A Comparative Study on Inventory Management of Some Selected Sugar Companies of India

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Abstract *:* Inventory is one of the most important element of working capital management in most of the companies except Financial ones. Inventory management is the supervision of non-proliferative Assets i.e. Inventory and stock items. This Research Paper is mainly based on secondary data like website, Various blogs, Annual reports of the company, Financial statements of the company i.e. profit and loss Account and Balance sheet etc. The main Aim of the study is to evaluate the profitability and liquidity of some selected Sugar Companies of India. For Evaluating the profitability and liquidity , various statistical tools and accounting tools has been used in this study.

Index Terms *- Inventory management, Financial Ratio Analysis, Financial Statements, Financial Liquidity ANOVA -Analysis of Variance , S.D – Standard Deviations.*

I. INTRODUCTION

Management of Inventory has been one of the most Analytical aspects of the management. The basic purpose of Inventory management is to maintain an optimal size of Inventory and optimization of various Cost associated with inventories. Minimum investment in inventory helps to maintain high level of profitability. In the context of Inventory management, the company should place the order of various inventory or goods at right time, right quantity , right quality and at right price. The main purpose of Inventory management is as follows.

- The main purpose of Inventory management in the context of business activities is to optimize following three point.
  - I. Inventory Costs
  - II. Operating Costs
  - III. Customer Service
- To provide right quantity of materials at right time and place.
- To maintain optimal level of Inventory and determination of ordering level, Re-ordering level,etc.
- To Ensure continues supply of materials, and provide right type of materials to production department or manufacturing department at right time.
- The prime objective of inventory management is to reduce the unnecessary investment in inventory.
- To increase the efficiency of management by providing valuable information regarding materials, normal wastage of materials etc.

II. LITERATURE REVIEW

Prof. P. R. Halani had written in his paper in International Multidisciplinary Research Journal (RHIMRJ) on the subject "Inventory Management: A Comparative Study of Selected Paper Companies ". The main objectives of her study is to evaluate the liquidity position of the paper companies. And for that she used various Accounting tools and statistical tools for getting results like as average, S.D. C.V. Maximum and Minimum and used One way ANOVA test etc. She also explain the relationship between Inventory and working capital by using various

Accounting Ratio And finally she recommended that paper companies should try to reduce the volume of inventory and try to increase the Current Assets.

Hong shen ,Qiang Deng ,Rebecca Lao and Simon Wu (2017) had written in his Paper on "A Case Study of Inventory Management in a Manufacturing Company in China". The main aim of this study is to focus on Inventory management in manufacturing company. They discussed the various factors affecting Inventory and conclude the efficient and effective approach regarding Inventory management. Also gives some basic idea for identifying the key factors in inventory Management.

III. Testing Of Hypothesis

H0 : There is No Significant Relationship between Inventory and Working Capital of Some Selected Sugar Companies in India.

H1: There is Significant Relationship between Inventory And working Capital of Some Selected Sugar Companies in India.

IV. Research Methodology

Being the explanatory research, the Analysis is based on secondary source of data. For Analysis data had been collected from official website of the company, Financial Statements of the company, Accounting reports, various reports, Various blogs , article , website , Various reference books , and newspaper. The accessible secondary data is intensively used for research study.

Sample Size : The following listed sugar Companies has been selected for the purpose of analysis.

1. Bajaj Hindustan Sugar Limited. (**BHSL)**
2. Bannari Amman Sugars Limited (**BASL)**
3. Balrampur Chini Mills Limited (**BCML)**
4. Ponni Sugars (Erode) Limited (**PSL)**
5. Dalmia Bharat Sugar and Industries Limited (**DBSL)**

V. Data Collection

For the purpose of analysis, Data is collected From the official website of the company, Financial Statements of the various company I.e. profit and loss Account , Balance sheet , Cash flow statement, etc. Last five years data started from the year 2012-13 to 2017-18 is to be taken for the Analysis. And for Analysis following accounting tools and statistical methods were used in this study.

- Average i.e Arithmetic Mean
- Variance
- Standard Deviation
- Co- efficient of Variations (**C.V)**
- Correlation
- Inventory to Working Capital Ratio (**IWCR)**

VI. Data Analysis

Inventory to working capital Ratio : Inventory to working capital Ratio is one of the most important indicator of Financial Liquidity and it's efficiency. This ratio shows a relationship between the inventory i.e. stock of the company and Net working Capital i.e Net current assets (Current Assets – Current liability). Higher the inventory to working capital Ratio, lower the Liquidity of the company and vice a versa. The formula of finding Inventory to Working capital Ratio is as under.

IWCR = Inventory / Working Capital

This Ratio indicates that , how much portion of cash or working capital is tied up in inventory. Thus, it's gives a very perfect idea about company's liquidity. Financial Liquidity is one of the most important aspect of any corporate company. This ratio indicates the efficiency of the company's operations. If the ratio is one or less than one , indicates that the company has .high Financial Liquidity of Current Assets and higher the inventory to working capital Ratio indicates that the company has Carrying too much inventory in stock. To determine optimal level of operational efficiency, the corporate companies used various methods for holding Inventory. Inventory to working capital Ratio of some selected Sugar Companies from the year 2012-13 to 2016-17 are as under.

Company	DBSL	TASL	BCML	BASL	PSL
Year	IWCR	IWCR	IWCR	IWCR	IWCR
2016-17	3.609832007	0.859664	6.743483806	2.781188789	2.084429359
2015-16	3.312000289	1.198678	4.684927553	3.176122094	3.331129477
2014-15	6.143930131	1.427404	14.76514794	4.206900913	5.899104963
2013-14	3.817007339	1.350685	11.90366078	3.849386994	3.874328679
2012-13	7.800650054	1.269533	-145.7149147	2.483797058	22.30513595
Average	4.936683964	1.221193	-21.52353891	3.299479169	7.498825686
Sample	5	5	5	5	5
Variance	3.88996275	0.871808	4835.913143	0.518748007	70.40207198
S.D	1.972298849	0.907333	69.5407301	0.720241631	8.390594256
Min	3.312000289	0.859664	-145.7149147	2.483797058	2.084429359
Max	7.800650054	1.198678	14.76514794	4.206900913	22.30513595
C.V	39.95189612	76.4586	-323.091525	21.82894918	111.8921096
Correlation	0.853254165	-0.34031116	0.419890867	0.328838042	-0.751128964

(Table No: 4.1)

Interpretation :

As we seen in the above table no. 4.1, five year data related to some selected Sugar Companies is mention. The average or arithmetic mean in this table is lies between -21.52353891 to 7.498825686. The highest IWCR is found in the year 2012-13 in PSL. It show that , the company's liquidity position is not sound in comparison of rest of the year and company in the year 2012-13 in PSL company compare to rest of the company. It indicates that the high amount or proportion of working capital is invested in inventory and it reduces the financial liquidity in operation. So, the company try to reduce the investment in inventory by using various mentors of holding inventory like EOQ method.

Variance , Standard Deviations and co efficient of Variations – these all are statistical tools described the variations between sample selected for Analysis. It indicates that how mean value is deviated from average or mean of such distribution. If the variance and standard deviation is less compare to its mean then results by using such data is more authentic and reliable. Standard deviation is lies between 0.7202241631 to 69.540707301. If the variations between sample is large then it's standard deviation is also high while co efficient of Variations is shows in percentage and it's indicates the variations between sample in percentage. In **BCML** company, standard deviation is highest, indicates that there is more variations in sample. Less variations in sample gives the perfect Result regarding its relationship between the two Variable described in this table i.e. Inventory and Working

ANOVA: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
DBSL	4	21.07358781	5.268396953	4.370961277
TASL	4	5.2463	1.311575	0.009819737
BCML	4	-114.3611784	-28.59029461	6114.957288
BASL	4	13.71620706	3.429051765	0.57973696
PSL	4	35.40969907	8.852424767	81.65455946

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3672.299648	4	918.074912	0.740195275	0.579142679	3.055568276
Within Groups	18604.7171	15	1240.314473			
Total	22277.01674	19				

Capital. In **BASL** Company , standard deviation is minimum compare to rest of the companies, shows that , there is a very less variations(i.e.(0.1956/0.4769)*100= 40%) between sample. If the variations is less, data is more reliable and conclusion is also more reliable and accurate. More variations between two Variable indicates less authenticity of the data and result of by using such data is also not more reliable and authentic.

Correlation shows the linearity between two Variable. If the correlation is positive ,shows the positive or significant relationship between two Variable i.e Inventory and Working Capital Management. Here, in this table ,the correlation of all the company is positive except, Pooni Sugar Limited company. Hence , we can say that ,there is linear relationship between value of inventory and working capital in case of following three company.

- DBSL
- BCML
- BASL

And there is no linear relationship between Inventory and Working Capital in case of rest of the company i.e. TASL and PSL.

ANOVA Test (Single Factor):

Hypothesis :

H0 : There is no Significant Relationship between Inventory and working Capital of some selected Sugar Companies in India.

H1: There is Significant Relationship Between Inventory and working capital of some selected Sugar companies in India

- Degree of freedom =19
- Table Value of F = **F-tab (0.05)=** 3.055568276
- Calculate Value of F = **F-Cal =** 0.740195275
- F-Cal < F-tab(0.05)
  0.74 < 3.055

Here, the calculate value of **F (F-cal) ,** is less than compare to Table Value of **F (F-Tab(0.05)**, So, here, **NULL HYPOTHESIS** Should be Accepted. Thus, We Can Say that There is No Significant Relationship between Inventory and Working Capital of Some Selected Sugar Companies.

IV. CONCLUSION

The inventory to working capital ratio of some selected sugar companies in India shown an average -0.92 times. The average Ratio of inventory to working capital management is not adequate in case of BCML Company. Negative Ratio shows High investment in inventory and excess of current liabilities compare to Current Assets. Thus, it is suggested that , the listed sugar Companies should try to reduce the investment in inventory and also try to reduce the volume of inventory (Raw materials, WIP , Finished Goods) by using various inventory control model like EOQ , , ROP , Fixing Stock levels , ABC , FSN ,SDE etc. And also try to increase investment in current assets.

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