# Chapter 1

## Research Methodology

### Chapter Index

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Introduction</td>
</tr>
<tr>
<td>1.2</td>
<td>Identification of Problem</td>
</tr>
<tr>
<td>1.3</td>
<td>Review of Existing Literature</td>
</tr>
<tr>
<td>1.4</td>
<td>Objectives of the Study</td>
</tr>
<tr>
<td>1.5</td>
<td>Hypotheses of the Study</td>
</tr>
<tr>
<td>1.6</td>
<td>Research Design</td>
</tr>
<tr>
<td>1.6.1</td>
<td>Data collection and Period of the Study</td>
</tr>
<tr>
<td>1.6.2</td>
<td>The Sample</td>
</tr>
<tr>
<td>1.6.3</td>
<td>Tools and techniques</td>
</tr>
<tr>
<td>1.75</td>
<td>Conceptual Framework of Performance Evaluation through Cash Management</td>
</tr>
<tr>
<td>1.8</td>
<td>Layout of the Study</td>
</tr>
<tr>
<td>1.9</td>
<td>Significance of the Study</td>
</tr>
<tr>
<td>1.10</td>
<td>Limitations of the Study</td>
</tr>
<tr>
<td>1.11</td>
<td>Future Scope of The Study</td>
</tr>
</tbody>
</table>
CHAPTER 1

RESEARCH METHODOLOGY

1.1 Introduction

The Greek “autos” (self) has been used to create the word automotive and the Latin word motives (of motion) to represent any form of self-powered vehicle was added to it. Automobiles sector, one of the most important economic sectors by revenue, began in the 1890s with hundreds of manufacturers that pioneered the horseless carriage. Around the world, there were about 806 million cars and light trucks on the road in 2007. Global production of vehicles (cars and commercial vehicles) rose to 89,747,430 in 2014 from 54,434,000 in 1997. Amongst global manufacturers, Tata Motors Ltd. of India stood at 19th position with a production of 1,062,654 units in the year 2013.

In 1897, the first car ran on the Indian road. An embryonic automotive industry emerged in India in the 1940s with launching of Hindustan Motors in 1942 and Premier in 1944. However, growth was relatively slow in the 1950s and 1960s due to nationalisation and licensing restrictions. The automotive industry in India is one of the largest in the world with an annual production of 23.37 million vehicles in FY 2014-15. Also in FY 2014-15, automobile exports of India grew by 15 percent over the last year.

In the last few decades, the Automotive Industry of India has been recording tremendous growth and has emerged as a major contributor to India’s GDP. This dynamic Industry currently accounts for almost 7 percent of India’s GDP and employing about almost 19 million people. Also contribution of Indian Automotive Industry to Global Auto Industry Development is increasing significantly. In India, since the de-licensing of the sector in 1991 and the subsequent opening up of 100 percent FDI through automatic route, Indian Automobile Sector has come a long way. Today almost every global auto major has set up facilities in the country.
In India, automotive is one of the largest industries showing impressive growth over the years and has been significantly making increasing contribution to overall industrial development in the country. This move is further enhanced by Government’s support towards setting up centers for development and innovation. In order to further accelerate and sustain advancements in the auto sector, the department has undertaken several policy measures and incentives. The most important being the announcement of Auto policy of 2002, which aimed to establish a globally competitive automotive industry in India and double its contribution to the economy. Another milestone in this field had been the launch of the National Automotive Testing and R&D Infrastructure Project (NATRIP) which aimed to create core global competencies in automotive sector. Besides, the announcement of Automotive Mission Plan for the period 2006-2016 is a major step taken to make India a global automotive hub.

As a result, India is emerging as strong automotive Research and Development (R&D) hub with foreign players like Hyundai, Suzuki, and General Motors setting up their base in India. Tata Nano’s successful entry in the market steamed up the opportunities of growth available in alternative segments like electric cars, vehicles run on natural gas etc. All such initiative indicates that the Indian Automotive Industry has been emerging as a sunrise sector of the economy. It is not only meeting the growing domestic demands, but also gradually increasing its penetration in the international market.

Talking about the numbers, the production of passenger vehicles in India was recorded at 3.23 million in 2012-13 and is expected to grow at a compound annual growth rate (CAGR) of 13 per cent during 2012-2021, as per data published by Automotive Component Manufacturers Association of India (ACMA).

Passenger car sales stood at 1.89 million units in 2012-13. Additionally, share of luxury cars to the total passenger car market of India is expected to increase to four per cent by 2020. The total number of passenger cars in India is likely to touch around 8 million units by 2020, as per Mr. Boris Fitz, Director, Sales and Network Development, Mercedes-Benz India.
The industry produced 1.74 million vehicles in May 2013. The export of passenger vehicles and three-wheelers grew by 7.34 percent and 26.53 percent respectively during the April-May 2013, as per data released by Society of Indian Automobile Manufacturers’ (SIAM).

Furthermore, the amount of cumulative FDI inflow into the Indian automobile industry during April 2000 to April 2013 was worth US$ 8.32 million, amounting to 4 per cent of the total FDI inflows (in terms of US$), as per data published by Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce.

Table 1.1 Automobile Production Trend

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger</td>
<td>29,82,772</td>
<td>31,46,069</td>
<td>32,31,058</td>
<td>30,87,973</td>
<td>32,20,172</td>
</tr>
<tr>
<td>Commercial</td>
<td>7,60,735</td>
<td>9,29,136</td>
<td>8,32,649</td>
<td>6,99,035</td>
<td>6,97,083</td>
</tr>
<tr>
<td>Three Wheelers</td>
<td>7,99,553</td>
<td>8,79,289</td>
<td>8,39,748</td>
<td>8,30,108</td>
<td>9,49,021</td>
</tr>
<tr>
<td>Two Wheelers</td>
<td>1,33,49,349</td>
<td>1,54,27,532</td>
<td>1,57,44,156</td>
<td>1,68,83,049</td>
<td>1,84,99,970</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1,78,92,409</td>
<td>2,03,82,026</td>
<td>2,06,47,611</td>
<td>2,15,00,165</td>
<td>2,33,66,246</td>
</tr>
</tbody>
</table>

*Source: Society of Indian Automobile Manufacturer*
Figure 1.1 Automobile Production Trend

![All Vehicles Production Trend](chart.png)

*Source: Society of Indian Automobile Manufacturer*

Table 1.2 Automobile Sales Trend

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger</td>
<td>1951333</td>
<td>2501542</td>
<td>2629839</td>
<td>2665015</td>
<td>2503509</td>
<td>2601111</td>
</tr>
<tr>
<td>Commercial</td>
<td>532721</td>
<td>684905</td>
<td>809499</td>
<td>793211</td>
<td>632851</td>
<td>614961</td>
</tr>
<tr>
<td>Three Wheelers</td>
<td>440392</td>
<td>526024</td>
<td>513281</td>
<td>538290</td>
<td>480085</td>
<td>531927</td>
</tr>
<tr>
<td>Two Wheelers</td>
<td>9370951</td>
<td>11768910</td>
<td>13409150</td>
<td>13797185</td>
<td>14806778</td>
<td>16004581</td>
</tr>
<tr>
<td>Grand Total</td>
<td>12295397</td>
<td>15481381</td>
<td>17361769</td>
<td>17793701</td>
<td>18423223</td>
<td>19752580</td>
</tr>
</tbody>
</table>

*Source: Society of Indian Automobile Manufacturer*
Figure 2 Automobile Sales Trend

![All Vehicles Sales Trend](image)

*Source: Society of Indian Automobile Manufacturer*

Table 1.3 Automobile Exports Trend

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger</td>
<td>446145</td>
<td>444326</td>
<td>508783</td>
<td>559414</td>
<td>596142</td>
<td>622470</td>
</tr>
<tr>
<td>Commercial</td>
<td>45009</td>
<td>74043</td>
<td>92258</td>
<td>80027</td>
<td>77050</td>
<td>85782</td>
</tr>
<tr>
<td>Three Wheelers</td>
<td>173214</td>
<td>269968</td>
<td>361753</td>
<td>303088</td>
<td>353392</td>
<td>407957</td>
</tr>
<tr>
<td>Two Wheelers</td>
<td>1140058</td>
<td>1531619</td>
<td>1975111</td>
<td>1956378</td>
<td>2084000</td>
<td>2457597</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>1804426</strong></td>
<td><strong>2319956</strong></td>
<td><strong>2937905</strong></td>
<td><strong>2898907</strong></td>
<td><strong>3110584</strong></td>
<td><strong>3573806</strong></td>
</tr>
</tbody>
</table>

*Source: Society of Indian Automobile Manufacturer*
Figure 1.3 Automobile Exports Trend

Source: Society of Indian Automobile Manufacturer

Table 1.4 Gross Turnover of Automobile Manufacturers in India (In USD Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2012-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>In USD Million</td>
<td>36612</td>
<td>33250</td>
<td>43296</td>
<td>58583</td>
<td>66264</td>
<td>67607</td>
</tr>
<tr>
<td>USD Conversion Rate</td>
<td>40</td>
<td>46</td>
<td>47</td>
<td>46</td>
<td>47</td>
<td>50</td>
</tr>
</tbody>
</table>

Source: Society of Indian Automobile Manufacturer
In recent years India has been developing as a market potential for automobiles due to rise in demand and as a result there is an increased production to tap the growing demand both at home and in the foreign markets. This is reflected in the production figures of the industry especially remarkable in the passenger vehicle and three wheeler divisions, where production raised from 1,209,876 vehicles in the year 2004-05 to 3,072,651 vehicles in the year 2013-14. In recent years India has been developing as a market potential for automobiles due to rise in demand and as a result there is an increased production to tap the growing demand both at home and in the foreign markets. This is reflected in the production figures of the industry especially remarkable in the passenger vehicle and three wheeler divisions, where production raised from 1,209,876 vehicles in the year 2004-05 to 3,072,651 vehicles in the year 2013-14. The sales figure of the industry states that sales of commercial vehicles have decreased. The analysis of the ten year data of the industry indicates that the sale of the industry is quite satisfactory. The exports of made in India rose by 31% in financial year 2004-05 as passenger cars, two and three wheelers, commercial and multi utility vehicles continue to charm overseas buyers. A total of 1.2 million units were shipped during financial year 2007-08 over 1 million units exported in the financial year 2006-07. This figures says it all about the Indian automobile industry.
1.2 Identification of Problem

Though being a part of working capital management, cash management has a very broad area to cover. Cash management is mainly a thing of primary observation, though with the help of few financial ratios, performance of the firms can be evaluated. Cash is of course the lifeblood of any business. Not just business, but apart from food, water and shelter, now even the cash is a vital thing to survive on this earth. In these days of globalization, foreign exchange is also traded in the open market. Day by day cash is becoming a bit complicated matter. So is going to be its impact on the performance of any firm’s business. So it is very essential to have a check on the cash management performance of any company. Mismanagement of cash and cash equivalents may lead a company to very tough situations, sometimes, resulting into insolvency.

Cash management is a broad term that refers to the collection, concentration, and disbursements of cash. The management goal is to manage the cash balance of an enterprise in such a way as to cash not invested in fixed assets or inventories and to reduce risk of insolvency. In some ways, managing cash flow is the most important job of business managers. If at any time a company fails to pay an obligation due to lack of cash, company may become insolvent. Insolvency is the primary reason for business getting bankrupt. Obviously, the prospect of such a dire consequence should compel companies to manage their cash with care. Moreover, efficient cash management means more than just preventing bankruptcy. Efficient cash management improves the profitability and reduces the risk to which the firm is exposed.

Cash management is particularly important for new growing business. The management of cash flow without margin of safety creates numerous problems. Management also may experience trouble in finding the funds for innovation or expansion. It is somewhat ironically, easier to borrow money when you have money. In addition to this, poor cash flow makes it difficult to hire and retain good employees. The major business expenses are incurred in the production of goods and the provision of services. So these factors are essential part of any business financial planning. Cash is the lifeblood of a business, so is essential for success.
Thus researcher would like to conduct the research study in automotive industry with special reference to cash management. In this research, researcher will try to analyze the cash management performance of sample companies, working capital of sample companies, cash position as well as impact of cash position on profitability of sample companies. Conclusively, in this research, researcher will try to show the whole picture of automobile industry considering the cash management as a key factor.

1.3 Review of Existing Literature

Agarwal, N. K., examined working capital management on the basis of sample of 34 large manufacturing and trading public limited companies in ten various industries of private sector for the period of 11 years from 1966-67 to 1976-77. Ratio analysis tool has been used for the purpose of analysis. The study concluded that although the working capital per rupee of sales exhibited a declining trend over the years, but still there appeared enough scope for reduction in investment in almost all the segments of working capital. A downward trend in cash turnover and an upward trend in cash to current assets ratio showed the accumulation of idle cash in industry. Almost all the industries had overstocking of inventories. It also showed that long term funds as a percentage of total working capital reported upward trend, which was mainly due to restricted flow of bank credit to the industries.

Aruna Saini and Ram Saini conducted an empirical study on “Analysis of liquidity management and trade off between liquidity, risk and profitability”. The period of the study was 1999-2000 to 2008-09. Their purposes of the study were to measure and evaluate the efficiency of liquidity management by using ratio analysis and to assess the trade-off between profitability and risk. The sample for the study was Infosys Technologies Ltd. The research was mainly based on ratio analysis and statistical techniques like measures of central tendency, measures of Dispersion, Spearman’s Rank Correlation etc. The study of the liquidity with the help of net working capital evidenced a sound position of the company. The average collection period indicated a liberal collection policy which can affect the cash management. The degree of association between liquidity and profitability of the company was negative, therefore it can be concluded that excessive liquidity might lead to lower
Barua, S. and Saha A.K., in presented an article comparing traditional ratios with cash flow ratios. The primary objective of the study was to establish usefulness of the cash flow based ratios in today’s competitive business world. Another objective was to suggest a list of cash flow ratios to be included in financial analysis. In this research paper financial statements for ten years have been evaluated by means of suggested cash flow ratios. Samples were chosen from Banking, Insurance and Finance Sector of Bangladesh. The researchers concluded that cash flow information has explanatory power. The ratios that are suggested in this study, if used in conjunction with traditional balance sheet and income statement that will lead to a better indication of the financial strength and weaknesses of an entity. It also has the potential to serve as an early warning of financial distress and bankruptcy.

Beaver in his research paper reported that cash flow from operations, proxied by net income plus depreciation, depletion and amortisation, to total debt had the lowest misclassification error relative to common accrual measures of financial health. However, his univariate approach to analysing financial distress was seldom followed because while one ratio would indicate failure another could indicate non-failure.

Chadmiya B. P., (2007) in his M.Phil project report on “A Study of Management of Cash with reference to selected I. T. Companies” (A Comparative study of Infosys Ltd. & Wipro Ltd.), described the cash and liquidity position of the selected units and to give the suggestions for improvement of cash. Cash Flow based measures are employed to evaluate the cash management performance as well as liquidity position of the selected companies. The researcher used ratio analysis and cash flow statement to know the cash management performance of Infosys Ltd. and Wipro Ltd.

Dr. N. Pasupathi carried out a study on Operational Adequacy of Working Capital Management of selected units of Indian Automobile Industry – A Bivariate Discriminant Analysis. The study in general aimed at making a study of the management performance relating to working capital of selected units of Indian Automobile Industry and also evaluating working capital management policies of those selected units. The period of the study undertaken was 1992-93 to 2006-07.
Here the researcher reported that the comparison of good and poor risk units as per the current ratio and as per the discriminate score showed that the misclassification of units was noticed in all the years.

Ghosh, S. (2011), in her research article on “Cash Management Performance Evaluation”, in Indian journal of accounting volume XLII (1) December 2011 attempted to evaluate the cash management performance of two leading companies in the Indian Steel Industry namely SAIL and TSL during the period 2003-04 to 2009-10. This study describes the comparison between SAIL & TSL. The empirical findings of the study reveal that TSL on the average has utilized its cash more efficiently in comparison to SAIL. TSL has better capacity to correct its sales into cash than that of SAIL.

Helen Kwok and Tuen Mun (2002) undertook the study “The effects of cash flow statement on Lenders’ decisions”. The researchers mentioned that bank officers use cash flow statement as an important document while taking decisions about lending loans. The reason being it provides very crucial information about cash inflow and cash outflow. Auditors, accounting academies, financial analysts and bank loan officers were taken up as samples. Each of them were given annual reports of two loan applicant companies and were asked to make independent lending decisions on whatever data was provided. This data included the cash flow statement of one company was given in the direct format and the other was presented in the indirect format. The latter format was used as an addition to the fund flow statement. The result that was presented clearly indicated that a majority of the subject obtained information from the Balance sheet. However, it was also found that the cash flow statement was the second most used financial information base. Even notes to the financial statements were taken into account almost ignoring the cash flow statements. No subject was found to be using fund flow statements as the base of their financial reports.

International Financial Reporting Standard (IFRS) no. 107 is relating to the cash flow statements. It provides the guideline that cash flow statement is an integral part of the firm’s financial statements. It also provides that “Information about cash flow is very useful in predicting the enterprise’s ability to generate cash and cash equivalents.
In this study, an attempt is made to find out the predictive ability of the operating cash flow and data based on accrual accounting to predict future cash flow from operating activities. For this study, Multivariate Regression Models and Panel data were used. In this study, 173 companies were taken as sample from the companies which were listed on the Bursa Malaysia. In this study, to predict future cash flows from operating cash flow during the period 1997-2005, following three predictor variables have been used: (i) Net income before extraordinary items (NI) (ii) Net income before extraordinary items + Depreciation and Amortization (NDA) (iii) Cash flow from Operating Activities (CFO).

Jani Virendra (2007) conducted a research work on “Working Capital Management of Fertilizer Industry of Gujarat”. This study includes position of Working Capital Management, tendency of raw material, credit tendency, cash tendency and tendency of suppliers of the unit under study. The period of the study was 1996-97 to 2004-05. The samples selected were GNVFC, GFSC, Liberty and IFFCO. With the analysis it was found that the cash position ratio of all the companies varies. Here, in context to Cash Management, the researcher has analyzed the Cash & Bank amount, current liabilities, cash ratio, cash ratio index and trend value.

Jill Andresky Fraser’s classic articles on the topic “THE ART OF CASH MANAGEMENT” included finance business – cash management and learning how to handle a cash crisis. Assembled here are practical pieces of advice, tips and tricks from CEOs, and tools that you can use to get handle on business cash.

John Sagan in his study on “Toward a Theory of Working Capital Management”, disclosed mainly the role and function of the manager who is directly interested in the management of cash that is generated during the transactions of business. He emphasized that more importance was laid on the manager’s job. He concluded that preparation and analysis of cash flow schedule was a basic factor to attain a sound program of money management. Researcher also found out that the level of operational cash needs depends on the level of sales. His study stated that the level of working capital is a function of sales.

M. Subramanya Sarma and Thiruvengala Chary conducted a study on “Working
Capital Management in Vazir Sultan Tobacco & Company Ltd.”. The objective of the study was to understand the trends in current assets investing and financing policy of working capital management with the help of selected accounting ratios in the sample company. The period of study was from 1989 to 1996. The methodology of the study was based on interpretation of the annual reports of the company. There was not proportionate increase in current assets investment in relation to sale resulting into rapid decline in working capital turnover ratio. There was no consistent policy of working capital management. It was found that during the last two years of the study period, the quick ratio was much higher than generally accepted norms and that was due to the sudden decline of inventory and rapid increase in current assets. Credit policy was highly volatile with increasing risk of bad debts. These were some of the main findings of the study. They also suggested that the company needed to improve its management of cash and credit policy in order to have adequate profitability.

Muthumoni A., (2008), “A Study on the Performance Appraisal of Indian Automobile Industry” Ph.D. Thesis, Adirampattinam, Tamilnadu, in this research work, the performance of Indian Automobile Industry is analyzed on the basis of production trend, sales trend, profitability analysis, financial structure, financial performance, assessment of financial health, Economic Value Added (EVA) and Market Value Added (MVA). On the basis of the analysis, the researcher has arrived at the fruitful findings and offered useful suggestions for the growth of Indian automobile industry. Naveen D. Daniel, David J. Denis, Lalitha Naveen conducted a survey on “Sources of Financial Flexibility: Evidence from Cash Flow Shortfalls”. They mentioned that the firms which are facing shortage of cash for payment of dividend and for investment purposes have to adopt any one of the various options such as reduction in dividends, reduction in investments, to sell the securities and to raise more funds, sale of assets, to reduce the cash reserves. The results of this study revealed that only 6% firms adopted the option of reducing the dividends. On the other hand, a large group of 68% firms reduced the level of investment. Half of the cash shortfall was covered by reducing the investment whereas the other half was covered by obtaining debt from outside sources. Some options like issue of equities, cash balance reduction and sale of assets were not much important and were not taken into consideration seriously in reducing the cash shortfall.

Patel, J. R., (2011), “A Study of Working Capital Management in Cement Industry in India”, the researcher analyzed and evaluated working capital management with respect to trade off between liquidity and profitability, to study the various factors affecting working capital requirements in cement industry, to assess the relative significance of various sources of financing working capital.

Popat. Pravin H. (2011) A study on Working Capital Management and its Impact on Profitability of Selected Fertilizer Units of Gujarat State. This study revealed the trend of working capital in Gujarat State Fertilizer Company and Gujarat Narmada Valley Fertilizer Company during the study period, to measure the efficiency of working capital management.

Rakesh Kumar Manjhi carried out a study on “An In-depth Study of Working Capital Policy and Management of Selected Textile Manufacturing Companies in Gujarat”. The period of the study undertaken was 1999-00 to 2010-11. The study proposed to examine the policy prevailing in the management of working capital in Textile Companies of Gujarat and to examine management performance in this regard and also to look at possible remedial measures on the basis of which funds tied up in working capital could be used efficiently and effectively. Here, in context to cash component, the researcher has used Total Cash to Total Sales Ratio, Cash Turnover Ratio, Cash Conversion Cycle, Net Cash Flow Analysis, and Net Cash Flow to Current Liabilities ratio for analysing the cash management performance. On establishing a relationship between the volume of sales and the size of cash balance, the researcher found that there was a positive relationship between the size of cash balance and the volume of sales.

value creation by the companies in the automobile industry in India by comparing between Tata Motors Ltd. and Mahindra & Mahindra Ltd. analyzing Value Based Management, Economic Value Added and Market Value Added.

Ross Kirkham conducted a survey on “Liquidity Analysis Using Cash Flow Ratios and Traditional Ratios: The Telecommunications Sector in Australia”. The objective of this study was to undertake the liquidity analysis of the companies. This was done by using the traditional ratios as well as the latest cash flow ratios. In the study, a comparison was made between the traditional ratios and cash flow ratios. For this, a period of five years and a sample of 25 companies were taken from the telecommunication sector in Australia. The data was taken from the database of financial analysis. The Current ratio, Quick ratio, Interest coverage ratio, Cash flow ratio, Critical needs cash coverage ratio, Cash interest coverage ratio were examined. The results of the study explained the differences between the traditional ratios and cash flow ratios for liquidity analysis. The researcher here proved that if the decision about the liquidity was taken only on the basis of traditional ratios, the results could have been misleading. In some cases, it might happen that even if company is facing problems of cash flow, it seems to be liquid. In the same way, it might also happen that even if company is having enough cash flow, it may not seem to be liquid.


Sudarshana Reddy G., Sivarami Reddy C. and Mohan Reddy P., in “A case Study of Andhra Pradesh Paper Industry”, evaluated the performance of the debtor’s management of the paper industry in Andhra Pradesh. For complying this, the analysis of trends in sales and debtors, debtor’s size, turnover, collection period and aging of receivables had been carried out. The foregoing analysis reveals that the sample mills adopted liberal credit policy, which had a favorable effect on sales. This definitely has a direct effect on the overall profitability performance. But though they suggested reducing the collection period, the collection and follow up efforts of trade debtors should be rationalized and slackness should altogether be removed.
Vijaykumar and Venkatachalam made an important study on the “Demand for Working Capital in Private Sector Sugar Industries of Tamilnadu. The study was an empirical analysis. The study was conducted in order to probe the requirement for cash, inventories, receivables, gross working capital and net working capital. Models of economics were used to describe the demand for working capital and its various components. The study revealed empirically whether transactions relating to working capital including cash and inventories direct proportionate or not to change in the volume of sales. They found that the transactions for cash are proportionately higher than the changes in the volume of the sales. Sales elasticity was more than unity indicating the diseconomies of scale with respect to investment of working capital and its components. The sales elasticity of cash and inventories were more than unity showed that fluctuation in cash and inventories levels depended significantly on fluctuation in their financing carrying costs, the capital cost on receivables, gross working capital and net working capital showed that the sign of interest rate of coefficient was not only negative but also statistically significant in all these cases except receivables, etc. were also important findings. They suggested that the demand for working capital and its components was a function of sales and its holding cost.

Walker E. W., in his study “Towards a Theory of Working Capital”, showed betterment upon the Sagan’s study. His main disceptation was that it was possible to develop a theory of working capital. In this connection, he formulated the following propositions which imply a risk return trade off of working capital.


1.4 Objectives of the Study

After the review of existing literature on the topic and about the industry, research has developed the following objectives:

1. To know the Cash Management Performance of the selected samples of Indian Automobile Industry.
2. To analyze the Working Capital Management of selected samples of Indian Automobile Industry.

3. To analyze the cash flow cycle of selected samples of Indian Automobile Industry.

4. To evaluate the cash flow from operating activity, financing activity and investing activity of selected samples of Indian Automobile Industry.

5. To analyze the relationship between availability of cash and profitability performance of selected samples of Indian Automobile Industry.

6. To analyze the cash conversion cycle of selected samples of Indian Automobile Industry.

7. To make suggestions for improvement of cash management for selected samples of Indian Automobile Industry.

1.5 Hypotheses of the Study

For the present study the researcher has formulated two hypotheses, null hypotheses and alternate hypotheses. Hypotheses are tested with One-way ANOVA.

1. **H₀**: There would be no significant difference in Cash to total assets amongst selected samples of Indian Automobile Industry.

   **H₁**: There would be significant difference in Cash to total assets amongst selected samples of Indian Automobile Industry.

2. **H₀**: There would be no significant difference in Cash to Current Assets amongst selected samples of Indian Automobile Industry.

   **H₁**: There would be significant difference in Cash to Current Assets amongst selected samples of Indian Automobile Industry.

3. **H₀**: There would be no significant difference in Cash to Sales amongst selected samples of Indian Automobile Industry.

   **H₁**: There would be significant difference in Cash to Sales amongst selected samples of Indian Automobile Industry.
H1: There would be significant difference in Cash to Sales amongst selected samples of Indian Automobile Industry.

4. Ho: There would be no significant difference in Cash Ratio amongst selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Ratio amongst selected samples of Indian Automobile Industry.

5. Ho: There would be no significant difference in Cash Return on Assets Ratio amongst selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Return on Assets Ratio amongst selected samples of Indian Automobile Industry.

6. Ho: There would be no significant difference in Cash Profit Ratio of selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Profit Ratio of selected samples of Indian Automobile Industry.

7. Ho: There would be no significant difference in Cash Flow Margin Ratio of selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Flow Margin Ratio of selected samples of Indian Automobile Industry.

8. Ho: There would be no significant difference in Cash Turnover Ratio of selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Turnover Ratio of selected samples of Indian Automobile Industry.

9. Ho: There would be no significant difference in Cash Flow Liquidity Ratio of selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Flow Liquidity Ratio of selected samples of Indian Automobile Industry.
10. H0: There would be no significant difference in Cash Flow per Share of selected samples of Indian Automobile Industry.

   H1: There would be significant difference in Cash Flow per Share of selected samples of Indian Automobile Industry.

11. H0: There would be no significant difference in Working Capital Turnover Ratio of selected samples of Indian Automobile Industry.

   H1: There would be significant difference in Working Capital Turnover Ratio of selected samples of Indian Automobile Industry.

12. H0: There would be no significant difference in Current Ratio of selected samples of Indian Automobile Industry.

   H1: There would be significant difference in Current Ratio of selected samples of Indian Automobile Industry.

13. H0: There would be no significant difference in Quick Ratio of selected samples of Indian Automobile Industry.

   H1: There would be significant difference in Quick Ratio of selected samples of Indian Automobile Industry.

14. H0: There would be no significant difference in Cash Flow from Operating Activities of selected samples of Indian Automobile Industry.

   H1: There would be significant difference in Cash Flow from Operating Activities of selected samples of Indian Automobile Industry.

15. H0: There would be no significant difference in Cash Flow from Investing Activities of selected samples of Indian Automobile Industry.

   H1: There would be significant difference in Cash Flow from Investing Activities of selected samples of Indian Automobile Industry.

16. H0: There would be no significant difference in Cash Flow from Financing Activities of selected samples of Indian Automobile Industry.
H1: There would be significant difference in Cash Flow from Financing Activities of selected samples of Indian Automobile Industry.

17. H0: There would be no significant difference in Net Cash Flow of selected samples of Indian Automobile Industry.

H1: There would be significant difference in Net Cash Flow of selected samples of Indian Automobile Industry.

18. H0: There would be positive relationship between availability of cash and profitability performance amongst selected samples of Indian Automobile Industry.

H1: There would be negative relationship between availability of cash and profitability performance amongst selected samples of Indian Automobile Industry.

19. H0: There would be no significant difference in Cash Conversion Cycle amongst selected samples of Indian Automobile Industry.

H1: There would be significant difference in Cash Conversion Cycle amongst selected samples of Indian Automobile Industry.

1.6 Research Design

1.6.1 Data collection

This study is based on secondary data. The data is collected from published annual reports of Automobile Companies. Other information related to Companies is collected from official websites and internet sources, reference books, journals, media reports, press releases etc.

1.6.2 Period of the Study

The time period of the study is from 2008-2009 to 2012-13.

1.6.3 The Sample
The universe of the study is taken as all the companies registered in India under corporate sector. Population of the study is taken as all the companies registered under Automobile segment of Bombay Stock Exchange. Top ten companies of universe are selected for the study based on their turnover of 2012-13. Escorts Ltd. and Eicher Ltd., though being in top ten are not selected as they are having a different financial period than the other companies of the universe.

**BSE Listed Automobile Segment Companies:**

There are total 5 industries segmented in the BSE related to Automobile Industry in India

a) 2/3 Wheelers  
b) Auto Parts and Equipments  
c) Auto Tyres and Rubber Products  
d) Cars & Utility Vehicles  
e) Commercial Vehicles

Out of the above, three segments are related to vehicles and the two segments are related to auto components. Here, 2/3 wheelers; Cars & Utility Vehicles; and commercial vehicles segments are chosen representing the automobile (vehicles) industry of India.

**a) 2/3 Wheelers Industry**

There are in total 13 company registered under 2/3 wheelers segment of the Bombay Stock Exchange.
### Table 1.5 2/3 Wheelers

<table>
<thead>
<tr>
<th>Scrip Code</th>
<th>Scrip Id</th>
<th>Scrip Name</th>
<th>Status</th>
<th>Group</th>
<th>Face Value</th>
<th>ISIN No</th>
<th>Industry</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>500182</td>
<td>HERO</td>
<td>HERO MOTOCO RP LTD.</td>
<td>Active</td>
<td>A</td>
<td>2.00</td>
<td>INE158 A0102 6</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
</tr>
<tr>
<td>500240</td>
<td>KINETIC ENGINEERING LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE266 B01017</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>500255</td>
<td>LML LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE862 A01015</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>500266</td>
<td>MAHARA SHTRA SCOOTER S LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE288 A01013</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>500267</td>
<td>MAJESTIC AUTO LTD.-$</td>
<td>Active</td>
<td>T</td>
<td>10.00</td>
<td>INE201 B01022</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>505029</td>
<td>ATLAS CYCLES (HARYANA) LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE446 A01017</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>505141</td>
<td>SCOOTER INDIA LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.00</td>
<td>INE959 E01011</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>505200</td>
<td>EICHER MOTORS LTD.</td>
<td>Active</td>
<td>A</td>
<td>10.00</td>
<td>INE666 A01013</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>522015</td>
<td>VCCL LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.00</td>
<td>INE460 E01010</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
<tr>
<td>531035</td>
<td>TOBU ENTERPRISES LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.00</td>
<td>INE432 F01016</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
<td></td>
</tr>
</tbody>
</table>
b) Cars and Utility Vehicles

There are in total 4 companies registered under Cars and Utility Vehicles segment of the Bombay Stock Exchange.

Table 1.6 Cars & Utility Vehicles

<table>
<thead>
<tr>
<th>Scrip Code</th>
<th>Scrip Id</th>
<th>Scrip Name</th>
<th>Status</th>
<th>Group</th>
<th>Face Value</th>
<th>ISIN No</th>
<th>Industry</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>531795</td>
<td>ATULA AUTO LTD.-$</td>
<td>ATUL AUTO LTD.-$</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE951 D0101 0</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
</tr>
<tr>
<td>532343</td>
<td>TVSMOTOR TVS MOTOR COMPANY LTD.</td>
<td>TVS MOTOR COMPANY LTD.</td>
<td>Active</td>
<td>B</td>
<td>1.00</td>
<td>INE494 B01023</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
</tr>
<tr>
<td>532977</td>
<td>BAJAJ AUTO BAJAJ AUTO LTD.</td>
<td>BAJAJ AUTO LTD.</td>
<td>Active</td>
<td>A</td>
<td>10.00</td>
<td>INE917 I01010</td>
<td>2/3 Wheelers</td>
<td>Equity</td>
</tr>
</tbody>
</table>

(Source: BSE official Website)
c) Commercial Vehicles

There are in total 19 companies registered under commercial vehicles segment of the Bombay Stock Exchange.

Table 1.7 Commercial Vehicles

<table>
<thead>
<tr>
<th>Scrip Code</th>
<th>Scrip Id</th>
<th>Scrip Name</th>
<th>Status</th>
<th>Group</th>
<th>Face Value</th>
<th>ISIN No</th>
<th>Industry</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>500048</td>
<td>BEML</td>
<td>BEML LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.00</td>
<td>INE258A01016</td>
<td>Commercial Vehicles</td>
<td>Equity</td>
</tr>
<tr>
<td>500191</td>
<td>HMT</td>
<td>HMT LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE262A01018</td>
<td>Commercial Vehicles</td>
<td>Equity</td>
</tr>
<tr>
<td>500477</td>
<td>ASHOK LEY</td>
<td>ASHOK LEYLAND LTD.</td>
<td>Active</td>
<td>A</td>
<td>1.00</td>
<td>INE208A01029</td>
<td>Commercial Vehicles</td>
<td>Equity</td>
</tr>
<tr>
<td>500495</td>
<td>ESCORTS</td>
<td>ESCORTS LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.00</td>
<td>INE042A01014</td>
<td>Commercial Vehicles</td>
<td>Equity</td>
</tr>
</tbody>
</table>

(Source: BSE official Website)
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Company Name</th>
<th>Share Type</th>
<th>Market Cap</th>
<th>Price</th>
<th>Industry</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>50057</td>
<td>TATAM OTORS</td>
<td>TATA MOTORS LTD.</td>
<td>Active</td>
<td>A</td>
<td>2.00</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>50519</td>
<td>SMLISU ZU</td>
<td>SML ISUZU LIMITED</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>50565</td>
<td>SKYLML ILAR</td>
<td>SKYLINE MILLARS LTD.</td>
<td>Active</td>
<td>B</td>
<td>1.00</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>50569</td>
<td>BRADY M</td>
<td>BRADY &amp; MORRIS ENGINEERING CO.LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>50585</td>
<td>TRF</td>
<td>TRF LTD.-S</td>
<td>Active</td>
<td>B</td>
<td>10.0</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>52200</td>
<td>CRANE X</td>
<td>CRANEX LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>52208</td>
<td>STONEI N</td>
<td>STONE INDIA LTD.-$</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>52221</td>
<td>GUJAP OIND</td>
<td>GUJARAT APOLLO INDUSTRIES LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.0</td>
<td>Commerical Vehicles</td>
</tr>
<tr>
<td>SECID</td>
<td>Name</td>
<td>Sector</td>
<td>Ticker</td>
<td>Symbol</td>
<td>Cusip</td>
<td>Shares Outstanding</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------</td>
<td>----------------------------</td>
<td>--------</td>
<td>--------</td>
<td>-------</td>
<td>------------------</td>
</tr>
<tr>
<td>53126</td>
<td>VSTTIL</td>
<td>V.S.T.TILLE RS TRACTORS LTD.-$</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>INE7 64D0 1017</td>
</tr>
<tr>
<td>53260</td>
<td>BHARS HIP</td>
<td>BHARATI SHIPYARD LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>INE6 73G0 1013</td>
</tr>
<tr>
<td>53268</td>
<td>ABGSHIP P</td>
<td>ABG SHIPYARD LTD.</td>
<td>Active</td>
<td>B</td>
<td>10.0</td>
<td>INE0 67H0 1016</td>
</tr>
<tr>
<td>53296</td>
<td>TITAGARHWAG</td>
<td>TITAGARH WAGONS LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>INE6 15H0 1012</td>
</tr>
<tr>
<td>53327</td>
<td>CEBBCO</td>
<td>COMMERCIAL ENGINEERS &amp; BODY BUILDERS CO. LTD.</td>
<td>Active</td>
<td>T</td>
<td>10.0</td>
<td>INE2 09L0 1016</td>
</tr>
<tr>
<td>53766</td>
<td>SIVI</td>
<td>Si. Vi. Shipping Corporation Ltd</td>
<td>Active</td>
<td>M</td>
<td>10.0</td>
<td>INE9 20P0 1019</td>
</tr>
<tr>
<td>57000</td>
<td>TATAM TDVR</td>
<td>Tata Motors Ltd – DVR</td>
<td>Active</td>
<td>B</td>
<td>2.00</td>
<td>IN91 55A0 1020</td>
</tr>
</tbody>
</table>

(Source: BSE official Website)
1.6.4 Tools and techniques

1.6.4 (A) Tools

a) Ratio analysis:

For the analysis of financial statement many tools are used like common size statement analysis, comparative analysis, trend analysis, and ratio analysis. The ratio analysis is most acceptable tools for the analysis of financial statements. Present study also used various ratios for financial analysis like profitability ratios, liquidity ratios and assets management ratios.

b) Mean:

The mean is used in order to set the bench mark and analyse the performance of the industry during the research period. The mean is used for comparison between performances of all the units during the study period.

c) Comparative Analysis:

A comparative analysis is done between the cash size of the firms; cash flow statements; and cash conversion cycle of all the companies.

1.6.4 (B) Statistical techniques

a) Analysis of variance (ANOVA):

Professor R. A. fisher man to use that term variance and in fact it was he who developed a very elaborate theory concerning ANOVA explaining its usefulness in practical field. Later on Professor Snedecor and many other contributed to the development of this technique. ANOVA is essentially a procedure for testing the difference among different groups of data for homogeneity. “The essence of ANOVA is that total amount of variation in a set of data is broken down into two types, that amount which can be attributed to chance and that amount which can be attributed to specified causes.” There may be variation between samples and also within sample items. ANOVA consists in splitting the variance for analytical purposes. Hence, it is a
method of analyzing the variance to which a response is subject into its various components corresponding to various source of variation. Thus in general through ANOVA technique one can, investigate any number of factors which hypothesize or said to influence the dependent variable. One may as well investigate the differences amongst various categories within each of these factors which may have a large number of possible values. If we take only one factor and investigate the differences amongst its various categories having numerous possible values, we are said to use one-way ANOVA and in case we investigate two factors at the same time, then we use two-way ANOVA. In two ways ANOVA, the interaction of inter-relationship of two factors affecting the value of a variable can as well be studied for better decision.

b) Multiple Comparison applying post hoc tests using Tukey’s Honestly Significant Difference (HSD):

For the probabilities associated with the contrast test to be properly used in report of our findings, it is important that contrast strategy be devised ahead of the testing. Comparisons after the results are compared require the post hoc tests. Hence, multiple comparisons by applying post hoc using Tukey’s HSD is to be carried out in order to find out exactly which pair of means differ.

c) Correlations and Correlations Matrix:

The mode of relation and degree of relationship are measure through Correlations. The matrix Correlation is used for measuring interrelationship between more than two variables. The present study also used correlation for deciding Correlation between Return of equity and other selected variable. Matrix Correlation used for measuring interrelationship between twenty five financial variables.

d) Standard Deviation:

In the present study Standard deviation has been used as one of the statistical techniques for deciding how the variables are far from the mean.

1.7 Conceptual Framework of Performance Evaluation through Cash Management
Cash is the most liquid asset in any firm’s balance sheet and so is its vital importance in the daily business operations. Cash is the basic input required to start as well as run the business despite of size of the business. And also it is the ultimate output expected by selling the product or providing services. There are basically three primary motives of holding cash: (1) to meet the needs of day-to-day transactions; (b) to protect the firm against uncertainties characterising some of its cash flows; and (c) to take advantage of unexpected investment opportunities. While, cash serves these functions, it is an idle resource with an opportunity cost. The liquidity provided by holding cash is at the expenses of profits that could accrue from alternative investment opportunities. Hence, it is very crucial for firm to plan and control cash carefully.¹

The term cash with reference to cash management is used in two senses. In a narrow sense, it is used broadly to cover cash (currency) and generally accepted equivalent of cash, such as cheques, bank drafts and demand deposits on banks. The broader view of cash also includes near cash assets such as marketable securities and time deposits in banks. The main characteristics of these assets are that they can be readily sold and converted into cash. They also provide a short term investment outlet for excess cash and are also useful to meet a planned outflow of funds.² Cash management thus is concerned with the managing of:

(i) Cash flows into and out of the firm;
(ii) Cash flows within the firm; and
(iii)Cash balance held by the firm at a point of time by financing deficit or investing surplus cash.

In order to overcome the problem of uncertainty in cash flow estimates and lack of coordination between cash inflows and cash outflows, the firm has to develop certain strategies for effective cash management. General facets of cash management for which the management has to evolve strategies are (a) Cash Planning; (b) Managing the Cash Flows; (c) Optimum Cash level; and (d) Investing Idle Cash. These are the classical functions of cash management.

¹ Chandra, P., Finance Sense – Finance for non-finance executives
² Shah, P. P., Financial Management
In maintaining an optimum balance, we have till now studied Baumol’s model as well as Miller-Orr’s Model. Further, there are various aspects of managing the cash flows such as accelerating cash collection by concentration banking or lock box system, which helps in accumulating cash inflows. But just not ends with accumulating the cash flows. In addition to that effective control of disbursements can result in conserving cash and reducing the financial requirements. Trade credit is a source of funds to the firm and disbursements arise due to this source. It is vital to monitor the cash collections and disbursements. Prasanna Chandra in his book “Finance Sense” has suggested Prompt Billing; Expeditious Collection of Cheques; control of payables; paying the Float; investment of surplus funds; ready forwards; Commercial Paper; Inter-Corporate Deposits; and bill discounting. Paying the Float is another way of maximizing the cash availability. The float is the difference between the total amount of cheques drawn and the actual amount shown in the bank account. Further, we also know that the cash budget is one of the most important tools in the budgeting tools of the financial management. Cash forecasting is most important in order to prepare a cash budget.

In short, it can be derived that cash flow has a strong impact on the turnover, liquidity, share-holder’s value creation and profitability of the firm. Hence, it is equally important to evaluate the cash management performance the firms. Above all mentioned facets of the cash management are generally of primary nature. Now in order to evaluate the performance of the companies, researcher has opted for the secondary database i.e. financial statements obtained from the annual reports of the selected sample companies.

In order to justify the objectives of the research, researcher has tried to establish the usefulness of the cash flow based ratios. Researcher believes that cash flow information is also useful in complementing the information already provided by the financial statements. The usefulness of cash flow information also includes its ability to generate cash flows from internal sources, to service obligation from internal cash flows and to rely on outside financing. The study aims to investigate the abilities of cash management of the Indian automobile industry based on the selected top performing companies during the research period. There are many cash flow based ratios available as suggested by many authors like Beaver, Lee, Dambolena and
Sulman, Sharma and Iselin, Stanko and Zeller and Mills and Yamamura.

Cash Management performance of each selected sample is first tested with the help of following ratios based on Cash flow:

1. Cash Ratio
2. Cash Return on Assets Ratio
3. Cash Profit Ratio
4. Cash Flow Margin Ratio
5. Cash Turnover
6. Cash Flow Liquidity Ratio
7. Cash Flow per Share

Above ratios are based on cash flow and average of opening and closing cash and cash equivalents. Cash flow can be obtained from the cash flow statement. The advantage of cash flow statement is that it provides information that enables users to evaluate the change in the net assets, its financial structure (like liquidity and solvency) and its ability to affect the amounts and timing of cash flow in order to change the circumstances and opportunities. Sometimes due to accrual basis of accounting a company may have satisfactory net income but one and only cash flow statement can tell us how many cash is generated from this sales and other operation. If most of the sales are on credit then it means a risk is associated with this. So any decision based on only income statement can sometimes be overestimated or underestimated. If cash flow information is useful but unused, the logical conclusion is that the analysts are not analyzing available data properly. While there is no general consensus on appropriate cash flow ratios, this study will explore the relative utility of newly derived cash flow ratios in financial analysis and will determine if the potential exists to predict financial failure.

An examination was made of the usefulness of the cash flow statement and a brief review was given of the importance of cash flow ratios for financial analysis. The main focus of the cash flow statement is to determine whether an entity can generate positive cash flows from its normal operations. However, this does not provide a full assessment of the liquidity and viability of an entity. The cash flow
statement must be related to other figures in the financial statement to arrive at an adequate picture of the cash generating ability of an entity. Ratio analysis is a useful and efficient tool for analyzing financial information. To date, neither text writers nor analysis have developed ratios for effective evaluation of the cash flow statement. Such ratios, used in conjunction with traditional balance sheet and income statement ratios, should lead to a better understanding of the financial strengths and weaknesses of an entity.\(^3\)

Further, as cash being a part of working capital, each sample is tested through Working Capital Turnover Ratio, Current Ratio and Quick Ratio with its graphical representation. Further, one of the most important financial statements, i.e. Cash Flow Statement has been analysed and tested of each of the sample. Further researcher has tried to establish a relationship between availability of cash and its impact on the profitability. And in last in order to check the cash conversion ability of the samples, cash conversion cycle was analysed and tested.

1.8 Layout of the Study

This study is presented in eleven different chapters. The highlight of each chapter is as under:

Chapter – 1

This chapter deals with research methodology adopted by researcher which includes introduction on the title, identification of the problem, review of existing literature on the subject, objectives of the study, hypotheses of the study, research design adopted for the study, significance of the study and limitations of the study.

Chapter – 2

This chapter deals with an overview of the world automobile industry and Indian automobile industry. This chapter includes history of the world automobile

---

industry as well as Indian automobile industry. Also overview of automobile sector in India and about vibrant Indian economy is presented in this chapter. Further Car Classification, Current Status of Automobile Industry in India, Growth and Development of Automobile Industry in India, Gross Turnover of Automobile Sector, Market Size of Automobile industry, Installed Capacity, Investments in Automobile Sector, Government Initiatives for Automobile Sector, details of Modernization of Vehicle Fleet due to increasing problem of pollution and global warming, Report of the Working Group on Automotive Sector for the 12th Five Year Plan (2012-2017), National Automotive Testing and R&D Infrastructure Project (NATRIP), Economics Affairs like various taxes, Make In India On Automobiles, a briefing on Automotive Mission Plan, 2006-16, Automotive Mission Plan 2016-26, an overview of the National Mission for Electric Mobility 2020, and details of Pilot electric vehicle projects has been discussed in this chapter.

Chapter – 3

This chapter deals with the information regarding the chosen sample. This chapter gives a brief profile of all the sampled companies, collected and compiled from the annual reports and official websites of the companies.

Chapter – 4

This chapter deals with the size of the cash maintained by the companies as a percentage of total assets, current assets and sales. It is very important to maintain a certain level of cash. Hypotheses were developed accordingly and were further tested through One-way ANOVA test with the help of the SPSS. If companies are found to be having significant differences, the pair of means creating the difference will be found out using multiple comparison analysis applying Posthoc using Tukey’s HSD.

Chapter – 5

This chapter deals with the analysis of cash management performance with the help of the ratio analysis. Cash management is a wider term and concept. But when it comes to financial point of view, certain ratios related liquidity, profitability, turnover etc. based on the cash flows can judge the quality of the cash management of the
company. Comparison will be done between the companies with the help of the mean. Hypotheses are developed accordingly and are further tested through One-way ANOVA test with the help of the SPSS. If companies are found to be having significant differences, the pair of means creating the difference is found out using multiple comparison analysis applying Posthoc using Tukey’s HSD.

Chapter – 6

This chapter deals with analysing the working capital management of the selected samples during the research period. It is very important to analyse the working capital management as cash is an important portion of working capital. Here also performances of companies are compared with the help of the mean. Hypotheses are developed accordingly and are further tested through One-way ANOVA test with the help of the SPSS. If companies are found to be having significant differences, the pair of means creating the difference is found out using multiple comparison analysis applying Posthoc using Tukey’s HSD.

Chapter – 7

This chapter deals with analysing the cash flow statement of the selected samples during the research period. Cash flow being the most important financial factor is analysed in this chapter. Cash flow statement is divided into three parts vis. Cash flow from operating activities, cash flow from investing activities and cash flow from financing activities. Further, Net cash flow from all the three activities was analyzed. Performances of the companies are compared with the help of the mean. Hypotheses are developed accordingly and are further tested through One-way ANOVA test with the help of the SPSS. If companies are found to be having significant differences, the pair of means creating the difference is found out using multiple comparison analysis applying Posthoc using Tukey’s HSD.

Chapter – 8

In this chapter, researcher has tried to find out whether there is any relationship between availability of the cash and profitability performance or not. Hypothesis is developed accordingly and tested through linear correlation. Here,
industrial average cash balance and industrial average profit is taken into consideration.

Chapter – 9

This chapter deals with the analysis of the cash conversion cycle of all the selected samples. Cash conversion cycle is one of the liquidity metric. Cash conversion cycle expresses the number of days that a company uses to sell inventory, collect receivables and pay its accounts payable. The cash conversion cycle measures the number of days a company's cash is tied up in the production and sales process of its operations and the benefit it gets from payment terms from its creditors. The shorter this cycle, the more liquid the company's working capital position is. Hypotheses are developed accordingly and are further tested through One-way ANOVA test with the help of the SPSS. If companies are found to be having significant differences, the pair of means creating the difference is found out using multiple comparison analysis applying Posthoc using Tukey’s HSD.

Chapter – 10

This chapter is about performance evaluation of the selected samples and the overall industry. The sampled units are ranked by Multiple Comparison applying post hoc tests using Tukey’s HSD. Further with the help of the correlation matrix relationship has been found out between various factors related to cash management.

Chapter – 11

This chapter deals with summary, findings and suggestions made based on the observations during the research study.

1.9 Significance of the Study

Automobile industry is one of the sunrise industries in India which has a very large investment of the country. The significance of the study is as follows:

1. Analysis is done in various aspects like Cash Management, profitability performance, working capital management, cash flow performance and cash
conversion cycle. So relevant information can be furnished to its various users for their decision making.

2. It is also necessary to find out some important factor which effect internal decision of industry. Also, cash management of top performing companies are taken into consideration, so a certain kind of ideal behavioral pattern is found out which will be useful for the other units of the industry. So research will be useful to automobile industry itself.

3. Automobile industry is obviously one of the most happening sectors contributing to India’s Global Trade and so to improve the level of liquidity based on cash management, analyzed data of this research will be of much use.

4. The thesis will be a guiding path for the analysis of the study of the units which are not undertaken for this research.

5. The study has helped improving the researcher himself to further enhance his own research abilities.

1.10 Limitations of the Study

1. The study will be based on secondary data taken from published annual report and website. Secondary data collected for the research study is collected from the annual reports, websites and various published reports and as such finding will depend entirely on the accuracy of such data.

2. Apart from the tools and techniques used by the researcher, there are still more tools and techniques available.

3. The present study is based on ratio analysis and it has its own limitation that applies to this study also.

4. Financial statements are normally prepared on the concept of historical cost. They do not reflect values in terms of current cost. Thus, financial analysis on such financial statements or accounting figures would not portray the effects of price level changing over the period.
5. Cash Balance is taken as an average of opening and closing cash and cash equivalents, whereas other variables are total of all the transactions during the year.

6. The individual effort will be limited so it is also limitation of the study.

7. Personal view may be different from others.

8. The study is done on few samples of the Industry. Analysis of same might not apply to the other units of the Industry.

1.11 Future Scope of the Study

The future scope of the study will be wide in this area of study.

This study includes few companies of the industry; however, other units can be considered reviewing the performance of industry. The cash management performance of the companies has been analyzed from various areas, but remaining aspect of these units such as profitability, social responsibility, human resources management, costing methods, market policies, dividend policies and leverage etc. can be studied in future. There are great scopes for further research.

This study is limited for five year period i.e. from 2008-09 to 2012-13. So study could be conducted with the remaining of the period too. This study is based on secondary data. But, the same aspect could also be analysed on the primary database.

In this study, comparative analysis has been made with certain tool and hypothesis. Other tools and techniques could also be applied for analysis to derive more meaningful conclusion. So there is great-scope in various aspects in different area with variation in aspect of data. The study will be useful for future research as an empirical literature review.
References:


• Subramanya, M. S. and Thiruvengala, C. Working Capital Management in Vazir Sultan Tobacco & Company Ltd.

• Vijaykumar and Venkatachalam, Demand for Working Capital in Private Sector Sugar Industries of Tamilnadu.

• Walker E. W., Towards a Theory of Working Capital.

**Websites:**

<table>
<thead>
<tr>
<th><a href="http://www.business.gov.in">www.business.gov.in</a></th>
<th><a href="http://www.siamindia.com">www.siamindia.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.engrreview.com">www.engrreview.com</a></td>
<td><a href="http://www.thehindubusinessline.com">www.thehindubusinessline.com</a></td>
</tr>
<tr>
<td><a href="http://www.ibef.org">www.ibef.org</a></td>
<td><a href="http://www.wikipedia.org">www.wikipedia.org</a></td>
</tr>
<tr>
<td><a href="http://www.moneycontrol.com">www.moneycontrol.com</a></td>
<td></td>
</tr>
</tbody>
</table>