

CA FINAL (OLD SCHEME)
STRATEGIC FINANCIAL MANAGEMENT
DECEMBER 2021 EXAM PAPER – SUGGESTED ANSWERS

Question 1(a) [5 Marks]:

TXL Ltd., is expecting a price of Rs. 242 per share one year hence, if dividend is not declared. The price per share after one year will be Rs. 204 per share, if dividend is declared. The applicable price earnings ratio to the risk class, to which TXL Ltd., belongs to is 10. The company requires an investment of Rs. 1 Crore next year to meet its expansion plans. TXL Ltd., generated a net income of Rs. 1,07,40,000. The number of outstanding shares is 1,00,000. You are, as per Modigliani and Miller (MM) approach, required to calculate:

- The amount of proposed dividend.
- The current price per share
- The number of new equity shares to be issued, if TXL Ltd., declares the dividend.

Solution

Question (i):

	Rs.
Price of the share if dividends are not declared	242.00
Price of the share if dividends are declared	204.00
Amount of Proposed Dividend	38.00

Question (ii):

Current Price per share = PV of Future Cash Inflows

When Dividends are not declared:

$$P_0 = \frac{\text{Rs. } 242}{1.10} = \text{Rs. } 220$$

When Dividends are declared:

$$P_0 = \frac{\text{Rs. } 38 + \text{Rs. } 204}{1.10} = \text{Rs. } 220$$

Question (iii):

	Rs.
Funds required for expansion	1,00,00,000
<u>Funds that will be available:</u>	
Income generation	1,07,40,000
Less: Payment of Dividends (1,00,000 Shares X Rs. 38 per share)	38,00,000
Funds available	69,40,000
Amount of Funds to be mobilised by issue of Shares	30,60,000

If Dividends are declared, the price per share at the end of the year is expected to be Rs. 204.

$$\text{Hence, number of shares to be issued} = \frac{\text{Rs. } 30,60,000}{\text{Rs. } 204} = \mathbf{15,000 \text{ Shares}}$$

Question 1(b) [5 Marks]:

M/s Enterprise, an Asset Management Company (AMC), on 01.04.2016 has floated a scheme "Dividend Plan". Mr. X, an investor, has invested in the scheme. Dividend is given in the form of units. The details (except the issue price) are as follows:

Date	Dividend (%)	NAV (Rs.)
01.04.2016		?
31.03.2018	20	48
31.03.2019	25	50
31.03.2020	30	45
31.03.2021	-	49
Initial Investment	Rs. 18,40,000	
Average Profits over 5 years	Rs. 54,576	

You are required to calculate the issue price of the Scheme as on 01.04.2016 to ascertain the capital appreciation. Assume face value of units as Rs. 10.

Solution

Investment made: Rs 18,40,000

Average Profit i.e., Profit per annum = Rs. 54,576

Holding Period = 01.04.2016 to 31.03.2021 = 5 years

Total Profits = Rs. 54,576 X 5 = **Rs. 2,72,880**

So, Value of Units held at the time of sale on 31.03.2021 = Rs. 18,40,000 + Rs. 2,72,880
= **Rs. 21,12,880**

NAV per unit at the time of sale on 31.03.2021 = Rs. 49

Therefore, **number of units sold** = $\frac{\text{Rs. } 21,12,880}{\text{Rs. } 49} = \mathbf{43120}$

On 31.03.2020

on 31.03.2020, Dividend @ 30% was declared. That is, Dividend per unit of Rs. 3.00 (30% of face value of Rs. 10) was declared in lieu of which additional units were issued.

Let Number of units under the plan on 31.03.2020 before declaration of dividend be 'x'.

Then, Dividends were 3.00x

NAV per unit on 31.03.2020 was Rs. 45

Number of additional units issued on 31.03.2020 were $\frac{3.00x}{\text{Rs. } 45}$

$$\text{So, } x + \frac{3.00x}{\text{Rs. } 45} = 43120$$

$$\text{That is, } \frac{45x}{45} + \frac{3x}{45} = 43120 = \frac{48x}{45} = 43120$$

$$\text{Therefore, } x = \frac{43120 \times 45}{48} = \mathbf{40425 \text{ Units}}$$

So, Number of units under the scheme on 31.03.2020 (before issue of additional units) were 40425.

On 31.03.2019

on 31.03.2019, Dividend @ 25% was declared. That is, Dividend per unit of Re. 2.50 (25% of face value of Rs. 10) was declared in lieu of which additional units were issued.

Let Number of units under the plan on 31.03.2019 before declaration of dividend be 'x'.

Then, Dividends were 2.50x

NAV per unit on 31.03.2019 was Rs. 50

Number of additional units issued on 31.03.2019 were $\frac{2.50x}{Rs. 50}$

$$\text{So, } x + \frac{2.50x}{Rs. 50} = 40425$$

$$\text{That is, } \frac{50x}{50} + \frac{2.50x}{50} = 40425 = \frac{52.50x}{50} = 40425$$

$$\text{Therefore, } x = \frac{40425 \times 50}{52.50} = \mathbf{38500 \text{ Units}}$$

So, Number of units under the scheme on 31.03.2019 (before issue of additional units) were 38500.

On 31.03.2018

on 31.03.2018, Dividend @ 20% was declared. That is, Dividend per unit of Re. 2.00 (20% of face value of Rs. 10) was declared in lieu of which additional units were issued.

Let Number of units under the plan on 31.03.2018 before declaration of dividend be 'x'.

Then, Dividends were 2.00x

NAV per unit on 31.03.2018 was Rs. 48

Number of additional units issued on 31.03.2018 were $\frac{2.00x}{Rs. 48}$

$$\text{So, } x + \frac{2.00x}{Rs. 48} = 38500$$

$$\text{That is, } \frac{48x}{48} + \frac{2.00x}{48} = 38500 = \frac{50x}{48} = 38500$$

$$\text{Therefore, } x = \frac{38500 \times 48}{50} = \mathbf{36960 \text{ Units}}$$

So, Number of units under the scheme on 31.03.2018 (before issue of additional units) were 36960.

Calculation of Issue Price on 01.04.2016

Date of issue of units under the Scheme was 01.04.2016.

From 01.04.2016 till 31.03.2018 there was no declaration of dividends and consequently there was no issue of additional units.

Hence, on 01.04.2016 **the number of units subscribed for was 36,960.**

Investment made was Rs. 18,40,000.

Therefore, Issue price under Dividend Plan was:

$$\frac{\text{Rs. } 18,40,000}{36,960 \text{ Units}} = \text{Rs. } 49.78$$

Question 1(c) [5 Marks]:

B International Ltd., (BIL) has purchased 5-year 15.28% convertible debentures on 01.04.2021. The convertible debentures will mature on 31.03.2026. Each debenture can be converted into 20 equity shares of face value of Re. 1 at any point of time but before its maturity. Debentures will be redeemed at Rs. 100 on maturity.

The required rate of return of BIL is 10% per annum on a 5-year security.

The Reputed, a consultant has projected the following price behaviour of the Shares:

Period		Price Range (Rs.)		
From	To	Passive	Most Likely	Optimistic
01.04.2021	31.12.2022	4.00	4.50	5.00
01.01.2023	30.06.2025	4.50	6.50	7.00
01.07.2025	31.03.2026	3.50	5.00	5.50

BIL, as a matter of policy, rounds up the amount.

You are required to calculate:

(a) the break-even price at which the debentures can be converted,

(b) the ideal period in which BIL shall convert and dispose-off the Shares.

Given:

$$\text{PVIF (10\%, 5)} = 0.6209$$

$$\text{PVIFA (10\%, 5)} = 3.7908$$

Solution

Question (a):

The Break-even price at which the debenture can be converted is its 'fair value' or 'intrinsic value'.

Fair value of the Debenture = [C x PV of Annuity of Re. 1 @ i% for n years] + [M x PV of Re. 1 @ i% at the end of nth year]

$$\text{So, Fair Value} = [\text{Rs. } 15.28 \times 3.7908] + [\text{Rs. } 100 \times 0.6209] = \text{Rs. } 120$$

One Debenture is convertible into 20 shares. So, Fair value per share is-

$$\frac{\text{Rs. } 120}{20} = \text{Rs. } 6 \text{ per share}$$

Question (b):

The ideal period for conversion of Debentures into shares is **between 01.01.2023 till 30.06.2025**, since the price of the share is likely to exceed the break-even price of Rs. 6.

Question 1(d) [5 Marks]:

X Limited proposes to acquire Y Limited. The relevant financial details of the two firms prior to the merger announcement are as follows:

Particulars	X Ltd.	Y Ltd.
Market price per share	Rs. 80	Rs. 40
No. of outstanding shares	10 Lakhs	5 Lakhs

The merger is expected to generate gains with a present value of Rs. 120 Lakhs. The X Ltd., will issue 1 share of it for 2 shares of Y Ltd.

You are required to find out the true cost of merger for X Ltd.

Solution

	X Ltd.	Y Ltd.
Market Price per share	Rs. 80	Rs. 40
Number of outstanding shares	10 lakhs	5 lakhs
Market Value (in Lakh Rs.)	800	200

Exchange Ratio is 1:2.

That is, 1 Shares of Acquiring Firm for every 2 Shares of Target Firm.

So, Number of Shares to be issued by Acquiring Firm to Target Company Shareholders =
 $\frac{1}{2} \times 5 \text{ Lakh} = \mathbf{2.50 \text{ Lakh}}$

For X Limited (Acquiring Firm)

$$\text{Benefit} = V_{AT} - (V_A + V_T)$$

Benefit = Rs. 120 Lakhs (given)

So,

$$\begin{aligned} V_{AT} &= (V_A + V_T) + \text{Benefit} \\ &= \text{Rs. } 800 \text{ Lakhs} + \text{Rs. } 200 \text{ Lakhs} + \text{Rs. } 120 \text{ Lakhs} \\ &= \mathbf{\text{Rs. } 1120 \text{ Lakhs}} \end{aligned}$$

$$\text{True Cost} = \alpha V_{AT} - V_T$$

In this case,

$$V_{AT} = \text{Rs. } 1120 \text{ Lakhs}$$

$$V_T = \text{Rs. } 200 \text{ Lakhs}$$

$$\begin{aligned} \alpha &= \text{Proportion of Combined entity Shares held by shareholders of Target Firm} \\ &= [2.50 \text{ Lakhs} / (10 \text{ Lakhs} + 2.50 \text{ Lakhs})] \\ &= 20\% \end{aligned}$$

So,

$$\begin{aligned} \text{True Cost} &= [20\% \times \text{Rs. } 1120 \text{ Lakhs}] - \text{Rs. } 200 \text{ Lakhs} \\ &= \text{Rs. } 224 \text{ Lakhs} - \text{Rs. } 200 \text{ Lakhs} \\ &= \mathbf{\text{Rs. } 24 \text{ Lakhs}} \end{aligned}$$

Question 2 (a) [12 Marks]:

XL Ltd., has issued callable 10% bonds with 30 years maturity. The issue size is Rs. 1 crore with a face value of Rs. 1000 per bond. The bonds have been issued at a discount of 1.2% on the face value of the bonds in the year 2011. The call option is available to XL Ltd., at the end of 10 years and 20 years from the time of issue of the bond. The flotation cost was Rs. 1,50,000.

In the year 2021 XL Ltd., has an opportunity to issue 8% bonds at par with 20 years maturity worth Rs. 1 crore with a face value of Rs. 1000 per bond. The old bonds will be retired with the proceeds of the proposed issue. The flotation cost of the present issue will be Rs. 3,00,000. There will be an overlapping interest for a period of three months during the course of the present issue.

Post tax cost of debt for XL Ltd., is 7% p.a.

The applicable tax bracket is 30%.

You are required to advise XL Ltd., whether it can proceed with the proposal.

Given: PVIFA(7%, 20) = 10.594

Solution

If the Existing Bonds are called back			
Benefits	Rs.	Costs	Rs.
PV of Savings in Interest (Rs. 1 Crores X 2% X 10.594)	2118800.00	PV of Tax Benefit Lost on account of Savings in Interest (Rs. 1 Crores X 2% X 30% X 10.594)	635640.00
PV of Tax Benefit on overlapping Interest (Rs. 250000 X 30%)	75000.00	Overlapping Interest (Rs. 1 Crores X 10% X 3/12)	250000.00
PV of Tax Savings on amortisation of flotation cost on new issue (Rs. 300000 / 20 X 30% X 10.594)	47673.00	Flotation cost on New issue	300000.00
Tax Benefit on unamortised discount and flotation cost on existing bonds, charged (Rs. 180000 X 30%)	54000.00	PV of Tax Benefit Lost on amortisation of flotation cost on existing bonds (Rs. 9000 X 30% X 10.594)	28603.80
	2295473.00		1214243.80
Net Benefit	1081229.20		

Note:

Unamortised Issue Cost On Existing Bonds	
Discount on issue	120000
Flotation Cost	<u>150000</u>
	270000
Maturity period	30
Amount amortised each year	9000

Years elapsed	10
Amount amortised till now	90000
Unamortised issue cost	180000

Advice: Since there is a net benefit of Rs. 10,81,229.20 on calling back existing bonds, it is advisable for XL Limited to issue 8% bonds and redeem the existing bonds.

Question 2 (b) [4 Marks]:

Fragrance Ltd., has reported a Net Operating Profit after Tax (NOPAT) to Capital Employed as 2.5% plus Weighted Average Cost of Capital (WACC) for the year 31st March 2021. Economic Value Added is Rs. 4 crores as on 31st March 2021.

You are required to calculate:

- (i) the amount of Capital Employed,
- (ii) NOPAT, if WACC is 10%.

Solution

Question (i):

Economic Value Added (EVA) = NOPAT – (WACC X Capital Employed)

In this case,

EVA = Rs. 4,00,00,000

NOPAT = (WACC + 2.5%) X Capital Employed

WACC = ?

Capital Employed = ?

On substitution,

Rs. 4,00,00,000 = (WACC + 2.5%) Capital Employed – (WACC X Capital Employed)

That is,

Rs. 4,00,00,000 = (WACC X Capital Employed) + (2.5% X Capital Employed) – (WACC X Capital Employed)

Hence,

Rs. 4,00,00,000 = 2.5% X Capital Employed

Therefore, Capital Employed = $\frac{\text{Rs. } 4,00,00,000}{2.5\%} = \frac{\text{Rs. } 4,00,00,000}{0.025} = \text{Rs. } 160,00,00,000$

Question (ii):

If WACC is 10%, then NOPAT = WACC + 2.5%.

So, NOPAT = 12.5% of Capital Employed

Capital Employed is Rs. 160,00,00,000

Therefore, NOPAT = 12.5% X Rs. 160,00,00,000 = **Rs. 20,00,00,000**

Question 3 (a) [10 Marks]:

Strong Ltd., (SL), an all equity financed, conglomerate is in need to borrow Rs. 2,000 crores to finance expansion of its core current operations. However, SL is susceptible to raise the amount from the market. The CFO has suggested for divesting one of the two non-prime units to reduce the overall borrowings from the market. The following data, after internal due diligence, has been placed for consideration of the Board:

(Rs. In crores)

Particulars	Unit 1	Unit 2
Reported Profit After Tax	147	140
Extra-ordinary Gains	16	8
Extra-ordinary Losses	20	12
Expected profit from the launch of the new product	56	12
Price Earnings Ratio	10	12.5
Corporate Tax Rate (%)	30	30

You are required to advise the Board on the following:

- The price at which the units can be divested,
- The unit which can be divested so as to minimize the borrowings from the market, and
- The amount of borrowing.

Solution

The unit which has higher value must be divested. Hence, it is necessary to find the value of each unit.

Question (i):

Problem gives information on PE Ratio. Hence, Earnings Capitalisation Method can be used for ascertaining the value (or Price) of each unit.

Value of the Firm = Value of Debt + Value of Preference + Value of Equity

$$\text{Value of Equity} = \text{Future Maintainable Profits} \times \frac{P}{E} \text{ Ratio}$$

Since the firm is an all-equity firm, value of equity itself represents 'value of the firm or value of the unit.'

Calculation of Future Maintainable Profits and Value of each Unit:

	Unit 1 Rs. in Crores	Unit 2 Rs. in Crores
Reported Profits After Tax	147.00	140.00
Add: Tax (30/70 X Profits After Tax)	63.00	60.00
Profits Before Tax	210.00	200.00
Less: Extraordinary Gain	(-) 16.00	(-) 8.00
Add: Extraordinary Losses	20.00	12.00
Add: Profits from launch of New Product	56.00	12.00
Adjusted Profits before Tax	270.00	216.00
Less: Tax @ 30%	81.00	64.80
Future Maintainable Profits	189.00	151.20

	Unit 1	Unit 2
Future Maintainable Profits (in Crore Rs.)	189.00	151.20
Price-Earnings Ratio	10	12.5
Value or Price of the Unit (in Crore Rs.)	1890.00	1890.00

Question (ii):

Both the units have the same value. However, the Price-earnings ratio are different. The Price-earnings ratio of Unit 1 is relatively lower and hence it would be advisable to consider divesting Unit 1.

Question (iii):

Funds required for expansion: Rs. 2000 Crores

Amount that can be realised from divestment of Unit 1: Rs. 1890 Crores

Hence, the amount to be borrowed = Rs. 2000 Crores (-) Rs. 1890 Crores = **RS. 110 Crores.**

Question 3 (b) [6 Marks]:

A Future contract on BSE Index with 4 months maturity is used to hedge the value of the portfolio over the next 3 months. One future contract for delivery is 50 times of the index.

The following information is available:

Value of the portfolio	Rs. 1,16,00,000
BSE Sensex on 1 st January 2022 (anticipated on 1 st September 2021)	58580
BSE Sensex on 1 st January 2022 (anticipated on 1 st December 2021)	56641.25
Dividend yield of Index	6% p.a.
181 days' treasury bills offers a rate of interest	9% p.a.
Beta of the portfolio	1.5

You are required to calculate:

- The present value of the Sensex as on 1st September 2021.
- Turned out value of the Sensex as on 1st December 2021.
- The number of contracts to hedge the portfolio.

Solution

Question (i):

$$F = S_0 \times e^{(r-y)t}$$

F = Future Value = 58580

S₀ = Spot Value = ?

r = risk-free rate of interest = 9%

y = dividend yield = 6%

t = number of years = 0.33 years

(i.e., 4 months from 1st September 2021 till 1st January 2022)

$$e^{(r-y)t} = e^{(0.09 - 0.06)4/12} = e^{0.01} = 1.01005$$

So,

$$58580 = S_0 \times e^{(0.09 - 0.06)4/12}$$

$$58580 = S_0 \times 1.01005$$

$$S_0, S_0 = \frac{58580}{1.01005} = \mathbf{57997}$$

Therefore, the value of Sensex on 1st September 2021 is 57997

Question (ii):

$$F = S_0 \times e^{(r-y)t}$$

F = Future Value = 56641.25

S₀ = Spot Value = ?

r = risk-free rate of interest = 9%

y = dividend yield = 6%

t = number of years = $\frac{1}{12}$ years

(i.e., 1 months from 1st December 2021 till 1st January 2022)

$$e^{(r-y)t} = e^{(0.09 - 0.06)1/12} = e^{0.0025} = 1.0025$$

S₀,

$$56641.25 = S_0 \times e^{(0.09 - 0.06)1/12}$$

$$56641.25 = S_0 \times 1.0025$$

$$S_0, S_0 = \frac{56641.25}{1.0025} = \mathbf{56500}$$

Therefore, the turned-out value of Sensex on 1st December 2021 is 56500

Question (iii):

$$\begin{aligned} \text{Number of Index Future Contracts to be traded} &= \text{Portfolio Beta} \times \frac{\text{Value of Investment to be hedged}}{\text{Value of One Index Future Contract}} \\ &= 1.5 \times \frac{\text{Rs. } 1,16,00,000}{50 \times \text{Rs. } 58580} = \mathbf{5.94 \text{ or } 6 \text{ Contracts}} \end{aligned}$$



VITTAM PRAVINA GURUSHALA

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Question 4 (a) [8 Marks]:

Humata Ltd., a Japanese Corporation, has sold goods today to Peacock Ltd., an Indian company for an amount of JPY 74 Lakhs. The payment will be due in three months from the date of invoice. At today's spot rate, it is equivalent to INR 50 Lakhs. It is anticipated that the INR will decline by 10% over the 3-month period and in order to protect the yen payments, Peacock decides to take appropriate action in the foreign exchange market. The 3-month forward rate is presently quoted at JPY/INR 1.44

You are required to calculate:

- (i) The expected loss to the importer, and
- (ii) Impact of hedging by a forward contract.

Solution

$$(\text{Rs/Yen})_{\text{Spot}} = \text{Rs. } 50 \text{ Lakhs} / 74 \text{ Lakh Yen} = 0.6757$$

$$(\text{Yen/Re})_{\text{Spot}} = 74 \text{ Lakh Yen} / \text{Rs. } 50 \text{ Lakhs} = 1.4800$$

A decline in home currency will be detrimental to the interest of an importer. So, the decline in exchange rate of 10% is of home currency.

$$\text{So, } (\text{Yen/Re})_{\text{Future Spot}} = 1.4800 - 0.1480 = 1.332$$

$$\text{Therefore, } (\text{Rs/Yen})_{\text{Future Spot}} = \frac{1}{1.332} = 0.7508$$

Hence, when there is no hedging, the **transaction loss** to the importer would be:

$$(0.6757 - 0.7508) \times 74,00,000 \text{ Yen} = \text{Rs. } 5,55,740$$

If hedged with Forward:

$$\text{Forward Rate: } (\text{Yen/Re}) = 1.44$$

$$\text{So, Cash Outflows will be: } 74,00,000 \text{ Yen} \times \frac{1}{1.44} = \text{Rs. } 51,38,888.89$$

$$\text{So, Loss when hedged with Forward: Rs. } 50,00,000 - \text{Rs. } 51,38,888.89 = \text{Rs. } 1,38,888.89.$$

$$\text{Hedge Efficiency} = \frac{\text{Savings in Loss on account of hedging}}{\text{Loss when there is no hedge}}$$

$$= \frac{\text{Rs. } 5,55,740 - \text{Rs. } 1,38,888.89}{\text{Rs. } 5,55,740} \times 100 = 75\%$$

Question 4 (b) [8 Marks]:

There are two Mutual Funds viz., A and B each having close ended equity schemes. Net Asset Value (NAV) per unit as on 31st December 2020 of equity schemes of A is Rs. 80.10 (consisting 98% equity and remaining cash balance) and that of B is Rs. 64.60 (consisting 97% equity and balance in cash). Other information is as follows:

Particulars of Equity Schemes	A	B
Sharpe Ratio	2.50	3.20
Treynor Ratio	15	15
Standard Deviation	8.50	5.00

There is no change in portfolios during the next month and annual average cost is Rs. 3.00 per unit for the schemes for both the Mutual Funds. Assume 30 days in a month, and compute up to two decimal points only. You are required to calculate the expected NAV per unit after a month for the schemes for both the Mutual Funds, if the share market goes down by 4% within a month.

Solution

NAV on 31.12.2020 and break-up:

	A Mutual Fund		B Mutual Fund	
	Proportion	Per Unit	Proportion	Per Unit
Equity	98%	78.50	97%	62.66
Cash	2%	1.60	3%	1.94
NAV per unit		80.10		64.60

NAV After One-Month:

Average annual cost per unit for both the funds is Rs. 3.00.
So, average cost per month per unit is Rs. 0.25 (Rs. 3.00 / 12).

Hence, the cash balance per unit by the end of month will be:

D Mutual Fund: Rs. 1.60 – Rs. 0.25 = **Rs. 1.35**

K Mutual Fund: Rs. 1.94 – Rs. 0.25 = **Rs. 1.69**

The value of equity by the end of the month depends on the change in the market. The market is expected to fall by 4% in a month's time.

% Change in Market X Beta = % Change in Value of Equity

Hence, for ascertaining the value of equity, it is necessary to ascertain the Beta of the Equity in the Portfolio.

This can be ascertained with the help of Sharpe's and Treynor's measure given in the problem.

Sharpe's Measure: $\frac{R_p - R_f}{\sigma_p}$

Since Sharpe's Measure and Standard Deviation for the both the funds are available, (Rp-Rf) can be calculated by multiplying the Sharpe's measure with Standard Deviation.

That is, $(R_p - R_f) = \text{Sharpe's Measure} \times \text{Standard Deviation}$.

For A Mutual Fund: $(R_p - R_f) = 2.5 \times 8.5 = 21.25$

For B Mutual Fund: $(R_p - R_f) = 3.2 \times 5.0 = 16.00$

Treynor's Measure: $\frac{R_p - R_f}{\beta_p}$

For both the funds, Treynor's Measure and $(R_p - R_f)$ is known. Hence, Beta can be calculated by dividing $(R_p - R_f)$ with Treynor's Measure

That is, $\text{Beta} = (R_p - R_f) / \text{Treynor's Measure}$.

So,

For A Mutual Fund: $\text{Beta} = 21.25 / 15 = \mathbf{1.42}$

For B Mutual Fund: $\text{Beta} = 16.00 / 15 = \mathbf{1.07}$

Value of Equity under both the funds after one-month will be:

$\% \text{ Change in Market} \times \text{Beta} = \% \text{ Change in Value of Equity}$

For A Mutual Fund: $-4\% \times 1.42 = -5.68\%$

For B Mutual Fund: $-4\% \times 1.07 = -4.28\%$

So,

Equity Value under A Mutual Fund will be: $\text{Rs. } 78.50 - (5.68\% \text{ of Rs. } 78.50) = \mathbf{\text{Rs. } 74.04}$

Equity Value under B Mutual Fund will be: $\text{Rs. } 62.66 - (4.28\% \text{ of Rs. } 62.66) = \mathbf{\text{Rs. } 59.98}$

So, NAV per unit after One-month will be:

	Rs.	
	A Mutual Fund	B Mutual Fund
Equity	74.04	59.98
Cash	1.35	1.69
NAV per Unit	75.39	61.67

Question 5 (a) [8 Marks]:

XYZ Ltd., is considering to replace the existing computer system of their organisation. Original cost of the system was Rs. 2,50,000 and it was installed 5 years ago. Current market value of the old system is Rs. 50,000. The life of the old system is 10 years. Present cost of the new system is Rs. 5,00,000 with estimated salvage value of Rs. 10,000. The life of the new system is 5 years.

Estimated cost savings with the new computer system is Rs. 50,000 per year. Increase in sales with new system is assumed to be 10% per year based on original total sales of Rs. 10,00,000.

XYZ Ltd., follows straight-line method of depreciation. Cost of capital of the company is 12% whereas applicable income tax rate is 30%.

You are required to advise XYZ Ltd., on the acceptance of the replacement proposal.

Given $PVIF(12\%, 5) = 0.567$ and $PVIFA(12\%, 5) = 3.605$.

Solution

If the Existing System is replaced with the New System

1. Effective Cost of New System:

(a) Cost of the New System: Rs. 5,00,000.

(b) Amount realisable on sale of Old System: Rs. 50,000 (Market Value)

(c) Depreciation p.a. on the Existing system:

$$\frac{\text{Cost} - \text{Salvage}}{\text{Estimated Life}} = \frac{\text{Rs. } 2,50,000 - \text{Nil}}{10 \text{ Years}} = \text{Rs. } 25,000 \text{ p.a.}$$

(d) Depreciation on Existing System till date (for 5 years) = Rs. 25,000 X 5 = Rs. 1,25,000.

(e) Book value of Existing System at present: Rs. 2,50,000 (-) Rs. 1,25,000 = Rs. 1,25,000.

(f) If existing system is sold at the market value of Rs. 50,000, there will be a 'short-term capital loss' of Rs. 75,000 [i.e., Rs. 1,25,000 (-) Rs. 50,000].

(g) Tax Savings on 'Short-term Capital Loss' @ 30% is Rs. 22,500 [Rs. 75,000 X 30%]

(h) So, the effective cost of acquiring New System will be-

	Rs.
Cost for buying New System	5,00,000
Less:	
(a) Amount realisable on sale of existing system	(50,000)
(b) Tax savings on 'short-term capital loss' on sale of existing system	(22,500)
	4,27,500

2. Depreciation on the New System:

$$\frac{\text{Cost} - \text{Salvage}}{\text{Estimated Life}} = \frac{\text{Rs. } 5,00,000 - \text{Rs. } 10,000}{5 \text{ Years}} = \text{Rs. } 98,000 \text{ p.a.}$$

3. Incremental Cash inflows:

	Rs.
Increase in sale per annum (10% of Rs. 10,00,000)	1,00,000
Cost savings per annum (given)	50,000
	1,50,000
Less: Incremental cash operating costs per annum	Nil
Incremental EBITDA per annum	1,50,000
Less: Incremental Depreciation per annum [Rs. 98,000 (-) Rs. 25,000]	73,000
Incremental Taxable Profits per annum	77,000
Less: Tax @ 30%	23,100
Incremental NOPAT per annum	53,900
Add: Incremental Depreciation per annum	73,000
Incremental Cash Inflows per annum	1,26,900

4. Calculation of Net Present Value:

	Rs.
Present Value of Incremental Cash Inflows [Rs. 1,26,900 X 3.605]	4,57,474.50
Present Value of Salvage on the New system [Rs. 10,000 X 0.567]	5,670.00
	4,63,144.50
Less: Incremental Cash outflows	4,27,500.00
Incremental NPV	35,644.50

There will be an incremental NPV of Rs. 35,644.50 when the existing system is replaced with the new system. **Hence, it is advisable to replace the existing system.**

Question 5 (b) [8 Marks]:

Mr. Bright has purchased a residential flat for Rs. 36 Lakhs in the year 2019. He made a down payment of Rs. 12,88,500 from his own funds. He had taken a housing loan for the balance amount from Liberal Bank at the rate of 100 basis points over Bank's Prime Lending Rate (BPLR). The loan is repayable in equal annual installments (EAI) payable at the end of each year over a period of six years.

The BPLR in the year 2019 was 7% p.a.

The Liberal Bank, after due consideration and with an objective to desist the customers to migrate to other banks to take advantage of the falling interest rates, has decided to reduce the BPLR by 100 basis points in the year 2021.

Mr. Bright will also be one of the beneficiaries among other borrowers of the bank for the remaining period of 4 years.

Liberal bank rounds up all amounts and does not accept paisa

You are required to calculate

- The EAI payable from 2019 over a period of 6 years,
- The EAI payable from 2021 for the remaining period of 4 years after extending the benefit of reduction in BPLR and
- The last EAI, payable by Mr. Bright, if he continues to pay the original EAI (determined in 2019)

Given: PVIFA (8%, 6) 4.623

PVIFA (7%, 4) 3.387

Solution

Question (i):

- Loan amount borrowed: Rs. 36,00,000 (-) Rs. 12,88,500 = **Rs. 23,11,500**
- Rate of Interest at the time of borrowing: (BPLR 7% + Spread 1%) = 8%
- Period of Loan: 6 Years
- Equated Annual Installment:

$$\begin{aligned} \text{Equated Annual Installment} &= \frac{\text{Loan Amount}}{\text{PV of Annuity of Re.1 @ } i\% \text{ for } n \text{ years}} \\ &= \frac{\text{Rs. 23,11,500}}{\text{PV of Annuity of Re.1 @ 8\% for 6 years}} = \frac{\text{Rs. 23,11,500}}{4.623} = \text{Rs. 5,00,000} \end{aligned}$$

5. Loan Repayment Schedule:

Year	Loan (Principal) amount outstanding at the beginning of the year	Interest @ 8% p.a.	Total amount outstanding by the end of the year	Equated Annual Installment	Loan (Principal) Amount outstanding by the end of the year after payment of EAI
1	23,11,500	1,84,920	24,96,420	5,00,000	19,96,420
2	19,96,420	1,59,714	21,56,134	5,00,000	16,56,134
3	16,56,134	1,32,491	17,88,624	5,00,000	12,88,624
4	12,88,624	1,03,090	13,91,714	5,00,000	8,91,714
5	8,91,714	71,337	9,63,051	5,00,000	4,63,051
6	4,63,051	36,949*	5,00,000	5,00,000	0

*Interest for Year 6 is difference between 'EAI' and 'Balance of loan amount outstanding at the beginning of the year'.

Question (ii):

In case the BPLR is reduced by 100 basis points in 2021, the rate of interest on the housing loan will be (BPLR 6% + Spread 1%) = 7%.

1. The Loan amount outstanding by the end of two years from the original date of borrowing is Rs. 16,56,134.
2. Rate of Interest: 7% p.a.
3. Remaining period of Loan: 4 Years
4. Equated Annual Installment:

$$\begin{aligned}
 \text{Equated Annual Installment} &= \frac{\text{Loan Amount}}{\text{PV of Annuity of Re.1 @ } i\% \text{ for } n \text{ years}} \\
 &= \frac{\text{Rs. } 16,56,134}{\text{PV of Annuity of Re.1 @ } 7\% \text{ for } 4 \text{ years}} = \frac{\text{Rs. } 16,56,134}{3.387} = \text{Rs. } 4,88,968
 \end{aligned}$$

5. Loan Repayment Schedule:

Year	Loan (Principal) amount outstanding at the beginning of the year	Interest @ 7% p.a.	Total amount outstanding by the end of the year	Equated Annual Installment	Loan (Principal) Amount outstanding by the end of the year after payment of EAI
3	16,56,134	1,15,929	17,72,063	4,88,968	12,83,095
4	12,83,095	89,817	13,72,912	4,88,968	8,83,944
5	8,83,944	61,876	9,45,820	4,88,968	4,56,852
6	4,56,852	32,116	4,88,968	4,88,968	0

*Interest for Year 6 is difference between 'EAI' and 'Balance of loan amount outstanding at the beginning of the year'.

Question (iii):

In case Mr. Bright decides to pay the Equated Annual Installment calculated at the time of borrowing the loan, despite reduction in the interest rate, then-

Year	Loan (Principal) amount outstanding at the beginning of the year	Interest @ 7% p.a.	Total amount outstanding by the end of the year	Equated Annual Installment	Loan (Principal) Amount outstanding by the end of the year after payment of EAI
3	16,56,134	1,15,929	17,72,063	5,00,000	12,72,063
4	12,72,063	89,044	13,61,108	5,00,000	8,61,108
5	8,61,108	60,278	9,21,385	5,00,000	4,21,385
6	4,21,385	29,497	4,50,882		

So, the balance amount payable at the end of year 6 will be **Rs. 4,50,882**.

Question 6 (a) [8 Marks]:

DK Ltd., is considering an investment proposal in Sri Lanka involving an initial investment of LKR 25 billion. The current spot exchange rate is INR/LKR 0.37. The risk-free rate in India is 6% and the same in Sri Lanka is 5.02%. the project will generate a cash flow of LKR 5 billion in the first year. The cash flow will increase by LKR 1 billion each year for the next 4 years. The project will bind up on completion of 5 years with no salvage value. The required rate of return for the project is 8%.

- You are required to find out the investment worth of the project by
 - Home Currency Approach
 - Foreign Currency Approach
- Compare the outcome under both the approaches.

Given:

t	1	2	3	4	5
PVIF (8%, t)	0.92593	0.85734	0.79383	0.73503	0.68058
PVIF (7%, t)	0.93457	0.87344	0.81630	0.76290	0.71299

Solution

Home Currency Approach:

Cash Outflows: 25 billion LKR X Rs. 0.37 = **Rs. 9.25 billion**

Future Spot Rate per LKR in accordance with Interest Rate Parity Theory:

$$\frac{F}{S} = \frac{(1+rh)^t}{(1+rf)^t} \text{ or } F = \frac{(1+rh)^t}{(1+rf)^t} \times S$$

$$\text{Year 1: } F = \frac{(1.06)^1}{(1.0502)^1} \times \text{Rs. 0.37} = \text{Rs. 0.3735}$$

$$\text{Year 2: } F = \frac{(1.06)^2}{(1.0502)^2} \times \text{Rs. 0.37} = \text{Rs. 0.3769}$$

$$\text{Year 3: } F = \frac{(1.06)^3}{(1.0502)^3} \times \text{Rs. 0.37} = \text{Rs. 0.3805}$$

$$\text{Year 4: } F = \frac{(1.06)^4}{(1.0502)^4} \times \text{Rs. 0.37} = \text{Rs. 0.3840}$$

$$\text{Year 5: } F = \frac{(1.06)^5}{(1.0502)^5} \times \text{Rs. 0.37} = \text{Rs. 0.3876}$$

Year	Cash Inflows (in billion LKR)	Cash Inflows (in billion Rs.)	PV of Re.1 @ 8%	PV of Cash Inflows (in billion Rs.)
1	5.00	1.8675	0.92593	1.7292
2	6.00	2.2614	0.85734	1.9388
3	7.00	2.6635	0.79383	2.1144
4	8.00	3.0720	0.73503	2.2580
5	9.00	3.4884	0.68058	2.3741
				10.4145
Less: Cash Outflows				<u>9.2500</u>
Net Present Value			-	<u>1.1645</u>

Foreign Currency Approach:

Discount Rate for evaluation in home currency: 8%

$$(1+rf)(1+rp) = (1+\text{Expected Rate})$$

$$(1.06) (1+rp) = 1.08$$

$$\text{So, Risk-premium considered (rp)} = \frac{1.08}{1.06} - 1 = 0.0189 = 1.89\%$$

Discount Rate applicable for evaluation in Foreign Currency: $(1+rf) (1+rp) = (1+\text{Expected Rate})$

$$\text{So, Discount rate (Expected Return) to be considered is: } [(1.0502) (1.0189)] - 1 = 0.0700 = 7\%$$

Year	Cash Inflows (in billion LKR)	PV of Re.1 @ 7%	PV of Cash Inflows (in billion LKR)
1	5.00	0.93457	4.6729
2	6.00	0.87344	5.2406
3	7.00	0.81630	5.7141
4	8.00	0.76290	6.1032
5	9.00	0.71299	6.4169
			28.1477
Less: Cash Outflows			<u>25.0000</u>
Net Present Value			<u>3.1477</u>

So, Net Present Value (in Lakh Rs.) = 3.1477 billion LKR X Rs. 0.37 = **Rs. 1.1646 billion**

Question 6 (b) [8 Marks]:

LM, a lessor is engaged in the business of leasing equipment. The industry is highly competitive since there are large number of players. The lease rentals to be quoted by LM cannot have the margin of error. BL, a lessee proposes to lease machinery on dry lease basis from LM. The following are the details of the machinery:

Particulars	
Cost of machinery including installation charges and GST	Rs. 10,91,03,357.48
Useful life	5 years
Salvage value	10%
Rate of Depreciation (to be applied on WDV basis)	25%
Required rate of return	10%
Applicable Tax Rate	30%

You are required to calculate Break-even Lease Rental.

t	1	2	3	4	5
PVIF (10%, t)	0.9091	0.8264	0.7513	0.6830	0.6209

Solution

Effective Cost of Buying the Equipment
(1-Tax Rate)

$$\text{Break-even Lease Rental} = \frac{\text{Present Value of Annuity of Re.1 @ } i\% \text{ for } n \text{ years}}{(1-\text{Tax Rate})}$$

Calculation of Effective Cost of Buying the Equipment:

1. Cost of the Equipment: Rs. 10,91,03,357.48
2. Calculation of Tax Savings on account of Depreciation:

Year	Depreciation (25% of WDV)	Tax Savings on Depreciation @ 30%	PV of Re. 1 @ 10%	PV of Tax Savings
1	27275839.37	8182751.81	0.9091	7438939.67
2	20456879.53	6137063.86	0.8264	5071669.57
3	15342659.65	4602797.89	0.7513	3458082.06
4	11506994.73	3452098.42	0.6830	2357783.22
5	8630246.05	2589073.82	0.6209	1607555.93
	83212619.33		3.7907	19934030.45

3. Calculation of Tax savings/burden on Short-term Capital Gain or Loss:

	Rs.
Cost of the Machine	10,91,03,357.48
Less: Accumulated depreciation for 5 years	8,32,12,619.33
Book value of the machine at the end of 5 th year	2,58,90,738.15
Amount realisable on Salvage (10% of Cost of Machine)	1,09,10,335.75
Short-term Capital Gain	(-)1,49,80,402.40
Tax Savings on Short-term Capital Loss @ 30%	44,94,121
PV of Re. 1 @ 10% for 5 th Year	0.6209
PV of Tax Savings on Short-term Capital Loss	27,90,399.56

4. Calculation of Effective Cost of the Equipment

	Rs.
Cost of the Machine:	10,91,03,357.48
Less:	
PV of Tax Savings on account of Depreciation	(-) 1,99,34,030.45
PV of Tax Savings on account of Short-term Capital Loss	(-) 27,90,399.56
PV of Salvage (Rs. 1,09,10,335.75 X 0.6209)	(-) 67,74,227.47
Effective cost of the Machine	7,96,04,700.00

Calculation of Break-even Lease Rental:

Effective Cost of Buying the Equipment

$$\text{Break-even Lease Rental} = \frac{\text{Effective Cost of Buying the Equipment}}{(1 - \text{Tax Rate})} \div \text{Present Value of Annuity of Re.1 @ } i\% \text{ for } n \text{ years}$$

So,

$$\text{Break-even Lease Rental} = \frac{\text{Rs. } 7,96,04,700}{(1 - 0.30)} \div 3.7907 = \text{Rs. } 3,00,00,000$$

Question 7 (a) [4 Marks]:

The technique of optimizing cash flow movements and minimizing the total volume of inter-company fund flow with the combined efforts of the subsidiaries is the need of the hour. Discuss.

Answer

This statement is true to some extent, especially in case of MNCs. By optimizing cash flow movements with the combined efforts of the subsidiaries, there can be reduction in administrative costs and also transaction costs resulting from currency conversion.

A coordinated international inter-change of materials, finished products and parts among the different units of MNCs with subsidiaries buying/selling from/to each other is called 'Netting.' Netting helps in minimizing the total volume of inter-company fund flow.

The following are the advantages from Netting:

- (a) It reduces the number of cross-border transactions between subsidiaries thereby decreasing the overall administrative costs of such cash transfers.
- (b) It reduces the need for foreign exchange conversion and hence decreases transaction costs associated with foreign exchange conversion.
- (c) It improve cash flow forecasting since net cash transfers are made at the end of each period.
- (d) It gives an accurate report and settles account through coordinated efforts among all the subsidiaries.

Question 7 (b) [4 Marks]:

External Commercial Borrowings (ECBs) are becoming an important source of financing. Discuss briefly its different aspects.

Answer

External Commercial Borrowings (ECBs) include bank loans, supplier credit, securitized instruments, credit from export credit agencies and borrowings from multi-lateral financial institutions. These securitized instruments may be Floating Rate Note (FRN), Floating Rate Bonds (FRBs) etc. Indian companies are permitted to raise finance through External Commercial Borrowings within the framework of policies and procedures prescribed by the Central Government. Multi-lateral Financial Institutions like International Finance Corporation (IFC), Asian Development Bank (ADB), etc., are providing such facilities. While the ECB policy provides flexibility in borrowing, consistent with maintenance of prudential limits for total external borrowings, its guiding principles are to keep borrowing maturities long, costs low, and encourage infrastructure/core & export sector financing which are crucial to the overall growth of the economy.

The Government of India, from time-to-time changes guidelines and limits for which the ECB alternative as a source of finance is pursued by the corporate sector. During the past decade, government has streamlined the ECB policy and procedure for enabling Indian companies to have better access to international financial markets. The Government permits the ECB route for variety of purposes namely expansion of existing capacity as well as for fresh investment. But ECB can be raised through internationally recognised sources. There are caps and ceilings on ECBs so that macro economy goals are better achieved. Units in Special Economic Zones are permitted to use ECBs under a special window.

Question 7 (c) [4 Marks]:

Repo and a Reverse Repo are important tools in the hands of Reserve Bank of India to manage liquidity. Discuss.

Answer

'Repo' refers to 'Reverse Purchase Agreement' and 'Reverse Repo' refers to 'Reverse Repurchase Agreement.' 'Repo' and 'Reverse Repo' are transactions in money market which enables a participant in the market to raise funds by selling securities and simultaneously agreeing to repurchase the same after a specified period of time at a price which includes 'interest' for the specified period, at a pre-determined rate. The transaction is called as 'Repo' from the viewpoint of the person selling securities (i.e., raising funds) and 'Reverse Repo' from the viewpoint of the person providing/supplying funds.

Indian Repo market is governed, operated and monitored by the Reserve Bank of India. At present, Repo is permitted between 64 players against Central and State Government securities (including T-bills) at Mumbai.

Question 7 (d) [4 Marks]:

IPO through Stock Exchange On-line System (e-IPO) platform is becoming important in raising the capital from the market. What are the records to be maintained by various stake holders?

Answer

A company which proposes to raise capital from the public through the online system of stock-exchange for offer of securities has to comply with the additional requirements specified by SEBI. These guidelines are applicable to the fixed price issue as well as for the fixed price portion of the book-built issues. The issuing company would have the option to issue securities to the public either through the online system of stock exchange or the existing banking channel. For e-IPO, the company should enter into an agreement with the stock exchanges and the stock exchange/s would appoint SEBI registered stock brokers of the stock exchange to accept applications.

The brokers and other intermediaries are required to maintain records of

- (a) orders received
- (b) applications received
- (c) details of allocation and allotment
- (d) details of margin collected and refunded, and
- (e) details of refund of application money.

Question 7 (e) [4 Marks]:

Key Decisions are imperative in financial strategies. Discuss.

Answer

The key decisions falling within the scope of financial strategy include the following:

- (a) *Financing Decisions*: These decisions deal with the mode of financing or mix of equity capital and debt capital.

- (b) *Investment Decisions*: These decisions involve the profitable utilisation of firm's funds especially in long-term projects (capital projects), as well as in the day-to-day operations (working capital). These decisions are based on 'return' and 'risk'.
- (c) *Dividend Decisions*: This involves deciding about the appropriation of profits towards 'distribution to shareholders in the form of dividend' and 'retaining in the company for future growth.'
- (d) *Portfolio Decisions*: These decisions involve evaluation of investments based on their contribution to the aggregate performance of the entire corporation rather than on the isolated characteristics of the investments themselves.

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