

## 1. Explain different types of Bonds?

**Traditional bond:** A traditional bond allows the bondholder to withdraw the entire principal amount at once upon the bond's maturity.

**Callable bond:** A callable option is an option exercised by the bond issuer. When an issuer calls out their right to redeem the bond before its maturity is called a callable bond. An issuer can convert a high-debt bond to a low-debt bond through a callable bond.

**Fixed-rate bond:** Bonds whose coupon rate remains constant through the tenure of the bond.

**Floating rate bond:** Bonds whose coupon rate varies during the tenure of the bond.

**Puttable bond:** Puttable bonds are those where an investor sells their bonds and gets the money back before the date of maturity.

**Mortgage bond:** Mortgage bonds are ABS bonds. These types of bonds are often backed by securities. For example, they can be backed by real estate companies and equipment.

**Zero coupon bond:** Zero coupon bond is a bond with a zero coupon rate. The bond issuer pays only the principal amount to the investor on maturity. They do not make any coupon payments. However, they are issued at a discount to their par value. The bondholder generates returns once the issuer repays the amount at face value.

**Serial bond:** In a serial bond, is the one where the issuer pays back the loan amount to the investors in small amounts every year. This is to reduce the final debt obligation on the issuer.

**Extendable bond:** An extendable bond allows the investor to extend the maturity period.

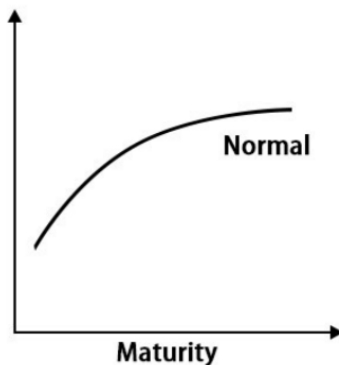
**Convertible bond:** A convertible bond allows the bondholder to convert their debt into equity (stock) at some point. However, it depends on conditions like share price. These are suitable for companies as the interest outflow becomes lower. Investors can benefit from this when they can make a profit from the upside in the stock. However, this only happens when the project is successful.

**Dynamic Bonds:** Dynamic bond funds are open-ended debt mutual funds that invest across duration. They follow a dynamic approach in terms of the maturity of securities in the portfolio. One of the main objectives of dynamic bond funds is to provide optimal returns in both falling and rising interest rate scenarios.

## 2. What are the Types of Term Structures of Interest Rates?

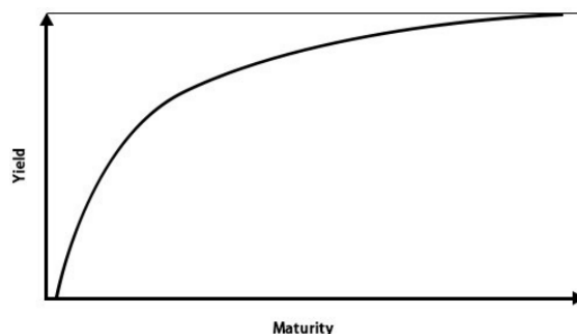
**1 - Normal/Positive Yield:** The normal yield curve has a positive slope. This stands true for securities with longer maturities that have greater risk exposure as opposed to short-term securities. So rationally, an investor would expect higher compensation (yield), thus giving rise to a normal positively sloped yield curve.

We can also call it a Positive Yield curve. This curve has a positive slope and depicts securities with longer maturities having more risk exposure. Since risk is more, an investor would expect more return (yield), resulting in a curve with a normal positive slope.



Bond yields or interest rates are plotted against X-axis while time horizons are plotted on Y-Axis.

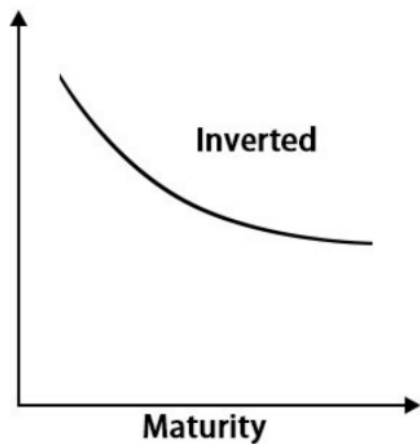
**2 – Steep:** The steep yield curve is just another variation of the normal yield curve, just that a rise in interest rates occurs at a faster rate for long-maturity securities than the ones with a short maturity. It is also very similar to a normal curve, with the only difference being the interest rate rises faster for bonds with longer maturity in comparison to the ones with a short maturity.



### 3 – Inverted/Negative Yield

An inverted curve forms when there is a high expectation of long-maturity yields falling below short-maturity yields in the future. An inverted yield curve is an important indicator of the imminent economic slowdown.

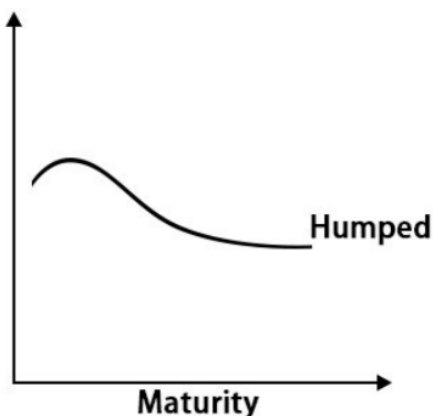
We can also call it a negative yield curve. This curve forms when the market expects yields on long-maturity bonds to drop below the short-maturity yields going ahead. When such a curve forms, it suggests a slowdown in the economy.



#### 4 – Humped/Bell-Shaped

This type of curve is atypical and very infrequent. It indicated that yields for medium-term maturity are higher than both long and short terms, eventually suggesting a slowdown.

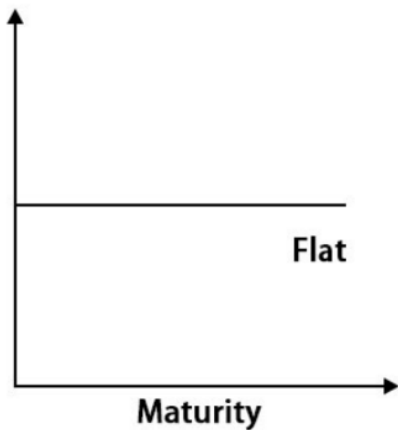
We can also call it a bell-shaped curve. This type of curve is very rare and indicates a slowdown in the economy. It indicates that the yield on the bonds with medium-term maturity is more than the yield from those with long and short-term maturities.



#### 5 – Flat

A Flat curve indicates similar returns for long-term, medium-term, and short-term maturities.

If the shape of the yield curve is flat, it would mean bonds with varying maturities are offering similar returns.



### 3. Elaborate Importance of the Yield Curve.

**1. Forecasting Interest Rates:** The shape of the curve helps investors get a sense of the likely future course of interest rates. A normal upward-sloping curve means that long-term securities have a higher yield, whereas an inverted curve shows short-term securities have a higher yield.

**2. Financial Intermediary:** Banks and other financial intermediaries borrow most of their funds by selling short-term deposits and lending by using long-term loans. The steeper the upward-sloping curve is, the wider the difference between lending and borrowing rates, and the higher their profit. A flat or downward-sloping curve, on the other hand, typically translates to a decrease in the profits of financial intermediaries.

**3. The Tradeoff between Maturity and Yield:** The yield curve helps indicate the tradeoff between maturity and yield. If the yield curve is upward-sloping, then to increase his yield, the investor must invest in longer-term securities, which will mean more risk.

**4. Overpriced or Underpriced Securities:** The curve can indicate for investors whether a security is temporarily overpriced or underpriced. If a security's rate of return lies above the yield curve, this indicates that the security is underpriced; if the rate of return lies below the yield curve, then it means that the security is overpriced.

### 4. Give the Advantages and Disadvantages of the spot rate.

#### Advantages:

- The parties are confirmed with the rate and value of the product for which the transaction is to be made.
- Spot rate gives the actual movement of markets.
- There is no speculation involved in the calculation of this rate.

- There is no effect from market dynamics like volatility, time value, interest rate changes, etc. since buyers and sellers are sure about the current scenario in the market with no reason for any doubts about future market movement.
- The study of spot rates for a particular period may help in market price trend analysis for the particular product.

#### **Disadvantages:**

- Spot rate may bring lesser profit to a product buyer in bearish markets. The current spot rate may be higher, so the buyer will pay more today than tomorrow.
- Financing also requires other products, which deal with future rates and speculation.
- Spot rate brings exchange risks to the individual, corporate, and other finances since the current rate may not be equivalent to the rate at the time of settlement.
- Floating rates may create a difference in the actual calculation as they fluctuate and may differ at the settlement time.
- It also depends upon market situations, which include political scenarios, war conditions, an act of God situations, and other environmental activities. Although this may not be directly related to product performance, it affects its price in the market. However, in such scenarios, almost the entire market gets affected.

### 5. Distinguish between Spot Rate and Forward Rate.

	Spot Rate	Forward Rate
Timing	The spot rate is the price at which a financial instrument can be bought or sold for immediate delivery.	The forward rate is the price at which a financial instrument can be bought or sold for delivery at a future date.
Market Expectation	The spot rate reflects the current market price of the instrument.	The forward rate reflects the market's expectation of the future price of the instrument.
Interest Rate	Spot rate reflects the present value of an asset.	The forward rate reflects the expected future value of an asset based on the prevailing interest rate.
Risk	The spot rate is considered less risky than the forward rate, as the former reflects the current market	The future is uncertain, hence, it is riskier.

	conditions while the latter reflects the expectations of the market.	
Usability	Spot rates are widely used in financial transactions such as currency exchange.	Forward rates are used in financial contracts such as forwards, futures, and options, and also in hedging strategies against interest rate and currency risk.
Flexibility	The spot rate is fixed at the time of the transaction.	The forward rate is flexible and can be adjusted according to the market conditions.

## 6. Write short notes on:-

### a. Yield Curve

The Yield Curve is a graphical representation of the interest rates on debt for a range of maturities. It shows the yield an investor is expecting to earn if he lends his money for a given period of time. The graph displays a bond's yield on the vertical axis and the time to maturity across the horizontal axis. The curve may take different shapes at different points in the economic cycle, but it is typically upward-sloping.

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b. Forward Rate

Upar hai

c. Duration and convexity of the yield curve

1) Forward exchange rates \_\_\_\_\_

A) involve the immediate exchange of bank deposits.

B) involve the exchange of bank deposits at some specified future date.

C) involve the immediate exchange of imports and exports.

D) none of the above.

2) The value of the bond depends on

a) The coupon rate

b) Years to maturity

c) Expected yield to maturity

d) All the above



**3) Duration is the measure of**

- a) Time structure of the bond**
- b) Interest rate risk**
- c) Time structure and market risk**

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**d) Time structure and the interest rate risk**

**3) \_\_\_\_\_ is the current market price at which an asset is bought or sold for immediate payment and delivery.**

- a) Spot price**
- b) Future price**
- c) Market price**
- d) Exercise price**

4) 10) Yield curves can be classified as

A) downward sloping.

B) upward sloping.

C) flat.

D) all of the above.

E) only (a) and (b) of the above.

5) 1) The term structure of interest rates is

A) the structure of how interest rates move over time.

B) the relationship among interest rates of different bonds with the same maturity.

C) the relationship among the term to maturity of different bonds.

D) the relationship among interest rates on bonds with different maturities.

6) The **rate of return** required by investors in the market for owning a bond is called the:

A) Coupon

B) Face value

C) Maturity

D) Yield to maturity

E) Coupon rate.