CHAPTER II

METHODOLOGY

2.1 INTRODUCTION
2.2 SAMPLE DESIGN
2.3 DATA SOURCE
2.4 FRAMEWORK OF ANALYSIS

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CHAPTER II

METHODOLOGY

2.1 INTRODUCTION

This chapter deals with the methodology adopted in the study.

2.2 SAMPLE DESIGN

The study has been confined to only 10 business houses in India selected out of the 'Top 20 Business Houses', on the basis of the availability of data. The list of top 20 business houses considered was as per 1979 ranking according to their assets, since, the period of study chosen was from 1979-80 to 1989-90. However, only the major companies engaged in manufacturing activity under each of the selected 10 top business houses, toalling in all 113, with at least four years of completion by the end of 1989-90 were considered.

The details of the 10 top business houses selected for the study have been presented in Table 2.2.1.
# TABLE 2.2.1

DETAILS OF THE SELECTED TEN TOP BUSINESS HOUSES

IN THE INDIAN PRIVATE SECTOR

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the Selected Ten Top Business Houses</th>
<th>1979 Rank According to Assets</th>
<th>No. of companies studied as controlled by the Selected Ten Top Business Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>BIRLA</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>TATA</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>3.</td>
<td>MAFATLAL</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>J.K.SINGHANIA</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>5.</td>
<td>THAPAR</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>6.</td>
<td>BANGUR</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>7.</td>
<td>SHRIRAM</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>8.</td>
<td>KIRLOSKAR</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>9.</td>
<td>MODI</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>10.</td>
<td>BAJAJ</td>
<td>16</td>
<td>5</td>
</tr>
</tbody>
</table>

TOTAL 113

2.3 DATA SOURCE

A detailed financial data for each of the 113 companies belonging to the selected 10 top business houses were collected for the period of study from a secondary source, which, however, was multifarious as shown below:

i) A detailed information about the product profile including the productive sales was collected from the Research and Statistical Division, Department of Company Affairs, The Government of India, New Delhi.

ii) The information on product technology was gathered from the Chairman's speeches and Directors' reports as published in the annual reports obtained from the Balance Sheet Library, Research and Statistical Division, Department of Company Affairs, The Government of India, New Delhi.

iii) As regards the detailed financial data, both the published annual reports and the Bombay Stock Exchange official Directory were used.
iv) Certain abridged financial results were drawn from the Indian Economy/Company profiles provided by the National Informatic Centre of the Planning Commission, Government of India.

v) The data obtained relating to the highest and lowest share prices were based on financial journals too, namely, Dalal Street Journal, and Business India, besides mainly on BSED, and MSED.

vi) A lot of information on financial performance, especially, of the ever flagships; once a flagship later under the mercy of BIFR; information on new moves in Corporate diversification, were all collected from both the financial journals & dailies, namely, Economic Times, Financial Express, and Times of India.

vii) The data relating to index numbers of industrial security prices, and gross yield on equity were obtained from the Reserve Bank of India bulletins.

The secondary data collected were regrouped to suit the analytical form and were classified yearwise as per the selected span of time.
2.4 FRAMEWORK OF ANALYSIS

2.4.1 Degree of Diversification

The data on product profile, especially, the productive sales was used to measure the extent of diversity. For each company the products were classified into various business segments on the basis of the relatedness of production technology. The percentage of sales of various products in each of the segment was determined by using the data of the last year of study, 1989-90 for two reasons, firstly, the diversification drive spreads over several years before it attains perfection, and secondly, all the new moves on corporate diversification during the selected span of time could be duly considered only when the latest year is adopted. The percentage of sales of various products in each of the business segments for the selected 113 companies as computed for 1989-90 has been furnished in Appendix-II.

2.4.2 Classification of the Diversification Strategies

C.W.L. Hill's concept of 'undiversified' or
'Largest Single Business Firm', and George Paul's concept of 'Related Diversified' and 'Unrelated Diversified Firms' has been used to find out the pattern of diversification pursued by the selected corporate groups.

a. Non-Conglomerates

i. Undiversified Firms or Largest Single Business Firms (LSBF)

This is the one whose Specialisation Ratio (SR) is 80% or more. SR refers to the firm's sales attributable to its largest single business.

ii. Related Diversifiers (RD)

These are the ones whose Related Ratio (RR) is 90% or more. RR refers to the sales contributed by the related products of the firm consisting of products related by technological links including vertically integrated operations.
b. Conglomerates (or) Unrelated Diversifiers

i) Dominant Unrelated Diversifiers (DUD)

A firm is considered as DUD when 75% or more of total sales of the firm comes from one particular business activity considered as dominant business, and definitely accompanied by some unrelated business activity whose contribution to total ranges between 10% and 25%.

ii) Restricted Unrelated Diversifiers (RUD)

When in a firm two unrelated group of products, but none of them being dominant, together contribute 95% or more of the total sales, it is considered as RUD.

iii) Unrestricted Unrelated Diversifiers (UUD)

This refers to a firm where no single group of products is dominant, which however, possesses a minimum of three product groups whose total contribution stands at 95% or more of the total sales.
The classification of the selected 113 companies as per the different modes of diversification strategies has been shown in Table - 2.4.1
### TABLE 2.4.1

DIVERSIFICATION STRATEGIES ADOPTED BY THE SELECTED 10 TOP BUSINESS HOUSES

(in terms of No. of Companies)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Business House</th>
<th>Non-Conglomerates</th>
<th>Conglomerates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SB</td>
<td>RD</td>
<td>DUD</td>
</tr>
<tr>
<td>1</td>
<td>BIRLA</td>
<td>7</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>TATA</td>
<td>11</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>MAFATLAL</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>J.K.SINGHANIA</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>THAPAR</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>BANGUR</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>SHRIRAM</td>
<td>3</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>KIRLOSKAR</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>MODI</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>BAJAJ</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>43</td>
<td>21</td>
<td>19</td>
</tr>
</tbody>
</table>
2.4.3 Tools of Analysis

a) Measuring the growth rate of the selected 10 top business houses on the basis of their diversification strategies being the first objective, has been accomplished through the following 8 variables identified as the best indicators:

   (i) Productive Capital
   (ii) Net Worth
   (iii) Total Net Fixed Assets
   (iv) Total Net Sales
   (v) Gross Profit
   (vi) Operating Surplus
   (vii) Dividends
   (viii) market value of Equity Shares

   Both an absolute and relative progress of the proliferation into various categories of diversification strategies as registered by the selected top business houses has been measured by means of computing the annual compound growth rate over ten years between 1979-80 and 1989-90.
b) For the purpose of the second objective of the study, namely, to analyse the financial efficiency of the Corporate groups under various forms of diversification strategies and to determine the financial factors making or breaking a particular company as the flagship of the Corporate groups, 5 types of accounting ratios were selected as given below:

1. Liquidity Ratios
2. Profitability Ratios
3. Turnover Ratios
4. Leverage Ratios
5. Valuation Ratios

Further under each group, only certain important ratios have been considered for a detailed analysis, which are as follows:

1. Liquidity Ratios
   a) Current Ratio
   b) Quick Ratio
   c) Inventory to Working Capital Ratio
   d) Working Capital to Total Assets Ratio

2. Profitability Ratios
   a) Net operating Cash Flow to Sales
   b) Net Operating Cash Flow to Assets
   c) Return on Investment
   d) Return on Common Equity
3. **Turnover Ratios**
   a) Fixed Assets Turnover Ratio
   b) Working Capital Turnover Ratio

4. **Leverage Ratios**
   a) Ratio of Financial Leverage
   b) Interest Coverage Ratio
   c) Debt-Equity Ratio

5. **Valuation Ratios**
   a) Price Earnings Ratio
   b) Yield Ratio
   c) Market Value to Book Value Ratio

c) As regards the third objective, namely, to measure the impact of the flagship on the stock market of the other companies in each of the selected groups, the simple Correlation technique was used. For this purpose, the return on security of the flagship in case of each corporate group was taken as the independent variable, while that of the same for all other companies in each group was taken as the dependent variable. The results of the Coefficient of Correlation for each of
the Selected Corporate groups was also statistically tested through t-test, in order to determine in case of how many companies in each group, their stock market has been influenced by the flagship company significantly.

d) The fourth objective requires an attempt to determine the relationship between performance and the degree of business diversification pursued by the Corporate groups, for which a similar approach as adopted by Allen Michel and Isreal shaked has been followed, but however, in two stages.

A. **Individual Firm Performance**

In the first stage, to analyse the individual firm performance based on market measures, the Sharpe, Treynor and jensen indices of the individual stock representing each of the selected 113 companies were compared with the similar indices, especially the Sharpe Index and Treynor Index on the associated market portfolio. The risk-free rate has been computed on the basis of the return on Government of India securities during 1980s.
1. **Sharpe Measure**

\[ a) \quad S_j = \frac{R_j^A - R_f^A}{\sigma_j} \]

\[ b) \quad S_m = \frac{R_m^A - R_f^A}{\sigma_m} \]

Where,

- \( S_j \) = Sharpe Index on portfolio of individual stock \( j \).

- \( R_j^A \) = Average return on stock \( j \).

- \( R_m^A \) = Average return on risk-free Security.

- \( \sigma_j \) = Standard deviation of the yearly rate of return on stock \( j \).

- \( S_m \) = Sharpe Index on Market Portfolio.
\( R_m^A = \) Average return on Market Portfolio.

\( \sigma_m^C = \) Standard deviation of the yearly rate of return on market portfolio

2. **Treynor Measure**

a) \( T_j = \frac{R_j^A - R_f^A}{\beta_j} \)

b) \( T_m = \frac{R_m^A - R_f^A}{\beta_m} \)

Where,

\( T_j = \) Treynor Index on portfolio of Individual stock j

\( \beta_j = \) Beta Co-efficient of portfolio j.

\( T_m = \) Treynor index on market portfolio

\( \beta_m = \) Beta Co-efficient of Market portfolio.

\[ \beta_j = \frac{\text{COV} (K_j, K_m)}{\left( \sigma^2_m \right)} \]
49

\[
\text{COV}(K_j K_m) = \sum_{t=1}^{n} (K_j - \bar{K}_j)(K_m - \bar{K}_m) \frac{1}{n-1}
\]

\[
\sigma_m^2 = \frac{\sum (K_m - \bar{K}_m)^2}{n-1}
\]

3. Jensen Measure

\[
R^A_j = \left[ R^A_f + \beta_j (R^A_m - R^A_f) \right]
\]

B. Relationship Between Financial performance and the Degree of Business Diversification

In the second stage, each of these indices on the portfolio of individual stock was then regressed on the associated degree of business diversification, so as to determine if a relationship exists between financial performance and the degree of business
diversification. Further, the 'F' - test has also been applied to test the significance of the regression results.

Performance measure = a + b (Degree of business Diversification)
REFERENCES

