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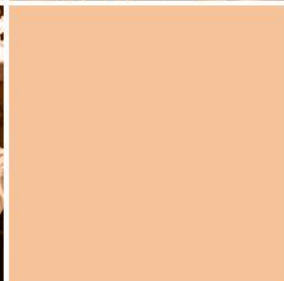
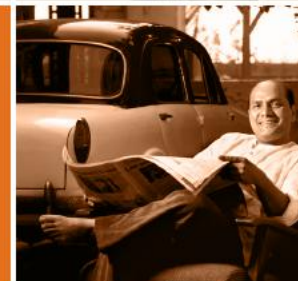
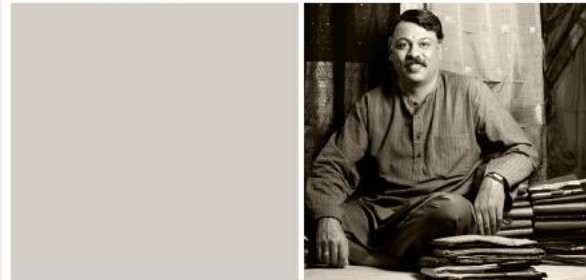
## Investment Management for Deposit Insurers

February, 2013

**Fullerton India Credit Company Limited**

Author : FICCL

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- **The Financial Markets Landscape**
- Constructing the appropriate Portfolio Mix
- Managing Constructed Portfolios
- Additional Controls for Treasury

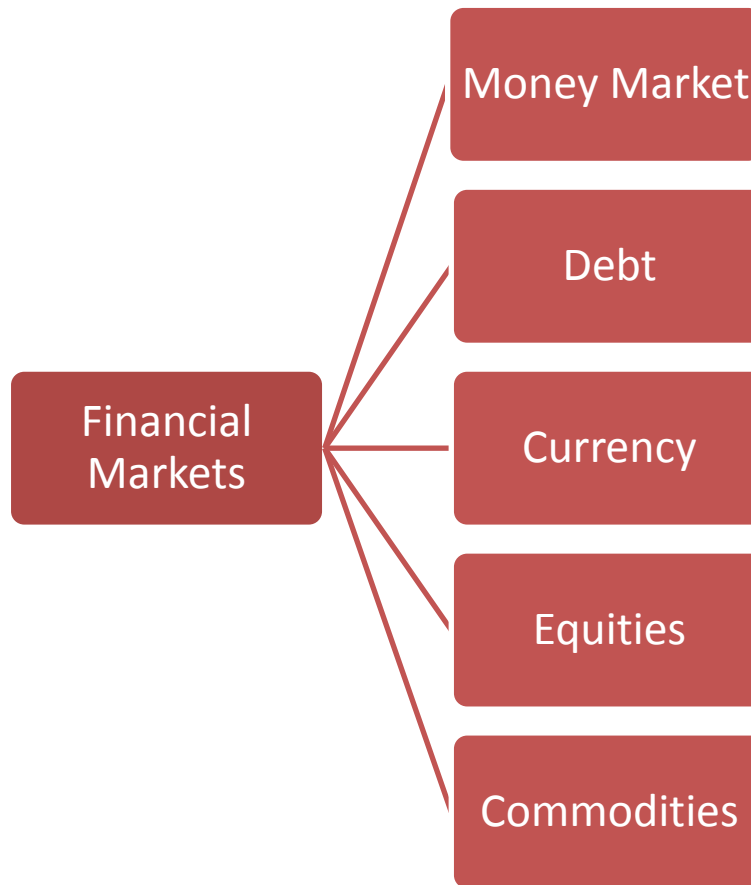
# *Prerequisites*

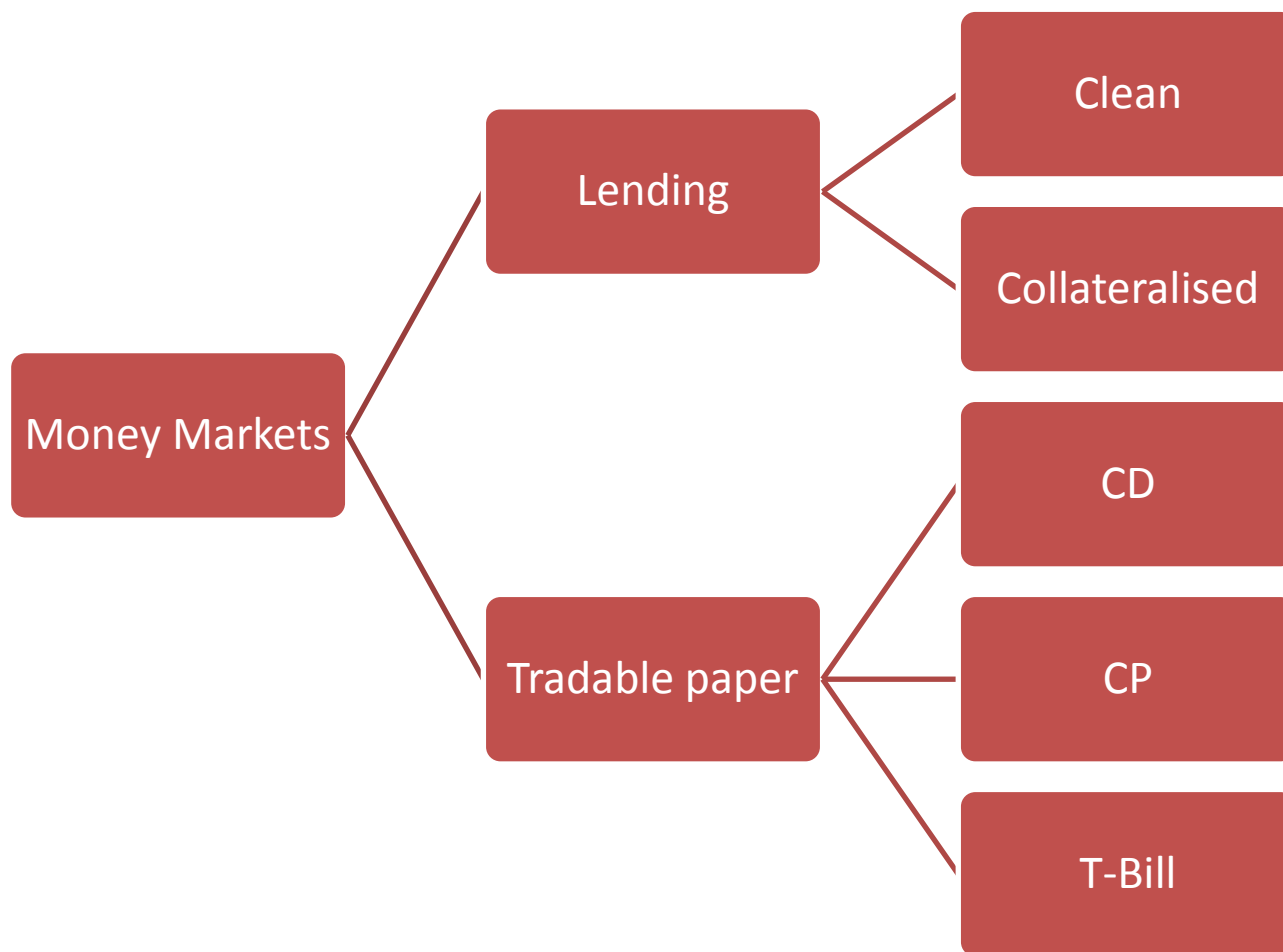
## *A step back...*

- Understand your Balance Sheet structure
- Understand your Entity Objectives
  - Understand your Investment Objectives
  - Risk Management and fallbacks

- **Counterparty** - Primary/ Secondary Market
  - Issuers
  - Investors
- **Instrument** - Cash/ Derivatives Market
  - Equities, Bonds, Commodities
  - F&O, Swaps, Currency Futures, Commodity Futures
- **Trading infrastructure** - OTC/ Exchange Traded
- **Trading infrastructure** - Telephone/ Screen based
- **Settlement** - Physical Settlement/ Cash Settlement

- Money Markets
- Debt Markets
- Equity Markets
- Currency Markets
- Commodity Markets





- Instruments with a maturity shorter than 1 year
- Funding/ Lending Markets
  - Clean
    - Call/ Notice/ Term
    - Fixed Deposits
  - Collateralised
    - Repo
    - CBLO
- Traded Instruments
  - Certificate of Deposits
  - Commercial Papers
  - Treasury Bills
- Issued at a discount to face Value, matures at 100
  - Principal plus interest are repaid together, IAM
- Most active participants – Banks, Mutual Funds



- Funding/ Lending Markets
  - Call Money: Clean lending, short term liquidity, overnight
    - Funding source for trading desks
    - NSE MIBOR
  - Notice Money: 2-14 days, clean
  - Term Money: 14-365 days, clean
    - LIBOR is 3m/6m
- Further reading: Shortcomings of a polled rate
- Further reading: LAF and width of corridor

## Call Money/ Notice Money

- Overnight deposits/ lendings
- Reserve requirements, Short term mismatches in liquidity/ funding
- Persistent usage is avoidable
- Demand and Supply within LAF corridor
- Pure Interbank market
- Clean, Unsecured
- Limits are set and monitored
- Borrowing limits are set by RBI
- Evidence is the call money receipt
- Simple interest paid on maturity (IAM)
- Receipts are not tradable or negotiable

## Term Money

- Used of periods over 14 days
- Used for medium term mismatches in liquidity/ funding
- Staying surplus through expected tight periods
- Funding specific term assets
- Rates determined by Demand and Supply
- Pure Interbank market
- Clean, Unsecured
- Individual limits are set and monitored
- Evidence is the term money receipt
- Simple interest paid on maturity (IAM)
- Receipts are not tradable or negotiable

## Fixed Deposit

- Time or Term Deposit
- 7 days and above
- FD Receipt is the evidence of trade
- Non transferable
- Not tradable
- Can be liquidated earlier than maturity at a penal rate

## Repo

- Definition – Repurchase Obligation
- Used mainly as a funding source by trading desks
- Repo rate is the lending / borrowing rate
- Tenor/ Liquidity of underlying will determine the Repo rate
- Government securities, T-Bills are commonly used as collateral
- Beneficial ownership transfers to lender of cash for the period under lending
- Essentially a lending/ borrowing transaction unless a default occurs
  - Intervening coupons if any to be compensated to the seller
- CCIL acts as a central counterparty to Repo transactions guaranteeing and novating both sides
  - Netting
  - Lower risk weight
  - Anonymous
  - Automatic reversal
- Reverse Repo is the lending-of-cash side of the trade

## Repo

- Types of Repos
  - Market Repo (Classic) – 2 parties – 1 security – counter parties names known
  - CROMS (Anonymous) – 2 parties with CCIL (settlor in between – 2 or more securities - names unknown
    - Tripartite Agreement needed
    - Basket Repo – range of securities permitted Eg T Bills under 3 months, 8-10 year GOI Securities

## Liquidity Adjustment Facility (LAF)

- RBI Corridor for overnight rates
  - Rev Repo/ Repo / MSF: 6.75% - 7.75% - 8.75%
- ‘Unlimited’ amounts (collateralised) may be borrowed by banking system at the Repo rate
- Hence, all Excess SLR may be funded at Repo rate (or cheaper)
- Objective of LAF is to provide a strong and inviolable corridor for pricing across tenors
  - Yield Curve Generation
- Key determinant of volatility is the width of the corridor (currently 1%)
  - Is wider in more certain times Eg 3%

## CBLO


- Largest segment of the overnight markets
- Key users – Non Banks: Mutual Funds, Insurers, Cash Rich Corporates
- CCIL developed product for entities being phased out of the call money market
- Discount instrument, specifying maturity date
- Dealing system – CBLO trading system, anonymous, electronic and novation
- A borrowing/ lending backed by a charge on securities held in custody by CCIL
- Appropriate haircuts applied




## CBLO


- Borrowers deposit (eligible) securities with CCIL as collateral
  - A borrowing limit provided
  - Central/ State Govt securities, T Bills eligible post haircut
- Membership: Banks, Fis, Insurance Co, Mutual Funds, PDs, NBFCs, Provident Funds, Corporates
  - CSGL with CCIL and current account needed

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Press Releases 

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प्रसूत प्रकाशनी PRESS RELEASE

  
भारतीय रिज़र्व बैंक  
RESERVE BANK OF INDIA

संचार विभाग, संकेंद्र कार्यालय, राव की गली, मुंबई 400001  
DEPARTMENT OF COMMUNICATION, Central Office, S.B.S. Marg, Mumbai 400001  
संचार Phone: 91 22 2266 0502 फ़ैक्स Fax: 91 22 2270 3279  
वेबसाइट : www.rbi.org.in/hindi  
Website : www.rbi.org.in  
ई-मेल email : helpdoc@rbi.org.in

Date : 18 Feb 2013

Money Market Operations as on February 16, 2013

(Amount in ' crore, Rate in per cent)

MONEY MARKETS @

	Volume (One Leg)	Wtd.Avg.Rate	Range
A. Overnight Segment (I+II+III+IV)	6,346.98	7.54	6.75-7.95
I. Call Money	1,825.63	7.52	6.75-7.75
II. CBLO	4,521.35	7.54	7.30-7.95
III. Market Repo	0.00	-	-
IV. Repo in Corporate Bond	0.00	-	-
B. Term Segment			
I. Notice Money**	11.00	6.97	6.50-7.05

[http://www.rbi.org.in/scripts/BS\\_PressReleaseDisplay.aspx?prid=28171](http://www.rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=28171)

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I. Notice Money**		11.00	6.97	6.50-7.05
II. Term Money@@		0.00	-	-
III. CBLO		0.00	-	-
IV. Market Repo		0.00	-	-
V. Repo in Corporate Bond		0.00	-	-

### RBI OPERATIONS

			Amount Outstanding	Rate
C. Liquidity Adjustment Facility				
(i) Repo	(3 days)		120,120.00	7.75
(ii) Reverse Repo	(3 days)		15.00	6.75

## RBI OPERATIONS

			Amount Outstanding	Rate
<b>C. Liquidity Adjustment Facility</b>				
(i) Repo	(1 day)		97,915.00	8.00
(ii) Reverse Repo	(1 day)		1,600.00	7.00
<b>D. Marginal Standing Facility</b>	(1 day)		850.00	9.00
<b>E. Standing Liquidity Facility Availed from RBI</b>			21,716.92	8.00
<i>of which</i>				
Special Refinance Facility ^			3,108.50	

## RESERVE POSITION @

### F. Cash Reserves Position of Scheduled Commercial Banks

(i) Cash balances with RBI as on #	30/06/2012	341,046.00	
(ii) Average daily cash reserve requirement for the fortnight ending	13/07/2012	309,820.00	

## Market Rates

As on Jul 5 2012 5:02PM

Indian Overnight Rates

CBLO

FX-Clear

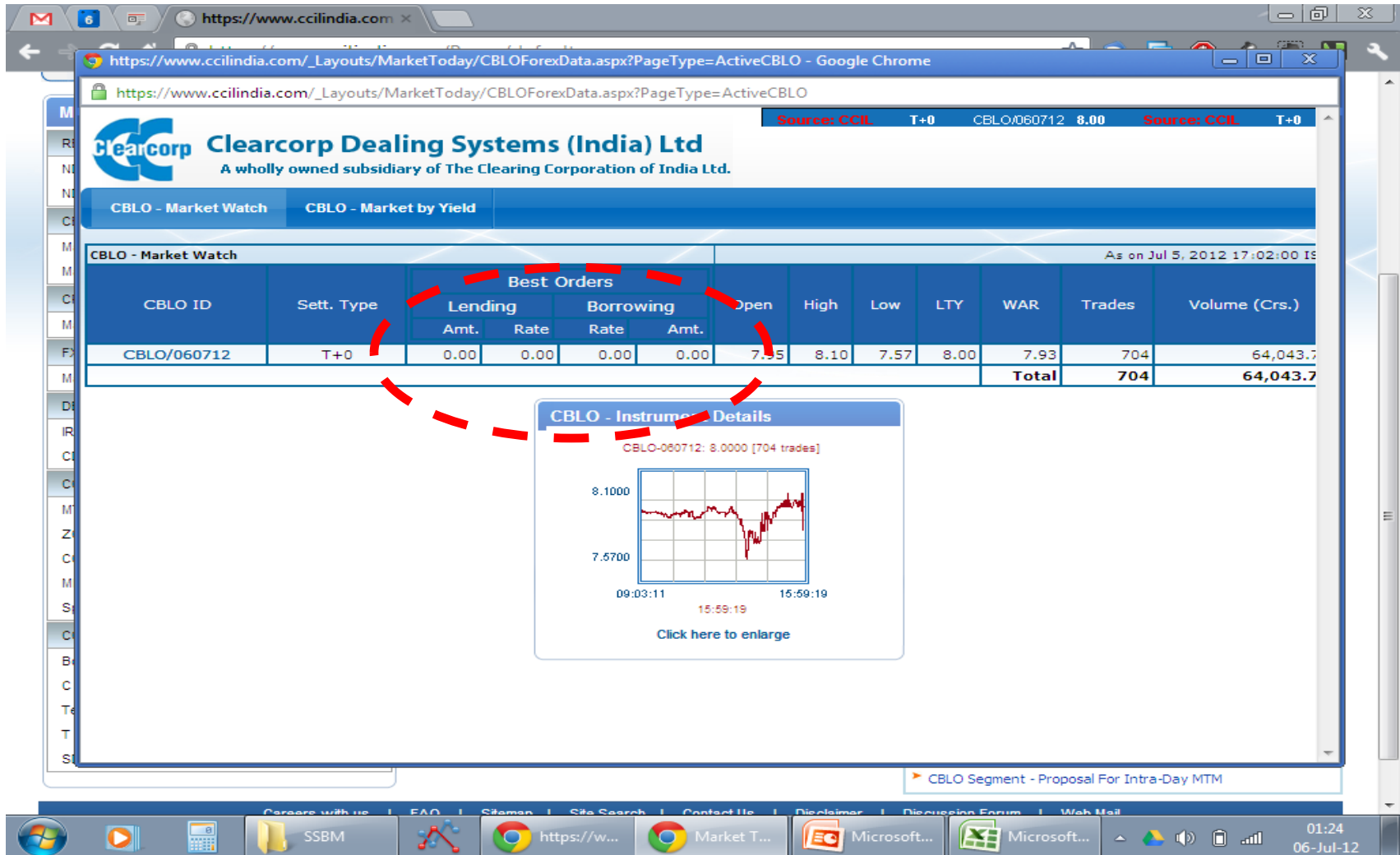
CROMS

NDS-OM

NDS-CALL

CBLO ID	Sett. Type	Open	High	Low	LTY	WAR	Trades	Volume (Crs.)
CBLO/060712	T+0	7.95	8.10	7.57	8.00	7.93	704	64043.75
Total							704	64043.75

'Prev. WAR' and 'Prev. Vol' pertain to the total market activity of the respective segment.



## Certificate of Deposit

- Akin to FD but tradable
- Demat form or Promissory Note
- Growing Relevance as approaching 10% of balance sheet
- Minimum 7 days, less than 1 year
- RBI Circular for issuance  
<http://rbidocs.rbi.org.in/rdocs/notification/PDFs/90CD010711FL.pdf>
- Key investor - Mutual Funds (Liquid Funds)

## Certificate of Deposit

- $\text{Price} = 100 / (1 + \text{Rate}\% * \text{Days}/365)$
- Eg SBI 300912, 25cr @ 9.5%
- $\text{Price} = 100 / (1 + 9.5\% * 86/365)$
- $\text{Price} = 97.810650$
- $\text{Consideration} = 97.81 * 2500000$
- Eg Yield of a 6 month CD available at 95.50
- $\text{Yield} = 9.45\%$



## Commercial Paper

- Demat form or Promissory Note
- Privately placed, Corporate Risk, Clean
- Prime borrower, Credit Rating
- Overall umbrella limit 100% of NOF
- Minimum 7 days upto 1 year
- Key investor - Mutual Funds, Banks
- IPA (Banker) needed

## Commercial Paper

- Calculate the consideration for Rs75cr of 1 year CP maturing 06 July 2013 for RIL at a yield of 10%
- RIL 060713, P1+, IPA ICICI Bank
- Price: Rs90.90909
- Consideration: Rs 68.1818 cr

## Treasury Bill

- Short Term instrument issued by GOI
- Discount Instrument, IAM, matures at Rs100
- Tenors 14, 28, 91, 182, 364 day
- Issuance Calendar every HY
- Used for Cash Management by the Government
- Issued weekly
- Ad hoc issuances under MSS or contingencies is permitted

## Treasury Bill

### Yield calculation

- P – Purchase price  
D – Days to maturity  
Day Count: For Treasury Bills,  $D = [\text{actual number of days to maturity}/365]$
- $\text{Yield} = (100 - P/P) * 365/D * 100$
- Assuming that the price of a 91 day Treasury bill at issue is Rs.98.17, the yield would be
- $(100 - 98.17/98.17) * 365/91 * 100 = 7.47\%$
- After 31 days, if the same bill is trading at a price of Rs. 98.95, the yield would then be
- $(100 - 98.95/98.95) * 365/60 * 100 = 6.455\%$
- The remaining maturity of the treasury bill is 60 days (91-31).

- Treasury Bill Auction Announcement

## Press Releases



Print

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## प्रेस प्रकाशनी PRESS RELEASE



भारतीय रिज़र्व बैंक  
RESERVE BANK OF INDIA

वेबसाइट : [www.rbi.org.in/hindi](http://www.rbi.org.in/hindi)  
Website : [www.rbi.org.in](http://www.rbi.org.in)  
ई-मेल email: [helpdoc@rbi.org.in](mailto:helpdoc@rbi.org.in)

संचार विभाग, केन्द्रीय कार्यालय, पल, सी.एस. मार्ग, मुंबई 400001

DEPARTMENT OF COMMUNICATION, Central Office, S.B.S. Marg, Mumbai 400001  
फोन/Phone: 91 22 2266 0502 फैक्स/Fax: 91 22 2270 3279

Date : 27 Apr 2012

**91-day Treasury Bills auction: ₹ 10,000 crore under regular auction**

The Reserve Bank of India has announced the auction of 91-day Government of India Treasury Bills for notified amount of ₹ 10,000 crore. The auction will be conducted on May 2, 2012 using "Multiple Price Auction" method. The allocation to the non-competitive bidders will be outside the notified amount at the discretion of the Bank. The sale will be subject to the terms and conditions specified in the General Notification No. F.2 (12)-W & M/97 dated 31st March, 1998 issued by Government of India and as amended from time to time.

The competitive bids for the auction should be submitted in electronic format on the Negotiated Dealing System (NDS) between 10.30 a.m. and 12.00 p.m. on Wednesday, May 2, 2012. The non-competitive bids should be submitted between 10.30 a.m. and 11.30 a.m. Results will be announced on the same day. Payments by successful bidders will be on Friday, May 4, 2012.

Ajit Prasad  
Assistant General Manager

Press Release: 2011-2012/1720

## Treasury Bill

- A 30 day t bill at a yield of 8.10% is trading at a price of
  - Rs 92.0045
  - Rs 99.3386
  - Rs 102.50
  - Rs 80.0035
- Rs 99.3386

- Total Return is fixed over the tenor of the instrument
  - Coupon
  - Redemption Amount
- However price may fluctuate in the interim depending on various factors which affect the YTM
- Basic concepts
  - Price, YTM
  - Discount, Par, Premium

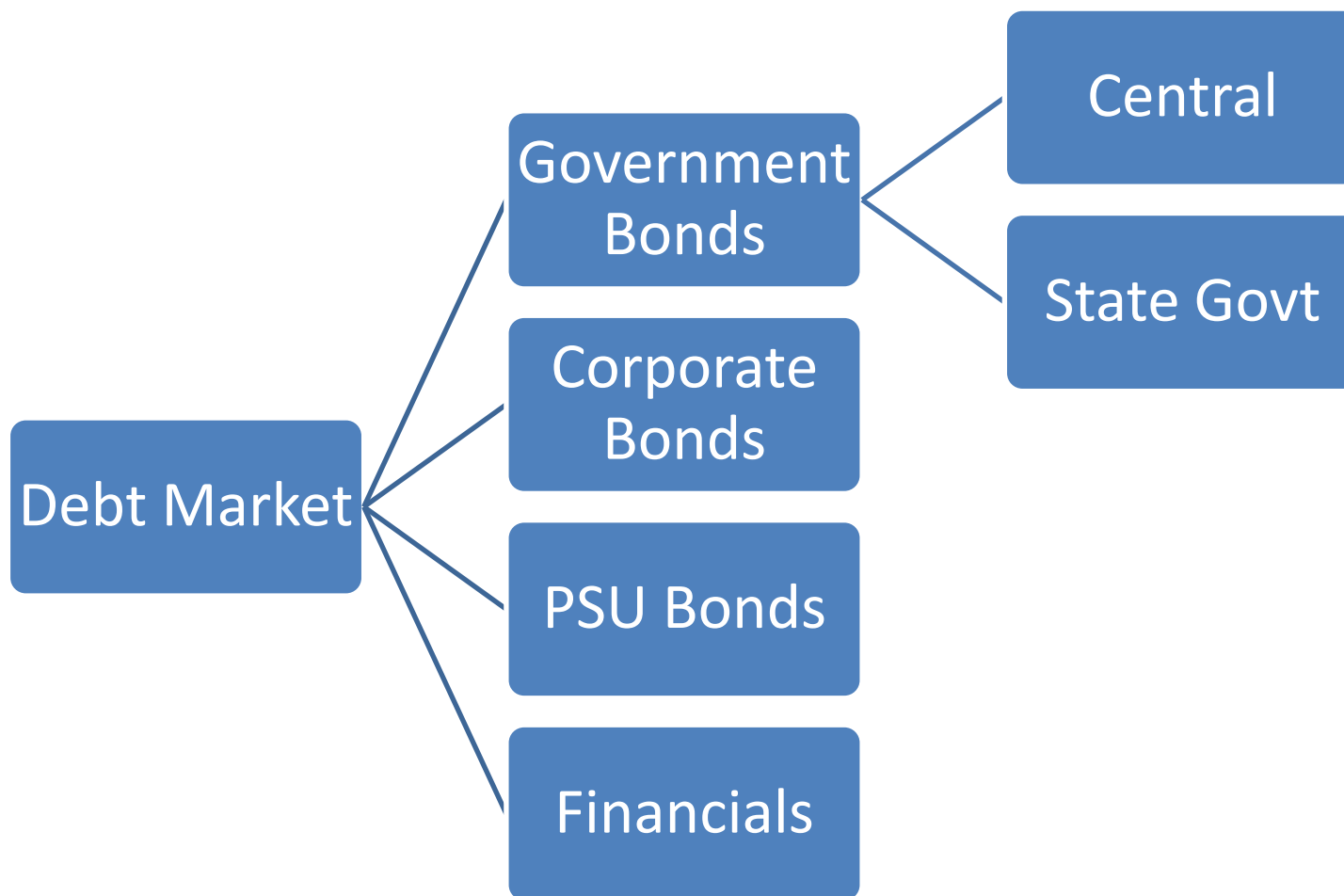
## Types of Bonds

- Fixed Rate / Floating Rate
- Step Up/ Down coupons
- Zero Coupon Securities
- Bullet/ Amortised
- Embedded Calls, Puts
- Convertible to Equity
- By Issuer



- Bond Terminology
  - Face Value
  - Coupon Rate
  - Redemption
  - Tenor
  - IP Date or Coupon Date
  - Redemption Dates
  - Bullet Repayment or Amortised
  - Clean Price

- Bond Terminology (...continued)
  - Dirty Price
  - Accrued Interest
  - Trade Date
  - Settlement Date
  - Consideration



- Auction Process
  - Issue Calendar every half year
  - Typically 65-70% in the first half to avoid crowding out
  - Tenors 5-9y, 10-14y, 20y+
  - Auction Announcement 1 week prior
  - Auction type
    - Uniform price
    - Variable price
  - Existing Stock or New Stock
  - Devolvement if undersubscribed

- Auction Process
  - Reissues Vs Existing Stock
  - Uniform Price
    - No winners curse
    - WAR ?
  - Variable Price
    - Needs careful assessment
    - Preferred by short term traders
  - Bidding for success/ negatively

- PSU Bonds
  - Financing for PSUS
  - Medium to Long term issuance
  - Private Placement
  - Tradable
  - Listed on a SE
  - Rated by Credit Rating Agencies
  - Eligible for PF investments
  - PFI is a subset
- Corporate Bonds
  - Financing for corporates
  - Short to Medium term issuances
  - DRR (NBFCs are exempt)
  - Convertibles

## Hybrid Capital

- Preference Shares
  - Fixed Dividend
    - Annual or Cumulative
  - No Voting Rights
  - Precedence over Common Equity in case of liquidation
  - Redeemable (repayment on a date or dates)
  - Tradable but not usually traded
  - Can be convertible also

## Hybrid Capital

- Warrants
  - Tradable options which convert to equity
- Convertible Bonds
  - Fully Convertible
  - Foreign Currency Fully Convertible (FCCB)
  - Partly or Optionally Convertible



## Foreign Currency Borrowings

- External Commercial Borrowings (ECB)
  - Minimum 3 years maturity
  - Non resident lender
  - Approval Route or Automatic Route
  - End use is monitored
    - Capital Market, Real Estate NOT permitted
  - Cost ceilings are important
  - Overseas lenders KYC under FATF

## Foreign Currency Equity Issuance

- Global Depositary Receipt
- American Depositary Receipt
  - A tradable certificate based on an underlying
  - Represent an Indian share (or ratio)
  - Custodian in India holds the underlying
  - Access, Visibility to overseas investors
  - No voting rights

- GDR/ ADR
  - Access to foreign capital
  - Traded in Foreign Currency
  - Arbitrage and Currency views drive the trading
  - Two way fungibility allowed
    - Convert Indian shares to GDR/ ADR
    - Convert GDR/ ADR to Indian shares

## Foreign Currency Equity Issuance

- Indian Depositary Receipt
  - Unique product, latest innovation
  - Allows foreign listed companies to issue IDRs listed in India
  - SCB listed in HK, London issued the first IDR
  - Traded in Rupees
  - Based on a overseas share of the foreign company

- Active dynamic FX desks are the most interesting part of large treasuries
- Continuous movement in 3<sup>rd</sup> and 4<sup>th</sup> decimal
- Data and Economic releases tracked closely
- Traded by the widest segment - corporates, banks, retail
- Most trade is electronic
- Quotes available continuously except weekends
- Largest trading asset class, \$4trn daily turnover
- Strict Take Profit/ Stop Loss culture
- Trading Books move across geographies
- Sydney-Tokyo-HK/SIN-Mum-Dubai-London-NY

- G7/ G10 FX Majors Desk
    - These are the considered to be the 10 most liquid currencies in the world
1. US Dollar (USD)
  2. Canadian Dollar (CAD)
  3. Japanese Yen (JPY)
  4. Australian Dollar (AUD)
  5. New Zealand Dollar (NZD)
  6. British Pound (GBP)
  7. Euro (EUR)
  8. Swiss Franc (CHF)
  9. Swedish Krona (SEK)
  10. Norwegian Krone (NOK)

Top 10 currency traders % of overall volume, May 2012		
Rank	Name	Market share
1	<a href="#">Deutsche Bank</a>	14.57%
2	<a href="#">Citi</a>	12.26%
3	<a href="#">Barclays Capital</a>	10.95%
4	<a href="#">UBS AG</a>	10.48%
5	<a href="#">HSBC</a>	6.72%
6	<a href="#">JPMorgan</a>	6.6%
7	<a href="#">Royal Bank of Scotland</a>	5.86%
8	<a href="#">Credit Suisse</a>	4.68%
9	<a href="#">Morgan Stanley</a>	3.52%
10	<a href="#">Goldman Sachs</a>	3.12%

- Indian Context
  - INR based
    - USD INR
    - EUR INR
    - GBP INR
    - JPY INR
  - Crosses
    - FCY/FCY
    - Derived from USD INR and the relevant cross (Eg EUR/USD)



### Key Factors affecting Exchange Rates

- Demand/ Supply
  - Trade Flows
  - Investment Flows
- Economy news (Macro), Relative Strength
- Political News
- Interest Rate Differentials
- Monetary Policy
- Rating decisions

- The Financial Markets Landscape
- **Constructing the appropriate Portfolio Mix**
- Managing Constructed Portfolios
- Additional Controls for Treasury

- Capital Protection
- Liquidity
- Returns

	Safe	Moderate	Aggressive
Money Markets	70%	35-40%	15%
Debt Markets	30%	55%	65-70%
Equity	0%	5-10%	15-20%
Expected Returns	~8%	~9%	~10%

- The Financial Markets Landscape
- Constructing the appropriate Portfolio Mix
- **Managing Constructed Portfolios**
- Additional Controls for Treasury

- Concept: Management of bond portfolio parameters to adhere to a predetermined strategy
- Challenges
  - Bond characteristics are not similar
  - Bond Parameters change continuously
  - Multiple strategies for a single portfolio

- Strategies
  - Profit maximisation in the short run
  - Accrual strategy
  - Duration Matching
  - Maturity Matching
  - Immunisation
  - Dedication
- Mandated Investments

HFT

## Held For Trading

- Daily MTM
- Rapid Buy/ Sell
- Funding Rate linked to overnight

AFS

## Available for Sale

- Monthly MTM
- Medium Term Outlook
- Funding Rate linked to term

HTM

## Held to Maturity

- No MTM
- Strategic Investments
- Funded from Capital / Long Term sources



- Banking Book vs Trading Book
  - Decision at the time of acquiring
  - HTM or to be sold
  - Horizon
- Prerequisites for Trading Book
  - Ageing (Horizon/ Holding Period)
  - Stop Loss/ Take Profit limits or policy
  - Dealing procedures - limits, authority
  - Funding Rate
  - More stringent and regular MTM

- Passive Strategies
  - Buy and Hold
  - Regular Income/ Accrual
  - Spaced Maturity
  - Front end/ Back end Maturity
  - Barbell
  - Immunisation
  - Dedication

- Passive Strategies
  - Buy and Hold
    - Most predictable returns
    - Suitable for investors seeking lumpy redemptions
    - Ideal for Non Traders
    - Suited for investing in illiquid/ high yields markets
    - Reinvestment Risk for intervening coupons
    - Price risk if sold prior to Maturity
    - Eg Insurance Cos, Retired Individuals

- Passive Strategies
  - Regular Income/ Accrual
    - Entities which need regular funds to service obligations
      - General Insurance, Short Duration Funds, Retirees
    - Fixed Expenses like Rent, EMI

- Passive Strategies
  - Spaced Maturity
    - Equal Amounts invested in each year of the horizon
    - Ample liquidity strategy
    - Suitable for entities needing funds for growth or other purpose – investment projects
    - Returns may be sub optimal

- Passive Strategies
  - Spaced Maturity
  - Front End / Back end Maturity
    - Similar to spaced but lumpy redemptions are placed in initial years / back years as needed
    - Liquidity Vs Returns consideration
  - Barbell
    - Equal amounts are placed in the front and back end to balance liquidity
    - Mid section does not see any maturities

- Passive Strategies
  - Immunisation
    - Removal of interest rate risk by holding a bond portfolio upto its initial duration
    - Point where reinvestment balances the capital gain/ loss
    - Weighted average life of the bond
    - Reinvestment risk is minimised
    - Continuous rebalancing at regular intervals is needed

- Passive Strategies
  - Dedication
    - Strategy of matching proceeds with specific liabilities
    - STRIPS, Zero actively used



## Active Strategies

- Profit Maximisation / Trading
- Spread Papers
- Riding the Yield Curve
- Diversification
- Curve Views

## Active Strategies

- Profit Maximisation / Trading
  - Short term price movements
  - News driven
  - Demand Supply driven
  - Duration is carried only for a few days based on view
  - Funding is overnight, matched to expected holding

## Active Strategies

- Spread Papers
  - Improving yield by buying or higher yielding papers
  - Eg State Government Paper for SLR
  - Small compromise is made in liquidity for yield
  - Demanded by longer term investors post a rally

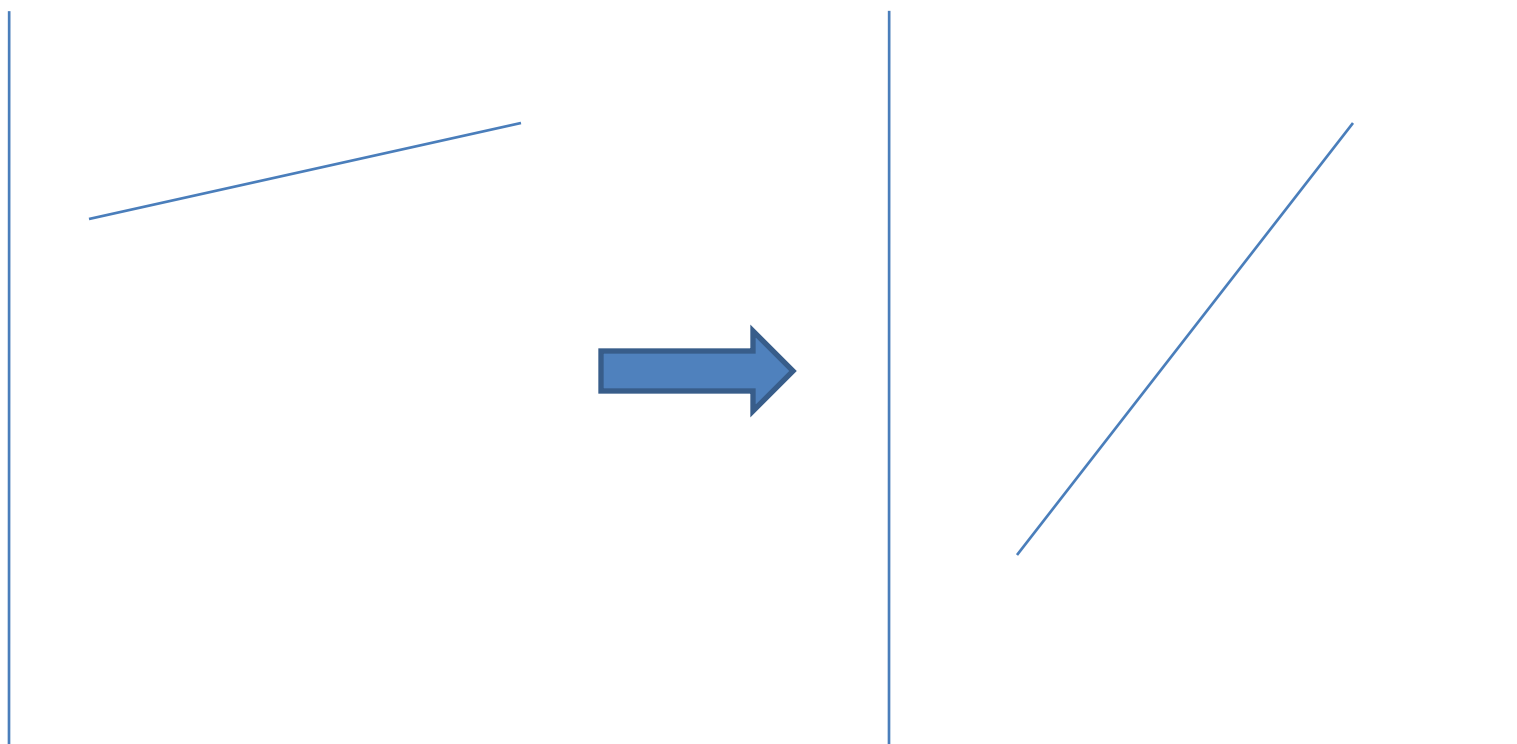
## Active Strategies

- Riding the Yield Curve
  - Works well in case of upward sloping yield curves
  - At the steepest part buy a bond longer than your horizon
  - Sell down at horizon
  - If the curve remains stable you make roll gains
  - Segmentation of investors causes sharp steepness
    - Eg 2m limit for Liquid Mutual Funds

- Diversification
  - Across sectors
  - Across credits
  - Constant monitoring

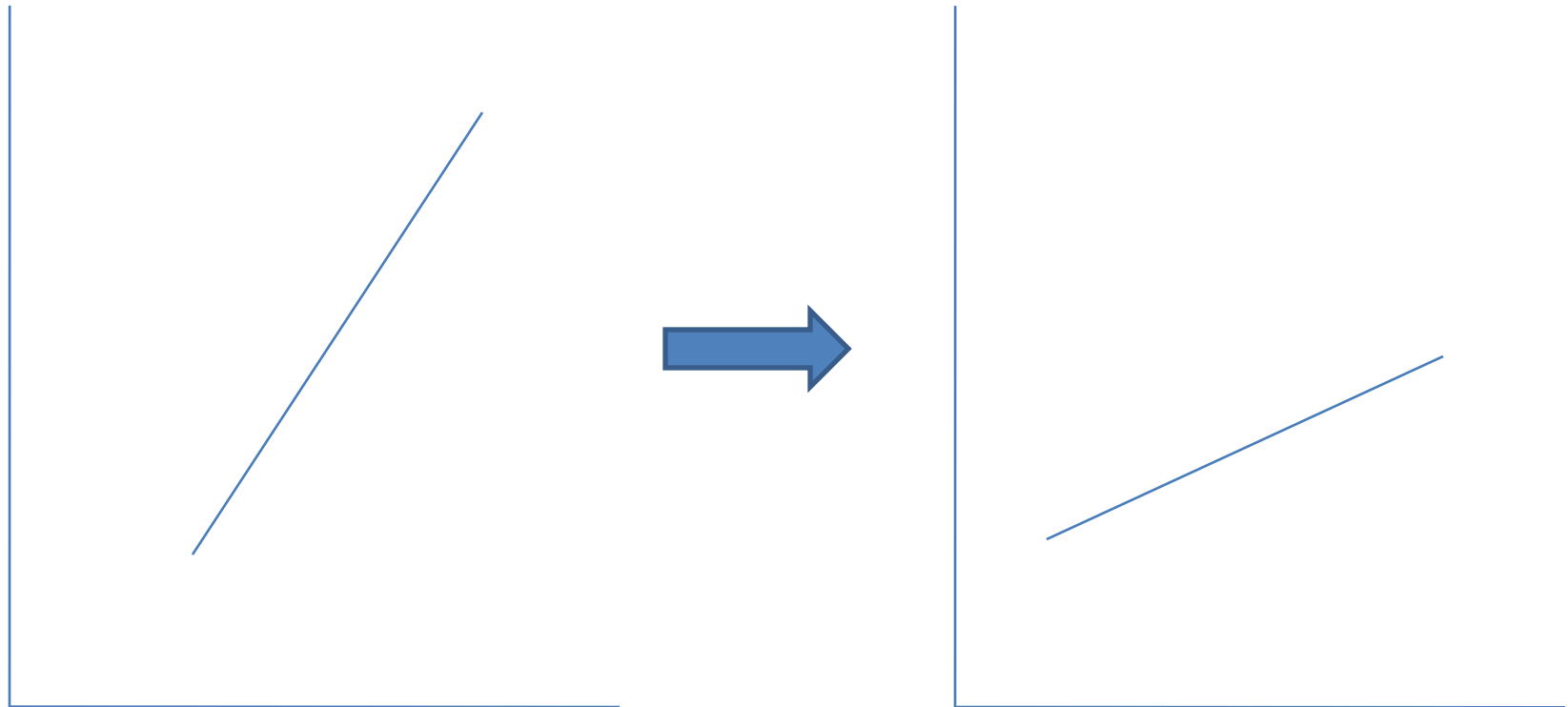
- Yield Curve Plays
  - Duration neutral shifts in yield curve
  - Steepeners
  - Flatteners
  - Economic conditions
  - Demand / Supply

- Steepening



- Rapid Improvement in Liquidity, or front end demand
- Buy near end, sell long end
- 8, 8.2 becomes; 7.25, 8.2

- Flattening



- Rapid Improvement in long end demand
- Buy long end, sell near end
- 7, 8 becomes; 7, 7.5



- Returns should be uncorrelated with banks
- Negatively correlated?
- Portfolio Risk should be inversely proportional to bank profits
- A regular review of the portfolio should happen
  - Quarterly results
  - Macro releases
- Multiple limits to portfolio be set and monitored

- The Financial Markets Landscape
- Constructing the appropriate Portfolio Mix
- Managing Constructed Portfolios
- **Additional Controls for Treasury**

## Risk Management

- Market Risk
  - Risk of prices fluctuating
- Credit Risk
  - Risk of default
- Operational Risk
  - Risks arising from inadequate internal control, human error or management failure

- Delegated Authorities (DA) are to individuals
  - No committee decisions
  - High dependence on individual's judgment
- Market movements are rapid unlike in other business segments
  - Transactions are irrevocable
  - PnL volatility is high
  - Unexpected/ Unrelated events can impact positions

- Arises out of inadequate internal controls, human error or management failure
  - Weak process, inadequate checks
  - Non compliance with laid down procedures
  - Fraudulent practices
  - Technological inadequacies
- Can be measured accurately only post facto
  - Past behavior can be modeled
    - Probability of occurrence, magnitude
  - A reserve or limit must be created for this risk

## Mitigation

- Design Strong process
- Clear and repeated communication
- Open, transparent and auditable work flows
- Clear delegation of powers, no exceptions
- Manuals, Policy
- Scalable IT systems, backup
- Standardized documentation
- Supporting papers for every deal
- Maintain Linear workflow

- Monitor risk across various parameters (daily, weekly, monthly)
  - Asset Liability mismatch
  - PVBP
  - Funding sources
    - Stress Liquidity
    - Core deposits
    - Duration of investments, liabilities
    - Converted forex funds
- ICG guidelines review

## Internal Control Guidelines

- Every deal backed by documentation
- Segregation of duties
- Audit/ Inspection of Treasury
- Any fails/ OL to be reported
- Panel of brokers is reviewed annually



# Thank You