INTRODUCTION TO DEBT MARKET

Debt market facilitates trading of fixed income securities of various types. Therefore, it is a market for fixed income securities issued by central and state governments, municipal corporations, Government bodies and commercial entities like financial institutions, banks, public sector units, public limited companies and other structured finance instruments.

Characteristics of the Debt Market

- The most distinguishing feature of these instruments is that the return is fixed; hence, they are as close to being risk free as possible, if not totally risk free. The fixed return on the bond is known as the interest rate or the coupon rate. Thus, the buyer of a bond gives the seller a loan at a fixed rate, which is equal to the coupon rate.
- Indian debt market is the third largest in Asia after Japan and South Korea
- Debt market growth is hampered by absence of active and liquid hedging tools
- Indian debt market is cash-only market and has no derivatives like in the equity market. Also, for individuals they are mostly over the counter.
- In the debt market there is an overlap of regulatory authorities:
    - RBI regulates banks
    - SEBI regulates stock exchanges, brokers, mutual funds and corporate

Classification of Debt Market

Debt market in India is made up of four main segments**:**

- Government securities market
- Corporate securities market
- Securities issued by PSU
- FI/Bank bonds (recent development)

Dated Securities are instruments having a face value of Rs 100, which the buyer has to pay upfront. The return is pre-decided. This is known as the coupon rate or the interest rate. The interest rate indicates the amount that will be paid out by the government every year till maturity. The time to maturity is also fixed. For example, 12% GOI 2005 is a bond that matures in the year 2005 and has an interest rate of 12%. The buyer will have to pay Rs 100 to buy the instrument and will get Rs 12 every year as interest. And when the security matures the face value will be returned to the holder. As the interest rate is fixed the price of this instrument will fluctuate depending on the lending rates that are offered by the central bank. If the RBI lowers interest rates this instrument will become more expensive and if RBI hikes interest rates then the instrument will become cheaper.

Zero Coupon Bonds (ZCBs) are available at a discount of their face value. There is no interest paid on these instruments but on maturity the face value is redeemed from the RBI. For example, a bond of face value 100 will be available at a discount say at Rs 80 and say the date of maturity is 2007 (two year after issue). When the bonds are redeemed, Rs 100 will be paid back. The securities do no carry any coupon or interest rate i.e. unlike dated securities no interest is paid out every year. However, when the bond matures the face value is returned. The difference between the issue price (discounted price) and face value is the return on this security.

Capital Indexed Bonds have interest rates as a fixed percentage over the wholesale price index. The purpose is to provide investors with an effective hedge against inflation. The principal redemption is linked to the Wholesale Price Index (WPI). They are issued at face value. Other instruments that have been issued by the government include Floating Rate Bonds (FRBs) and Partly Paid Stocks.

Fixed Income Instruments Issued by Corporates are debentures, which have a face value and a fixed coupon rate. Debentures can be converted into shares depending on the type of instrument. Those that cannot be converted are known as NCD (non-convertible debentures). Some of the debentures can be partly converted to stocks. These are known as PCDs (partly convertible debentures). Those debentures that can be fully converted into stocks are known as FCDs (fully convertible debentures).

Government Securities Market has been investing strongly in gilts, not because of statutory or regulatory compulsion any more, but in pursuit of their commercial judgment. There has been a significant growth in the volume of secondary market transactions. Primary dealers now act as active market-makers, both in treasury bills and dated Government securities, in the wholesale segment of the market. This growth along with an improved book entry based SGL system and the new DVP system have greatly facilitated secondary market trading.

NSE introduced a **wholesale debt segment** to primarily activate a secondary market in non-government issues. However, it is interesting to note that 90% of the turnover in the WDM segment of NSE is accounted for by Government securities, even though the number of non-government securities available for trading in this segment has been steadily increasing. In addition, despite the facility of trading in the NSE, the wholesale market in Government securities has remained predominantly a telephone market. Data on SGL transactions, released by Reserve Bank of India (RBI), also serves as a parallel information flow and provides transparency.

Bonds are debt securities that pay a fixed rate of interest (coupon) and mature at a fixed time in the future. The Government issues bonds, which are called New Zealand Government Stock. Investors who do not wish to hold their NZDX listed bonds until maturity can sell them in the secondary market.

Different Types of Bonds

Government Bonds: In general, fixed-income securities are classified according to the length of time before maturity. These are the three main categories: **Bills -** debt securities maturing in less than one year, **Notes -** debt securities maturing in one to ten years and **Bonds -** debt securities maturing in more than 10 years.

Corporate Bonds: A company can issue bonds just as it can issue stock. Large corporations have a lot of flexibility as to how much debt they can issue; the limit is whatever the market will bear. Generally, a short-term corporate bond is less than five years; intermediate is five to 12 years, and long term is over 12 years. Corporate bonds are characterized by higher yields because there is a higher risk of a company defaulting than a government. The upside is that they can also be the most rewarding fixed-income investments because of the risk the investor must take on. The company's credit quality is very important. Usually, the higher the rating, the lower the interest rate the investor receives. Other variations on corporate bonds include convertible bonds, which the holder can convert into stock, and callable bonds**,** which allow the company to redeem an issue prior to maturity.

Infrastructure Bonds: Infrastructure bonds involve long maturities and unfamiliar risks. For assessing the credit risks, the role of the rating agencies is crucial, not only for the purposes of primary placement, but also for secondary market pricing. The other aspect worth noting is that insurance companies, provident and pension funds, and commercial banks are the appropriate investors in long-term bonds, particularly those issued by infrastructure companies. This behavior is seen because not only does this category have long-term funds but also they are best equipped with professional competence to assess the various risks associated with infrastructure projects. Retail and non-bank investors are not so equipped and, therefore, they should be encouraged to invest in risk-free Government securities. In this manner, the responsibility for supporting the Government market shifts away from insurance companies, provident and pension funds, and banks, thus making adequate room in their investment portfolios for investment in infrastructure and other projects whose appraisal requires high professional skills.

Functions of Debt Market

- It is argued that debt markets facilitate **efficient financial intermediation** as they use market mechanism for allocating and pricing of credit. In particular, debt markets are expected to facilitate availability of long-term funds for specific uses such as for infrastructure.
- They also infuse **greater transparency** in the process of credit allocation in view of the information that is contained in market determined rates. In fact, e-commerce makes information sharing less costly, and hence it is easier to develop bond market infrastructure in the current environment for facilitating transparent market-based allocation of credit.
- Debt market can help **develop the derivatives market** thereby facilitating hedging mechanisms and enabling greater diversification of risks by participants. Also, the variety of instruments possible in the domestic debt market may result in gains to savers and borrowers.

Yield To Maturity (YTM) measures the effective return on a bond that is bought at market price. For a given bond we know the market price, the face value and coupon rate; therefore, we determine what rate of discount will bring the future cash flows to the present market value and this is the actual return on the instrument.

YTM is a discount rate that equates present value of the all the cash inflows to the cost price of the fixed income security (market price), which is actually the Internal Rate of Return of the fixed income security. The concept of Yield to Maturity assumes that the future cash flows are reinvested at the same rate at which the original investment was made.

Market Price and Net Present Value:

The Net Present Value (NPV) of a bond can be calculated as follows:

$$\text{Market Price} = \frac{I}{(1+r)} + \frac{I}{(1+r)^2} + \frac{I}{(1+r)^3} + \cdots + \frac{I+FV}{(1+r)^n}$$

Where, I = annual interest (coupon) payment, r = discount rate or YTM, n = number of periods remaining to maturity.

Example:

The face value of 12% GOI-2007 is 1,000 with 2 years left to maturity. The discount rate is 8%. What will be the market price?

Answer:

- In case of **annual interest (coupon) payments:**

I = 12% of the face value (1,000) = 120
r = 8%anually
FV = 1000
n = 2 periods

$$\text{Market Price} = \frac{120}{(1+0.08)} + \frac{120+1000}{(1+0.08)^2}$$

Market Price = 1071.33

- In case of **semi annual interest (coupon) payments:**

Coupon rate = 12% annually. Hence, semi annually coupon rate is 12/2 = 6%. So, I = 6% of the face value (1000) = 60
r = 8%anually. Hence, semi annually r = 8/2 = 4%
FV = 1000
n = 2 periods annually. Hence, semi annually n = 2*2 = 4 periods

$$\text{Market Price} = \frac{60}{(1+0.04)} + \frac{60}{(1+0.04)^2} + \frac{60}{(1+0.04)^3} + \frac{60+1000}{(1+0.04)^4}$$

Market Price = 1072.60

- In case of **quarterly interest (coupon) payments:**

Coupon rate = 12% annually. Hence, quarterly coupon rate is 12/4 = 3%. So, I = 3% of the face value (1000) = 30
r = 8%anually. Hence, quarterly r = 8/4 = 2%
FV = 1000
n = 2 periods annually. Hence, quarterly n = 2*4 = 8

$$\text{Market price} = \frac{30}{(1+0.02)} + \frac{30}{(1+0.02)^2} + \frac{30}{(1+0.02)^3} + \ldots\ldots\ldots + \frac{30+1000}{(1+0.02)^8}$$

Market Price = 1,073.25

- In case of **monthly interest (coupon) payments:**

Coupon rate = 12% annually. Hence, monthly coupon rate is 12/12 = 1%. So, I = 1% of the face value (1000) = 10
r = 8%anually. Hence, quarterly r = 8/12 = 0.67%
FV = 1000
n = 2 periods annually. Hence, quarterly n = 2*12 = 24

$$\text{Market Price} = \frac{10}{(1+0.0067)} + \frac{10}{(1+0.0067)^2} + \frac{10}{(1+0.0067)^3} + \ldots\ldots\ldots + \frac{10+1000}{(1+0.0067)^{24}}$$

Market Price = 1073.70

Yield to maturity (YTM)

$$\text{YTM}^{*} = \frac{I + (F-M)/N}{(F+M)/2}$$

*(Approx.)

Where,
I = Annual interest Rate
F = Face value of bond
M = Market price of the bond
N = Number of years to maturity

- Suppose Ram buys 12% GOI-2008 with 7 years left to maturity at Rs 102 and Suresh buys the same instrument at Rs 104 then the yield to maturity using approximation is

- **For Ram,**

$$\text{YTM} = \frac{12 + (100-102)/7}{(100+102)/2} = 11.60\%$$

For Suresh,

$$\text{YTM} = \frac{12 + (100-104)/7}{(100+104)/2} = 11.20\%$$

Price Interest Rate Relationship: The price of a Government security is inversely related to the market interest rate. As the interest rate increases price decreases and therefore, the yield increases. However, if the interest rates fall the G-Sec becomes expensive and the yield falls.

Coupon rate = Yield to maturity if, Market price = Face value: If the market price is equal to the face value of the Government security, then the current yield, coupon yield and Yield to maturity will all be equal to the coupon rate or interest payable on the Government security.

Coupon rate < Yield to maturity if, Market price < Face value: If Market Price is less than the face value of the government security the current yield and yield to maturity will be higher than the coupon yield than the coupon rate.

Coupon rate > Yield to maturity if, Market price > Face value In cases where the market price of the government security/bond is more than its face value the current yield and Yield to maturity will be lower than the coupon rate.

Zero coupon bonds that comprise the majority of G-Secs are also traded. The disadvantage of these instruments is that there are no regular cash flows. The only cash inflow takes place at maturity. But this translates to an advantage that the yield gets locked. This is due to the fact that while calculating YTM there is an implicit assumption that the cash flows are reinvested at the same interest rate. As interest rates are prone to fluctuations, the yield too is variable.

Rating Agencies in India

- **Credit Rating & Information Services of India Limited [CRISIL]:** The oldest rating agency was originally promoted by ICICI. CRISIL's majority shareholder is Standard & Poor's [51% stake], the world's foremost provider of independent credit ratings, indices, risk evaluation, investment research and data. Market share is 60%.
- **Investment Information & Credit Rating Agency [ICRA]:** Promoted by IFC, ICRA's major shareholders include global rating major Moody's Investors Service [40% stake] and leading Indian financial institutions and banks. Market share is 20%.
- **Fitch India:** It is co-promoted by Duff and Phelps, the world's 4th largest rating agency.
- **Credit Analysis and Research Limited [CARE]:** Promoted by IDBI, Canara Bank, UTI and other leading banks and financial services companies

Advantages of the Debt Market

The most compelling reason for investing in the debt market is the returns that debt markets offer are as close to being risk-free as possible, especially those offered by government securities. In other debt instruments, such as those issued by corporates, FIs and PSUs, certain elements of risk are present; therefore, they are rated by credit rating agencies. Depending on the rating, which is a comment on the risk return profile of the instrument, the interest on the instrument varies. An additional benefit of the debt market is that debt instruments are considered highly liquid; thus, loans against debt securities are easily available from banks.

Disadvantages of the Debt Market

The returns being risk-free are certainly not as high as the equities market. Also, the retail participation is very less, though it has increased considerably in the immediate past. These investments are through gilt funds. A retail debt market is not very well developed. Therefore, there are issues of liquidity and price discovery.