPANY NAME						AVE.	S.D	C.V.	Min	Max
	2006-07	2007-08	2008-09	2009-10	2010-11					
ASHAHI INDIA GLASS LTD	1.00	1.25	1.12	1.43	1.25	1.21	0.14	11.92	1.00	1.43
BHARAT GLASS TUBE LTD	3.30	1.55	1.07	0.98	0.77	1.53	0.92	59.94	0.77	3.30
GOLD PLUS GLASS INDUSTRY LTD	0.24	0.84	0.27	0.61	0.64	0.52	0.23	44.41	0.24	0.84
GOPAL GLASS WORKS LTD	0.63	0.90	1.34	1.49	1.43	1.16	0.33	28.82	0.63	1.49
GUJARAT BOROSIL LTD	4.03	0.82	2.82	1.56	0.29	1.91	1.36	71.42	0.29	4.03
GUJARAT GUARDIAN LTD	0.35	1.36	1.87	1.39	1.08	1.21	0.50	41.12	0.35	1.87
HNG FLOAT GLASS LTD	2.59	13.45	1.53	1.14	1.35	4.01	4.74	118.29	1.14	13.45
SAINT GOBAIN GLASS INDIA LTD	0.83	0.00	0.84	0.95	0.85	0.69	0.35	50.42	0.00	0.95
TRIVENI GLASS LTD	1.32	1.18	1.03	0.97	0.54	1.01	0.26	26.23	0.54	1.32
<b>AVERAGE</b>	1.59	2.37	1.32	1.17	0.91	1.47	0.50	34.00	0.91	2.37
<b>S.D.</b>	1.30	3.94	0.67	0.30	0.37	1.32	1.36	103.17	0.30	3.94
<b>C.V.</b>	81.78	166.04	51.07	25.75	40.40	73.00	50.02	68.52	25.75	166.04

The Liquid ratio also named as liquid ratio for the acid test ratio and is found out by Current assets minus the inventories divided by liquid liabilities. Liquid assets are those assets which can be converted in to cash immediately. The Standard Liquid Ratio is 1:1. This Ratio indicates that the amount of liquid assets are available for liquid liability. From the study , it is observed that there was fluctuated trend over the 5

Years in all selected flat glass industries. In all Corporates ,the average liquid Ratio was found to be higher than the benchmark figure 1:1 except Gold Plus Glass Industry Ltd, Saint Gobain Glass India Ltd. It is concluded that higher Liquid Ratio means higher liquidity position. If this Ratio below the standard it indicated weak liquidity position.

**Table No.-3**

**INVENTORY TURNOVER RATIO OF SELECTED FLAT GLASS INDUSTRIES IN INDIA FROM 2006-07 TO 2010-11. (In Days)**

COMPANY NAME						AVE.	S.D	C.V.	Min	Max
	2006-07	2007-08	2008-09	2009-10	2010-11					
ASHAHI INDIA GLASS LTD	2.80	2.90	3.11	2.88	3.07	2.95	0.12	3.99	2.80	3.11
BHARAT GLASS TUBE LTD	8.00	4.19	7.94	6.03	7.74	6.78	1.48	21.90	4.19	8.00
GOLD PLUS GLASS INDUSTRY LTD	0.00	0.00	2.22	3.49	4.35	2.01	1.78	88.35	0.00	4.35
GOPAL GLASS WORKS LTD	9.55	10.27	11.29	9.76	8.89	9.95	0.80	8.05	8.89	11.29
GUJARAT BOROSIL LTD	6.03	6.86	7.72	4.82	4.18	5.92	1.29	21.82	4.18	7.72
GUJARAT GUARDIAN LTD	3.89	2.47	1.07	1.11	5.66	2.84	1.75	61.66	1.07	5.66
HNG FLOAT GLASS LTD	0.00	0.00	0.22	0.64	4.53	1.08	1.74	161.66	0.00	4.53
SAINT GOBAIN GLASS INDIA LTD	4.84	0.00	10.48	4.81	5.50	5.13	3.33	64.88	0.00	10.48
TRIVENI GLASS LTD	4.34	0.72	1.52	2.97	6.14	3.14	1.94	61.94	0.72	6.14
AVERAGE	4.38	3.04	5.06	4.06	5.56	4.42	1.58	54.92	3.04	5.56
S.D.	3.05	3.36	4.05	2.60	1.73	2.96	0.77	26.19	1.73	4.05
C.V.	69.65	110.33	79.92	64.08	31.04	71.01	25.59	36.03	31.04	110.33

Inventory turnover ratio indicated that how well the corporates manage to sell their inventory. Higher ratio indicates company are able to manage their inventory i.e. able to quickly sell their inventory and if company not able to sell their inventory this ratio will be low. a very high inventory turnover may be the result of a very low level of inventory. A very high and too low inventory turnover rates are not preferred. The inventory turnover ratio has been calculated by dividing the figure of sales by the figure of the inventory. From analysis ,it is found that average inventory period ranges between 1.08 days in the HNG float Glass Ltd to 9.95 days in Gopal Glass

Works Ltd. We can seen a huge variation across the 5 years study period. An interim comparison of this ratio showed that HNG float Glass Ltd had highest Inventory turnover ratio followed by Bharat glass tube's ltd,Gopal Glass Works Ltd, Gujarat Borosil ltd and Saint Gobain Glass India Ltd they are advised to follow the policy of overtrading for highest turnover company while remaining companies should require following the policy of under trading. Thus, Working capital turnover ratio facilitates to assess the degree of efficiency in the use of short-term funds for generating sales.

Table No.-4

DEBTORS TURNOVER RATIO OF SELECTED FLAT GLASS INDUSTRIES IN INDIA FROM 2006-07 TO 2010-11. (In Days)

COMPANY NAME						AVE.	S.D	C.V.	Min	Max
	2006-07	2007-08	2008-09	2009-10	2010-11					
ASHAHI INDIA GLASS LTD	12.48	10.88	7.40	7.36	7.29	9.08	2.18	24.03	7.29	12.48
BHARAT GLASS TUBE LTD	1.69	1.68	5.58	4.83	5.59	3.88	1.81	46.65	1.68	5.59
GOLD PLUS GLASS INDUSTRY LTD	-	-	-	1.44	4.23	1.13	1.65	145.23	-	4.23
GOPAL GLASS WORKS LTD	8.11	9.08	6.51	5.39	6.22	7.06	1.34	19.00	5.39	9.08
GUJARAT BOROSIL LTD	3.60	2.86	3.34	2.44	3.98	3.25	0.54	16.65	2.44	3.98
GUJARAT GUARDIAN LTD	7.23	8.85	6.01	6.34	6.90	7.07	0.99	13.98	6.01	8.85
HNG FLOAT GLASS LTD	-	-	0.07	0.46	3.93	0.89	1.53	171.55	-	3.93
SAINT GOBAIN GLASS INDIA LTD	4.91	-	5.39	4.69	4.78	3.95	1.99	50.37	-	5.39
TRIVENI GLASS LTD	3.24	1.55	1.34	1.47	1.81	1.88	0.69	36.90	1.34	3.24
AVERAGE	4.58	3.88	3.96	3.82	4.97	4.24	1.41	58.26	3.82	4.97
S.D.	3.87	4.18	2.69	2.30	1.62	2.93	0.96	32.76	1.62	4.18
C.V.	84.51	107.74	68.02	60.06	32.66	70.60	25.02	35.44	32.66	107.74

The amount of trade debtors depends upon the sales volume, credit expansion practice and the effectiveness of the collection policy. The debtors turnover or receivables turnover ratio measure how rapidly debtors are collected. The debtor turnover ratio has been calculated by dividing the amount of sales by the amount of debtors including acceptances. A high ratio is indicative of shorter timing between sales and cash collection, a low ratio shows that debts. are not collected rapidly. On the basis of above analysis, it

can be said that the Ashahi India Glass Ltd has the Average(majority in number of years) highest debtor turnover ratio of 9.08 times followed by Gujarat Guardian Ltd and Gopal Glass Ltd. We can see a variation across the 5 years study period. HNG Float Glass Ltd has a Average(majority in number of years) Lower Debtors turnover Ratio of 0.89 times followed by Gold Plus Glass Industry Ltd and Triveni Glass Ltd.

Table No.-5

**AVERAGE COLLECTION PERIOD OF SELECTED FLAT GLASS INDUSTRIES IN INDIA FROM 2006-07 TO 2010-11. (In Days)**

COMPANY NAME	YEAR					AVE.	S.D	C.V.	Min	Max
	2006-07	2007-08	2008-09	2009-10	2010-11					
ASHAHI INDIA GLASS LTD	29.24	33.56	49.34	49.60	50.07	42.36	9.06	21.38	29.24	49.60
BHARAT GLASS TUBE LTD	215.67	217.02	65.46	75.53	65.24	127.78	72.41	56.66	65.46	217.02
GOLD PLUS GLASS INDUSTRY LTD	0.00	0.00	254.31	86.23	68.51	81.81	93.10	113.80	0.00	254.31
GOPAL GLASS WORKS LTD	45.02	40.18	56.07	67.77	58.64	53.53	9.86	18.42	40.18	67.77
GUJARAT BOROSIL LTD	101.35	127.48	109.13	149.35	91.77	115.82	20.46	17.67	101.35	149.35
GUJARAT GUARDIAN LTD	50.50	41.24	60.70	57.60	52.91	52.59	6.70	12.73	41.24	60.70
HNG FLOAT GLASS LTD	0.00	0.00	5,603.80	791.98	92.96	1,297.75	2,173.37	167.47	0.00	5,603.80
SAINT GOBAIN GLASS INDIA LTD	74.40	0.00	67.70	77.76	76.40	59.25	29.83	50.34	0.00	77.76
TRIVENI GLASS LTD	112.76	235.06	272.31	248.03	201.84	214.00	55.50	25.93	112.76	272.31
AVERAGE	69.88	77.17	726.53	178.21	84.26	227.21	252.75	111.24	69.88	726.53
S.D.	63.70	87.84	1,726.29	224.79	44.02	429.33	651.57	151.76	63.70	1,726.29
C.V.	91.15	113.83	237.61	126.14	52.24	124.19	62.04	49.95	91.15	237.61

The average collection period measures the quality of debtors since it indicates the rapidity or slowness of their collect ability. The shorter the average collection period, the better the quality of customers and the lower the collection expenses. This Ratio indicates about the length of period for which credit sales remain uncollected. This Ratio also indicates relation of credit sales to average debtors. We can see a variation across the 5 years study period.

From the above analysis it has been observed that Average collection period of all selected flat glass industries during the period of study ranges between 42 to 1298 days. On the basis of above analysis, it can be said that the HNG Float Glass Ltd has the Average(majority in number of years) highest Average collection period of 1298 days followed by Triveni Glass Ltd and Bharat Glass Tube Ltd. Ashahi India Glass Ltd has a Average(majority in number of years) Lower Debtors Collection period of 42 days followed by Gujarat Guardian Ltd and Gopal Glass Works Ltd.

**FINDINGS**

After making analysis of above relevant data pertaining to different components of working capital

of flat glass industries of india, following are the key findings.

1. The Industries current Ratio standard norms is 2:1, it has been observed from above study it is found that Average(majority in number of years) Current ratio of M/S Ashahi India Glass Ltd, Bharat Glass Tubes Ltd, Gujarat Borosil Ltd, Gujarat Guardian Ltd, HNG Float Glass Ltd is higher than the norms of 2:1 during the study period. The other companies Average(majority in number of years) Current Ratio Was found to be less than standard.
2. The standard norms of Liquid ratio is 1:1, and it has been observed that in all Corporates ,the average liquid Ratio was found to be higher than the standard norms 1:1 except Gold Plus Glass Industry Ltd, Saint Gobain Glass India Ltd.
3. The inventory turnover ratio expressed in terms of days shown a fluctuating trend during the period of study. Study also showed that Gopal Glass Works Ltd had highest Inventory turnover ratio and the HNG float Glass Ltd have a low inventory turnover ratio.
4. On the basis of above analysis, it can be said that the Ashahi India Glass Ltd has the Average(majority in number of years) highest

debtor turnover ratio in days and HNG Float Glass Ltd has a Average(majority in number of years) Lower Debtors turnover Ratio. we can seen a variation across the 5 years study period with increasing trend.

5. The debtor collection period shows a variation of increasing and decreasing trend during the period of study. HNG Float Glass Ltd has the Average(majority in number of years) highest Average collection period and Ashahi India Glass Ltd has a Average Lower Debtors Collection.

## VII. CONCLUSIONS

The present research study deals with the aspect of working capital management. The terms working capital means. Excess of current assets over current liabilities. This research is calculated with a view to exploring the performance of selected units of flat glass industries of india. The objective at the study are to analyze the components performance appraisal of working capital.

HNG Float Glass Ltd appears to be well short term financially managed in terms of liquidity because it has a Average(majority in number of years) higher current ratio, liquid ratio and average collection periods.

The major concern is Average(majority in number of years) low Inventory turnover ratio and debtors turnover ratio. this Average(majority in number of years) low inventory ratio may reflect that the company are not able to manage their inventory and Average low debtors turnover ratio is indicative of shorter timing between sales and cash collection, a Average low ratio shows that debts. are not collected rapidly in this area HNG Float Glass Ltd needs to improve.

Out of other selected flat glass industries Gold Plus Glass Industries Ltd Needs to improve its liquidity position through improvement in Average Current ratio and liquid ratio. Gopal Glass Works Ltd needs improvement in Average collection period.

We can concluded that All the sample units of the Flat Glass industry are not equally sound with respect to working Capital Management.

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