

At the rate of 6%	$\frac{1,000 - 992.50}{992.50} \times \frac{360}{45} \times 100 \uparrow$	6.05
At the rate of 8%	$\frac{1,000 - 990.10}{990.10} \times \frac{360}{45} \times 100 \uparrow$	8.08

$$\frac{FV - CV}{CV} \times \frac{365}{45} \times 100$$

Question – 66

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

(MTP October – 2020)

Solution:

$$\text{Effective Interest} = \left(\frac{F - P}{P} \right) \times \frac{12}{M} \times 100$$

Substituting the given values of F, P and M we get,

$$\text{Effective Interest} = \left(\frac{1,00,000 - 97,550}{97,550} \right) \times \frac{12}{3} \times 100 = 10.05\%$$

Cost of funds to the company

Effective interest rate	= 10.05%
Brokerage (0.15 × 4)	= 0.6%
Rating charges	= 0.5%

$$\text{Stamp duty } (0.175 \times 4) = 0.75\%$$

$$\text{Total cost of Funds to Bhaskar Ltd.} = 11.9\% \text{ p.a.}$$

Question – 67

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)

(SM TYK – 31, MTP March & April – 2021)

Solution:**(i) Dirty Price**

$$= \text{Clean Price} + \text{Interest Accrued}$$

$$= 99.42 + 100 \times \frac{10}{100} \times \frac{262}{360} = 106.70$$

(ii) First Leg (Start Proceed)

$$= \text{Nominal Value} \times \frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100}$$

$$= ₹ 8,00,00,000 \times \frac{106.70}{100} \times \frac{100 - 2}{100} = ₹ 8,36,52,800$$

Second Leg (Repayment at Maturity)

$$= \text{Start Proceed} \times \left(1 + \text{Repo Rate} \times \frac{\text{No. of Days}}{360} \right)$$

$$= ₹ 8,36,52,800 \times \left(1 + 0.0565 \times \frac{14}{360} \right)$$

$$= ₹ 8,38,36,604$$

Question – 68

The Bank BK enters into a Repo for 9 days with Bank NE in 6% Government bonds 2022 for an amount of ₹ 2 crore. The other relevant details are as follows:

First Leg Payment (Start Proceed)	₹ 2,00,06,750
Second Leg Payment (Repayment Proceed)	₹ 2,00,31,759
Initial Margin	1.25%
Days of accrued interest	240

Assume 360 days in a year.

CALCULATE:

- (1) Repo Rate
- (2) Dirty Price and
- (3) Clean Price

(MTP Oct – 2022)

Solution:

$$(1) \quad \text{Second Leg} = \text{Start Proceed} \times \left(1 + \text{Repo Rate} \times \frac{\text{No. of days}}{360} \right)$$

$$₹ 2,00,31,759 = ₹ 2,00,06,750 \times \left(1 + \text{Repo Rate} \times \frac{9}{360} \right)$$

$$1.00125 = \left(1 + \text{Repo Rate} \times \frac{9}{360} \right)$$

$$\text{Repo Rate} = 0.05 = 5\%$$

(2) First Leg (Start Proceed)

$$= \text{Nominal Value} \times \frac{\text{Dirty Price}}{100} \times \frac{100 - \text{Initial Margin}}{100}$$

$$₹ 2,00,06,750 = ₹ 2,00,00,000 \times \frac{\text{Dirty Price}}{100} \times \frac{100 - 1.25}{100}$$

$$10003.375 = 98.75 \times \text{Dirty Price}$$

Dirty Price = ₹ 101.30

(3) Dirty Price = Clean Price + Interest Accrued

$$101.30 = \text{Clean Price} + 100 \times \frac{240}{360} \times 6\%$$

Clean Price = ₹ 97.30

RESIDUAL

Question – 69

Following Financial data are available for PQR Ltd. for the year 2008:

	(₹ in lakh)
8% debentures	125
10% bonds (2007)	50
Equity shares (₹ 10 each)	100
Reserves and Surplus	300
Total Assets	600
Assets Turnovers ratio	1.1
Effective interest rate	8%
Effective tax rate	40%
Operating margin	10%
Dividend payout ratio	16.67
Current market Price of Share	14
Required rate of return of investors	15%

You are required to:

- Draw income statement for the year
- Calculate its sustainable growth rate of earnings
- Calculate the fair price of the Company's share using dividend discount model, and
- What is your opinion on investment in the company's share at current price?

(SM TYK – 12 & RTP May – 2020)

Solution:

(i) Income Statement

Sales (600×1.10)	₹ 660
(-) Operating Ratio ($660 \times 90\%$)	₹ 594
EBIT	₹ 66
(-) Interest $[(125 + 50) \times 8\%]$	₹ 14
EBT	₹ 52
(-) Tax 40%	₹ 20.80
EAT	31.20
(÷) No. of Shares	10
EPS	3.12
DPS (16.67%)	0.52

(ii) Sustainable Growth Rate

$$g = b \times r$$

$$b = 1 - 0.1667 = 0.8333$$

$$\begin{aligned} \text{ROE (r)} &= \frac{\text{EAT}}{\text{Equity}} \times 100 \\ &= \frac{31.20}{300 + 100} \times 100 \\ &= 7.8 \% \end{aligned}$$

$$\begin{aligned} g &= 0.8333 \times 0.078 = 0.065 \\ &= 6.5\% \end{aligned}$$

(iii) Price (P_0)

$$\begin{aligned} P_0 &= \frac{D_1}{K_e - g} \\ &= \frac{0.52 \times (1.065)}{0.15 - 0.065} \\ &= ₹ 6.52 \end{aligned}$$

(iv) Actual Price = 14

Share is overpriced hence should not be purchased.

Question – 70

Tiger Ltd. is presently working with an Earning Before Interest and Taxes (EBIT) of ₹ 90 lakhs. Its present borrowings are as follows:

	₹ in lakhs
12% term loan	300
Working capital borrowings:	
From Bank at 15%	200
Public Deposit at 11%	100

The sales of the company are growing and to support this, the company proposes to obtain additional borrowing of ₹ 100 lakhs expected to cost 16%. The increase in EBIT is expected to be 15%.

Calculate the change in interest coverage ratio after the additional borrowing is effected and comment on the arrangement made.

Solution:

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

$$\begin{aligned} \text{Present} &= \frac{90}{77} \\ &= 1.69 \end{aligned}$$

$$\begin{aligned} \text{Proposed} &= 90 \times 1.15 \\ &= 103.50 \end{aligned}$$

$$\begin{aligned} \text{Interest} &= 77 + 100 \times 16\% \\ &= 93 \end{aligned}$$

$$\text{Interest Coverage} = \frac{103.50}{93} = 1.113$$

Since interest coverage ratio is decreasing hence proposal should be accepted.

Question – 71

Capital structure of Sun Ltd., as at 31.3.2003 was as under:

	(₹ lakhs)
Equity share capital	80
8% Preference share capital	40
12% Debentures	64
Reserves	32

Sun Ltd., earns a profit of ₹ 32 lakhs annually on an average before deduction of income-tax, which works out to 35%, and interest on debentures.

Normal return on equity shares of companies similarly placed is 9.6% provided:

- Profit after tax covers fixed interest and fixed dividends at least 3 times.
- Capital gearing ratio is 0.75.
- Yield on share is calculated at 50% of profits distributed and at 5% on undistributed profits.

Sun Ltd., has been regularly paying equity dividend of 8%.

Compute the value per equity share of the company.

- 1% for every time of difference for interest and fixed dividend coverage ratio.
- 2% for every time of difference for capital gearing ratio.

(SM TYK – 07)

Solution:

Income Statement

EBIT	32,00,000
(-) Interest (64,00,000 × 12 %)	7,68,000
EBT	24,32,000
(-) Tax @ 35%	8,51,200
EAT	15,80,800
(-) PD (40,00,000 × 8 %)	3,20,000

Earning	12,60,800
Dividend (8,000,000 × 8%)	6,40,000 (Distributed Profit)
Undistributed Profit	6,20,800
Yield (Income)	$= (6,40,000 \times 50\%) + (6,20,800 \times 5\%)$
	$= 3,51,040$

Required Rate of Return after Risk Adjustment**(1) Coverage Ratio**

$$\begin{aligned}
 &= \frac{\text{PAT} + \text{INTEREST}}{\text{INTEREST} + \text{PD}} \\
 &= \frac{15,50,800 + 7,68,000}{7,68,000 + 3,20,000} \\
 &= 2.16
 \end{aligned}$$

Coverage ratio is less than 3 times it means higher risk.

(2) Capital Gearing Ratio

$$\begin{aligned}
 &= \frac{\text{PSC} + \text{Debt}}{\text{ESC} + \text{R \& S}} \\
 &= \frac{40,00,000 + 64,00,000}{80,00,000 + 32,00,000} \\
 &= 0.93
 \end{aligned}$$

Capital gearing ratio is more than 0.75. It means higher risk.

Required Yield

Similar Yield	9.6%
(+) Risk Adjustment	
Coverage Ratio	
$(3 - 2.16) = 0.84 \times 1$	0.84%
(+) Risk Adjustment for Capital Gearing Ratio	

$$(0.93 - 0.75) = 0.18 \times 2$$

$$0.36\%$$

$$10.80\%$$

Value per Share

$$P_0 = \frac{\text{Yield on Equity}}{\text{Required Yield}} \times \text{per share}$$

$$\text{Yield} = \frac{3,51,040}{8,00,000} \times 100 = 4.368\%$$

$$P_0 = \frac{4.388\%}{10.80\%} \times 100 = ₹ 40.63$$

Assume = ₹ 100 (FV)

Question – 72

AB Industries has Equity Capital of ₹ 12 Lakhs, total Debt of ₹ 8 Lakhs, and annual sales of ₹ 30 Lakhs. Two mutually exclusive proposals are under consideration for the next year. The details of the proposals are as under:

Particulars	Proposal No. 1	Proposal No. 2
Target Assets to Sales Ratio	0.65	0.62
Target Net Profit Margin (%)	4	5
Target Debt Equity Ratio (DER)	2:3	4:1
Target Retention Ratio (of Earnings) (%)	75	-
Annual Dividend (₹ In Lakhs)	-	0.30
New Equity Raised (₹ in Lakhs)	-	1

You are required to calculate sustainable growth rate for both the proposals.

(Exam November – 2020)

Solution:

Proposal I:

$$\begin{aligned} \text{ROE} &= 4 \times \frac{1}{0.65} \times \frac{5}{3} \\ &= 10.26\% \end{aligned}$$

$$\begin{aligned}g &= b \times r \\&= 0.75 \times 0.1026 \\&= 0.0770 \\&= 7.70\%\end{aligned}$$

Proposal II:

$$\begin{aligned}\text{ROE} &= 5 \times \frac{1}{0.65} \times \frac{5}{1} \\&= 40.32\%\end{aligned}$$

$$\text{Target Equity} = 12 + 1 = 13 \text{ lakh}$$

$$\text{Debt} = 13 \times 4 = 52 \text{ lakh}$$

$$\text{Total Asset} = 13 \text{ lakh} + 52 \text{ lakh} = 65 \text{ lakh}$$

$$\text{TA to Sales} = \frac{65}{0.62} = 104.84$$

$$\begin{aligned}\text{Net Profit} &= 104.84 \times 5\% \\&= 5.242\end{aligned}$$

$$\begin{aligned}b &= \frac{5.242 - 0.30}{5.242} \times 100 \\&= 0.943\end{aligned}$$

$$\begin{aligned}g &= 0.943 \times 0.4032 \\&= 38\%\end{aligned}$$