

NPTEL ONLINE CERTIFICATION COURSES

Management of Fixed Income Securities

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Lecture 26: Short-Term Government Bond Markets

CONCEPTS COVERED

- Short-term Government Securities
- Treasury Bills
- Cash Management Bill

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KEYWORDS

- Strip bills
- Treasury bill Yield
- Banker’s discount yield

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Importance of Government Securities Market

- It sets a benchmark for the rest of the market.
- Acts as the benchmark for pricing corporate securities of varying maturities.
- Essential for the conduct and effectiveness of Open Market Operations (OMOs)
- Free of default risk or credit risk
- GSM facilitates public borrowings at reasonable cost and the avoidance of automatic monetisation of government deficit
- GSM provides flexibility to the authorities in their task of debt management
- Plays a crucial role in the monetary policy transmission mechanism

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Types of Short-term Government Securities

- Short-Term Government Securities in India
  - Treasury bills
  - Cash management bills
- Short-Term Government Securities in USA
  - Treasury bills

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Characteristics of Treasury Bills

- High Liquidity Money Market Instrument
- Absence of Risk of Default
- Ready availability
- Assured Yield
- Low transaction Cost
- Eligibility for Inclusion in SLR
- Negligible Capital Depreciation

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Treasury Bills in India

- A Particular type of Finance Bill or Promissory note put out by the Govt. of the country to meet the needs of supplementary short-term Finance
- Treasury bills are zero coupon securities and pay no interest.
- Issued at discount and redeemed at par (Rs 100) at maturity
- Types of T-Bills issued in India
  - 91-Days treasury bills
  - 182-Days treasury bills
  - 364- Days treasury bills

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Investors and Sale of T-bills

- Banks, Primary Dealers, State Governments, Provident Funds, Financial Institutions, Insurance Companies, NBFCs, FIIs (as per prescribed norms), NRIs & OCBs can invest in T-Bills
- Treasury bills are available for a minimum amount of Rs.25,000 and in multiples of Rs. 25,000
- T- bills are sold through auction
- RBI conducts weekly auctions for these T-bills on Wednesdays for final allocation and credit on t+1 basis

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Treasury Bill Rate

- Treasury bill rate is the rate of interest at which treasury bills are sold by the RBI.
- The effective return on treasury bills is the discount at which they are sold, and is based on the difference between the price at which they are sold and their redemption value.
- Yield of the T-bill

$$\text{Yield} = \frac{100 - P}{P} \times \frac{365}{D} \times 100$$

where P = purchase price, D = days to maturity

Day Count: For treasury bills, D = (actual number of days to maturity/365)

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T-Bill Yield Calculation Example

Example Assuming that the price of a 91-day treasury bill at issue is ₹98.20, the yield on the same would be as follows:

$$\text{Yield} = \frac{100 - 98.20}{98.20} \times \frac{365}{91} \times 100 = 7.3521\%$$

After say, 41 days, if the same Treasury bill is trading at a price of ₹99, the yield would then be

$$\text{Yield} = \frac{100 - 99}{99} \times \frac{365}{50} \times 100 = 7.3737\%$$

Note that the remaining maturity of the treasury bill is 50 days (91 – 41).

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Treasury Bills in USA

- Treasury bills are short-term instruments sold on a pure discount basis in multiples of $1,000 (par)
- The interest on a T-bill is the difference between the face value and the price paid.
- T-bills with original maturities of 13 weeks (91 days) and 26 weeks (182 days) are sold weekly on a regular basis.
- The Treasury also sells special types of T-bills on an irregular basis like ***strip bills***. This is a package of T-bills with different maturities in which the buyer agrees to buy bills at their bid price for several weeks.

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Treasury Bill Yield Calculation in USA

- T-bill yields are quoted as an annualized discount yield ADY (also called the ***banker's discount yield***).

- This is the annualized return (principal (F) minus price (P_0)) specified as a proportion of the bill's principal

$$ADY = \frac{F - P_0}{F} \frac{360}{Days\ to\ Maturity}$$

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Treasury Bill Yield Calculation in USA Cont…

Example: A 182-day bill sold at auction at 96.67 would be quoted at a discount rate of 6.5868%:

$$ADY = \frac{F - P_0}{F} \frac{360}{Days\ to\ Maturity}$$

$$ADY = \frac{100 - 96.67}{100} \frac{360}{182} = 0.065868$$

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Treasury Bill Yield Calculation in USA Cont…

Solving the equation for the discount yield for P_0 gives us the formula for the bid or ask price given the dealer's discount yield:

$$P_0 = F[1 - (R_D)(Days\ to\ Maturity/360]$$

$$P_0 = 100[1 - (.065868)(182/360)] = 96.67$$

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Cash Management Bills (CMBs) in India

- Issued to meet the temporary mismatches in the cash flow of the Government and to absorb excess liquidity in the system
- Maturities less than 91 days (32 days, 56 days. 86 days etc.)
- Tenure, notified amount and date of issue of the CMBs depends upon the temporary cash requirement of the Government
- Issued at a discount and redeemed at face value at maturity
- The settlement of the auction is on T+1 basis.

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CONCLUSIONS

- Government securities are important due to their unique characteristics
- Treasury bills and cash management bills are the major components of short-term government securities market in India
- For USA, Treasury bills are major constituents of short-term govt. securities market
- T-bill yields are quoted as an annualized discount yield ADY and it is also called the *banker's discount yield*

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Lecture 27: Long-Term Government Bond Markets

CONCEPTS COVERED

- Long-term Dated Government securities in India
- Long-term Government securities in USA

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KEYWORDS

- Fixed rate bonds
- Floating rate bonds
- Inflation indexed bonds
- Sovereign gold bonds
- Treasury notes
- Treasury bonds

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Existing Structure and Organization of Dated GSM in India

- Major players in the Government securities market include reserve bank of India, commercial banks and primary dealers besides institutional investors like insurance companies
- Foreign Institutional Investors (FIIs) are allowed to participate in the Government securities market within the quantitative limits prescribed from time to time. Corporates also buy/ sell the government securities to manage their overall portfolio risk.

Existing Structure and Organization of Dated GSM in India Cont…

- The investors in this market can be classified into different segments such as
- Wholesale market which comprises the players like banks, financial institutions, insurance companies, primary dealers and mutual funds
- Middle segment comprising corporate, provident funds, non banking financial companies and co-operative banks
- Retail segment consisting of individuals and non-institutional investors.

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Existing Structure and Organization of Dated GSM in India Cont…

- The holders can maintain their securities in dematerialsed form in either of the two ways:
- SGL Account: Reserve Bank of India offers Subsidiary General Ledger Account (SGL) facility to select entities who can maintain their securities in SGL accounts maintained with the Public Debt Offices, of the Reserve Bank of India.
- Gilt Account: As the eligibility to open and maintain an SGL account with the RBI is restricted, an investor has the option of opening a Gilt Account with a bank or a Primary Dealer which is eligible to open a Constituents' Subsidiary General Ledger Account (CSGL) with the RBI.

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Types of Long-Term Government Securities in India

- Fixed rate bonds
- Floating rate bonds
- Zero coupon bonds
- Capital indexed bonds
- Inflation indexed bonds
- Bonds with embedded options
- Separate trading of registered interest and principal of securities (STRIPS)
- Sovereign gold bonds
- Savings bonds
- State development loans

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Dated Government Securities in India

- Fixed rate bonds: These securities pay a fixed coupon over their entire life semiannually.
- Floating rate bonds: Pay interest at a variable coupon rate that is reset at pre-announced intervals. The coupons are determined in the following ways:
  - as the average of the implicit cut-off yields of the last three 182-days T-bill auctions,
  - Base rate equivalent to weighted average yield of last three 182-days T-bill auctions plus a fixed spread,
  - Reset every five years at the prevailing 5-year government security yield as on last working day prior to commencement of each period of five years

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Dated Government Securities in India Cont…

- Zero Coupon bonds: Long-term bonds don’t pay any coupon and are issued at a discount and redeemed at par (not favoured in the market)
- Capital indexed bonds: The principal amount is linked to an inflation index to protect it from inflation
- Inflation indexed bonds: Both principal and coupon flows are protected against inflation
- Bonds with call/put options: RBI also issues the bonds having call or put feature
- STRIPS: Separate zero coupon bonds created by breaking down the cash flows of a regular coupon paying government security

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Dated Government Securities in India Cont…

- Sovereign gold bonds: Linked with gold price, these are issued in tranches and are denominated in units of one gram gold and multiple thereof, pay fixed coupon per annum and are redeemed at simple average of closing price published by the India Bullion and Jewellers Association Limited of gold of previous three business days from the date of repayment
- Savings (taxable bonds): Specially issued for retail investors at par for a minimum of Rs. 1000 face value and bear floating rate of interest which is reset every six months
- State development loans: Market borrowing of state governments through semi-annual coupon paying long-term bonds

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Long-term Government Securities in USA

- Treasury notes
- Treasury bonds
- Treasury inflation-indexed bonds and notes

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Treasury Notes and Bonds in USA

- Treasury bonds and notes are the government's coupon issues.
- T-notes have original maturities up to 10 years, whereas T-bonds have maturities ranging between 10 and 30 years.
- Both are sold in denominations of $1,000 or more, and both pay semi-annual coupon interest.
- When auctioned, Treasury bids are quoted on a yield basis. The coupon rate is not set until auction is completed.

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Treasury Inflation-Index Bonds – TIPS

- Each period's coupon payment is equal to a specified fixed rate times an inflation-adjusted principal
- At maturity, the bond pays the larger of the inflation-adjusted principal or the original par value
- **Example**: Suppose the Treasury issues a 3-year TIP with a nominal principal of $1,000 and semi-annual coupon rate of 4%. If there is no inflation in the ensuing three years, then the TIP will pay bondholders $40 semiannually for three years and $1,000 at maturity. If there is inflation, as measured by the consumer price index, then the Treasury will adjust the nominal principal. Suppose the U.S. experiences an annual inflation rate of 3% or a 1.5% semi-annual rate for the first semi-annual period of the bond. In this case, the inflation-adjusted principal would be $1,015 and a bondholder would receive a semi-annual coupon of $40.60 (= ($1,015)(0.04)).

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Treasury Strips in USA

- A Treasury strip is formed by a dealer who purchases a T-bond or T-note and then creates two general types of zero-coupon securities to sell to investors:
- ***Principal-only security*** (***PO***) (also called the ***corpus*** and denoted np when quoted). The PO security is a zero discount bond that pays the T-bond's principal at its maturity
- ***Interest-only securities*** (***IO,*** denoted i when quoted). the IO securities are zero discount instruments, with each paying a principal equal to the T-bond's coupon and with a maturity coinciding with the bond's coupon date.

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CONCLUSIONS

- Major players in the Government securities market in India include reserve bank of India, commercial banks and primary dealers
- The investors in this market can be classified into different segments such as wholesale, middle and retail
- Different types of long-term government securities are traded in the market, which are classified on the basis of coupon payments, maturity etc.

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Lecture 28: Issuance and Trading Mechanism of Government Securities

CONCEPTS COVERED

- Yield based auction
- Price based auction
- Competitive bidding
- Non-competitive bidding

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KEYWORDS

- Uniform Price auction
- Multiple Price auction
- Negotiated Dealing System
- Over the Counter Market
- Stop-out price

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Issuance Mechanism of Government Securities

- Government securities are issued through auction process
- Auction is a process of calling of bids with an objective of arriving at the market price
- For dated securities, RBI issues the auction calendar in March and September for the next six months with consultation of Government of India
- For T-Bills, RBI issues calendars at quarter end for the next quarter
- Cash management bills auctions are announced directly on the RBI website without a calendar as they depend upon the temporary cash requirements of the government
- Auctions are conducted by RBI on T+1 settlement basis on the E-Kuber electronic platform

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Issuance Mechanism of Government Securities Cont…

- Auctions for dated securities is normally conducted on Fridays with the underwriting auctions for PDs on the preceding day with settlement on Monday
- Weekly auctions are held for 91 days, 182 days and 364 days T-bills on Wednesdays. SDL auctions are generally held on Tuesdays
- A when issued market has been set up as a part of market development wherein traders can resell or redistribute their stocks which are likely to get allocated in the upcoming auction

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Yield Based Auction

- A **yield based auction** is generally conducted when a new Government security is issued
- Investors bid in yield terms up to two decimal places (for example, 7.49 per cent, 8.21 per cent, etc.)
- Bids are arranged in ascending order and the cut-off yield is arrived at the yield corresponding to the notified amount of the auction
- The cut-off yield is taken as the coupon rate for the security.
- Successful bidders are those who have bid at or below the cut-off yield. Bids which are higher than the cut-off yield are rejected

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Yield Based Auction (Example)

Yield-based Auction of a New Security:

- Maturity Date: 6 August 2024
- Coupon: It is determined in the auction (8.22 percent as shown in the following illustration)
- Auction date: 5 August 2014
- Auction settlement date: 6 August 2014*
- Notified Amount: ₹1000 crore

*Settlement is done on 6 August, 2014, under $T+1$ cycle. If the settlement date is a holiday under $T+1$ cycle, then the next working will be considered as settlement date.

Details of bids received in the increasing order of bid yields

Bid No.	*Bid yield*	*Amount of bid (₹ crore)*	*Cummulative amount (₹ Crore)*	*Price* with coupon as 8.22%*
1	8.19%	300	300	100.19
2	8.20%	200	500	100.14
3	8.20%	250	750	100.13
4	8.21%	150	900	100.09
5	8.22%	100	1000	100.00
6	8.22%	100	1100	100.00
7	8.23%	150	1250	99.93
8	8.24%	100	1350	99.87

The issuer would get the notified amount by accepting bids up to 5. Since the bid number 6 also is at the same yield, bid numbers 5 and 6 would get allotment *pro-rata* so that the notified amount is not exceeded. In the above case each would get ₹50 crore. Bid numbers 7 and 8 are rejected as the yields are higher than the cut-off yield.

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Price Based Auction

- **A price based auction** is conducted when Government of India re-issues securities issued earlier
- Bidders quote in terms of price per Rs.100 of face value of the security (e.g., Rs.102.00, Rs.101.00, Rs.100.00, Rs.99.00, etc., per Rs.100/-)
- Bids are arranged in descending order and the successful bidders are those who have bid at or above the cut-off price
- Bids which are below the cut-off price are rejected

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Price Based Auction Example

Price-based auction of an existing security 8.24% GS 2024

- Maturity Date: 22 August, 2024
- Coupon: 8.24%
- Auction date: 5 August, 2014
- Auction settlement date: 6 August, 2014*
- Notified Amount: ₹1000 crore

*Settlement is done on 6 August, 2014 under $T + 1$ cycle. If the settlement date is a holiday under $T + 1$ cycle, then the next working will be considered as settlement date.

Details of bids received in the decreasing order of bid price

Bid no.	*Price of bid*	*Amount of bid (₹ Crore)*	*Implicit yield*	*Cumulative amount*
1	100.31	300	8.1912%	300
2	100.26	200	8.1987%	500
3	100.25	250	8.2002%	750
4	100.21	150	8.2062%	900
5	100.20	100	8.2077%	1000
6	100.20	100	8.2077%	1100
7	100.16	150	8.2136%	1250
8	100.15	100	8.2151%	1350

The issuer would get the notified amount by accepting bids up to 5. Since the bid number 6 also is at the same yield, bid numbers 5 and 6 would get allotment in proportion so that the notified amount is not exceeded. In the above case each would get ₹50 crore. Bid numbers 7 and 8 are rejected as the price quoted is less than the cut-off price.

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Uniform Price Vs. Multiple Price based Auction

- In a **Uniform Price auction**, all the successful bidders are required to pay for the allotted quantity of securities at the same rate, i.e., at the auction cut-off rate, irrespective of the rate quoted by them
- **Multiple Price auction**, the successful bidders are required to pay for the allotted quantity of securities at the respective price / yield at which they have bid
- The choice of multiple vs uniform price auctions is made by RBI based on market conditions

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Competitive Vs. Non-Competitive Bidding

- **Competitive bids**
  - Made by well informed investors such as banks, financial institutions, primary dealers, mutual funds, and insurance companies.
  - The minimum bid amount is Rs.10, 000 and in multiples of Rs.10, 000 thereafter.
  - Multiple bidding is also allowed, i.e., an investor may put in several bids at various price/ yield levels.
- **Non-competitive bidding**
  - Open to individuals, HUFs, RRBs, co-operative banks, firms, companies, corporate bodies, institutions, provident funds, and trusts.
  - Under the scheme, eligible investors apply for a certain amount of securities in an auction without mentioning a specific price / yield. Such bidders are allotted securities at the weighted average price / yield of the auction

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Trading of Government Securities in Secondary Market

- **Negotiated Dealing System-Order Matching (NDS-OM)**

  It is an anonymous screen based electronic order matching module. The participants can trade anonymously by placing their orders on the system or by accepting the orders already placed by other participants. It is operated by Clearcorp Dealing System Limited, a wholly-owned subsidiary of CCIL, on behalf of RBI

- **Over the Counter (OTC)/ Telephone Market**

  Transactions undertaken between market participants in the OTC/telephone market are expected to be reported on the NDS platform within 15 minutes after the deal is put through over telephone.

- **NDS-OM-Web**

  This was launched to enable Gilt account holders to control their orders and get access to real time live quotes on NDS-OM

- **Stock Exchanges**

  Introduced for retail investors through the stock exchanges like NSE and BSE

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Treasury Auction Market in USA

- New issues of Treasury securities are sold through a ***sealed-bid auction process*** in which the Treasury announces an issue and dealers and investors submit either a competitive or a noncompetitive bid.

- With a competitive bid, an investor specifies the yield (annualized discount yield for T-bills and annualized YTM for Treasury coupon issues) and the quantity he/ she wants.
- With a noncompetitive bid an investor specifies only the amount he / she wants and accepts the weighted average price.

- Bidders must file tender forms with one of the Federal Reserve banks or branches or with the Treasury Bureau of Public Debt.

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Treasury Auction Process in USA

- Each dealer submits either a competitive bid (price and quantity) or noncompetitive bid (quantity only)
- Bids are ranked from lowest yield (highest price) to highest yield (lowest price) that exhaust the issue (includes both competitive and noncompetitive bids)
- The last price is known as the ***stop-out price***
- Noncompetitive bids get the average price

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Treasury Secondary Market in USA

- The secondary market for Treasury securities is part of the over-the-counter (OTC) market and is handled by Treasury security dealers.
- It is a 24-hour market with major dealers in New York, London, and Tokyo.
- The OTC market consists of both investors who prefer to buy from dealers instead of through the auctions, investors buying and selling outstanding securities, and the Federal Reserve, which buys T-bills and other Treasury securities as part of their open markets operations.
- In addition to the primary and secondary market for Treasury securities, there is also an ***interdealer market*** in which primary and non-primary dealers trade billions of dollars each day amongst themselves.
- This interdealer market functions through government security brokers that for a commission match dealers and other investors who want to sell with those wanting to buy.

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CONCLUSIONS

- All govt. securities are traded in both primary and secondary markets
- In the primary market all these are issued through auction process
- The auction process can be a yield based auction or price based auction
- In the secondary market all are traded through over the counter market and stock exchanges
- Secondary market transactions in USA are handled by treasury security dealers

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Lecture 29: Short-Term Corporate Bond Markets

CONCEPTS COVERED

- Players in corporate bond market
- Commercial Paper market in India
- Commercial Paper market in USA

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KEYWORDS

- Debenture Trustees
- Qualified Institutional Buyers
- Directly placed Commercial Paper
- Dealer-placed CP
- Rolling over paper
- Rollover risk

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Major Players in Corporate Bond Market in India

- **Issuers:** Companies, Banks, NBFCs etc.
- **Debenture Trustees:** Secures any issue of debentures by corporate entities for the benefit of debenture investors
- **Qualified Institutional Buyers:** Institutional and high net-worth individuals allowed to invest in private placement market. These include (i) Commercial banks, (ii) Insurance companies, (iii) Mutual funds, (iv) State Industrial Development Corporation, (v) Pension funds and provident funds with minimum corpus of Rs. 25 crores, (vi) Foreign portfolio investors registered with SEBI (vii) Venture capital funds registered with SEBI etc.
- **Retail Individual Investors:** They apply for securities for Rs. 2 lakh or less
- Commercial papers are the major short-term debt instruments traded in corporate bond market in India

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Commercial Papers

- Commercial Paper is an unsecured money market instrument issued in the form of a promissory note by a corporation with high credit ratings to finance its short-term needs.
- These can be issued in a wide range of denominations, can be either discounted or interest-bearing, and usually have a limited or non-existent secondary market.

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Characteristics of Commercial Papers

- CPs can be **issued** on discount to face value basis or on a fixed interest basis.
- CPs are **unsecured**, **negotiable** by endorsement and normally have a buy-back facility
- CPs as a **source of short-term debt** regarded as **highly safe, simple, flexible,** and **quality liquid** instrument

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Commercial Papers in India

- It was introduced in India in 1990 with a view to enabling highly rated corporate borrowers to diversify their sources of short-term borrowings and to provide an additional instrument to investors. Subsequently, primary dealers and all-India financial institutions were also permitted to issue CP to enable them to meet their short-term funding requirements for their operations
- Corporates, primary dealers (PDs) and the All-India Financial Institutions (FIs) are eligible to issue CP.

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Commercial Papers in India Cont…

- The tangible net worth of the company, as per the latest audited balance sheet, is not less than Rs.4 crore
- CP can be issued in denominations of Rs.5 lakh or multiples thereof.
- The fund based working capital of the company should not be less than 4 crore
- Every issue of CP, including renewal, should be treated as a fresh issue.
- There is no lock in period for CPs

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Commercial Papers in India Cont…

- CP can be issued for maturities between a minimum of 7 days and a maximum up to one year from the date of issue *(since October 2004).*
- Individuals, banking companies, other corporate bodies (registered or incorporated in India) and unincorporated bodies, Non-Resident Indians (NRIs) and Foreign Institutional Investors (FIIs) etc. can invest in CPs.
- The total amount of CP proposed to be issued should be raised within a period of two weeks from the date on which the issuer opens the issue for subscription.
- Mandatory credit rating for issuance of Commercial Paper. The minimum credit rating shall be P-2 of CRISIL and A2 for ICRA.

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Commercial Papers in India Cont…

- Only a scheduled bank can act as an IPA for issuance of CP.
- CPs are actively traded in the OTC market. Such transactions, however, are to be reported on the FIMMDA reporting platform within 15 minutes of the trade for dissemination of trade information to market participation thereby ensuring market transparency.
- When the CP is held in physical form, the holder of the CP shall present the instrument for payment to the issuer through the IPA.
- When the CP is held in demat form, the holder of the CP will have to get it redeemed through the depository and receive payment from the IPA.

Role and responsibilities of the Issuer

- Every issuer must appoint an IPA for issuance of CP.
- The issuer should disclose to the potential investors its financial position as per the standard market practice.
- After the exchange of deal confirmation between the investor and the issuer, issuing company shall issue physical certificates to the investor or arrange for crediting the CP to the investor's account with a depository.

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Role and responsibilities of the IPA

- IPA would ensure that issuer has the minimum credit rating as stipulated by the RBI and amount mobilised through issuance of CP is within the quantum indicated by CRA for the specified rating or as approved by its Board of Directors, whichever is lower.
- IPA has to verify all the documents submitted by the issuer viz., copy of board resolution, signatures of authorised executants (when CP in physical form) and issue a certificate that documents are in order. It should also certify that it has a valid agreement with the issuer
- Certified copies of original documents verified by the IPA should be held in the custody of IPA.

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Role and responsibilities of the Credit Rating Agency

- Code of Conduct prescribed by the SEBI for CRAs for undertaking rating of capital market instruments shall be applicable to them (CRAs) for rating CP.
- Further, the credit rating agencies have the discretion to determine the validity period of the rating depending upon its perception about the strength of the issuer. Accordingly, CRA shall at the time of rating, clearly indicate the date when the rating is due for review.
- While the CRAs can decide the validity period of credit rating, CRAs would have to closely monitor the rating assigned to issuers vis-a-vis their track record at regular intervals and would be required to make its revision in the ratings public through its publications and website

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Commercial Papers Market in USA

- Commercial papers can be classified as either directly placed or dealer-placed commercial papers.
- ***Directly placed CP*** is sold directly by the issuing firm to the investor. Many of these issuers are finance companies.
- ***Dealer-placed CP*** has dealers or agents who sell an issuer's paper.

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Commercial Papers Market in USA

- Issuers of CP in USA tend to have high credit ratings.
- Some smaller and less well-known companies usually issue CP with credit supports – *credit-supported C*P – or backed by high quality assets – *asset-backed CP*.
- Credit-supported CP include:
  - Letter of Credits by banks, **LOC paper**: The bank will pay off the paper at maturity if the issuer fails.
  - **Surety Bond**: Insurance policy written by an insurance company to protect a party against loss or violation of a contract.
- CP tend to be less that 270 days or 90 days.

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Commercial Papers Market in USA

- CP issuers often pay off CP investors by selling new CP – known as *rolling over paper*.
- The risk that investor face is that the issuer will not be able to issue new paper at maturity – *rollover risk*.
- As a safeguard against rollover risk, CP is typically backed by a bank credit line.
- Banks charge for providing a credit line, which increases the cost of CP.

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Commercial Papers Market in USA

- The secondary market of CP is small.
- CP Investors tend to hold their paper to maturity.
- If CP is sold before maturity, it is usually back to the issuer or dealer.
- A major investor of CP is money market funds. Their investment in CP is governed by SEC Rule 2a-7 of the Investment Company Act of 1970 that limits credit risk.
- The act restricts money market fund to investments in ***eligible paper***, defined by tier-1 and tier-2.
  - Eligible paper is paper that are of the two highest rating (1 or 2) from at least two nationally owned rating agencies.
  - Tier-1 paper is eligible paper that is rated “1” by at least two of the rating agencies.
  - Tier-2 is eligible paper that is not tier-1.

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Commercial Papers Ratings in USA

Category	S&P	Moody's	Fitch
Investment Grade	A-1+		F-1+
	A-1	P-1	F-1
	A-2	P-2	F-2
	A-3	P-3	F-3
Noninvestment Grade	B	Not Primed	F-S
	C		
In Default	D		D

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Factors affecting CP Market Development

- Credit quality of CP issuer
- Market liquidity
- Cost of other alternative assets
- Financial market infrastructure
- Working capital limit

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CONCLUSIONS

- Commercial papers are the major short term bonds issued by corporate sector in India
- All these instruments are issued at discount and redeemed at par
- All the companies are not eligible to issue commercial papers
- The secondary market for CP is not very developed
- Both company specific and external factors determine the development of commercial paper market

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NPTEL ONLINE CERTIFICATION COURSES

Management of Fixed Income Securities

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Lecture 30: Medium and Long-term Corporate Bond Markets

CONCEPTS COVERED

- Long term corporate bond markets
- Debentures

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KEYWORDS

- Plain Vanilla bonds
- Floating rate bonds
- Deferred coupon bonds
- Masala bonds
- Perpetual

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Long-term Instruments in Corporate Bond Market

- **Coupon Based:** Plain Vanilla bonds, Floating rate bonds, zero coupon bonds, Caps and floor, Inverse floater, Inflation indexed bonds, step up bonds, Deferred coupon bonds, Deep discount bonds
- **Currency Based**: Foreign currency denominated bonds, Masala bonds
- **Embedded Option Based**: Callable bonds, Puttable bonds, Convertible bonds, Warrants
- **Claim Based**: Secured debt, Unsecured debt, Subordinate debt, Credit enhanced bonds
- **Other Bonds**: Perpetual, Additional Tier- 1 bonds, Additional Tier-2 bonds, REITs, InvITs, Green bonds, Tax free bonds, Asset linked bonds

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Coupon Based Instruments in Corporate Bond Market

- **Zero coupon bonds**: No coupon is paid out and it is redeemed at par value at the end of the term of issuance
- **Plain vanilla bonds**: These are issued to raise medium and long-term resources. Many bonds pay interest annually.
- U.S. corporate bonds often used a day count convention of 30/360.
- Most issuers of debt securities select a coupon rate that makes the bond sell initially at par.
- For U.S. bonds, the coupon interest is typically based on a 360-day year and 30-day month (30/360 day-count convention).
- A $1,000 par value bond with a 9% coupon would pay $90 per year and its interest would accrue at a rate of $7.50 per month ($90/12) and $0.25 per day ($90/360).

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Coupon Based Instruments in Corporate Bond Market Cont…

- **Floating Rate Bonds:** The term floating-rate note or floater is often used to define any bonds with an interest rate that is adjusted periodically
- Linked to an index and the coupon is reset mostly every half year and the coupon is market driven
- Technically a FRB is defined as a debt instrument with the coupon based on a short-term index (e.g., Treasury-bill rate) and reset more than once a year, whereas an ***adjustable-rate note*** or ***variable-rate note*** is defined as a debt security with its coupon based on a longer term rate.

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Coupon Based Instruments in Corporate Bond Market Cont…

- **Floating Rate Bonds** are issued where the coupon rate resets periodically (coupon reset date).
- The rate is reset based on a reference rate plus a quoted margin or spread:

$$\text{Reset Rate} = \text{Reference Rate} + \text{Margin}$$

  - The quoted margin is the additional rate the issuer agrees to pay above reference rate (typically related to credit risk)
  - The reference rate is an interest rate such as the 3-month T-bill rate or the LIBOR.

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Coupon Based Instruments in Corporate Bond Market Cont…

- **Inverse floater**: It is a type of bond whose coupon rate has an inverse relationship to benchmark rate. Inverse floater adjusts its coupon payment as the interest rate changes. It is also known as an inverse floating rate note or a reverse floater
- **Inflation Indexed Bonds:** These are linked to wholesale or consumer price index. These bonds protect investors from inflation
- **Caps and Floors:** The interest rate cap is a type of interest rate contract in which the buyer of the cap contract receives payment at the end of each period in which the interest rate exceeds the agreed rate. Interest rate floor is a contract in which the buyer receives the payments at the end of each period in which the interest rate is below the agreed strike price

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Coupon Based Instruments in Corporate Bond Market Cont…

- **Step up Bonds:** In these bonds, earlier coupon paid is very low and slowly it rises with time movement towards the maturity of the bond
- **Deferred Coupon Bonds:** These bonds don't pay any coupon at the beginning but the coupon is paid out at a later date
- **Deep discount bonds:** These bonds are sold at very high discount to their face value. These bonds have low coupon rate and price below par. Some investors, particularly pension funds, find zero and deep discount bonds attractive because they have less reinvestment risk

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Claim Based Instruments in Corporate Bond Market

- **Secured Bonds:** These bonds are backed by a specific asset and the asset may have a claim over the general assets of the company. A secured bond is defined as one that has a lien giving the bondholder, via the trustee, the right to sell the pledged asset in order to pay the bondholders if the company defaults. These entities are paid first in terms of liquidation.
- Secured bonds can be differentiated in terms of the types of collateral pledged and the priority of the lien.
- A *mortgage bond* has a lien on real property or buildings
- An *equipment-trust bond* has a lien on specific equipment, such as airplanes, trucks, or computers.
- A *collateral-trust bond* is secured by a lien on equity shares of a company's subsidiary, holdings of other company's stocks and bonds, government securities, and other financial claims.
- A company might secure its debt with personal property, such as the corporation's cash or liquid assets, accounts receivables, or inventory. Since these assets are short term in nature, they are usually used as collateral for short-term debt obligations.

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Claim Based Instruments in Corporate Bond Market

- With secured bonds there is a need to establish a ***priority of claims*** when more than one debt obligation is secured by the same asset (senior, junior or subordinate)
- A ***closed-end bond*** prohibits the asset securing the bond from being used to secure any other debt.
- An ***open-end bond*** allows the asset securing the bond to be used as collateral on other debt.

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Claim Based Instruments in Corporate Bond Market Cont…

- **Unsecured Bonds:** These are debts issued by companies without any specific assignments of assets of the company. These are also called *debentures*.
- When corporations issue a number of debentures, some may be issued that are subordinate to others (in terms of their claim on assets in the case of bankruptcy)–***subordinate debentures***.
- Debenture are often issued with ***protective covenants***: restrictions on additional debt, etc.
- Debenture could be sold with ***credit enhancements*** (e.g., letter of credit from a third party).

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Claim Based Instruments in Corporate Bond Market Cont…

- ***Guaranteed bonds*** are bonds issued by one company and guaranteed by another economic entity.
- The guarantee often applies to both the interest and principal.
- *With the guarantee, the default risk of the bond shifts from the borrower to the financial capacity of the insurer.*
- The guarantor could be the *parent company.* The guarantor could be *another company* securing the issue, perhaps in return for an option on an equity interest in the project the bond is financing. There may also be *multiple guarantors.*
- For some corporate issues, a *financial institution* may provide the guarantee

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Currency Based Instruments in Corporate Bond Market

- **Foreign Currency Denominated Bonds:** These bonds are issuable and payable only in foreign currency and sold in a foreign market to foreign investors
- **Masala Bonds:** These are issued and payable in Indian Rupee and issued in a foreign market to foreign investors

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Embedded Option Based Instruments in Corporate Bond Market

- **Callable Bonds:** These bonds are having a call back option for the issuer if the refinancing cost drops and issuer wants to refinance the obligations
- **Puttable Bonds:** These bonds are having a sell back option for the investor if the market interest rates rise and the investor wants to reinvest in higher paying securities with the same risk exposure
- **Convertible Bonds:** It is a debt security that makes interest payments, but can be converted into a predetermined number of equity shares of the issuing company. The conversion can be done at certain pre-fixed dates during the bond's life and is usually at the discretion of the bondholder.

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Other Bond Instruments in Corporate Bond Market

- A ***warrant*** is a security or a provision in a security that gives the holder the right to buy a specified number of shares of stock or another designated security at a specified price. A warrant that is attached to the bond can only be exercised by the bondholder
- ***Income Bonds:*** Bonds that pay interest only if earnings are sufficient
- ***Participating Bonds***: Bonds that pay a minimum rate plus an additional rate up to a specified maximum if earnings are sufficient.
- ***Extendable bonds*** give the issuer and/or the investor the option to extend the security's maturity.
- ***Credit Sensitive Bond***: This is a bond that has a coupon that varies inversely with the issuer's credit ratings.

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Other Bond Instruments in Corporate Bond Market

- ***Commodity-Linked Bonds***: Bonds in which the principal and/or coupon are tied to the price of a particular commodity (e.g., oil, price index, etc.).
- ***Voting Bonds***: Provide voting privileges to holders. Voting is usually limited to certain issues or conditions.
- ***Assumed Bonds***: Bonds whose obligations are taken over by another corporation. Result of mergers or reorganizations.

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Other Bond Instruments in Corporate Bond Market Cont…

- **Perpetual**: Don't have any maturity date and will continue to pay coupons during the life of the company
- **AT1 Bonds**: Additional Tier 1 bonds are type of unsecured perpetual bonds that banks issue to increase their capital base to meet the Basel-III norms
- **AT2 Bonds:** These are components of Tier 2 capital for banks.
- **REIT**: It is an investment fund on real estate companies
- **Infrastructure investment trusts**: Bonds are issued to promote the infrastructure sector in India
- **Green Bonds:** Used to raise money for climate and environmental projects

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PSU Bonds

- PSU bonds are medium or long term debt instruments issued by Public Sector Undertakings (PSUs). The term usually denotes bonds issued by the central PSUs (i.e. PSUs funded by and under the administrative control of the Government of India).
- Most of the PSU Bonds are sold on Private Placement Basis to the targeted investors at Market Determined Interest Rates. Often investment bankers are roped in as arrangers to this issue.
- Most of the PSU Bonds are transferable and endorsement at delivery and are issued in the form of Usance Promissory Note. PSU Bonds are issued in demat form.
- In order to attract the investors and increase liquidity, issuers get their bonds rated by rating agencies like CRISIL, ICRA, CARE, etc. Some of the issues may be guaranteed by Central / State Government enabling them to get a better rating.

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PSU Bonds Cont…

- The maturity of PSU bonds varies between 5 to 10 years. The default rates of PSU bonds are negligible and they are perceived as quasi sovereign bonds.
- The bonds issued by PSUs are of two types, *viz.,* taxable and tax-free.
- The provisions of tax free bonds as contained in Section 10(15)(iv)(h) of IT Act allows complete exemption of interest income arising from notified PSUs bonds .
- The major investors in PSU bonds are banks, mutual funds, insurance companies, provident funds and individuals.

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Medium-Term Notes

- ***Medium-term note*** (MTN) is a debt instrument sold on a continuing basis to investors who are allowed to choose from a group of bonds from the same corporation, but with different maturities.
- MTN's growth can be attributed to the *flexibility* they provided corporations in the types of securities they can offer

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CONCLUSIONS

- The long-term bonds are classified on the basis of coupon, claim, currency and embedded options.
- Some of the other long-term bonds which are traded in the markets are perpetual, green bond, income bond, commodity linked bond, infrastructure bonds etc.
- Most of the PSU Bonds are sold on Private Placement Basis to the targeted investors at Market Determined Interest Rates. The major investors in PSU bonds are banks, mutual funds, insurance companies, provident funds and individuals

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