Chapter 3

Research Methodology
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3.1 Problem Identification:

Gujarat is a strong pharmaceutical manufacturing hub having a large number of small and medium manufacturing units. Its rich base of supply of active pharmaceutical ingredients has attracted several multinational players such as Wyeth, Sanofi-Aventis and Abbott to set up facilities in Gujarat. There are several pharma clusters around Ahmedabad, Baroda, and Vapi. Over 300 large projects in the sector have already been commissioned; while over 100 are under implementation.

There exist over 3,000 drug manufacturing units. The State houses several established companies such as Torrent Pharma, Zydus Cadila, Alembic Pharma, Sun Pharma and Dishman Pharmaceuticals, which have operations in the world’s major pharma markets. Gujarat also houses India’s only chemical port terminal, which has a capacity of 3 million metric tonnes.

This could make Gujarat a strong sourcing base for global pharma companies ensuring strict adherence to pollution control norms in the chemical industry is an imperative for sustainable growth and development of the State. Gujarat’s Pharmaceutical companies’ turnover is around RS. 12000 to 14000 crore per annum, one third of which accounts for exports.

1. Pharmaceutical has emerged as one of the leading industries in the Indian Industry with the domestic market showing an unprecedented growth of around 9% to generate rehear of about Rs. 554.5 billions in 2009. Indian Pharmaceutical
industry is projected to show double digit growth in near future owing to rise in Pharmaceutical outsourcing and consolidation of highly fragmented industry.

2. Zydus Cadila, and Torrent Pharma feature in the high turnover, high growth category comprising growth exceeding 14 percent and turnover over Rs. 250 crore. Sun Pharma and Cadila Pharma are in high turnover medium growth category with growth in range seven-14 percent and turnover exceeding of Rs.250 crore. Alembic features in the high turnover low growth category comprising growth less than seven percent and turnover exceeding Rs.250 crore.

3. In Gujarat, the industry has clearly moved towards export led growth and adopted the inorganic route by buying foreign companies and assets. Pharma companies in Gujarat have grown significantly and taken steps towards globalisation through acquisitions of foreign assets or driving export-led business growth models, reflected in Gujarat’s increasing share in Indian’s pharma exports as well as industry turnover. Gujarat accounts for 40 % of total pharma production of the country. Gujarat’s pharma companies’ turnover is around Rs.12000-14000 crore per annum, one third of which accounts for exports.

Every company requires money to grow, to expand and to survive also. In the pharma sector, major cost is incurred on heavy machineries and Research and Development as these two are core of the industry. This industry requires huge amount of capital which is generally used for purchasing large scale machineries and useful but costly. There are two sources of raising funds which are utilized for the above purpose. Funds can be generated either by equity capital or public debt. When mixture of share capital and public debt followed by the
company, we can say that the company is levered company. So this mixture that capital structure is important from funding point of view.

The firm’s mix of debt and equity financing is called the capital structure.

What should be the proportion of equity and debt in the capital structure of a pharma firm? How much financial leverage should a pharma firm employ? This is a challenging task and an attempt to answer of questions like this; one should have an understanding of the relationship between financial leverage and cost of capital or the other way financial leverage and firm valuation. Here in this research, researcher is going to try to find model capital structure which would suit the pharma industry with an attempt to maximize shareholder’s wealth.

3.2 Review of Existing Literature:

There are lots of studies done on and books written on ‘capital structure, cost of capital and value of the firm’. Each one has different aspects to show but more or less the core remains same. Everyone tries to justify his thoughts and finally the conclusion which has been reflected is that there is no standard model on capital structure of the company. It differs from industry to industry, firms to firms within the industry, period to period with the firm. So it is not possible to determine the appropriate standard capital structure of the firm for the entire life. It is based on many factors which are not constant and continuously require some focus on them. Researcher has tried to review some the workings on the capital structure for different firms of different industries and how this structure affects firm value.
Inamdar Satish, in his book ‘Financial Management’ mentions that for considering the suitable pattern of capital structure, it is necessary to consider certain basic principles which militant to each other. He has given the idea of giving proper weightage to cost principle, risk principle, control principle, flexibility principle and timing principle. The above principles are to be kept in mind for considering the long term requirement of the funds and then appropriate mix of equity and debt should be finalised.

Dr.R.P.Rustagi, has given a very good understanding about all the issues of capital structure and all the theories of capital structure in his book ‘Financial Management-theory, concepts and problems’. He has explained each and every aspect of capital structure, cost of capital and value of the firm. He says that the value of the firm depends on the earnings of the firm and the earnings of the firm depend upon the investment decision of the firm. The earnings of the firm are capitalized at a rate equal to cost of capital in order to find out the value of the firm. Thus the value of the firm depends on two basic factors, i.e., the earnings of the firm and cost of capital. He has raised some questions also. Can the value of the firm be affected by changing the capital mix? Is there a capital structure which may be called the optimal capital structure?

Van Homes James C., in his book financial management and policy mentions “In practice, how does the financial manager determine the optimal capital structure for the particular firm? Our concern is with ways of coming to grips with the formidable problem of determining an appropriate capital structure. In this regard, various methods of analysis are available but none of the methods are completely satisfactory in it. Taken collectively, however, they provide the financial manager with sufficient information for making a rational decision. One should hold no illusion that the financial manager will be able to identify
the precise percentage of debt that will maximize share price. Rather he should try to determine the approximate proportion of debt to employ in keeping with the objective of maximizing share price”.

Gitman, Lawrence J., in his book ‘Principles of Managerial Finance’, says that the theory of capital structure is closely related to the firm’s cost of capital. Many debates over whether an ‘optimal’ capital structure exists are found in the financial literature. The debate began in the late 1950s, and there is as yet no resolution of the conflict. Theorists who assert the existence of an optimal capital structure are said to take a traditional approach, while those who believe such a capital structure does not exist are called supporters of the M and M approach.

Shah Paresh P., in his book, ‘financial management’ says that the valuation of a firm and its cost of capital may be affected by the change in the financing mix. There are different views available in this context. So one should go through them and decide the appropriate capital structure of his concern.

Kishore Ravi M., in his book, ‘Financial Management’, says that the optimum capital structure is that capital structure or combination of debt and equity that leads to the maximization of the value of the firm. The capital structure decision is important to the firm; the optimum capital structure minimizes the firm’s overall cost of capital and maximizes the value of the firm. The use of debt funds in capital structure increases EPS as the interest on debt is tax deductible, which leads to increase in share price. But higher level of debt funds in capital structure result in greater financial risk and it leads to higher cost of capital and depress the market price of company’s share. Therefore, the firm should try to achieve and maintain the optimum capital structure keeping in view value maximization objective of the firm.
Pandey I.M., in his book, ‘Essentials of Financial Management’ says that in practice, the determination of an optimum capital structure is a formidable task, and one has to go beyond the theory. There are significant variations among industries and among companies within an industry, in terms of capital structure. Since a number of factors influence the capital structure decision of a company, the judgment of the person making the capital structure decision plays a crucial part. Two similar companies may have different capital structures if the decision makers differ in their judgment of the significance of various factors. A totally theoretical model perhaps cannot adequately handle all those factors, which affect the capital structure decision in practice. These factors are highly psychological, complex and qualitative and do not always follow accepted theory, since capital markets are not perfect and the decision has to be taken under imperfect knowledge and risk. Financial structure may be evaluated from various perspectives. He has given concept of ‘FRICT’. i.e., Flexibility, Risk, Income, Control and Timing. These factors are to be kept in mind while determining capital structure.

Khan M Y and Jain P K, in the book,’ Financial Management, text and problems, says that there are two viewpoints about capital structure. One viewpoint strongly supports the close relationship between leverage and value of a firm. There is an equally strong body of opinion which believes that financing mix or the combination of debt and equity has no impact on the shareholders’ wealth and the decision on financial structure is irrelevant. In other words, there is nothing such as optimum capital structure. In theory, capital structure can affect the value of a company by affecting either its expected earnings or the cost of capital, or both. While it is true that financing mix cannot affect the total operating earnings of a firm, as they are determined by the investment
decisions, it can affect the share of earnings belonging to the ordinary shareholders.

Stewart C. Myers has totally contrasted the views of tradeoff framework of debt to value ratio and pecking order theory.

Murillo Campello finds that debt financing has a negative impact on firm (relative to industry) sales growth in industries in which rivals are relatively unlevered during recessions, but not during booms. He has shared his thoughts on such things on the basis of his research.

Jack Glen and Ajit Singh worked on comparison of capital structures and rates of return in developed and emerging markets and their findings are very interesting. They have used ratio analysis for their research work. They compared 8,000 manufacturing companies of 44 countries from the years 1994 to 2000.

capital structure. Group affiliated firms are found to have lower leverage than the stand-alone firms. Managers of group affiliated firms seem to prefer equity as high leverage increases in its bankruptcy risk.

Amnon Levy and Christopher Hennessy found that managers must hold a high percentage of their firm’s equity to avert agency conflicts. During contraction, firms substitute debt for equity in order to maintain managerial equity shares. During expansions, risk sharing improves with increase in managerial wealth facilitating substitution of equity for debt.

The study of Abe de Jong, Rezaul Kabir and Thy Thu Nguyen finds that a firm’s capital structure is not only influenced by firm specific factors but also by country specific factors. In the study they demonstrate that country specific
factors can affect corporate leverage and factors differ from country to country based on the economic conditions of the country.

Jean J Chen conducted survey of Chinese listed companies to analyse capital structure and made some conclusion also. The Chinese firms have different pattern of response to the changing economic environment.

Anders Kjellman and Staffan Hansen also analyse few companies listed in Heilsinki Stock Market. They investigate whether capital structure theories can explain actual financing behavior. They asked managers whether they prefer an optimal combination of long term funds or an optimal financing hierarchy in raising new funds, where the most advantageous source is used first regardless of how capital structure is affected. They found that most Finnish firms seek to maintain a constant debt-to-equity ratio, i.e., to follow a target capital strategy and smaller firms are found to be more likely to deviate from a target capital strategy.

Henry Deangelo and Ronald Masulis presented a paper. In paper, a model of corporate leverage choice is formulated in which corporate and differential personal taxes exit and supply side adjustments by firms enter into the determinants of equilibrium relative prices of debt and equity. They analyse MM approach and Merton Miller’s theorem also and gave the suggestions and findings about the capital structure.

Erol Muzir conducted survey of 114 firms listed at the Istanbul Stock Exchange based on a data set of the financial statements of five years between 1994-2003. He investigates his survey to argue validity of the three major capital structure theories- Irrelevance theorem, Static Trade Off theory and Pecking Order Theory- on a comparative basis. The results present some robust
evidence suggesting that the effect of firm size on financial performance and sustainability may differ according to the way how size expansion is financed. Any asset expansion financed with debt has proved to increase risk exposure especially during economic downturns which favors the Static Trade Off theory over the others.

3.3 Title of the Problem

‘The role of Pharmaceutical Company in growth of Gujarat is very important. Gujarat is one of the leading states in Pharmaceutical Industry of India. So researcher has decided to work on Structure of Capital which effects the growth of Pharmaceutical industries. The title of the Study is’ An Analytical Study of Capital Structure of selected Pharmaceutical Industries in Gujarat’.

3.4 Importance of the Study:

Capital structure is important from firm’s long term Solvency and efficiency Point of view. It has a direct effect on firm’s growth. It is a major importance in corporate governance because it can determine the incentives of managers of there by the economic efficiency of the corporations they manage. It also affects interest of Equity share holders.

3.5 Objectives of the Study:

The following are the objectives of the research:

1. To study owner’s ratio of selected each pharmaceutical Company.
2. To study Debt Equity ratio of selected each pharmaceutical Company.

3. To study Fixed Assets to long term Capital ratio for selected each Pharmaceutical Company.

4. To study Fixed Assets to Share Holders’ funds ratio for each selected pharmaceutical Company.

5. To study Sales Turnover Ratio of each selected pharmaceutical Company.

6. To study Earning Per Share of each Pharmaceutical Company.

7. To make suggestions based on the study to improve the financial position of the selected units.

3.6 Period of the Study

The study of analysis of capital structure of selected pharmaceutical industries of Gujarat is made for the period 7 years from 2004-05 to 2010-11. The base year is 2006-07. This year is normal for the purpose of analysis and evaluation.

3.7 Sample Selection

The researcher has studied the following of 5 pharmaceutical companies of Gujarat. The criteria for the selection are turnover and capital of the Company. Mainly large capital companies are included. The companies are:

1. SUN PHARMACEUTICAL INDUSTRIES LTD.

2. ZYDUS CADILA.
3.8 Data Collection and Data Analysis

Research is a process of a systematic and in depth study or search of any particular topic, subject or area of investigation, backed by the data collection, compilation, presentation and interpretation of relevant details or data. It is a careful search or inquiry into any subject or subject matter, which is an endeavor to discover or find out valuable facts which would be useful for further application or utilization. Research and analysis of management problems would result in certain conclusion means of logical analysis. The researcher has collected the data from the annual reports of the company. The researcher has collected data from the officers of the accounts department with the help of unstructured interview of the selected pharmaceutical companies. Different books, journals & magazines in the area of Commerce, Management and pharmaceutical Industry were the source of secondary data collection.

3.9 Tools and Techniques

Financial statements are only the means of providing financial position and operational ascept of business enterprises. These statements represents financial position and profitability of the business in absolute figures. Financial analysis is based on accounting details and it is multipurpose and multidimensional technique which involves systematic and carefull examination of information provided in financial statement. In the research, the researcher has used mainly
ratio analysis as an accounting tool and ANOVA F Test as statistical tool.

Graphs and Tables are prepared with the help of Excel.

3.10 Hypothesis of the Study

Two hypotheses as follows have been tested during the course of the study which are as follows:

(I). Null Hypothesis:

1. There would be no significant differences in Owner’s capital ratio of selected pharmaceutical Company.

2. There would be no significant differences in Debt Equity ratio of selected pharmaceutical Company.

3. There would be no significant differences in Fixed Assets to long term Capital ratio of selected pharmaceutical Company.

4. There would be no significant differences in Fixed Assets to Share Holders funds ratio of selected pharmaceutical Company.

5. There would be no significant differences in leverage ratio of selected pharmaceutical Company.

(II). Alternative Hypothesis:

1. There would be significant differences in Owner’s capital ratio of selected pharmaceutical Company.
2. There would be significant differences in Debt Equity ratio of selected pharmaceutical Company.

3. There would be significant differences in Fixed Assets to long term Capital ratio of selected pharmaceutical Company.

4. There would be significant differences in Fixed Assets to Share Holders funds ratio of selected pharmaceutical Company.

5. There would be significant differences in leverage ratio of selected pharmaceutical Company.

3.11 Chapter Planning

The present research work has been prepared in five various chapters. The brief outline of the chapters are follows:

1. **Introduction of Pharmaceutical Industry:**


2. **Conceptual Framework of Capital Structure:**

   In this chapter, the researcher has studied the meaning of Capital Structure, Importance of Capital Structure, Types of Capital
Structure, Various concepts of Capital Structure, and selected pharmaceutical Company’s Capital Structure. The researcher has discussed the effect of different kind of capital structure on shareholders’ wealth and risk involved in various types of Capital Structure.

3. Research Methodology:

In this chapter, Object of the study, Importance of the study, Scope of the study, Time Period of the study, Source of information, Hypothesis of the study research tools like Ratio Analysis. Statistical Tools, Different Parametric and Non-Parametric Tests, Limitations of the study has been covered.

4. Analysis of Capital Structure Ratios:

In this chapter the ratios studied and analyzed by the researcher are Study Owner’s ratio, Debt Equity ratio, Fixed Assets to long term Capital ratio, Fixed Assets to Share Holders funds ratio and Sales Turnover ratio.

5. Summary, Findings & Suggestions:

In this chapter, findings and necessary suggestions for capital structure performance of selected Pharmaceutical Company of Gujarat has been given if needed.

3.12 Limitations of the Study:

The following are the limitations of the study
1. There are many ratios for measuring Capital Structure effectiveness from which only few have been studied.

2. There are large number of pharmaceutical Companies in Gujarat from which only 5 will be studied. So findings may not be applicable to the whole industry.

3. This study is based on secondary data like journal, magazines, internet etc. sometimes results based on this data may not be reliable, and it is also possible that effectiveness of capital structure may not be measured.

4. Here, only financial aspects has been studies qualitative aspects are to be insured, So it may not be conclusive also.

5. Here ratio has been used as accounting tool, the limitations of ratio apply to this study.

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