CHAPTER III
THEORETICAL & CONCEPTUAL FRAMEWORK

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CHAPTER III
THEORETICAL & CONCEPTUAL FRAMEWORK

INVESTMENTS OF GOVERNMENT OF KERALA

As per the Statement Nos. 2 & 14 of Finance Accounts published by the Comptroller and Auditor General of India, on behalf of the Government of Kerala, Investments made by Government of Kerala are classified as follows;

a) Investments in State Level Public Enterprises (SLPEs) including both Statutory Corporations and Government companies

b) Investments in Co-operative Banks and Societies

c) Investments in Joint Stock Companies

Table 3.1 presents the details of investments of the Government of Kerala from 1996-97 to 2005-06. Table 3.1 shows that by the end of 1996-97, the total investment of Government of Kerala stood at Rs.237466.6 lakhs of which Rs.209697.56 lakhs were investment in State Level Public Enterprises (SLPEs), Rs.27060 lakhs in Cooperative Banks and Societies and Rs.709 lakhs in Joint Stock Companies. The investment in SLPEs was 88.30 percent of the total investment. By 2005-06, the total investments increased to Rs.610970.1 lakhs of which 555782.14 lakhs are invested in SLPEs constituting 90.96 percent of the total investment. The investment in the cooperative banks and societies was only 8.69 percent and in joint stock companies only 0.98 percent of the total investment. The investment in SLPEs grew with a CAGR of 9.74 percent in tune with the growth of total investment which grew with a CAGR of 9.4 percent
Table 3.1

Investments of Government of Kerala (Rs. Lakhs)

<table>
<thead>
<tr>
<th>Year</th>
<th>SLPEs</th>
<th>Percentage Share</th>
<th>Co-op. Banks</th>
<th>Percentage Share</th>
<th>Joint Stock Cos.</th>
<th>Percentage Share</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>209697.56</td>
<td>88.31</td>
<td>27060</td>
<td>11.40</td>
<td>709</td>
<td>0.30</td>
<td>237466.56</td>
</tr>
<tr>
<td>1997-98</td>
<td>239784.31</td>
<td>88.46</td>
<td>30584</td>
<td>11.28</td>
<td>709</td>
<td>0.26</td>
<td>271077.31</td>
</tr>
<tr>
<td>1998-99</td>
<td>412272.52</td>
<td>92.34</td>
<td>33500</td>
<td>7.50</td>
<td>709</td>
<td>0.16</td>
<td>446481.52</td>
</tr>
<tr>
<td>1999-00</td>
<td>448044.13</td>
<td>91.99</td>
<td>38294</td>
<td>7.86</td>
<td>709</td>
<td>0.15</td>
<td>487047.13</td>
</tr>
<tr>
<td>2000-01</td>
<td>467979.05</td>
<td>91.84</td>
<td>40689</td>
<td>7.99</td>
<td>881</td>
<td>0.17</td>
<td>509549.05</td>
</tr>
<tr>
<td>2001-02</td>
<td>486821.63</td>
<td>91.78</td>
<td>42709</td>
<td>8.05</td>
<td>883</td>
<td>0.17</td>
<td>530413.63</td>
</tr>
<tr>
<td>2002-03</td>
<td>502864.08</td>
<td>91.47</td>
<td>46033</td>
<td>8.37</td>
<td>883</td>
<td>0.16</td>
<td>549780.08</td>
</tr>
<tr>
<td>2003-04</td>
<td>523870.66</td>
<td>91.57</td>
<td>47315</td>
<td>8.27</td>
<td>882</td>
<td>0.15</td>
<td>572067.66</td>
</tr>
<tr>
<td>2004-05</td>
<td>541884.59</td>
<td>90.89</td>
<td>48289</td>
<td>8.10</td>
<td>6021</td>
<td>1.01</td>
<td>596194.59</td>
</tr>
<tr>
<td>2005-06</td>
<td>555782.14</td>
<td>90.97</td>
<td>49160</td>
<td>8.05</td>
<td>6028</td>
<td>0.99</td>
<td>610970.14</td>
</tr>
<tr>
<td>Mean</td>
<td>438900.1</td>
<td>90.96</td>
<td>40363</td>
<td>8.69%</td>
<td>1841</td>
<td>0.35</td>
<td>491449</td>
</tr>
<tr>
<td>CAGR</td>
<td>9.74</td>
<td>6.6</td>
<td>21.81</td>
<td>9.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Figure 3.1 is the graphic representation of the pattern of investment of Govt. of Kerala during the period of study. Figure 3.2 shows the average of the pattern of investment of Government of Kerala during the same period.
Table 3.2 discloses the pattern of shareholding in SLPEs. According to Table 3.2 Govt. of Kerala holds 97.57 percent of the equity capital of the SLPEs. The investment grew at a CAGR of 9.74 percent during the 10 year period under study.
### Table 3.2

**Pattern of Share Holding in SLPEs**  
(*Rs. Lakhs*)

<table>
<thead>
<tr>
<th>Year</th>
<th>Govt. of Kerala</th>
<th>% Holding</th>
<th>Govt. of India</th>
<th>% Holding</th>
<th>Fin. Institutions</th>
<th>% Holding</th>
<th>Holdin g Co.</th>
<th>% Holding</th>
<th>Other s</th>
<th>% Holding</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>209698</td>
<td>96.29%</td>
<td>4354</td>
<td>2.00%</td>
<td>1515</td>
<td>0.70%</td>
<td>1641.1</td>
<td>0.75%</td>
<td>562</td>
<td>0.26%</td>
<td>217769.</td>
</tr>
<tr>
<td>1997-98</td>
<td>239784</td>
<td>96.54%</td>
<td>4393</td>
<td>1.77%</td>
<td>1635</td>
<td>0.66%</td>
<td>1984.4</td>
<td>0.80%</td>
<td>591</td>
<td>0.24%</td>
<td>248386.</td>
</tr>
<tr>
<td>1998-99</td>
<td>412273</td>
<td>97.78%</td>
<td>4518</td>
<td>1.07%</td>
<td>1496</td>
<td>0.35%</td>
<td>1984.4</td>
<td>1.00%</td>
<td>1369</td>
<td>0.32%</td>
<td>421639</td>
</tr>
<tr>
<td>1999-00</td>
<td>448044</td>
<td>98.03%</td>
<td>4243</td>
<td>2.00%</td>
<td>1381</td>
<td>0.30%</td>
<td>1984.4</td>
<td>0.43%</td>
<td>1406</td>
<td>0.31%</td>
<td>457057.</td>
</tr>
<tr>
<td>2000-01</td>
<td>467979</td>
<td>97.97%</td>
<td>4511.</td>
<td>6</td>
<td>0.94%</td>
<td>1656</td>
<td>0.35%</td>
<td>1984.4</td>
<td>0.42%</td>
<td>1569</td>
<td>477699.</td>
</tr>
<tr>
<td>2001-02</td>
<td>486822</td>
<td>98.09%</td>
<td>4665.</td>
<td>4</td>
<td>0.94%</td>
<td>1944</td>
<td>0.39%</td>
<td>1299.8</td>
<td>0.26%</td>
<td>1569</td>
<td>496298.</td>
</tr>
<tr>
<td>2002-03</td>
<td>502864</td>
<td>98.02%</td>
<td>5257.</td>
<td>4</td>
<td>1.02%</td>
<td>2216</td>
<td>0.43%</td>
<td>1102.9</td>
<td>0.21%</td>
<td>1585</td>
<td>513025.</td>
</tr>
<tr>
<td>2003-04</td>
<td>523871</td>
<td>97.80%</td>
<td>6847.</td>
<td>2</td>
<td>1.28%</td>
<td>2224</td>
<td>0.42%</td>
<td>1102.9</td>
<td>0.21%</td>
<td>1587</td>
<td>535631.</td>
</tr>
<tr>
<td>2004-05</td>
<td>541885</td>
<td>97.81%</td>
<td>6997.</td>
<td>9</td>
<td>1.26%</td>
<td>2302</td>
<td>0.42%</td>
<td>1102.9</td>
<td>0.42%</td>
<td>1720</td>
<td>554007.</td>
</tr>
<tr>
<td>2005-06</td>
<td>555782</td>
<td>97.33%</td>
<td>8335.</td>
<td>3</td>
<td>1.46%</td>
<td>3139</td>
<td>0.55%</td>
<td>1072.1</td>
<td>0.19%</td>
<td>2728</td>
<td>571057</td>
</tr>
<tr>
<td>Mean</td>
<td>438900</td>
<td>97.57%</td>
<td>5412</td>
<td>1.37%</td>
<td>1950</td>
<td>0.75%</td>
<td>1526</td>
<td>0.47%</td>
<td>1468</td>
<td>0.32%</td>
<td>449257</td>
</tr>
<tr>
<td>CAGR</td>
<td>9.74</td>
<td>7.19</td>
<td>7.58</td>
<td>7.92</td>
<td>14</td>
<td>9.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3.3 is the graphic representation of the pattern of shareholding in State Level Public Enterprises in Kerala. Figure 3.4 depicts the trend of investment of Government of Kerala in SLPEs.

![Fig. 3.3 Pattern of Shareholding in SLPEs](image)

Source: Table 3.2

![Fig. 3.4 Trend of Investment of Government of Kerala in SLPEs](image)

Source: Table 3.2

Figure 3.5 presents the pattern of average share holding by various agencies in SLPEs during the period of study. The graph reveals that 97.57 percent of the shares of SLPEs are
held by the government of Kerala. So no other agency has substantial stake in the ownership of SLPEs in Kerala.

![Fig.3.5 Pattern of Average Share Holding in SLPEs(1996-2006)](image)

Source: Table 3.2

Table 3.3 shows the predicted values of investment of government of Kerala after taking into consideration the present trend of investment as depicted in Fig. 3.4. The table reveals that the investments are likely to grow to Rs.782670.9 lakhs by 2010-11.

<table>
<thead>
<tr>
<th>Year</th>
<th>Predicted values (Rs.Lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>637925.3</td>
</tr>
<tr>
<td>2007-08</td>
<td>674111.7</td>
</tr>
<tr>
<td>2008-09</td>
<td>710298.1</td>
</tr>
<tr>
<td>2009-10</td>
<td>746484.5</td>
</tr>
<tr>
<td>2010-11</td>
<td>782670.9</td>
</tr>
</tbody>
</table>

Source: Calculated values
The analysis shows that on an average 91.42 percent of the investment of Govt. of Kerala are in the equity of the SLPEs while 8.21 percent in the cooperative banks and societies and a very small 0.37 percent in joint stock companies. The analysis also reveals that the Govt. of Kerala is the single largest investor in the equity capital SLPEs with 97.57 percent share. The present study focuses on the investments of Government of Kerala in SLPEs.

FOUR SECTORS AND LIST OF ENTERPRISES UNDER EACH SECTOR

The SLPEs in Kerala under various sectors are listed below

1. Development & Infrastructure Sector

There are 17 State Level Public Enterprises in the Development and Infrastructure sector. They are:

10. Kerala Industrial Infrastructure Development Corporation.
11. Tourist Resorts (Kerala) Limited.

2. Manufacturing Sector

There are 67 Public Sector Enterprises in this sector.

They are,

1. Kerala Construction Components Limited
2. The Kerala Ceramics Limited
3. Kerala Clays & Ceramic Products Limited
4. The Kerala Minerals & Metals Limited
5. Kerala State Detergents & Chemicals Limited
6. Kerala State Drugs & Pharmaceuticals Limited
7. Kerala Soaps & Oils Limited
8. Kerala State Salicylates & Chemicals Limited
9. Malabar Cements Limited
10. The Pharmaceutical Corporation (IM) Kerala Limited
11. The Travancore Cements Limited
12. The Travancore-Cochin Chemicals Limited
13. Travancore Titanium Products Limited
14. Kerala State Mineral Development Corporation Limited
15. Kerala Electrical & Allied Engineering Company Limited
16. The Metropolitan Engineering Company Limited
17. United Electrical Industries Limited
18. Traco Cable Company Limited
19. Transformers and Electricals Kerala Limited
20. Kerala State Electronics Development Corporation Limited
21. Keltron Counters Limited
22. Keltron Electro Ceramics Limited
23. Keltron Crystals Limited
24. Keltron Magnetics Limited
25. Keltron Resistors Limited
26. Keltron Power Devices Limited
27. Keltron Rectifiers Limited
28. Keltron Component Complex Limited
29. The Metal Industries Limited
30. Steel Complex Limited
31. Kerala Agro Machinery Corporation Limited
32. Steel Industrials Kerala Limited
33. Kerala State Construction Corporation Limited
34. Scooters Kerala Limited
35. Astral Watches Limited
36. Kerala Automobiles Limited
37. Steel and Industrial Forgings Limited
38. Autokast Limited
39. Kerala Hitech Industries Limited

40. The Kerala Agro Industries Corporation Limited

41. Kerala Forest Development Corporation Limited

42. Kerala State Coconut Development Corporation Limited

43. Kerala Livestock Development Board Limited

44. Meat Products of India Limited

45. Oil Palm India Limited

46. The Plantation Corporation of Kerala Limited

47. Rehabilitation Plantations Limited

48. The State Farming Corporation of Kerala Limited

49. Trivandrum Rubber Works Limited

50. The Travancore Sugars & Chemicals Limited

51. Kerala State Horticultural Products Development Corporation Limited

52. Kerala State Poultry Development Corporation Limited

53. Kerala Feeds Limited

54. Kerala Garments Limited

55. Kerala State Textile Corporation Limited

56. Sitaram Textiles Limited

57. Trivandrum Spinning Mills Limited

58. Forest Industries (Travancore) Limited

59. Kerala State Wood Industries Limited

60. Travancore Plywood Industries Limited

61. Foam Mattings (India) Limited
62. Handicrafts Development Corporation of Kerala Limited
63. Kerala State Bamboo Corporation Limited
64. Kerala State Handloom Development Corporation Limited
65. The Kerala State Coir Corporation Limited
66. Kerala Khadi & Village Industries Board
67. The Kerala State Cashew Development Corporation Limited

3. Public Utilities Sector

There are 6 Public Sector Enterprises in this sector.

They are,

1. Kerala State Maritime Development Corporation Limited.
3. Kerala State Electricity Board.
5. Kerala Water Authority.
6. Kerala State Housing Board.

4. Trading Sector.

There are 3 Public Sector Enterprises in this sector. They are

1. Kerala State Industrial Products Trading Corporation Limited
2. The Kerala State Civil Supplies Corporation Limited.
3. Kerala State Beverages (M&M) Corporation Limited

VARIABLES AND SUB-VARIABLES FOR THE STUDY

The sector-wise analysis is made in three variables and their sub-variables. The variables are
1. INVESTMENT

The investment decision is one of the fundamental decisions of business management where the investment value of the assets that a business enterprise has within its control or possession is determined. These assets may be physical, intangible, or financial. Assets are used to produce streams of revenue that often are associated with particular costs or outflows. The owners treat investments not only as equity capital but also take into consideration reserves and surpluses created over a period of time with due credit to losses accumulated and intangible assets. For an enterprise investment also means capital employed to use its productive resources and in this context the resources represented by net fixed capital and net working capital are taken to mean investments. Here, thus investment is represented by Paid up Capital, Net worth and Capital employed.

The variable Investment is analysed with the sub-variables Equity, Net worth, Capital employed, Turnover on Capital Employed and Accumulated Loss to Paid up Capital.

a. Equity

Equity is the ownership interest in the form of common stock or preferred stock. It is the capital raised from the owners. Equity capital is represented by funds that are raised, in exchange for a share of ownership in the company. Equity financing allows a business to obtain funds without incurring debt, or without having to repay a specific amount of money at a particular time. This is different from debt capital which is money raised by incurring debt
through the issuance of debentures and other types of bonds. Equity capital is raised by a business in exchange for a share of ownership in the company.

b. Net worth

Net worth is a stockholder's equity, it consist of equity share capital plus reserve and surplus. In business, Net worth (sometimes "net assets") is the total assets minus total liabilities of an individual or a company. For a company, this is called shareholders' equity and may be referred to as book value. Net worth is stated for a particular point in time. Net worth in business is generally based on the value of all assets and liabilities at the carrying value, that is, the value as expressed on the financial statements. Net worth equals paid up capital plus reserves & surplus minus (preliminary expenses, accumulated loss, miscellaneous expenditure not written off and intangible assets).

c. Capital employed

Capital employed is the value of the assets that contribute to a company’s ability to generate revenue. Capital employed equals fixed assets plus current assets minus current liabilities. It may be calculated either by subtracting from the total assets the non-interest bearing current liabilities, or by summing the shareholders' funds and the borrowed funds.

d. Turnover to Capital Employed Ratio

The ratio indicates or reflects the efficiency of use or management of various resources. It highlights how effectively the firms’ total resources are being put to use to generate sales. The amount of Capital employed and the volume of turnover reveal the margin of each unit of capital invested. The ratio is calculated using the formula:

\[
\frac{\text{Turnover}}{\text{Capital Employed}} \times 100
\]
A high ratio is an indication of efficient utilization of resources. Higher the ratio, higher is the efficiency of use of resources.

**e. Accumulated Loss to Paid up Capital Ratio**

The ratio of Accumulated losses to paid up capital reflects the total financial performance of any enterprise or sector. It indicates the erosion of paid-up capital. Higher ratio indicates the higher level of erosion of paid up capital and a high level of sickness of the enterprise or the sector. The following formula is used to find the ratio:

\[
\text{Accumulated Losses} \times 100 \over \text{Paid Up Capital}
\]

2. **PROFITABILITY**

Financial analysts consider ‘profit’ as the most important measure of judging business performance. Profits reflect the outcome of the sum total of all managerial, technical and business decisions. Profitability is the ability of the firm to earn profits. The concept of profitability may be defined as the “ability of a given investment to earn a return from its use”\(^1\).

In the words of Biswanath Sinha, “profitability is the good indicator for measuring the efficiency of public enterprises.” He suggested the following tests for judging the efficiency of public sector undertakings:

(i) rate of profit or surplus generated

(ii) utilization of surplus for providing internal sources of expansion

(iii) achievements of targets

(iv) Proper utilization of capital and man power.\(^2\)
Profitability is a time honoured indicator to dissect the financial performance. For survival and growth it is essential that enterprises earn sufficient profits. Profitability is the end product of the policies and decisions taken and is the single most important measure of success.

Profitability ratios are employed in order to assess the efficiency with which the business is carried out. Profitability analysis includes two types of ratios – ‘profit margin’ ratios and ‘rate of return’ ratios. Profit Margin Ratios show the relationship between profit and sales. Rate of return ratios reflect the relationship between profit and investments.

In this study accounting ratios are adopted for measuring the profitability of various sectors of the SLPEs. As compared to other tools of financial analysis, the ratio analysis provides very useful conclusions about various financial aspects of the sectors under study. The variable profitability is analyzed based on the number of profit-making units to total number of units, operating profit to total earnings, net profit to total earnings, return on capital employed and return on net worth.

**a. Ratio of Number of profit making units to Total number of units**

This ratio gives an overall glimpse about the no. of profit making units in each sector. This ratio is calculated using the formula:

\[
\text{No. of Profit making Units} \times 100 \quad \text{X}\text{Total No. of units}
\]

**b. Profit Margin Ratios**

**i. Operating Profit Ratio (OPR)**

This ratio implies the relationship between the operating profit and net sales. It indicates the portion of sales which is left over after all current operating costs and expenses
are met. A high operating profit ratio indicates the efficiency of the management to produce at a lower cost. An operating profit ratio between 20% and 25% is highly desirable.

\[
\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Net Sales (Total Income)}} \times 100
\]

ii. Net Profit Ratio (NPR)

This ratio indicates the overall profitability and efficiency of any business. This ratio shows the amount left to shareholders out of sales after meeting all expenses. If the ratio is high it indicates a good profit position and the capacity to withstand adverse economic conditions such as fall in sales price, rising cost of production or declining demand and also provides high return to the shareholders. The range of profit expected to be normal is 10% to 15%.

Net profit ratio expresses the net profit as a percentage of sales. In the present study,

\[
\text{Net Profit Ratio} = \frac{\text{Net Profit (After taxed, before dividend)}}{\text{Net Sales (Total Income)}} \times 100
\]

c. Rate of Return Ratios

i. Ratio of Return on Capital Employed (ROCE)

This ratio expresses the relationship between the amount of profit before interest and tax and the amount of long term funds invested in the enterprise. It indicates the percentage of return on the capital employed in the business and it can be used to show the efficiency of the business as a whole.

Formula for calculating return on capital employed is as follows:

\[
\text{ROCE} = \frac{\text{Profit before Interest and Tax}}{\text{Capital Employed}} \times 100
\]
It is a rigorous test of profitability and it gives a picture of the efficiency of internal management. It enables to show whether the funds entrusted to the enterprise are properly utilized or not. The higher the ratio, the more efficient the use of capital employed. It is a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. Return on investment is a very popular metric because of its versatility and simplicity. That is, if an investment does not have a positive ROI, or if there are other opportunities with a higher ROI, then the investment should be not be undertaken.

**ii. Ratio of Return on Net worth (RONW) or Return on Proprietor’s Funds**

It is a measure of return on shareholders’ funds. Shareholders’ funds include both preference and equity share capital and all reserves and surplus. This ratio represents the ratio of net profit to proprietor’s funds. The term net profit as used here means the final profit that is available for distribution as dividends to shareholders. It is calculated in the following manner:

\[
\text{RONW} = \frac{\text{Profit after Tax}}{\text{Net worth}} \times 100
\]

This ratio is used to measure the overall profitability as well as an indicator of profitability. It is an index to the operational efficiency of the business. This ratio is also called ‘Earnings Ratio’ as it reveals the rate of earning capacity of the business. The higher the ratio, the greater will be the return for owners and vice versa.

**3. CONTRIBUTION**

Contribution made by various sectors to the state exchequer in the form of dividend as well as taxes and others are important guiding factors for any government to take
investment decision. The government also takes into consideration the contribution the sector provides to the society in the form of employment generation.

The variable contribution to the Government and to the society is analyzed by taking the dividend to Paid-up-capital capital, contribution to state-exchequer to total income and number of employees to capital.

i. **Dividend to Paid up Capital Ratio**

Other than capital appreciation dividend is the most important return for an investor. So the ratio of Dividend to Paid up Capital is very important as far as an investment is concerned. Higher the ratio of Dividend to Paid up Capital better the return for the investor. The ratio is calculated as

\[
\text{Dividend} \times 100
\]
\[
\text{Paid up Capital}
\]

ii. **Contribution to State Exchequer to Total Income Ratio**

There is a widely prevalent assumption that public enterprises make heavy contribution to the exchequer in the form of sales tax, excise duty, corporate tax, dividends and other taxes and duties. When a study of the investment of State Governments is undertaken the contribution to exchequer is an important element of study. The ratio contribution to State Exchequer to Total Income helps to understand the contribution of Public Sector to the State Economy in a better manner. The ratio is worked out using the formula

\[
\frac{\text{Contribution to the State Exchequer}}{\text{Total Income}} \times 100
\]

A high ratio indicates higher return to the government.

iii. **Ratio of Number of Employees to Capital Invested**
Creation of employment opportunities to the masses was considered to be an important aim in starting public enterprises by the Governments. It is very important to examine whether this goal is achieved by State Government while investing heavily in Public Enterprises. The ratio of no. of employees to capital invested gives a picture of employment generation per rupee of capital invested in Public Enterprises. The ratio can be calculated using the formula:

\[
\frac{\text{No. of Employees}}{\text{Capital Invested}} \times 100
\]

**STATISTICAL TERMS**

1. **Mean**

   It is the most popular and widely used measure of representing the entire data by one value. Its value is obtained by adding together all the items and by dividing the total by the number of items.

2. **Coefficient of Variation**

   Coefficient of Variation is a relative measure of dispersion. This measure developed by Karl Pearson is the most commonly used measure of relative variation. It is used to compare the variability of two or more than two series. The series or group for which the coefficient of variation is greater is said to be more variable or conversely less consistent, less uniform, less stable or less homogeneous. On the other hand the series for which coefficient of variation is less is said to be less variable or more consistent, more uniform, more stable or more homogeneous. Coefficient of variation is denoted by C.V. and is obtained as follows:

   \[
   \text{Coefficient of variation or C.V} = \frac{\text{Standard deviation}}{\text{Mean}} \times 100
   \]

3. **Coefficient of Correlation**
Correlation analysis is the mathematical tool that is used to describe the degree to which one variable is linearly related to the other. It is directed towards measuring the degree of association of two variables. All measures of correlation are measured in such a fashion that a measure of zero signifies no correlation at all, and a perfect correlation is indicated by a magnitude of one, positive for direct linear relationship, and negative for an inverse linear relationship. Coefficient of correlation is thus the measure of the degree of relationship between two sets of figures.

4. Compound Annual Growth Rate [CAGR]

Compound Annual Growth Rate is the year-over-year growth rate of an investment over a specified period of time. The compound annual growth rate is calculated by taking the nth root of the total percentage growth rate, where n is the number of years in the period being considered. CAGR isn't the actual return in reality. It's an imaginary number that describes the rate at which an investment would have grown if it grew at a steady rate.

5. Regression Analysis

According to Morris M. Blair, “Regression is the measure of the average relationship between two or more variables in terms of the original units of the data”\(^6\). The most commonly used regression line is a straight line whose equation is \(Y=a+ bx\). The regression can be classified into the following categories:-

- a. Linear Regression
- b. Non linear Regression

When dependent variable moves in a fixed proportion of the movement of independent variable, it is called linear regression. In non-linear regression, the value of dependent variable
does not change by a constant absolute amount for unit change in the value of the independent variable.

The objectives, importance, methodology and limitations of the study are explained in chapter 1.

REFERENCES


5 Pillai, R.S.N & Bhagavati V, *Management Accounting*, S. Chand & Co. Limited, New Delhi, 1999, p.94