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A STUDY ON SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

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Investment:Investment is a financial activity that involves risk. It is the commitment of funds for a return expected to be realized in the future. Investment can be made in financial assets or physical assets. In either case there is possibility that the actual return may vary from the expected return that possibility is risk involved in it. Investment is generally distinguished from speculation in terms of 3 factors namely **risk, capital gain and time period.** Gambling is the extreme form of speculation. Investors may be individual or institutions there is large no. of investment avenues for savers in India. Corporate securities, deposits in the banks and Non-Banking companies, mutual funds schemes, provident fund schemes, life insurance policies, government securities are some of the important avenues.

Keywords: Preparation of portfolios, Market conditions, Fluctuations of stock market

INVESTMENT AVENUES

There are a large number of investment avenues for savers in India. Some of them are marketable and liquid, while others are non-marketable. Investment avenues can be broadly categorized under the following head.

Corporate Securities: Equity share, Preference shares, Debentures/Bonds, Derivatives, Others.

INTRODUCTION

Joint stock companies in the private sector issue corporate securities. These include equity shares, preference shares, and debentures. Equity shares have variable dividend and hence belong to the high risk-high return category; preference shares and debentures have fixed returns with lower risk. The classification of corporate securities that can be chosen as investment avenues can be depicted as shown below:
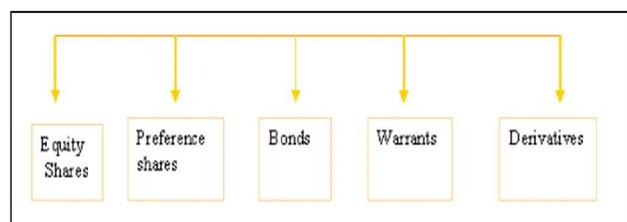
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Characteristics of investment are Return, Risk, Safety and liquidity. Risk and return of an investment related. Normally, the higher the risk, the higher is the return. Hence an investor generally prefers liquidity for his investment, safety of his funds, good return with minimum risk and maximum return.

RETURN

The term Return from an investment refers to the benefits from that investment. In the field of finance in general and security analysis in particular, the term return is almost invariably associated with a percentage (say, return on investment of 12%) and not a mere amount (like, profit of Rs. 150.). In security analysis we are primarily concerned with return forms a particular investment say, a share or a debenture or other financial instrument.

- **Single Period Returns:** It refers to a situation where an investor is concerned with return from a single period (Say, one day, one week, one month or one year).

- **Multi Period Returns:** It refers to situation where more than single period returns are under consideration. Investor is concern with computing the return per period, over a longer period.

- **Ex-Post Returns:** The measurement of return from the historical data can be referred to Ex-Post returns. This includes the both current income and capital gains (or losses) brought about by gains price of the security. The income and capital gains are then expressed as .a percentage of the initial investment.

- **Ex-Ante Returns:** The majority of investors tend to emphasize the return they expect from a security while making investment decision

and the expected return of a security. This enables the investors to look into future prospects from an investment and the measurement of returns from expectation of benefits is known as ex-ante returns.

RISK AND EXPECTED RETURN

There is a positive relationship between the amount of risk and the amount of expected return i.e., the greater the risk, the larger the expected return and larger the chances of substantial loss. One of the most difficult problems for an investor is to estimate the highest level of risk he is able to assume.
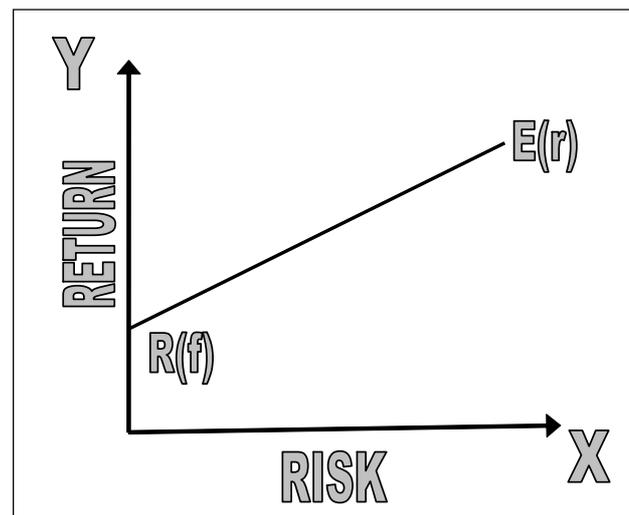
TYPES OF RISKS

Risk consists of two components. They are

1. Systematic Risk

2. Un-systematic Risk

1. **Systematic Risk:** Systematic risk is caused by factors external to the particular company and uncontrollable by the company. The systematic risk affects the market as a whole. Factors affect the systematic risk are

- Economic conditions Political conditions Sociological changes

The systematic risk is unavoidable. Systematic risk is further sub-divided into three types. They are

• Market Risk Interest Rate Risk Purchasing Power Risk

A) Market Risk: One would notice that when the stock market surges up, most stocks post higher price. On the other hand, when the market falls sharply, most common stocks will drop. It is not uncommon to find stock prices falling from time to time while a company's earnings are rising and vice-versa. The price of stock may fluctuate widely within a short time even though earnings remain unchanged or relatively stable.

B) **Interest Rate Risk:** Interest rate risk is the risk of loss of principal brought about the changes in the interest rate paid on new securities currently being issued.

C) **Purchasing Power Risk:** The typical investor seeks an investment which will give him current income and / or capital appreciation in addition to his original investment.

2. **Un-systematic Risk:** Un-systematic risk is unique and peculiar to a firm or an industry. The nature and mode of raising finance and paying back the loans, involve the risk element. Financial leverage of the companies that is debt-equity portion of the companies differs from each other. All these factors Factors affect the un-systematic risk and contribute a portion in the total variability of the return.

• Managerial inefficiently

• Technological change in the production process

• Availability of raw materials

• Changes in the consumer preference

• Labour problems

The nature and magnitude of the above mentioned factors differ from industry to industry and company to company. They have to be analyzed separately for each industry and firm. Un-systematic risk can be broadly classified into:

• Business Risk

• Financial Risk

Business Risk: Business risk is that portion of the unsystematic risk caused by the operating environment of the business. Business risk arises from the inability of a firm to maintain its competitive edge and growth or stability of the earnings. The volatility in stock prices due to factors intrinsic to the company itself is known as Business risk. Business risk is concerned with the difference between revenue and earnings before interest and tax. Business risk can be divided into.

i) Internal Business Risk: Internal business risk is associated with the operational efficiency of the firm. The operational efficiency differs from company to company. The efficiency of operation is reflected on the company's achievement of its pre-set goals and the fulfilment of the promises to its investors.

ii) External Business Risk: External business risk is the result of operating conditions imposed on the firm by circumstances beyond its control. The external environments in which it operates exert some pressure on the firm. The external factors are social and regulatory factors, monetary and fiscal policies of the government, business cycle and the general economic environment within which a firm or an industry operates.

Financial Risk: It refers to the variability of the income to the equity capital due to the debt capital. Financial risk in a company is associated with the capital structure of the company. Capital structure of the company consists of equity funds and borrowed funds.

Need of the Project: The India is emerging developing country. The public investment is increase in recent years .i.e. the people are interested to invest their money in to the share markets in order to get the quick & large profits. But most of the people doesn't know how to invest the money and some people fear to losses.

This project is use to gain the knowledge to investment styles in the share markets. The main function of the PORT" to study the usefulness of efficient frontier technique in portfolio selection process.

To see whether the portfolio risk is less than individual risk on whose basis the portfolio are constituted.

- To see whether the selected portfolios is yielding a satisfactory and constant return to the investor.

- To understand, analyze and select the best portfolio. Growth in the number and size of ingestible funds – a large part of household savings is being directed towards financial assets.

- Increased market volatility – risk and return parameters of financial assets are continuously changing because of frequent changes in government's industrial and fiscal policies, economic uncertainty and instability

Greater use of computers for processing mass of data.

OBJECTIVES OF THE PROJECT

- To analyze securities.

- To study the investment pattern and it's related risk & returns

- To understand, analyze and select the best portfolio.

- To help the investor to chose wisely between alternative investment.

- To strike balance between costs of funds, risk and returns

- To provide basic idea of different stock market investment instrument to investor.

INDUSTRY PROFILE

Markowitz model is a theoretical framework for analysis of risk and return and their relationships. He used statistical analysis for the measurement of risk and mathematical programming for selection of assets in a portfolio in an efficient manner. Markowitz approach determines for the investor the efficient set of portfolio through three important variables i.e.

- Return

- Standard deviation

- Co-efficient of correlation

Markowitz model is also called as a "Full Covariance Model". Through this model the investor can find out the efficient set of portfolio by finding out the trade off between risk and return, between the limits of zero and infinity. According to this theory, the effects of one security purchase over the effects of the other security purchase are taken into consideration and then the results are evaluated. Most people agree that holding two stocks is less risky than holding one stock. For example, holding stocks from textile, banking and

electronic companies is better than investing all the money on the textile company's stock.

Markowitz had given up the single stock portfolio and introduced diversification. The single stock portfolio would be preferable if the investor is perfectly certain that his expectation of highest return would turn out to be real.

Assumptions

- All investors would like to earn the maximum rate of return that they can achieve from their investments.

- All investors have the same expected single period investment horizon.

- All investors before making any investments have a common goal. This is the avoidance of risk because Investors are risk-averse.

- Investors base their investment decisions on the expected return and standard deviation of returns from a possible investment.

- The investor assumes that greater or larger the return that he achieves on his investments, the higher the risk factor surrounds him. On the contrary when risks are low the return can also be expected to be low.

- The investor can reduce his risk if he adds investments to his portfolio.

- An investor should be able to get higher return for each level of risk "by determining the efficient set of securities".

- An individual seller or buyer cannot affect the price of a stock. This assumption is the basic assumption of the perfectly competitive market.

The Effect of Combining Two Securities: It is believed that holding two securities is less risky than by having only one investment in a person's portfolio. When two stocks are taken on a portfolio and if they have negative correlation then risk can be completely reduced because the gain on one can offset the loss on the other. This can be shown with the help of following example:

Inter-Active Risk Through Covariance: Covariance of the securities will help in finding out the inter-active risk. When the covariance will be positive then the rates of return of securities move together either upwards or downwards. Alternatively it can also be said that the inter-active risk is positive. Secondly, covariance will be zero on two investments if the rates of return are independent. Holding two securities may reduce the portfolio risk too. The portfolio risk can be calculated with the help of the following formula:

Capital Asset Pricing Model (Capm): Markowitz, William Sharpe, John Lintner and Jan Mossin provided the basic structure of Capital Asset Pricing 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 (i.e. market related risk) because non market risk can be eliminated by diversification and systematic risk measured by beta. Therefore, the relationship between an assets return and its systematic risk can be expressed by the CAPM, which is also called the Security Market Line.

$$R_p = R_F X_f + R_m (1 - X_f)$$

R_p = Portfolio return

X_f = the proportion of funds invested in risk free assets

$1 - X_f$ = the proportion of funds invested in risky assets

R_F = Risk free rate of return

R_m = Return on risky assets

Formula can be used to calculate the expected returns for different situations, like mixing risk less assets with risky assets, investing only in the risky asset and mixing the borrowing with risky assets.

THE CONCEPT

According to CAPM, all investors hold only the market portfolio and risk less securities. The market portfolio is a portfolio comprised of all stocks in the market. Each asset is held in proportion to its market value to the total value of all risky assets.

The Sharpe's Index Model: The investor always like to purchase a combination of stock that provides the highest return and has lowest risk. He wants to maintain a satisfactory reward to risk ratio traditionally analysis paid more attention to the return aspects of the stocks.

He assumed that the return of a security is linearly related to a single index like to market index. Strictly speaking the market index should consist of all the securities trading on the exchange. In the absence of it, a popular index can be treated as a surrogate for the market index. Sharpe has provided a model for the selection of appropriate securities in a portfolio. The selection of any stock is directly related to its excess return – beta ratio

$$R_i = R_f / a_i$$

where,

R_i = the expected return on stock i

R_f = the return on a risk less asset

A_i = the expected change in the rate of return on stock I associated.

With one unit change in the market return

Single Index Model: Causal observation of the stock prices over a period of time reveals that most of the stock process move with the market index. When sensex increases, stock prices also tend to increase and vice versa. This indicates that some underlying factor affect the market index as well as the stock prices. Stock prices are related to the market index and this relationship could be used to estimate the return on stock. Towards the purpose, the following equation can be used:

$$R_i = a + a_i R_m + e_i$$

where,

R = expected return on security i

a = intercept of the straight line or alpha co-efficient

a_i = slope of straight line or beta co-efficient

R_m = the rate of return on market index

e_i = error term with a mean of zero & a std.dev. Which is a constant?

ARBITRAGE PRICING THEORY

According to this theory the returns of the securities are influenced by a number of macroeconomic factors such as growth rate of industrial production rate of inflation, spread between low-grade and high grade bonds.

The Law of One Price: The foundation for Apt is the law of one price. The law of one price states that two identical goods should sell at the same price. If they sold at different prices anyone could engage in arbitrage by simultaneously buying at low prices and selling at the high prices and make a risk less profit. Arbitrage also applies to financial assets. If two financial assets have the same risk,

they should have the same expected return. If they do not have the same expected return, a riskless profit could be earned by simultaneously issuing(or selling short) at the low return and buying the high-returnf asset. Arbitrage causes prices to be revised as suggested by the law of one price.

The arbitrage pricing line for one risk factor can be written as:

$$\hat{r} = \lambda_0 + \lambda_i \beta_i$$

where

$\hat{r}$ is the expected return on the security i

λ_0 is the return on the zero beta portfolio

λ_I is the factor risk premium

β_i is the sensitivity of the ith asset to the risk factor

Two factor Arbitrage pricing: The Two-factor model describes the return of i^t security as follows

$$\hat{r} = \lambda_0 + \lambda_1 \beta_{1i} + \lambda_2 \beta_{i2}$$

where

λ_2 is the risk premium associated with risk factor2

β_{i2} is the factor beta coefficient for factor

2 and the factor 1 and 2 are uncorrelated

Formulaes Used:

Return = *(P1 − P0)/P0*100*

Total return = $\Sigma(P_1 - P_0)/P_0 * 100$

Average return = *Total return / N*

Variance = $\Sigma(R - \bar{R})^2/N$

Standard Deviation = $\sqrt{variance}$

Co-Variance = $\Sigma[R_1 - \bar{R}_1] [R_2 - \bar{R}_2] / N$

Co-efficient of Co-relations = cov1.2 / $\sigma_1 * \sigma_2$

Portfolio Weights Wa

= σb^2 − nab*σa*σb / σa^2 + σb^2 − 2nab *σa*σb

Portfolio Risks Wb = 1-Wa

$$R_p = \sqrt{\sigma_a^2 \times w_a^2 + \sigma_b^2 \times w_b^2 + 2nab\sigma_a\sigma_b w_a w_b}$$

Portfolio Return = *[(RA*WA) + (RB*WB)]*

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