10
Money Market Operations

BASIC CONCEPTS

1. Introduction
The financial system of any country is a conglomeration of sub-markets, viz money, capital and foreign exchange market. The presence of an active and vibrant money market is an essential pre-requisite for the growth and development of an economy. The major players in the money market are the Reserve Bank of India and financial institutions like the UTI, GIC and LIC.

2. Distinct Features of Money Market
- Though it is one market but it is a collection/network of various inter-related sub-markets such as call money, notice money, repos, etc.
- Normally activities of money market tend to concentrate in some centres for e.g. London and New York which have become World Financial Centres.
- In true money market, price differentials for assets of similar type tend to be eliminated by interplay of demand and supply.
- There are constant endeavours for introducing new instruments/innovative dealing techniques.

3. Pre-Conditions for an Efficient Money Market
Development of money market into a sophisticated market depends upon certain conditions. They are:
- Institutional development.
- Banks and other players in the market have to be licensed and effectively supervised by regulators.
- Demand and supply must exist for idle cash.
- Electronic Fund Transfer (EFT), Depository System, Delivery versus Payment (DVP), High Value Inter-bank Payment System, etc. are pre-requisites.
- Market should have varied instruments with distinctive maturity and risk profiles to meet the varied aptitude of the players in the market.
10.2 Strategic Financial Management

- Govt./Central Bank should intervene to moderate liquidity profile.
- Market should be integrated with the rest of the markets in the financial system to ensure perfect equilibrium.

4. Rigidities in the Indian Money Market

Indian money market suffers from following rigidities:
- Markets not integrated,
- Highly volatile,
- Interest rates not properly aligned,
- Restricted players,
- Influence used by supply sources,
- Limited Instruments,
- Reserve requirements, and
- Lack of Transparency.

5. Distinction between Capital and Money Market

Following are some of the major distinctions between money market and capital market:

<table>
<thead>
<tr>
<th>Basis</th>
<th>Capital Market</th>
<th>Money Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Classification</td>
<td>Primary Market and Secondary Market</td>
<td>No such classification</td>
</tr>
<tr>
<td>2. Requirement</td>
<td>Deals with funds for long-term requirement</td>
<td>Deals with supply of short-term requirements</td>
</tr>
<tr>
<td>3. Number of Instruments</td>
<td>Only shares and debentures</td>
<td>Many like CPs, T-Bills, etc</td>
</tr>
</tbody>
</table>

6. Vaghul Group Report

The RBI appointed a working group under the chairmanship of Shri N. Vaghul in September 1986. The recommendations of the working group laid foundation for systematic action by RBI for the development of the Indian money market.

The Committee outlined the conceptual framework in the form of broad objectives of the money market which are as follows:
Money market should provide an equilibrating mechanism for evening out short-term surpluses and deficits.

- It should provide a focal point for influencing liquidity in the economy.
- It should provide reasonable access to users of short-term money to meet their requirements at a realistic price.

7. Institutions

The important institutions operating in money market are:

- **RBI** – Takes requisite measures to implement monetary policy of the country.
- **Scheduled Commercial Banks** – They form the most important borrower/supplier of short term funds.
- **Discount and Finance House of India (DFHI)** – Set up by RBI jointly with public sector banks and all-India financial institutions to deal in short-term money market instruments.

8. Instruments

The traditional short-term money market instruments consist mainly of call money and notice money with limited players, treasury and commercial bills. The new instruments were introduced giving a wider choice to short-term holders of money to reap yield on funds even for a day or to earn little more by parking funds by instruments for a few days more or until such time they need it for lending at a higher rate.

The instruments used by various players to borrow and lend money are as follows:

- **Call/Notice Money**: Call money refers to that transaction which is received or delivered by the participants in the call money market and where the funds are returnable next day. Notice money on the other hand is a transaction where the participants receive or deliver for more than two days but generally for a maximum of fourteen days.

- **Inter_bank term money**: the DFIs are permitted to borrow from the market for a period of 3 months upto a period of not more than 6 months within the limits stipulated by RBI.

- **Inter_bank participation certificates (IBPC)**: It is a short-term money market instrument by which the banks can raise money or deploy short term surplus.

- **Inter corporate deposits**: They are short-term borrowing and lending of funds amongst the corporations.

- **Treasury Bills**: They are short-term instruments issued by RBI on behalf of the Government of India to tide over short-term liquidity shortfalls.

- **Commercial Bills**: It is a written instrument containing unconditional order signed by the maker, directing to pay a certain amount of money only to a particular
person, or to the bearer of the instrument.

- **Certificate and Deposits (CDs):** They are money market instruments in form of usance Promissory Notes issued at a discount and are negotiable in character. There is a lock-in-period of 15 days, after which they can be sold.

- **Commercial Papers:** They are debt instruments for short-term borrowings that enable highly-rated corporate borrowers to diversify their sources of short-term borrowings and provide an additional financial instrument to investors with a freely negotiable interest rate.

### 9. Determination of Interest Rates

Call money rates were regulated in the past by the RBI or by a voluntary agreement between the participants through the intermediation of the Indian Bank Association (IBA). Now, the interest rates have been regulated and left to the market forces of demand for and supply of short-term money as a part of the financial sector reforms.

### 10. Recent Development in Money Market

- **Debt Securitisation:** It means converting retail loans into wholesale loans. The philosophy behind the arrangement is that an individual body cannot go on lending sizable amount for about a longer period continuously but if loan amount is divided in small pieces and made transferable like negotiable instruments in the secondary market, it becomes easy to finance large projects having long gestation period.

- **Money Market Mutual Funds (MMMFs):** These Mutual Funds are primarily intended for individual investors including NRIs who may invest on a non-repatriable basis.

- **Repurchase Options (Repo) and Ready Forward (RFS) Contracts:** Under this transaction the borrower places with lender certain acceptable securities against funds received and agrees to reverse this transaction on a pre-determined future date at an agreed interest cost. While Ready Forward transaction are structured to suit the requirements of both borrowers/ and lenders and have therefore, become extremely popular mode of raising/investing short-term funds.

### 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 up to 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.

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:

<table>
<thead>
<tr>
<th></th>
<th>Money Market</th>
<th>Capital Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>There is no classification between primary market and secondary market</td>
<td>There is a classification between primary market and secondary market.</td>
</tr>
<tr>
<td>(ii)</td>
<td>It deals for funds of short-term requirement (less than a year).</td>
<td>It deals with funds of long-term requirement (more than 1 year).</td>
</tr>
<tr>
<td>(iii)</td>
<td>Money market instruments include interbank call money, notice money upto</td>
<td>Capital Market instruments are shares and debt instruments.</td>
</tr>
</tbody>
</table>
10.8 Strategic Financial Management

<table>
<thead>
<tr>
<th>14 days, short-term deposits upto three months, commercial paper, 91 days treasury bills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money market participants are banks, financial institution, RBI and Government.</td>
</tr>
<tr>
<td>Capital Market participants include retail investors, institutional investors like Mutual Funds, Financial Institutions, corporate and banks.</td>
</tr>
<tr>
<td>Supplies funds for working capital requirement.</td>
</tr>
<tr>
<td>Supplies funds for fixed capital requirements.</td>
</tr>
<tr>
<td>Each single instrument is of a large amount.</td>
</tr>
<tr>
<td>Each single instrument is of a small amount.</td>
</tr>
<tr>
<td>Risk involved in money market is less due to smaller term of maturity. In short term the risk of default is less.</td>
</tr>
<tr>
<td>Risk is higher</td>
</tr>
<tr>
<td>Transactions take place over phone calls. Hence there is no formal place for transactions.</td>
</tr>
<tr>
<td>Transactions are at a formal place viz. the stock exchange.</td>
</tr>
<tr>
<td>The basic role of money market is liquidity adjustment.</td>
</tr>
<tr>
<td>The basic role of capital market includes putting capital to work, preferably to long term, secure and productive employment.</td>
</tr>
<tr>
<td>Closely and directly linked with the Central Bank of India</td>
</tr>
<tr>
<td>The Capital market feels the influence of the Central Bank but only indirectly and through the money market</td>
</tr>
<tr>
<td>Commercial Banks are closely regulated.</td>
</tr>
<tr>
<td>The institutions are not much regulated.</td>
</tr>
</tbody>
</table>

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.

**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

Write a short note on Call Money.

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.

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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:
10.12 Strategic Financial Management

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

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

\[
0.01496 \times x = 100 - x
\]

\[
x = \frac{100}{1.01496} = ₹ 98.53
\]

**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.

**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,

\[
(₹ 20,00,000 \times \frac{100}{100} \times \frac{12}{12}) - ₹ 50,000 = ₹ 1,00,000
\]

P = 10 months

(ii) Break-Even its investment expenditure

\[
(₹ 20,00,000 \times \frac{100}{100} \times \frac{12}{12}) - ₹ 50,000 = 0
\]

P = 3.33 months

**Question 13**

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

*Date of issue:* 16th January, 2009

*Date of maturity:* 17th 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.
Interest for 91 days = 12.04% × \frac{91 \text{ days}}{365 \text{ days}} = 3.001%

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

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

Issue Expenses:
Brokerage 0.15% for 3 months
Rating Charges 0.50% p.a.
Stamp Duty 0.175% for 3 months

Answer

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

Where

F = Face Vale
P = Issue Price
Effective interest rate = \[1 + \frac{0.1005}{4}\]^4 - 1 = 10.435\% p.a.

**Cost of Funds to the Company**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective Interest</td>
<td>10.435</td>
</tr>
<tr>
<td>Brokerage (0.150 × 4)</td>
<td>0.60%</td>
</tr>
<tr>
<td>Rating Charge</td>
<td>0.50%</td>
</tr>
<tr>
<td>Stamp duty (0.175 × 4)</td>
<td>0.70%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12.235</strong></td>
</tr>
</tbody>
</table>

**Question 15**

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

**Issue Price of CP** = ₹ 97,350

**Face Value** = ₹ 1,00,000

**Maturity period** = 3 months.

**Issue Expenses:**

**Brokerage:** 0.125\% for 3 months.

**Rating Charges:** 0.5\% p.a.

**Stamp duty:** 0.125\% for 3 months

**Answer**

Nominal Interest or Bond Equivalent Yield = \[\frac{F - P}{P}\] × \[\frac{12}{m}\] × 100

= \[\frac{100,000 - 97,350}{97,350}\] × \[\frac{12}{3}\] × 100

= 0.02722 × 4 × 100 = 10.888

= 10.89

Effective Interest = \[1 + \frac{0.1089}{4}\]^4 - 1 = 11.34\% p.a.
Cost of Funds to the Company

Effective Interest  11.34%
Brokerage (0.125 x 4)  0.50%
Rating Charge  0.50%
Stamp Duty (0.125 x 4)  0.50%
Cost of funds  12.84%

Question 16

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 30th January, 2010 = ₹ 80,00,000

Investment in Certificates of Deposit (CDs) on 31st October, 2009

Rate of interest = 8% p.a.

No. of days to maturity = 91 days

Interest on ₹ 1 of 91 days

\[ (₹ 1 \times 0.08 \times 91/365) = 0.0199452 \]

Amount to be received for Re. 1

\[ (₹ 1.00 + ₹ 0.0199452) = 1.0199452 \]

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

\[ ₹ 80,00,000 \times \frac{1}{1.0199452} = ₹ 78,43,558.65 \]

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

Question 17

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 x [1-(45/360) x 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% P.A.

(iii) Effective annual return = \(\left[1 + \left(0.06045/8\right)\right]^{8} - 1\) = 6.207% 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 18

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. AXY Ltd. is required to maintain line of credit ₹ 1,50,000 in bank balance. The applicable income tax rate for AXY Ltd. is 30%. What is the cost of funds (after taxes) to AXY Ltd. for commercial paper issue? The maturity of commercial paper is four months.

Answer

<table>
<thead>
<tr>
<th>Description</th>
<th>₹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue Price</td>
<td>50,00,000</td>
</tr>
<tr>
<td>Less: Interest @ 12.5% for 4 months</td>
<td>2,08,333</td>
</tr>
<tr>
<td>Issue Expenses</td>
<td>2,500</td>
</tr>
<tr>
<td>Minimum Balance</td>
<td>1,50,000</td>
</tr>
<tr>
<td></td>
<td>46,39,167</td>
</tr>
</tbody>
</table>
Cost of Funds = \( \frac{2,10,833(1 - 0.30)}{46,39,167} \times \frac{12}{4} \times 100 = 9.54\% \)

Alternatively

<table>
<thead>
<tr>
<th>( )</th>
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</thead>
<tbody>
<tr>
<td>Issue Price</td>
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<td>1,50,000</td>
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<tr>
<td></td>
<td>46,39,167</td>
</tr>
<tr>
<td>Opportunity Cost @ 12.5% of ( ) 1,50,000 for 4 months</td>
<td>6,250</td>
</tr>
</tbody>
</table>

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