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RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research is a diligent enquiry and careful search for new knowledge through systematic scientific and analytical approach in any branch of knowledge. Constant search and research are the guiding factor of research which helps to discover new facts. Research methodology plays an important role in the conduct of a research and in empirical findings. Without methodology the entire research structure will be incomplete for this research.

The developing economies are generally faced with the problems of inefficient utilization of resources available to them. Capital is the scare productive resource in such economies and proper utilization of resource promotes the rate of growth, cuts down the cost of production, and above all beefs up the efficiency of the productive system. Hence, the purposeful harnessing of capital is of paramount importance in any development policy of economies.

The total capital of a company comprises of fixed capital and working capital. The emphasis has ever been on the growth and efficiency of fixed capital. The management of working capital has often been neglected, resulting in sub-optimal utilization of not only working capital but also fixed capital. Management of working capital in a given enterprise has profitability and liquidity implications. Working capital represented by current assets, constitutes a dominant and controllable segment of investment, particularly in manufacturing enterprises, and efforts to prune it or optimize its size must promptly enhance the profitability. These efforts would simultaneously activate the flow of funds through the enterprise by focusing on dormant inventories and overdue outstanding and by curbing the long established tendency of funds to stagnate at different stages in the enterprise operations.

Thus working capital offers a common front for profitability and liquidity management. Importance of working capital can further be judged from the fact that many a time the main cause of the failure of a business enterprise has been found to be the shortage of current assets and their mishandling. Inadequate working capital is a serious handicap in the business. Whereas fixed capital investment
generates production capacity, working capital makes the utilization of that capacity possible. Competent administration of current assets solves the problem of underutilization of capacities.

Paper industry, which has been signed out from investigation in the present study, is indeed the backbone of economic growth in any country. A thick relationship has been found between the level of economic growth and the quantum of paper consumption in developed as well developing countries. Paper industry, through its forward linkages provides the maxim stimulus to growth in other industry also.

In India, since independence, great emphasis has been laid on the development of paper industry. It is one of the key basic industries in India. It plays dominant role in the national economy. The production and consumption of paper, to a large extent, indicates a country’s progress. The per capita consumption level of paper is regarded as one of the indicators of development and standard of living in a nation.

Keeping in mind the above importance of the paper industry in the economic development, it is required to do an in-depth study of the problems faced by the industry especially in the area of working capital management. The study aims to analyze the working capital issues like cash management, inventory management, receivable management and liquidity and profitability aspects of the working capital management. It also analyzes the various sources of working capital finance.

3.2 TITLE OF THE PROBLEM

Research topic is on basis of Indian paper industry. In present in India, paper sector plays a very important role in the growth of Indian economy. Indian paper industry have been running and working successfully and producing and distributing a world class paper to the customer. This subject has been selected keeping and view the availability of time and ability of the researcher. After going through the existing literature and sound discussion with the expert in the subject, the researcher has selected the topic as under.

“A COMPARATIVE STUDY OF WORKING CAPITAL MANAGEMENT OF SELECTED PAPER COMPANIES IN INDIA”
3.3 REVIEW OF LITERATURE

3.3.1 INTRODUCTION:

In recent past it has been observed that working capital management has acquired a significant position. However, the empirical research work in this regard is still in the infancy. Working capital management, which related to short-term financial decision seems to be relatively neglected by financial experts.

In the study of literature regarding research it is traditionally bifurcated into two major parts. These relevant studies are having a sound impact on the present work in this report on working capital management

- Theoretical studies
- Research studies

3.3.2 THEORETICAL STUDIES:

Theoretical studies were also known as conceptual studies. These studies provide strong theoretical background and conceptual foundation on the Financial management under the present research working capital management in the selected paper companies in India. This includes those books which deal with concepts and problems of the subject.

The textbooks that fall under this studies written by writers like Van Horne, Gerstenberg, Lincoln, Sailers, Solomon, Starr and miller, Keynes, Guthmann and Dougall, Cohen and Robbins, Stevens and Smith,

Moreover, it also includes some of the articles written on these subjects especially by Indian authors, since the research study consists the working in the Indian Environment. These authors are Yadav, Ananthakrishnan, Pandey, Agrarwal and Jain, Desai and Darji, Pradhan, Kishore, Chopra, Chakraborty, Rao and Gupta,

3.3.3 RESEARCH STUDIES:

Following were the major efforts at research in the subject, which have been referred for this study purpose.

Appavadhanulu (1971)
Recognizing the lack of attention being given to investment in working capital, analysed working capital management by examining the impact of method of production on investment in working capital. He emphasized that different production techniques require different amount of working capital by affecting goods-in-process because different techniques have differences in the length of production period, the rate of output flow per unit of time and time pattern of value addition. Different techniques would also affect the stock of raw materials and finished goods, by affecting lead-time, optimum lot size and marketing lag of output disposals. He, therefore, hypothesised that choice of production technique could reduce the working capital needs. He estimated the ratio of work-in-progress and working capital to gross output and net output in textile weaving done during 1960, on the basis of detailed discussions with the producers and not on the basis of balance sheets which might include speculative figures. His study could not show significant relationship between choice of technique and working capital. However, he pointed out that the idea could be tested in some other industries like machine tools, ship building etc. by taking more appropriate ratios representing production technique correctly.

Chakraborty (1973)

Approached working capital as a segment of capital employed rather than a mere cover for creditors. He emphasized that working capital is the fund to pay all the operating expenses of running a business. He pointed out that return on capital employed, an aggregate measure of overall efficiency in running a business, would be adversely affected by excessive working capital. Similarly, too little working capital might reduce the earning capacity of the fixed capital employed over the succeeding periods. For knowing the appropriateness of working capital amount, he applied Operating Cycle (OC) Concept. He calculated required cash working capital by applying OC concept and compared it with cash from balance sheet data to find out the adequacy of working capital in Union Carbide Ltd. and Madura Mills Co. Ltd. for the years 1970 and 1971. He extended the analysis to four companies over the period 1965-69 in 1974 study. The study revealed that cash working capital requirement were less than average working capital as per balance sheet for Hindustan Lever Ltd. and Guest, Keen and Williams Ltd. indicating the need for effective management of current assets. Cash working capital requirements of Dunlop and Madura Mills were
more than average balance sheet working capital for all years efficient employment of resources. For Union Carbide Ltd., cash working capital requirements were more in beginning years and then started reducing in the later years as compared to conventional working capital indicating the attempts to better manage the working capital. Chakraborty emphasized the usefulness of OC concept in the determination of future cash requirements on the basis of estimated sales and costs by internal staff of the firm. OC concept can also be successfully employed by banks to assess the working capital needs of the borrowers.

**Misra (1975)**

Studied the problems of working capital with special reference to six selected public sector undertakings in India over the period 1960-61 to 1967-68. Analysis of financial ratios and responses to a questionnaire revealed somewhat the same results as those of NCAER study with respect to composition and utilization of working capital. In all the selected enterprises, inventory constituted the more important element of working capital. The study further revealed the overstocking of inventory in regard to its each component, very low receivables turnover and more cash than warranted by operational requirements and thus total mismanagement of working capital in public sector undertakings.

**Agarwal (1983)**

Also studied working capital management on the basis of sample of 34 large manufacturing and trading public limited companies in ten industries in private sector for the period 1966-67 to 1976-77. Applying the same techniques of ratio analysis, responses to questionnaire and interview, the study concluded the although the working capital per rupee of sales showed a declining trend over the years but still there appeared a sufficient scope for reduction in investment in almost all the segments of working capital. An upward trend in cash to current assets ratio and a downward trend in cash turnover showed the accumulation of idle cash in these industries. Almost all the industries had overstocking of raw materials shown by increase in the share of raw material to total inventory while share of semi-finished and finished goods came down. It also revealed that long-term funds as a percentage of total working capital registered an upward trend, which was mainly due to
restricted flow of bank credit to the industries.

Verma (1989)

Evaluated working capital management in iron and steel industry by taking a sample of selected units in both private and public sectors over the period 1978-79 to 1985-86. Sample included Tata Iron and Steel Company Ltd. (TISCO) in private sector and Steel Authority of India Ltd. (SAIL) and Indian Iron and Steel Company, a wholly owned subsidiary of SAIL, in public sector. By using the techniques of ratio analysis, growth rates and simple linear regression analysis, the study revealed that private sector had certainly an edge over public sector in respect of working capital management. Simple regression results revealed that working capital and sales were functionally related concepts. The study further showed that all the firms in the industry had made excessive use of bank borrowings to meet their working capital requirement vis-à-vis the norms suggested by Tandon Committee.

Vijaykumar and Venkatachalam (1995)

Studied the impact of working capital on profitability in sugar industry in Tamil Nadu by selecting a sample of 13 companies; 6 companies in co-operative sector and 7 companies in private sector over the period 1982-83 to 1991-92. They applied simple correlation and multiple regression analysis on working capital and profitability ratios. They concluded through correlation and regression analysis that liquid ratio inventory turnover ratio, receivables turnover ratio and cash turnover ratio influenced the profitability of sugar industry in Tamil Nadu. They also estimated the demand functions of working capital and its components i.e. cash, receivables, inventory, gross working capital and net working capital, by applying regression analysis. They showed the impact of sales and interest rate on working capital and its components. When only sales was taken as independent variable, coefficient of sales was more than unity in all the equations of working capital and its components showing more than unity sales elasticity and diseconomies of scale. When sales and interest rate were taken as independent variable, sales elasticity was again more than unity in demand functions of working capital and its components except cash. So far as capital costs were concerned, these had negative signs in all the equations but significant only in inventory, gross working capital and net working capital showing
negative impact of interest rates on investment in working capital and its components. Thus study showed that demand for working capital and its components was a function of both sales and carrying costs.


This paper attempts to develop quantitative benchmarks at the firm and the industry level, so as to evaluate the working capital management performance of corporate India from time to time. An earlier attempt was made by Anand (2001) based on the methodology designed by the CFO Europe and REL Consultancy Group for the year 1996-97. In another attempt, Anand, manoj (2003) of Indian Institute of management - Lucknow, experimented with a number of parameters and different weights in the overall score to have a better picture of working capital management performance of corporate India. The study employs the methodology developed by Anand, Manoj and provides estimates by using the data of 339 S & P CNX 500 non-financial companies with at least three years of publicly available records over the period 2001-'02 to 2003-'04 for each company and industry. During the period of study, corporate India has achieved a compound annual growth rate (CAGR) of 26.3% in net sales and 1.6% in the three year average cash operating margins. The length of the operating cycle and cash conversion cycle has reduced by 10.2% and 12.7% respectively on compounded annual basis. The paper finds very little evidence on the positive relationship between working capital management and firm profitability. The findings of the paper capture the dynamics of risk-return trade-off which will help the performance evaluation of working capital management of corporate India.

Dr. Mukhopadhyay, (2005)

An attempt has been made to examine working capital management practices and the problems faced by the firm in working capital management process particularly in heavy engineering industries. An engineering firm having two hundred years old legacy of culture and heritage and being located in Eastern India has been selected for the purpose of research. The company has two subsidiary corporate. The corporate office of the company selected for study is in kolkata and the name of the company is being kept undisclosed as per the
request of the same and thus let the firm be named as "M/s. Heavy engineering company ltd." for the purpose of study. It manufactures railway wagons of various types and incidental spare - parts and equipments for the Indian Railways Authority, Creamic Products and refractory for the Indian steel plants. The principal components of wagons are bogies and couplers and the same is bought out - sub contracted from/to different suppliers in spite of having in-house infrastructure for production of the same. Bogies and couplers constitute 30 to 40% of cost of manufacture, which range between four lakhs to ten lakhs depending on the category of wagons. The company is a sick company within the meaning of the sick companies (special provisions) Act, 1985 and presently the company is running the show by 2,000 work force and outsourcing work force as and when required. The company is an erstwhile professionally managed one having goodwill built up during last two centuries. Today the management of the company is having no option other than selling it off under the circumstances, Dr. D. Mukhopadhyay - Associate professor (Accounting & Finance) EIILM School of Business, Kolkata EIILM University), have undertaken the project to examine the process of working capital management of the firm for last 10 years w.e.f. 1993-94 to 2002-03 Following were fundamental objective of the study:

- To examine the effectiveness of working capital management practices of the firm.
- To assess short - term liquidity and solvency of firm.
- To find out how adequacy or otherwise of working capital affects commercial operations of the company.
- To prescribe remedial measures to encounter the problems faced by the firm.

"Dalbir Singh", (2005-06)

Dalbir Singh Lecturer in Commerce, Govt. PG College, Bhiwani, Studied working capital management of Aluminum industry in Indian. It is not possible for researcher to cover all the Aluminum industries. Hence the main focus of the study would be on Primary Aluminum Producing industry which includes National Aluminum Co. Ltd. (NALCO), Bharat Aluminum Co. Ltd. (BALCO), Hindalco Industries Ltd. (HINDALCO), Indian Aluminum Co. Ltd. (INDAL) and Madras Aluminum Co. Ltd. (MALCO). The study concerns itself with the period of
seven years i.e. from 1997-98 to 2003-04. The researcher used working capital requirement as an index of working capital needs. The study would perform a comparison of the working capital policies operative in primary aluminum producing industry. The study also attempted to have a look into relationship between liquidity and profitability.

"Santanu Kr. Ghosh and Santi Gopal Maji".

This paper makes an attempt to examine the efficiency of working capital management of the Indian cement companies during 1992-93 to 2001-2002. For measuring the efficiency of working capital management three index values performance index, utilization index and overall efficiency index are calculated, instead of using some common working capital management ratios. Using industry norms as target efficiency level of the individual firms, this paper also tests the speed of achieving that target level of efficiency by individual firms during the period of study. Finding of the study indicates that the Indian cement Industry as a whole did not perform remarkably well during this period.

"Vedavinayagam Ganesan,"

This study analyses the working capital management efficiency of firms from telecommunication equipment industry. The relationship between working capital management efficiency and profitability is examined using correlation and regression analysis. ANOVA analysis is done to study the impact of working capital management on Profitability. Using a sample of 443 annual financial statements of 349 telecommunication equipment companies covering the period 2001-2007, this study found evidence that even though "days working capital" is negatively related to the profitability, it is not significantly impacting the profitability of firms in telecommunication equipment industry.

"R. K. Mishra"

The study was made at the University of Rajasthan by Dr. Ram Kumar Mishra, under the title "problems of working capital" with special reference to public undertakings in India. The data were collected from 1960-61 to 1967-68 of six large public enterprises. The basic issues outlined in Dr. Mishra's study and the
findings therein have relevance to many of the units in the public sector even today, but due to the functional and structural changes that public enterprises have witnessed in the post 1968 era, a repeated effort on a different sample is called for to bring the perceptions up-to-date.

"G. S. Panda,"

G. S. Panda studied the working capital problems of small manufacturing companies confined to the state of Orissa. The study covered the problems of adequacy, the choice, sources and problems of rising working capital. The study was based on a sample of fifty small manufacturing companies. However, the sample was further reduced to twenty-six companies due to (a) Incomplete data (b) Non-manufacturing and (d) Habitual defaulters. Some of the issues, which were examined in the study, are (1) Current investments in the small firms lead to low current rations. (2) Small firms depend mainly on short-term credit because the accessibility to acquire long-term funds is relatively limited. (3) Small firms at growth stage characteristically hold a high proportion of total investment in current form. (4) The expanding sales firms and the need for financing current assets have close and direct relationship. (5) Higher funds generating ability determine current position of firms. and (6) Bank loans bridge a greater part of working capital gap in the firms. Lastly he concludes that one important reason for low performance is imprudent management of working capital.

"K. Rajeswara Rao"

Rajeswara Rao thoroughly examined the managerial aspects of inventories, receivables and advances and cash of certain central public enterprises in India. The study revealed that the inventories formed a major proportion of total current assets investment, which recorded 63% in 1971-72 and 66% by 1976-77 in the public sector. The inventory of finished goods proportion had been increasing year after year. He pointed out that the policies of public enterprises for achieving the working capital objectives were not clearly defined. His impression is that the prudent management of working capital shall be recognized as an important area for the enterprises studies.
"Eljelly, A. 2004."

Eljelly elucidated that efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets. The relation between profitability and liquidity was examined, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis. The study found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. The size variable was found to have significant effect on profitability at the industry level. The results were stable and had important implications for liquidity management in various Saudi companies. First, It was clear that there was a negative relationship between profitability and liquidity indicators such as current ratio and cash gap in the Saudi sample examined. Second, the study also revealed that there was great variation among industries with respect to the significant measure of liquidity.

"Deloof, M. 2003"

Deloof discussed that most firms had a large amount of cash invested in working capital. It can therefore be expected that the way, in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms. On the basis of these results he suggested that managers could create value for their shareholders by reducing the number of days account receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.


Shin and Soenen 1998 highlighted that efficient working capital management (WCM) was very important for creating value for the shareholders. The way working capital was managed had a significant impact on both profitability
and liquidity. The relationship between the length of net trading cycle, corporate profitability and risk adjusted stock return was examined using correlation and regression analysis, by industry and capital intensity. They found a strong negative relationship between lengths of the firm's net trading cycle and its profitability. In addition shorter net trade cycles were associated with higher risk and adjusted stock returns.

"BA Ranjith Apputhami"

The purpose of the research is to investigate the impact of firm's capital expenditure on its working capital management. The author used the data collected from listed companies in the Thailand Stock Exchange. The study used Shulman and Cox's (1985) net liquidity balance and working capital requirement as a proxy for working capital measurement and develop multiple regression model. The empirical research found that the firms capital expenditure has significant impact on working capital management. Study also found that the firm's operating cash flow which was recognized as a control variable has a significant relationship with working capital management, which is consistence with findings of previous similar research. The findings enhance the knowledge base of working capital management and help companies to manage working capital efficiently in growing situations associated with capital expenditure.

"Md. Sayaduzzaman,"

The major objective of the study is to examine and evaluate the working capital management in BATBCL over a period of 5 years (1999-2000 to 2002-2003). The efficiency of working capital management of British American Tobacco Bangladesh Company Ltd. is highly satisfactory due to the positive cash inflows, planned approach in managing the major elements of working capital. Applications of multi- dimensional models of current assets mix have positive impact on the continuous growth and development of this multinational enterprise. The depends on co-operation of the stakeholders and business environment in the context of globalization.

A. A. Khan
The researcher has been conducted a study entitled „Working Capital Analysis” the study was mainly devoted to the measurement of profitability with reference to five Tire companies in 1982. The study covered under the following indicators, (1) Ratio Analysis and (2) Common Size Statement Analysis. Researcher also measured and analyzed capital structure of the companies. The efficiency of such companies was very poor and it was at satisfactory level in only one or two companies. The profitability of such companies was unsatisfactory while in other companies it was satisfactory.

D. Govinda Rao And P. Mohana Rao In 1995,

By conducted a study entitled “Impact of working capital on profitability in Cement Company.” The study was mainly devoted to impact of working capital on profitability. It was studied with the help of correlation analysis. A researcher was selecting a single unit, vise associated cement companies limited (ACC). Correlation between profitability vis-à-vis ten select variables is analyzed with the help of Karl Pearson’s co–efficient of correlation technique.

Dr. Suraj Narain Mathur

He has done his Ph.D. on “Working capital management of cement industries in India- a comparative analysis of selected units” In this study profile of the cement industries in India, analysis of cash and liquidity management accounts receivables management, inventory management and control, conclusion, suggestions and recommendations.

Dr. J. R. Patel

He has done his Ph.D. on "A study of working capital management in cement industries in India" In this study profile of the cement industries in India, conceptual framework of working capital management, profile of cement industries in India, analysis of working capital management, inventory management – analysis, receivables management – analysis, cash management – analysis, findings and suggestions.

Dr. Virendra C. Jain
He has done his Ph.D. on "Working capital management of fertilizer industries of Gujarat " In this study profile of the concept and measurement of working capital, fertilizer industries, analysis of receivables management, analysis of working capital, analysis of inventory management, analysis of cash management, analysis of financing of working capital, summary of findings.

**Dr. Jayeshkumar P. Vora**

has done his Ph.D. on " Working capital management of trading houses in India " In this study profile of trading house, working capital management, history and development, of selected companies working as trading house in India, analytical study of working capital management of trading house in India, findings, suggestions and conclusions.

**Dr. Ashvinkumar H. Solanki**

He has done his Ph.D. on " Working capital management in selected small scale industries of Gujarat State " In this study profile of nature and growth of small scale industries in Gujarat, working capital management practices and working finance in small scale industries, management of cash, management of accounts receivables, inventory management practices comparative performance analysis of selected small scale industries of Gujarat state Summary, findings and suggestions.

### 3.3.4 CONCLUSION:

This literature of the working capital management. The literature has been divided in two groups’ viz. (1) literature for theoretical issue and (2) Literature with empirical study.

Theoretical studies provided strong theoretical background and conceptual foundations on the subject. This includes those books which deal with concepts and problems of the subject. While literature with the empirical study deals with research done in this subject.

### 3.4 SOME IMPORTANT QUESTIONS OF THE STUDY

Some important questions to which the study attempts to seek answer as follows:-
Whether paper companies have planted their working capital requirement properly.

Have the paper companies utilized the investment in current assets?

Have the paper companies controlled and utilized cash resources effectively and profitably?

Whether paper companies resort to high build up of inventory.

How far have the paper companies been successful in collecting their receivables timely?

What should be the alternative sources of funds for working capital requirement in the paper companies?

The efficiency of the working capital management is determined by the different administration of its various components: like as inventory, account receivable, cash, and accounts payables.

3.5 OBJECTIVES OF THE STUDY

- To study the various factor affecting working capital requirements in selected paper companies in India.
- To analyze and evaluated working capital management with respect to trade off between liquidity and profitability.
- To analyze relative asset liquidity and relative finance liquidity in selected paper companies in India.
- To assess the relative significance of various sources of financing of working capital management in selected paper companies in India.
- To analyze and evaluate inventory management techniques and performance in selected paper companies in India.
- To evaluate the management of receivables with respect to credit policy, credit terms and collection policy in selected paper companies in India.
- To evaluate and analyze the techniques and strategies of cash management in selected paper companies in India.
- To assess the relative significance of marketable securities where surplus cash could be invested, and to suggest, on the basis of conclusion, innovations in the management.
3.6 TESTING OF HYPOTHESES

Statistics which helps to the researcher in arriving at the creation for such decisions is known as testing hypothesis. The theory of testing hypothesis was established by J. Neyman and E. S. Pearson and employs statistical techniques to arrive at decision in certain situations where there is fixed in advance.

Below explain certain basically idea related with the testing hypothesis

Statistical Hypothesis:–

Simple and Composite: - A statistical hypothesis is some assumption or statement, which may or may not be true, about a population or equivalently about the probability distribution characterising the given population, which researcher want to test on the basis of the evidence from the random sample. If the hypothesis is completely specific the population, then it is known as simple hypothesis, otherwise it is known as composite hypothesis.

Null Hypothesis:–

The ransom selection of the samples from the given population makes the tests of significance valid for the researchers. For applying any test of significance researcher first set up a null hypothesis.

In the word of Professor R. A. Fisher “null hypothesis is the hypothesis which is tested for possible rejection under the assumption that is true”. It is usually denoted by $H_0$.

For the analysis of the working capital trends of selected paper companies in following null hypotheses will be tested:

ONE WAY ANOVA TEST AND HYPOTHESIS TESTING IN CHAPTER - 4

-  **Ho: Null Hypothesis:**
  - There is no significant difference in gross profit margin of the selected paper companies in India
  - There is no significant difference in operating profit ratio of the selected paper companies in India
  - There is no significant difference in net profit ratio of the selected paper companies in India.
H1: Alternative Hypothesis:

- There is significant difference in gross profit margin of the selected paper companies in India.
- There is significant difference in operating profit ratio of the selected paper companies in India.
- There is significant difference in net profit ratio of the selected paper companies in India.

CHI-SQUARE TEST AND HYPOTHESIS TESTING CHAPTER – 5

Ho: Null Hypothesis:

- There is no significant difference in actual and trend values of working capital of the paper company in India.
- There is significant difference in actual and trend values of working capital of the paper company in India.

ONE WAY ANOVA TEST AND HYPOTHESIS TESTING IN CHAPTER - 5

Ho: Null Hypothesis:

- There is no significant difference in Current Ratio of selected paper companies in India.
- There is no significant difference in Quick Ratio of selected paper companies in India.
- There is no significant difference in current assets turnover ratio of selected paper companies in India.
- There is no significant difference in net working capital ratio of selected paper companies in India.
- There is no significant difference in Working Capital Turnover Ratio of selected paper companies in India.

H1: Alternative Hypothesis:

- There is significant difference in Current Ratio of selected paper companies in India.
- There is significant difference in Quick Ratio of selected paper companies in India.
India.

- There is significant difference in current assets turnover ratio of selected paper companies in India.
- There is significant difference in net working capital ratio of selected paper companies of India under study.
- There is significant difference in Working Capital Turnover Ratio of selected paper companies of India under study.

ONE WAY ANOVA TEST HYPOTHESIS TESTING IN CHAPTER – 6

- **Ho: Null Hypothesis:**
  - There is no significant difference in Inventory to working capital ratio of selected paper companies of India.
  - There is no significant difference in Inventory (stock) turnover ratio of selected paper companies of India.

- **H1: Alternative Hypothesis:**
  - There is significant difference in Inventory to working capital ratio of selected paper companies of India.
  - There is significant difference in Inventory (stock) turnover ratio of selected paper companies of India.

ONE WAY ANOVA TEST AND HYPOTHESIS TESTING IN CHAPTER – 7

- **Ho: Null Hypothesis:**
  - There is no significant difference in cash to current assets ratio of selected paper companies of India.
  - There is no significant difference in cash to sales ratio of selected paper companies of India.
  - There is no significant difference in cash to current liabilities ratio or cash position ratio of selected paper companies of India.

- **H1: Alternative Hypothesis:**
There is significant difference in cash to current assets ratio of selected paper companies of India.

There is significant difference in cash to sales ratio of selected paper companies of India.

There is significant difference in cash to current liabilities ratio or cash position ratio of selected paper companies of India.

ONE WAY ANOVA TEST AND HYPOTHESIS TESTING IN CHAPTER – 8

**Ho: Null Hypothesis:**

- There is no significant difference in Debtors turnover ratio of selected paper companies in India.
- There is no significant difference in Average collection period of selected paper companies in India.
- There is no significant difference in Creditors turnover ratio of selected paper companies in India.
- There is no significant difference in Average payable period of selected paper companies in India.

**H1: Alternative Hypothesis:**

- There is significant difference in Debtors turnover ratio of selected paper companies in India.
- There is significant difference in Average collection period of selected paper companies in India.
- There is significant difference in Creditors turnover ratio of selected paper companies in India.
- There is significant difference in Average payable period of selected paper companies in India.

ONE WAY ANOVA TEST AND HYPOTHESIS TESTING IN CHAPTER - 9

**Ho: Null Hypothesis:**

- There is no significant difference in loan and advance to current assets ratio of selected paper companies of India.
There is no significant difference in loan and advance to working capital ratio of selected paper companies of India.

H1: Alternative Hypothesis:

There is significant difference in loan and advance to current assets ratio of selected paper companies of India.

There is significant difference in loan and advance to working capital ratio of selected paper companies of India.

3.7 RESEARCH METHODOLOGY

The study was preliminary based on the published accounts and annual report of all the selected paper companies under review. Out of which selected companies were in the public sector and private sector.

3.8 THE SCOPE OF THE STUDY

Sampling method was convenient and Judgment sampling also. The samples companies had been selected from the following factor.

The selected paper companies were selection of the basis of maximum licenses capacity, installed capacity and seals.

The selected paper companies should be engaged in the production and seals of the paper.

The company should be listed in the Stock Exchange of India.

3.9 PERIOD OF THE STUDY

The present study was undertaken by the researcher for the period of seven (7) Accounting years from 2005-2006 to 2011-12. The researcher had selected the base year 2005-2006 because this year was normal for the present research of analysis and evaluation.

3.10 SAMPLE OF THE STUDY

By the researcher following companies were had been selected for the purpose of the present research.

1. The International Andhra Pradesh Paper Mills Limited (IAPPM)
2. Ballarpur Industries Limited (BILT)
3. J.K. Paper Mills Limited (JKPML)
4. Orient Paper and Industries Limited (OPIL)
5. Seshasayee Paper and Boards Limited (SPBL)
7. South India Paper Mills Limited (SIPML)
8. Star Paper Mills Limited (SPM Ltd)
10. West Coast Paper Mills Limited (WCPML)

3.11 METHOD OF DATA COLLECTION

The main source of data used for the study was secondary drawn from the annual profit and loss account and balance sheet figures as found in the annual reports of the selected paper companies. The selected data was complemented through selected paper companies web site and capital line software.

3.12 METHODS OF ANALYSIS AND INTERPRETATION OF DATA

In order to analyze the present research work on “A COMPARATIVE STUDY OF WORKING CAPITAL MANAGEMENT OF SELECTED PAPER COMPANIES IN INDIA” various techniques of financial management like as ratio analysis and various statistical techniques used by the researcher as under:-

3.12.1 USE OF FINACIAL RATIO ANALYSIS

Financial analysis is the process of identifying the financial strengths and weakness of the selected paper companies by the properly establishing relationship between the item of the balance sheet and profit and loss account.

Ratio analysis is a powerful tool of financial analysis a ratio is defined as “the indicated quotient of two mathematical expressions” and as “the relationship between two or more things”. in financial analysis, a ratio was used as an index or yardstick for evaluating the financial position and performance of selected paper companies.

The relationship between two accounting figure, expressed by mathematically is known as financial ratio. A ratio helps the analyst to make qualitative judgment
about the selected paper companies financial position and performance. Financial ratio could be classified in the following group as under

- Liquidity ratios
- Leverage ratios
- Activity ratio
- Profitability ratio

In this research the use of ratios had not been made in the course of data but various ratios calculated in order to analyze the size, composition and circulation of working capital and its various components had been explain at the relevant chapters in the research.

### 3.12.2 ARITHMETIC MEAN

Arithmetic mean gives a single value to describe the whole data. Simple arithmetic mean of each series of different ratios has been obtained by adding the values of observations and dividing it by the number of observations.

### 3.12.3 THE STANDARD DEVIATION

The standard deviation concept was introduced by ‘Karl Pearson’ in 1823. Standard deviation is most widely used measure of dispersion of a series and is commonly denoted by the symbol ‘σ’ (pronounced as ‘sigma’). Standard deviation is retired as the square –root of the average of squares of deviations, when such deviations for the values of individual items in series are obtained from the arithmetic average.

### 3.12.4 Co-EFFICIENT OF VARIATION

Co-efficient of variation is a relative measure of dispersion. Among different measures of relative variation, one developed by Karl Pearson is the most common in use. Co-efficient of variation is used in problems where we want to compare the variability of two or more than two series. That series (or group) for which the co-efficient of variation is greater is said to be more variable or conversely less consistent, less uniform, less stable or less homogeneous. On the other hand, the series for which co-efficient of variation is less is said to be less variable or more consistent, more uniform, more stable or more homogeneous. In ratio analysis of
financial data, lower co-efficient of variation in a ratio is taken as relatively better control of the management on that ratio. Co-efficient of variation is denoted by C.V. and obtained as follows:

\[
c. v = \frac{s}{\text{average}} \times 100
\]

Where \( \bar{x} \) = mean, \( S \) = standard deviation.

However, in this study, while computing the co-efficient of variation, the standard deviation \( (S) \) has been for \((N-1)\) number of observations.

### 3.12.5 F-TEST (Analysis of variance)

F-test is based on F-distribution and is used to compare the variance of the one way single factor. This test is also used in the context of analysis of various (ANOVA) for judging the significance of more than two sample means at one and the same time. It is also used for judging the significances of multiple correlated coefficient test statistic F-test is calculated and compared with its probable value for accepting or rejecting the null hypothesis.

Professor R.A.Fisher was the first man to use the term “VARIANCE” and in fact. It was who developed a very elaborate theory concerning. ANOVA explaining it’s usefulness in practical field. ANOVA is essentially a procedure for testing the difference among different groups of data for homogeneity.

“The essence of ANOVA is that the total amount of variation is a set of data is broken down in to two types, that amount which can be attributed to chance and that amount which can be attributed to specified causes.”

Thus, through ANOVA technique one can in general, investigate any number of factors which are hypothesized or said to influence the dependent variable one may as well investigate the difference amongst various categories with in each of these factors. Which may a large number of possible values? If we take only one factors and investigates the difference amongst. Its various categories having numerous possible values. We are said to one ANOVA.

In the present study the researchers used in ANOVA for the testing of hypothesis.

### 3.12.6 ANALYSIS O TIME SERIES
The time series is an arrangement of statistical data in accordance with time of its occurrence. Such series are of particular importance in the field of population, bank deposits, outputs, sales, profits etc. Time series analysis is used to detect patterns of change in statistical information over regular intervals of time. We project these patterns to arrive at an estimate for the future.

Levin has defined that:-
“Time series analysis is the quantitative method we use to determine patterns in data collected overtime.”

“A time series” as observed by Greenwalad:-
“A time series is a temporal sequence or distribution with the observations chronologically arranged. Since time is present explicitly as a variable time series analysis often is considered a study of dynamic variability.”

According to Wessel, Willet and simone:-
The variation of time series is usually broken down into four component element: secular trend, seasonal variation, cyclical variation and random or irregular influences. The change in the data is the result of the combined impact of these four components.

For the analysis of working capital of paper companies the secular trend values are proposed to be computed by the method of least squares at relevant places.

The technique of least square is proposed to apply in chapter -5 for only for working capital.

3.12.7 Chi-SQUARE TEST
The chi-square test is the simplest and most widely used non-parametric test in statistical work. The chi-square is frequently used in testing of hypothesis concerning the different between a set of observed frequencies of a sample and a corresponding set of expected or theoretical frequencies.

S.P. Gupta holds the view that:-
“The quantity chi-square describes the magnitude of the discrepancy between theory and observation.
Symbolically:

\[ \text{chi} - \text{square} = \sum \frac{(O - E)^2}{E} \]
Where O refers to the observed frequencies and E refers to the expected frequencies.

The calculated value of chi-square is compared with the table value of chi-square for given degrees of freedom at a certain specified level of significance. If at the stated level (generally 5% level is selected) the calculated value of chi-square is more than the table value of chi-square, the difference between expected and observed value is considered to be significant, i.e., it could not have arisen due to chance factor. On the other hand, if the calculated value of chi-square is less than the table value, the difference between expected and observed values, is not considered as significant, i.e., it is regarded as due to fluctuations of simple sampling and hence ignored.

The technique of chi-square is proposed to apply in chapter -5 for only for working capital.

3.13 CHAPTER PLAN
1. Working capital management : concept, importance and objects,
2. Sample Profile of paper companies in India
3. Research methodology
4. Capital structure and financial results of paper companies in India with profitability management
5. Working capital Trends and liquidity management
6. Inventory management
7. Cash management
8. Bills Receivables & Bills Payables management
9. Financing of working capital (loan and Advance Management)
10. Summery, findings & suggestion of working capital management in paper companies

3.14 LIMITATIONS OF THE STUDY
- The study is based on secondary data taken from published annual report of selected paper companies in India its findings depend entirely on the accuracy of such data.
- The study should be based on 10 companies belong to only are listed on Bombay stock exchange.
The different methods of analysis of working capital management of selected paper companies in India in this connection view of experts differ from one other.

The study is largely based on the financial tool of ratio analysis, which has its own limitations that also applies to the study.

The study could not define relationship between working capital and exports of selected paper companies in India.

Suggestion are based on study of 10 selected paper companies only, such are not properly apply to all paper companies in India.
3.15 REFERENCE


29. Anand, Manoj, "Working Capital Performance Of Corporate India: An


