CHAPTER III

RESEARCH METHODOLOGY

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Section 3 of introductory chapter pertaining to Initial Public Offerings (IPOs) in Indian Capital Market and Chapter II on review of literature pertaining to various theories and hypotheses of post listing pricing behavior of IPOs as well as factors associated with pricing of IPOs provide background and directions for the present investigation on "Initial Public Offerings (IPOs) and their post listing pricing behavior: A study of some equities listed on NSE and BSE".

This research aims at discovering the rates of returns on sample IPOs listed on India’s Prime Stock Exchanges i.e. NSE and BSE during the period of 10 years between the 1993 to 2002. All other findings will be based upon these rates of returns on IPOs. Thus, results will be divided into two parts:

1. Rate and patterns of returns on IPOs
   (i) Returns on the end of first trading day
   (ii) Returns on the end of first trading month.
   (iii) Returns on the end of each financial year (March ending). Or end of calendar year (December ending or last trading on a particular year).

All other findings will be based upon the above and will be analyzed on the basis of comparisons between the followings:
Comparisons of IPOs returns.

(i) Among different sectors of economy.
(ii) between par and premium issues.
(iii) between issue sizes.
(iv) between number of times issues oversubscribed.
(v) In the long run and short run
(vi) with secondary market (NSE Nifty index).

Sample Methodology:

Out of the list of IPOs for various years obtained from prime Data Base (Prime Directory of various years from 1992-2002) on an average two IPOs were selected for each sector year wise on the basis of the availability of price quotes for the scrips at the time of taking the samples. Lower frequency of trading i.e. scrips found to be trading for less than 20% of the trading days were discarded. Seven upcoming and growing sectors of economy were chosen. These were:

<table>
<thead>
<tr>
<th>Sectors</th>
<th>No. of companies/IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Banking sector</td>
<td>21</td>
</tr>
<tr>
<td>(ii) Software sector</td>
<td>21</td>
</tr>
<tr>
<td>(iii) Pharmaceutical sector</td>
<td>11</td>
</tr>
<tr>
<td>(iv) Tele communication sector</td>
<td>07</td>
</tr>
<tr>
<td>(v) Entertainment sector</td>
<td>09</td>
</tr>
<tr>
<td>(vi) Engineering and Automobile ancillaries sector</td>
<td>09</td>
</tr>
<tr>
<td>(vii) Chemical sector</td>
<td><strong>10</strong> Total</td>
</tr>
<tr>
<td></td>
<td><strong>88</strong></td>
</tr>
</tbody>
</table>
Procedure:

First of all price quotes of respective IPO obtained from NSE and BSE websites (www.bseindia.com, www.nseindia.com) were tabulated for the first day, first moth and financial year(s) closing (31st March or the earliest date to this on which the scrip was traded). After that price appreciation/depreciation in percentage were calculated with respect to issue price. The formula used for this calculation was:

\[
\text{% Appreciation/Depreciation} = \frac{P_x - I_p}{I_p} \times 100
\]

\(P_x\) = Closing price on first trading day/month end/year end.

\(I_p\) = Issue price

This provide the percentage returns in plus or minus for the closing of first day, first month and for closing of respective financial year(s) for each scrip. Sector wise average percentage returns of all the scrips were calculated for the first day, first month and financial year ending.

From the day of listing/trading of the IPOs daily returns were calculated from the price quotes obtained from the NSE/BSE websites. The formula used for calculation of daily returns was

\[
R_t = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100
\]

\(R_t\) = Return on \(t^{th}\) day

\(P_t\) = Price on \(t^{th}\) day

\(P_{t-1}\) = price on \(t^{th} - 1\) day (previous trading day)
The obtained result was multiplied by 100 to calculate the percentage return on the day for each scrip.

After calculating the daily return average yearly return was calculated for each scrip using the formula

$$R_{YAVg} = \frac{1}{n} \sum_{t=1}^{n} R_t$$

Where

- $R_{YAVg}$ = Average yearly return
- $R_t$ = Return on $t^{th}$ day
- $t$ = Number of days in a year for which trading was done in a year for the particular scrip.

In the same way daily returns were calculated and from that average yearly returns were calculated for the benchmark index (SPCNX NIFTY) of 50 scrips.

After calculating average yearly returns on daily basis for all the scrips and the index, the adjusted yearly mean returns were calculated because the absolute return on IPOs does not tell whether the particular IPO has over performed or under performed in comparison to the secondary market.

To know about this mean daily return were calculated on the yearly basis for the IPOs for three consecutive years and average commulative returns till September 2002 from the date of listing. Similarly, the mean daily returns on yearly basis were calculated for the benchmark NIFTY from 1 January 1993. The difference between these two ($R_{YAVg} - R_{IAVG}$) will give the mean adjusted returns
this will tell if the investors has done wisely by investing in IPOs in lieu of investing in secondary market.

The standard deviation was also calculated for the returns on index and returns on IPOs for three consecutive years and for return upto September 2002. The standard deviations thus calculated will tell about the volatility of the returns on IPOs as compare to volatility of the secondary market.

Rest of the comparisons will be done on the basis of obtained returns.

**Research questions and hypotheses:**

The main research questions (Q) addressed by the study and the related hypotheses (H) are:

- **Q1** Is there any difference in returns on IPOs of different sectors of economy?
- **H1** There will be marked difference in the rate and patterns of return on IPOs of seven sectors of economy taken in the present study.
- **Q2** Is there any difference in first day returns of IPOs of different sectors economy?
- **H2** There will be significant difference in rate of first day returns of IPOs of seven sectors of economy taken in the present study.
- **Q3** Is there any difference in first month returns of IPOs of different sector economy?
H3 There will be significant difference in rate of first month returns of IPOs of seven sectors of economy taken in the present study.

Q4 Is there and difference on the rate of returns on IPOs at par and IPOs at premium?

H4 There will be no difference in IPOs returns between par and premium issues.

Q5 Whether different size of IPOs have different rate of returns?

H5 There will be difference in returns between IPOs of small size and large size.

Q6 Whether number of times over subscribed IPOs returns are different than under subscribed IPOs?

H6 There will be difference in returns between IPOs over subscribed and under subscribed.

Q7 Whether there is any difference in short run and long run returns on IPOs?

H7 There will be difference in short run and long run returns on IPOs.

Q8 Whether returns on IPOs are similar to returns on secondary market (NIFTY Index)?

H8 There will be difference in returns on IPOs and NIFTY Index return.