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Study on Capital Market Line with reference to Edelweiss broking service ltd.

P. Harika[1] **PITTA SHIVAPRASAD**[2]

Assistant professor MBA Final Year

Malla Reddy Institute of Engineering & Technology[1&2]

ABSTRACT

The capital market line (CML) passes on the return of a financial specialist for his portfolio. As we have just referenced, there is a linear relationship exists between the risk and return on the effective portfolio that can be composed as follows: Here we can consider the normal return on a portfolio as an entirety of the returns for conceding utilization and a premium for bearing the risk basic the portfolio. It is significant here that the CML is convincing just for the productive portfolio. The CML is viewed as better than the proficient wilderness since it considers the incorporation of a without risk resource in the portfolio. The capital resource estimating model (CAPM) exhibits that the market portfolio is basically the proficient outskirts. This is accomplished outwardly through the security market line (SML).

Keywords: capital market line, portfolio, risk and return.

INTRODUCTION

The capital market line (CML) passes on the return of a financial specialist for his portfolio. As we have just referenced, there is a linear relationship exists between the risk and return on the effective portfolio that can be composed as follows:

Here we can consider the normal return on a portfolio as an entirety of the returns for conceding utilization and a premium for bearing the risk basic the portfolio. It is significant here that the CML is convincing just for the productive portfolio.

Expansion of influence (the point R) makes turned portfolios that are likewise on the CML. The entirety of the portfolios on the CML speak to the most elevated conceivable Sharpe proportion.

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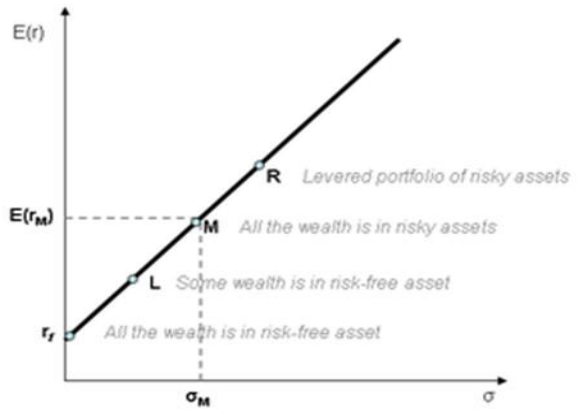
A line utilized in the capital resource estimating model to outline the paces of return for effective portfolios relying upon the without risk pace of return and the degree of risk (standard deviation) for a specific portfolio.

The CML is determined by drawing a digression line from the block point on the productive boondocks to where the normal return rises to the without risk pace of return.

Capital market line (CML) is the digression line drawn from the purpose of the without risk resource for the doable area for risky resources. The intersection point M speaks to the market portfolio, so named since every normal financial specialist (least fluctuation standard) should hold their risky resources in indistinguishable extents from their loads in the market portfolio.



Formula:-

$$\text{CML} : E(r) = r_f + \sigma \frac{E(r_M) - r_f}{\sigma_M}.$$

The CML results from the combination of the market portfolio and the risk-free asset (the point L). All points along the CML have superior risk-return profiles to any portfolio on the efficient frontier.

Addition of leverage (the point R) creates levered portfolios that are also on the CML. All of the portfolios on the CML represent the highest possible Sharpe ratio.

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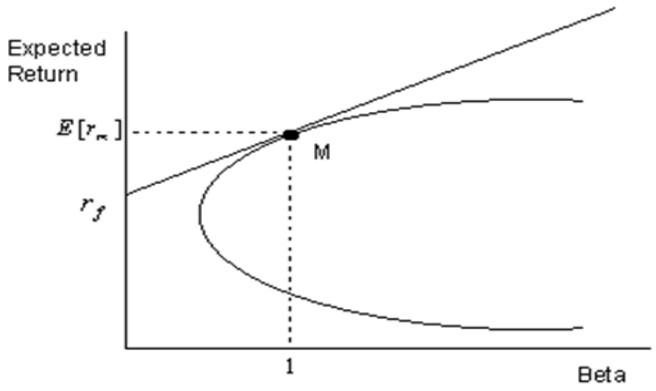

Objectives of the study

- To study the investment pattern and its related risks and returns, rates of return for efficient portfolios.
- To find out optimal portfolio, which gave optimal return at a minimize risk to the investor
- To see whether the portfolio risk is less than individual risk on whose basis the portfolios are constituted
- To study the portfolio risk and individual risk for best investment pattern

Need for the Study

- Capital market line has emerged as a separate academic discipline in India. Portfolio theory that deals with the rational investment decision-making process has now become an integral part of financial literature.

- Investing in securities such as shares, debentures & bonds is profitable well as exciting. It is indeed rewarding but involves a great deal of risk & need artistic skill. Investing in financial securities is now considered to be one of the most risky avenues of investment.

Scope of the Study

- The study covers the calculation of correlations between the different securities in order to find out at what percentage funds should be invested among the companies in the portfolio.
- The study includes the calculation of individual Standard Deviation of securities and ends at the calculation of weights of individual securities involved in the portfolio.

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- These percentages help in allocating the funds available for investment based on risky portfolios.

Limitations of the Study

- Construction of Portfolio is restricted to five companies based on Capital asset pricing model.
- Very few and randomly selected scripts / companies are analyzed from NSE listings.
- Data collection was strictly confined to secondary source. No primary data is associated with the project.
- There was a constraint with regard to time allocation for the research study i.e. for a period of three months.

Research Methodology

Secondary data:

For the purpose of the study, mainly secondary data is used. Data was collected from NSE India website for three months' time period.

Tools and Techniques

Returns = $\frac{presentcloseprice-previouscloseprice}{previouscloseprice} \times 100$

Difference = Returns- Average returns

Risk= $\sqrt{\frac{\sum D^2}{n-1}}$

Where n=no. of observations

Covariance= $\frac{\sum(d*D)}{n-1}$

Variance = Var ($R_{m)}$

Systematic Risk (β) =$\frac{covar(niftydifferences \times companydifferences)}{variance(R_m)}$.

Formula

$E(R_p)=R_f+\beta(R_m-R_f)$

$E(R_p)$=expected rate of return of portfolio

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R_f =risk free rate of return

=10% annum

=10%/12 per month

R_m=rate of return of market portfolio that is nifty

β=systematic risk between individual security and market portfolio.

REVIEW OF LITERATURE

Kim and Zumwalt (2016) analyzed the variety in returns on portfolios in both all over markets. They inferred that the up market includes the months for which the market returns surpass the normal market return, the normal risk impartial rate and zero. They determined three measures to recognize what make up an all over market. Those months for which the market return surpasses that the normal market return and when it is over the sans risk rate or more prominent than zero establish the up market. They saw that the individual betas of the down market are more precise measure for the portfolio risk than the single beta we find in the customary CAPM. In an examination on risk-return relationship Chen (1982) permitted the beta to be non-stationary and seen that financial specialist need pay when they expect drawback risk regardless of whether the betas are consistent or evolving. The finished up the equivalent about the down-market risk that Kim (1979) did. Bhardwaj and Brooks (1993) inferred that the precise risks are diverse in bull and bear timeframes. The likewise ordered the market as Kim and Zumwalt (1979) did yet as opposed to contrasting the market return and mean return they contrasted it and the middle return.

Pettengill, Sundaram and Mathur(2015) see that on the off chance that we utilize the acknowledged return, at that point the beta-expected return relationship gets contingent on the overabundance market return. From that review we that there exists a positive connection among beta and anticipated return during an up market.

W. Ongkrutaraksa (2014) The primary reason for this investigation is to return to the applicable hypothesis and proof with respect to the informationallyefficient capital markets. It investigates the standardizing hypothesis of flawless capital markets, the stochastic thought of irregular walk, the martingale hypothesis, and different types of market effectiveness under

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the proficient marketshypothesis (EMH). It likewise condenses a huge group of experimental examinations that has endeavored to test how effective the genuine capital markets have been data shrewd comparative with the regulating criteria. In spite of experimental proof against these hypotheses, in any case, effectiveness in capital markets despite everything stays high in short skylines, gave likewise that opposition to data is high, and that proficient merchants who utilize certain exchanging rules ought not reliably beat the markets.

DATA ANALYSIS AND INTERPRETATION

- **STATEMENT OF SHOWING TATA CHEMICALS LTD FROM 1ST DEC 2019 TO 29TH FEB 2020**

AVERAGE RETURNS = 0.028440357

VARIANCE $=\sum \frac{D2}{N-1}$

= 1.380233

RISK = $\sqrt{VARIANCE}$

= 1.174833

COEFFICICENT OF VARIANCE = RETURNS/RISK

= -0.059648549

Interpretation:

From the above table it represents the risk and returns of Tata chemicals ltd for a period of 3 months i.e., 1/12/2019 to 29/02/2020 the company has an average return of 0.02844, variance is1.380233, Risk is1.174833, And coefficient of variance is-0.05965.
The investor has minimum price on 19 December 2019 641 and sell the share maximum price 769 on 17 February 2020.

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- **STATEMENT OF SHOWING BHARAT DYNAMICS LTD FROM 1ST DEC 2019 TO 29TH FEB 2020**

AVERAGE RETURNS =0.426766363

VARIANCE =$\sum \frac{D2}{N-1}$

= 7.336667295

RISK = $\sqrt{VARIANCE}$

= 2.708628305

COEFFICICENT OF VARIANCE = RETURNS/RISK

= 1.665279606

Interpretation:

From the above table it represents the risk and returns of Bharat Dynamics Ltd for a period of 3 months i.e., 1/12/2019 to 29/02/2020 the company has an average return of0.426766363, variance is7.336667295, Risk is2.708628305, And coefficient of variance is1.665279606.

The investor has minimum price on 18February 2020 271.4 and sell the share maximum price 334.9 on 3rd December 2019

- **STATEMENT OF SHOWING HINDUSTAN ZINC LIMITED FROM 1ST DEC 2019 TO 29TH FEB 2020**

AVERAGE RETURNS = 0.498437302

VARIANCE =$\sum \frac{D2}{N-1}$

= 1.878286

RISK = $\sqrt{VARIANCE}$

= 1.370506

COEFFICICENT OF VARIANCE = RETURNS/RISK

= -0.835485904

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Interpretation:

From the above table it represents the risk and returns of Hindustan zinc Ltd for a period of 3 months i.e., 1/12/2019 to 29/02/2020 the company has an average return of 0.498437302 variance is 1.878286, Risk is 1.370506, And coefficient of variance is -0.835485904.

The investor has minimum price on 27 February 2020 170.1 and sell the share maximum price 219.65 on 13 January 2020.

- **STATEMENT OF SHOWING SAVITA OIL TECHNOLOGIES LTD FROM 1ST DEC 2019 TO 29TH FEB 2020**

AVERAGE RETURNS = 0.372079604

VARIANCE $=\sum \frac{D2}{N-1}$

= 2.481401167

RISK = $\sqrt{VARIANCE}$

= 1.575246383

COEFFICICENT OF VARIANCE = RETURNS/RISK

= 0.024136599

Interpretation:

From the above table it represents the risk and returns of Savita technologies ltdfor a period of 3 months i.e., 1/12/2019 to 29/02/2020 the company has an average return of0.372079604, variance is2.481401167, Risk is1.575246383, And coefficient of variance is0.024136599.

The investor has minimum price on 26February 2020 797.15 and sell the share maximum price 930 on 20thJanuary 2020.

- **STATEMENT OF SHOWING TATA COFFEE LTD FROM 1ST DEC 2019 TO 29TH FEB 2020**

AVERAGE RETURNS = 0.7156513

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VARIANCE $=\sum \frac{D2}{N-1}$

= 4.451095

RISK = $\sqrt{VARIANCE}$

= 2.109762

COEFFICICENT OF VARIANCE = RETURNS/RISK

= 1.342011833

Interpretation:

From the above table it represents the risk and returns of Tata Coffee Ltd for a period of 3 months i.e., 1/12/2019 to 29/02/2020 the company has an average return of0.37156513, variance is4.451095, Risk is2.109762, And coefficient of variance is1.342011833.

The investor has minimum price on 28February 2020 83 and sell the share maximum price 106.1 on 29th January 2020.

- **CALCULATION OF RISK AND RETURN OF NIFTY**

RISK = $\sqrt{VARIANCE}$

= 0.697117

- **CALCULATION OF SYSTAMETIC RISK OF TATA CHEMICALS LTD**

Systematic risk (β)=∑D1*D2/$D2^2$

=17.55563/31.10218

=0.56445

Interpretation: the systematic risk of tata chemicals ltd with reference to nifty is 0.56445

Expected returns of Portfolio of tata chemicals ltdwith reference to Nifty

E(rp)= rf+β(rm-rf)

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Rf= risk free returns

=0.007

- **CALCULATION OF SYSTAMETIC RISK OF TATA BHARAT DYNAMICS LTD**

Systematic risk (β)=∑D1*D2/D2^2

=0.797741/31.10218

=0.797741

Interpretation: the systematic risk of Baharat dynamics ltd with reference to nifty is 0.797741

Expected returns of Portfolio ofBaharat dynamics ltd with reference to Nifty

E(rp)= rf+β(rm-rf)

Rf= risk free returns

=0.007

- **CALCULATION OF SYSTAMETIC RISK OF HINDUSTAN ZINC LTD**

Systematic risk (β)=∑D1*D2/D2^2

=11.90383/31.10218

=0.382733

Interpretation: the systematic risk of Hindustan zinc ltd with reference to nifty is 0.382733

Expected returns of Portfolio of Hindustan zinc with reference to NIFTY

E(rp)= rf+β(rm-rf)

Rf= risk free returns

=0.007

- **CALCULATION OF SYSTAMETIC RISK OF SAVITA OIL TECHNOLOGIES LTD**

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Systematic risk (β)=∑D1*D2/$D2^2$

=18.56992/31.10218

=0.597062

Interpretation: the systematic risk of Savita oil technologies ltd with reference to nifty is 0.597062

Expected returns of Portfolio ofSavita oil technologies ltdwith reference to nifty

E(rp)= rf+β(rm-rf)

Rf= risk free returns

=0.007

- **CALCULATION OF SYSTAMETIC RISK OF TATA COFFEE LTD**

Systematic risk (β)=∑D1*D2/$D2^2$

=36.37652/31.10218

=1.169581

Interpretation: the systematic risk of tata coffee ltd with reference to nifty is 1.169581

Expected returns of Portfolio of tata coffee ltd with reference to nifty

E(rp)= rf+β(rm-rf)

Rf= risk free returns

=0.007

COMPARATIVE RISK, RETURN AND COEFFICENT OF COVARIANCE

SR NO	COMPANY NAME	RISK	RETURNS	COEFFICICENT OF VARIANCE
1	TATA CHEMICALS LTD	1.17483	0.028440357	-0.059648549
2	BHARAT DYNAMICS LTD	2.70863	0.426766363	1.665279606
3	HINDUASTAN ZINC LTD	1.37051	0.498437302	-0.835485904
4	SAVITA TECHNOLOGIES LTD	1.57525	0.372079604	0.024136599
5	TATA COFFEE LTD	2.10976	0.7156513	1.342011833

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INTERPRETATION: As per the conclusion Bharat dynamics ltd and Tata coffee ltd secures high risk with 2.70863 and 2.10976 with required return value of 0.42677 and 0.71565.

FINDINGS

- The company has an average return of 0.02844, variance is1.380233, Risk is1.174833 and coefficient of variance is-0.05965.
- The company has an average return of0.426766363, variance is7.336667295, Risk is 2.708628305, And coefficient of variance is 1.665279606.
- The company has an average return of 0.498437302 variance is 1.878286, Risk is 1.370506, And coefficient of variance is -0.835485904.
- The company has an average return of0.372079604, variance is2.481401167, Risk is1.575246383, And coefficient of variance is0.024136599.
- The company has an average return of0.37156513, variance is4.451095, Risk is2.109762, And coefficient of variance is1.342011833.

SUGGESTIONS

After such an analysis and findings, the investors can be given the following suggestions:

- According to capital market line, the following portfolios are good to invest in HDFC Bank Ltd; among these Acc cements ltd, SBIbank & HDFC Bank ltd
- Though the risk is maximum, yet the returns are not satisfactory in the case of Cement industry. Hence it is better if the investor does not invest in this portfolio.
- In all portfolios the correlation co-efficient is less than 1. It implies the risk would be less because the risk gets diversified in a portfolio.
- If looked at portfolio risk, the risk has reduced when compared to individual securities. This means that in the portfolio, the risk has been diversified. At the same time, the portfolio is giving satisfactory returns. Hence investing in a portfolio would be a ideal one rather than investing in securities
- The investor has to check at every 3 months of time when shares are getting down has to invest in another company.

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CONCLUSION

The present project work has been undertaken to study the investment opportunities available to investors. These avenues are different for different profiles of investors. How ever it is very important for an investor to identify the risk associated with the returns of various securities. In order to manage the risk associated with the returns one has to construct the portfolio .A portfolio is a set of securities which by adding reduces the risk in whole. In this project work it is seen how the securities can be constructed as a portfolio. By using capital market line efficient portfolios are identified, whose actual returns are higher than the expected returns. Comparison of different portfolios has been made by using individual returns and risk with portfolio returns and risk.

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