

# Applicability of Capital Asset Pricing Model: Evidence from Selected Sector in Indian Stock Market

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## ARTICLE DETAILS

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## ABSTRACT

Valuation of Security is very important and essential for the investors who want to invest in capital market, it can be said the first to enter the stock market, which gives an investor the confidence to yield the expected return if analysis has been done accurately. Valuation of securities proves that why and what factors can make an investor to take decision for investing in India. From the rapidly growth sector like Health care which earns a maximum revenue from the export earnings and continuous gradation is done which contribute to the growth of the Indian economy. This study investigates a risk-return relationship within the CAPM framework in Indian Stock Exchange. Capital Asset Pricing model (CAPM) is widely researched, tested, and paradoxically both generally accepted and rejected model of asset pricing. On the whole, the CAPM model could satisfactorily explain the risk-return relationship in the Indian Stock market. The CAPM model was employed to identify whether selected health care securities are underpriced or overpriced.

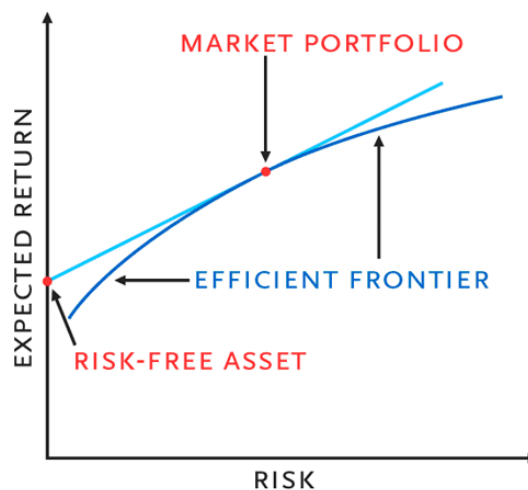
## INTRODUCTION

### Stock Market

A stock market or equity market is the aggregation of buyers and sellers of stocks (shares). These are securities listed on a stock exchange as well as those only traded privately. The stocks are listed and traded on stock exchanges which are entities specialized in the business of bringing buyers and sellers of stocks and securities together.

### Capital Asset Pricing Model

Markowitz, William Sharpe, John Lintner and Jan Mossin provided the basic structure for the CAPM model. It is a model of linear general equilibrium return. In the CAPM theory, the required rate return of an asset is having a linear relationship with asset's beta value i.e. undiversifiable or systematic risk.



The assumptions of CAPM are that the market is in equilibrium and the expected rate of return is equal to the required rate of return for a given level of risk or Beta. CAPM presents a linear relationship between the required rate of return of a security and relates it to market related risk or Beta, which cannot be avoided. The equation for the CAPM Theory is

$$R_i = R_f + \beta_i (R_m - R_f)$$

$R_i$  is expected rate of return on security 'i',  $R_f$  is risk free return,  $\beta_i$  is Beta coefficient – a risk measure for the non-diversifiable part of total Risk,  $R_m$  is return on market portfolio,  $R_m - R_f$  is the excess return for the extra risk

**RESEARCH OBJECTIVES**

- To check the validity of CAPM for the investment in selected sector i.e. Health Care Sector.
- To identify the suitability CAPM for making the investments in Indian stock market with reference to Health Care securities.
- To evaluate which securities are overpriced and which securities are underpriced.

**SIGNIFICANCE OF STUDY**

The study helps in comparing expected return with estimated and it helps to know which securities are underpriced & overpriced. As well as to analyze risk & return of securities and valuation of securities.

**SAMPLE SIZE**

Ten companies of Healthcare sector have been employed in this research.

**ANALYSIS**

Table 1.1 List of Companies

Sr. No.	Name of Companies	Sr. No.	Name of Companies
1	Aurobindo pharma Ltd.	6	Glenmark Pharmaceuticals Ltd.
2	Biocon Ltd.	7	Divis Laboratories Ltd.
3	Cadila Healthcare Ltd.	8	Sun Pharmaceuticals Industries Ltd.
4	Cipla Ltd.	9	Apollo Hospitals Enterprise Ltd.
5	Dr.Reddy's Laboratories Ltd.	10	Lupin Ltd.

Table 1.2 Calculation of Expected Return and Beta

Sr. No.	Name of Companies	Expected Return	Beta
1	Aurobindo pharma Ltd.	0.156	0.64
2	Biocon Ltd.	2.059	0.17
3	Cadila Healthcare Ltd.	0.160	0.64
4	Cipla Ltd.	-0.086	0.58
5	Dr.Reddy's Laboratories Ltd.	-0.288	0.54
6	Glenmark Pharmaceuticals Ltd.	-0.637	0.81
7	Divis Laboratories Ltd.	1.791	0.67
8	Sun Pharmaceuticals Industries Ltd.	-1.388	1.05
9	Apollo Hospitals Enterprise Ltd.	-0.246	0.73
10	Lupin Ltd.	-1.267	0.74

**Interpretation (Table 1.2)**

As we know that if the beta level is above 1, it shows that the stock is more volatile and more risky as compared to the market. If the beta level is below 1, it shows that the stock is less volatile and less risky than broader market. In above table (Table 1.2), the stock Sun Pharma has beta of 1.05. This stock is more volatile as compared to the market. It is meant that 1% change in the market leads to 1.05% change in Sun Pharma stock. At the same time its expected return is lowest i.e. -1.388. Similarly, the lowest beta is of Biocon Ltd. i.e. 0.17. It is less volatile as compared to the market. It implies that 1% change in the market leads to 0.17% change in Biocon Stock. At the same time its expected return is highest i.e. 2.059.

Table 1.3 Calculation of Estimated Return

Sr. No.	Name of Companies	Estimated Return $R_f + \beta(R_m - R_f)$
1	Aurobindo pharma Ltd.	1.984
2	Biocon Ltd.	5.308
3	Cadila Healthcare Ltd.	1.984
4	Cipla Ltd.	2.408
5	Dr.Reddy's Laboratories Ltd.	2.691
6	Glenmark Pharmaceuticals Ltd.	0.782
7	Divis Laboratories Ltd.	1.772
8	Sun Pharmaceuticals Industries Ltd.	-0.915
9	Apollo Hospitals Enterprise Ltd.	1.348
10	Lupin Ltd.	1.277

**Interpretation (Table 1.3)**

It can be seen from the above table (Table 1.3) that the estimated return as per CAPM for Biocon Ltd. is higher whereas the same for Sun Pharma stock is lowest.

Table 1.4. Valuation of Securities as per CAPM

Sr. No.	Name of Companies	Expected Return	Estimated Return	Underpriced/ Overpriced
1	Aurobindo pharma Ltd.	0.156	1.984	Overpriced
2	Biocon Ltd.	2.059	5.308	Overpriced
3	Cadila Healthcare Ltd.	0.160	1.984	Overpriced
4	Cipla Ltd.	-0.086	2.408	Overpriced
5	Dr.Reddy's Laboratories Ltd.	-0.288	2.691	Overpriced
6	Glenmark Pharmaceuticals Ltd.	-0.637	0.782	Overpriced
7	Divis Laboratories Ltd.	1.791	1.772	Underpriced
8	Sun Pharmaceuticals Industries Ltd.	-1.388	-0.915	Underpriced
9	Apollo Hospitals Enterprise Ltd.	-0.246	1.348	Overpriced
10	Lupin Ltd.	-1.267	1.277	Overpriced

**Interpretation**

As we can see that above table 1.4 is showing the result of CAPM which emphasis on individual security. As we can see that some securities are overpriced and some are underpriced. The securities Divis Laboratories Ltd. and Sun Pharma are underpriced and it suggests that investors should invest in that securities as there is chances of their return to be increased in the future. Whereas the securities which are overpriced indicate that they should not be purchased by investors.

**RESULTS**

- The Sun Pharma security has highest beta as compared to rest of selected securities. It implies that the security is highly volatile than the market.
- The Biocon security has lowest beta as compared to rest of selected securities. It implies that the security is less volatile than the market.
- From expected return point of view, the Sun Pharma security has lowest expected return where as the Biocon security has highest expected return.
- The securities Divis Laboratories Ltd. and Sun Pharma are underpriced as per Capital Asset Pricing Model.
- The securities Aurobindopharma Ltd., Biocon Ltd., Cadila Healthcare Ltd., Cipla Ltd., Dr. Reddy's Laboratories Ltd., Glenmark Pharma Ltd., Apollo Hospital and Lupin Ltd. are overpriced as per Capital Asset Pricing Model.

**CONCLUSION**

The CAPM model could satisfactorily explain the risk-return relationship in the Indian Stock market. However, the positive relationship between beta and actual returns may not be true for all companies. For instance, Sun Pharma security has one of the highest betas, but yields a lower return compared to other securities. Of course we also have to remember that a high beta may give high actual returns when the markets are booming and when markets are going down a high beta security can give a lower actual return as well. In that sense the required return can always deviate from the actual returns. It is claimed to be the great strength of the CAPM theory that the market risk proxy – the beta- is also indicating that when the times are bad, those high beta securities may do very badly as well, and other proxies for risk like size, value against growth, etc may not indicate how those securities can do badly in bad times! CAPM is widely used in their practical researches. Thus it has transformed, improved and modified the decision making process of the investors. CAPM is still considered to be the backbone of the financial market price theories. And this will help individuals to develop a more efficient capital market.

**SUGGESTION**

The securities Divis Laboratories Ltd. and Sun Pharma are underpriced, so the investors can invest in such securities as per Capital Asset Pricing Model. The securities Aurobindopharma Ltd., Biocon Ltd., Cadila Healthcare Ltd., Cipla Ltd., Dr. Reddy's Laboratories Ltd., Glenmark Pharma Ltd., Apollo Hospital and Lupin Ltd. are overpriced, so investors can avoid to invest in such securities as per Capital Asset Pricing Model.

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