CHAPTER II

OBJECTIVES AND METHODOLOGY.

II.1. INTRODUCTION

In this Chapter an attempt is made to present the objectives of the study along with the methodology adopted, sample selected and data analysis carried out. Section I focuses on the issues relating to methodology. Section II provide a brief profile of the selected units after classifying them into diversified and undiversified firms following the methodology of Wrigley (1970) and Rumlet (1974) based on the composition of sales or output of these units.

II.2. OBJECTIVES OF THE STUDY

The present study is mainly focused on examining the relative benefits enjoyed by a firm by adopting a diversification strategy. Since the motives of diversification are naturally the profit maximisation and risk reduction, besides expansion and growth in the operations of the firm, the study is intending to evaluate the performance on all the above said dimensions.
This present study is specifically intended

(i) to classify the sample units into Undiversifiers (UND), Related Diversifiers (RD) and Unrelated Diversifiers (URD) on the basis of the procedure suggested by Wrigley (1970) and Rumelt (1974),

(ii) to evaluate the relative operating performance of select units in terms of Value Addition, Capital Out-put Ratio, Productivity trends and Capacity Utilisation,

(iii) to examine the relative financial performances of the classified units in terms of their financial strengths and to identify the determinants of investment and profitability,

(iv) to analyse the strategic gains in terms of growth, profitability and risk reduction in diversified firms when compared with the undiversified ones,

(v) to make out academic conclusions on industry benefits on adopting different strategies in India

II.3. SCOPE AND IMPORTANCE OF THE STUDY

The strategy of Corporate Diversification is of recent origin in India. This subject is not yet well researched. The studies refered in Chapter-I are contributing only to the classification of diversified firms into related and unrelated business activities and their financial performance. No attempt has been made to make a comparative study between the performance levels of the strategic diversifiers with that of the undiversified business firms and no indepth study is carried out on the degree of diversification. This study brings out the relative
benefits of different strategies followed by Indian entrepreneurs. Studies based on the corporate data reveal the pattern and movement of Indian Industry and the success achieved during the period of liberalised industrial environment. The selected companies have been categorised in this study by adopting the procedure primarily suggested by Wrigley (1970) and Rumelt (1974) which classified the sample units into Undiversified, Related Diversified and Unrelated Diversified businesses. Other methods like Related Linked, Related Constrained are not tried as the sample units in each of such categories is not sizeable for further analysis. Besides the count based classification of firms, the study has also attempted to classify the companies using 'Entropy' measure as suggested by Jacquemin and Berry (1979).

The present study is a modest attempt to objectively classify and examine the overall trends in operating and financial performance of diversified and undiversified firms. The scope of this study is restricted to the performance evaluation of selected firms in two dimensions, viz., (a) Accounting Based and (b) Market Based. The Accounting based performance is an evaluation is carried out by constructing accounting measures like Return on Assets (ROA), Return on Investment (ROI), and Return on Equity (ROE), in addition to the working out of other measures like rate of growth in size and risk. The Market based performance evaluation is carried out by constructing different-equity risk return measures developed by Sharpe (1966), Treynor (1965) and Jensen (1968).
II.4. METHODOLOGY

As the study is mainly focused on examining the impact of different strategies of diversification on corporate level operating and financial performances, it is proposed to draw a sample of 149 units adopting diversification strategies like related unrelated diversification Further, it is also proposed to consider a control group of units who have not opted for any diversification strategy and thereby concentrating on a single product.

II.5. CLASSIFICATION OF SAMPLE UNITS

The sample firms have been classified into three strategic groups based on the diversification strategy adopted by them. Business enterprises have been classified on the basis of the methodology adopted by Rumelt (1974) and Wrigley (1970) and Varadarajan (1987), Hoskisson (1977), Montgomery (1979, 1982), Gromlad Jaronine(1988), Grant et al. (1988). The procedure of these methods have been given in detail later in this chapter.

The sample of 149 companies include Chemical and Pharmaceuticals (33), Cotton Textiles (34), Synthetic fibre (13), Power generation and distribution (5), Paper (4), Jute and Jute products (70), Engineering and Automobile (34), Cement (9), Glass (3), and Sugar (7). Out of these 149 units 65 are undiversified ones and
among the other 84 companies, 37 are adopting the related diversification strategy (See Table II 1)

The industry-wise profile of sample units adopting different diversification strategies are presented in Table II 2. It reveals that out of 33 chemical and pharmaceutical units, 18 have adopted diversification strategy while 15 remained undiversified. In case of cotton textiles, 23 mills have adopted diversification strategy while the other 11 remains as undiversified. In Engineering and Automobiles, there are 17 companies in each category of undiversified and diversified. There are 8 companies in the diversified category and 5 in the undiversified in case of synthetic fibre units. Regarding, Power 3 units remained undiversified and two have diversified their activities. Out of 4 Paper mills, all of them continue to stay undiversified. In the case of Jute, 6 mills diversified into newer areas and one is undiversified. Regarding the cement, 8 and in the case of glass, two have diversified. All the 7 sugar mills in the sample have not adopted any diversification strategy.

The Table II 2 gives the industry-wise classification of firms based on their strategy of diversification either into Related and Unrelated areas. It indicates that a maximum number of firms diversified into unrelated areas in case of synthetic fibre (7), followed by cotton textiles (9), Cement (4), Chemical and pharmaceuticals (9), Jute and Textiles (4), Engineering and Automobiles (14). In respect of companies who have adopted unrelated diversification strategy, the Engineering and Automobile units occupy the first place with 14 out of 17 followed by Chemicals & Pharmaceuticals with 9 out of 18. Next comes the
### Table II.1

**INDUSTRY-WISE PROFILE OF DIVERSIFICATED SAMPLE UNITS.**

<table>
<thead>
<tr>
<th>SL NO</th>
<th>NAME OF THE COMPANY</th>
<th>NO OF UNDIVERSIFIED COS</th>
<th>NO OF DIVERSIFIED COS</th>
<th>TOTAL COS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chemicals &amp; Pharmaceuticals</td>
<td>15</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>Cotton Textile</td>
<td>11</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>Synthetic Fiber</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Power Companies</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Paper Mills</td>
<td>4</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Jute Textile Mills</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Engineering &amp; Automobiles</td>
<td>17</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>8</td>
<td>Cement</td>
<td>1</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>Glass</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Sugar</td>
<td>7</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>84</strong></td>
<td><strong>149</strong></td>
</tr>
</tbody>
</table>

**Source** Bombay Stock Exchange Official Directory
<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>NAME OF COMPANY</th>
<th>NO. OF R.D</th>
<th>NO. OF U.R.D</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chemicals &amp; Pharmaceuticals</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Cotton Textiles</td>
<td>14</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>Synthetic Fibres</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Power generation &amp; Distributions</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Jute and Jute Textile</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Engineering &amp; Automobiles</td>
<td>3</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>Cement and Cement products</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>Glass and Glass Ware</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>37</td>
<td>47</td>
<td>84</td>
</tr>
</tbody>
</table>

synthetic fibre units with 7 out of 8. In case of Jute textiles (4 out of 6) and Cement manufacturing (4 out of 8) found adopting unrelated diversification strategy.

II.6. SOURCES OF DATA

The present study has basically used the 'secondary sources' of data for evaluating the performance of diversified companies. As stated earlier, in order to decide the strategy of diversification followed by firms, information from their Annual Reports and Press Reports of the firms have been used. Information was also taped from Journals, Magazines, and Daily Newspaper like Financial Express and Economic Times. The data for evaluating accounting-based performance of each company in terms of size, growth, profitability, product profile, equity base etc., has been compiled from the data bank of the Institute of Financial Management and Research (IFMR), Madras. The data required for measuring the market-based performance using the changes in stock prices, excess returns over market and such other information has been collected and estimated using the stock prices (high/low) of each of these companies quoted in the Bombay Stock Exchange. The market index for computing the systematic risk of the firm is taken from Reserve Bank of India's Bulletin.

II.7. PERIOD OF THE STUDY

The present study attempts to evaluate the objectives stated earlier with
the help of firm level data for a period of 26 years from 1970-71 To 1995-96
This period witnesses a wide variety of policy changes in Indian Industrialisation

II.8. BASIC CONCEPTS

(i) Undiversified companies
Any company which has a Specialization Ratio (SR) of more than 95 percent or whose total revenue accrue mostly from one product activity is classified as undiversified business unit

(ii) Related Diversification
When a substantial portion of the total revenue of the diversified enterprise accrue from four series of businesses which are related to each other and which use closely related technical or marketing competence, such businesses are called related diversifiers

(iii) Unrelated Business
Where various businesses of an enterprise do not depend on any common technological or marketing skill, such businesses are called unrelated businesses. In other words, when the specialization ratio measured across the various businesses is low such businesses are called Unrelated Businesses

(iv) Relatedness
When the different business activities are related closely in technical or marketing
activities with one another such business activities are called related to one another

(v) Discrete Businesses

A discrete business is one which can withstand contraction, expansion or extensive changes in the production processes or materials used or changes in the marketing mix without significantly affecting the other areas of the firm's activities.

(vi) Accounting based performance measures

Performance of a firm when measured in terms of variables for which the data are available in Accounting Statements are called Accounting Based measures. These include Profitability, size, growth, leverage, etc.

(vii) Market Based Performance

When a firm's value is determined in the capital market, it reflects the market based performance. This measures include the rates of return that equity holders realise on their investments over and above the market rate of return.

II.9. DATA ANALYSIS

The companies are classified as diversified and undiversified based on their product range. The diversified companies are further classified as related and unrelated diversifiers based on the range of products compared to the principal product that they are producing.
The performance of diversified units over the control group of undiversified ones has been evaluated. This has been worked out under three heads, such as 'profitability, growth' and 'risk reduction'. The operating performance is evaluated by estimating the inter-group productivity, value addition, capital output ratios, capacity utilisation and profitability differences. The financial performance is carried out by estimating different ratios like general performance ratios, managerial ratios, and turnover ratios.

Inter-group variations in growth rates, size differences and risk reduction have been worked out for these units. The data analysis has been focused on identification of strategic benefits enjoyed by the diversified units in terms of 'profitability', 'growth' and 'the risk reduction'.

The traditional accounting-based performance is estimated through inter-group profitability differences based on the Return On Assets, Return On Investment and Return On Equity. The market-based performance refers to the patterns and changes in stock prices resulting in differences in equity returns between diversifiers and non-diversifiers. This study has examined two aspects by analysing the mean differences and variances using standard one-way ANOVA. The market-based measures are worked out by using monthly stock returns. Further, the measures like beta, excess returns and returns per unit of risk have been estimated by following the CAPM methodology and standard portfolio evaluation procedures.
The 'beta' has been estimated by using the Bombay stock Exchange's SENSEX as a surrogate to the market Index of returns. The procedure followed for this purpose relates to Sharpe's Single Index Market Model. The portfolio returns are measured as suggested by Sharpe (1970), Treynor (1965) and Jensen (1972). Inter-category differences are tested by using ANOVA for all measures.

In the last part of data analysis econometric modelling have been attempted. Accounting profitability performance has been regressed on different firm specific, market specific and industry oriented independent variables. While firm specific and market specific determinants explain the internal efficiency, the industry specific variables like concentration, market share, industry profitability, barriers to entry, scale of economics reflect the external environment for operationalising a given strategic move in reality.

II.10. LIMITATIONS OF THE STUDY

The study has selected only 149 manufacturing companies and service based enterprises are left for want of clarity over their product classification. The study has not considered the pre-diversification performance of these companies for greater comparison. Though there are 8 categories of diversification in Rumelt's methodology and four categories of classification in Wrigley's methodology, the present study has restricted to only three categories as the other classifications are only the subdivisions of these categories.
The study evaluated the relationship between the strategic categories and examined the operating performance and financial performance. However, it should have focused on the organisational performance which is a more complex phenomenon influenced by many other factors such as structure-strategy and managerial efficiency as well.

The results of the study should be interpreted and implications should be drawn by keeping in mind the above mentioned limitations.

II.11. STATISTICALS TOOLS USED

Different statistical tools and techniques have been employed to evaluate the data. Some of them include Analysis of Variance (ANOVA), Multiple Regression equations.

(a) ANOVA

Analysis of variance (abbreviated as ANOVA) is an extremely useful technique in making comparisons between groups. When multiple sample cases are involved, this technique is used. The basic principle of ANOVA is to test the differences among the means of the populations by examining the amount of variation within each of these samples, relative to the amount of variation between the samples. To be more specific, we have to make two estimates of population variance, viz, one based on 'between samples' and the other based on
'within samples' Then the two said estimates of population variance are compared with an F-ratio

This $F$-value is to be compared to the F-limit for given degree of freedom. If the worked out $F$-value is equal or exceeds the F-limit value we say that there exists significant difference between the sample means.

(b) MULTIPLE LINEAR REGRESSION EQUATION

In order to estimate the degree and extent of inter-relationship between a dependent variable and number of independent variables, the multiple regression equations are generally estimated. The present study has estimated to coefficients for regressions with Return On Asset, Return On Investment and Return On Equity as dependent variables on a set of independent variables like size, growth, leverage, risk, industry structure etc. The market based performance has been evaluated by regressing size of equity returns as dependent on a set of independent variables. The Regression Coefficients and overall equation are tested respectively by computing t-values and F-ratios. The goodness of fit of the estimated equations is worked out with the help of R-square and R-adjusted square values.
SECTION-11

In this section a detailed description of the various methods recommended by different authors for classification of companies into different strategic groups based on the degree and type of diversification strategy adopted by them for their activities. Though many categories are available from various studies, the present study has finally followed a simple method of dividing the sample units into three groups. For this purpose, the two popular ratios, viz, Specialisation Ratio (SR) and Relatedness Ratio (RR) have used. In this part an attempt is made to present the methodology adopted for categorisation of firms using the above said ratios.

II.12. CATEGORISATION METHODOLOGY

As seen earlier, a firm is said to be in related diversification category if new products, markets, or functions that are added are “related” and if they confirm to and are very similar to the current business definitions. The addition of a related product market is termed as a “Concentric Diversification”.

The Unrelated Diversification refers to an entry into areas that do not confirm to the current business definitions. The unrelated approach is usually termed as “Conglomerate Diversification”. An important factor of categorisation of diversification strategies and categorisation of a firm to a particular strategic group as stated above may lead to a narrow conception of the notion of relatedness.
between firm's businesses. In usual practice the term relatedness has been identified in terms of similar markets, similar technologies and similar raw materials.

Categorisation of strategic groups has been thoroughly carried out in the studies conducted by Rumelt (1974), Wringley (1970) and Ansoff (1965) by two popular ratios, viz., Specialisation Ratio and Relatedness Ratio. The former ratio reveals the ratio of the firm's sales within its major activity as a proportion of its total sales. But, Relatedness Ratio gives the proportion of the firm's total sales which are related to one another.

On the basis of these two ratios, Rumelt (1970) had specified eight strategic categories. The first is the single business. A single business is one whose Specialisation Ratio is more than 95 per cent. The second category is the dominant vertical. This means that the sales is vertically related for more than 70 per cent. The third category is the dominant constrained. This strategic category is one where in the Specialization Ratio is less than 70 per cent and a majority of the businesses are related to each other. The next category is the dominant linked, wherein the Specialization Ratio is the same as the dominant constrained (SR less than 70 per cent). But a majority of businesses are related to at least one of the businesses within the firm. Related-constrained is the fifth the strategic group wherein the firm's activities are related to one another with specialization ratio falls under 70 per cent. Related-linked is yet another category in which activities of the firm are related to at least one another activity, but not all other activities. Related linked category is explained or defined using related
ratio along with specialization ratio. Related Ratio is the proportion of the firm’s total sales which are related to one another. Related-linked is defined as a category which has both specialization and also related ratio less than 70 per cent. Where in majority businesses are related to at least one other business within the firm. The last category is the unrelated businesses where both specialization ratio and related Ratio are less than 70 per cent.

Wrigley (1970) classified the firms into four categories as:

(i) Single business which has specialization ratio of more than 95 per cent,

(ii) Dominant firms where in a specialization ratio is between 70 per cent and 95 per cent,

(iii) Related business if it has specialization ratio less than 70 percent and related ratio of more than 70 per cent and less,

(iv) Unrelated business in which both the specialization ratio and related ratio are less than 70 per cent.

The other studies which followed the classification of Rumelt and Wrigley’s methodology of categorisation are Hoskinson (1987), Dubofsky and Varadarajan (1987), Bettis and Hall (1982) Hoskinson (1987) classified the firms into three major categories using Rumelt’s (1974) methodology. They were Vertically Integrated, Related Diversified, and Unrelated Diversifiers. Dubofsky and Varadarajan (1987) used Rumelt’s (1974) design to classify the firms into two
groups They have classified the firms with a Relatedness Ratio less than 70 per cent as unrelated diversifiers and the firms with relatedness-ratio greater than 70 per cent as related diversifiers.

The present study has used the Wrgley's model with a modification. The Single Business and Dominant business firms have been taken together and brought under the Undiversified group. The other two groups - Related business and unrelated business have been taken as two groups of diversification.
A MODEL FOR CHOOSING DIVERSIFICATION

START THE ANALYSIS

IS THE EXISTING MARKET(S) OF THE COMPANY GROWING

NO

IS THE MARKET(S) DECLINING?

NO

IS CORPORATE STRENGTH HIGH

NO

SELECTIVELY CONCENTRATE AND EXPAND (FIND A NICHE)

YES

CONCENTRATE, IMPROVE EFFICIENCY AND HOLD, BUT DIVERSITY INTO A NEW GROWTH SECTOR, PREFERABLY WITH SYNERGY

SELECTIVELY CONCENTRATE IMPROVE EFFICIENCY, AND HOLD, BUT ALSO DIVERSITY INTO A NEW GROWTH SECTOR, PREFERABLY WITH SYNERGY (FIND A NEW NICHE)

YES

CONCENTRATE AND BUILD STRENGTHS FURTHER

HARVEST THE EXISTING BUSINESS (S) AND DIVERSIFY INTO SAME NEW GROWTH AREAS, EVEN IF UNRELATED