FIXED INCOME SECURITIES

I. Types of fixed Income Securities
II. Types of Different Debt Instruments
III. Terms used in Fixed Income Securities
IV. Credit Rating of Bonds
V. Embedded Options
VI. Interest Rate Derivative Products
VII. Related FIMMDA circulars
VIII. BOND DURATION

Bajaj Finance Ltd.

Ratings - FAAA by CRISIL; MAAA by ICRA

Scheme Highlight

- Minimum Amount Rs.25000
- Interest Compounded Annually.
- Income Plan-Monthly, Quarterly, Half Yearly, Yearly & Cumulative.
- Who Can Apply- Resident Individual, Minor through their guardians, Partnership firm, Proprietorship firm & Domestic Company
- 0.25% extra for Sr. Citizen &0.10% extra for Renewal.
- Cheque should be drawn in favour of "Bajaj Finance Ltd for FD of <<Depositor's Name>>"

Period	12M	24M	36M	48M	60M
ROI (%)	6.90	7.00	7.10	7.10	7.10
Yield (p.a.)	6.90	7.25	7.62	7.89	8.18

*For Individual & upto Rs. 5 Cr.

HDFC DEPOSITS

HDFC LTD.

Ratings – FAAA by CRISIL & MAAA by ICRA

Scheme Highlights

- Minimum Application Amount is 20000/-
- Interest Compounded Annually.
- Income Plan-Monthly, Quarterly, Half yearly, Yearly & Cumulative.
- Who Can Apply- Resident Individual, NRI, Minor through their guardians, trust, society & Domestic Company.
- 0.25% Extra for Senior Citizen.
- Cheque should be drawn in favour of "HDFC Ltd."

Period	12M	24M	36M	48M	60M
ROI (%)	5.85	5.85	6.05	6.05	6.05
Yield (p.a.)	5.85	6.02	6.42	6.62	6.83

*For upto Rs. 20 Cr.

ICICI Home Finance

Ratings FAAA by CRISIL,MAAA by ICRA & AAA by CARE

Scheme Highlights

- Minimum Application Amount is 10,000/-
- Interest Compounded Annually.
- Income Plan-Monthly, Quarterly, Yearly & Cumulative.
- Who Can Apply- Resident Individual, NRI, Minor through their guardians, trust, society & Domestic Company.
- 0.25% Extra for Senior Citizen.
- Cheque should be drawn in favour of " ICICI Home Fin – FD A/c"

Period	12M	24M	30 M	36M	45M	48M	60M	65M	120
ROI (%)	5.50	5.60	5.70	6.10	6.20	6.10	6.10	6.25	6.15
Yield (p.a.)	5.50	5.76	5.96	6.48	6.76	6.68	6.89	7.19	8.16

***For Individual upto Rs. 1.99 Cr.**

LIC Housing Finance ltd.

CREDIT RATING: CRISIL FAAA / STABLE

Scheme Highlights

- Additional Interest for Senior Citizen @ 0.25% p.a.
- Minimum amount of deposit in Monthly Scheme is Rs. 2,00,000/* & Rs. 10,000/- for others.Income Plan-Monthly, Quarterly, Half yearly, Yearly & Cumulative.
- Company is eligible to accept deposits from trusts as per section 11 (5) (IX) of Income Tax Act, 1961
- Cheque/Demand Draft for placing deposits should be drawn in favour of "LIC HOUSING Finance Ltd. - Collection A/C"

Period	12M	18M	24M	36M	60M
ROI (%)	5.65	5.65	5.65	5.75	5.75
Yield (p.a.)	5.65	5.73	5.81	6.09	6.45

*For upto Rs. 20 Cr.

Mahindra Finance

M&M Finance Services Ltd.

Ratings - FAAA by CRISIL

Scheme Highlights

- Minimum amount 10000, Interest Compounded Annually.
- Income Plan- Quarterly, Half yearly & Cumulative.
- Who Can Apply- Resident Individual, NRI, HUFs, Domestic company,
- Registered Trust & minors (through their guardians only)
- 0.25% Extra for Senior Citizen"
- Cheque Should be drawn in favour of "MMFSL- Fixed Deposit"

Period	12M	24M	36M	48M	60M
ROI (%)	5.70	6.20	6.30	6.45	6.45
Yield (p.a.)	5.70	6.39	6.71	7.10	7.34

*For upto Rs. 1 Cr.

SHRIRAM UNNATI

Shriram Transport Finance

Ratings - FAAA-CRISIL & MAA+ by ICRA

Scheme Highlights

- Minimum Amount is Rs. 5000/-,
- Interest Compounded Annually.
- Income Plan-Monthly, Quarterly, Half yearly, Yearly & Cumulative.
- Who Can Apply - Resident Individual, HUFs, Minor through their guardians, Trust & Domestic Company.
- 0.40% Extra for Senior Citizen & 0.25% for Renewals
- Cheque should be drawn in favour of "Shriram Transport Finance Company Ltd."

Period	12M	24M	36M	48M	60M
ROI (%)	7.50	7.70	8.15	8.20	8.40
Yield (p.a.)	7.50	8.00	8.84	9.26	9.94

*For upto Rs. 5 Cr.

TYPES OF FIXED INCOME SECURITIES

Types of Securities

Fixed Income Securities

1) Fixed Maturity Plan
2) Fixed Deposits

↓

Features of Fixed Income Securities

- Capital remains intact
-Income generation
-Diversification

It includes two things:

-Fixed Periodical Payment

-Eventual Return of Principal at maturity.

Variable Income Securities

Examples of Fixed Income Securities

- PPF, NSC, - Two variants_ (Five years/ Ten years)
- Post Office MIS – 5years Scheme
- It may be a bearer instrument as well like Indira Vikas Patra

Can Be Issued By

- Government/RBI – Treasury Bills
- Companies – Co. deposits have higher rate of interest than banks
- Other Entries – Thrift & Credit Societies and Trusts
- Guaranteed Investment certificate is a note issued by a trust co. with a fixed yield and term. A U.S. issued GIC (Guaranteed Investment Contract) differs from a Canadian guaranteed investment certificate, which has the same acronym. The Canadian certificate, sold by banks, credit unions, and trusts, has different attributes.

Periodicity

- Short Term – 1 to 3 years
- Medium Term – 3 to 10 years
- Long Term – More than 10 years

Tradeable Securities

- Par – Face Value/ Market Value/ Price
- At Par
- Above Par
- Below Par

Commercial Papers	Treasury Bills
Issued by Corporation	Issued by RBI
Below Par	Issued at Discount
Upto 270 Days not backed by collateral	Coupon rate semi annually
	Traded on Secondary Market

TYPES OF DIFFERENT DEBT INSTRUMENTS

Bonds

Clean price

Dirty Price

Ex – Dividend

Cum Dividend

Yield to Maturity ↑ PV ↓ Duration ↓

Types of Debt Instrument

(Debentures, Govt. Securities, Commercial Papers)

Long Term

(More than 12 months)

Short Term

(Upto 364 days)

Government Securities

- G. – Secs. – Sovereign Securities – Issued by RBI
- State Government Securities
- Zero Couper Bonds
- Treasury Bills

Commercial Paper: Issued at Discount

Max: Duration 364 Days

Can be issued by: Corporate, Primary Dealer, All India Financial Institution

CP – Minimum Investment Rs. 5 Lakhs

Minimum Maturity – 7 Days

Difference between Primary Dealer and Secondary Dealer

Primary dealers are registered entities with the RBI who have the license to purchase and sell government securities. They are entities who buys government securities directly from the RBI (the RBI issues government securities on behalf of the government), aiming to resell them to other buyers. In this way, the Primary Dealers create a market for government securities.

The Primary Dealers system in the government securities market was introduced by the RBI in 1995.

The PDs are thus created to promote transactions in government securities market. A facilitating arrangement is essential for selling of government securities as government is the single largest borrower in the market who borrows through the issue of its securities – treasury bills and bonds.

The RBI instructs PDs to have a minimum turnover ratio, bidding ratio, underwriting ratio, secondary market participation etc to ensure that they are active in supporting the trade in government securities. PDs are active in the stock market also for enhancing the trading of government securities.

Eligibility Conditions for PDs

a. Subsidiary of scheduled commercial bank/s and All India Financial Institutions

b. Subsidiaries/ joint ventures set up in India by entities incorporated abroad.

c. Company incorporated under the Companies Act, 1956 and does not fall under (a) or (b).

The applicant for PD should register as an NBFC for at least one year prior to the submission of application. Other conditions like net owned fund etc are mentioned by the RBI.

The decision to authorize PDs will be taken by RBI based on its perception of market needs, suitability of the applicant and the likely value addition to the system. Some other functions besides trading in government securities are also assigned to them.

Role and Functions of Primary Dealers

The role of Primary Dealers is to:

(i) commit participation as Principals in Government of India issues through bidding in auctions

(ii) provide underwriting services

(iii) offer firm buy – sell / bid ask quotes for T-Bills & dated securities

(v) Development of Secondary Debt Market

PDs are performing an exceptional role in giving marketability to government securities. the RBI has elaborated the role of PDs in the following words “PDs are expected to play an active role in the G-Sec market, both in its primary and secondary market segments through various obligations like participating in Primary auction, market making in G-Sec, predominance of investment in G-Sec, achieving minimum secondary market turnover ratio, maintaining efficient internal control system for fair conduct of business etc. A PD is required to have a standing arrangement with RBI based on the execution of an undertaking and the authorization letter issued by RBI every three years. Undertaking will be based on passing of a fresh Board resolution by the PD every three years.”

Most of the PDs are started by scheduled commercial banks and are registered as NBFCs. Operations of the PDs are subject to prudential and regulatory guidelines issued by RBI from time to time.

Primary Dealers and Stand alone Dealers as per RBI Website

https://www.rbi.org.in/SCRIPTS/AboutUsDisplay.aspx?pg=PrimaryDealer.htm

Bonds

Can be issued by.

- Government
- Corporation
- Municipalities

Difference between Common Stock & Bond

- Right of membership in the Company
- Time of Maturity
- Rate of Return

Interest Rate $\leftrightarrow$ Bond Prices

Move in opposite direction

TERMS USED IN FIXED INCOME SECURITIES

- Zero Compound is a bond that has no coupon payment and its pay only a single cash flow at maturity.
- Leverage is the compounding of Risk
- American option can be exercised prior to its expiration date
- **Contango** and **backwardation** are terms used to define the structure of the forward curve. When a market is in **contango**, the forward price of a futures contract is higher than the spot price. Conversely, when a market is in **backwardation**, the forward price of the futures contract is lower than the spot price.
- Par is a notion relating to fixed income instrument
- Beta is a relative measure of risk
- Yield to Maturity is the rate of return the investor will earn if the bond is held to maturity

Arbitrage

- Arbitrage is simultaneous purchase of risk free security and sale of another security to generate a risk free profit
- Arbitrage means you can earn positive income with zero rise
- Elimination of riskless profit opportunities in the future market is Arbitrage

- Earning per Share(EPS) is calculated by dividing the company earnings by number of shares
- Rate of Return is a measure of investment performance
- Call option is an option to purchase an asset
- Correlation is a notion from probability
- Maturity Date is the date on which the last payment of bond is due
- Volatility is the variability of random quantity
- Face value is a value of security shown on certificate
- Liquidity means the ability to easily raise needed cash
- Collar is a type of derivatives position
- Record Date is the date set by the company when dividends are declared
- An annuity is a series of payments in equal time periods, guarantee for a fixed number of years

- The percentage rate required to calculate the present value of a future cash flow is called Discount Factor
- The concept that money available now is worth more than the same amount of money available in the future , due to the fact that money available now can be invested and thereby increased in the future is called Time Value of Money
- Junk Bond is a high risk, high yield bond rated below investment grade
- Income Bond has its interest payment contingent on sufficient earnings of the firm
- Bond Trustee is a person or institution designated by a bond issuer as the official representative of the bondholders
- Subordinated Debenture is a Long Term, unsecured debt instrument with a lower claim on asset and income than other classes of debt

- Cost of Debt is the return that a company provides to its debt holders and creditors
- Earning Before Tax (EBT) equals to

  EBT= Sales Revenue – COGS – SG&A – Depreciation and Amortization

  EBT= EBIT – Interest Expense

  EBT= Net Income + Taxes
- The spread between Treasury securities and Non – Treasury securities that are identical in all respects except for quality rating are called Credit Spread
- The natural fluctuation of the economy between periods of expansion (Growth) and contraction (recession) is called Economic Cycle
- Volatility is measured as Sigma
- Sinking Fund is a requirement specified in bond indenture that obligates the firms to annually retire a specified portion of the debt

Collar Options

- Definition: The Collar Options strategy involves holding of shares of an underlying security while simultaneously buying protective Puts and writing Call options for the same underlying. It is technically identical to the Covered Call Strategy with the cushion of a Protective Put. The addition of a Protective Put safeguards the investor from large losses due to unexpected exponential fall in the price of the underlying. In a Covered Call strategy, the quantum of risk embedded in the trade is limited but large. An option trader can hedge the risk of loss by buying a Put option. For this reason, Option Collars are also called Hedge Wrappers. In this strategy, the quantum of both risk and reward is limited. The outlook of the Collar Options trader for an underlying security is neutral.

- Description: In a Call option trade, the two counterparties involved are a Call Option writer and a Call Option buyer. The two parties have counter-views on the direction of the security price. The Call Option buyer believes the price of the underlying security is going to rise while the Call Option writer feels the price of the underlying security is going to fall.

  An option writer is bound to sell the underlying at the same strike price in which the option buyer exercises his right. The option buyer will exercise his right only if it has an intrinsic value. For a Call option buyer, an option has an intrinsic value if the Strike price is less than the market price of the underlying. For a Call Option writer with an opposing view, the option will be in the money if the strike price is higher than the market price of the underlying.

- Hence, contrary to the belief of the Call option writer, if the market price of the underlying heads northward, then the quantum of loss he incurs also rises simultaneously. Therefore, theoretically, the quantum risk ingrained in the trade is unlimited for him.

  If the market price of the underlying declines in accordance with the belief of the Call option writer, he stands a chance to earn a profit from the trade. However, the maximum profit potential is limited to the premium he receives from writing the Call option. As maximum profit is limited to the premium earned, Call option writers trade out of the money options whose premium tends to be high.

CREDIT RATING OF BONDS

- CAMEL model stands for Capital Assets Management Earning liquidity
- Credit rating is an expression of opinion of an agency regarding a debt instrument on a specific date depend in on Risk Evaluation
- Credit risk in derivatives could be reduced by: Collateralization,Netting, Down trigger
- “Credit Rating of bonds is a system of evaluating the probability of whether a bond issuer will default
- First rating agency of India is Credit Rating Information Services of India Limited (CRISIL)
- Credit rating agencies analyze the financial stability of both corporate and government bond issuer
- A credit rating of bonds affects Interest Rate, Investment appetite and Bond Pricing

- These Factors are considered by the credit rating agencies while rating the bonds:
- The Strength of the issuer balance sheet
- The issuer ability to make its debt payments with the cash left over after expenses are subtracted from revenue
- The future economic outlook for the issuer
- A credit rating once given to an corporate or government bond can be upgraded or downgraded in future
- Bonds which have not received credit rating called Junk Bonds

Types of Credit Rating Bonds

- Credit Rating AAA denotes for Extremely unlikely to default
- “AAA” description capacity to pay interest plus principal is high
- Credit Rating AAA denotes for Extremely unlikely to default
- The Moody’s has given “AAA” rating to Rural Electrification Corporation Limited SR – 107 bonds, that indicates that Lowest credit risk and highest quality
- The S&P has given “AA” rating to the corporate bonds SR-II issued by the L&T Infrastructure Finance Company Limited. That indicates very strong capacity to meet financial commitments

- “A” description capacity to pay interest plus principal is slightly susceptibly to adverse economic condition
- Bonds rated BBB, Poor (S&P), Below by standard, Baa, Below by Moody’s are not considered to be investment grade
- The Moody’s has given “Baa 1” rating to Indian Railway Finance Corporation Limited SR – 79 bonds, that indicates that medium grade, with some speculative elements and moderate credit risk
- The S&P has given “CCC” rating to the corporate bonds Tire-II issued by the Reliance Infrastructure Limited. That indicates that dependent on favorable business, financial and economic conditions to meet financial commitments
- Credit Rating D denotes for Currently in Default

EMBEDDED OPTIONS

- Embedded Option is a provision in a bond that gives either the issuer or the investor the right to take some action in the future
- Conversion option is an option that allows the borrower to convert the variable interest rate to a fixed rate within a certain time period, or at certain future dates

Different Types of Embedded Options

https://en.wikipedia.org/wiki/Embedded_option#:~:text=There%20are%20several%20types%20of,they%20are%20not%20mutually%20exclusive.

- The Right to Call the issue, right to Put the issue, Conversion privileges
- The Right to Call the issue, Capping a floating rate and Maintaining the right to prepay principal
- The Right to Put the issue, Conversion privileges and Putting a floor on a floating Rate is most common embedded option granted to investors

- Am embedded option can affect Maturity Date, Expected Return and Pricing
- An embedded option is:
  - An option that is embedded into the stock, bond, etc.
  - There may be more than one embedded option in a security
  - Generally, cannot be separated from the securities to which they are attached
- A bare option is one that trades separately from the underlying security. A trader can buy and sell call and put options as a separate security on the market. An embedded option, on the other hand, is affixed to the underlying security and cannot be bought or sold independently
- Embedded option are special features which are part of a bond terms these can have the effect of adjusting a bond maturity date as well as changing the expected return terms on the bond

- Values of option increase with Volatility
- An Interest rate floor is an agreed upon rate in the lower range of rate associate with a floating rate loan product
- An Interest Rate Cap is a type of Interest rate derivative in which the buyer receives payment at the end of each period in which the interest rate exceeds the agreed strike price
- Issuer Calls is the embedded option that allows the issues to redeem a bond prior to the maturity date at a predetermined price and date
- Bondholders Put is the embedded option that allows the bond holder to request for the bond to be redeemed by the issuer
- Bonds with callable feature are called Puttable Bonds
- A bond issued with the embedded “change of control put” option means the right of investor to request for the bonds to be redeemed by the issuer in the event of a takeover of the company

- The right to exchange the bond for shares is attached to convertible bonds
- A callable bond is worth less to an investor than a noncallable bond because the company issuing the bond has the power to redeem it and deprive the bondholder of the additional interest payments he would be entitled to if the bond was held to maturity
- A bond with an issuer call option shall trade at Discount
- A bond with a bondholder put option shall trade at Premium
- Wait and Watch option is common real option
- The measure distinction between future and option arise from phrase with obligation
- American option can be exercised any time, European option can be exercised on specified date
- The exercise price of a Prepayment Option reimbursed the lender for an amount of up to the approximate present value of lost interest for the remaining term of the lost contract

INTEREST RATE DERIVATIVE PRODUCTS

- An Interest rate swap is a forward contract in which one stream of future interest payment is exchanged for another based on a specified principal amount
- A Future Contract is a standardized forward contract, a legal agreement to buy or sale something at a predetermine price at a specified time in the future, between parties not know each other
- Forward Contract are private agreement to between two parties to buy and sale an assets at a specified price in the future
- Interest rate derivatives is a financial instrument based on an underlying, the value of which is impacted by any change in the interest rates
- Interest rate derivatives are often used as Hedge by institutional investors, banks, companies and individuals to protect themselves against changes in market interest rates

- Interest rate derivatives can be classified into Three categories
- Vanilla, Quasi vanilla and Exotic
- Example of vanilla derivatives: Interest rate swap, Forward rate option and Interest rate cap
- Interest rate swap is an agreements between two parties to exchange fixed interest obligation for a floating rate obligation over a period of time
- A financial contract between two parties to exchange interest payment based on a national principal for a specified future period is called Forward rate option
- Example of quasi vanilla derivatives :Constant maturity swap and In arrear swap
- In arrear swap is a form of interest rate swap in which the floating payment is based on the interest rate at the end of the specified period

- Example of derivatives :Strips of cms and Cross currency swap tions
- A Swap is a derivative in which two counter parties exchange cash flows of one party financial instrument for those of the other party financial instrument
- The swap is determined by the Interest rate differential of two currencies in the pair that you are holding and is calculated according to whether your position is long or short
- A swap is called Receiver swap if you are the party paying the floating leg and therefore receiving the fix leg
- A swap is called Payer swap if you are the party paying the Fix leg and therefore receiving the Floating leg
- The Swap yield is determined by computing the price on each leg and then calculating the yield of each leg given those value
- A company paying a stream of floating rate payments to protect against increasing interest rates is likely to buy interest rate cap.

- A company receiving a stream of floating rate payments to protect against declining interest rates is likely to buy interest rate floor
- The principal amount of future deposits, interest rate and ending date of future interest rate period are specified in a forward contract
- Libor is the basis for the swap floating rate
- The Notional Value is the main factor on which size of the interest payments depends
- One advantage of using swaps to eliminate interest rate risk is that swaps are less costly than rearranging balance sheets.
- A advantage of using swaps to hedge interest rate risk is that swaps can be written for long horizons
- The disadvantage of swap is that they lack liquidity, are difficult to arrange for a counter party and suffer from default risk

- A disadvantage of using swaps to control interest rate risk is that swaps, like forward contracts, lack liquidity
- The problems of default risk and finding counterparties for interest rate swaps has been reduced by:

i. Government regulation

ii. Writing complex contracts

iii. Commercial and investment banks serving as intermediaries

- Plain vanilla swap is predetermined exchange of fixed rate interest with floating rate on the notional principle on specified date for specified period
- The payoffs for financial derivatives are linked to previously issued securities
- A swap that involves the exchange of one set of interest payments for another set of interest payments is called Interest rate swap
- The most common type of Interest rate swap is Plain vanilla swap

- One advantage of using swaps to eliminate interest rate risk is that swaps are less costly than rearranging balance sheets
- Market Value of the option which is out of money is Less than zero

RELATED FIMMDA CIRCULARS

Valuation of Investments

- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2020 dated 31-03-2020
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2019 dated 29-03-2019
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2018 dated 31-03-2018
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2017 dated 03-04-2017
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2017 revised dated 01-06-2017

VALUATION OF INVESTMENTS AS ON 31ST MARCH 2016

- 1. VALUATION OF INVESTMENTS AS ON 31ST MARCH 2016
- 2. VALUATION OF INVESTMENTS – BONDS HAVING LESS THAN 6 MONTH TENOR

- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2015
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2014 - Revised
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2014
- Amended Valuation of Investment Circular
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2012
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2011
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2010
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2009
- VALUATION OF PERPETUAL BONDS AS ON 31ST MARCH 2009
- VALUATION OF INVESTMENTS AS ON 31ST MARCH 2008
- BONDS/DEBENTURES HAVING SPECIAL FEATURES – TAX-FREE BONDS

- The fixed income money market and derivative association of India (FIMMDA) is an association of:

a. Nationalized and private sector banks
b. Financial institutions
c. Insurance companies

- The main object of FIMMDA is:

a. To further the interest and regulate the dealing in fixed income, money market instruments and derivatives
b. To recommended and implement healthy business practices, ethical code of conduct standard principles and practice to be followed by members
c. To facilitate introduction of new products and practices

- The valuation of investment circular issued by the FIMMDA publishes:

a. The prices/rates for valuation of government securities, bonds, debentures and swaps

b. Issued guidelines/clarifications at periodic intervals in respect of the methodology to be followed for valuation

- As per the valuation of investment circular issued by the FIMMDA, treasury bill is valued at Carrying cost
- As per the valuation of investment circular issued by the FIMMDA, all central government securities which qualify for SLR as well as which do not qualify for SLR will be valued as per prices issued by the FIMMDA
- As per the valuation of investment circular issued by the FIMMDA, commercial papers/ certificate of deposits of tenor less than one year are valued at Carrying cost
- As per the valuation of investment circular issued by the FIMMDA, security receipts will be valued at Maturity cost

- The clean price is the price of a bond Excluding any interest that has accrued since issue or the most recent coupon payment
- The dirty price is the price of a bond Including the accrued interest
- Clean Price = Dirty price – accrued interest
- Securities issued by the companies are traded in secondary market
- Floating rate bond also known as floating rate note are a type of bond characterize by floating rate of interest
- Floating rate of interest means a rate of interest that is derived using a benchmark of or reference rate which could be any external rate of interest
- LIBOR is an example of floating interest rate
- Non rated bond with issuer that have not received a credit rating from one or more of the major credit rating agencies

- Bonds issued by corporation and exposed to default risk are classified Corporation bond
- A Non marketable security is difficult to buy and sale due to the fact that they are not traded on any normal. major secondary market exchange
- Private share is an example of non-marketable securities
- The intrinsic value of non-marketable securities depending on the structure of securities can be considered as either its Face value the amount payable upon maturity or its purchases price plus interest
- Bonds that are considered investment rating bonds are given rating of BBB
- Staggered maturity bond with different maturity date is an investor portfolio
- A bonds that can be paid off early at the issuer discretion is referred to as being which one of the following Callable

- Holding a portfolio of bonds which includes some short term, some medium term and some long term to reduce interest rate risk would consist of Staggered maturity bond
- A perpetual bond is a debt with no maturity debts. Such a bond is also referred to as a Console
- Perpetual bonds are valued using the formula:
- Price = Annual coupon interest on a bond/ expected yield for maximum term available
- A perpetual bond has no fixed maturity
- The taxability risk premium compensates bond holders for which one of the following a bond unfavorable tax status
- A municipal bond pay interest that is usually tax free
- Bond issued by rural electrification corporation is an example of tax free bond
- Deep discount bond allow investor to lock in a better rate of return for a longer period of times since these bond are not likely

BOND DURATION

- The duration of a bond is a function of the bond are Coupon rate, yield to maturity and time to maturity
- The duration of a bond is positively correlated with the bond time to maturity
- The duration of a bond is negatively correlated with the bond
- The duration of a bond expresses the sensitivity of the bond price to change to the Interest rate
- In the Macaulay Duration the present value of all cash flows is compared to the market price of the bond
- YTM rate is used to discount coupon payments and final redemption amount in Macaulay Duration
- Macaulay Duration is calculated as :

  [PV(CF1) + PV(CF2) + …. PV(CFn]/Market price of bond
- An investor buys a 6% annual payment bond with three years to maturity. The bond has a yield to maturity of 8% and is currently priced at 95 per 100 of par. Its Macaulay Duration is 2.82
- The modified duration used by valuer is equal to the Macaulay duration is Divided by (one plus the bond yield to maturity)

- If the Macaulay duration states the time period within which the PV of the bond shall be realized, the modified duration expresses the sensitivity of bond price to interest rates
- Effective duration is a duration calculation for bonds that have embedded options
- Effective duration is calculated as (P(1) – P(2))/ (2*P(0) * Y)
- When the government par curve is raised and lowered by 30 bps, the new full prices for the callable bond are 99 and 103, respectively. If the present value of the bond is 101, the effective duration of the bond is 6.60
- The key rate duration can be used to measure the sensitivity in a security price to a 1% change in yield for a specific maturity
- Key rate duration is calculated as $(PV_{-} - PV_{+})/(2 * 0.01 * PV_{0})$