

# 10

## Money Market Operations

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### Question 1

*Write a short note on commercial paper.*

### Answer

A commercial paper is an unsecured money market instrument issued in the form of a promissory note. Since the CP represents an unsecured borrowing in the money market, the regulation of CP comes under the purview of the Reserve Bank of India which issued guidelines in 1990 on the basis of the recommendations of the Vaghul Working Group. These guidelines were aimed at:

- (i) Enabling the highly rated corporate borrowers to diversify their sources of short term borrowings, and
- (ii) To provide an additional instrument to the short term investors.

It can be issued for maturities between 7 days and a maximum upto one year from the date of issue. These can be issued in denominations of Rs. 5 lakh or multiples therefore. All eligible issuers are required to get the credit rating from credit rating agencies.

Eligibility criteria for issuer of commercial paper

The companies satisfying the following conditions are eligible to issue commercial paper.

- The tangible net worth of the company is Rs. 5 crores or more as per audited balance sheet of the company.
- The fund base working capital limit is not less than Rs. 5 crores.
- The company is required to obtain the necessary credit rating from the rating agencies such as CRISIL, ICRA etc.
- The issuers should ensure that the credit rating at the time of applying to RBI should not be more than two months old.
- The minimum current ratio should be 1.33:1 based on classification of current assets and liabilities.
- For public sector companies there are no listing requirement but for companies other than public sector, the same should be listed on one or more stock exchanges.
- All issue expenses shall be borne by the company issuing commercial paper.

**Question 2**

*Write a short note on Treasury bills.*

**Answer**

**Treasury Bills:** Treasury bills are short-term debt instruments of the Central Government, maturing in a period of less than one year. Treasury bills are issued by RBI on behalf of the Government of India for periods ranging from 14 days to 364 days through regular auctions. They are highly liquid instruments and issued to tide over short-term liquidity shortfalls.

Treasury bills are sold through an auction process according to a fixed auction calendar announced by the RBI. Banks and primary dealers are the major bidders in the competitive auction process. Provident Funds and other investors can make non-competitive bids. RBI makes allocation to non-competitive bidders at a weighted average yield arrived at on the basis of the yields quoted by accepted competitive bids. These days the treasury bills are becoming very popular on account of falling interest rates. Treasury bills are issued at a discount and redeemed at par. Hence, the implicit yield on a treasury bill is a function of the size of the discount and the period of maturity. Now, these bills are becoming part of debt market. In India, the largest holders of the treasury bills are commercial banks, trust, mutual funds and provident funds. Although the degree of liquidity of treasury bills are greater than trade bills, they are not self liquidating as the genuine trade bills are. T-bills are claim against the government and do not require any grading or further endorsement or acceptance.

**Question 3**

*Explain briefly 'Call Money' in the context of financial market.*

**Answer**

**Call Money:** The Call Money is a part of the money market where, day to day surplus funds, mostly of banks, are traded. Moreover, the call money market is most liquid of all short-term money market segments.

The maturity period of call loans vary from 1 to 14 days. The money that is lent for one day in call money market is also known as 'overnight money'. The interest paid on call loans are known as the call rates. The call rate is expected to freely reflect the day-to-day lack of funds. These rates vary from day-to-day and within the day, often from hour-to-hour. High rates indicate the tightness of liquidity in the financial system while low rates indicate an easy liquidity position in the market.

In India, call money is lent mainly to even out the short-term mismatches of assets and liabilities and to meet CRR requirement of banks. The short-term mismatches arise due to variation in maturities i.e. the deposits mobilized are deployed by the bank at a longer maturity to earn more returns and duration of withdrawal of deposits by customers vary. Thus, the banks borrow from call money markets to meet short-term maturity mismatches.

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Moreover, the banks borrow from call money market to meet the cash Reserve Ratio (CRR) requirements that they should maintain with RBI every fortnight and is computed as a percentage of Net Demand and Time Liabilities (NDTL).

#### Question 4

*What is money market? What are its features? What kind of inefficiencies it is suffering from?*

#### Answer

In a wider spectrum, a money market can be defined as a market for short-term money and financial assets that are near substitutes for money with minimum transaction cost.

Features:

- The term short-term means generally a period upto one year and near substitutes to money is used to denote any financial asset which can be quickly converted into money.
- Low cost.
- It provides an avenue for equilibrating the short-term surplus funds of lenders and the requirements of borrowers.
- It, thus, provides a reasonable access to the users of short term money to meet their requirements at realistic prices.
- The money market can also be defined as a centre in which financial institutions congregate for the purpose of dealing impersonally in monetary assets.

Inefficiencies:

- (i) Markets not integrated,
- (ii) High volatility,
- (iii) Interest rates not properly aligned,
- (iv) Players restricted,
- (v) Supply based-sources influence uses,
- (vi) Not many instruments,
- (vii) Players do not alternate between borrowing and lending,
- (viii) Reserve requirements,
- (ix) Lack of transparency,
- (x) Inefficient Payment Systems,
- (xi) Seasonal shortage of funds,
- (xii) Commercial transactions are mainly in cash, and
- (xiii) Heavy Stamp duty limiting use of exchange bills

**Question 5**

*Distinguish between Money market and Capital Market.*

**Answer**

The capital market deals in financial assets. Financial assets comprises of shares, debentures, mutual funds etc. The capital market is also known as stock market.

Stock market and money market are two basic components of Indian financial system. Capital market deals with long and medium term instruments of financing while money market deals with short term instruments.

Some of the points of distinction between capital market and money market are as follows:

	<b>Money Market</b>	<b>Capital Market</b>
(i)	There is no classification between primary market and secondary market	There is a classification between primary market and secondary market.
(ii)	It deals for funds of short-term requirement (less than a year).	It deals with funds of long-term requirement (more than 1 year).
(iii)	Money market instruments include interbank call money, notice money upto 14 days, short-term deposits upto three months, commercial paper, 91 days treasury bills.	Capital Market instruments are shares and debt instruments.
(iv)	Money market participants are banks, financial institution, RBI and Government.	Capital Market participants include retail investors, institutional investors like Mutual Funds, Financial Institutions, corporate and banks.
(v)	Supplies funds for working capital requirement.	Supplies funds for fixed capital requirements.
(vi)	Each single instrument is of a large amount.	Each single instrument is of a small amount.
(vii)	Risk involved in money market is less due to smaller term of maturity. In short term the risk of default is less.	Risk is higher
(viii)	Transactions take place over phone calls. Hence there is no formal place for transactions.	Transactions are at a formal place viz. the stock exchange.
(ix)	The basic role of money market is liquidity adjustment.	The basic role of capital market includes putting capital to work, preferably to long term, secure and productive employment.

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(x)	Closely and directly linked with the Central Bank of India	The Capital market feels the influence of the Central Bank but only indirectly and through the money market
(xi)	Commercial Banks are closely regulated.	The institutions are not much regulated.

### Question 6

*Write a short note on Inter Bank Participation Certificate.*

### Answer

**Inter Bank Participation Certificate (IBPC):** The Inter Bank Participation Certificates are short term instruments to even out the short-term liquidity within the Banking system particularly when there are imbalances affecting the maturity mix of assets in Banking Book.

The primary objective is to provide some degree of flexibility in the credit portfolio of banks. It can be issued by schedule commercial bank and can be subscribed by any commercial bank.

The IBPC is issued against an underlying advance, classified standard and the aggregate amount of participation in any account time issue. During the currency of the participation, the aggregate amount of participation should be covered by the outstanding balance in account.

There are two types of participation certificates, with risk to the lender and without risk to the lender. Under 'with risk participation', the issuing bank will reduce the amount of participation from the advances outstanding and participating bank will show the participation as part of its advances. Banks are permitted to issue IBPC under 'with risk' nomenclature classified under Health Code-I status and the aggregate amount of such participation in any account should not exceed 40% of outstanding amount at the time of issue. The interest rate on IBPC is freely determined in the market. The certificates are neither transferable nor prematurely redeemable by the issuing bank.

Under without risk participation, the issuing bank will show the participation as borrowing from banks and participating bank will show it as advances to bank.

The scheme is beneficial both to the issuing and participating banks. The issuing bank can secure funds against advances without actually diluting its asset-mix. A bank having the highest loans to total asset ratio and liquidity bind can square the situation by issuing IBPCs. To the lender, it provides an opportunity to deploy the short-term surplus funds in a secured and profitable manner. The IBPC with risk can also be used for capital adequacy management.

This is simple system as compared to consortium tie up.

### Question 7

*What are a Repo and a Reverse Repo?*

**Answer**

The term Repurchase Agreement (Repo) and Reverse Repurchase Agreement (Reverse Repo) refer to a type of transaction in which money market participant raises funds by selling securities and simultaneously agreeing to repurchase the same after a specified time generally at a specified price, which typically includes interest at an agreed upon rate. Such a transaction is called a Repo when viewed from the perspective of the seller of securities (the party acquiring funds) and Reverse Repo when described from the point of view of the supplier of funds.

Indian Repo market is governed by Reserve Bank of India. At present Repo is permitted between 64 players against Central and State Government Securities (including T-Bills) at Mumbai.

**Question 8**

*What is interest rate risk, reinvestment risk & default risk & what are the types of risk involved in investments in G-Sec.?*

**Answer**

**Interest Rate Risk:** Interest Rate Risk, market risk or price risk are essentially one and the same. These are typical of any fixed coupon security with a fixed period to maturity. This is on account of inverse relation of price and interest. As the interest rate rises the price of a security will fall. However, this risk can be completely eliminated in case an investor's investment horizon identically matches the term of security.

**Re-investment Risk:** This risk is again akin to all those securities, which generate intermittent cash flows in the form of periodic coupons. The most prevalent tool deployed to measure returns over a period of time is the yield-to-maturity (YTM) method. The YTM calculation assumes that the cash flows generated during the life of a security is reinvested at the rate of YTM. The risk here is that the rate at which the interim cash flows are reinvested may fall thereby affecting the returns.

Thus, reinvestment risk is the risk that future coupons from a bond will not be reinvested at the prevailing interest rate when the bond was initially purchased.

**Default Risk:** The event in which companies or individuals will be unable to make the required payments on their debt obligations. Lenders and investors are exposed to default risk in virtually all forms of credit extensions. To mitigate the impact of default risk, lenders often charge rates of return that correspond the debtor's level of default risk. The higher the risk, the higher the required return, and vice versa. This type of risk in the context of a Government security is always zero. However, these securities suffer from a small variant of default risk i.e. maturity risk. Maturity risk is the risk associated with the likelihood of government issuing a new security in place of redeeming the existing security. In case of Corporate Securities it is referred to as credit risk.

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### Question 9

*Write a short note on Debt/ Asset Securitisation.*

#### Answer

Debt Securitisation is a method of recycling of funds. This method is mostly used by finance companies to raise funds against financial assets such as loan receivables, mortgage backed receivables, credit card balances, hire purchase debtors, lease receivables, trade debtors, etc. and thus beneficial to such financial intermediaries to support their lending volumes. Thus, assets generating steady cash flows are packaged together and against this assets pool market securities can be issued. Investors are usually cash-rich institutional investors like mutual funds and insurance companies.

The process can be classified in the following three functions:

1. **The origination function** – A borrower seeks a loan from finance company, bank, housing company or a financial institution. On the basis of credit worthiness repayment schedule is structured over the life of the loan.
2. **The pooling function** – Many similar loans or receivables are clubbed together to create an underlying pool of assets. This pool is transferred in favour of a SPV (Special Purpose Vehicle), which acts as a trustee for the investor. Once the assets are transferred they are held in the organizers portfolios.
3. **The securitisation function** – It is the SPV's job to structure and issue the securities on the basis of asset pool. The securities carry coupon and an expected maturity, which can be asset base or mortgage based. These are generally sold to investors through merchant bankers. The investors interested in this type of securities are generally institutional investors like mutual fund, insurance companies etc. The originator usually keeps the spread available (i.e. difference) between yield from secured asset and interest paid to investors.

Generally, the process of securitisation is without recourse i.e. the investor bears the credit risk of default and the issuer is under an obligation to pay to investors only if the cash flows are received by issuer from the collateral.

### Question 10

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Moreover, the banks borrow from call money market to meet the cash Reserve Ratio (CRR) requirements that they should maintain with RBI every fortnight and is computed as a percentage of Net Demand and Time Liabilities (NDTL).

**Question 11**

*RBI sold a 91-day T-bill of face value of ₹ 100 at an yield of 6%. What was the issue price?*

**Answer**

Let the issue price be X

By the terms of the issue of the T-bills:

$$6\% = \frac{100 - x}{x} \times \frac{365}{91} \times 100$$

$$\frac{6 \times 91 \times x}{36,500} = (100 - x)$$

$$0.01496 x = 100 - x$$

$$x = \frac{100}{1.01496} = ₹ 98.53$$

**Question 12**

*Wonderland Limited has excess cash of ₹ 20 lakhs, which it wants to invest in short term marketable securities. Expenses relating to investment will be ₹ 50,000.*

*The securities invested will have an annual yield of 9%.*

*The company seeks your advice*

- (i) *as to the period of investment so as to earn a pre-tax income of 5%.*
- (ii) *the minimum period for the company to breakeven its investment expenditure overtime value of money.*

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### Answer

(i) Pre-tax Income required on investment of ₹ 20,00,000

Let the period of Investment be 'P' and return required on investment ₹ 1,00,000  
(₹ 20,00,000 x 5%)

Accordingly,

$$\left( ₹ 20,00,000 \times \frac{9}{100} \times \frac{P}{12} \right) - ₹ 50,000 = ₹ 1,00,000$$

$$P = 10 \text{ months}$$

(ii) Break-Even its investment expenditure

$$\left( ₹ 20,00,000 \times \frac{9}{100} \times \frac{P}{12} \right) - ₹ 50,000 = 0$$

$$P = 3.33 \text{ months}$$

### Question 13

Z Co. Ltd. issued commercial paper worth ₹10 crores as per following details:

Date of issue :	16 <sup>th</sup> January, 2009
Date of maturity:	17 <sup>th</sup> April, 2009
No. of days :	91
Interest rate	12.04% p.a

What was the net amount received by the company on issue of CP? (Charges of intermediary may be ignored)

### Answer

The company had issued commercial paper worth ₹10 crores

No. of days Involves = 91 days

Interest rate applicable = 12.04 % p.a.

$$\text{Interest for 91 days} = 12.04\% \times \frac{91 \text{ days}}{365 \text{ days}} = 3.001\%$$

$$= \text{or } ₹ 10 \text{ crores} \times \frac{3.001}{100 + 3.001} = ₹ 29,13,563$$

or ₹ 29.1356 Lakhs

∴ Net amount received at the time of issue:- ₹10.00 Crores – 0.2913 Crore = ₹ 9.7087 Crore

**Question 14**

From the following particulars, calculate the effective rate of interest p.a. as well as the total cost of funds to Bhaskar Ltd., which is planning a CP issue:

Issue Price of CP	₹ 97,550
Face Value	₹ 1,00,000
Maturity Period	3 Months
<i>Issue Expenses:</i>	
Brokerage	0.15% for 3 months
Rating Charges	0.50% p.a.
Stamp Duty	0.175% for 3 months

**Answer**

$$\text{Nominal Interest or Bond Equivalent Yield} = \left[ \frac{F-P}{P} \right] \times \frac{12}{M} \times 100$$

Where

F= Face Value

P= Issue Price

$$= \frac{1,00,000 - 97,550}{97,550} \times \frac{12}{3} \times 100 = 0.025115 \times 4 \times 100 = 10.046 = 10.05\% \text{ p.a.}$$

$$\text{Effective interest rate} = \left[ 1 + \frac{0.1005}{4} \right]^4 - 1 = 10.435\% \text{ p.a.}$$

**Cost of Funds to the Company**

Effective Interest	10.435%
Brokerage (0.150 × 4)	0.60%
Rating Charge	0.50%
Stamp duty (0.175 × 4)	<u>0.70%</u>
	<u>12.235%</u>

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Alternatively, effective interest rate can also be computed as follows:

Let  $i$  be the interest rate then

$$97,750 = \frac{100,000}{1 + i \times \frac{3}{12}}$$

$$i = 10.046$$

### Cost of Funds to the Company

Effective Interest	10.046%
Brokerage ( $0.150 \times 4$ )	0.60%
Rating Charge	0.50%
Stamp duty ( $0.175 \times 4$ )	<u>0.70%</u>
	<u>11.846%</u>

### Question 15

*M Ltd. has to make a payment on 30th January, 2010 of Rs. 80 lakhs. It has surplus cash today, i.e. 31st October, 2009; and has decided to invest sufficient cash in a bank's Certificate of Deposit scheme offering an yield of 8% p.a. on simple interest basis. What is the amount to be invested now?*

### Answer

#### Calculation of Investment Amount

Amount required for making payment on 30<sup>th</sup> January, 2010 = ₹ 80,00,000

Investment in Certificates of Deposit (CDs) on 31<sup>st</sup> October, 2009

Rate of interest = 8% p.a.

No. of days to maturity = 91 days

Interest on ₹ 1 of 91 days

$$(\text{₹ } 1 \times 0.08 \times 91/365) = 0.0199452$$

Amount to be received for Re. 1

$$(\text{₹ } 1.00 + \text{₹ } 0.0199452) = 1.0199452$$

Calculation of amount to be invested now to get ₹ 80 lakhs after 91 days:

$$= \frac{\text{₹ } 80,00,000}{\text{₹ } 1.0199452} = \text{₹ } 78,43,558.65$$

Or, ₹ 78,43,600 or ₹ 78,44,000 approximately.

**Question 16**

A money market instrument with face value of ₹100 and discount yield of 6% will mature in 45 days. You are required to calculate:

- (i) Current price of the instrument.
- (ii) Bond equivalent yield
- (iii) Effective annual return.

**Answer**

(i) Current price of the Bond =  $100 \times [1 - \{45/360\} \times 0.06] = ₹ 99.25$

Alternatively, the current price of bond may also be calculated as follows:

$$\frac{D}{100-D} \times \frac{360}{45} = 0.06$$

$$\frac{D}{100-D} = 0.06 \times \frac{45}{360}$$

$$\frac{D}{100-D} = 0.06 \times \frac{1}{8}$$

$$8D = 6 - 0.06D$$

$$8.06D = 6$$

$$D = \frac{6}{8.06} = 0.7444$$

Current price of the bond = Face value – D

$$= ₹100 - 0.7444 = ₹99.2556$$

(ii) Bond equivalent yield =  $\frac{100 - 99.25}{99.25} \times \frac{360}{45} = 6.045\% \text{ P.A.}$

(iii) Effective annual return =  $[1 + (0.06045 / 8)]^8 - 1 = 6.207\% \text{ P.A.}$

**Note:** If a year of 365 days is considered the Bond equivalent yield and Effective annual return works out to 6.296% P.A.

**Question 17**

AXY Ltd. is able to issue commercial paper of ₹ 50,00,000 every 4 months at a rate of 12.5% p.a. The cost of placement of commercial paper issue is ₹ 2,500 per issue. XYZ Ltd. is required to maintain line of credit ₹ 1,50,000 in bank balance. The applicable income tax rate for XYZ Ltd. is 30%. What is the cost of funds (after taxes) to XYZ Ltd. for commercial paper issue? The maturity of commercial paper is four months.

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#### Answer

	₹
Issue Price	50,00,000
Less: Interest @ 12.5% for 4 months	2,08,333
Issue Expenses	2,500
Minimum Balance	1,50,000
	46,39,167

$$\text{Cost of Funds} = \frac{2,10,833(1-0.30)}{46,39,167} \times \frac{12}{4} \times 100 = 9.54\%$$

#### Alternatively

	₹
Issue Price	50,00,000
Less: Interest @ 12.5% for 4 months	2,08,333
Issue Expenses	2,500
Minimum Balance	1,50,000
	46,39,167
Opportunity Cost @ 12.5% of ₹ 1,50,000 for 4 months	6,250

$$\text{Cost of Funds} = \frac{2,10,833(1-0.30) + 6,250}{46,39,167} \times \frac{12}{4} \times 100 = 9.95\%$$

#### Alternatively

Since Commercial Paper is a discount instrument it can also be presumed same shall be issued at discounted price. Accordingly, answer shall be as follows:

$$\text{Issue Price} = \frac{50,00,000}{1 + 12.5 \times \frac{4}{12}} = ₹ 48,00,000$$

	₹
Issue Price	50,00,000
Less: Interest @ 12.5% for 4 months	2,00,000

Issue Expenses	2,500
Minimum Balance	1,50,000
	46,47,500
Opportunity Cost @ 12.5% of ₹ 1,50,000 for 4 months	6,250

$$\text{Cost of Funds} = \frac{2,02,500(1 - 0.30)}{46,47,500} \times \frac{12}{4} \times 100 = 9.15\%$$

or

$$\text{Cost of Funds} = \frac{2,02,500(1 - 0.30) + 6,250}{46,47,500} \times \frac{12}{4} \times 100 = 9.55\%$$

**Question 18**

Bank A enter into a Repo for 14 days with Bank B in 10% Government of India Bonds 2018 @ 5.65% for ₹ 8 crore. Assuming that clean price be ₹ 99.42 and initial Margin be 2% and days of accrued interest be 262 days. You are required to determine

- (i) Dirty Price
- (ii) Repayment at maturity. (consider 360 days in a year)

**Answer**

- (i) Dirty Price

$$\begin{aligned} &= \text{Clean Price} + \text{Interest Accrued} \\ &= 99.42 + 100 \times \frac{10}{100} \times \frac{262}{360} = 106.70 \end{aligned}$$

- (ii) First Leg (Start Proceed)

$$\begin{aligned} &= \text{Nominal Value} \times \frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100} \\ &= ₹8,00,00,000 \times \frac{106.70}{100} \times \frac{100 - 2}{100} = ₹8,36,52,800 \text{ or, rounded off to ₹8,36,53,000} \end{aligned}$$

$$\begin{aligned} \text{Second Leg (Repayment at Maturity)} &= \text{Start Proceed} \times \left(1 + \text{Repo rate} \times \frac{\text{No. of days}}{360}\right) \\ &= ₹ 8,36,53,000 \times \left(1 + 0.0565 \times \frac{14}{360}\right) = ₹8,38,36,804 \end{aligned}$$