The above Figure shows that higher the risk the higher is the return. The longer is maturity, the higher is the return.

TYPES OF BOND MANAGEMENT

Investors in bonds may adopt either the passive bond management strategy or active bond management strategy, both have their own advantages and disadvantages.

Under passive management, one can have Buy and Hold strategy or Bond Ladder strategy. These are dealt with here separately.

1. Buy and Hold strategy: The investor ignores the expectations of future interest rate changes but selects bonds for given income with minimum risk and default free. These investors desire a fixed income and are a category by themselves, examples of which can be found among banks, P.F.s, insurance companies, retired persons and even Pension Funds in India. By holding the securities to maturity, but reinvesting income at prevailing market rates, in similar securities, the portfolio manager maximises his income. Income Funds and Index tied funds basically follow this strategy to provide diversification, lower costs and maximise income with the least research base and costs.

2. Bond Ladder Strategy: The investor under this strategy buys some bonds every year with a given amount, with a view to hold different maturities, say one to ten years; the laddering means that bonds of each group of maturity are rungs of the investment maturity ladder in which investments are made in a well diversified manner. By such regular investments market fluctuation in prices and yields can be evened out and a diversified portfolio is secured. If interest rates rise, he will invest in the higher yield bonds from the amount invested in that year. Similarly, if interest rates fall, he will have already some bonds of long maturity to provide capital appreciation.

In the Indian context, public financial institutions PSUs and government and semi-government bodies are issuing bonds with different features and maturities. The bond investor has to diversify into these securities under both Buy and Hold strategy and Bond Laddering strategy. Under the former, it is a random purchase of all default free bonds which by law of averages may contain all maturities and incorporate bonds of all features. Here, no expectations nor active buying and selling are involved. In the case of laddering strategy also, a fixed amount is used to purchase bonds of fixed income, every year, involving deliberately all maturities and diversification into all types of bonds available in the market, which are default free and with minimum of risk. In the ladder strategy, there is less randomness and some discretion, but is also automatic like the former.

3. Semi-Active Management Strategy: If the investor has time horizon, with in which investment has to fructify to give an amount of wealth to meet his obligations or liabilities, he has to follow at least a semi-active management strategy. This is necessary because in the actual market, interest rates do change frequently and reinvestment of income from interest will yield lower or higher amounts than expected and capital gain or loss will also arise due to interest rate changes. Interest Risk has two components namely price risk and coupon reinvestment risk, which move in opposite directions. If interest rates decline for example, the market price of bond will go up at the time of repayment, but the interim cash flows through coupon interest receipts will be reinvested at lower rates, which will lead to lower wealth for the investor. The reverse is what happens if interest rates rise in the interim period before maturity. Thus, investor may or may not achieve the desired wealth position at the end period due to these opposing forces. Elimination of these effects, on the Bond portfolio is called Immunisation discussed later in the chapter.

4. Active Bond Management: Increased volatility of interest rates and disappointing returns in the equity market and growing bond market, relative to equity market forced managers of portfolios to involve themselves in active Bond Management. If the major emphasis is to capture the capital gains through bond price changes, as in the case of equity, then the portfolio has to be essentially short-term from a few days to a few months, upto say one year. Active bond management is through trading in bonds, as we do in equities. This requires major strategy decisions of the type of bonds, maturity and other terms of bonds, their yields, term structure of yields and expected shape of the yield curve, etc. As a result of active management, returns can be increased bychanges in the maturity structure, coupons, and asset quality, to take advantage of changes in bond prices in the daily market and yield pattern. Shifting of bonds of low yield and high risk to high yield and low risk, from taxable bonds to tax free bonds, low quality to high quality bonds etc., is done though outright purchase or sale, swaps and Repos in the market.

Active Strategies

(*a*) *Sector and Asset Substitution* among bonds say from Central Government securities to higher yielding semi-government bonds or from Government to corporate bonds.

(*b*) *Maturity Adjustments* by shortening the maturities when interest rates are expected to rise and lengthening the maturities when interest rates are expected to fall.

Portfolio management strategies:

Portfolio Management Strategies refer to the approaches that are applied for the efficient portfolio management in order to generate the highest possible returns at lowest possible risks. There are two basic approaches for portfolio management including Active Portfolio Management Strategy and Passive Portfolio Management Strategy.

a) Active Portfolio Management Strategy
Fund managers who use an active investment approach aim to either outperform a given equity or bond market, often represented by an index, or to achieve a specific investment objective. They seek to do this by using their knowledge and skill to analyze the market. Then they buy shares (equities) which they believe are presently undervalued, and so have potential to increase in price – or pay increased dividends – over time. This processis known as stock-picking. Managers can also adjust their portfolios to minimise potential losses. For example, they can avoid individual shares or bonds, sectors, industries, or even countries, which they believe, may underperform over a certain period. The active management approach of the portfolio management involves the following styles of the stock selection.

- **Top-down Approach:** In this approach, managers observe the market as a whole and decide about the industries and sectors that are expected to perform well in the ongoing economic cycle. After the decision is made on the sectors, the specific stocks are selected on the basis of companies that are expected to perform well in that particular sector.
- **Bottom-up:** In this approach, the market conditions and expected trends are ignored and the evaluations of the companies are based on the strength of their product pipeline, financial statements, or any other criteria. It stresses the fact that strong companies perform well irrespective of the prevailing market or economic conditions.

Advantages	Dis-advantages
The opportunity for outperformance-As active funds aim to beat the index, they offer you the potential to make higher returns than the average.	**Expense-**Professional market research costs money, which means active managers often charge higher fees. They can also have higher operating expenses such as transaction fees and taxes, as they are likely to buy and sell investments more frequently. The risk is that these costs outweigh any benefits that they create for investors.
Research insights Active managers carry out in- depth research to identify which companies to invest in. The quality of this research gives a fund its potential to outperform the index.	**Style issues** A manager's investment style may limit performance when this approach is out of favour with the market. (Typical styles might be a value style aiming to choose securities that could offer value for money, or a growth style focused on finding securities with the potential for growth).
Defensive measures Managers can minimise potential losses by avoiding certain securities, sectors, or regions.	**No guarantees on picking a winner** While successful share selection offers prospects of outperformance, there are no guarantees. It is not easy to pick winners consistently, year after yea and thereis a risk that the manager will pick securities that lose money for the investor.

b) Passive Portfolio Management Strategy -Passive managers generally believe it is difficult to out-think the market, so they try to match the performance of the market (or their chosen sector) as a whole. They tend to do this by closely following or tracking an investment index, such as the FTSE 100 Index of the UK's biggest 100 companies. That's why passive investments are often called index funds or tracker funds. These have a simple, precise objective: to match a specific index, rather than try to beat it. Passive managers do this by buying and holding all or a representative sample of the securities in the index. The passive management approach of the portfolio management involves the following styles

- Full replication: with this technique all the securities in the index are purchased in proportion to their weights in the index. Advantages: all the securities in the index are purchased in proportion to their weights in the index, it helps to ensure close tracking. Disadvantages: more transaction cost, high commission for reinvestment in dividend
- Sampling – useful when the index is very large or complex.Here, the fund managers select a representative sample of securities from the target index, seeking to reflect the index in terms of key risk factors and other characteristics. Sampling involves using complex mathematics, but the principle is simple.

Advantages	Dis-advantages
Diversification Maintaining a well-diversified portfoliois an essential part of a successful investment plan, and indexing can be an ideal way to achieve diversification. Index funds provide a broad spread of risk because they hold all (or a representative sample) of the securities in their target benchmarks.	**Total market risk** Index funds track the entire market: so when the overall stock market (or bond prices) fall, so do index funds.
Low costs As index funds track a target benchmarkor index rather than looking for winners(and so can avoid constantly buying and selling securities), they generally have lower fees and operating expenses than actively managed funds.	**Lack of flexibility** Index fund managers are usually prohibited from using defensive measures such as moving out of shares, even if the manager thinks share prices are going to decline.
Simplicity An index fund offers an easy way to invest in a chosen market as it simply seeks to track an index. There is no need to select and monitor individual managers, or chose between investment themes.	**Performance constraints** Index funds are designed to provide returns that closely track their benchmark index, rather than seek outperformance. They rarely beat the return on the index, and are likely to return slightly less as a result of fund operating costs.

PORTFOLIO REVISION:

A portfolio is a mix of securities selected from a vast universe of securities. Two variables determine the composition of a portfolio; the first is the securities included in the portfolio and the second is the proportion of total funds invested in each security.

Portfolio revision involves changing the existing mix of securities. This may be effected either by changing the securities currently included in the portfolio or by altering the proportion of funds invested in the securities. New securities may be added to the portfolio or some of the existing securities may be removed from the portfolio. Portfolio revision thus leads to purchase and sales of securities. The objective of portfolio revision is the same as the objective of portfolio selection i.e. maximizing the return for a given level of risk or minimizing the risk for a given level of return.

Need for portfolio revision:

The primary factor necessitating portfolio revision is changes in the financial markets since the creation of the portfolio. The need for portfolio revision may arise because of some investor related factor also. These factors may be listed as-

§ Availability of additional funds for investment
§ Change in risk tolerance
§ Change in the investment goal
§ Need to liquidate a part of the portfolio to provide funds for some alternative use,

The portfolio needs to be revised to accommodate the changes in the investor’s position.

Constraints in portfolio revision:

Portfolio revision is the process of adjusting the existing portfolio in accordance with the changes in financial market and the investor's position so as to ensure maximum return from the portfolio with the minimum of risk.

- § **Transaction cost:** buying and selling of securities involve transaction costs such as commission and brokerage. Frequent buying and selling of securities for portfolio revision may push up transaction costs thereby reducing the gains from portfolio revision. Hence, the transaction costs involved in portfolio revision may act as a constraint to timely revision of portfolio.
- § **Taxes:** tax is payable on the capital gains arising from sale of securities. Usually, long term capital gains are taxed at a lower rate than short term capital gains. To qualify as long term capital gains, a security must be held by an investor for a period of not less than 12 months before sale. Frequent sales of securities in the course of periodic portfolio revision or adjustment will result in short term capital gain which taxed at a higher rate compared to long term capital gains.
- § **Statutory stipulations:** the largest portfolios in every country are managed by investment companies and mutual funds. These institutional investors are normally governed by certain statutory stipulations regarding their investment activity. These stipulations often act as constraints in timely portfolio revision.
- § **Intrinsic difficulty:** portfolio revision is a difficult and time consuming exercise. The methodology to be followed for portfolio revision is also not clearly established. Different approaches may be adopted for the purpose. The difficulty of carrying out portfolio revision itself may act as a constraint to portfolio revision.

Portfolio revision strategies:

1. **Active revision strategy:** involves frequent and sometimes substantial adjustments to the portfolio. Investors who undertake active revision strategy believe that security markets are not continuously efficient. They believe that securities can be mispriced at times giving an opportunity for earning excess returns through trading in them. Moreover, they believe that different investors have divergent or heterogeneous expectations regarding the risk and return of securities in the market.
2. **Passive revision strategy:** involves only minor and infrequent adjustment to the portfolio over time. Under passive revision strategy, adjustment to the portfolio is carried out according to certain predetermined rules and procedures designated as formula plans.

FORMULA PLANS:

Formula plans are certain predefined rules and regulations deciding when and how much assets an individual can purchase or sell for portfolio revision. Securities can be purchased and sold only when there are changes or fluctuations in the financial market.

In the market, the prices of securities fluctuate. Ideally, investors should buy when prices are low and sell when prices are high. If portfolio revision is done according to this principle, investors would be able to benefit from the price fluctuations in the securities market.

In other words, the formula plan provides the basic rules and regulations for the purchase and sale of securities. The amount to be spent on the different types of securities is fixed. The amount may be fixed either in constant and variable ratio.

Formula plan, represents an attempt to explicit the price fluctuations in the market and make them a source of profit to the investor.

Formula plan consists of predetermined rules regarding when to buy and sell and how much to buy or sell.

Why formula plan???

- § Formula plan help an investor to make the best possible use of fluctuations in the financial market. One can purchase shares when the prices are less and sell off when market prices are higher.
- § With the help of formula plan an investor can divide his funds into defense portfolio and aggressive and easily transfer from one portfolio to other.
    - ❖ **Aggressive portfolio:** it consists of funds that appreciate quickly and guarantee maximum returns to the investor.
    - ❖ **Defensive portfolio:** it consists of securities that do not fluctuate much and remain constant over a period of time.

Assumptions of formula plan:

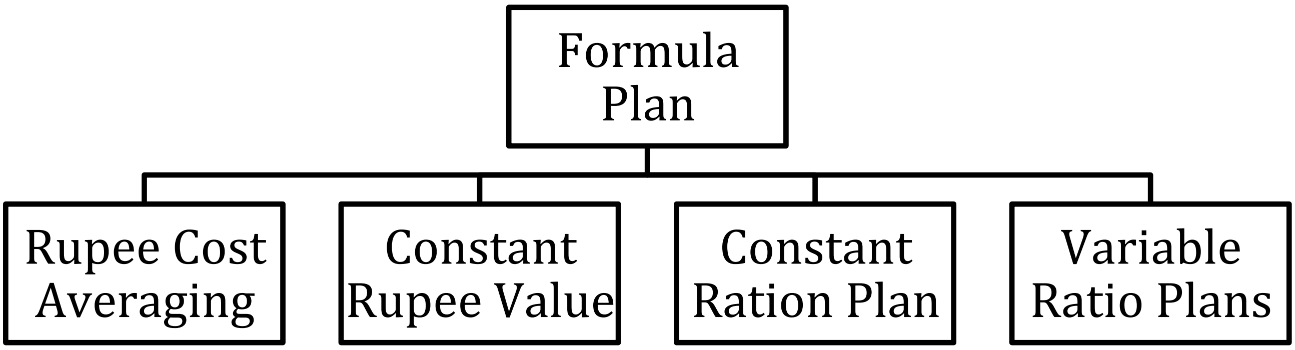
1. The first assumption is that certain percentage of the investor’s fund is allocated to fixed income securities and common stocks.
2. The second assumption is that if the market moves higher, the proportion of stocks in the portfolio may either decline or remain constant.
3. The third assumption is that the stocks are bought and sold whenever there is a significant change in the price.
4. The fourth assumption requires that the investor should strictly follow the formula plan once he chooses it.
5. The investor should select good stocks that move along with the market. They should reflect the risk and returns features of the market.

Advantages of formula plan:

1. Basic rules and regulations for the purchase and sale of securities are provided.
2. The rules and regulations are rigid and help to overcome human emotion.
3. The investor can earn higher profits by adopting the plan.
4. A course of action is formulated according to the investor’s objective.
5. It controls the buying and selling of securities by the investor.
6. It is useful for taking decision on the timing of investments.

Disadvantages:

1. The formula plan does not help the selection of the security.
2. It is strict and not flexible with the inherent problem of adjustment.
3. The formula plan should be applied for long periods, otherwise the transaction cost may be high.
4. Even if the investors adopts the formula plan, he needs forecasting. Market forecasting helps him to identify the best stocks.



1. **Rupee cost averaging:**

   The simplest and most effective formula plan is rupee cost averaging. First, stocks with good fundamentals and long term growth prospects should be selected. Such stocks' prices tend to be volatile in the market and provide maximum benefit from rupee cost averaging. Secondly, the investor should make a regular commitment of buying shares at regular intervals. Once he makes a commitment, he should purchase the shares regardless of the stock's price, the company's short term performance and the economic factors affecting the stock market.

   In this plan, the investor buys varying number of shares at various points of the stock market cycle. In a way, it can be called time diversification.

   Advantages:

   - Reduces the averages cost per share and improves the possibility of gain over a long period.
   - Takes away the pressure of timing the stock purchase from investor.
   - Makes the investors to plan the investment programme thoroughly on the commitment of funds that has to be done periodically.
   - Applicable to both falling and rising market, although it works best if the stocks are acquired in a declining market.

   Disadvantages:

   - Extra transaction costs are involved with small and frequent purchase of shares.
   - The plan does not indicate when to sell. It is strictly a strategy for buying.
   - It does not eliminate the necessity for selecting the individual stocks that are to be purchased.
   - There is no indication of the appropriate interval between purchases.
   - The averaging advantage does not yield profit if the stock price is in a downward trend.
   - The plan seems to work better when stock prices have cyclical patterns.

2. **Constant rupee plan:** this plan force the investors to sell when the prices rise and purchase as prices fall. Forecasts are not required to guide buying and selling. The actions suggested by the formula timing plan automatically help the investor to reap the benefits of the fluctuations in the stock prices. The essential feature of the plan is that the portfolio is divided into two parts, which consists of aggressive and defensive or conservative portfolios. The portfolio mix facilitates the automatic selling and buying of bonds and stocks. This plan enables the shift of investment from bonds to stocks and vice-versa by maintain a constant amount investment in the stock portion of the portfolio. The constant rupee plan starts with a fixed amount of money invested in selected stocks and bonds. When the price of the stocks increases, the investor sells sufficient amount of stocks of return to the original amount of the investment in stocks. By keeping the value of aggressive portfolio constant, remainder is invested in the conservative portfolio.

   The investor must choose action point or revaluation points. The action point is the times at which the investor has to readjust the values of the stocks in the portfolio.

   Advantages:

   - Purchase and sales are determined automatically.
   - Helps in gaining higher profits.

   Disadvantage:

   - Investor should have to be very rational while buying and selling the stocks.

3. **Constant ratio plan:**

   It attempts to maintain a constant ratio between the aggressive and conservative portfolios. The ratio is fixed by the investor. The investor's attitude towards risk and return plays a major role in fixing the ratio. The conservative investor may like to have more of bond the aggressive investor, more of stocks. Once the ratio is fixed, it is maintained as the market moves up and down. As usual, action points may be fixed by the investor.

Advantages:

- § The automatism with which it forces the manager to counter adjust his portfolio cyclically.

Limitations:

- § The money is shifted from the stock portion to bond portion.

4. **Variable ratio plan:**

According to this plan, at varying levels of marker prices, the proportions of the stocks and bonds change. Whenever the price of the stock increases, the stocks are sold and new ratio is adopted by increasing the proportion of defensive portfolio. To adopt this plan, the investor is required to estimate a long term trend in the price of the stocks. Forecasting is very essential to this plan.

Advantages:

- § Automatically the investor tends to correct his portfolio portions according to the price changes.
- § With accurate forecast the variable ratio plan takes greater advantage of price fluctuations than the constant ratio plan.

Limitations:

- § The investor has to construct the appropriate zones and trend for alterations of the proportions.
- § The selection of security has to be done by the investor by analyzing the merits of the stock. The plan does not help in the selection of scrips.
- § If the zones are too small frequent changes have to be done and it would limit portfolio performance.