

Chapter - 4
Research Methodology

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From the academic point of view, outcome of any research is not as important as the approach followed by researcher in conducting the research. If the problem has been approached in an approved method, the chances are very high that the outcome shall not be biased. The researcher has made sincere efforts to ensure that the approved research methodology is followed.

4.1: Introduction

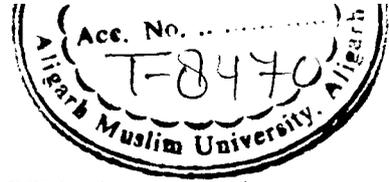
Research Methodology plays an important role in setting the tone for conducting the research. This important chapter was conceived after careful thoughts and detailed discussion with supervisor. The chapter first provides basics of research methodology, need for research, objectives, hypotheses, instruments used, sources of data, sampling used and procedures followed, methods of analysis and finally presenting the findings. This is followed by the specific method used in the present research. As far as possible, detailed justification has been provided for using a particular method of conducting research.

4.2 Objectives of the study

As concluded in the survey of literature that there exists a gap in the researches carried out by various learned scholars. Majority of them have heavily relied on the theatrical construct and financial information of the firms has rarely been used to measure the effect of disinvestment. Adequate efforts have not been made to find out what happened in the market prior to the announcement of disinvestment and after the announcement.

Hence following objectives have been outlined for this research.

- (i) To study and measure the profitability of PSUs after and before disinvestment using ratio as a measure in analysis in general and ratio analysis of specific sectors
- (ii) To study the return on total assets pre and post disinvestment
- (iii) To study the return on Capital Employed of PSUs



- (iv) To study the return on shareholder's equity of PSUs
- (v) To study the Return on Investment (ROI) of PSUs in pre and post disinvestment scenario
- (vi) To test the hypothesis in respect of above and conclude

Justification:

The problems and prospects of disinvestment in PSUs can be studied from many angles. One can conclude based on the related researches conducted in the area and the critical analysis of experts reported in various journals, news papers and government reports. However, relying on the published figures in the form of audited financial statements and drawing conclusion from these figures in the form of accepted financial analysis methods have been considered as objective basis of arriving at conclusion. Hence the present research in general aims at making profitability analysis of selected Indian Public Sector Enterprises - before and after disinvestment. It takes into account the 'impact of economic reforms measures introduced by the Government of India and aims at examining the operational efficiency and profitability of selected Indian Public Sector and to explain the trends in profitability of the select Indian Public Sector in pre and post disinvestment scenario.

The study covers 6 enterprises among the total 13 enterprises viz. Steel, Minerals and Metals, Coal and Lignite, Power, Petroleum and Chemicals and Pharmaceuticals. These six enterprises augment more than 50% of the total investment made by the Central Government in the public sector. For the purpose of the study necessary data on profitability and other related variables were collected for the period 1991-2007. The financial statements used are mainly the profit and loss account and balance sheets published by the Bureau of Public Enterprises (BPE), Ministry of Finance, Government of India, New Delhi. The study used a variety of financial ratios to accomplish the objectives. It employed various statistical tools such as mean, co-efficient of variation, range, correlation, the study also used linear regression analysis to analyse the relationship between size and profitability, multiple regression analysis to determine the factors which influence the profitability and chi-square test and ANOVA has been used to study the trend of profitability.

Research Plan: Sources of Data

Data has been collected from one sources and that is secondary. The main theoretical source has been the RBI annual reports, FEMA / FERA Acts, RBI Bulletins, Disinvestment Manuals, Annual Reports of Companies, CMIE publications, Economic Survey, Budget, News letters of Banks, Occasional papers from RBI economic department, Research papers published in various magazines, Trade Journals, News papers clippings, Text Books on International Financial Management the government reports. Main source for financial information has been the annual reports of the sectors studied.

Database: Information was collected from the PROWESS database for financial ratios and also from “**Database of BS1000, India’s Corporate Giants**” published by Business Standard in December 2007. It is the research study of top 1000 companies of India by the Business Standard magazine. Quota sampling is used for selection of sample size. The population is first segmented into mutually exclusive sub-groups and then the following industries were chosen.

- (i) Textiles,
- (ii) Engineering,
- (iii) Pharmaceuticals
- (iv) Diversified
- (v) Chemicals
- (vi) Consumer durables
- (vii) Automobiles
- (viii) Cement
- (ix) Steel
- (x) Information technology

Then, judgement is used to select the top 10 units/companies from each segment based on the assumption that top companies would be engaged in active management of foreign exchange exposure and expected to get proper responses to the questionnaire. It is this second step, which makes the technique one of *non-probability sampling*. The advantages of quota sampling are the speed with which information can be collected, the lower cost of doing so and the convenience it represents. (Business Standard, December 2007)

4.4 Hypotheses tested:

Based on the literature surveyed, following are hypotheses and they are tested using appropriate tools. All hypotheses have been given as null hypothesis and alternate ones have not been stated.

Ho₁: Post disinvestment PSUs have not made desired progress

Ho₂: Post disinvestment return on profitability of PSUs has not improved

Ho₃: Post disinvestment return on capital employed of PSUs has not improved

Ho₄: Post disinvestment return on equity of PSUs has not improved

Ho₅: Post disinvestment return on investment of PSUs has not improved

4.5 Method of Analysis

Once the financial statements have been collected, important ratios were calculated taking pre and post disinvestment scenario. The important ratios have further been analysed for specific sectors. Based on the calculation of ratios and the result thereof, the hypothesis have been tested and presented.

Time Span, Scope and Contribution of this Research

The time span for the research study is between late 1991 and early 2009 and this commensurate with the introduction of financial sector reforms. However, the base year for most of the data would be 1992-93 as the effect of liberalizations had started trickling down from that year.

This research study is **expected to contribute** for understanding the genesis of PSUs in India, background of disinvestment and specially the pre-and post performance of the PSUs which will either accept or reject the hypothesis that disinvestment has been successful or otherwise.

Data analysis:

Having calculated the ratios of select PSU in the pre and post disinvestment scenario, statistical tests were applied to ascertain if the findings truly reflect the changes or these are by chance only. The relevant tests in this regards are F Ratios and their significance has

been tested at 95% level of confidence. First the effect has been measured then tested sector-wise. In most the cases the results have been tested on monthly basis too.

Data presentation:

After the analysis data has been presented in two forms. For ratio analysis, running commentary has been provided giving calculations and their interpretations. Efforts have been made to make the discussion as elaborate as possible. The calculation is followed by possible justification of the changes in the performance pre and post disinvestment. Efforts have also been made to find out the changes in private sector belonging to the same product category as to how their stocks moved as and when there were some announcements. This necessitated monthly calculation and testing.

Having discussed the effect in the above form, calculations have been tabulated and presented in various tables. The significance level of various F ratios has been shown and null hypothesis if accepted has been explained. In case alternate hypothesis has been accepted, it has not been mentioned.