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Chapter-10 Indicators in Bond Market

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Contents

Chapter – 10 Market Indicators in Bond Market

Introduction

This session gives the details about the various market conditions indicators that are there and how they show the conditions prevailing in the market. This kind of data about the various market conditions indicators will help the investors to make an investment decision in various investments alternatives. They not only show the profitability in investment options but also show the performance of the economy as a whole.

Learning Objective

After reading this chapter you will:

- Understand the various Market Conditions Indicators
- Explain the significance of various Market Conditions Indicators
- How Market condition Indicators explain risk and return relationship
- Explain the various factors affecting these market indicators and the advantages of using these indicators

10.1 Bond & Investment Decisions

Bonds are debt instruments that are used by corporations, governments and government agencies to borrow long-term capital. Bondholders are creditors to the corporation. They do not own the company, nor do they have any vote in corporate matters. Bonds can be simply defined as an interest-bearing certificate of debt. It can either be an obligation of the government (or business corporation), or a formal promise by the borrower to pay to the lender a certain sum of money at a fixed future day with or without security, and signed and sealed by the maker (borrower). It is usually a series of interest payments (usually semi-annually) and the principal, which is paid on the stated future date.

Issuers of bonds try to match the need of the investors with their own needs. This has resulted in numerous variations of bonds. In most cases the name of the bond conveys the type of the bond for e.g. CG 12% 2007 conveys that the bond is a Central Government bond and pays 12% coupon and will mature in 2007.

Another Example: NABARD issues bonds whose face value is Rs 1000 with a five year lock in period. The minimum investment should be of five bonds.

Bonds can be classified as convertible or non-convertible. Convertible bonds can be converted into the company's stock at predetermined rates and timeframe. The terms and conditions for the conversion are mentioned in an indenture document for the bond. This document is a contract between an issuer of bonds and the bondholder stating the time period for re-payment, amount of interest paid, if the bond is convertible (and if so, at what price or what ratio), and the amount of money that is to be re-paid. Convertible bonds can also be fully or partly convertible. Partially convertible bonds allow investors to convert part of their holding into stock. Fully convertible bonds allow investors to convert all the bonds held into stock. Non-convertible bonds cannot be converted into stock.

Based on the way bonds pay interest to the investors, they can also be subdivided as:

- Straight Bonds
- Floating Rate Bonds
- Zero Coupon Bonds

Investment Decisions

Comparison between investment options is done either by looking at the returns (i.e. maximum returns are sought) or the risk involved (the objective is to minimize the risk). For fixed income alternatives, the parameters that are checked to maximize the returns are the coupon rate, the term to Maturity, the Yield to Maturity (YTM), etc. These factors give an estimate of the return that investors can expect.

Coupon Rate

Coupon rate is the fixed interest rate embedded in a bond that has to be paid annually or semi-annually. Generally it is paid half-yearly. Let us take the example of a $100 bond having a coupon rate of 5%. This bond will pay $5 a year to the investor.

The term to Maturity

For bonds, it is the time left for the bond to be mature (i.e. the time from present day to the date of maturity on which the issuer redeems the bond by paying the principal). Term to maturity is mainly used in reference to a bond's yield to maturity (yield promised to bondholder on the maturity). The longer the term to maturity, the greater the yield of the bond.

Yield to maturity

Yield to maturity (**YTM**) is the yield promised to the bondholder assuming that bond is held till maturity. On maturity all coupon and principal will be paid and coupon payments will be reinvested at the same rate. It is a measure used by investors to calculate the return of the bond or any other financial instruments. The calculation of YTM is similar to the calculation of internal rate of return. The calculation of YTM assumes that coupon payments received are reinvested at the same time and at the same interest rate.

$$\text{Current Yield} = \frac{\text{Annual Cash Inflows}}{\text{Market Price}}$$

(Source: http://www.investopedia.com/terms/c/currentyield.asp)

If the current yield of the bond is less than its YTM, then the bond is said to be selling at a discount (Discount: it is the condition where the price of a bond that is lower than face

value. The difference between the prices paid for a bond and its face value. If a bond with a face value of $100 is selling presently at $99 dollars, it is selling at a discount.)

If the current yield of the bond is more than its YTM, then the bond is said to be selling at a premium.(Premium: if the the difference between the price paid for a fixed-income security and the security's face amount is higher than this difference is called premium. Let us take an example, if a bond with a face value of $100 is selling at more than $100 than it is said to be selling at premium.

If the current yield of a bond is equal to its YTM, then the bond is said to be selling at face value.

10.2 Duration & Convexity

Duration

Duration is a measure of time (usually in years) it takes for a bond to repay its initial price through the Cash Flows it generates. In other words, it is the average term-to-maturity of the bond, the average is weighted according to the CFs the bond generates till maturity.

The cash flows a bond generates till maturity is the payment of the Coupon rate to the investor (i.e. in case of a normal, non-zero coupon bond). These coupons are discounted to get the PV of the payments. The number of years it takes for the investor to get back the price he paid to invest in the bond is called the Duration. Other things being equal, duration will be greater: the longer the maturity; the lower the coupon; the lower the yield.

Types of Duration

Duration is broadly of the following types:

i. **Macaulay Duration:**

It was created by Fredrick Macaulay and is most widely used Duration metric for immunization of bonds (A strategy that matches the durations of assets and liabilities, thereby minimizing the impact of interest rates on the net worth). It is calculated as the sum of the PVs of the future CFs multiplied by the time after which they are received divided by the initial price of the instrument.

The formula for Macaulay duration is as follows:

$$\text{Macaulay Duration} = \frac{\sum_{t=1}^{n} \frac{t * C}{(1+i)^t} + \frac{n * M}{(1+i)^n}}{P}$$

n = number of cash flows

t = time to maturity

C = cash flow

i = required yield

M = maturity (par) value

$$\text{P = bond price} = C * \frac{\left[1 - \left[\frac{1}{(1+i)^n}\right]\right]}{i} + \frac{M}{(1+i)^n}$$

It is called a time-weighted average because it considers not just the PVs of the future cash flows but also the time left (from the current point) to make that collection.

For a Zero-coupon bond, the Macaulay duration equals its maturity.

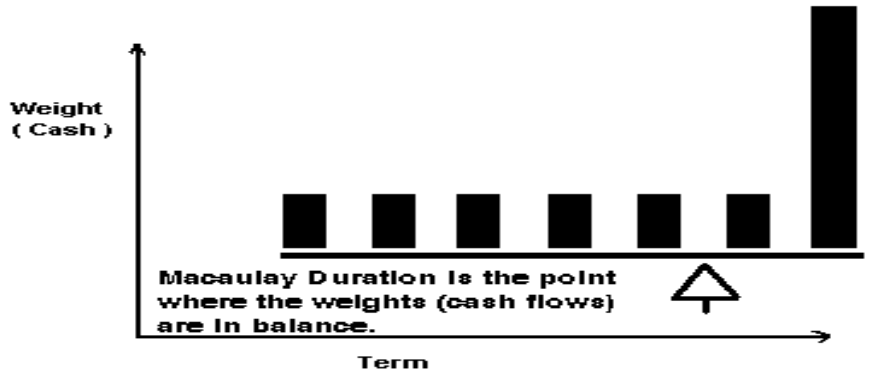


Figure 8.2: Macaulay Duration (*Source: www.finpipe.com***)**

ii. Modified Duration:

It is an extension of Macaulay's duration. It gives an indication of the impact of the interest rates on the yield of the bond. As a change in interest rates has an impact on the price of the bond (increasing interest rates pull down the price of the bond) and the price of the bond affects the yield of the bond, it gives the percentage change in duration for every 1% change in the yield of the bond.

Modified Duration indicates the changing interest rates and is therefore used as measure of volatility of bonds.

Modified Duration = Macaulay Duration / (1+ yield to maturity/no. of coupon per year)

iii. Effective Duration:

It's a duration calculation for bands with embedded options. It exhibits that expected cash flows will fluctuate as interest rates change. Effective duration can be estimated using modified duration provided that the bond with embedded options behaves like an option-free bond. This happens when the investor has no benefits or the issuer has benefit.

Example: if existing interest rates were 10% and a callable bond were paying a coupon of 6%, the callable bond would behave like an option-free bond because it would not optimal for the company to call the bonds and re-issue them at a higher interest rate.

iv. Key Rate Duration

Key-rate duration measures the sensitivity of a portfolio's value to a 1% change in the yield of a particular maturity, holding all other maturities constant.
It is calculated by changing the spot rate of a particular maturity point on the yield curve holding all other variables constant. It allows the duration of a portfolio to be calculated for a one basis point (=0.01 percentage point) change in interest rates.

It is used for the construction of bond ladders, which consists of fixed-income securities with different maturities. The sum of Key rate durations along the ZCYC (Zero Coupon Yield Curve, the bench mark curve) is equal to Effective duration.
The calculation is as follows:

Key Rate Duration = $(P_{-} - P_{+})/ (2 * 1\% * P_{0})$

Where:

P_{-} = Security's price after a 1% decrease in yield

P_{+} = Security's price after a 1% increase in yield

P_{0} = Security's original price

Convexity

Convexity could be defined as the rate of change of duration for an instrument. The graph showing the relationship between the price of the bond and its yield is Convex. Convexity is the degree of the convexity of the curve. The Curve shows by how much the yield changes with change in the price of the bond.

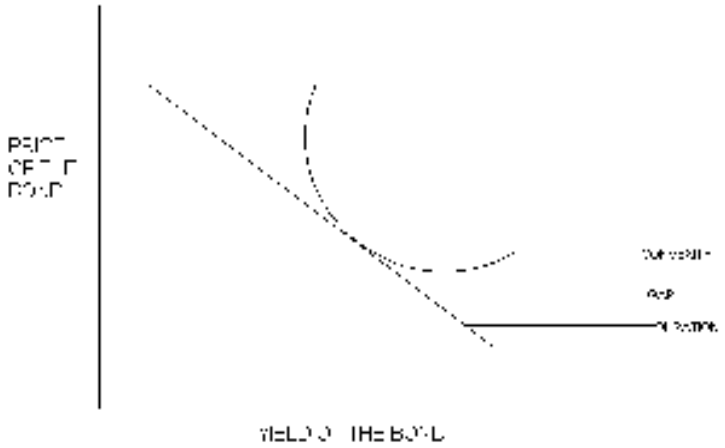


Figure 8.3 Convexity

Convexity indicates that the prices of bonds increase more (than what the duration indicates) when the interest rates fall. Similarly, the bond prices decrease a little more with the increase in interest rates, than what are indicated by the duration. Positive convexity is good for investors, and negative isn't.

The Convexity of a bond is affected by its coupon rate. The lower the coupon rate, the higher the convexity. Zero coupon bonds have the highest convexity. The main thing to

remember about convexity is that it shows how much a bond's yield changes in response to changes in price.

- Price-Yield relationship graph for a plain vanilla bond shows positive convexity. With the decrease in the yield the price-yield curve will increase and vice versa. With the corresponding decrease in the market yields the duration increases (and vice versa).
- For a bond with higher the coupon rate, convexity will be low. Zero-coupon bonds have the highest convexity.
- Negative convexity means that with the decrease in the market yield the duration also decreases.

Advantages of Convexity

Though Modified Duration measures the effect of changes in interest rate on the yield; it is ineffective for large changes in the value of the price of the bond. Convexity is a much accurate measure in such cases.

Convexity can be used as a measure to compare two bonds. If we have two bonds with the same yield then the bond with higher convexity will be a better option to invest because it is less volatile to the changes in interest rates. The bonds with higher convexity will have greater prices at the same yield than bonds with lower convexity.

10.3 Yield Curve

Yield is the return an investor will receive by holding a bond to maturity. The Yield curve could be defined as a representation of the yields of a bond for different maturities. Usually the yields of a benchmark instrument are plotted for various maturities; the usual benchmarks used are either the Government Treasury-bill or the Zero-Coupon bonds (these are securities which pay no interest to the investor) issued by the government.

The yield curve, a graph that depicts the relationship between bond yields and maturities, is an important tool in fixed-income investing. Investors use the yield curve as a reference point for forecasting interest rates, pricing bonds and creating strategies for boosting total returns

For example, according to the Forward rate yield curve, if the current yield rate for a one year t-bill is 7% and that for a two-year bill is 8%, then the yield rate for the one year t-bill in the next year should be nearly 9% (Because the yields over the 2 year period should add to the same, i.e. 8*2=7+x, implies x=9, where x is the yield rate of the one year bill in the next year).

The logic is that whether an investor invests in two one year bonds (one at the beginning of 2006 which matures in 2007 and one at the beginning of 2007 which matures in 2008, at 7% and 8% respectively) or he invests in a 2-year bond, which will mature in the tenure 2006-08, he should get the same yield.

The yield curve movements could broadly be defined as

i. **Gently upward sloping curve**

This curve is most characteristic of an economy that is recently out of a recession and the interest rates are expected to rise at a normal and gradual pace. The market also expects the future inflation to be low, and therefore the prices of the instruments also are not expected to rise exponentially **[Fig.9.1]**.

If the shape of the curve becomes flatter with time, the interest rates are expected to stagnate over a period of time. It is not a very encouraging sign for most investors as the returns on their long-term investments dwindle in such a case. The difference between the long-term interests and the short-term interests starts to shrink in this kind of an economy.

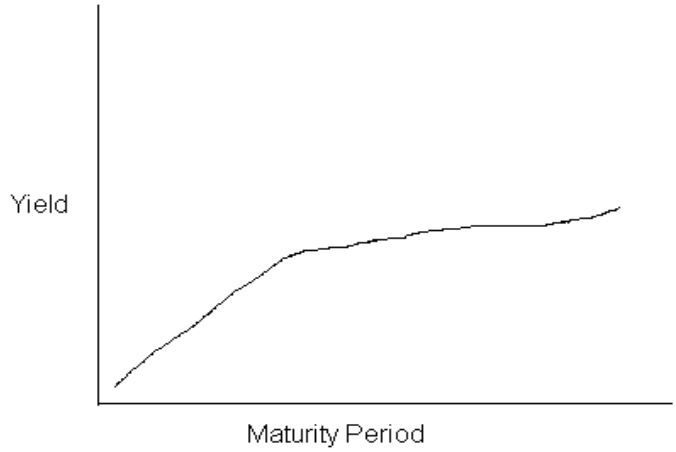


Fig.9.1 Positive Yield Curve

ii. Sharply upward sloping curve

This is characteristic of an economy where the short-term interest rates are slashed (probably to encourage activity in an economy), and the market expects inflation to increase as the time passes. **[Fig 9.2]**

There would be a sharp difference in the yield of long-term maturity instruments and short-term maturity instruments. The logic in the prices of the long-term maturity bonds (or any other fixed income instrument) going up (in spite of offering much higher yields) is that even though the long term interest goes up, the credit risk involved in the instrument also goes up.

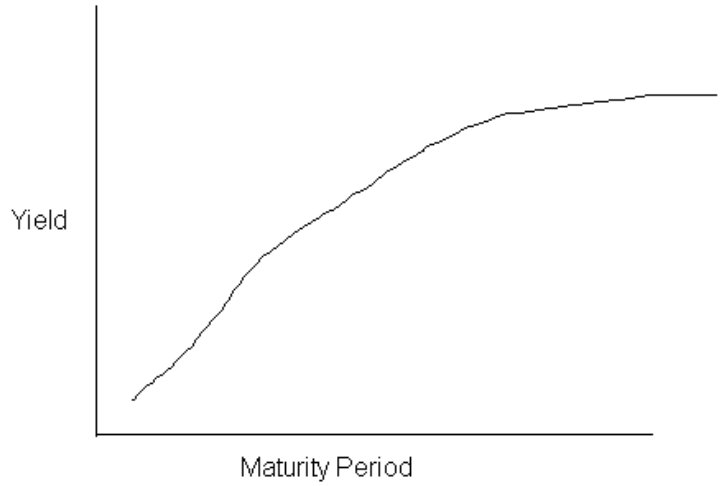


Fig 9.2 Sharply upward sloping curve

iii. Downward sloping curve

This curve is usually considered to be a prediction of an impending recession (fall of prices) in the economy. It implies that the investors (and the issuers) expect the rate of interest in the market to fall in the future. An inverted yield curve indicates that the yield on short-term instrument is more than the returns on long-term instruments. A downward sloping is much rare than a flat or upward sloping curve **[Fig. 9.3]**.

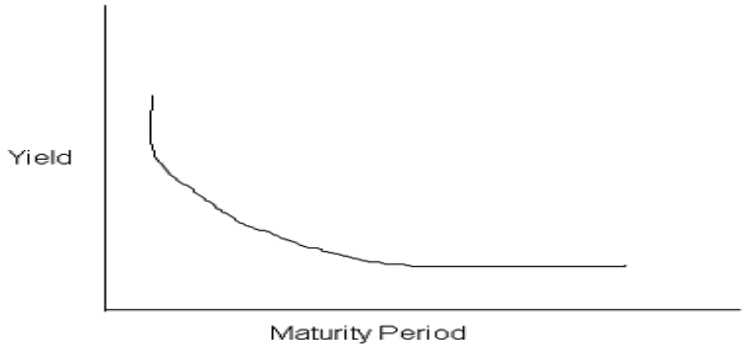


Fig. 9.3 Downward sloping curve

iv. Flat Yield Curve

Every time the yield curve changes its direction form upward sloping to downward sloping or vice versa, it has to pass through by forming a flat curve. The Flat yield curve is formed when the long term and short term interest rates are nearly equal. A flat curve is an indicator of the uncertainty in the economy and is the predictor of the economic transition.

Interpretations of Yield Curve

Most economists agree that two major factors affect the slope of the yield curve: Investors' expectations for future interest rates and certain "risk premiums" that investors require to hold long-term bonds.

Three widely followed theories have evolved that attempt to explain these factors in Detail :

- **The Pure Expectations Theory-** It holds that the slope of the yield curve reflects only investors' expectations for future short-term interest rates. Much of the time, investors expect interest rates to rise in the future, which accounts for the usual upward slope of the yield curve.

- **The Liquidity Preference Theory**- An offshoot of the Pure Expectations Theory asserts that long-term interest rates not only reflect investors' assumptions about future interest rates but also include a premium for holding long-term bonds, called the term premium or the liquidity premium. This premium compensates investors for the added risk of having their money tied up for a longer period, including the

greater price uncertainty because of the term premium, long-term bond yields tend to be higher than short-term yields, and the yield curve slopes upward.

- **Another variation on the Pure Expectations Theory, the Preferred Habitat Theory**- It states that in addition to interest rate expectations, investors have distinct investment horizons and require a meaningful premium to buy bonds with maturities outside their "preferred" maturity, or habitat. Proponents of this theory believe that short-term investors are more prevalent in the fixed-income market and therefore, longer-term rates tend to be higher than short-term rates.

Significance and uses of Yield Curve

The yield curve provides a reference tool for comparing bond yields and maturities that can be used for several purposes.

a) The yield curve has an impressive record as a leading indicator of economic conditions, alerting investors to an imminent recession or signaling an economic upturn.
b) The yield curve can be used as a benchmark for pricing many other fixed- income securities. Because U.S. Treasury bonds have no perceived credit risk, most fixed-income securities, which do entail credit risk, are priced to yield more than Treasury bonds.

For e.g. a three-year, high-quality corporate bond could be priced to yield 0.60%, or 60 basis points, more than the three-year Treasury bond. A three-year, high yield bond could be valued 4% more than the comparable Treasury bond or 400 basis points "over the curve."

a) By anticipating movements in the yield curve, fixed-income managers can attempt to earn above-average returns on their bond portfolios. Several yield curve strategies have been developed in an attempt to boost returns in different interest-rate environments.

b) Using the yield curve, investors may also attempt to identify bonds that appear cheap or expensive at any given time. The price of a bond is based on the present value of its expected cash flows, or the value of its future interest and principal payments discounted to the present at a specified interest rates.

c) Fixed-income managers can also seek extra return with a bond investment strategy known as riding the yield curve, or rolling down the yield curve. When the yield curve slopes upward, as a bond approaches maturity or "rolls down the yield curve," it is valued at successively lower yields and higher prices.

d) Three yield curve strategies focus on spacing the maturity of bonds in a portfolio.

- In a bullet strategy, a portfolio is structured so that the maturities of the securities are highly concentrated at one point on the yield curve. For e.g. most of the bonds in a portfolio may mature in 10 years.
- In a barbell strategy, the maturities of the securities in a portfolio are concentrated at two extremes, such as five years and 20 years.
- In a ladder strategy, the portfolio has equal amounts of securities maturing periodically, usually every year.

10.4 Credit and Bank spread

Credit spread is the premium paid to the investor for bearing the credit risk. It is the premium paid to the investor for investing in a more risky corporate bond instead of a government security (which is considered risk free). Credit spread of an instrument is numerically equal to the difference between yield of the corporate instrument and the yield of a government security of the same maturity.

The credit risk of an instrument is indicated to the investors through the credit ratings that are given to all the issuers. A rating of BBB and above shows that the investments are good, that is they are less risky. Instruments rated below that are called junk bonds. The credit spread is the highest for junk bonds (as they have to compensate for the huge risk that the investor takes) and is the minimum for the instruments rated AAA.

Significance of Credit Spread

The credit spread of a bond helps investors decide on their investment decision. Issuers also use credit spread analysis to their benefit. They try to lock in the periods of narrow spreads (so that they have to pay less interest) through issuing fixed rate bonds and Credit Linked Notes.

Credit Linked Notes (CLN): CLNs are bonds issued by firms which lend to some other firm in the market, and want to cover that exposure. CLNs pay the principal, interest and an additional fee to the investors, in case of default by the firm that the issuer lent to; the investor bears the burden, not the issuer.

Like yield curve, credit spread is also a market indicator, and explain the relationship between cost and return in a financial market.

Factors affecting Credit spread

The risk of default of an investment, called the Credit Risk, increases for an investor with the amount of time the investment is locked in for. Therefore, the longer the maturity period of an instrument, the wider would be its credit spread. Credit spreads reflect the premium demanded for buying risky assets instead of risk-free governmental bonds. The lower the quality of a security is, the higher should the compensation be in the form of higher yield. These spreads change with the outlook of the economy. In good times, when companies' balance sheets are strong and the perceived overall financial risk is low, credit spreads tend to narrow. During bad times, with slumping economic performance and possible financial turbulence, yield spreads widen out as the real as well as the perceived risk is higher. Wider spreads simply mirror investors demand for a higher premium in order to assume risk.

The credit spread is also dependent on the credit rating of the instrument, which is in turn dependent on the internal factors of the firms like its performance, its Cash Flows, the leverage it has (that is the ratio of assets to liabilities), etc.

At the macro level, factors like the interest rates (low interest rates narrow credit spreads) , the volatility in the stock market (higher the volatility, higher the spread), strength of the equity market (in a strong equity market, the firms can raise their capital through issue of equity, which usually costs lesser. Therefore, investors would be compelled to take

narrower spreads), the inflation in the society (lower the inflation, wider the spreads) all affect the credit spread. Also issues made through private placement (that is the bonds are open for sale only for a select few) have higher spreads than those made through public debt issues. One reason for this is that the liquidity is lower in the private market, and the chance of resale is the minimum, and the investor has to be compensated for that

Bank spreads

Bank spread are actually calculated as the net inflow or outflow for a bank. It is calculated as the difference between the interest rate which a bank charges from its borrower and the interest rate a bank pays to a depositor. The credit spreads in banks is different for each investor and borrower as the terms of the investment change for every customer of the bank. Also the loan market is more illiquid than the bond market (illiquidity here refers to the resale value). Therefore a bank spread cannot be directly compared to the spread of any financial instrument (when an investor is deciding whether to invest in a bond, or deposit in a bank).

Spreads on banks are quoted as a spread over some money market index (like LIBOR). To compare between a bank spread and a bond spread, either the bond spread has to be converted to spread over LIBOR or vice versa (through interest rate swaps).
Typically bank spreads tend to be lower than bond spreads as banks are more reliable (as they are more strictly monitored) than bonds, especially lower rated bonds.

i. Grid pricing

Banks change their credit spreads on their loans and deposits, compensating the investors for the risk and providing incentive for the borrowers. This is called Grid Pricing. A grid denotes the set of trigger points at which the spread changes. The trigger points are arrived at using a set of financial ratios.

ii. Market Flex

Market flex is a contractual agreement on underwritten loans (when a financial firm underwrites a loan, it reimburses the bank in case of a default by the borrower). Market flex results in the banks pricing their loans flexibly, that is changing with the interest rates in the market.

10.5 The LIBOR/EURIBOR Swap curve

LIBOR (London Inter-Bank Offer Rate) and EURIBOR (Euro Inter Bank Offer Rate) are both benchmark rates, which are used to analyze the performance of various securities. LIBOR is the rate at which the banks in London lend overnight call money to each other. EURIBOR is the same for the Euro region. Both of these rates are revised daily, around 11 am every day.

The LIBOR/EURIBOR is an interest rate swap curve. It is the most used, therefore, most liquid yield curve in Europe, mainly because a lot of lending, around the world, happens at the LIBOR or EURIBOR rate plus a spread. Therefore the LIBOR/EURIBOR curve is a fair estimate of the interest rate movements in Europe. This means swap can be thought of as derivatives on the LIBOR rate. LIBOR has some special characteristics, and is therefore imparts a special character to swaps and interest rates based on it.

It is better than the normal treasury yield curve because when the government does not issue bonds of a certain maturity, to plot it on the yield curve, the interest at that maturity is interpolated from the other values, which may not always be accurate. And the yields on the yield curve are influenced heavily by the supply and demand of a certain bond, if a lot of people want to save, then the supply of a certain maturity bond may fall, hence its yield may shoot up; but this yield curve is not very appropriate as the supply and demand situation may change abruptly.

The LIBOR/EURIBOR swap curve is more used in Europe than the US, because of the relatively smaller size and illiquidity of the Treasury bond market in Europe.

i. <u>Interest Rate Swap and Spread</u>

An interest rate swap is an agreement between two parties to exchange (swap) streams of income. Usually one stream of interest is a fixed-rate interest and the other is a floating-rate interest, based on a market index like the LIBOR.

For example, a bank lends at 7%, but it expects the interest rates to raise and to increase its income enters into a swap at say the LIBOR rate (which keeps moving, say currently is 6.9%)

for a period of 6 months. Then the bank pays an amount of 7% on the fixed principal (say 1 million) to the other party and accepts interest at the LIBOR rate on the same 1 million principal.

ii. Swap rate

Swap rate is the rate, at which the two streams of incomes are exchanged, in the above example it is 7%. Swap reversal is the termination of the swap agreement, and if the terminating party finds another counterpart for to take his place in the agreement, it is called a Swap Assignment. Let's assume that the swap covers a five-bear period and involves annual payments on a $1 million principal amount. Let us assume that Party A agrees to pay a fixed rate of 12 percent to Party B. In return Party B agrees to pay a floating rate of LIBOR + 3 percent to Party A. Party A pays 12 percent of $1 million, or $120,000 each year to Party B. Party B makes a payment to Party A in return, but the actual amount of the payments depends on movement in LIBOR.

An interest rate swap spread is the cost of the interest rate swap against the yield on a risk-free instrument, like a treasury bond. If in the above example, the rate of yield of the government treasury bond of maturity 6 months is 6.5%, then the spread of this swap is (7-6.5)=0.5%

Let's take an example for an interest rate swap. A Deposit and Loan Association accepts deposits and lends those funds to long-term mortgages. Deposit rates must be adjusted to changing interest rates as the depositors can withdraw their funds on short. Most mortgagors would prefer to borrow at a fixed rate for a long time. This results in the saving and loan association to be left with floating rate liabilities and fixed rate assets. This means that the deposit and loan association is facing the risk of rising rates. If rates rise, the deposit and loan association will be forced to increase the rate it pays on deposits, but it will not be able to increase the rate which it charges on the mortgages that have already been issued.

To be guarded against this interest rate risk, the deposit and loan association can use the swaps market to transform its fixed rate assets into floating rate assets or in other words to transform its floating rate liabilities into fixed rate liabilities. One case may be when t the deposit and loan association may wish to transform a fixed rate mortgage into an asset that pays a floating rate of interest.

For interest rate swap example, the deposit and loan association which is acting as a party to the swap will pay a fixed rate of interest and receive a floating rate of interest and has thus hedged itself against interest rate risk.

Swaps create 'Synthetic Assets' for a firm. Like in the above example of the bank, the increased stream of interest the firm gets is called a 'Synthetic Asset'.

Factors affecting the Swap spread

- The swap spread is affected by the **demand and supply of the fixed-rate and floating rate borrowers in the market**. If there is a big demand from the floating-rate borrowers, the spread of the swaps widens. If the demand is less, they shrink.
- The volume of the bonds traded also affects the swap spread, the lesser the debt issued by the government; the wider is the swap spread.
- **The interest rates in the market also affect the swap spreads**. If the interest rates rise, the swap spreads increase (since the fixed rate of the swap goes up, therefore the spread goes up). The opposite holds true when interest rates are falling.
- **The level of volatility and liquidity in the market** also affect the swap spread. If there is less liquidity (and more volatility) in the market, the safer option for investors is to invest in T-bills. Therefore the spread on swaps increases (compensation for more risk).

Did You Know? Swap spreads in USA more than doubled in 1998 when it became clear that Russia would default its sovereign debt.

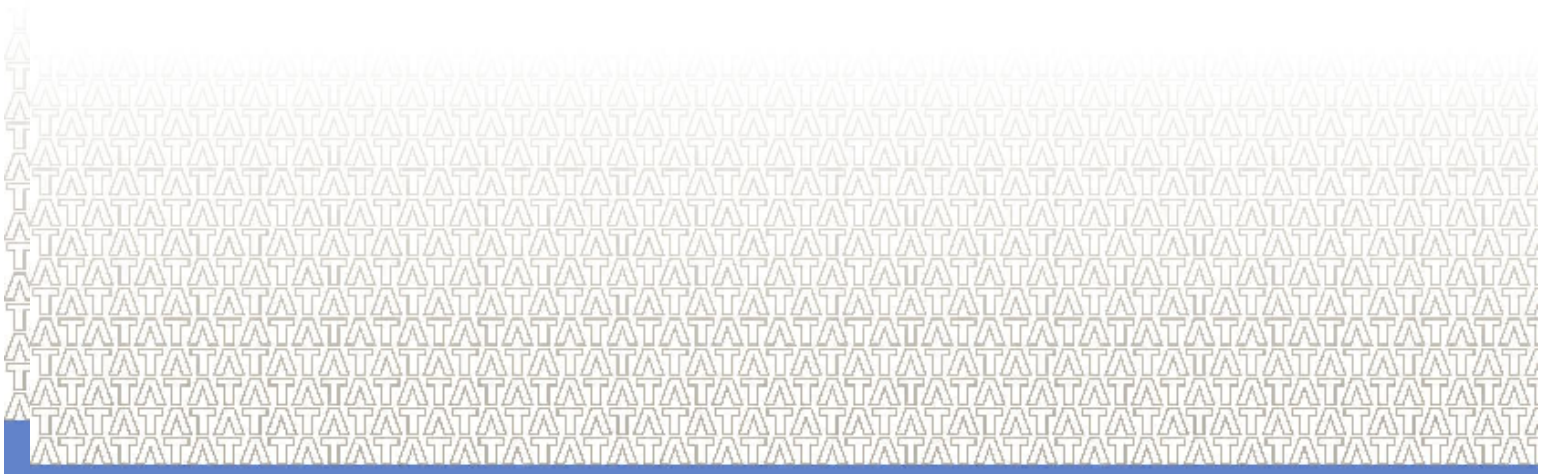
iii. Spread Lock

The changes in the values of the assets of the firm can be 'locked in' using swaps. For example, in a situation where the swap spreads are low, and short-term interest rates are expected to rise; this situation is often accompanied by a credit squeeze, which causes the swap spread to widen, increasing the burden of expenditure for the firm. If the firm wants to make sure that its expenditure does not cross a limit, it can purchase a spread lock to lock in the amount of interest it will swap.

If a firm needs debt in a short period, in such a scenario can purchase a spread lock to lock the swap spread at that particular value. The cost of the spread lock is dependent on the swap's maturity and the date on which the lock is to be fixed.

Summary

- In this session various market condition indicators have been discussed in detail. These indicators are used to find the risk and return associated with various investment options available to any investor.
- Yield curve is often used as an indicator for the future movements of the interest rates in the economy.
- Other indicator "**credit spread**" of a bond helps investors decide on their investment decision.
- "**Interest rate swaps**" are financial tools that potentially can help issuers lower the amount of debt service**.** Swaps are most often used as a tool for hedging against interest rate changes.



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