CHAPTER THREE - RESEARCH METHODOLOGY

This chapter contains the methodology adopted in the thesis. The methodology contains the following aspects

a. Type of Research
b. Objectives
c. Hypothesis
d. Nature of Data
e. Scope of the study
f. Universe, Population and Sample
g. Sampling method, Sample size, Sample period
h. Method adopted in collection of data
i. Method adopted in classification of data
j. Method adopted in presentation and analysis of data
k. Method adopted in interpretation of data
l. Method adopted in deriving the conclusions from the findings and observations
m. Limitations of data
n. Limitations of research study

A. TYPE OF RESEARCH

This research is an analytical and diagnostic research. The researcher has used the data which was already available from the secondary sources and analyzed and evaluated it critically. This is an applied research whereby the researcher has tried to study the impact of investment decisions of selected companies in Pharmaceutical industry. The research is primarily quantitative in nature. This research is an empirical research. The research is exploratory in nature.

B. OBJECTIVES OF RESEARCH

The researcher has carried out the research with the following objectives

a. To find out whether the increase / decrease in assets made by the company get directly reflected in growth of the company
b. To find out whether any correlation exists between the change in composition of assets size of the company and growth of the company

c. To find out whether the operating cash flow plays a positive role in the investment decision

d. To Ascertain whether the investments done through borrowed funds earn higher return or whether the investments done through equity earn more returns.

C. HYPOTHESIS OF RESEARCH

1. The repercussions of investment decisions of corporations are directly reflected in the growth of the company.

2. Liquidity of the corporations is a major contributor to the investing decisions of the company.

3. Self dependence in finance is appositive factor in investment decisions.

D. NATURE OF DATA

Data was collected with a specific purpose. The topic of the thesis is “Critical analysis of investment decisions made by some selected companies” When the researcher started the process of research, the pharmaceutical industry was undergoing major changes. Many mergers and acquisitions were taking place. The sector was growing at about 8 to 9 percent annually. The leading 250 pharmaceutical companies control 70% of the market.

By issuing the patent ordinance, India met a WTO commitment to recognize foreign product patents from January 1, 2005, the culmination of a 10-year process. In this new scenario, the Indian pharmaceutical manufacturers were not allowed to manufacture patented drugs. To adapt to this new patent regime, the industry was exploring business models, different from the existing traditional ones like Contract research (drug discovery and clinical trials), Contract manufacturing, Co-marketing alliances, etc.
Therefore, the researcher felt that selecting the companies from pharmaceutical industry would give a better perspective as the industry was undergoing turmoil during the period of research.

The research was done on the basis of secondary data only. The annual reports of the company were taken as the base for the research. Annual reports are official published data by the listed companies Therefore, data validity is assured.

Annual reports consisted of financial information in respect of consolidated statements, standalone financial statements and financial statements of subsidiaries. The researcher has considered the data related to stand alone company only as the researcher wanted to study the impact without considering the operations of subsidiaries.

E. SCOPE OF THE STUDY
The research aims at doing a critical analysis of the investment decisions of some selected companies. The word critical denotes the objective analysis. Therefore, the researcher has decided to do the analysis mainly on quantitative data. The descriptive data has major imitation of subjectivity in interpretation. Therefore, the researcher decided to focus on quantitative data only. The researcher was also curious to know whether investments decisions can be analyzed on the basis of quantitative data alone. Therefore, the researcher has mainly focused on the analysis of quantitative data.

The researcher wanted to analyze Investment Decisions of companies. The researcher has given in detail the summary of various definitions studied related to invested decision. Some of them were very narrow in the scope restricting the decision only to long term projects. There were few definitions given by Mr. James C. Van Horne and Mr. Aswath Damodaran where, the scope of the investment decision was not only restricted to capital budgeting projects. The definitions were wider in the scope. Major emphasis was put on composition of assets; investment in fixed assets as well as current assets; overall size of the organization. The researcher has considered the wider scope of the meaning of the term “Investment Decision.”
Therefore, while analyzing the investment decisions the researcher has taken into consideration

1. Total assets bifurcated into three categories of A. Fixed Assets, B. Current Assets and C. Other Investments
2. Composition of the abovementioned three categories with respect to total size of the assets.

How the investments decisions can be quantified was the question posed before the researcher. The investment decision is related to assets of the organisation. Therefore, it will get reflected through changes in assets. If the company is setting up a new plant it will get reflected through fixed assets. If company is getting merged then its asset size will increase. If company is acquiring shares of another company then it will be reflected through other investments. Even the demerger, sale of assets will get reflected through decrease in assets. Therefore, the researcher has considered increase and decrease in assets as one of the criteria for the investment decision. The increase and decrease was studied independently for each category of asset.

The another aspect of investment decision is composition of assets. Researcher wanted to study whether change in composition of assets make any impact on the profitability of the company. Is there any optimum mix of fixed assets, current assets and other investments? Whether companies having a specific mix have an edge over others in terms of profitability? Therefore, the second aspect which was considered for the study of investment decision was change in composition of asset.

The third aspect of investment decision was strategy behind the decisions which was qualitative in nature. Strategic decisions are an integral part of the investments decision as they lead to growth in sales which further add to profit. The additional profit further can contribute to the additional investments and expansion plan of the company. However due to paucity the data the strategic aspect of investment decision was not included in the research.
The researcher was also interested in understanding whether the liquidity proves to be a positive factor in the process of investment decision. Liquidity is the ability of the organisation to repay its short term debts. Generally liquidity is measured in terms of current ratio, acid test ratio and cash ratio. However the researcher has not used any of these ratios for the purpose of analyzing the relationship between the liquidity and investment. The reason being liquidity ratio are calculated considering two variables form the balance sheet only. Balance sheet is a statement on a particular day. Therefore, all the three ratios suffer from the serious limitation that they represent a financial position on a particular day and not a period under the study.

Therefore, the researcher has taken operating cash flow as a measure of liquidity. The researcher has found out whether companies give preference to the investment when they have a positive operating cash flow? Or do they go for the investments irrespective of positive or negative operating cash flow?

The last aspect which was studied in this research is whether the self dependence in finance is a positive factor in the investment decision. Here the self dependence in finance means the companies which make the investments either from their operating cash inflows or from accumulated reserves or through issue of share capital. If the companies are taking the borrowed funds for the purpose of financing of the assets then it will be assumed that the company is not considered to be self dependent. The researcher has studied two aspects

1. Whether companies depend more on borrowed funds or do they prefer own funds for investments
2. Whether the companies using debt funds have a better ROI or the companies using own funds have a better ROI

Thus the researcher wanted to study the assets, motives behind investments, impact of assets on the growth in sales, profits and operating cash flows; financing preferences of the companies and availability and sufficiency of operating cash flows. Therefore, the researcher has decided to consider
annual reports of the company as a base report for research. Following aspects of annual reports were studied in detail:

1. Balance Sheet
2. Profit and Loss account
3. Cash flow statement
4. Schedules of Fixed assets
5. Schedules of Investments
6. Board of Directors Report
7. Management Discussion and Analysis
8. Corporate Governance Report

The research was quantitative. Therefore, following basic data was picked up from the above mentioned statements:

1. Share Capital
2. Reserves and Surplus
3. Secured Loans
4. Unsecured Loans
5. Current Liabilities
6. Fixed Assets (Net)
7. Investments
8. Current Assets
9. Sales (Net of Excise)
10. Other Income
11. Profit After Tax
12. Cash flow from Operating Activities
13. Cash flow from Investment Activities
14. Cash flow from Financing Activities

In some annual reports the researcher has observed that fictitious assets like miscellaneous expenditure not written off, or deferred tax assets were also part of the balance sheet. However the researcher has not considered those items as they do not amount to investments made by the companies.

Investment decision is necessarily a long term decision. Therefore, the researcher had decided that minimum 5 years' period must be studied to get
the correct idea about the changes happening in the long term policies of the
companies. At the same time the maximum period of 10 years was
considered to be appropriate as it generally covers the business cycle. The
following table provides the information about the number of companies
studied for respective number of years:

TABLE NO. : 1(3)
Table giving the break up of studied companies on the basis of data
availability for study.

<table>
<thead>
<tr>
<th>Number of Years Data studied</th>
<th>No. of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Years</td>
<td>01</td>
</tr>
<tr>
<td>6 Years</td>
<td>01</td>
</tr>
<tr>
<td>7 Years</td>
<td>04</td>
</tr>
<tr>
<td>8 Years</td>
<td>03</td>
</tr>
<tr>
<td>9 Years</td>
<td>03</td>
</tr>
<tr>
<td>10 Years</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total number of companies</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

F. UNIVERSE, POPULATION, AND SAMPLE
Pharmaceutical industry in India is fragmented and unorganized having
more than 20,000 units. There are around 250 companies which are
the major players of the market. Thus for the purpose of the research
the researcher has considered the universe as fragmented and unorganized.

The researcher has referred to the journal “Capital Markets”. He found
that even if Universe is fragmented and unorganized, population for the
study can be finite. Capital Markets provides exhaustive data of more
than 1,800 companies listed on the stock exchanges. The companies
are classified into 109 different industries.
Pharmaceutical industry has four categories\(^1\). The following table gives the details of no of companies under each category and total turnover of sales as on 31\(^{st}\) March 2006.

<table>
<thead>
<tr>
<th>Type of Category</th>
<th>No of companies falling under the category</th>
<th>Total sales value in Rs. Crores as on 31.3.2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceuticals– Indian Bulk Drug and Formulation (IBDF)</td>
<td>41</td>
<td>24048</td>
</tr>
<tr>
<td>Pharmaceuticals– Indian– Bulk Drug (IBD)</td>
<td>32</td>
<td>05949</td>
</tr>
<tr>
<td>Pharmaceuticals– Indian– Formulations</td>
<td>33</td>
<td>02750</td>
</tr>
<tr>
<td>Pharmaceuticals– Multinational (MNC)</td>
<td>10</td>
<td>05268</td>
</tr>
<tr>
<td>Health Care (HC)</td>
<td>15</td>
<td>01291</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>134</strong></td>
<td><strong>39306</strong></td>
</tr>
</tbody>
</table>

The researcher has also checked the CMIE database from following two publications of CMIE


The researcher has observed that the data given by Capital Markets and the data given by CMIE publications do not match. Therefore, the researcher has gone into details and found the sales as given by the annual reports of the companies. It was observed that the data given by the capital markets was more accurate. Secondly it was found that the data given by CMIE keeps on changing

\(^1\)BASED ON CAPITAL MARKET Mar 12-25, 2007
in every publication as the latest data keeps on adding every month in the database. The researcher found it inappropriate to consider the base which will keep on changing with respect to time. Therefore, the researcher has decided that the data from the capital markets journal would be taken as Population. The next step was how to derive a sample from the population. The researcher wanted to have a sample which

1. Will represent the Population as a whole
2. Will represent each strata of Pharmaceutical industry mentioned under capital markets
3. Will not be biased
4. Will be an unbiased combination of small, medium, large, Indian & Multinational organizations catering to business of formulations, bulk drug and patented products.

During this period the researcher observed that the “The Economic Times” daily provides information about the sensex which is dedicated to drugs and pharmaceutical companies. The sensex was called “Lifex”. The researcher has taken out the list of 30 companies mentioned in Lifex as per “The Economic Times” daily as on 31.03.1997 because that is the date when the research project was formulated.

The following table provides the list of 30 companies in Lifex. The researcher has classified the companies according to the categories mentioned under the journal “Capital Markets”. *(please turn over to next page)*
Table No. : 3(3)

The table of companies selected for the study and their industry wise breakup

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of the company</th>
<th>Name of the Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apollo Hospitals</td>
<td>Healthcare (HC)</td>
</tr>
<tr>
<td>2</td>
<td>Dishman Pharma</td>
<td>Pharma Indian - Bulk drug (IBD)</td>
</tr>
<tr>
<td>3</td>
<td>Divi's Lab</td>
<td>IBD</td>
</tr>
<tr>
<td>4</td>
<td>Lupin</td>
<td>IBD</td>
</tr>
<tr>
<td>5</td>
<td>Orchid Chemicals</td>
<td>IBD</td>
</tr>
<tr>
<td>6</td>
<td>Aurbindo Pharmaceuticals</td>
<td>Pharma Indian - Bulk drug and Formulation (IBDF)</td>
</tr>
<tr>
<td>7</td>
<td>Biocon</td>
<td>IBDF</td>
</tr>
<tr>
<td>8</td>
<td>Cadila Health</td>
<td>IBDF</td>
</tr>
<tr>
<td>9</td>
<td>Cipla</td>
<td>IBDF</td>
</tr>
<tr>
<td>10</td>
<td>Dr. Reddys</td>
<td>IBDF</td>
</tr>
<tr>
<td>11</td>
<td>FDC</td>
<td>IBDF</td>
</tr>
<tr>
<td>12</td>
<td>Glenmark Pharma</td>
<td>IBDF</td>
</tr>
<tr>
<td>13</td>
<td>IPCA Lab</td>
<td>IBDF</td>
</tr>
<tr>
<td>14</td>
<td>JB Chemicals</td>
<td>IBDF</td>
</tr>
<tr>
<td>15</td>
<td>Matrix Lab</td>
<td>IBDF</td>
</tr>
<tr>
<td>16</td>
<td>Nicholas Piramal</td>
<td>IBDF</td>
</tr>
<tr>
<td>17</td>
<td>Ranbaxy</td>
<td>IBDF</td>
</tr>
<tr>
<td>18</td>
<td>Strides Acrolab</td>
<td>IBDF</td>
</tr>
<tr>
<td>19</td>
<td>Sun Pharma</td>
<td>IBDF</td>
</tr>
<tr>
<td>20</td>
<td>Torrent Pharma</td>
<td>IBDF</td>
</tr>
<tr>
<td>21</td>
<td>Unichem Lab</td>
<td>IBDF</td>
</tr>
<tr>
<td>22</td>
<td>Wockhardt</td>
<td>IBDF</td>
</tr>
<tr>
<td>23</td>
<td>Glaxosmith P</td>
<td>Pharma Multinational (MNC)</td>
</tr>
<tr>
<td>24</td>
<td>Abbott(I)</td>
<td>MNC</td>
</tr>
<tr>
<td>25</td>
<td>AstraZen Pharma</td>
<td>MNC</td>
</tr>
<tr>
<td>26</td>
<td>Aventis Pharmaceuticals</td>
<td>MNC</td>
</tr>
<tr>
<td>27</td>
<td>Merck</td>
<td>MNC</td>
</tr>
<tr>
<td>28</td>
<td>Novartis</td>
<td>MNC</td>
</tr>
<tr>
<td>29</td>
<td>Pfizer</td>
<td>MNC</td>
</tr>
<tr>
<td>30</td>
<td>Wyeth</td>
<td>MNC</td>
</tr>
</tbody>
</table>

The researcher has found that the LIFEX has representation from all the strata of pharmaceutical industry.

The next step was to find out whether it can represent the majority of population or not. Therefore, the researcher has found out the sale value of all the all the companies in Lifex as on 31.03.1998 as given in Capital Markets Journal. The
cumulative value of sales of the companies under each group (stratified Sample) was compared with the total value of the sales of all the companies (Stratified Population) under the same group. The summarized table is given below

Table No 4(3)

Group wise Table showing percentage of sales of sample with respect to total sales of population

<table>
<thead>
<tr>
<th>Strata Name</th>
<th>No of Companies</th>
<th>Sales value of Stratified Sample (SSS) (Rs. Crores)</th>
<th>Sales value of Stratified Population (SSP) (Rs. Crores)</th>
<th>% of SSS w.r.t. SSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC</td>
<td>01</td>
<td>0708</td>
<td>01291</td>
<td>55%</td>
</tr>
<tr>
<td>IBD</td>
<td>04</td>
<td>3069</td>
<td>05949</td>
<td>52%</td>
</tr>
<tr>
<td>IBDF</td>
<td>17</td>
<td>20745</td>
<td>24048</td>
<td>86%</td>
</tr>
<tr>
<td>MNC</td>
<td>08</td>
<td>4974</td>
<td>05268</td>
<td>94%</td>
</tr>
</tbody>
</table>

Thus observing the % of SSS w.r.t SSP the researcher has felt that Lifex can be better representation of the pharmaceutical industry. He further noticed that it will not be biased also as his personal judgment is not involved in the selection of the sample. It will be a combination of multi product, multi size, multi region companies as expected by the researcher.

Therefore, the researcher has decided to undertake the study of 30 companies under Lifex. But the researcher thought that it may have a limitation. The Lifex will keep on changing depending upon the contributions made by these companies to the overall pharmaceutical industry. Therefore, the researcher kept a close eye on the movement of the companies under the lifex. It was observed that till 31st March 2007 all the companies continued to be part of lifex except one i.e. Cadila Healthcare Ltd. Thus the base selected by the researcher was stable throughout the period of study.
G. SAMPLING METHOD, SAMPLE SIZE AND PERIOD OF STUDY
The researcher has adopted Stratified Selective Sampling method. The Sample is of 30 companies. The researcher was interested in studying investment decision which by nature itself is a long term decision. Therefore, the researcher had decided that minimum 5 annual reports and maximum 10 annual reports would be studied. The researcher started his study in the year 2002. At that time the pharmaceutical company was expecting major changes due to new patent regime. Therefore, the researcher has decided to study the period which covers pre patent era and post patent era. Therefore, the period from 1997-98 – 2006-07 was considered as the apt period for the study. Sample size was 30 companies. Following is the summarized table giving the details of number of companies selected from each strata and no of years for which the annual reports were available. The last row of the table provides information about the total number of annual reports studied.

Table no : 5(3)
Table of classification of studied companies as per the strata and total number of annual reports studied.

<table>
<thead>
<tr>
<th>R1</th>
<th>No of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2</td>
<td>C1</td>
</tr>
<tr>
<td>R3</td>
<td>Group Name/ No. of years</td>
</tr>
<tr>
<td>R4</td>
<td>IBD</td>
</tr>
<tr>
<td>R5</td>
<td>IBDF</td>
</tr>
<tr>
<td>R6</td>
<td>MNC</td>
</tr>
<tr>
<td>R7</td>
<td>HC</td>
</tr>
<tr>
<td>R8</td>
<td>Total</td>
</tr>
<tr>
<td>R10</td>
<td>Total * No. of years</td>
</tr>
</tbody>
</table>

@ is a total of all the values in R10

H. METHOD ADOPTED IN COLLECTION OF DATA
Statistical unit of collection of data

A. Unit of Enumeration: The researcher wanted to study 30 companies for a long term period. Therefore, the data is collected, analyzed and interpreted for 30 companies. Therefore 1 company is a unit of enumeration

B. Unit of Recording: For each company following data was collected from
the available annual reports. The data was collected in (Rupees crores). The data was not homogenous. The data in annual reports was available in Rupees, millions, lakhs, crores for various years. For the purpose of the study (Rupees in crores) was considered as a unit of recording and accordingly data was revised and entered in the computer. Following data was adopted from the annual reports:

1. Share Capital
2. Reserves and Surplus
3. Secured Loans
4. Unsecured Loans
5. Current Liabilities
6. Fixed Assets (Net)
7. Investments
8. Current Assets
9. Sales (Net of Excise)
10. Other Income
11. Profit After Tax
12. Cash flow from Operating Activities
13. Cash flow from Investment Activities
14. Cash flow from Financing Activities

I. THE METHOD ADOPTED IN CLASSIFICATION OF DATA

The data was related to 30 companies. It was classified under 3 major categories:

1. Indian Pharmaceutical companies – Bulk Drug – IBD Group – There were 4 companies under this group as per table given above in point No. 3(3).
2. Indian Pharmaceutical companies – Bulk Drug and Formulation companies – IBDF Group – There were 17 companies as given in table No. 3(3) above.
3. Multinational Companies – MNC Group – There were 8 companies as mentioned in table No. 3(3) supra.
4. Under Health Care category – HC Group there was only one company i.e. Apollo Hospitals. It was not possible to draw any inferences on the basis of only one company. Therefore, the company was studied in isolation for 10 years and the results were given about the strategies
followed and its impact separately.

The researcher has further classified the data, collected from the annual reports of each company, as per the requirements of hypothesis and individual objectives of the study. The process of classification is given below in detail.

Analysis for Hypothesis 1: The repercussion of investment decisions of corporations are directly reflected in the growth of the company. In this hypothesis there are various terms like repercussions, growth which are subjective in nature and Therefore, demand a quantifiable measure / definition. Repercussions mean changes. The changes in assets get reflected through increase and decrease of assets. Therefore, Investment decisions are measured in following ways

1. Increase / Decrease in assets size (I/D in A)
2. Increase/ Decrease in the composition of Fixed Assets : Investments : Current Assets (I/DAC)

The word “Growth” is again an ambiguous concept. How the growth needs to be measured? There can be various parameters like growth in sales, growth in profit, growth cash flow, growth in asset size, growth in market share, growth in wealth of the corporation. Therefore, the researcher has referred to the fundamental theories of financial management.

Growth in Market Value
According to principles of financial management the primary objective of any corporation is Wealth Maximisation. Wealth is measured in terms of Market value of the shares. Therefore, the researcher thought whether growth in the market value of the should be taken as the measure of growth. But market value of share is driven by many factors which are beyond the control of the company. Secondly there is no direct nexus between the investments made by the company and the changes in the market value of the shares. Therefore, the researcher has decided not to consider market value parameter for the measurement.

Growth in Profits
The next best objective of any corporation is to achieve the profits for the shareholders. The profits can also be considered as function of investment
decisions made by the corporations. The relationship between a right investment decision and better earning of profits can also be established. Therefore, the researcher has decided to consider Profit After Tax as one of the measures for measuring the growth.

Growth in Operating cash flow

The Profit is criticized in financial management as it does not provide the clarity for decision making. Cash flow is considered to be better measure as compared to profits. Therefore, the researcher has decided study the effect of investment decisions on operating cash flow as well.

Growth in sales

The third objective of the corporations and motive behind making large long term investments is to establish itself into various market by increasing the market share and turnover. Sales and fixed assets, sales and current assets have a close relationship. Therefore, the researcher felt it utmost important to consider growth in sales.

Thus the researcher has finally decided that growth will be measured for following three parameters. These are defined as Growth Indicators (G. I.) elsewhere in the thesis

1. Growth in Sales
2. Growth in Profit After Tax (PAT)
3. Growth in Operating Cash Flow (CF)

Therefore following two objectives were set for testing the hypothesis No. 1
a. To find out whether the Increase (I) / Decrease (D) / No Change (N) / No change (N) in assets made by the company get directly reflected in growth of the company
b. To find out whether any correlation exists between the change in composition of assets size of the company and growth of the company.

To check the objective a. mentioned above following process was followed.

1. The data was first classified on the basis of the company. The data collected for one company for various years was grouped under the heading of one company.
2. The researcher has found out the increase (I)/ decrease (D) / No Change (N) in various categories of assets with respect to previous year. – i.e.
Fixed Assets (FA), Current Assets (CA) and Other Investments (INV). The formula used was (Value of assets in current year – value of asset in previous year)

3. The researcher has found out the increase (I) / Decrease (D) / No Change (N) in various growth indicators – i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF) for respective years. The formula was (value of Growth indicators in current year – value of growth indicators in previous year)

4. If there is no change in any of the variable as compared to earlier year it is denoted by “N”

5. The I / D in assets was considered as variable 1

6. The I / D in growth indicators was considered as variable 2

7. Various pairs of permutation combination of I/D in assets with corresponding I/D in growth indicators were made and counted for each company separately for each parameter of asset and growth. The list of various possible combinations is given below.

II – Increase in assets with corresponding Increase in Growth indicator
ID - Increase in assets with corresponding Decrease in Growth indicator
DI - Decrease in assets with corresponding Increase in Growth indicator
DD - Decrease in assets with corresponding Decrease in Growth indicator
NI – No change in asset but still Increase in Growth indicators
ND - No change in asset but still Decrease in Growth indicators
IN – Increase in asset but still No change in Growth indicators
DN – Decrease in asset but still No change in Growth indicators

8. The correlation coefficient was found out for each combination of asset and growth parameter for each company on the basis of available data.

9. The resultant data was tabulated for each company.

Objective 2 :

1. The researcher has found out the composition of FA, CA and INV w.r.t. total assets which was expressed in terms of % of assets w.r.t. total assets.

2. The researcher has found out the growth rate in growth indicators by
following formula
3. In sales: \((\text{Current Year Sales} - \text{Previous Year Sales})/\text{Previous year sales}\)
4. In Profits: \((\text{Current Year Profits} - \text{Previous Year Profits})/\text{Previous year Profits}\)
5. In Operating Cash Flow: \((\text{Current Year Cash Flow} - \text{Previous Year Cash Flow})/\text{Previous year Cash Flow}\)
6. The I / D in composition of assets was considered as variable 1
7. The I / D in percentage change in growth parameters was considered as variable 2
10. Various permutation combination of I/D in assets with corresponding I/D in Growth parameters were counted for each company separately for each parameter of asset and growth. The list of various possible combinations is given below.
   II – Increase in composition of assets with corresponding Increase in rate of growth of Growth indicator
   ID - Increase in composition of assets with corresponding Decrease in rate of growth of Growth indicator
   DI - Decrease in composition of assets with corresponding Increase in rate of growth of Growth indicator
   DD - Decrease in composition of assets with corresponding Decrease in rate of growth of Growth indicator
   NI – No change in composition of assets but still Increase in rate of growth of Growth indicators
   ND - No change in composition of assets but still Decrease in rate of growth of Growth indicators
   IN – Increase in composition of assets but still No change in rate of growth of Growth indicators
   DN – Decrease in composition of assets but still No change in rate of growth of Growth indicators
8. The correlation coefficient was found out for each combination of asset and growth parameter for each company on the basis of available data.
9. The resultant data was tabulated per company. Thus each company was analyzed in 18 ways (1 company * 2 parameters of investment decision * 3 categories of assets * 3 parameters of growth) as shown in the chart.
Analysis of Hypothesis 2 :- Liquidity of the corporations is the major contributor in the growth in Investments of the company.
To check the hypothesis No.2 following objective was set.
To find out whether the operating cash flow plays a positive role in the investment decision.
The data used for the analysis was derived from cash flow statements. Cash flow statements provide cash flows in following four categories:

1. Cash flow from operating activities
2. Cash flow from Investing activities
3. Cash flow from Financing activities
4. Net Cash flow

Under each category there is possibility of having positive cash flow or negative cash flow. Positive cash flow was denoted by “P” and Negative cash flow was denoted by “N”. The sequence mentioned above was followed P and N were noted for each cash flow.

a. Cash flow from operating activities – P / N
b. Cash flow from Investing activities – P / N
c. Cash flow from Financing activities – P / N
d. Net Cash flow – P / N

Following table provides the information about the permutations and combinations which were noted and interpreted

Table no. 6 (3)
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Pattern</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NNPN</td>
<td>There are no positive cash flows from operations. Either loan is taken or share capital is raised and investments are made. The opening balance is reduced</td>
</tr>
<tr>
<td>2</td>
<td>NNPP</td>
<td>There are no positive cash flows from operations. Either loan is taken or share capital is raised and investments are made. The raising of funds is on higher side resulting into additions of opening balance</td>
</tr>
<tr>
<td>3</td>
<td>NPNP</td>
<td>No positive operating cash flow, investments are sold to get the funds either the loan is repaid or dividend is paid by selling the investments. Sale of investments is more than required resulting into addition to opening balance</td>
</tr>
<tr>
<td>4</td>
<td>PNNN</td>
<td>Positive operating cash flow which is used for investments as well as for payment of dividend and loan repayment. Opening balances also utilized for the same</td>
</tr>
<tr>
<td>5</td>
<td>PNNP</td>
<td>Positive operating cash flow which is used for investments as well as for payment of dividend and loan repayment. Operating cash flow was enough to meet both the targets of investments as well as repayment, leaving higher cash balance</td>
</tr>
<tr>
<td>6</td>
<td>PNPN</td>
<td>Positive operating cash flow, in addition funds are raised by way of loan or share capital to make the new investments. Opening cash balance is also used for the same</td>
</tr>
<tr>
<td>7</td>
<td>PNPP</td>
<td>Positive operating cash flow, in addition funds are raised by way of loan or share capital to make the new investments. Investments were less than combined funds available.</td>
</tr>
<tr>
<td>8</td>
<td>PPNN</td>
<td>Operating cash flow and amount generated by sale of investment was used for payment of dividend and payment of loan. Opening Cash is also used for the same</td>
</tr>
<tr>
<td>9</td>
<td>PPNP</td>
<td>Operating cash flow and amount generated by sale of</td>
</tr>
</tbody>
</table>
investment was used for payment of dividend and payment of loan. Cash generated was more adding to opening balance

| 10 PPPP | All positive adding to cash flow- getting ready for investments in next year |

For each company the pattern of cash flows were indentified and counted and tabulated for the available data.

Analysis of Hypothesis 3 :- Self dependence in finance is positive factor in Investment Decision

Self dependence means the companies which are not taking loan for investments. The researcher has found out how many companies have taken loan during the period under study for making the additional investments. He has also found out that whether the profitability in case of companies doing the investments through borrowed funds are more or in case of making the additional investments through own funds are more.

To ascertain whether the investments done through borrowed funds earn higher return or whether the investments done through equity earn more returns.

Objective 4 :

The researcher has found out for each company out of the available data, how many years the additional investment was done.

Then the researcher has found out from the cash flow statement and balance sheet whether the investment is done through own funds, or through share capital or through borrowed funds.

The researcher has counted how many times the investments was through own funds, through operating cash flows and through borrowed funds.

Then the researcher has found out the debt equity ratio to find out the extent of loan taken. The ratio was calculated by the following formula

$\text{(Secured Loans + Unsecured Loans) / (Share Capital + Reserves and Surplus)}$

Initially the ratios was calculated for all the years for which the data is available. Then the average debt equity ratio was fond out by taking the simple average.

The researcher has calculated Return on Investments ratio for all the years for which data was available by using following formula

$\text{Profit After Tax / Total Assets}$
The average ROI is calculated by deriving the simple averages of ROI calculated on an annual basis.

J. METHOD ADOPTED IN PRESENTATION AND ANALYSIS OF DATA.

The data was presented group wise.

Group 1 – IBDF – Indian Bulk Drug and Formulation companies – 17 companies
Group 2 – MNC – Multinational companies – 8 companies
Group 3 – IBD – Indian Bulk Drug companies – 4 companies
Group 4 – HC – Health Care – 1 company.

For each of the group twenty questions were studied in detail. Initially, each question was studied for individual company on the basis of available data of the respective company. Thereafter, the results of individual companies were consolidated and tabulated group wise. Within each group, separate tables were prepared for analysis of each question.

While numbering the table following coding system is used.

1. Question code : - Q1.
2. Group code : - IBDF / IBD / MNC / HC
3. Table No. – serial number
4. Chapter Number – in brackets the chapter number is mentioned
5. E.g. – Q1. IBDF 1(4)

The list of questions which were studied in the light of hypothesis and objectives mentioned earlier is given below.

Table No. 7 (3)

<table>
<thead>
<tr>
<th>Q. No.</th>
<th>Questions studied</th>
</tr>
</thead>
</table>

58
| Relationship Between - FIXED ASSETS and GROWTH INDICATORS |
|---|---|
| 1 | Whether Fixed assets affected the sales |
| 2 | Whether Fixed assets affected the profit after tax |
| 3 | Whether Fixed assets affected the operating cash flows |
| Relationship Between - CURRENT ASSETS and GROWTH INDICATORS |
| 4 | Whether Current assets affected the sales |
| 5 | Whether Current assets affected the profit after tax |
| 6 | Whether Current assets affected the operating cash flows |
| Relationship Between - OTHER INVESTMENTS and GROWTH INDICATORS |
| 7 | Whether Other Investments affected the sales |
| 8 | Whether other investments affected the profit after tax |
| 9 | Whether other investments affected the operating cash flows |
| Relationship Between - FIXED ASSETS COMPOSITION and GROWTH RATES |
| 10 | Whether fixed assets composition makes impact on sales growth rate |
| 11 | Whether fixed assets composition makes impact on profit after tax growth rate |
| 12 | Whether fixed assets composition makes impact on operating cash flows growth rate |
| Relationship Between - CURRENT ASSETS COMPOSITION and GROWTH RATES |
| 13 | Whether current assets composition makes impact on sales growth rate |
| 14 | Whether current assets composition makes impact on profit after tax growth rate |
| 15 | Whether current assets composition makes impact on operating cash flows growth rate |
| Relationship Between - OTHER INVESTMENTS COMPOSITION and GROWTH RATES |
| 16 | Whether other investments composition makes impact on sales growth rate |
| 17 | Whether other investments composition makes impact on profit after tax growth rate |
| 18 | Whether other investments composition makes impact on operating cash flows growth rate |

LIQUIDITY
19. Whether liquidity is a positive factor in the investment decisions

**SELF FINANCE vs. BORROWED FUNDS**
20. Whether self financing is a positive factor in investment decisions

For Q. No. 1 to Q. No. 18 the researcher has used a construct which needs detailed explanation. The explanation is provided in the following paragraphs.
The researcher has followed following format to study Q. No. 1 to Q. No. 18

Table No. : Q1. IBDF 1 (4)
RELATIONSHIP BETWEEN FIXED ASSETS AND SALES FOR ALL THE COMPANIES UNDER IBDF GROUP

<table>
<thead>
<tr>
<th>C1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the company</td>
<td>II</td>
<td>ID</td>
<td>DI</td>
<td>D</td>
<td>D</td>
<td>N</td>
<td>D</td>
<td>N</td>
<td>T ot al</td>
<td>C O C</td>
</tr>
<tr>
<td>Aurbindo Pharmaceuticals</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0. 88</td>
<td></td>
</tr>
</tbody>
</table>

The table is related to all the companies under IBDF group. It explains the results related to Question No. one of the study, i.e. relationship between fixed assets and sales.

Column No. 1 – C 1 – It provides the name of the company under respective (here IBDF) group.

Column No. 2 to Column No. 9 – C2 to C9 – These columns provide the details regarding the movement of category of asset and corresponding movement of growth indicators in a particular year. The first alphabet denotes the movement of the category of asset. (Increase (I) / Decrease (D) / No Change (N) / No Change (N)). The second alphabet denotes the movement of growth indicators (Increase (I) / Decrease (D) / No Change (N)). The combined code denotes whether the assets and growth indicators have moved parallel (II or DD) or in inverse direction (ID or DI) or moved irrespective of changes in other variable (NI / ND / DN / IN). In the respective column from C3 to C10, frequency of observed values for combined movement for number of years are given. The various permutations and combinations of (I)/(D)/(N) of asset and (I)/(D)/(N) of growth indicators are explained above on page no.52.

For example: In the abovementioned table Relationship is “FAS”. It means that the table is related to Fixed assets and Sales. Therefore II means Increase in Fixed assets with Increase in Sales. Therefore for Aurbindo Pharmaceuticals the frequency of 7 for II denotes that the researcher has observed for seven
year out of nine year, that whenever fixed assets have increased the sales have also increased. It means that they have moved parallel for seven years. For two years the frequency was ID. For these two years Fixed assets have increased but sales have decreased. Therefore, the variables have moved in inverse direction for two years.

Column No. 10 – C10 – It gives the total number of years for which the increase and decrease is calculated. Generally if data is available for n number of years, then increase and decrease is calculated for n-1 years.

Column No.11 – C11 – The column provides the information about the coefficient of correlation between the two variables studied. This is calculated for every company and for every relationship after considering the data available of respective company.

The above mentioned tables are further made concise to have the more meaningful information.

The type of coefficient of correlation; whether it is positive or negative provides the information about whether there exists a direct relation or inverse relation between the two variables. Therefore the data was further tabulated to get the information about how many companies have the positive coefficient of correlation and how may have the negative coefficient of correlation.

The degree of coefficient of correlation denotes that possibility and extend of change in two variable simultaneously. It coefficient of correlation is close to 1 then it is said that the correlation is very strong. As it tends to zero variables are treated to weakly correlated.

Therefore the researcher has classified the companies into three main categories on the basis of their degree of coefficient of correlation irrespective of their direction (Positive / Negative)

Weak – If coefficient of correlation is between 0.00 and 0.35 or 0.00 and -0.35

Moderate – If coefficient of correlation is between 0.36 and 0.70 or -0.36 and -0.70

Strong – if coefficient of correlation is between 0.71 and 1.00 or -0.71 and -1.00.

Tables prepared for Q. no. 19 and Q. no. 20 are self explanatory.

The tables given in Chapter Four are prepared from the base tables prepared
for each company. The tables and analysis about each individual company is provided in annexure in Volume II. The company wise data was presented and tabulated in the following way.

The researcher has analysed the data related to each company in a structured way. He had made total 8 tables for each company. All these tables are given in volume no II, annexure 88 to 117.

Table No. 1 to Table No. 3 are related to increase and decrease in various types of assets and corresponding increase or decrease in various growth indicators i.e. Sales, Profit after tax and Operating cash flow.

Table No. 4 to Table No. 6 are related to increase or decrease in composition of assets and corresponding increase or decrease in percentage change in sales, profit after tax and operating cash flow.

Table No. 7 is related use of operating cash flow for making further investments

Table No. 8 provides the information about the dependence of the company on borrowed funds for making the further investments and its impact on profitability and ROI.

The researcher has used various abbreviations while preparing the tables. The headings of the tables; abbreviations used and the information about the meaning which they convey are given below in detail.

Following are the details of the structured tables

Coding of the numbering of table

Table are numbered in the following way

1. First part of the table number denotes the group it belongs to. E.g “IBD”
2. Second part of the table number denotes the name of the company. E.g “Dishman”
3. Third part of the table number denotes the sequential number of the table
4. Fourth part of the table denotes the chapter number i.e. 4
5. Thus the example of Table number one for Dishman pharma would be “Table No : IBD DISHMAN 1 (4)”

Table No: IBD DISHMAN 1 (4)

Table showing

1. The number of times Increase (I) / Decrease (D) / No Change (N) in Fixed Assets (FA) / with Increase (I) / Decrease (D) / No Change (N) in
various parameters of growth i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF). (Column No. 2 to column No. 9)

2. The Coefficient Of Correlation (COC) between the (column No. -11)
   a. Fixed Assets (FA) and Sales (S) – (FAS)
   b. Fixed Assets (FA) and Profit After Tax (P) – (FAP)
   c. Fixed Assets (FA) and Operating Cash Flow (CF) – (FACF)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>II</th>
<th>ID</th>
<th>DI</th>
<th>DD</th>
<th>NI</th>
<th>ND</th>
<th>IN</th>
<th>DN</th>
<th>Total</th>
<th>COC</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAS</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.99</td>
</tr>
<tr>
<td>FAP</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.99</td>
</tr>
<tr>
<td>FACF</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Table No: IBD DISHMAN 2 (4)

Table showing
1. The number of times Increase (I) / Decrease (D) in Current Assets (CA) with Increase (I) / Decrease (D) / No Change (N) in various parameters of growth i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF). (Column No. 2 to column No. 9)

2. The Coefficient Of Correlation (COC) between the (column No. – 11)
   a. Current Assets (CA) and Sales (S) – (CAS)
   b. Current Assets (CA) and Profit After Tax (P) – (CAP)
   c. Current Assets (CA) and Operating Cash Flow – (CACF)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>II</th>
<th>ID</th>
<th>DI</th>
<th>DD</th>
<th>NI</th>
<th>ND</th>
<th>IN</th>
<th>DN</th>
<th>Total</th>
<th>COC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.92</td>
</tr>
<tr>
<td>CAP</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.94</td>
</tr>
<tr>
<td>CACF</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>(0.10)</td>
</tr>
</tbody>
</table>

Table No: IBD DISHMAN 3 (4)

Table showing
1. The number of times Increase (I) / Decrease (D) / No Change (N) in
Other Investments (INV) with Increase (I) / Decrease (D) / No Change (N) in various parameters of growth i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF). (Column No. 2 to column No. 9)

2. The Coefficient Of Correlation (COC) between the (column No. – 11)
   a. Other Investments (INV) and Sales (S) – (INVS)
   b. Other Investments (INV) and Profit After Tax (P) – (INVP)
   c. Other Investments (INV) and Operating Cash Flow (CF) – (INVCF)

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
<th>C11</th>
<th>COC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>ID</td>
<td>DI</td>
<td>DD</td>
<td>NI</td>
<td>ND</td>
<td>IN</td>
<td>DN</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INVS</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>INVP</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>INVCF</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.31</td>
<td></td>
</tr>
</tbody>
</table>

Table No: IBD DISHMAN 4 (4)

Table showing

1. The number of times Increase (I) / Decrease (D) / No Change (N) in composition of Fixed Assets (FA) with percentage Increase (I) / Decrease (D) / No Change (N) in various parameters of growth i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF). (Column No. 2 to column No. 9)

2. The Coefficient Of Correlation (COC) between the (column No. -11)
   a. Composition change in Fixed Assets (FA) and percentage change in Sales (S) – (FASC)
   b. Composition change in Fixed Assets (FA) and percentage change in Profit After Tax (P) – (FAPC)
   c. Composition change in Fixed Assets (FA) and percentage change in Operating Cash Flow (CF) – (FACFC)

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
<th>C11</th>
<th>COC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>ID</td>
<td>DI</td>
<td>DD</td>
<td>NI</td>
<td>ND</td>
<td>IN</td>
<td>DN</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FASC</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>FAPC</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.58</td>
<td></td>
</tr>
</tbody>
</table>
Table No: IBD DISHMAN 5 (4)

Table showing

1. The number of times Increase (I) / Decrease (D) / No Change (N) in composition of Current Assets (CA) with percentage Increase (I) / Decrease (D) / No Change (N) in various parameters of growth i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF). (Column No. 2 to column No. 9)

2. The Coefficient Of Correlation (COC) between the (column No. 11)
   a. Composition change in Current Assets (CA) and percentage change in Sales (S) – (CASC)
   b. Composition change in Current Assets (CA) and percentage change in Profit After Tax (P) – (CAPC)
   c. Composition change in Current Assets (CA) and percentage change in Operating Cash Flow – (CACFC)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>II</th>
<th>ID</th>
<th>DI</th>
<th>DD</th>
<th>NI</th>
<th>ND</th>
<th>IN</th>
<th>DN</th>
<th>Total</th>
<th>COC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASC</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.07</td>
</tr>
<tr>
<td>CAPC</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.46</td>
</tr>
<tr>
<td>CACFC</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>(0.75)</td>
</tr>
</tbody>
</table>

Table No: IBD DISHMAN 6 (4)

Table showing

1. The number of times Increase (I) / Decrease (D) / No Change (N) in composition of Other Investments (INV) with percentage Increase (I) / Decrease (D) / No Change (N) in various parameters of growth i.e. Sales (S), Profit After Tax (P) and Operating Cash Flow (CF). (Column No. 2 to column No. 9)

2. The Coefficient Of Correlation (COC) between the (column No. 11)
   a. Composition change in Other Investments (INV) and percentage change in Sales (S) – (INVSC)
b. Composition change in Other Investments (INV) and percentage change in Profit After Tax (P) – (INVPC)
c. Composition change in Other Investments (INV) and percentage change in Operating Cash Flow (CF) – (INVCFC)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>II</th>
<th>ID</th>
<th>DI</th>
<th>DD</th>
<th>NI</th>
<th>ND</th>
<th>IN</th>
<th>DN</th>
<th>Total</th>
<th>COC</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVSC</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.05</td>
</tr>
<tr>
<td>INVPC</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>(0.37)</td>
</tr>
<tr>
<td>INVCFC</td>
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<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Table No: IBD DISHMAN 7 (4)
The Table showing the pattern of cash flows during the period under study.

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
<th>C11</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNPP</td>
<td>NNPP</td>
<td>NPP</td>
<td>PNN</td>
<td>PNN</td>
<td>PNP</td>
<td>PNP</td>
<td>PNP</td>
<td>PNP</td>
<td>PPPP</td>
<td>DNA</td>
<td>5</td>
</tr>
</tbody>
</table>

the meaning of abbreviations are already explained above on page 61 above.

Table No: IBD DISHMAN 8 (4)
The Table showing
1. Preferences of the company for financing the investments
2. Corresponding Average D/E Ratio, NP ratio, ROI

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
<th>C11</th>
<th>Operatin g Cash Flow</th>
<th>Share Capital</th>
<th>Borrowe d Funds</th>
<th>No Investme nt</th>
<th>Tota l</th>
<th>Averag e Debt/ Equity Ratio</th>
<th>Averag e NP/Tot al Income Ratio</th>
<th>Averag e ROI Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td></td>
<td>1.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17%</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

K. THE METHOD ADOPTED IN INTERPRETATION OF DATA
The data is interpreted at following levels
1. Interpretation at individual company level
2. Interpretation at Group level
For Hypothesis one The researcher has considered following parameters while analyzing and interpreting the data at company level

1. The Direction of coefficient of correlation
2. The Intensity of coefficient of correlation
3. The movement of the category of assets and growth indicators
4. The focus of company in terms increase or decrease in a particulars asset category.

The classification of each of the parameters and its interpretation is given below in detail.

1. The Direction of coefficient of correlation : The direction of coefficient of correlation can be positive or negative. Positive coefficient of correlation denotes that the assets and growth indicators are directly related. There is probability that when asset moves upward the growth indicators will also move upward and if assets move downwards the growth indicators will also move downwards. When the coefficient of correlation is negative it exhibits the inverse relationship between the two variables. Therefore there would be higher probability that the assets and the growth indicators would move in the opposite direction.

2. The intensity of coefficient of correlation : The direction of the coefficient of correlation alone, does not give any idea about the probability of togetherness of the two variables. This CoC would establish a relationship between the movement of absolute values of assets and absolute values of growth indicators . CoC will always lie between 1 and -1 If it is exactly 1 there is perfect positive correlation. It means that whenever there is an increase in one it will be followed by an increase in other. In such cases even the rate at which both will move that would also be same. If it is tending towards 1 it shows that there is greater consistency in both. If it is tending towards 0 then there is no relationship which can be predicted. But it actually shows a very constant trend. – will denote the inverse relationship. As the Coc will start moving from -1 to 0 then it will denote that inverse relationship is getting diluted and tending to no relationship.

Thus the intensity of coefficient of correlation will be an indicator of
closeness of the relationship between the two variables. The researcher has classified the companies in three categories on the basis of their coefficient of correlation to facilitate the interpretation as mentioned above in on page no. 61 above.

3. The movement of category of asset and growth indicators: coefficient of correlation is a purely statistical indicator. It will give an idea about overall increase and decrease in the asset and growth indicators for the available number of years but it will fail to give idea about whether he assets and growth indicators have moved parallel or inverse year wise. The movement of category of assets and growth indicators provides more bisected profile of the company which can support the observations obtained from coefficient of correlation.

4. Focus of the company: To reconfirm the results, the researcher has followed a method of checking whether company’s focus in more on making additions to particular category of assets or decreasing the asset. If the company has made additions to the assets for more number of years than decreasing then the focus of the company is assumed to be increasing the assets which is denoted by “I” and if company has made decrease in asset / asset composition for more number of years then it is considered to be decreasing the assets which is denoted by “D.”

On the basis of above four parameters the researcher has interpreted the tables given for each company and found out the nature of relationship that exists between various categories of assets and various growth indicators.

The researcher has compiled the finding from the six tables which he studied for each company in the form of answers to following three questions.

1. Whether Changes in Fixed Assets get reflected in growth of company?
2. Whether Changes in Current Assets get reflected in growth of company?
3. Whether Changes in Investments get reflected in growth of the company?

The consolidated company wise results are given in Volume II, annexure 82 to 87.

For Hypothesis No. 2 the researcher has found out whether the company has
made the additional investments from operating cash flows or whether the company has made the investments through borrowed funds. If the frequency of making investments from operating cash flows is more then it is considered that internally generated funds i.e. liquidity is a positive factor in making the investment decisions.

For Hypothesis No.3 the researcher has considered two factors

1. How many times the company has made the additional investments by taking the loan
2. What is the debt equity ratio of the company. The debt equity ratio was calculated by the following formula
   \[(\text{Secured Loan } + \text{Unsecured Loan}) \div (\text{Share Capital } + \text{Reserves and Surplus})\]

The researcher has calculated average debt equity considering all the data related to debt and equity of all the companies for all the years. It was 0.50. The researcher has compared the debt equity ratio with average classified the companies into two categories

Companies having High Debt Equity Ratio – Denoted by “H” – The companies whose debt equity ratio is more than average debt equity ratio.

Companies Having Low Debt Equity Ratio – Denoted by “L” – the companies whose debt equity ratio is less than average debt equity ratio.

To check whether the self finance is a positive factor in investments decision or not the researcher has found out following two ratios

1. Average Net Profit Ratio ratio. – Profit after tax / Total Income
2. Average return on Investments.- profit after tax / Total assets

These two ratios were considered because the researcher wanted to find out whether self finance work positively for both – for profits as well as efficient use of assets.

The researcher has calculated the average net profit ratio and average return on Investment ratio by considering data related to profit after tax, total income and total assets of all the companies for all the years. The average net profit ratio was 12.65% and average ROI was 12.73%. The researcher has bifurcated the companies into two groups having lower profitability and ROI ratios than average and having higher profitability.
and ROI ratios than average. It was denoted by “L” and “H” respectively. Then the researcher has studied the companies’ debt equity ratio and profitability ratios in pairs to find out what is the relationship between debt equity ratio and profitability / ROI ratios.

Interpretation at group level.
As mentioned above in point J, page no.59. group level data was presented in the form of tables for twenty questions mentioned in table no. 7 (3). While interpreting the data the same parameters were used as were used for individual company. But the frequency of companies who have matching parameters were found out. On the basis of majority overall observations for the group as a whole were summarized. The similarities observed in maximum number of companies were noted separately. At the same time the exception were also studied in detail and the effort was made to find out the reasons for exceptions as well.

The observations and findings for the groups were summarized for each group in following categories.

1. Impact of Fixed assets on Growth indicators.
2. Impact of Current assets on Growth indicators.
3. Impact of Investments on Growth indicators.
4. Whether operating cash flow was positive factor for investment decision.
5. Whether investments done through self financing have better profitability and ROI as compared to investments done through borrowed funds.

L. METHOD ADOPTED IN DERIVING THE CONCLUSIONS FROM THE FINDINGS AND OBSERVATION.
The conclusions are derived on the basis of group analysis. The researcher has made the comprehensive profile of each company giving classification of the four questions raised in point I, page no. 67 mentioned above. The researcher has set the norms to decide whether a in case of a particular company, each category of assets affects the growth indicators or not.

The decision rules were

1. The coefficient of correlation between the category of the asset and growth indicators has to be strong. The companies having medium and weak coefficient of correlation are not considered.
2. The coefficient of correlation can be positive or negative
3. If the coefficient of correlation is positive then movement of the category of assets and growth indicators should be in same direction (II or DD together ) for maximum number of years during the period studied for that company.
4. If the coefficient of correlation is negative then movement of the category of assets and growth indicators should be in opposite direction (ID or DI together ) for maximum number of years during the period studied for that company.
If all the above mentioned conditions are satisfied then the it is concluded that a particulars category of assets is impacting the particular growth indicators.
Thereafter the number of such companies who are making impact is counted within each group. If the number of companies making the impact is more than or equal to 70% of the total number of companies within the group then it is considered that for the respective group the asset is making impact on particular growth indicators.
For checking whether liquidity is a positive factor or not mentioned in hypothesis no. 2, total number of companies using the operating cash flows for additional investments for maximum number of years were found out. If the number of such companies was more than or equal to 70% of the total number within the group then the conclusion is derived that the liquidity is positive factor in investment decision
For Hypothesis no.3, the companies were classified into following four categories
1. LL – Low debt equity ratio and Low Net profit ratio
2. LH – Low debt equity ratio and High Net profit ratio
3. HL – High debt equity ratio and Low Net profit ratio
4. HH – High debt equity ratio and High Net profit ratio
The results were analysed and conclusion was drawn on the basis of maximum number of companies follow the direct relationship (LL and HH) or maximum number of companies follow inverse relationship (LH and HL)
After doing this analysis for all the three hypothesis, the researcher has summarized his conclusions for each group. He has also mentioned the overall
long term strategies followed by each group during the period under study. He has brought out the peculiarities that led to the higher efficiency and higher profitability of the companies within the particular group.

At the end the researcher has given some common long term investment decision strategies which has led to higher profitability as well as higher efficiency of the assets.

All the conclusions form part of Chapter Five.

M. LIMITATIONS OF THE DATA

1. The research was carried out based on the published annual reports of the companies. Therefore, the data given in the reports was considered as true and fair as it was certified by the management of the company.

2. The date of ending of the year was not uniform in all the cases. Even if in 95% cases it was 31st March of the year in some cases it was observed that it was ending on some other date.

3. The strategic decisions could be analyzed only through quantitative data, board of directors report and management discussion and analysis. There was a huge difference in depth of information provided by the various companies about the long term plans of the company.

N. LIMITATIONS OF THE STUDY

1. The research is based on secondary data only. No interviews and survey i.e. primary data could not be collected.

2. The sample is restricted to Lifex as homogenous group. Therefore as compared to the organized and unorganized population of the industry it may appear the sample is small. However considering the total asset value it is a sizable sample.