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FINAL LEVEL
PAPER 2: STRATEGIC FINANCIAL MANAGEMENT

Faculty: CA SUUSHANT ARORA

PORTFOLIO MANAGEMENT

Chapter 5

Introduction

As per the famous principle of not putting all eggs in the same basket, an investor never invests his entire investable funds in one security. He invests in a well diversified portfolio of a number of securities which will optimize the overall risk-return profile. Investment in a portfolio can reduce risk without diluting the returns. An investor, who is expert in portfolio analysis, may be able to generate trading profits on a sustained basis.

Activities in Portfolio Management

The following three major activities are involved in the formation of an Optimal Portfolio suitable for given investor:

- Selection of securities.
- Construction of all Feasible Portfolios with the help of the selected securities.
- Deciding the weights/proportions of the different constituent securities in the portfolio so that it is an Optimal Portfolio for the concerned investor.

The activities are directed to achieve an Optimal Portfolio of investments commensurate with the appetite of the investor.

Objectives of Portfolio Management

Some of the important objectives of portfolio management are:

(i) ***Security/Safety of Principal*:** Security not only involves keeping the principal sum intact but also its purchasing power.

(ii) ***Stability of Income*:** To facilitate planning more accurately and systematically the reinvestment or consumption of income.

(iii) ***Capital Growth*:** It can be attained by reinvesting in growth securities or through purchase of growth securities.

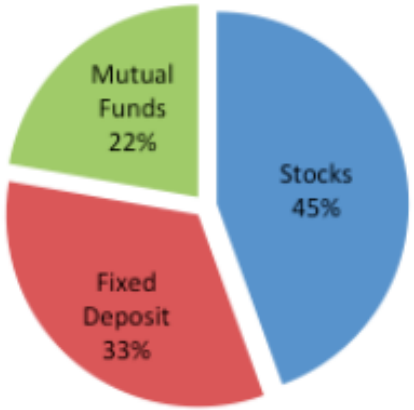
(iv) ***Marketability i.e. the case with which a security can be bought or sold*:** This is essential for providing flexibility to investment portfolio.

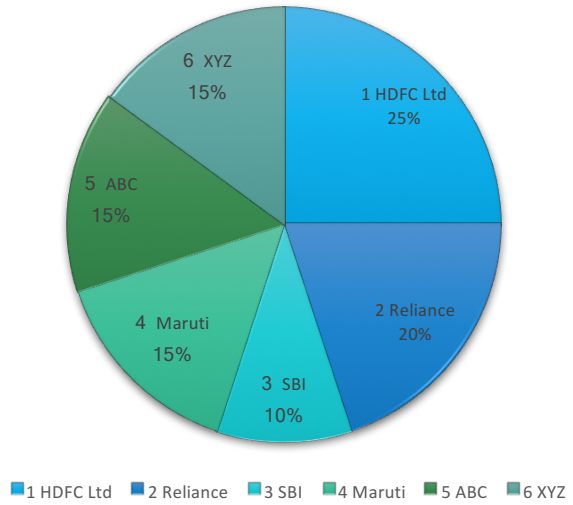
(v) ***Liquidity i.e. nearness to money*:** It is desirable for the investor so as to take advantage of attractive opportunities upcoming in the market.

(vi) ***Diversification*:** The basic objective of building a portfolio is to reduce the risk of loss of capital and/or income by investing in various types of securities and over a wide range of industries.

(vii) ***Favourable Tax Status*:** The effective yield an investor gets from his investment depends on tax to which it is subjected to. By minimising the tax burden, yield can be effectively improved.

Portfolio selection & allocation





PHASES OF PORTFOLIO MANAGEMENT-5 phases

1. Security Analysis: covered earlier

2. Portfolio Analysis Once the securities for investment have been identified, the next step is to combine these to form a suitable portfolio. Each such portfolio has its own specific risk and return characteristics which are not just the aggregates of the characteristics of the individual securities constituting it.

3. **Portfolio Selection:** The goal of a rational investor is to identify the Efficient Portfolios out of the whole set of Feasible Portfolios mentioned above and then to zero in on the Optimal Portfolio suiting his risk appetite. An Efficient Portfolio has the highest return among all Feasible Portfolios having identical Risk and has the lowest Risk among all Feasible Portfolios having identical Return.

PHASES OF PORTFOLIO MANAGEMENT- Contd.

4. Portfolio Revision: Once an optimal portfolio has been constructed, it becomes necessary for the investor to constantly monitor the portfolio to ensure that it does not lose it optimality. Since the economy and financial markets are dynamic in nature, changes take place in these variables almost on a daily basis and securities which were once attractive may cease to be so with the passage of time. New securities with expectations of high returns and low risk may emerge.

5. **Portfolio Evaluation**

This process is concerned with assessing the performance of the portfolio over a selected period of time in terms of return and risk and it involves quantitative measurement of actual return realized and the risk borne by the portfolio over the period of investment. The objective of constructing a portfolio and revising it periodically is to maintain its optimal risk return characteristics. Various types of alternative measures of performance evaluation have been developed for use by investors and portfolio managers.

PHASES OF PORTFOLIO MANAGEMENT- Contd.

Following three ratios are used to evaluate the portfolio:

1 Sharpe Ratio

Sharpe Ratio measures the Risk Premium per unit of Total Risk for a security or a portfolio of securities. The formula is as follows: R_i-R_f/ Sd_i (σ)

Example: Let's assume that we look at a one year period of time where an index fund earned 11% Treasury bills earned 6%. The standard deviation of the index fund was 20%

Therefore S = 11-6/0.20 = 25%

The Sharpe ratio is an appropriate measure of performance for an overall portfolio particularly when it is compared to another portfolio, or another index such as the S&P 500, Small Cap index, etc.

PHASES OF PORTFOLIO MANAGEMENT- Contd.

2 Treynor Ratio

This ratio is same as Sharpe ratio with only difference that it measures the Risk Premium per unit of Systematic Risk (β) for a security or a portfolio of securities. The formula is as follows:

$R_i - R_f / \beta_i$

Where,
R_i = Expected return on stock i

R_f= Return on a risk less asset

σ_i= Standard Deviation of the rates of return for the i Security or Portfolio

β_i= Expected change in the rate of return on stock i associated with one unit change in the market return (Beta)

PHASES OF PORTFOLIO MANAGEMENT- Contd.

Example: Consider two Portfolios A and B. Let return of A be 30% and that of B be 25%. On the outset, it appears that A has performed better than B. Let us now incorporate the risk factor and find out the Sharpe ratios for the portfolios. Let risk of A and B be 11% and 5% respectively. This means that the standard deviation of returns - or the volatility of returns of A is much higher than that of B.

If risk free rate is assumed to be 8%,
Sharpe ratio for portfolio A= (30-8)/11=2% and Sharpe ratio for portfolio B= (25-8)/5=3.4%

Higher the Sharpe Ratio, better is the portfolio on a risk adjusted return metric.

In above example if beta of Portfolio A and B are 1.5 and 1.1 respectively, Treynor ratio for Portfolio A= (30-8)/1.5=14.67%
Treynor ratio for Portfolio B= (25-8)/1.1= 15.45%
The results are in sync with the Sharpe ratio results.

Which one to choose?

Both Sharpe ratio and Treynor ratio measure risk adjusted returns. The difference lies in how risk is defined in either case. In Sharpe ratio, risk is determined as the degree of volatility in returns - the variability in month-on-month or period-on-period returns - which is expressed through the standard deviation of the stream of returns numbers you are considering. In Treynor ratio, you look at the beta of the portfolio - the degree of "momentum" that has been built into the portfolio by the fund manager in order to derive his excess returns. High momentum - or high beta (where beta is > 1) implies that the portfolio will move faster (up as well as down) than the market.

While Sharpe ratio measures total risk (as the degree of volatility in returns captures all elements of risk - systematic as well as unsystemic), the Treynor ratio captures only the systematic risk in its computation.

When one has to evaluate the funds which are sector specific, Sharpe ratio would be more meaningful. This is due to the fact that unsystematic risk would be present in sector specific funds. Hence, a truer measure of evaluation would be to judge the returns based on the total risk.

PHASES OF PORTFOLIO MANAGEMENT-Contd

3.Jensen Alpha : This is the difference between a portfolio's actual return and those that could have been made on a benchmark portfolio with the same risk- i.e. beta. It measures the ability of active management to increase returns above those that are purely a reward for bearing market risk.

Assume Two Portfolios

	A	B	Market return
Return	12	14	12
Beta	0.7	1.2	1.0

Risk Free Rate = 9%
The return expected = Risk Free Return + Beta portfolio (Return of Market - Risk Free Return)
Using Portfolio A, the expected return = 0 .09 + 0.7 (0.12 - 0.09) = 0.09 + 0.021 = 0.111

Alpha = Return of Portfolio- Expected Return= 0.12 - 0.111 = 0.009

PORTFOLIO THEORIES

A portfolio theory guides investors about the method of selecting and combining securities that will provide the highest expected rate of return for any given degree of risk or that will expose the investor to the lowest degree of risk for a given expected rate of return. Portfolio theory can be discussed under the following heads:

1. Traditional Approach

2. Modern Approach (Markowitz Model or Risk-Return Optimization)

Traditional Approach

The traditional approach to portfolio management concerns itself with the investor, definition of portfolio objectives, investment strategy, diversification and selection of individual investment as detailed below:

(i) Investor's study includes an insight into his – (a) age, health, responsibilities, other assets, portfolio needs; (b) need for income, capital maintenance, liquidity; (c) attitude towards risk; and (d) taxation status;

(ii) Portfolio objectives are defined with reference to maximising the investors' wealth which is subject to risk. The higher the level of risk borne, the more the expected returns.

(iii) Investment strategy covers examining a number of aspects including:

(a) Balancing fixed interest securities against equities;

(b) Balancing high dividend payout companies against high earning growth companies as required by investor;

(c) Finding the income of the growth portfolio; etc

Traditional Approach: Contd.

(iv) Diversification reduces volatility of returns and risks and thus adequate equity diversification is sought. Balancing of equities against fixed interest bearing securities is also sought.

(v) Selection of individual investments is made on the basis of the following principles:

(a) Methods for selecting sound investments by calculating the true or intrinsic value of a share and comparing that value with the current market value (i.e. by following the fundamental analysis) or trying to predict future share prices from past price movements (i.e., following the technical analysis);

(b) Expert advice is sought besides study of published accounts to predict intrinsic value, etc.

In India, most of the share and stock brokers follow the above traditional approach for selecting a portfolio for their clients.

Modern Approach (Markowitz Model or Risk-Return Optimization)

Harry Markowitz is regarded as the father of Modern Portfolio Theory. According to him, investors are mainly concerned with two properties of an asset: risk and return. The essence of his theory is that risk of an individual asset hardly matters to an investor. What really matters is the contribution it makes to the investor's overall risk.

RISK ANALYSIS

Risk arises from the variability in returns. An investment whose returns are fairly stable is considered to be a low-risk investment, whereas an investment whose returns fluctuate significantly is considered to be a highly risky investment. Government securities whose returns are fairly stable and which are free from default are considered to possess low risk whereas equity shares whose returns are likely to fluctuate widely around their mean are considered risky investments.

The essence of risk in an investment is the variation in its returns. This variation in returns is caused by a number of factors. These factors which produce variations in the returns from an investment constitute the elements of risk.

Concept no 1.Elements of Risk

Elements of Risk: Contd.

The first group i.e. systematic risk comprises factors that are external to a company (macro in nature) and affect a large number of securities simultaneously. These are mostly uncontrollable in nature. The second group i.e. unsystematic risk includes those factors which are internal to companies (micro in nature) and affect only those particular companies. These are controllable to a great extent.

The total variability in returns of a security is due to the total risk of that security. Hence, Total risk = Systematic risk + Unsystematic risk

Systematic Risk

Due to dynamic nature of society the changes occur in the economic, political and social systems constantly. These changes have an influence on the performance of companies and thereby on their stock prices but in varying degrees.

Systematic risk can be further subdivided into interest rate risk, market risk and purchasing power risk.

(i) **Interest Rate Risk:** This arises due to variability in the interest rates from time to time and particularly affects debts securities like bonds and debentures as they carry fixed coupon rate of interest. A change in the interest rates establishes an inverse relationship in the price of security

(ii) **Purchasing Power Risk:** It is also known as inflation risk, as it also emanates from the very fact that inflation affects the purchasing power adversely.

(iii) **Market risk:** This is a type of systematic risk that affects prices of any particular share move up or down consistently for some time periods in line with other shares in the market. A general rise in share prices is referred to as a bullish trend, whereas a general fall in share prices is referred to as a bearish trend.

Unsystematic Risk

Sometimes the return from a security of any company may vary because of certain factors particular to this company. Variability in returns of the security on account of these factors (micro in nature), it is known as unsystematic risk.

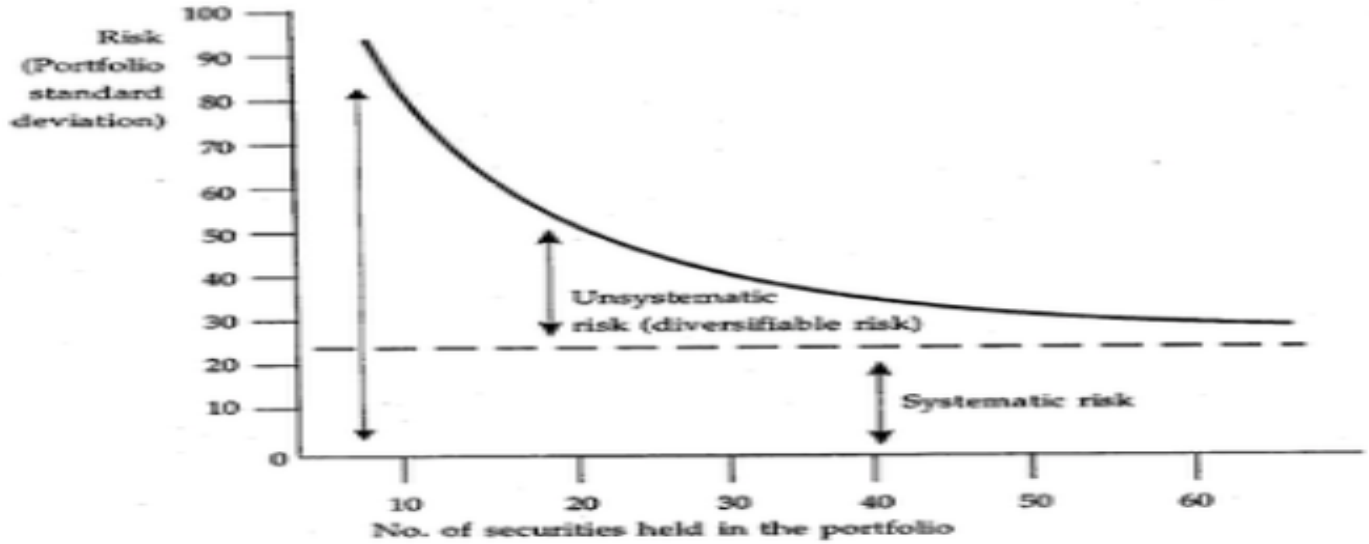
Unsystematic risk can be further subdivided into business risk and financial risk.

(i) **Business Risk*:*** Business risk emanates from sale and purchase of securities affected by business cycles, technological changes etc.

(ii) **Financial Risk*:*** It arises due to changes in the capital structure of the company. It is also known as leveraged risk and expressed in terms of debt-equity ratio.

Concept no 2: Diversion of Risk

Since the total risk of an individual security consists of two risks systematic risk and unsystematic risk. It should be noted that by combining many securities in a portfolio the unsystematic risk can be avoided or cancelled out which is attached to any particular security. The following diagram depicts how the risk can be reduced with the increase in the number of securities.



Risk & Return

- The quantification of risk is necessary for analysis of any investment.
- As risk is attached with return its risk cannot be measured without reference to return. The return, in turn, depends on the cash inflows to be received from the investment.
- Say for example, the investor expects to get a return of 50 per cent in the future, which is uncertain. It might be possible that the dividend declared by the company may turn out to be either more or less than the figure anticipated by the investor. Similarly, the selling price of the share may be less than the price expected by the investor at the time of investment.
- The expected returns may be 20 per cent, 30 per cent, 50 per cent, 60 per cent or 70 per cent. The investor now has to assign the probability of occurrence of these possible alternative returns.
- With the help of available probability distribution two statistical measures one expected return and the other risk of the investment can be calculated.

Expected Return

The expected return of the investment is the probability weighted average of all the possible returns. If the possible returns are denoted by Xi and the related probabilities are *p(Xi)* the expected return may be represented as $\bar{x}$ and can be calculated as:

$$\bar{x}=\Sigma\, x_i\, P(X_i)$$

It is the sum of the products of possible returns with their respective probabilities.

Possible returns(%) X_i	*Probability* $p(X_i)$	$X_i\, p(X_i)$
20	0.20	4.00
30	0.20	6.00
40	0.40	16.00
50	0.10	5.00
60	0.10	6.00
	$\sum_{i=1}^{n} x_i\, p(X_i)$	37.00

Risk

As risk is attached with every return hence calculation of only expected return is not sufficient for decision making. Therefore risk aspect should also be considered along with the expected return.

Variance of each security is generally denoted by σ^2 and is calculated by using the following formula:

$\sum[(X_i-\bar{x})^2 \ p(X_i)]$

Possible returns X_i (%)	*Probability $p(X_i)$*	*Deviation $(X_i - \bar{X})$*	*Deviation squared $(X_i - \bar{X})^2$*	Product $(X_i - \bar{X})^2 p(X_i)$
20	0.20	-17.00	289.00	57.80
30	0.20	-7.00	49.00	9.80
40	0.40	3.00	9.00	3.60
50	0.10	13.00	169.00	16.90
60	0.10	23.00	529.00	52.90
			Var (σ^2)	141.00

Accordingly, the standard deviation of return in the above example will be √141 = 11.87%.

The basic purpose to calculate the variance and standard deviation is to measure the extent of variability of possible returns from the expected return.

Measurement of Systematic Risk

The systematic risk of a security is measured by a statistical measure which is called Beta. The main input data required for the calculation of beta of any security are the historical data of returns of the individual security and corresponding return of a representative market return (stock market index).

There are two statistical methods i.e. correlation method and the regression method, which can be used for the calculation *of* Beta.

Measurement of Systematic Risk Contd.

Correlation Method : Using this method beta (β) can be calculated from the historical data of returns by the following formula:

$$\beta_i = \frac{r_{im}\sigma_i\sigma_m}{\sigma_m^2}$$

Where

r_{im} = Correlation coefficient between the returns of the stock i and the returns of the market index.

σ_i = Standard deviation *of* returns of stock *i*

σ_m = Standard deviation of returns of the market index.

σ_m^2 = Variance of the market returns

Measurement of Systematic Risk Contd.

2 Regression Method : The regression model is based on the postulation that there exists a linear relationship between a dependent variable and an independent variable. The model helps to calculate the values of two constants, namely alfa (*α)* and beta (*β).* β measures the change in the dependent variable in response to unit change in the independent variable, while *α* measures the value *of* the dependent variable even when the independent variable has zero value. The formula of the regression equation is as follows:

$Y = \alpha + \beta X$

where
Y = Dependent variable X = Independent variable

α and β are constants. $\alpha = Y - \beta X$

Measurement of Systematic Risk Contd.

The formula used for the calculation of α and β are given below.

$$\beta = \frac{n\sum XY - (\sum X)(\sum Y)}{n\sum X^2 \quad (\sum X)^2}$$

where

n = Number of items.

Y = Dependent variable scores.

X = Independent variable scores.

For the purpose of calculation of β, the return of the individual security is taken as the dependent variable and the return of the market index is taken as the independent variable. The regression equation is represented as follows:

$$R_i = \alpha + \beta_i R_m$$

where

R_i = Return of the individual security.

R_m = Retum of the market index.

α = Estimated return of the security when the market is stationary.

β_i = Change in the return of the individual security in response to unit change in the return of the market index. It is, thus, the measure of systematic risk of a security.

Concept no 4: Portfolio Analysis

1 Portfolio Return

For a portfolio analysis an investor first needs to specify the list of securities eligible for selection or inclusion in the portfolio. Then he has to generate the risk-return expectations for these securities. The expected return for the portfolio is expressed as the mean of its rates of return over the time horizon under consideration and risk for the portfolio is the variance or standard deviation of these rates of return around the mean return.

Let us consider a portfolio of two equity shares A and B with expected returns of 16 per cent and 22 per cent respectively.

If 40 per cent of the total funds is invested in share A and the remaining 60 per cent in share B, then the expected portfolio return will be: (0.40 x 16) + (0.60 x 22) = 19.6 per cent

Portfolio Analysis: Contd.

2 Portfolio Risk

The variance of return and standard deviation of return are statistical measures that are used for measuring risk in investment. The variance of a portfolio can be written down as the sum of 2 terms, one containing the aggregate of the weighted variances of the constituent securities and the other containing the weighted co-variances among different pairs of securities.

Covariance (a statistical measure) between two securities or two portfolios or a security and a portfolio indicates how the rates of return for the two concerned entities behave relative to each other.

Portfolio Analysis: Contd.

The covariance between two securities A and B may be calculated using the following formula:

$$COV_{AB} = \frac{\sum [R_A - \overline{R_A}][R_B - \overline{R_B}]}{N}$$

At the beginning please add the summation sign in the numerator

where

COV_{AB} = Covariance between *x* and y.

R_A = Return of security *x*.

R_B = Return of security *y*.

$\overline{R_A}$ = Expected or mean return of security *x*.

$\overline{R_B}$ = Expected or mean return of security *y*.

N = Number of observations.

Portfolio Analysis: Contd.

From the above table it can be seen that the covariance is a measure of how returns of two securities move together. In case the returns of the two securities move in the same direction consistently the covariance is said to be positive (+). Contrarily, if the returns of the two securities move in opposite directions consistently the covariance would be negative (-). If the movements of returns are independent of each other, covariance would be close to zero (0).

The coefficient of correlation is expressed as:

$$r_{AB} = \frac{Cov_{AB}}{\sigma_A \sigma_B}$$

where

r_{AB} = Coefficient of correlation between x and y.

Cov_{AB} = Covariance between A and B.

σ_A= Standard deviation of A.

σ_B = Standard deviation of B.

It may be noted on the basis of above formula the covariance can be expressed as the product of correlation between the securities and the standard deviation of each of the securities as shown below:

$$Cov_{AB} = \sigma_A \sigma_B r_{AB}$$

It is very important to note that the correlation coefficients may range from -1 to 1. A value of -1 indicates perfect negative correlation between the two securities' returns, while a value of +1 indicates a perfect positive correlation between them. A value of zero indicates that the returns are independent.

Portfolio Analysis: Contd.

3 Reduction or dilution of Portfolio Risk through Diversification

The process of combining more than one security in to a portfolio is known as diversification. The main purpose of this diversification is to reduce the total risk by eliminating or substantially mitigating the unsystematic risk, without sacrificing portfolio return.

In order to understand the mechanism and power of diversification, it is necessary to consider the impact of covariance or correlation on portfolio risk more closely. We shall discuss following three cases taking two securities in the portfolio:

(a) Securities' returns are perfectly positively correlated,

(b) Securities' returns are perfectly negatively correlated, and

(c) Securities' returns are not correlated i.e. they are independent.

Portfolio Analysis: Contd.

Perfectly Positively Correlated : In case two securities returns are perfectly positively correlated the correlation coefficient between these securities will be +1 and the returns of these securities then move up or down together.

Perfectly Negatively Correlated : When two securities' returns are perfectly negatively correlated, two returns always move in exactly opposite directions and correlation coefficient between them becomes -1.

Returns are uncorrelated or independent : When the returns of two securities are entirely uncorrelated, the coefficient of correlation of these two securities would be zero.

Portfolio Analysis: Contd.

Portfolio with more than two securities:

Diversification (that is, adding securities to a portfolio) results in some reduction in total portfolio risk but not in complete elimination of risk

The total risk of an individual security comprises two components, the market related risk called systematic risk and the unique risk of that particular security called unsystematic risk. By combining securities into a portfolio the unsystematic risk specific to different securities is cancelled out.

The risk of the portfolio as a whole is reduced as the size of the portfolio increases.

Calculation of Return and Risk of Portfolio with more than two securities

The expected return of a portfolio is the weighted average of the returns of individual securities in the portfolio, the weights being the proportion of investment in each security. The formula for calculation of expected portfolio return is the **same** for a portfolio with two securities and for portfolios with more than two securities.

MARKOWITZ MODEL OF RISK-RETURN OPTIMIZATION

The portfolio selection problem can be divided into two stages, (1) finding the mean-variance efficient portfolios and (2) selecting one such portfolio. Investors do not like risk and the greater the riskiness of returns on an investment, the greater will be the returns expected by investors. There is a tradeoff between risk and return which must be reflected in the required rates of return on investment opportunities

Assumptions of the Model

It is a common phenomenon that the diversification of investments in the portfolio leads to reduction in variance of the return, even for the same level of expected return. This model has taken into account risks associated with investments - using variance or standard deviation of the return. This model is based on the following assumptions. :

(i) The return on an investment adequately summarizes the outcome of the investment.

(ii) The investors can visualize a probability distribution of rates of return.

(iii) The investors' risk estimates are proportional to the variance of return they perceive for a security or portfolio.

(iv) Investors base their investment decisions on two criteria i.e. expected return and variance of return.

MARKOWITZ MODEL OF RISK-RETURN OPTIMIZATION: Contd.

Assumptions of the Model: Contd.

(v) All investors are risk averse. For a given expected return he prefers to take minimum risk, for a given level of risk the investor prefers to get maximum expected return.

(vi) Investors are assumed to be rational in so far as they would prefer greater returns to lesser ones given equal or smaller risk and are risk averse. Risk aversion in this context means merely that, as between two investments with equal expected returns, the investment with the smaller risk would be preferred.

(vii) 'Return' could be any suitable measure of monetary inflows like NPV but yield has been the most commonly used measure of return, so that where the standard deviation of returns is referred to it is meant the standard deviation of yield about its expected value.

MARKOWITZ MODEL OF RISK-RETURN OPTIMIZATION: Contd.

2 Efficient Frontier

Markowitz has formalised the risk return relationship and developed the concept of efficient frontier. For selection of a portfolio, comparison between combinations of portfolios is essential. As a rule, a portfolio is not efficient if there is another portfolio with:

(a) A higher expected value of return and a lower standard deviation (risk).

(b) A higher expected value of return and the same standard deviation (risk)

(c) The same expected value but a lower standard deviation (risk)

Markowitz has defined the diversification as the process of combining assets that are less than perfectly positively correlated in order to reduce portfolio risk without sacrificing any portfolio returns. If an investors' portfolio is not efficient he may:

(i) Increase the expected value of return without increasing the risk.

(ii) Decrease the risk without decreasing the expected value of return, or

(iii) Obtain some combination of increase of expected return and decrease risk.

This is possible by switching to a portfolio on the efficient frontier.

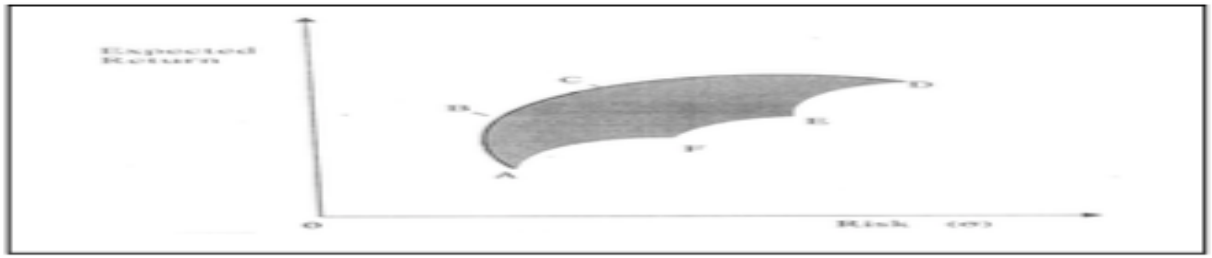


Fig. 1: Markowitz Efficient Frontier

MARKOWITZ MODEL OF RISK-RETURN OPTIMIZATION: Contd.

The best combination of expected value of return and risk (standard deviation) depends upon the investors' utility function. The individual investor will want to hold that portfolio of securities which places him on the highest indifference curve, choosing from the set of available portfolios. The dark line at the top of the set is the line of efficient combinations, or the efficient frontier. The optimal portfolio for an investor lies at the point where the indifference curve for the concerned investor touches the efficient frontier. This point reflects the risk level acceptable to the investor in order to achieve a desired return and provide maximum return for the bearable level of risk. The concept of efficient frontier and the location of the optimal portfolio are explained with help of Fig-2.

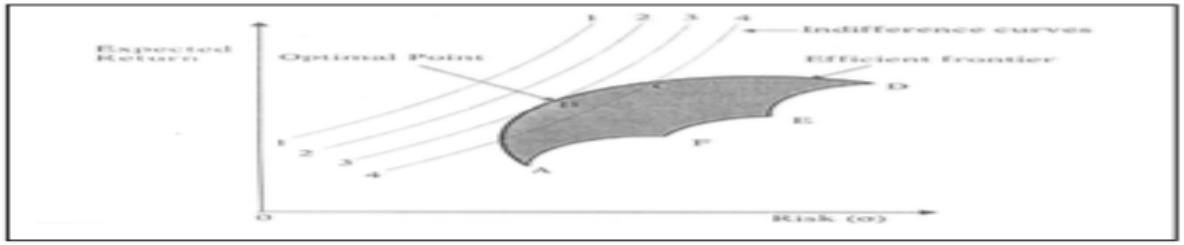


Fig. 2 : Optimal Investment under Markowitz Model

In Fig-2 A, B, C, D, E and F define the boundary of all possible investments out of which investments in B, C and D are the efficient portfolios lying on the efficient frontier. The attractiveness of the investment proposals lying on the efficient frontier depends on the investors' attitude to risk. At point B, the level of risk and return is at optimum level. The returns are highest at point D, but simultaneously it carries higher risk than any other investment.

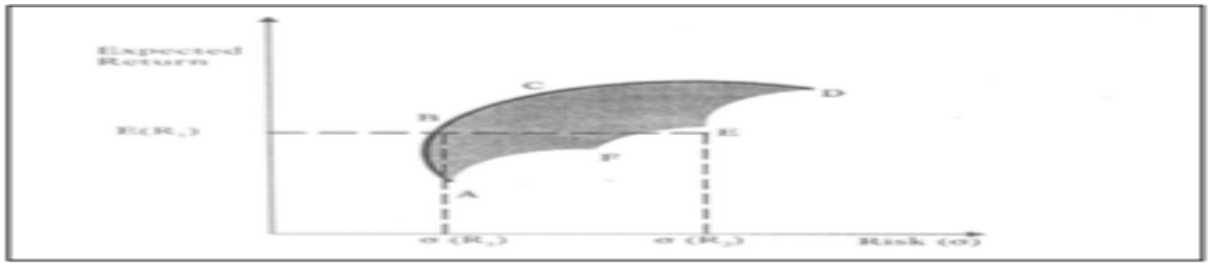


Fig.3 : Selection of Portfolios

CAPITAL MARKET THEORY

Point B represents the market portfolio and if a line tangent to this point is drawn and extended upto y-axis the point at it will touch will be the riskless rate of interest.

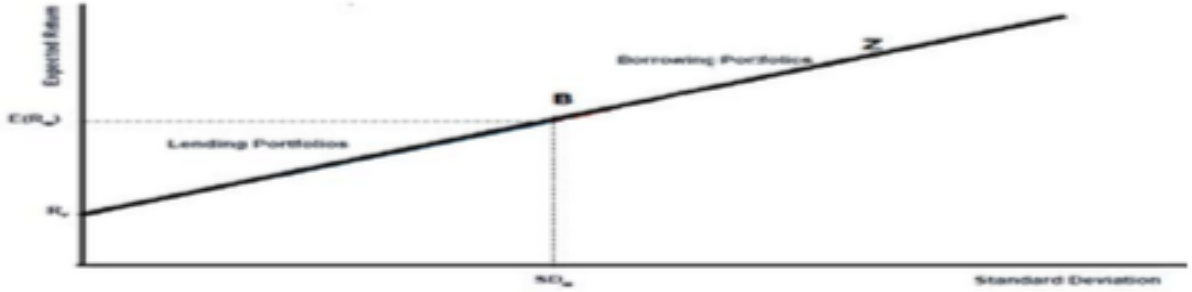


Fig.4 : Selection of Portfolios

Preferred investment strategies plot along line R_fBZ, representing alternative combinations of risk and return obtainable by combining the market portfolio with borrowing or lending. This is known as the Capital Market Line (CML). Portfolio lying on line from R_f to B shall be lending portfolio as it will involve some investment in risk-free securities and some investment in market portfolio. Portfolios lying from B to Z will be borrowing portfolio as it will investment in market portfolio by borrowing some amount.

The slope of the capital market line can be regarded as the reward per unit of risk borne and it is computed as follows:

$$\text{Slope} = \frac{R_M - R_f}{\sigma_M}$$

CAPITAL ASSET PRICING MODEL (CAPM)

The CAPM distinguishes between risk of holding a single asset and holding a portfolio of assets. There is a trade off between risk and return. Modern portfolio theory concentrates on risk and stresses on risk management rather than on return management.

Portfolio risk is comprised of unsystematic risk and systematic risk. Unsystematic risks can be averted through diversification and is related to random variables. Systematic risk is market related component of portfolio risk. It is commonly measured by regression coefficient Beta or the Beta coefficient. Low Beta reflects low risk and high Beta reflects high risk.

CAPM provides a conceptual framework for evaluating any investment decision where capital is committed with a goal of producing future returns. CAPM is based on certain assumptions to provide conceptual framework for evaluating risk and return.

CAPITAL ASSET PRICING MODEL (CAPM) Contd.

Some of the important assumptions are discussed below:

(i) ***Efficient market:*** It is the first assumption of CAPM. Efficient market refers to the existence of competitive market where financial securities and capital assets are bought and sold with full information of risk and return available to all participants.

(ii) ***Rational investment goals:*** Investors desire higher return for any acceptable level of risk or the lowest risk for any desired level of return.

(iii) Risk aversion in efficient market is adhered to although at times risk seeking behaviour is adopted for gains.

(iv) CAPM assumes that all assets are divisible and liquid assets.

(v) Investors are able to borrow freely at a risk less rate of interest i.e. borrowings can fetch equal return by investing in safe Government securities.

(vi) Securities can be exchanged without payment of brokerage, commissions or taxes and without any transaction cost.

(vii) Securities or capital assets face no bankruptcy or insolvency.

CAPITAL ASSET PRICING MODEL (CAPM) Contd.

Illustration 1

A company's beta is 1.40. The market return is 14%. The risk free rate is 10% (i) What is the expected return based on CAPM (ii) If the risk premium on the market goes up by 2.5% points, what would be the revised expected return on this stock?

Solution

(i) Computation of expected return based on CAPM
$Rj = Rf + \beta(Rm - Rf) = 10\% + 1.40(14\% - 10\%) = 10\% + 5.6\% = 15.6\%$

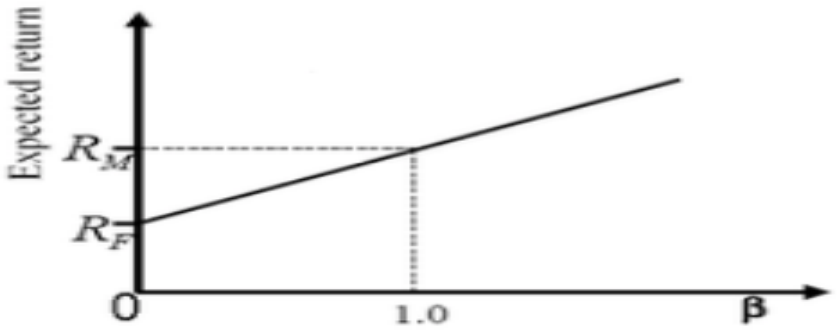
(ii) Computation of risk premium if the market goes up by 2.5 points
The return from the market goes up by 2.5% i.e. 14% + 2.5% = 16.5% Expected Return based on CAPM is given by
$Rj = 10\% + 1.40(16.5\% - 10\%) = 10\% + 1.40 \times 6.5\% = 10\% + 9.1\% = 19.1\%$

CAPITAL ASSET PRICING MODEL (CAPM) Contd.

Security Market Line

A graphical representation of CAPM is the Security Market Line, (SML). This line indicates the rate of return required to compensate at a given level of risk. Plotting required return on Y axis and Beta on the X-axis we get an upward sloping line which is given by (Rm – Rf), the risk premium.

The higher the Beta value of a security, higher would be the risk premium relative to the market. This upward sloping line is called the Security Market Line. It measures the relationship between systematic risk and return.



CAPITAL ASSET PRICING MODEL (CAPM) Contd.

Risk free Rate of Return

In CAPM, there is only one risk free rate. It presumes that the returns on a security include both directed payments and capital appreciation. These require to be factored in judging the value of Beta and in computing the required rate of return.

Illustration from the study Material

The following information is available with respect of Jaykay Ltd

	JayKay Ltd		Market		
Year	Avg Share price	DPS	Avg Index	Div yield(%)	Return on Govt Bonds
2002	242	20	1812	4	6
2003	279	25	1950	5	5
2004	305	30	2258	6	4
2005	322	35	2220	7	5

Compute Beta Value of the company as at the end of 2005. What is your observation?

CAPITAL ASSET PRICING MODEL (CAPM) Contd.

Under Valued and Over Valued Stocks

The CAPM model can be practically used to buy, sell or hold stocks. CAPM provides the required rate of return on a stock after considering the risk involved in an investment. Based on current market price or any other judgmental factors (benchmark) one can identify as to what would be the expected return over a period of time. By comparing the required return with the expected return the following investment decisions are available

(a) When CAPM < Expected Return – Buy: This is due to the stock being undervalued i.e. the stock gives more return than what it should give.

(b) When CAPM > Expected Return – Sell: This is due to the stock being overvalued i.e. the stock gives less return than what it should give.

(c) When CAPM = Expected Return – Hold: This is due to the stock being correctly valued i.e. the stock gives same return than what it should give.

CAPITAL ASSET PRICING MODEL (CAPM) Contd.

Example:

Information about return on an investment is as follows: Risk free rate 10% (b) Market Return is 15% (c) Beta is 1.2

(i) What would be the return from this investment?

(ii) If the projected return is 18%, is the investment rightly valued?

(iii) What is your strategy?

Solution
Required rate of Return as per CAPM is given by

$Rj = Rf + \beta (Rm-Rf)$
$= 10 +1.2 (15-10) = 16\%$

If projected return is 18%, the stock is undervalued as CAPM < Expected Return .The Decision should be BUY.

ARBITRAGE PRICING THEORY MODEL (APT)

Unlike the CAPM which is a single factor model, the APT is a multi factor model having a whole set of Beta Values – one for each factor. Arbitrage Pricing Theory states that the expected return on an investment is dependent upon how that investment reacts to a set of individual macro-economic factors (degree of reaction measured by the Betas) and the risk premium associated with each of those macro – economic factors.

According to CAPM, E (Ri) = Rf + λβi
Where, λ is the average risk premium [E (Rm) – Rf]

In APT, $E(R_i) = R_f + \lambda_1 \beta_1 + \lambda_2 \beta_2 + \lambda_3 \beta_3 + \lambda_4 \beta_4$,

where λ_1 λ_2 λ_3 λ_4 = average risk premium for each of the four factors in the model.

β_1 β_2 β_3 β_4 = measures of sensitivity of the particular security i to each of the four factors.

SHARPE INDEX MODEL

1 Single Index Model

This model assumes that co-movement between stocks is due to change or movement in the market index. When the Sensex increases, stock prices also tend to increase and vice-versa. This indicates that some underlying factors affect the market index as well as the stock prices.

SHARPE INDEX MODEL Contd.

1 Single Index Model: Contd.

Example: The following details are given for X and Y companies' stocks and the Bombay Sensex for a period of one year. Calculate the systematic and unsystematic risk for the companies' stocks. If equal amount of money is allocated for the stocks what would be the portfolio risk?

	X Stock	Y Stock	Sensex
Average return	0.15	0.25	0.06
Variance of return	6.30	5.86	2.25
β	0.71	0.685	
Correlation Co-efficient	0.424		
Co-efficient of determination (r2)	0.18		

The co-efficient of determination (r^2) gives the percentage of the variation in the security's return that is explained by the variation of the market index return. In the X company stock return, 18 per cent of variation is explained by the variation of the index and 82 per cent is not explained by the index.

According to Sharpe, the variance explained by the index is the systematic risk. The unexplained variance or the residual variance is the unsystematic risk.

Company X:

Systematic risk $= \beta_i^2 \times$ Variance of market index

$= (0.71)^2 \times 2.25 = 1.134$

Unsystematic risk(ϵ_i^2) = Total variance of security return - systematic risk

$= 6.3 - 1.134$

$= 5.166$ or

= Variance of Security Return $(1-r^2)$

$= 6.3 \times (1-0.18) = 6.3 \times 0.82 = 5.166$

Total risk $= \beta_i^2 \times \sigma_m^2 + \epsilon_i^2$

$= 1.134 + 5.166 = 6.3$

Company Y:

Systematic risk $= \beta_i^2 \times \sigma_m^2$

$= (0.685)^2 \times 2.25 = 1.056$

Unsystematic risk = Total variance of the security return - systematic risk.

$= 5.86 - 1.056 = 4.804$

$$\sigma_p^2 = \left[\left(\sum_{i=1}^{N} X_i \beta_i\right)^2 \sigma_m^2\right] + \left[\left(\sum_{i=1}^{N} X_i^2 \epsilon_i^2\right)\right]$$

$= [(0.5 \times 0.71 + 0.5 \times 0.685)^2 \, 2.25] + [(0.5)^2(5.166) + (0.5)^2(4.804)]$

$= [(0.355 + 0.3425)^2 \, 2.25] + [(1.292 + 1.201)]$

$= 1.0946 + 2.493 = 3.5876$

2 Sharpe's Optimal Portfolio

This model is based on desirability of an investor for excess return of risk free rate of return to beta. Accordingly, the ranking of securities shall be based on the Sharpe Ratio and unique cut off point C* discussed below.

The steps for finding out the stocks to be included in the optimal portfolio are given below:

(a) Find out the "excess return to beta" ratio for each stock under consideration.

(b) Rank them from the highest to the lowest.

(c) Proceed to calculate C_i for all the stocks according to the ranked order using the following formula:

$$C_i = \frac{\sigma_m^2 \sum_{i=1}^{N} \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^{N} \frac{\beta_i^2}{\sigma_{ei}^2}}$$

Where,

σ_m^2 = variance of the market index

σ_{ei}^2 = variance of a stock's movement that is not associated with the movement of market index i.e. stock's unsystematic risk.

(d) Compute the cut-off point which the highest value of C_i and is taken as C^*. The stock whose excess-return to risk ratio is above the cut-off ratio are selected and all whose ratios are below are rejected. The main reason for this selection is that since securities are ranked from highest excess return to Beta to lowest, and if particular security belongs to optional portfolio all higher ranked securities also belong to optimal portfolio.

(e) Once we came to know which securities are to be included in the optimum portfolio, we shall calculate the percent to be invested in each security by using the following formula:

$$X_i^o = \frac{Z_i}{\sum_{j=1}^{N} Z_i}$$

where

$$Z_i = \frac{B_i}{\sigma_{ei}^2}\left(\frac{R_i - R_o}{B_i} - C^*\right)$$

FORMULATION OF PORTFOLIO STRATEGY

Two broad choices are required for the formulation of an appropriate portfolio strategy. They are active portfolio strategy and passive portfolio strategy.

Active Portfolio Strategy (APS)

An APS is followed by most investment professionals and aggressive investors who strive to earn superior return after adjustment for risk.

"Active" fund managers try to identify and invest in stocks of those companies that they think will produce better returns and beat the overall market (or Index).

four principles of on active strategy. These are:

(a) ***Market Timing :*** This involves departing from the normal i.e. strategy for long run asset mix to reflect assessment of the prospect of various assets in the near future. Market timing is based on an explicit or implicit forecast of general market movement.

FORMULATION OF PORTFOLIO STRATEGY Contd.

Four principles of on active strategy. These are:

(a) ***Market Timing :*** This involves departing from the normal i.e. strategy for long run asset mix to reflect assessment of the prospect of various assets in the near future. Market timing is based on an explicit or implicit forecast of general market movement.

(b) ***Sector Rotation:*** Sector or group rotation may apply to both stock and bond component of the portfolio. It is used more compulsorily with respect to strategy. The components of the portfolio are used when it involves shifting.

(c) ***Security Selection:*** Security selection involves a search for under price security. If one has to resort to active stock selection he may employ fundamental / technical analysis to identify stocks which seems to promise superior return and concentrate the stock components of portfolio on them.

(d) ***Use of Specialised Investment Concept:*** To achieve superior return, one has to employ a specialised concept/philosophy particularly with respect to investment in stocks.

FORMULATION OF PORTFOLIO STRATEGY Contd.

2 Passive Portfolio Strategy

Active strategy was based on the premise that the capital market is characterized by efficiency which can be exploited by resorting to market timing or sector rotation or security selection or use of special concept or some combination of these sectors.

Passive strategy, on the other hand, rests on the tenet that the capital market is fairly efficient with respect to the available information. Hence they search for superior return. Basically, passive strategy involves adhering to two guidelines. They are:

(a) Create a well diversified portfolio at a predetermined level of risk.

(b) Hold the portfolio relatively unchanged over time unless it became adequately diversified or inconsistent with the investor risk return preference.

FORMULATION OF PORTFOLIO STRATEGY Contd.

3 Selection of Securities

There are certain criteria which must be kept in mind while selecting securities. The selection criteria for both bonds and equity shares are given as following:

Selection of Bonds

Bonds are fixed income avenues. The following factors have to be evaluated in selecting fixed income avenues:

(a) *Yield to maturity*: The yield to maturity for a fixed income avenues represent the rate of return earned by the investor, if he invests in the fixed income avenues and holds it till its maturity.

(b) *Risk of Default*: To assess such risk on a bond, one has to look at the credit rating of the bond.

(c) *Tax Shield:* In the past, several fixed income avenues offers tax shields but at present only a few of them do so.

(d) *Liquidity:* If the fixed income avenues can be converted wholly or substantially into cash at a fairly short notice it possesses a liquidity of a high order.

Selection of Stock (Equity Share)

Three approaches are applied for selection of equity shares- Technical analysis, Fundamental analysis and Random selection analysis.

(a) Technical analysis looks at price behaviours and volume data to determine whether the share will move up or down or remain trend less.

(b) Fundamental analysis like earning level, growth prospects etc

PORTFOLIO REBALANCING

It means the value of portfolio as well as its composition. The relative proportion of bond and stocks may change as stock and bonds fluctuate in response to such changes. Portfolio rebalancing is necessary.

There are three policies of portfolio rebalancing- Buy and hold policy, Constant mix policy, and Constant proportion portfolio insurance policy (CPPI).

(a) Buy and Hold Policy: Sometime this policy is also called 'do nothing policy' as under this strategy no balancing is required and therefore investor maintain an exposure to stocks and therefore linearly related to the value of stock in general.

(b) Constant Mix Policy

Under this policy investor maintains an exposure to stock at a constant percentage of total portfolio. This strategy involves periodic rebalancing to required (desired) proportion by purchasing and selling stocks as and when their prices goes down and up respectively.

PORTFOLIO REBALANCING: Contd.

Constant Proportion Insurance Policy : Under this strategy investor sets a floor below which he does not wish his asset to fall called floor, which is invested in some non-fluctuating assets such as Treasury Bills, Bonds etc. The value of portfolio under this strategy shall not fall below this specified floor under normal market conditions.

The following equation is used to determine equity allocation:

Target Investment in Shares = multiplier (Portfolio Value – Floor Value)

ASSET ALLOCATION STRATEGIES

Many portfolios containing equities also contain other asset categories, so the management factors are not limited to equities. There are four asset allocation strategies:

(a) Integrated Asset Allocation: Under this strategy, capital market conditions and investor objectives and constraints are examined and the allocation that best serves the investor's needs while incorporating the capital market forecast is determined.

(b) Strategic Asset Allocation: Under this strategy, optimal portfolio mixes based on returns, risk, and co-variances is generated using historical information and adjusted periodically to restore target allocation within the context of the investor's objectives and constraints.

(c) Tactical Asset Allocation: Under this strategy, investor's risk tolerance is assumed constant and the asset allocation is changed based on expectations about capital market conditions.

(d) Insured Asset Allocation: Under this strategy, risk exposure for changing portfolio values (wealth) is adjusted; more value means more ability to take risk.

FIXED INCOME PORTFOLIO

Fixed Income Portfolio Process

Just like other portfolios, following five steps are involved in fixed income portfolio.

1. Setting up objective
2. Drafting guideline for investment policy
3. Selection of Portfolio Strategy - Active and Passive
4. Selection of securities and other assets
5. Evaluation of performance with benchmark

FIXED INCOME PORTFOLIO: Contd.

Calculation of Return on Fixed Income Portfolio

First and foremost step in evaluation of performance of a portfolio is calculation of return. Although there can be many types of measuring returns there can be many types of measuring returns as per requirements but some of are commonly used measures are :

(i) Arithmetic Average Rate of Return

(ii) Time Weighted Rate of Return

(iii) Rupee Weighted Rate of Return

(iv) Annualized Return

FIXED INCOME PORTFOLIO: Contd.

Fixed Income Portfolio Management Strategies

There are two strategies

(i) Passive Strategy

(ii) Active Strategy

FIXED INCOME PORTFOLIO: Contd.

Fixed Income Portfolio Management Strategies: Contd

Passive Strategy

As mentioned earlier Passive Strategy is based on the premise that securities are fairly priced commensurate with the level of risk. Though investor does not try to outperform the market but it does not imply they remain totally inactive. Common strategies applied by passive investors of fixed income portfolios are as follows:

(i) Buy and Hold Strategy: This technique is do nothing technique and investor continues with initial selection and do not attempt to churn bond portfolio to increase return or reduce the level of risk.

However, sometime to control the interest rate risk, the investor may set the duration of fixed income portfolio equal to benchmarked index.

(ii) Indexation Strategy: This strategy involves replication of a predetermined benchmark well known bond index as closely as possible.

(iii) Immunization:This strategy cannot exactly be termed as purely passive strategy but a hybrid strategy. This strategy is more popular among pension funds. Since pension funds promised to pay fixed amount to retires people in the form of annuities any inverse movement in interest may threaten fund's ability to meet their liability timely. By building an immunized portfolio the interest rate risk can be avoided.

(iv) Matching Cash Flows: Another stable approach to immunize the portfolio is Cash Flow Matching. This approach involves buying of Zero Coupon Bonds to meet the promised payment out of the proceeds realized.

FIXED INCOME PORTFOLIO: Contd.

Active Strategy

As mentioned earlier active strategy is usually adopted to outperform the market. Following are some of active strategies:

(1) Forecasting Returns and Interest Rates.

(2) Bond Swaps: This strategy involves regularly monitoring bond process to identify mispricing and try to exploit this situation. Some of the popular swap techniques are as follows:

(a) Pure Yield Pickup Swap - This strategy involves switch from a lower yield bond to a higher yield bonds of almost identical quantity and maturity.

(b) Substitution Swap - This swapping involves swapping with similar type of bonds in terms of coupon rate, maturity period, credit rating, liquidity and call provision but with different prices.

(c) International Spread Swap – In this swap portfolio manager is of the belief that yield spreads between two sectors is temporarily out of line and he tries to take benefit of this mismatch.

(d) Tax Swap – This is based on taking tax advantage by selling existing bond whose price decreased at capital loss and set it off against capital gain in other securities and buying another security which has features like that of disposed one.

(3) *Interest Rate Swap:* Interest Rate Swap is another technique that is used by Portfolio Manager & covered ahead.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT

Features of Alternative Investments

Though here may be many features of Alternative Investment but following are some common features.

(i) High Fees – Being a specific nature product the transaction fees are quite on higher side.

(ii) Limited Historical Rate – The data for historic return and risk is verity limited where data for

equity market for more than 100 years in available.

(iii) Illiquidity – The liquidity of Alternative Investment is not good as next buyer not be easily available due to limited market.

(iv) Less Transparency – The level of transparency is not adequate due to limited public information available.

(v) Extensive Research Required – Due to limited availability of market information the extensive analysis is required by the Portfolio Managers.

(vi) Leveraged Buying – Generally investment in alternative investments is highly leveraged.

Categories of Alternative Investments

Hedge funds: They are the private Investment vehicles that manage portfolios of securities & derivative positions using variety of strategies, they may be long/short/highly leveraged and aim to deliver the best & independent performance.

Private equity funds: Discussed ahead

Real estate: Discussed ahead

Commodities: It may be physical products like gold, silver owing through cash or derivative properties or investing in businesses who engage in the production of the above.

Infrastructure: These are capital intensive, long lives & real assets like dams, roads, schools intended for public use & providing essentials services.

Other: It includes tangible(Fine wine, art, painting etc) or Intangible like patents.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT: Contd.

1. **Real Estates**

As opposed to financial claims in the form of paper or a dematerialized mode, real estate is a tangible form of assets which can be seen or touched. Real Assets consists of land, buildings, offices, warehouses, shops etc.

Valuation Approaches

Comparing to financial instrument the valuation of Real Estate is quite complex as number of transactions or dealings comparing to financial instruments are very small.

Following are some characteristics that make valuation of Real Estate quite complex:

(i) Inefficient market: Information as may not be freely available as in case of financial securities.

(ii) Illiquidity: Real Estates are not as liquid as that of financial instruments.

(iii) Comparison: Real estates are only approximately comparable to other properties.

(iv) High Transaction cost: In comparison to financial instruments, the transaction and management cost of Real Estate is quite high.

(v) No Organized market: There is no such organized exchange or market as for equity shares and bonds.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT Contd.

2 Valuation of Real Estates

Generally, following four approaches are used in valuation of Real estates:

(1) Sales Comparison Approach – It is like Price Earning Multiplier as in case of equity shares. Benchmark value of similar type of property can be used to value Real Estate.

(2) Income Approach – This approach like value of Perpetual Debenture or unredeemable Preference Shares. In this approach the perpetual cash flow of potential net income (after deducting expense) is discounted at market required rate of return.

(3) Cost Approach – In this approach, the cost is estimated to replace the building in its present form plus estimated value of land. However, adjustment of other factors such as good location, neighborhood is also made in it.

(4) Discounted After Tax Cash Flow Approach – In comparison to NPV technique, PV of expected inflows at required rate of return is reduced by amount of investment.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT Contd.

2 Private Equity

Following 3 types of private equity investment shall be discussed here:

2.1 Mezzanine Finance *(it is provided to prepare a company to go public)*

It is a blend or hybrid of long term debt and equity share. It is a kind of equity funding combined with the characteristics of conventional lending as well as equity. This is a highly risky investment and hence mezzanine financer receives higher return.

2.2 Venture Capital*(Investing/providing finance to private co with high growth potential like startups/young cos)*

Three main types of fund structure exist: one for domestic funds and two for offshore ones:

(a) Domestic Funds : Domestic Funds (i.e. one which raises funds domestically) are usually structured as:

i) a domestic vehicle for the pooling of funds from the investor, and

ii) a separate investment adviser that carries those duties of asset manager.

The choice of entity for the pooling vehicle falls between a trust and a company, (India, unlike most developed countries does not recognize a limited partnership), with the trust form prevailing due to its operational flexibility.

(b) Offshore Funds : Two common alternatives available to offshore investors are: the “offshore structure” and the “unified structure”.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT Contd.

Unified Structure

When domestic investors are expected to participate in the fund, a unified structure is used. Overseas investors pool their assets in an offshore vehicle that invests in a locally managed trust, whereas domestic investors directly contribute to the trust. This is later device used to make the local portfolio investments.

Venture capital follows the following characteristics:

Long time horizon: The fund would invest with a long time horizon in mind. Minimum period of investment would be 3 years and maximum period can be 10 years.

Lack of liquidity: When VC invests, it takes into account the liquidity factor.

High Risk: VC would not hesitate to take risk. It works on principle of high risk and high return. So higher riskiness would not eliminate the investment choice for a venture capital.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT Contd.

VC Investment Process: The entire VC Investment process can be segregated into the following steps:

1. Deal Origination: VC operates directly or through intermediaries. Mainly many practicing Chartered Accountants would work as intermediary and through them VC gets the deal.

2. Screening: Once the deal is sourced the same would be sent for screening by the VC. The screening is generally carried out by a committee consisting of senior level people of the VC. Once the screening happens, it would select the company for further processing.

3 Due Diligence:. The screening decision would take place based on the information provided by the company. Once the decision is taken to proceed further, the VC would now carry out due

4. Deal Structuring: Once the case passes through the due diligence it would now go through the deal structuring.

5. Post Investment Activity: In this section, the VC nominates its nominee in the board of the company.

6. Exit plan: At the time of investing , the VC would ask the promoter or company to spell out in detail the exit plan.

ALTERNATIVE INVESTMENT STRATEGIES IN CONTEXT OF PORTFOLIO MANAGEMENT

2.3 Distressed securities

It is a kind of purchasing the securities of companies that are in or near bankruptcy. Since these securities are available at very low price, the main purpose of buying such securities is to make efforts to revive the sick company. Further, these securities are suitable for those investors who cannot participate in the market and those who wants to avoid due diligence.

Risks Analysis of Investment in Distressed Securities : On the face, investment in distressed securities appears to be a good proposition but following types of risks are need to be analyzed.

(i) Liquidity Risk – These securities may be saleable in the market.

(ii) Event Risk – Any event that particularly effect the company not economy as a whole

(iii) Market Risk – This is another type of risk though it is not important.

(iv) Human Risk – The judge's decision on the company in distress also play a big role.

THANK YOU