

Unit-4. BONDS

Debentures

It is a document issued by a company under its common seal acknowledging the debt and also contains the terms of repayment of debt and payment of interest at a specified rate. Section 2 (30) of Companies Act, 2013 defines debenture as "Debenture includes debenture stock, bonds or any other instrument of a company evidencing a debt, whether constituting a charge on the company's assets or not." Debentures are generally freely transferable by the debenture holder. Debenture holders have no rights to vote in the company's general meetings of shareholders. The interest paid to them is a charge against profit in the company's financial statements.

Debentures are unsecured debt instruments that any company assets or collateral does not back them. The investors have to rely on the credit ratings of the issuing company as security. Most private companies use debentures as a tool to raise funds for many reasons. For instance, a company issues debentures when expanding its business.

Features of Debentures

The important features of a debenture are:

- It is issued by a company as a certificate of indebtedness.
- It usually indicates the date of redemption and also provides for the repayment principal and payment of interest at specified date or dates.
- It usually creates a charge on the undertaking or the assets of the company.

TYPES OF DEBENTURES

A) Convertibility point of view: There are two types of debentures:

i) **Convertible debentures:** which can be converted into equity shares of the issuing company after a predetermined period of time.

Convertible debentures are of 2 types:

- **Partly Convertible Debentures (PCD):** A part of these instruments are converted into Equity shares in the future at notice of the issuer. The issuer decides the ratio for conversion. This is normally decided at the time of subscription.
- **Fully convertible Debentures (FCD):** These are fully convertible into Equity shares at the issuer's notice. The ratio of conversion is decided by the issuer. Upon conversion the investors enjoy the same status as ordinary shareholders of the company.

ii) **Non-convertible Debentures:** which are simply regular debentures, cannot be converted into equity shares. These are debentures without the convertibility feature, these usually carry higher interest rates than their convertible counterparts.

(B) On basis of Security, debentures are classified into:

i) **Secured Debentures:** These instruments are secured by a charge on the fixed assets of the issuer company. So if issuer fails to pay of either the principal or interest amount, its assets can be sold to repay the liability towards debenture holders.

ii) **Unsecured Debentures:** These instrument are unsecured in the sense that if the issuer defaults on payment of the interest or principal amount, the investor is treated like other unsecured creditors of the company.

(C) From Redemption point of view

i) **Redeemable Debentures:** Redeemable debentures are those which are redeemed or paid off after the termination of fixed term. The amount paid off includes the principal amount and the current year's interest. The company always has the option of either to redeem a specific number of debentures each year or redeem all the debentures at specified date.

ii) **Irredeemable or Perpetual Debentures:** Irredeemable debentures are those debentures which do not have any fixed date of redemption. They are redeemed either in the event of winding up or at a very remote period of time. Irredeemable or perpetual debenture holders can never force the company to redeem their debentures.

Bonds

Bonds are the debt security where an issuer is bound to pay a specific rate of interest agreed as per the terms of payment and repay principal amount at a later time. The bond holders are generally like a creditor where a company is obliged to pay the amount. The amount is paid on the maturity of the bond period. Generally these bonds duration would be for 5 to 10 years.

Bonds are the most common debt instrument. Usually private companies, governments and other financial institutions issue them. They are loans that are secured by collateral. The organization that issues bonds becomes the borrower who promises the repayment of principal and interest at specified maturity date. Also, they fix the interest rate for the duration of the bond's term.

Characteristics of Bond

The basic elements and concepts pertaining to the makeup of and basic analysis of the security are here outlined, together with simplified examples throughout this section.

1. Principal

The "principal" refers to the initial amount borrowed in a loan. The principal set on a bond is the value of the bond to be paid at maturity, exclusive of interest increments paid up until the date

2. Coupon

A coupon is the interest payment on the principal loaned that the borrower agrees to pay the bondholder every specified term, usually, annually or semi-annually. It is calculated by multiplying the coupon rate by the par value of the bond as shown in Equation below.

$$\text{Coupon Payment} = \text{Coupon rate} * \text{Par value}$$

The predetermined coupon rate is based on multiple considerations, namely the market interest rate and all factors pertaining to the risks of the issuer, along with its other characteristics identified in its indenture.

3. Maturity

The maturity date is a pre-specified future date on which the borrower agrees to pay back the principal worth of the bond in question to the investor, also known as the par value. Depending on the term to maturity, bonds are either classified as "short-term" which have a maturity less than one year, and "long-term" if the maturity is that of ten years or longer. Any bonds with a maturity falling between one and ten years are referred to as "intermediate" or "medium-term". From the perspective of the government being the issuer, made available for purchase by a country's treasury, such short-term bonds are known as treasury bills.

4. Yield-to-Maturity

These basic elements are used to calculate a bond's return until maturity, known as the bond's yield to maturity or more simply, the yield. Therefore, the yield measures the total return a bond will provide the investor from the day of purchase until maturity. This measure is composed by making use of the coupon rate, term-to-maturity and price, as illustrated in the formula below.

A simple formula to calculate the yield to maturity, is given by the following equation:

$$\text{ApproxYTM} = \text{Coupon} + \frac{[\text{Face Value} - \text{Price year still maturity}]}{[\text{Face Value} - \text{Price 2}]}$$

The yield-to-maturity (i.e. yield) on a highly credit worthy sovereign bond, like that of the U.S. and Germany, is referred to as the risk-free rate. The risk-free rate is widely used as a benchmark to compare with other bonds, whereby one can analyze the difference, or spread, between the yield on the bond being studied and the risk-free rate.

6. Accrued Interest

When selling bonds on the secondary market there is what is known as accrued interest. This is the cumulative daily interest between coupon payments. If a bond is sold before its maturity and between coupon payments, the seller would be entitled to the bond's trading price together with the accrued interest that the bond has accumulated up until the selling date. Since the issuer pays the coupon for the whole period, the holders are only known at a specified date. The period prior to such date is known as the cum-div period meaning "with dividend" whilst the period after the specified date is then known as the ex-div period.

7. Credit Ratings

To facilitate the credit worthiness assessment of an issuer, a credit rating scheme is assigned based on multiple factors. Credit ratings are a means to partly identify the risk premium offered on bonds as they assess the credit risk of individual issuers. Therefore, credit ratings reflect the creditworthiness or the associated risk assigned to an issuer of securities or any company, government or entity that opts for the service. The credit rating reflects the likelihood that the borrower will meet his obligations on time and in full, without defaulting, which would translate into a high credit rating. On the other hand, low credit ratings reflect past issues of repayment by the issuer and that would be likely considered to follow the same pattern in the future.

8. Bond Indentures

A bond is issued with an indenture, or contract, which lays out in detail the promises made by the issuer to the bondholders together with the latter's rights. Indentures cover a set of restrictions and limitations on the borrowers' activities, termed as negative covenants that protect the rights of the bondholders. These include provisions relating to collateral, sinking funds, dividend policy, and further borrowing by the issuer unless certain criteria are satisfied. Bond indentures are regarded as another safeguard to protect the claims of bondholders.

9. Sinking Fund

A sinking fund is essentially a pool of funds set aside by a company for the purpose of repaying previously-issued debt. There may be what is referred to as a "sinking fund requirement" which effectively requires the issuer to retire a specified portion of the issue each year. Reasons for creating a sinking fund could be numerous. For instance, the issuer may wish to decrease the probability of the company becoming constrained in its cash resources. Thereby, the company would then strategically pay off a portion of its outstanding debt each year with the sinking fund.

10. Secured/Unsecured

Bonds can be either secured or unsecured by the issuer. Secured bonds are generally those backed or collateralised by an asset (money or physical asset). Conversely, debt not pledged by collateral is unsecured. Corporate bonds may be secured or unsecured whilst sovereign bonds are generally unsecured and backed by the "creditworthiness" of the issuer (government). Secured bonds are perceived by investors as a safer investment and typically pay lower interest rates.

11. Debentures

Unsecured bonds are also referred to as debenture bonds, whereby the issuer promises to repay the debt based on the "full faith and credit" of the issuer. Although a debenture bond is not secured by a specific pledge, the debenture bondholders have the claim of general creditors on all the assets held by the issuer. They also have a right on pledged assets after all higher graded investors in the capital structure have been paid. Unsecured bonds can also be referred to as "subordinated" or junior debt, normally carrying more risk than secured bonds. In such a case, the reputation and credit worthiness of the issuer are key.

12. Embedded Options

An embedded option is generally a right given to either party to take action in their own interest and is embedded within the issue. Such provisions are clarified in the indenture of the issue.

13. Convertible Bonds

Convertible bonds give the right to a bondholder to transform each convertible bond to a number of shares specified by a pre-set conversion ratio. These provide bondholders with an option to exchange each bond for a specified number of shares of common stock of the firm.

14. Callable Bonds

A call option set out in a bond's indenture gives the issuer the right but not the obligation repurchase the bond, otherwise known as "call", from the bondholder. The call would be done at a predetermined price, known as the "call price", and at a predetermined time, known as the "call date". A variant of callable bonds are deferred bonds, which would have a period, in which the bonds cannot be redeemed by the issuer.

15. Puttable Bonds

The put bond gives what is called a put option, which grants the bondholder the right to receive earlier repayment of the principal. Thus, the bondholder holds the right, but not the obligation, to put the bond up for sale within a specific time period and at a predetermined price. The put option is of benefit to the bondholder as it provides the investor with added flexibility managing their investments.

Price of Puttable Bond = Price of Option Free Bond + Price of Put Option

Types of Bonds:

In India, all these bonds are listed in National Stock Exchange and Bombay Stock Exchange in India, hence they can be easily liquidated and sold in the open market.

i) Government Bonds:

Known popularly as "Sovereign Debt", government bonds are issued by the Central Government to raise money from the general public. It is a risk-free investment that offers stable returns and is suitable for investors with a low-risk appetite.

(ii) Municipal Bonds:

Municipal bonds are issued by the State government or the local government agencies to raise money to fund government activities. As per SEBI, municipal bonds need to have a rating above the investment grade and have a maturity period of 3 years, before being issued to the public. These bonds are also considered a safe investment option as the State Government backs them.

(iii) Corporate Bonds:

Large financial corporations and financial institutions issue corporate bonds. They yield higher returns, but the risk factor is also high. The maturity period on these bonds can go up to around twelve years. It is essential that you do a background check on the company or ascertain its reliability before investing any money.

(iv) Public Sector Bonds:

These bonds are issued by Public sector corporations, where the share of the Central Government is more than 50%. These bonds are implicitly guaranteed by the Union Government and are considered a safe investment option.

(v) Banks and other financial institutions bonds:

These bonds are issued by banks or any financial institution. The financial market is well regulated and the majority of the bond markets are from this segment. However care to be taken to consider the credit rating given by Credit Rating Agencies before investing in these bonds. In case of poor credit rating, better to stay away from such bonds.

(vi) Tax saving bonds:

In India, the tax saving bonds are issued by the Government of India for providing benefit to investors in the form of tax savings. Along with getting normal interest, the bond holder would also get tax benefit.

Some Other Categories of Bonds

There are various types of Bonds. A few of them have been discussed below in brief.

- **Traditional Bond:** A bond in which the entire principal can be withdrawn at a single time after the bond's maturity date is over is called a Traditional Bond.
- **Callable Bond:** When the issuer of the bond calls out his right to redeem the bond even before it reaches its maturity is called a Callable Bond. Through this type of bonds, the issuer can convert a high debt bond into a low debt bond.
- **Fixed-Rate Bonds:** When the coupon rate remains the same through the course of the investment, it is called Fixed-rate bonds.
- **Floating Rate Bonds:** When the coupon rate keeps fluctuating during the course of an investment, it is called a floating rate bond.
- **Puttable Bond:** When the investor decides to sell their bond and get their money back before the maturity date, such type of bond is called a Puttable bond.
- **Mortgage Bond:** The bonds which are backed up by the real estate companies and equipment are called mortgage bonds.
- **Zero-Coupon Bond:** When the coupon rate is zero and the issuer is only applicable to repay the principal amount to the investor, such type of bonds are called zero-coupon bonds.
- **Serial Bond:** When the issuer continues to pay back the loan amount to the invest every year in small installments to reduce the final debt, such type of bond is called, Serial Bond.
- **Extendable Bonds:** The bonds which allow the Investor to extend the maturity period of the bond are called Extendable Bonds.
- **Climate Bonds:** Climate Bonds are issued by any government to raise funds when the country concerned faces any adverse changes in climatic conditions.
- **War Bonds:** War Bonds are issued by any government to raise funds in cases of war.
- **Inflation-Linked Bonds:** Bonds linked to inflation are called inflation linked bonds, The interest rate of Inflation linked bonds is generally lower than fixed rate bonds.

The Bond Market in India

The Indian bond market comprises of various types of bonds as mentioned above. The market can be divided into two categories.

(i) Primary Market

In the primary bond market, the entity that needs to borrow money invites the general public or investment banks to purchase their bonds. The bonds are issued for a fixed tenure at a pre-specified interest rate.

(ii) Secondary Market

In the secondary market, the investors who had purchased the bond previously, sell their bonds to other investors. Various brokers operate in the secondary market who facilitate these transactions.

Differences between Bonds and Debentures

Basis	Bonds	Debentures
1. Definition	Bonds are debt financial instruments issued by large corporations, financial institutions and government agencies that are backed up by collaterals or physical assets.	Debentures are debt financial instruments issued by private companies, but any collaterals or physical assets do not back them up.
2. Owner	The owner of a bond is called a bondholder.	The owner of a debenture is called a debenture holder.
3. Collateral	Bonds get secured by the collateral or physical assets of the issuing company.	Debentures do not get secured by the collateral or physical assets of the issuing company. Lenders purchase these instruments solely based on the reputation of the issuing company.
4. Tenure	Bonds are long term investments and their tenure is generally higher than debentures.	Debentures are generally short to medium term investments and their tenure is usually lower than bonds.
5. Issuer	Large corporations, financial institutions and government agencies issue these bonds for their long term capital requirements.	Private companies generally issue debentures for their immediate capital requirements.
6. Rate of Interest	The bonds carry a fixed or floating interest rate that is generally lower than debentures because they are more stable in terms of repayment, and they get backed by collateral of the	The debentures carry a fixed or floating interest rate that is generally higher than bonds because they are less stable in terms of repayment, and they are also not backed by collateral.

	issuing company.	
7. Priority During Liquidation	If the company is on the verge of liquidation, the bondholders are given priority over debenture holders for repayment of capital and interest amount.	If the company is on the verge of liquidation, the debenture holders are given second priority over bondholders for repayment of capital and interest amount.
8. Payment Structure	The payment of interest for bonds is on an accrual basis. The issuing company pays this amount on a monthly, half-yearly or yearly basis and this payment is not dependent on the performance of a company.	The payment of interest for bonds is done on a periodical basis and depends on the company's performance.
9. Risk	Bonds are less riskier than debentures because they have the security of the physical assets of the issuing company.	Debentures are riskier than bonds because they do not have the security of the physical assets of the issuing company.

Benefits of investing in bonds

1. Income predictability

If Investment objective is to maintain a specific, steady level of income from portfolio. high quality bonds can provide a series of predictable cash flows with minimal risk to your invested capital (the principal).

2. Safety

Depending on their quality, bonds can offer a high degree of certainty that the interest and principal repayment will be received in full if the bond is held to maturity. The quality of the bond-and the level of security that comes with it is reflected in the credit rating of the issuer.

3. Diversification

Diversification means holding a mix of different asset classes in portfolio. For example, adding fixed-income securities like bonds to an equity portfolio helps to achieve greater diversification. This is a way to reduce portfolio risk-the risk inherent in combined investment holdings - while potentially increasing returns over time, since even i Tone class declines in value, there is still an opportunity for an increase in one or more of the other classes.

4. Choice

A wide range of bond issuers with a variety of coupon rates and maturity dates are available for you to choose from. This allows you to find the bond(s) with cash flows that match Investors income needs while complementing other portfolio holdings.

Risks associated with bonds

There are a number of risks to bond investing and, as a rule, investment returns are lower when risk is low; higher returns mean higher risk. Two key risks are the risk of default and price risk.

1. The risk of default (also known as credit risk)

An issuer of debt is said to be in default when the issuer is unable to repay the principle or interest as scheduled. Corporate bonds are more exposed to default risk because companies cannot raise taxes when there is a cash shortfall or take advantage of other options available to governments.

2. Price risk

If Investor sells bonds prior to their maturity, their price or market value may be lower than the price at which you bought them. Price fluctuates throughout a bond's lifetime and may be greater or less than its face or principal value. If Investor buy a bond below par, he can expect to realize a capital gain when the bond matures; similarly, if he had bought the bond at a premium, he will have a capital loss at maturity. A bond's price is a function of the bond's coupon rate as compared to the current level of interest, its remaining term to maturity, its credit or default risk and any special features it may have.

3. Coupon rate versus interest rate fluctuations

Fluctuations in interest rates usually have the biggest impact on the price of bonds- interest rates can be affected by many things, including a change in inflation rates. Generally speaking bond prices move inversely to interest rates because the coupon rate usually remains constant through to maturity. If current interest rates are higher than the coupon rate, the bond is less attractive to investors and drops in value, since investors aren't willing to pay as much for a series of lower coupon payments. Bond prices increase when the coupon rate is higher than current interest rate levels. To an investor who holds bonds through to maturity, price fluctuations may seem irrelevant. End-of-day prices for many widely held bonds are quoted in the daily business papers.

4. Term to maturity

As bonds approach maturity, their market value approaches their face value. In general, the longer the term to maturity and the lower the coupon rate, the more sensitive a bond is to any changes in rate. When interest rates increase, bonds with distant maturity dates and

low coupon rates experience the greatest fall in price.

5. Risk

As a rule, Investor can expect to receive a full repayment of a bond's face value on the maturity date as long as the issuer is able to repay the debt, but if the credit rating changes during the life of the bond, it may have an affect on the bond's price. For example, if the credit rating of debt rated "AAA"- the lowest level of default risk- changes due to large losses by the issuing company that could affect the company's ability to repay interest or principal, the bond price will drop even if there is no change in interest rates.

6. Special features

Many bonds have special features that may have a significant impact on their price, risk and the returns investor may earn. They can be called (repaid) early or they can be converted, for example, into shares of the issuing company. Bonds can also be extended (repayment deferred from the original term to a later date) or other special provisions can apply.

7. Demand and supply

The availability of bonds and the demand for them also affects the price of bonds. As demand increases, prices rise, all other factors remaining the same. Also, as the supply of bonds declines, for example, prices generally also rise. In both cases, if investor are holding bonds, their yield to maturity will increase. Similarly, when demand falls or supply increases. prices fall and yield to maturity declines.

Returns on Bonds

Since the interest payable on bonds is fixed, it is easier to determine returns from bonds when compared to calculation of return from shares. Bond returns are expressed in the following five forms:

- a. Coupon rate
- b. Current yield
- c. Spot interest rate
- d. Yield to maturity
- e. Yield to call

a. Coupon Rate

This is the rate of interest fixed for the bond and printed on the bond certificate. Interest payable is calculated at the coupon rate on the face value of the bond. Ex: If the face value of the bond is Rs.1000 and if the coupon rate is fixed at 8% p.a., the annual interest payable by the company to the bond holder is Rs. 80 per bond.

b. Current Yield

The current yield formula of a bond essentially calculates the yield on a bond based on the Market price, instead of face value. The formula for calculating the current yield is as follows:

$$\text{Current Yield of Bond} = \frac{\text{Annual coupon payment}}{\text{Current Market price}} * 100$$

The current yield is an accurate measure of calculating the yield on a bond as it reflects the market sentiment and investor expectations from the bond in terms of return.

Moreover, it is a reliable measure given its sensitivity to inflation expectations of the bond market investors.

c. Spot Interest Rate

Before understanding spot interest rate, a type of bond known as “Zero coupon bond” is to be understood

Zero-Coupon Bond

Zero-Coupon Bond (Also known as Pure Discount Bond or Accrual Bond) refers those bonds which are issued at a discount to its par value and makes no periodic interest payment, unlike a normal coupon-bearing bond. In other words, its annual implied interest payment is included in its face value which is paid at the maturity of such bond. Therefore, this bond is the one where the sole return is the payment of the nominal value on maturity.

For example, if a bond with face value of 1000 is issued at an offer price of 800 and has a maturity period of three years, an investor who purchases a bond at 800 will receive 1000 after three years. The difference of 200 between the face value and issue price represents the return offered by the bond. Zero coupon bonds are also known by the names 'deep discount bonds' or 'pure discount bonds'. Mathematically, Spot interest rate of a zero-coupon bond is the discount rate that equates the present value of the single cash inflow available to the investor on maturity of the bond to the price of the bond.

d. Yield to Maturity

Yield to maturity (YTM) is the expected return on a bond that an investor will receive if it is held until the maturity date of the bond. In other words, it refers to the returns that a bond will fetch considering all payments made on time throughout the life of the bond. Unlike current yield which measures the present value of the bond whereas the yield to maturity measures the value of the bond at the end of the term of a bond.

$$\text{Yield to Maturity} = \left[\text{Annual Interest} + \frac{(\text{FV} - \text{Price})}{\text{Maturity}} \right] / \left[\frac{(\text{FV} + \text{Price})}{2} \right]$$

Where,

Annual Interest = Annual Interest Payout by the Bond

FV Face Value of the Bond

Price = Current Market Price of the Bond

Maturity = Time to Maturity i.e. number of years till Maturity of the Bond

e. Yield to call

Yield to call is the return on investment for a fixed income holder if the underlying security i.e. Callable Bond is held until the pre-determined call date and not the maturity date. The bond is held until the pre-decided call date and not the maturity date Bond's purchase price is assumed to be the current market price instead of the Bond face value B = Current Price of the Bonds C=Coupon payment paid out annually CP Call price T= number of years pending until the call date.

$$\text{Yield to Call} = \frac{\text{Annual Interest} + \frac{\text{Call price} - \text{Market price}}{\text{Number of Years to call}}}{\frac{\text{Call price} + \text{Market price}}{2}}$$

Duration of the Bond

Duration measures a bond's price sensitivity to interest rate changes. Macaulay duration or just referred as Duration estimates how many years it will take for an investor to be repaid the bond's price by its total cash flows. On the other hand Modified duration measures the price change in a bond given a 1% change in interest rates.

Duration can measure how long it takes, in years, for an investor to be repaid the bond's price by the bond's total cash flows. Duration can also measure the sensitivity of a bond's or fixed income portfolio's price to changes in interest rates.

It's always advantageous to invest in Bonds with less duration. In general, the higher the duration, the more a bond's price will drop as interest rates rise (and the greater the interest rate risk).

Factors affecting a bond's duration

- **Time to maturity:** The longer the maturity, the higher the duration, and the greater the interest rate risk. Consider two bonds that each yield 5% and cost Rs1,000, but have different maturities. A bond that matures faster-say, in one year-would repay its true cost faster than a bond that matures in 10 years. Consequently, the shorter maturity bond would have a lower duration and less risk.
- **Coupon rate:** A bond's coupon rate is a key factor in calculation duration. If we have two bonds that are identical with the exception of their coupon rates, the bond with the higher coupon rate will pay back its original costs faster than the bond with a lower yield. The higher the coupon rate, the lower the duration, and the lower the interest rate risk.

TYPES OF DURATION

1. Duration or Macaulay Duration

Macaulay duration is a weighted average of the times until the cash flows of a fixed income instrument are received. The concept was introduced by Canadian economist Frederick Macaulay. It is a measure of the time required for an investor to be repaid the bond's price by the bond's total cash flows, The Macaulay duration is measured in units of time (Ex: years)

The Macaulay duration for coupon-paying bonds is always lower than the bond's time to maturity. For zero-coupon bonds, the duration equals the time to maturity.

2. Modified Duration

Relative to the Macaulay duration, the modified duration metric is a more precise measure of price sensitivity. It is primarily applied to bonds, but it can also be used with other types of securities that can be considered as a function of yield.

Unlike the Macaulay duration, modified duration is measured in percentages.

The modified duration is often considered as an extension of the Macaulay duration

Immunization Strategy

Immunization is the process of securing someone from infectious diseases. Financial experts also use immunization strategies to secure investments against several types of risks. One such risk is the interest rate risk for investors. The interest rate risk is particularly higher for bond investors due to the inverse relation of interest rate and bond prices.

Bond Immunization refers to an investing strategy that secures investment against interest rate fluctuations. Most commonly, investors can use the duration of bond strategy as immunization against interest rate risks.

It reduces the price sensitivity risk due to rising interest rates. As governments try to match inflation, interest rates rise over the long term. Hence, investors need to match bond pricing in the long-term due to interest rate inflation. Immunization is one such strategy to mitigate the pricing sensitivity of bonds in the long run.

Bond immunization means achieving specific returns in a specified period, regardless of the market conditions and interest rate fluctuations. It requires comprehensive analyses of economic factors as well as interest rate risks.

Bond prices and interest rates typically have an inverse relationship with each other. It means bond prices go down when interest rates rise and vice versa. Investors look to safeguard investments in the long run with bonds. Hence, fund managers seek ways to mitigate price sensitivity and interest rate risks, Bonds also are long-term investment instruments, Immunization strategy can be implied for investment return goals for a particular duration rather than the maturity date of bonds.

Working of Immunization Strategy

Bond immunization strategy is used by governments, corporations, pension funds, and large financial entities to secure future liabilities. Individuals can also use the same immunization strategy to safeguard future liabilities, for example, a lump sum loan payment in 5 years.

It can be achieved through duration matching, cash flow matching, or trading Forwards, Futures, and Options in the bond market. However, duration matching is often considered the most effective immunization strategy. Duration matching requires balancing bond portfolios with different maturity periods and coupon rates. More effectively, investors can use zero coupon bonds to mitigate the interest rate risks with bond portfolios. With

multiple bond durations. investors can match their future liabilities effectively. However, it requires multiple reinvestments that means multiple reinvestment risks.

Bond immunization is an effective strategy. However, it isn't a risk-free strategy. Duration matching comes with reinvestment risks. Cash flow matching comes with interest rate risks and requires a higher initial investment. Bonds also inherently come with different investment risks such as interest rate risk, reinvestment risk, and default risk.

Example: Suppose an investor needs to make a future payment of Rs 50,000 in 5 years. The investor can use this strategy to reduce interest rate risk. The investor can choose a bond with a repayment of Rs 50,000 in 5 years. Additionally, the investor can reinvest the coupon payments at the market interest rate. To avoid any interest rate risks, the investor can use zero coupon bonds that would offer a discount on face value too.

Advantages of Bond Immunization Strategy

- It mitigates interest rate risks for long-term investments.
- Investors can use this immunization strategy to match future liabilities over a specified period.
- Investors use this strategy to achieve net worth goals in the long term.
- Cash flow matching can be used to achieve regular future payment liabilities.

Disadvantages of Bond Immunization Strategy

- It does not fully mitigate the interest rate or reinvestment risks for investors.
- Bond immunization strategy requires careful future liabilities assessment and time matching, which aren't easy.
- It comes with opportunity costs since investors forego higher risk-reward investments than investing in conservative bonds.